N60234.AR.000072
NAS SAUFLEY FIELD
5090.3c

FINAL INVESTIGATION FOR MUNITION AND EXPLOSIVE OF CONCERN REPORT FOR BOMBING TARGETS NAS SAUFLEY FIELD FL

9/1/2014

TETRA TECH

Final
Investigation for Munitions and Explosives of Concern Report
at
Munitions Response Site
Saufley Field Practice Bombing Targets

Naval Air Station Pensacola
Pensacola, Florida

Naval Facilities Engineering Command Southeast

Contract Number N62470-08-D-1001
Contract Task Order JM57

September 2014

011309/P
Revision 0

FINAL
INVESTIGATION FOR MUNITIONS AND EXPLOSIVES OF CONCERN REPORT
AT
MUNITIONS RESPONSE SITE
SAUFLEY FIELD PRACTICE BOMBING TARGETS

NAVAL AIR STATION PENSACOLA
PENSACOLA, FLORIDA

Submitted to:
Naval Facilities Engineering Command Southeast
PO Box 30, Building 135
Jacksonville, Florida 32212

Submitted by:
Tetra Tech, Inc.
234 Mall Boulevard, Suite 260
King of Prussia PA 19406

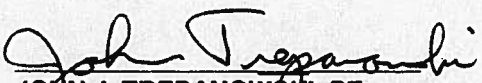
CONTRACT NO. N62470-08-D-1001
CONTRACT TASK ORDER JM57

SEPTEMBER 2014

PREPARED UNDER THE DIRECTION OF:

RALPH BASINSKI
PROJECT MANAGER
TETRA TECH
PITTSBURGH, PENNSYLVANIA

APPROVED FOR SUBMISSION BY:



JOHN J. TREPANOWSKI, PE
PROGRAM MANAGER
TETRA TECH
KING OF PRUSSIA, PENNSYLVANIA

TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

SECTION **PAGE NO.**

APPENDICES

FIGURES

NUMBER

ACRONYMS

ºF	Degrees Fahrenheit
AAR	After Action Report
amsl	Above mean sea-level
ASTDR	Agency for Toxic Substances and Disease Registry
bgs	Below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CLEAN	Comprehensive Long-Term Environmental Action Navy
CSM	Conceptual site model
CTO	Contract Task Order
DDESB	Department of Defense Explosive Safety Board
DERP	Defense Environmental Restoration Program
DGM	Digital geophysical mapping
DID	Data Item Description
DoD	Department of Defense
EHE	Explosive Hazard Evaluation
ESS	Explosives Safety Submission
EZ	Exclusion zone
FGS	Florida Geological Survey
FY	Fiscal Year
GMD	Growth Management Department
GPS	Global positioning system
HA	Hazard Assessment
HASP	Health and Safety Plan
HDOP	Horizontal dilution of precision
HFD	Hazardous fragmentation distance
INRMP	Integrated Natural Resources Management Plan
ISO	Industry standard object
IVS	Instrument verification strip
MC	Munitions constituents
MEC	Munitions and explosives of concern
MEC-HA	Munitions and Explosives of Concern Hazard Assessment
MGFD	Munition with greatest fragmentation distance
MPPEH	Material potentially presenting an explosive hazard

MRP	Munitions Response Program
MRS	Munitions Response Site
MRSPP	Munitions Response Prioritization Protocol
NAAS	Naval Auxiliary Air Station
NAD	North America Datum
NAS	Naval Air Station
NAVFAC	Naval Facilities Engineering Command
NAVSEA	Naval Sea Systems Command
Navy	U.S. Department of the Navy
NEESA	Naval Energy and Environmental Support Activity
NETPDTC	Naval Education and Training Program Development Center
NETPMSA	Naval Educational and Training Program Management Support Activity
NFA	No Further Action
NFWMD	Northwest Florida Water Management District
NOSSA	Navy Ordnance Safety and Security Activity
NOSSAINST	Navy Ordnance Safety and Security Activity Instruction
NTTC	Naval Technical Training Center
OE	Ordnance and Explosives
OLF	Outlying Landing Field
PA	Preliminary Assessment
PWC	Public Works Center
QA	Quality assurance
QC	Quality control
RI	Remedial Investigation
SAR	Site Assessment Report
SARA	Superfund Amendments and Reauthorization Act
SI	Site Inspection
SOP	Standard operating procedure
SUXOS	Senior Unexploded Ordnance Supervisor
Tetra Tech	Tetra Tech, Inc.
TP	Technical Paper
UFP-SAP	Uniform Federal Policy – Sampling and Analysis Plan
U.S.	United States
USACE	U.S. Army Corps of Engineers
U.S.C.	U.S. Code
USDA	U.S. Department of Agriculture

USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey
UXO	Unexploded Ordnance
UXOQCS	UXO Quality Control Specialist
VSP	Visual Sampling Plan

EXECUTIVE SUMMARY

Tetra Tech, Inc. (Tetra Tech) was retained by the U.S. Department of Navy (Navy) and funded by Naval Facilities Engineering Command (NAVFAC) Southeast to perform a Remedial Investigation (RI) at the Bombing Targets Munitions Response Site (MRS) at Saufley Field, which is an Outlying Landing Field (OLF) for Naval Air Station (NAS) Pensacola, Pensacola, Florida. The work was conducted under Contract Task Order (CTO) JM57of the Comprehensive Long-Term Environmental Action Navy (CLEAN) Contract No. N62470-08-D-1001. This report describes the RI activities, results, and associated recommendations to assess munitions and explosives of concern (MEC) at the Saufley Field Bombing Targets MRS.

The Saufley Field Bombing Targets MRS is a 91.6-acre site, with its center located directly north of the intersection of Runway 14 and Runway 23 at Saufley Field. The site consists of two bombing targets that were denoted on historical maps dated 1943 and 1946 through 1949. The site is in the northern portion of the airfield, and includes parts of Runways 14 and 23. No additional archival records or references to the Bombing Targets have been found that would indicate the exact period during which the bombing range was operational, the specific munitions used, or site construction details. However, due to the site's proximity to the airfield runways, it is believed that the targets were used for practice bombs only.

A RI was performed at the subject MRS to determine whether the geophysical anomalies identified during the 2010 Site Inspection (SI) (Tetra Tech, [2010] were caused by munitions-related items and, if so, whether an explosives hazard exists due to the presence of MEC. Field activities for this RI were conducted over the course of approximately one week, beginning June 24, 2012 (mobilization) and ending June 30, 2012 (demobilization).

Geophysical data collected during the 2010 SI were used as the basis for selecting locations for intrusive investigation under the RI. The SI geophysical survey was completed along parallel transects spaced 10 feet apart, resulting in survey coverage of approximately 50 percent in the investigated area. The SI identified 199 metallic anomalies, 16 small buried ferrous metallic items, and several larger areas of high anomaly density. During the RI, all of the areas of high anomaly density were investigated by means of mechanical excavation (i.e., using a mini-excavator), but no munitions-related items were identified. Additionally, 68 discrete anomalies (51 moderate to large anomalies, and all 16 small anomalies) were investigated using manual techniques (i.e., shovel) to determine whether subsurface MEC or munitions potentially presenting explosive hazard (MPPEH) were present at those locations. No munitions-related

items were encountered, providing a 95 percent confidence level that 95 percent of the remaining anomalies identified during the SI are not MEC/MPPEH.

No munitions-related items were recovered during intrusive investigations of discrete target anomalies and areas of high anomaly density. The results of the RI confirm the conceptual site model (CSM) with respect to incomplete pathways for surface exposures because no munitions-related items have been found to date on the surface during either environmental investigations or routine vegetation management activities (e.g., mowing). Similarly, the results of the RI also indicate incomplete pathways for subsurface exposures to MEC/MPPEH because no items were found in the subsurface.

No munitions constituents (MC) sampling has been conducted at the Bombing Targets MRS because MC are not expected to be present in the types or quantities that could pose a potential risk. Practice bombs such as those likely to have been used at this MRS would have contained inert fillers such as water, sand and concrete but no high explosives. Spotting charges that may have been used would have contained small quantities (grams) of black powder composed of charcoal, sulfur and nitrates and red phosphorus. Sulfur would have decomposed to sulfates. Nitrates are soluble and would have dispersed. Phosphorus would have decomposed to phosphates. The area was also used for the disposal of sewage sludge, which also contains sulfates, nitrates and phosphates. In addition, because no munitions-related items have been encountered at the site to date, the potential presence of MC associated with practice bombs appears to be unlikely.

Because no data in the form of MEC/MPPEH items found on site during environmental investigations or specific historical information regarding munitions use or range operations is available for the Bombing Targets, there is not enough evidence to support the completion of a MEC Hazard Assessment (HA).

Based on the results of the MEC RI, as presented in this report, No Further Action (NFA) is recommended for the Saufley Field Bombing Targets MRS. Although this site is identified as a bombing range on historical maps and aerial photographs, the MEC remedial investigation has shown a total lack of physical evidence of munitions-related items recovered and there are no historical reports of munitions.

The results of the investigation were summarized in the After Action Report (AAR) that was submitted to the Naval Ordnance Safety and Security Activity (NOSSA). The AAR described the conclusion of the RI. NOSSA and the Department of Defense Explosive Safety Board (DDESB) have both approved the AAR. The approval letters and the final AAR are included as Appendix G of this report.

1.0 INTRODUCTION

1.1 PURPOSE OF REPORT

Tetra Tech, Inc. (Tetra Tech) was retained by the U.S. Department of Navy (Navy) and funded by Naval Facilities Engineering Command (NAVFAC) Southeast to perform a Remedial Investigation (RI) at the Bombing Targets Munitions Response Site (MRS) at Saufley Field, which is an Outlying Landing Field (OLF) for Naval Air Station (NAS) Pensacola, Pensacola, Florida (Figure 1-1). The work was conducted under Contract Task Order (CTO) JM57 of the Comprehensive Long-Term Environmental Action Navy (CLEAN) Contract No. N62470-08-D-1001. This report describes the RI activities, results, and associated recommendations to assess munitions and explosives of concern (MEC) at the Saufley Field Bombing Targets MRS.

1.2 SCOPE OF WORK

A Preliminary Assessment (PA) of the site was completed in August 2007 (Malcolm Pirnie, 2009), and a Site Inspection (SI) was completed in March 2010 (Tetra Tech, 2010). The PA identified the Saufley Field Bombing Targets MRS as requiring further investigation for the potential presence of MEC and, possibly, munitions constituents (MC). A subsurface digital geophysical survey conducted during the SI identified 215 subsurface anomalies potentially representing subsurface MEC or munitions potentially presenting explosive hazard (MPPEH). The SI did not identify any evidence of munitions or munitions-related debris on the surface. This RI was performed to intrusively investigate a statistical subsample of the SI anomalies to determine the physical source of the anomaly and, in particular, whether MEC/MPPEH was present in the subsurface. In addition, the RI includes an assessment of the explosive hazard that exists at the Saufley Field Bombing Targets MRS based on the findings of the intrusive investigation. The scope of fieldwork for this RI included intrusive investigations of subsurface anomalies to a maximum depth of 4 feet below ground surface (bgs) by hand, as well as mechanical investigation of several areas of high anomaly density, to a maximum depth of 4 feet bgs.

1.3 REGULATORY FRAMEWORK

The regulatory process for managing Navy Munitions Response Program (MRP) sites is guided by a complex set of federal, state, and local laws, as well as Department of Defense (DoD) and Navy regulations and guidance. The key legislation, policy, and guidance directing the program include, but are not limited to, the following:

Navy Munitions Response Program Guidance (2005), which states that munitions response will be conducted "in accordance with, the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 and the National Oil and Hazardous Substances Pollution Contingency Plan."

Management Guidance for the Defense Environmental Restoration Program (DERP) (DoD, 2001). The history of the DERP dates back to the Superfund Amendments and Reauthorization Act (SARA) of 1986. The scope of the DERP is defined in 10 U.S. Code (U.S.C.) 2701(b), which states the following:

> "Goals of the program shall include the following: (1) The identification, investigation, research and development, and cleanup of contamination from hazardous substances, and pollutants and contaminants. (2) Correction of other environmental damage (such as detection and disposal of unexploded ordnance) which creates an imminent and substantial endangerment to the public health or welfare or to the environment…"

The Fiscal Year (FY) 2002 National Defense Authorization Act (Sections 311 to 312) reinforced DoD's 2001 DERP Management Guidance by tasking the DoD to develop and maintain an inventory of defense sites that are known or suspected to contain MEC and MC. Section 311 requires DoD to develop a protocol for prioritizing defense sites for response activities in consultation with states and tribes. Section 312 requires DoD to create a separate program element to ensure that DoD can identify and track munitions response funding. The 2001 DERP Management Guidance and National Defense Authorization Act of FY 2002, as described here, established the basis for the MRP. The Navy baseline inventory of sites was completed in FY 2002 and was used to establish the sites and/or areas of concern where PAs were needed to further evaluate the potential for MEC and MC.

1.4 REPORT ORGANIZATION

The following information is contained in this document:

- Section 1.0 discusses the purpose of the report, presents a brief MRS description and RI scope information.
- Section 2.0 discusses the facility background and physical setting.
- Section 3.0 discusses the site-specific background and physical/environmental characteristics.

- Section 4.0 discusses the general MEC RI methodology.

- Section 5.0 discusses the investigation results, data quality review, hazard/risk assessment, updated conceptual site model, conclusions and recommendations.

- Section 6.0 presents the references used in preparation of this document.

The following appendices are included in this report and provide technical information compiled during the RI:

- Appendix A: MEC Field Forms
- Appendix B: QC Reports and Geophysical Field Forms
- Appendix C: VSP Anomaly Coordinates
- Appendix D: Dig Sheets
- Appendix E: Photographic Log
- Appendix F: MEC Data Usability Assessment
- Appendix G: Approval Letters and After Action Report

2.0 FACILITY BACKGROUND

2.1 HISTORY

NAS Pensacola was established in 1914 as the first U.S. NAS in the world upon entry of the U.S. into World War I. Saufley Field was commissioned as part of NAS Pensacola on August 26, 1940, and was named in honor of Lieutenant Richard Caswell Saufley, designated Naval Aviator No. 14, who lost his life in 1916 while attempting to set a flight endurance record. Saufley Field was originally home to an instrument flying school and was the base for the first primary training squadron. Saufley Field was commissioned as Naval Auxiliary Air Station (NAAS) Saufley Field in 1943, and gunnery instructors were assigned to provide fundamental gunnery instruction to pilots.

In 1960, the mission of NAAS Saufley Field was revised to provide support for training squadrons VT-1 and VT-5. NAAS Saufley was commissioned as NAS Saufley Field in 1968; however, the on-site training squadrons were decommissioned in late 1976, and the field was later decommissioned to OLF Saufley Field. In 1979, OLF Saufley Field was reactivated as a Naval Education and Training Program Development Center (NETPDTC), and the field's name was officially changed to NETPDTC Saufley in 1996. Its current mission is to support Training Air Wings 5 and 6 and to serve as home for several DoD and other U.S. government organizations as a joint use facility. The host tenant is the NETPDTC, and other tenants include the Defense Activity for Non-traditional Education Support, Defense Finance and Accounting Service Financial Systems Activity, Naval Reserve Center, and Bureau of Prisons.

2.2 LOCATION

NAS Pensacola is located in the northwest portion of the Florida Panhandle and 5 miles west of the city of Pensacola. Saufley Field is located approximately 10 miles north of NAS Pensacola in Escambia County. Figure 1-1 shows the general location of NAS Pensacola and Saufley Field.

2.3 CURRENT LAND USE AND ANTICIPATED FUTURE LAND USE

Saufley Field is an active Navy military installation. It is periodically used for practice landings and take-offs ("touch and go's") by training aircraft from other fields. Geographically separated from, but a tenant of NAS Pensacola, Saufley Field has evolved into a multi-functional, joint use facility. In addition to serving as an OLF in support of Training Air Wings 5 and 6, Saufley Field is home for several organizations that have moved in to take advantage of the facility's infrastructure.

The Federal Prison System operates and maintains a Level One minimum-security prison at Saufley Field for approximately 500 prisoners. The prisoners are used as a labor force to support various self-help programs at area bases under the management and control of a 100-person staff.

Saufley Field covers approximately 657 acres of land (plus 209 acres of undeveloped area, which are mostly wetlands). There are 63 buildings, providing approximately 600,000 square feet of building space for a population of more than 1,000 workers. The airfield has four runways, two of which are currently active. In addition, there are three aircraft hangars (one of which is used by the Federal Prison Camp) that provide more than 34,000 square feet of hangar space.

No changes in the current land use designation are expected in the foreseeable future for Saufley Field in general, or for the Bombing Targets site specifically.

3.0 BACKGROUND AND PHYSICAL/ENVIRONMENTAL CHARACTERISTICS

This section contains both general regional and site-specific information relative to the environmental setting at the Saufley Field Bombing Targets site. The physical setting of the site was documented in the PA Report (Malcolm Pirnie, 2009). This document is the source of information used for the historical and general site discussions that follow.

3.1 SITE BACKGROUND

3.1.1 Site Location and Description

The Saufley Field Bombing Targets MRS is a 91.6-acre site located in the northern portion of Saufley Field, directly north of the intersection of Runway 14 and Runway 23 (Figures 1-1 and 3-1). The Saufley Field Bombing Targets site, which is not listed in the Navy Range Inventory Database, was identified during reviews of documents, maps, and still photographs obtained from the National Archives during the 2007 PA (Malcolm Pirnie, 2009).

The subject site consists of two bombing targets that are depicted as two 200-foot diameter circles on historical maps dated 1943 and 1946 through 1949. The target circles are visible on aerial photographs dated 1943 and 1945. While the area comprising the Bombing Targets site appears disturbed in historical aerial photographs, no evidence of craters was observed in the photos or during the 2007 PA site walk (Malcolm Pirnie, 2009). The exact period during which the range was operational is unknown.

Based on current aerial photography, two unidentified structures and a densely wooded area are located a few hundred feet north of the target circles. No additional archival records or references to the Bombing Targets have been found that would indicate the specific munitions used or site construction details (Malcolm Pirnie, 2009). Because the Saufley Field Bombing Targets site is located in close proximity to the runways, it is suspected that munitions use may have been limited to inert practice bombs with spotting charges. The site is in the northern portion of the airfield, and includes parts of Runways 14 and 23. (Figure 3-1)

3.1.2 Munitions-Related Training, Storage, and Usage

Remnants of the target bombs dropped at the Saufley Field Bombing Targets site, if present, would be expected to be concentrated primarily within the target circles. The spotting charges associated with inert bombs qualify as MEC; however, there is no evidence indicating MEC are present on the surface of the

site based on previous investigations (Malcolm Pirnie, 2009; Tetra Tech, 2010). It is presumed that the site was utilized as a practice bombing range due to its proximity to the airfield. Practice bombs that would have been used at the site would have contained inert fillers such as water sand, and concrete but no high explosives. Spotting charges that may have been used would have contained small quantities (grams) of black powder composed of charcoal, sulfur and nitrates and red phosphorus. Sulfur would have decomposed to sulfates. Nitrates are soluble and would have dispersed. Phosphorus would have decomposed to phosphates.

3.1.3 Previous Investigations

In 2007, Malcolm Pirnie, Inc. performed a PA that included the Saufley Field Bombing Targets (Malcolm Pirnie, 2009). A visual survey was conducted, in which no evidence of craters, subsurface disturbance, or munitions-related items were observed. In addition, documents, maps, and still photographs were obtained from the National Archives during their investigation, but only minimal documentation was found that related to the Bombing Targets site. No subsurface investigation was performed within the 500-foot scoring circles during the PA; therefore, the Bombing Target site was considered suspect for MEC.

In March 2010, a SI was performed by Tetra Tech (Tetra Tech, 2010). The SI consisted of a digital geophysical mapping (DGM) survey along parallel transects spaced ten feet apart. Each transect was surveyed over an approximate 5-foot width across a 36-acre area of interest, which was centered on the bombing targets' scoring circles. The resulting survey coverage was approximately 50 percent of the investigation area. Two hundred and fifteen small discrete anomalies and five areas of high anomaly density were identified at locations throughout the area of interest based on the SI survey results. As expected, no munitions-related items were discovered on the surface during the SI, consistent with the fact that the entire site is regularly mowed and there have been no previously reported findings of MEC at the site. Figure 3-2 presents the results of the 2010 geophysical survey interpolated across the entire site. Figure 3-3 presents the interpretation of the geophysical survey showing all 215 discrete anomalies and 5 areas of high anomaly density.

3.1.4 Current Land Use and Anticipated Future Land Use

The Saufley Field runways are used periodically for practice landings and take-offs ("touch and go's") by training aircraft from other fields. No changes in the site's current land use designation are expected in the foreseeable future.

3.2 PHYSICAL/ENVIRONMENTAL CHARACTERISTICS

3.2.1 Climate

The climate at Saufley Field is humid sub-tropical and is characterized by short, mild winters and long, warm summers. The average monthly temperature in the wintertime is 54 degrees Fahrenheit (ºF), while the average monthly temperature in the summertime is 80ºF. The average annual temperature for NAS Pensacola is 68ºF (Naval Energy and Environmental Support Activity [NEESA], 1992). There is an average of nine freezes per year; however, temperatures in the area rarely fall below 15 to 20ºF. Winds are controlled by the Atlantic Bermuda High Pressure area and ocean-land heating differentials. Southerly winds from the Bermuda High warm the land during the summer days, resulting in amplified sea breezes. As land masses cool, the sea breeze reverses to a land breeze. The net effect is a clockwise rotation of surface wind every 24 hours during the summer season. During the winter season, the influence of the Bermuda High is negligible, and northerly winds prevail (NEESA, 1983).

The average annual precipitation is 62 inches or less, with the wettest month being July, which has an average precipitation of 7.2 inches, and the driest month being November, which has an average precipitation of 3.4 inches (NEESA, 1992). Snowfall rarely occurs, and hailstorms infrequently occur in very restricted areas. Rainfall is well-distributed, but peaks during the months of April through September when 55 percent of the annual rainfall occurs. Summer rain occurs in near-daily showers and thunderstorms over small areas, followed by broader areas of light rains in the winter. Infrequent rain events with moderate to high precipitation occur during the spring and fall seasons. Severe weather includes thunderstorms, tornadoes, tropical storms, and hurricanes. Hurricane season is June through November; however, the greatest frequency of hurricanes in the Gulf of Mexico occurs between August and October. The Florida Panhandle averages one hurricane every 17 years and is impacted by fringe effects of hurricanes every 5 years. Several recent hurricanes affected the Pensacola area - Hurricanes Erin and Opal in 1995, Hurricane Ivan in 2004, and Hurricanes Dennis and Katrina in 2005.

3.2.2 Site Topography

Saufley Field lies on a low ridge approximately 85 feet above mean sea level (amsl) (Figure 1-1). The ridge slopes gently downward to 25 feet amsl to the north of Eight Mile Creek, and to 10 feet amsl southward to the edge of Perdido Bay (Malcolm Pirnie, 2009). According to a 1998 Site Assessment Report (SAR) of Saufley Field, topography is level to gently sloping with less than 8 percent slope, with a few exceptions towards the northern boundary of the property (Navy Public Works Center [PWC], 1998).

3.2.3 Site Geology

Saufley Field is located in the Gulf Coastal Lowlands physiographic region, which is composed predominantly of unconsolidated sands, silts, and clays. Unconsolidated sands with minor amounts of clay and organics comprise the surface deposits in the region, which are underlain by undifferentiated terrace deposits and the Citronelle Formation of Pleistocene age [Florida Geological Survey (FGS), 1994]. These Pleistocene units are found at depths ranging from 50 feet to 55 feet bgs and are approximately 400 feet thick. The units consist of fine- to coarse-grained sand with lenses of clay and gravel. Underlying the undifferentiated terrace deposits and Citronelle Formation are Miocene coarse clastics composed of fossiliferous sands with lenses of gravel and clay, having a thickness of approximately 500 feet.

3.2.4 Site Soil and Vegetation Types

According to the 2004 Soil Survey for Escambia County, soils within the vicinity of Saufley Field and northeast of the field are generally well-drained sandy and loamy soils. The areas to the south, southwest, and northwest of the airfield are characterized by poorly-drained sandy soils and muck (Malcolm Pirnie, 2009).

Soils in the vicinity of the airfield and northeast of the field are generally well-drained sandy and loamy soils. The areas to the south, southwest, and northwest of the airfield are characterized by poorly drained sandy soils and muck. Surface sediments at Saufley Field have been classified with the Pickney Sand, Croatan and Pickney Soils, Poarch Sandy Loam, Grady Loam, Troup Sand, and Bonifay Loamy Sand soil complexes (Malcolm Pirnie, 2009).

Vegetation at Saufley Field includes unique longleaf and mixed pine forests, floodplain forests, swampy lowlands associated with Eleven Mile Creek and Eight Mile Creek, and more than 100 acres of wetlands (Growth Management Department [GMD], 2003). The developed portions of Saufley Field are vegetated with regularly mowed turf grass and landscaped areas. The Bombing Targets site is located primarily within the landscape of the airfield and is vegetated with regularly maintained turf grass (Figure 3-1). A small portion of the site, directly north of the airfield fence line, is vegetated with dense forestland.

3.2.5 Site Hydrology

Saufley Field is located in the Escambia River Basin on the west side of the river where the basin is characterized by long, fairly straight, parallel channels that trend southeastward, reminiscent of trellis drainage (NEESA, 1992). Surface drainage from the Bombing Targets site flows generally northward

towards the wetlands associated with Eight Mile Creek and Eleven Mile Creek. Eleven Mile Creek and Eight Mile Creek are located along the northern boundary of Saufley Field and drain southwest into Perdido Bay, which is located one mile southwest of Saufley Field (Figures 1-1 and 3-1). A 100-year floodplain follows each creek, but neither floodplain encroaches upon developed areas (NEESA, 1992). No surface water features are located at the Saufley Field Bombing Targets although ponds with surface areas less than 300 square meters have been observed in pits located east of the Saufley Field property line (Navy PWC, 1998).

3.2.6 Site Hydrogeology

No monitoring wells or groundwater information exists for the Bombing Targets site. According to the 2009 PA, the NAS Pensacola complex is directly underlain by the sand-and-gravel aquifer, which is primarily composed of fine- to coarse-grained sands and gravels with varying percentages of clay that form local semi-confining units (U.S. Geological Survey [USGS], 1990). Water in the aquifer is under unconfined conditions where the clay beds are thin or absent, and artesian conditions where such beds are thick. Recharge to the sand-and-gravel aquifer occurs from percolation and infiltration of local precipitation, which moves generally downward for primary discharge to streams, bays, sounds, or the coastlines. Because of surficial recharge to the aquifer, its susceptibility to contamination is high, particularly in the surficial zone.

In Florida, the sand-and-gravel aquifer is the primary source of water for Santa Rosa and Escambia counties. More than 99 percent of potable, agricultural, and industrial water in the region is obtained from the sand-and-gravel aquifer. The main source of potable water for Saufley Field is a well field located at Naval Technical Training Center (NTTC) Corry Station, which lies approximately 1.5 miles west of the city of Pensacola and 2.5 miles north of NAS Pensacola. The well withdraws water from the sand-and-gravel aquifer (Agency for Toxic Substances and Disease Registry [ATSDR], 2006). The sand-and-gravel aquifer extends from the ground surface (water table) to depths ranging from approximately 200 to 330 feet bgs (Northwest Florida Water Management District [NFWMD], 2001; ATSDR, 2006).

3.3 ECOLOGICAL SUMMARY

3.3.1 Endangered and Special Status Species

No threatened or endangered species are known to inhabit Saufley Field or the Bombing Targets site, specifically. The gopher tortoise (*Gopherus polyphemus*) and alligator snapping turtle (*Macroclemys temminckii*) are Species of Special Concern in the state of Florida, and the 2000 through 2010 INRMP reports that both species have been observed at Saufley Field. The gopher tortoise is found generally in

remnant sand dunes and pine plantations. The alligator snapping turtle is found generally in blackwater streams, which cover approximately 10.6 acres at Saufley Field (INRMP, 2001).

3.3.2 Wetlands

More than 100 acres of wetlands are present at Saufley Field, most of which are associated with the Eleven Mile Creek and Eight Mile Creek floodplains (GMD, 2003). At the Bombing Targets site, wetlands associated with the floodplains are located north of the site boundary.

3.3.3 Cultural and Natural Resources

No cultural resources have been identified at Saufley Field or the Bombing Target site. According to the *Final Integrated Cultural Resources Management Plan, NAS Pensacola* (HHM Inc., 2004), a Phase I archaeological survey was conducted on more than 200 undisturbed acres in 1996, and a limited reconnaissance was conducted in 2003. Neither study identified cultural resources at Saufley Field.

4.0 GENERAL METHODOLOGY

The approach for the MEC RI included intrusive investigations (both manual and mechanical) to determine whether geophysical anomalies identified during the 2010 SI were caused by MEC, MPPEH, or non-munitions-related debris. Manual dig locations were selected by applying the Visual Sample Plan (VSP) Software Version 6.0 model to select a statistically significant number of random anomalies, as necessary, to achieve a 95-percent confidence level in the investigation results. In addition, test pit trenching was conducted using a mini-excavator in the areas of high anomaly density. Step-out transects involving detector-aided surface surveys, DGM surveys, and intrusive investigations were planned in the event that MEC/MPPEH was recovered within 200 feet of the site boundary; however, no step-outs were required. Field activities were performed in accordance with the MEC RI Uniform Federal Policy-Sampling and Analysis Plan (UFP-SAP) (Tetra Tech, 2011).

4.1 SITE PREPARATION AND MOBILIZATION ACTIVITIES

Preliminary activities such as obtaining authorizations for site access and approvals to dig were completed in accordance with the MEC RI UFP-SAP (Tetra Tech, 2011). The field team members reviewed the approved MEC RI UFP-SAP, associated appendices, and Health and Safety Plan (HASP) prior to the start of project activities.

4.1.1 ESS Summary

An Explosives Safety Submission (ESS) was submitted to the Naval Ordnance Safety and Security Activity (NOSSA) and Department of Defense Explosive Safety Board (DDESB), in accordance with NOSSA Instruction (NOSSAINST) 8020.15C, Explosives Safety Review, Oversight, and Verification of Munitions Responses (NOSSA, 2011); and Naval Sea Systems Command (NAVSEA) OP 5 Revision 7 (NAVSEA, 2011). Field activities were conducted in accordance with the DDESB-approved ESS (Tetra Tech, 2012).

4.1.2 Permitting

Dig permits necessary to conduct the fieldwork under this RI were obtained from the Saufley Field Public Works Department. The approved dig permits are provided in Appendix A.

4.1.3 Mobilization

Tetra Tech Unexploded Ordnance (UXO) personnel mobilized to Saufley Field on June 24, 2012, to initiate the RI fieldwork. The Senior Unexploded Ordnance Supervisor (SUXOS) held a field team orientation meeting to ensure that personnel were familiar with the scope of field activities. Field activities are documented on the Daily MEC Activity Logs and Daily Safety Logs provided in Appendix A. The signed project personnel sign-off sheets are included in Appendix B.

4.1.4 Site Accessibility and Traffic Control

Saufley Field is a controlled area surrounded by perimeter fencing and accessible only through a locked access gate. An active exclusion zone (EZ) was established at the site prior to intrusive activities in accordance with ESS requirements because of the potential for encountering live, explosively configured munitions. The EZ was intended to keep non-essential personnel from being exposed to hazardous blast overpressure and fragments resulting from an unintentional detonation. The exclusion zone was based on the greater of the hazardous fragmentation distance (HFD), or the inhabited building (K40) distance for the identified munition with the greatest fragmentation distance (MGFD), in accordance with the project Fragmentation Data Review Form and guidance from DDESB Technical Paper (TP) 16. Once the source of each anomaly was determined and documented, excavations were backfilled prior to moving on to the next location. No excavations remained open after duty hours. Figure 4-1 presents the location of the primary site boundary, the various exclusion zones, and entry control points.

4.1.5 Utility Clearance

A utility clearance request was submitted to the Florida 1-Call system, and utilities were marked onsite for avoidance during intrusive activities. No encounters with subsurface utilities occurred during the performance of the RI.

4.1.6 Vegetation Management

Vegetation management was not necessary for performance of the RI because the survey area consisted of a grass field that is mowed regularly.

4.1.7 Magazine Placement

Site set-up included the receipt, placement, and grounding of two Type II explosive storage magazines on the access road west of the site (Figure 4-1). Magazines were received on June 25, 2012 and placed in

accordance with the DDESB approved ESS (Tetra Tech, 2012). The Type II magazines were installed by a licensed electrician in accordance with NAVSEA OP 5. No vegetation management was required for placement of the magazines.

4.2 MEC INVESTIGATION EQUIPMENT AND METHODOLOGY

4.2.1 2010 DGM Survey

The 2010 DGM survey completed during the SI was conducted using a Geometrics G-858G Magnetometer (self-oscillating, split-beam, cesium-vapor, non-radioactive device). This device collected data in a configuration that measured total magnetic field response from two horizontally-spaced sensors, mounted in front of the operator on an aluminum frame. Both sensors were connected to a single data acquisition unit worn around the operator's waist. Total magnetic field was derived as Earth's magnetic field plus or minus localized magnetic fields caused by ferrous objects large enough and near enough to the measuring sensors to be detected. The magnetic gradient was calculated as the difference in the magnetic field over a fixed distance.

The two magnetometer sensors were spaced horizontally about 3 feet apart. Because Earth's magnetic field affected both sensors in the same way, the difference in response between the sensors (horizontal gradient) was indicative of metal objects within a short distance of the sensors. Magnetometer readings from each sensor were collected 10 times per second to plot horizontal gradient data in real time on the acquisition unit display screen. Diurnal corrections were not necessary because potential diurnal effects would have affected both sensors equally; thus, when data from one sensor was subtracted from the other sensor in calculation of the horizontal magnetic gradient, these potential diurnal effects would have practically cancelled out each other.

4.2.2 VSP Modeling and Anomaly Selection

VSP Software Version 6.0 was used to determine the minimum number of anomalies to be investigated from the existing SI dataset to establish, with a high level of confidence, whether or not subsurface MEC was an issue. The VSP-recommended number of discrete dig locations (51 out of 199 moderate to large discrete anomalies) was necessary to ensure that the investigation findings could result in a 95 percent confidence level for the site that 95 percent of the remaining (i.e., unresolved) anomalies in the investigation area are not related to MEC. Once the required number of anomaly investigations was determined, simple random sampling was used to select which of the 199 discrete anomalies would be evaluated in the field.

VSP software was not used to determine the minimum number of hand digs for the 16 small anomalies. Because of the limited number of small anomalies identified during the SI, all 16 anomalies were investigated. VSP software also was not used to determine the specific excavation locations in the areas of high anomaly density, as test pits were excavated in the central portion of each of each area. A complete description of how the VSP software was used to select the number of subsurface investigations is provided in Worksheet 11, Section 11.1 Information Inputs, and Appendix C in the MEC RI UFP-SAP (Tetra Tech, 2011).

4.2.3 Anomaly Reacquisition

The Tetra Tech Geophysicist reacquired the discrete target anomalies and areas of high anomaly density from June 25 to June 27, 2012. A UXO Technician III was assigned to escort the Geophysicist and provide UXO safety support during anomaly reacquisition activities.

A Trimble GeoXH global positioning system (GPS) unit with sub-meter accuracy was used to find the location of each selected anomaly and mark it with a pin flag. The DGM survey equipment was used to reacquire each subsurface anomaly by starting at the pin flag and gradually expanding outward until the anomalous response had been detected. The pin flag was then moved to the precise location of the anomalous response. The Project Geophysicists reviewed the data in real time to ensure that the subsurface anomaly signature was similar to the response reported in the 2010 geophysical data.

The reacquisition was conducted using the same magnetometer system setup that was used during the 2010 SI DGM survey, as described in Section 4.2.1. The work was completed in accordance with the MEC RI UFP-SAP and associated standard operating procedures (SOPs) (Tetra Tech, 2011). As specified in the MEC RI UFP-SAP, the personnel who performed the geophysical reacquisition complied with the medical, training, experience, and educational requirements specified in the U.S. Army Corps of Engineers (USACE) Data Item Description (DID) Ordnance and Explosives (OE)-025.02 (2004), Chapter 29 Code of Federal Regulations 1910.120, and the project-specific Accident Prevention Plan (APP)/Health and Safety Plan (HASP). Quality control (QC) documentation for the geophysical surveys generated for the project is provided in Appendix B of this report and includes QC test results, geophysical checklists, Daily QC Reports, and copies of the field notes.

4.2.4 Analog Detector-Aided Intrusive Investigations

UXO technicians conducted the intrusive investigations using analog detector-aided survey techniques to pinpoint the precise locations of subsurface anomalies reacquired by the DGM equipment. A Schonstedt

GA-52Cx magnetometer was used to guide the excavation at each anomaly location and screen the excavated soil to identify the source of the geophysical anomaly.

At the discrete anomaly dig locations, intrusive investigations were performed using manual digging (i.e., shovel) techniques. Excavations were dug to a maximum depth of 4 feet bgs by a dig team consisting of two certified UXO technicians. The areas of high anomaly density were investigated by digging test pits to a maximum depth of 4 feet bgs using mechanical digging techniques (i.e., a mini-excavator). At both types of dig locations, positional data (i.e., location coordinates of the anomaly source[s]) were collected using the GPS unit. The coordinates of each anomaly source are provided in Appendix C. In addition, dig sheets were completed to document the coordinates, size of excavation, and anomaly source(s) recovered at each discrete dig location and test pit. The dig sheets are provided in Appendix D.

4.2.5 Quality Assurance/Quality Control

The SUXOS and/or UXO Quality Control Specialist (UXOQCS) conducted QC surveillance of various project activities such as mobilization and site preparation, setup of the instrument verification strip (IVS), anomaly reacquire, and QC checks of anomaly excavations and blind seeding. Appendix B includes the field documentation of all QC activities (digital and analog).

4.2.5.1 Digital Geophysical QC

To ensure that high quality geophysical data were collected for the project, QC equipment and procedural activities were performed and evaluated according to the MEC RI UFP-SAP (Tetra Tech, 2011). These activities included: warm-up, calibrations, recording sensor positions, personnel test, static background and static spike test, pull-away test, and an IVS (discussed below). There were no QC issues noted for the DGM reacquisition survey. Appendix B includes additional field documentation of the digital geophysical QC. Blind seeds were not required for the QC checks for the digital geophysical equipment during the anomaly reacquisition.

4.2.5.2 Instrument Verification Strip Field Procedures and Results

An IVS was used to ensure that the detection instruments (digital and analog) were operating properly and able to identify anomalies in the shallow subsurface. Tetra Tech UXOQCS seeded the IVS with three surrogate items or industry standard objects (ISOs), as listed below, which are representative of the MEC items expected to be found on the site. These objects were buried 10 feet apart, in accordance with the MEC RI UFP-SAP (Tetra Tech, 2011), so that the detection abilities of each operator and respective

instrument could be tested. Documentation of the IVS installation and daily tests for both the analog and digital geophysical equipment are included in Appendix B. Photographs of the surrogate items used in the IVS and the installed IVS are included in Appendix E.

Item and Burial Depth	Burial Depth
Large ISO (4-inch-diameter 12-inch-long pipe)	24 inches
Medium ISO (2-inch-diameter 8-inch-long pipe)	12 inches
Medium ISO (2-inch-diameter 8-inch-long pipe)	8 inches

All field personnel performed the IVS survey; no equipment issues were noted by the UXOQCS for the Schonstedt GA-52Cx or by the Project Geophysicist for the Geometrics G-858G Magnetometer. Approval to begin survey work at the site was given by the UXOQCS upon observation of the UXO survey crew successfully performing a survey over the IVS. The IVS was disassembled at the completion of the RI. Figure 4-2 shows the location of the IVS in relation to the site. Figure 1 in Appendix B shows the results of the daily DGM IVS QC check.

4.2.5.3 Navigation Equipment Field Procedures and Results

A Trimble GeoXH with sub-meter accuracy was used to collect location data in North America Datum (NAD) 83 Florida State Plane coordinates in U.S. survey feet to provide precise location coordinates for each excavation. The GPS unit, which does not require calibration, was set up according to manufacturers' recommendations, and operator performance was tested at specified intervals (at the start of the project, once at the beginning of each day, and once towards the end of each day) to determine whether acceptance criteria specified in the MEC RI UFP-SAP were met. All appropriate acceptance criteria were met for this project in accordance with MRP SOP 05, which is provided in the MEC RI UFP-SAP (Tetra Tech, 2011).

The GPS unit was tested by acquiring several survey control points and comparing the GPS coordinates to the documented coordinates for the control points. GPS survey instruments were also closely monitored during field acquisition by using horizontal dilution of precision (HDOP) criteria, or at a minimum, documenting the number of satellite signals being received. If GPS accuracy was not sub-meter, data were not collected until more satellites were available and the minimum accuracy criteria were met. Figure 4-2 shows the location of the GPS QC points in relation to the Bombing Targets site.

4.2.5.4 Intrusive Investigation QC

To ensure completeness of the detector-aided investigations, one to six blind seeds were placed daily by the UXOQCS. Blind seeds were placed 0 to 2 feet bgs and within 2 feet of the target anomaly. Each blind seed identification number and location was recorded using the GPS. Upon the recovery of each blind seed, the UXO team recorded the seed identification number and location from the pin flag. Failure to discover a blind seed would have resulted in a QC failure leading to a corrective action, such as reinvestigating the anomaly locations completed since the last blind seed item was found. However, no failures or discrepancies were reported during the intrusive investigations. All blind seed items were recovered and recorded. In addition to blind seeding, the UXOQCS performed QC checks of 25 percent of each day's target anomaly excavations to ensure that all metallic debris 20 millimeter or larger was detected. No discrepancies were noted during the RI. All personnel performed the RI tasks safely, and passed the QC tests with acceptable results (Appendix B).

5.0 RI FINDINGS AND EVALUATION

The focus of the MEC RI was to identify the source of the geophysical anomalies and determine the resulting risk to receptors based on potential exposure to MEC/MPPEH. This section presents the findings of the MEC field activities and an evaluation of the results.

5.1 FIELD ACTIVITIES

Field activities for the MEC RI included the reacquisition and investigation of selected discrete anomalies and large areas of high anomaly density from among those identified during the 2010 SI. Specific activities completed at the Saufley Field Bombing Targets MRS during the MEC RI included the following:

- Selection and reacquisition of a statistically derived number of discrete SI anomalies and areas of high anomaly density, as necessary to meet the project objectives.

- Intrusive investigation of the selected discrete anomalies (by manual excavation) and areas of high anomaly density (by mechanical excavation), and documentation of the anomaly source(s).

5.1.1 Results of Anomaly Reacquisition

Two of the planned 67 discrete anomalies (51 moderate to large anomalies plus 16 small anomalies) selected for investigation were not able to be reacquired (SI Anomalies 12 and 191). No anomalous response was detected within 8 feet of the anomaly's coordinates for each of these two points. At both locations, coordinates where the reacquisition was attempted were compared to the original SI anomaly coordinates to confirm that the search had been conducted in the correct location. It is believed that, in these two locations, either aboveground metal not noticed during the SI was removed by others prior to the RI, or false positive DGM data was collected during the SI. False positive data may sometimes result from artificial spikes or "noise" in the magnetometer data. A total of three SI anomalies (SI Anomalies 48, 49, and 62) were chosen to replace the two "no-find" locations and to include an extra replacement anomaly to maintain the statistical strength of the findings in case any other no-finds were subsequently discovered during the remainder of the reacquisition process.

5.1.2 Results of Intrusive Investigation

The UXO team intrusively investigated 68 discrete anomalies (52 moderate to large anomalies plus 16 small anomalies) using manual techniques (i.e., shovel). Intrusive investigations using low input

mechanical techniques (i.e., a mini-excavator) to dig test pits were planned at two to three areas of high anomaly density; however, the field schedule allowed for all five areas of high anomaly density (A through E) to be investigated. Figure 5-1 depicts the location of all intrusively investigated discrete target anomalies and areas of high anomaly density.

The intrusive operations successfully classified the type and extent of debris present at each discrete dig location and test pit. The target anomaly excavations were completed to a maximum depth of 4 feet bgs using hand tools. The majority of sources causing the anomalies were identified within 2 feet of the ground surface.

No MEC/MPPEH or munitions debris were encountered during the investigation. Only non-munitions-related items were recovered, including approximately 200 pounds of ferrous and aluminum slag, scrap metal, nails, wire, steel cable, pin flags, concrete, a magnet, rebar, barrel ring, and construction debris. The debris was inspected onsite, segregated, and staged for disposal. Dig Sheets documenting each excavation are included in Appendix D. Photographs of the recovered items are provided in Appendix E.

5.1.3 Quality Assurance/Quality Control

The UXOQCS completed daily QC reports documenting QC activities performed during the MEC RI (provided in Appendix B). The UXOQCS conducted QC surveillance of various Supplemental RI activities such as: mobilization; vegetation management; IVS certification; GPS positional data collection; anomaly intrusive investigation; MEC/MPPEH inspection, certification, and disposal; intrusive investigations; and GPS QC checks. All of the activities met the QC requirements specified in the MEC RI UFP-SAP (Tetra Tech, 2011).

To ensure that all anomalies were resolved to-depth and that metallic debris 20 millimeter or larger was able to be discovered during the subsurface investigation, all excavations were resurveyed by the UXOQCS prior to closure. The Daily QC reports provided in Appendix B indicate that QC requirements were met with acceptable results for all intrusive investigations.

5.1.4 Deviations from Work Plan

The MEC RI activities conducted at Saufley Field were performed in accordance with the MEC RI UFP-SAP (Tetra Tech, 2011). No deviations were reported.

5.1.5 Data Quality Review

A qualified UXO survey team and Project Geophysicist conducted the anomaly reacquisition and detector-aided subsurface investigation. The data collected fulfilled the procedural, coverage, and accuracy requirements identified in the MEC RI UFP-SAP (Tetra Tech, 2011). Section 5.1.3 describes the quality assurance (QA)/QC activities conducted for this site. QA/QC documentation is included in Appendix B. All results have been verified, and the MEC Data Quality Review and Usability Checklist are included in Appendix F. The data collected during the Saufley Field Bombing Targets MEC RI has been deemed suitable for use in making regulatory decisions regarding the status and path-forward for this MRS.

5.1.6 Demolition of Donor Explosives

Demolition operations were performed on the final day of site operations in order to consume donor explosives that were procured at the beginning of RI operations in anticipation of treating MEC/MPPEH items. Because no MEC/MPPEH items were identified during the fieldwork, donor explosives were not needed. Unused explosives cannot be returned to the supplier; therefore, all donor charges were consumed during a final on site clean-up demolition shot.

5.2 CONCEPTUAL SITE MODEL

5.2.1 MEC

The initial CSM for the Saufley Field Bombing Targets site was developed based on historical maps and photographs presented in documents reviewed for the PA (Malcolm Pirnie, 2009). The CSM has been updated to incorporate the information obtained during the 2010 SI surface survey and the 2012 RI subsurface investigation. Based on the lack of physical evidence for munitions-related items produced during the PA, SI, and RI field activities, or during ongoing vegetation management activities, it has been concluded that MEC are not present at the surface of the site. Pathways of exposure to surface MEC are, therefore, incomplete for all receptors (Figure 5-2).

Results of the intrusive investigation indicate, at a 95 percent confidence level, that munitions-related items are not present in the subsurface of the site. A complete inspection of all subsurface anomalies identified was not performed; therefore, the potential still exists for subsurface munitions-related items to be present in the non-investigated areas. However, it appears unlikely that MEC are present in the subsurface at this MRS based on the statistical strength of the RI data set and that lack of MEC on the surface. Exposure pathways are potentially complete but unlikely for human receptors involved in

subsurface activities on site (e.g., base personnel, or contractors who may be involved with intrusive subsurface activities such as underground utilities maintenance or intrusive environmental investigations) or future residents. Trespassers and ecological receptors are not expected to participate in intrusive activities at the site; therefore, pathways to subsurface MEC are incomplete for these receptors (Figure 5-2).

5.2.2 MC

The purpose of the RI was to identify potential MEC/MPPEH and related hazards, which was intended to include exposure to MC. However, due to the lack of physical evidence for MEC/MPPEH contamination, a discussion of the potential, or lack of potential for MC contamination is warranted at this time. For MC, a complete or potentially complete exposure pathway must include the following components:

1) A source (e.g., locations where MC are expected to be found)
2) An exposure medium (e.g., surface soil)
3) An exposure route (e.g., dermal contact)
4) Receptors (e.g., Navy personnel, construction workers, recreational users, authorized visitors)

If the point of exposure is not at the same location as the source, the pathway may also include a release mechanism (e.g., erosion) and a transport medium (e.g., surface water).

The Saufley Field Bombing Targets are in close proximity to the end of a runway. Based on the PA (Malcolm Pirnie, 2009), practice bombs with inert fillers such as water, concrete and/or sand and possible spotting charges containing trace quantities of black powder and red phosphorous are the likely munitions used at this range. Potential MC would be expected in the area within the 500-foot scoring arcs where the majority of munitions would have landed. However, MC specifically related to spotting charges would have decomposed shortly after the practice bomb was dropped and are not expected to be persistent in a humid environment this long after range use. In addition, because no evidence of MEC/MPPEH or munitions-related debris have been found on site to-date, there is no apparent source of MC contamination.

If MC were suspected to be present, migration of MC from the Bombing Targets site would be suspected to occur naturally due to leaching soil erosion, surface runoff, infiltration, and leaching, or through plant/animal uptake. Human activities, including maintenance (e.g. mowing) and grading, would also be considered potential causes of MC release/migration, as would future construction, excavation, or other site work. The main source of potable water for Saufley Field is a well field located at NTTC Corry

Station. Currently, no activities are conducted at the Bombing Targets site that would result in potential contact with groundwater; therefore, exposure to MC in groundwater is not expected. The thick vegetation and high precipitation in the area minimizes the potential for wind dispersion of surface soil; therefore, airborne migration of contaminants is not expected. Without a contaminant source, the exposure pathways for all human and ecological receptors are considered incomplete (Figure 5-3).

5.3 HAZARD/RISK ASSESSMENT

Qualitative hazard/risk assessments are performed for munitions sites to assess the current explosive hazards to human receptors, in accordance with Munitions and Explosives of Concern Hazard Assessment (MEC-HA) Methodology (USEPA, 2010). The three risk factors that are evaluated in the MEC-HA are:

- **Severity** - The potential consequences of the effect (e.g., injury or death) on a human receptor should a MEC item detonate.
- **Accessibility** - The likelihood that a human receptor will be able to come in contact with a MEC item.
- **Sensitivity** - The likelihood that a MEC item will detonate if a human receptor interacts with it.

The MEC-HA methodology reflects the nature of explosive hazards and information contained in the CSM. If all three of the primary risk factors have been met at the MRS, a potential explosive safety risk is present. However, because no data in the form of MEC/MPPEH items found on site during environmental investigations or specific historical information regarding munitions use or range operations is available for the Bombing Targets, there is no evidence to support the completion of a MEC-HA.

5.4 RI CONCLUSIONS

This RI was performed to identify the classification and extent of MEC items that may present a hazard to human and ecological receptors at the Saufley Field Bombing Targets site. This was accomplished through the reacquisition and intrusive investigation of 68 discrete target anomalies and five areas of high anomaly density to a depth of 0 to 4 feet bgs.

No MEC, MPPEH, or munitions-related items were encountered during the investigation. Only non-munitions-related items were recovered. These findings are consistent with the results of the field observations and surface surveys conducted during the 2007 PA and 2010 SI, respectively. Areas under the runways were not investigated. However, construction of the runways would have required excavations to a depth of several feet and any munitions or munitions debris would have been removed

at that time. If the Saufley Practice Field Bombing Target were used it appears that a thorough removal action was conducted.

The results of the RI provide no evidence to support the existence of a past practice bombing range or to consider that exposure pathways to MEC or MC in surface or subsurface soil are complete for any receptors. To date, no MEC, MPPEH or munitions debris has been recovered on the ground surface or in the subsurface of the site. Although a 100-percent subsurface clearance of geophysical anomalies has not been completed, results of the RI indicate that no MEC/MPPEH are present at the Saufley Field Bombing Targets site.

5.5 RECOMMENDATIONS

The recommendation for the Saufley Field Bombing Targets site is to pursue a No Further Action (NFA) determination, based upon the results of PA, SI, and RI activities.

6.0 REFERENCES

ATSDR (Agency for Toxic Substances and Disease Registry), 2006. Public Health Assessment for Naval Air Station Pensacola, Pensacola, Florida.

DoD (Department of Defense), 2001. Management Guidance for the Defense Environmental Restoration Program (DERP). September.

DOD, 2007. Munitions Response Site Prioritization Protocol Primer. Office of the Deputy Under Secretary of Defense (Installations & Environment), Office of Environmental Management. April.

FGS (Florida Geological Survey), 1994. Florida's Geological History and Geological Resources, FGS Special Publication No. 35.

GMD (Growth Management Department), 2003. Escambia County Joint Land Use Study.

HHM Inc., 2004. Final Integrated Cultural Resources Management Plan, Naval Air Station Pensacola, Escambia County, Florida.

Malcolm Pirnie, Inc., 2009, Final Preliminary Assessment Saufley Field – Naval Air Station Pensacola. August.

NAVSEA (Naval Sea Systems Command), 2009. NAVSEA OP 5 Volume 1, 7th Revision, Change 8. Ammunition and Explosives Safety Ashore. September.

Navy (Department of the Navy), 2005. Navy Munitions Response Program Guidance. June.

Navy, 2011. Naval Ordnance Safety and Security Activity Instruction 8020.15C, Explosives Safety Review, Oversight, and Verification of Munitions Responses (U). February.

Navy PWC (Public Works Center). 1998. Site Assessment Report, Florida Department of Environmental Protection Registered Number 178628753, Saufley Field, Site 2406, Naval Education and Training Professional Development and Technical Center (NETPDTC) Pensacola, Florida.

NEESA (Naval Energy and Environmental Support Activity), 1983. Initial Assessment Study of Naval Air Station Pensacola, Pensacola, Florida.

NEESA. 1992. Preliminary Assessment Report, Naval Educational and Training Program Management Support Activity (NETPMSA) Saufley Field, Escambia County, Florida.

NFWMD (Northwest Florida Water Management District), 2001. Results of the ECUA Beulah Constant Rate Aquifer Test, Sand-and-Gravel Aquifer, Escambia County Florida.

Navy 2011. Explosive Safety Review, Oversight, and Verification of Munitions Responses OPNAVINST NOSSAINST 8020.15C. February 2011.

Tetra Tech (Tetra Tech, Inc.), 2010, Site Inspection Report for Munitions Response Program Site Inspections at 13 Sites, Naval Air Station Pensacola and Outlying Fields Bronson, Corry Station, and Saufley Field, Pensacola, Florida, September.

Tetra Tech, 2011. Sampling and Analysis Plan for Munitions Response Program. MEC Remedial Investigation at Munitions Response Site Saufley Field. Naval Air Station Pensacola. Pensacola, Florida. September.

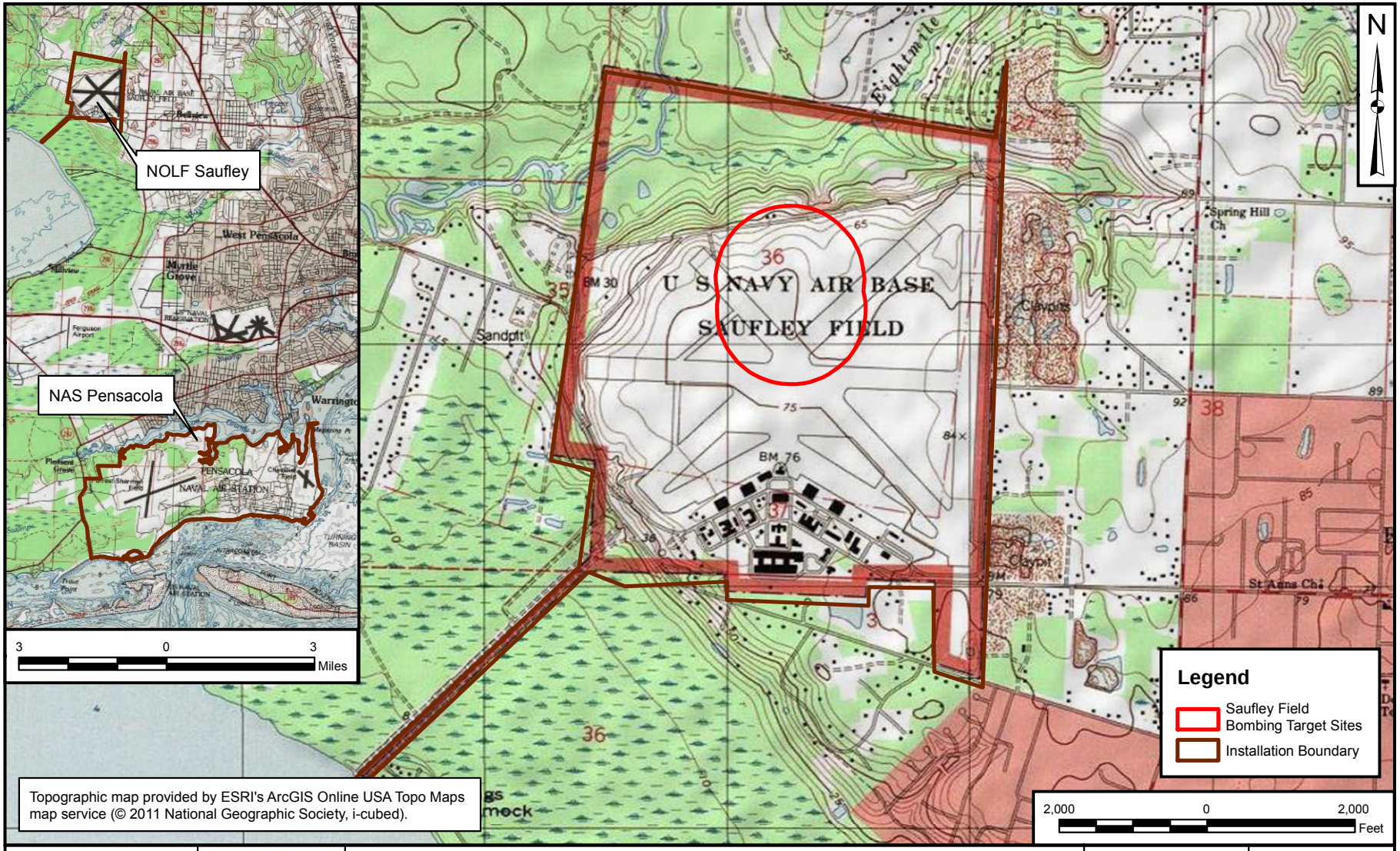
Tetra Tech, 2012. Explosives Safety Submission for Remedial Investigation for MEC at Munitions Response Site Saufley field – Naval Air Station Pensacola, Pensacola, Florida. March.

USEPA (U.S. Environmental Protection Agency), 2010. Munitions and Explosives of Concern Hazard Assessment Methodology, EPA 505B08001, February.

USGS (U.S. Geological Survey), 1990. Groundwater Atlas of the United *States: Alabama,* Florida, Georgia, and South Carolina, HA-730G.

FIGURES

PGH P:\GIS\PENSACOLA_NAS\MAPDOCS\MXD\SAUFLEY_LOCATION_MAP.MXD 01/25/13 JEE



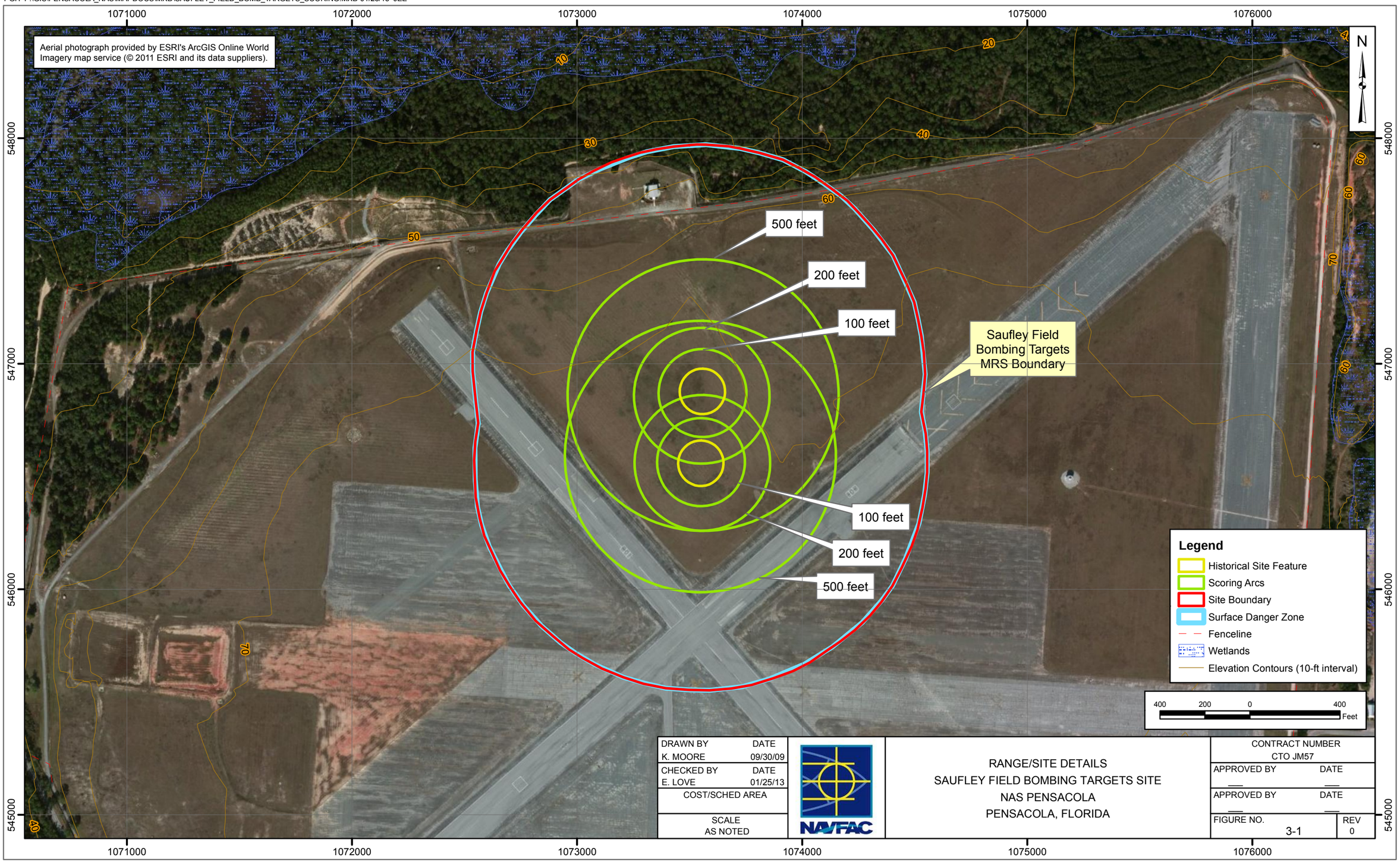
DRAWN BY	DATE
J. ENGLISH	06/17/11
CHECKED BY	DATE
E. LOVE	01/25/13
REVISED BY	DATE
J. ENGLISH	01/25/13
SCALE	
AS NOTED	

NAVFAC

SITE LOCATION MAP
SAUFLEY FIELD BOMBING TARGETS SITE
NAS PENSACOLA
PENSACOLA, FLORIDA

CONTRACT NUMBER	CTO NUMBER
3440	148
APPROVED BY	DATE
—	—
APPROVED BY	DATE
—	—
FIGURE NO.	REV
1-1	0

PGH P:\GIS\PENSACOLA_NAS\MAPDOCS\MXD\SAUFLEY_FIELD_BOMB_TARGETS_SCORING.MXD 01/25/13 JEE



DRAWN BY K. MOORE	DATE 09/30/09	RANGE/SITE DETAILS SAUFLEY FIELD BOMBING TARGETS SITE NAS PENSACOLA PENSACOLA, FLORIDA	CONTRACT NUMBER CTO JM57
CHECKED BY E. LOVE	DATE 01/25/13		APPROVED BY ___ DATE ___
COST/SCHED AREA			APPROVED BY ___ DATE ___
SCALE AS NOTED			FIGURE NO. 3-1 REV 0

PGH P:\GIS\PENSACOLA_NAS\MAPDOCS\MXD\SAUFLEY_FIELD_BOMB_TARGETS_GEOPHYSICS.MXD 01/25/13 JEE

1072000 1073000 1074000 1075000

548000

547000

546000

Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (© 2011 ESRI and its data suppliers).

N

Saufley Field Bombing Targets MRS Boundary

11 9 8 7 6 5 5 4 4 3 3 2 2 1 1 0 -0 -0 -1 -1 -2 -2 -2 -3 -3 -4 -4 -5 -5 -6 -6 -7 -7 -8 -9 -10 -11 -13

Horizontal Magnetic Gradient
(nanoteslas per meter)

Legend
Scoring Arc
Site Boundary

300 150 0 300 Feet

NOTE: Geometrics G-858G data shown.

DRAWN BY	DATE
K. MOORE	04/27/10
CHECKED BY	DATE
E. LOVE	01/25/13
COST/SCHED AREA	
SCALE	
AS NOTED	

NAVFAC

GEOPHYSICS RESULTS FROM
2010 SI COLOR CONTOUR MAP
SAUFLEY FIELD BOMBING TARGETS SITE
NAS PENSACOLA
PENSACOLA, FLORIDA

CONTRACT NUMBER	
CTO 148	
APPROVED BY	DATE
___	___
APPROVED BY	DATE
___	___
FIGURE NO. 3-2	REV 0

PGH P:\GIS\PENSACOLA_NAS\MAPDOCS\MXD\SAUFLEY_FIELD_BOMB_TARGETS_INTERP.MXD 01/25/13 JEE

1072000 1073000 1074000 1075000

548000 547000 546000

Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (© 2011 ESRI and its data suppliers).

N

Legend

- Buried Ferrous Metallic Items (with number identifier) 199 anomalies identified
- Small Buried Ferrous Metallic Items (with number identifier) 16 anomalies identified
- Concentration of Buried Ferrous Metallic Items (with letter identifier)
- Area of Anomalies Potentially Related to Utilities
- Possible Underground Utility
- Light/Light Fixture
- Utility Plate (Iron)
- Utility Cover (Iron)
- Metallic Post
- Metallic Post Hole
- Manhole
- Electrical Box
- Concrete Pad
- Runway Sign

11 9 8 7 6 5 5 4 4 3 3 2 2 1 1 0 -0 -0 -1 -1 -2 -2 -2 -3 -3 -4 -4 -5 -5 -6 -6 -7 -7 -8 -9 -10 -11 -13

Horizontal Magnetic Gradient
(nanoteslas per meter)

Saufley Field Bombing Targets MRS Boundary

Area of Anomalies Potentially Related to Utilities

Area of Anomalies Potentially Related to Utilities

Legend

- Scoring Arc
- Site Boundary

300 150 0 300 Feet

NOTE: Geometrics G-858G data shown.

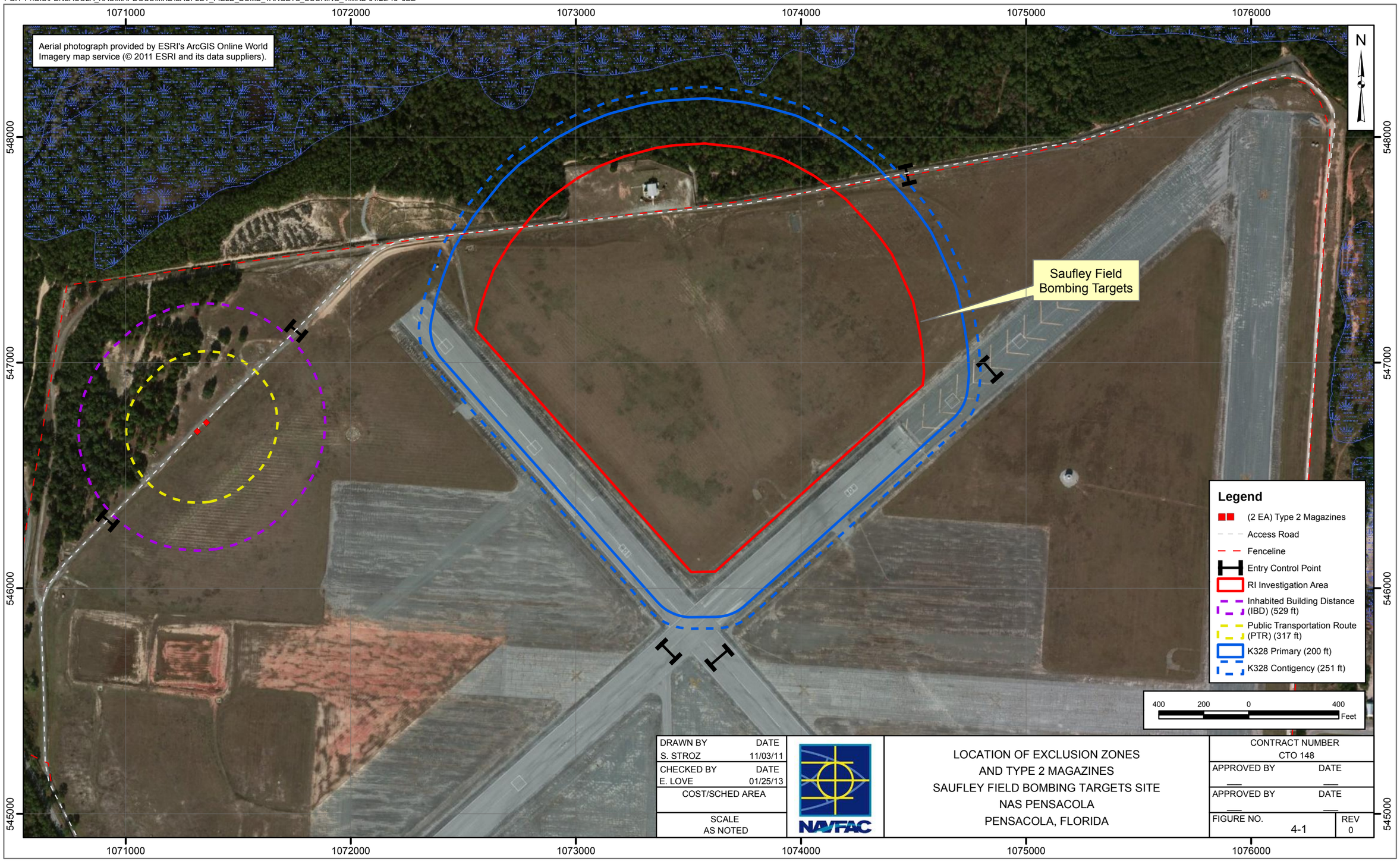
DRAWN BY K. MOORE	DATE 04/27/10
CHECKED BY E. LOVE	DATE 01/25/13
COST/SCHED AREA	
SCALE AS NOTED	

NAVFAC

2010 DGM INTERPRETATION MAP
HORIZONTAL MAGNETIC GRADIENT
SAUFLEY FIELD BOMBING TARGETS SITE
NAS PENSACOLA
PENSACOLA, FLORIDA

CONTRACT NUMBER CTO 148	
APPROVED BY ___	DATE ___
APPROVED BY ___	DATE ___
FIGURE NO. 3-3	REV 0

PGH P:\GIS\PENSACOLA_NAS\MAPDOCS\MXD\SAUFLEY_FIELD_BOMB_TARGETS_SCORING_1.MXD 01/25/13 JEE

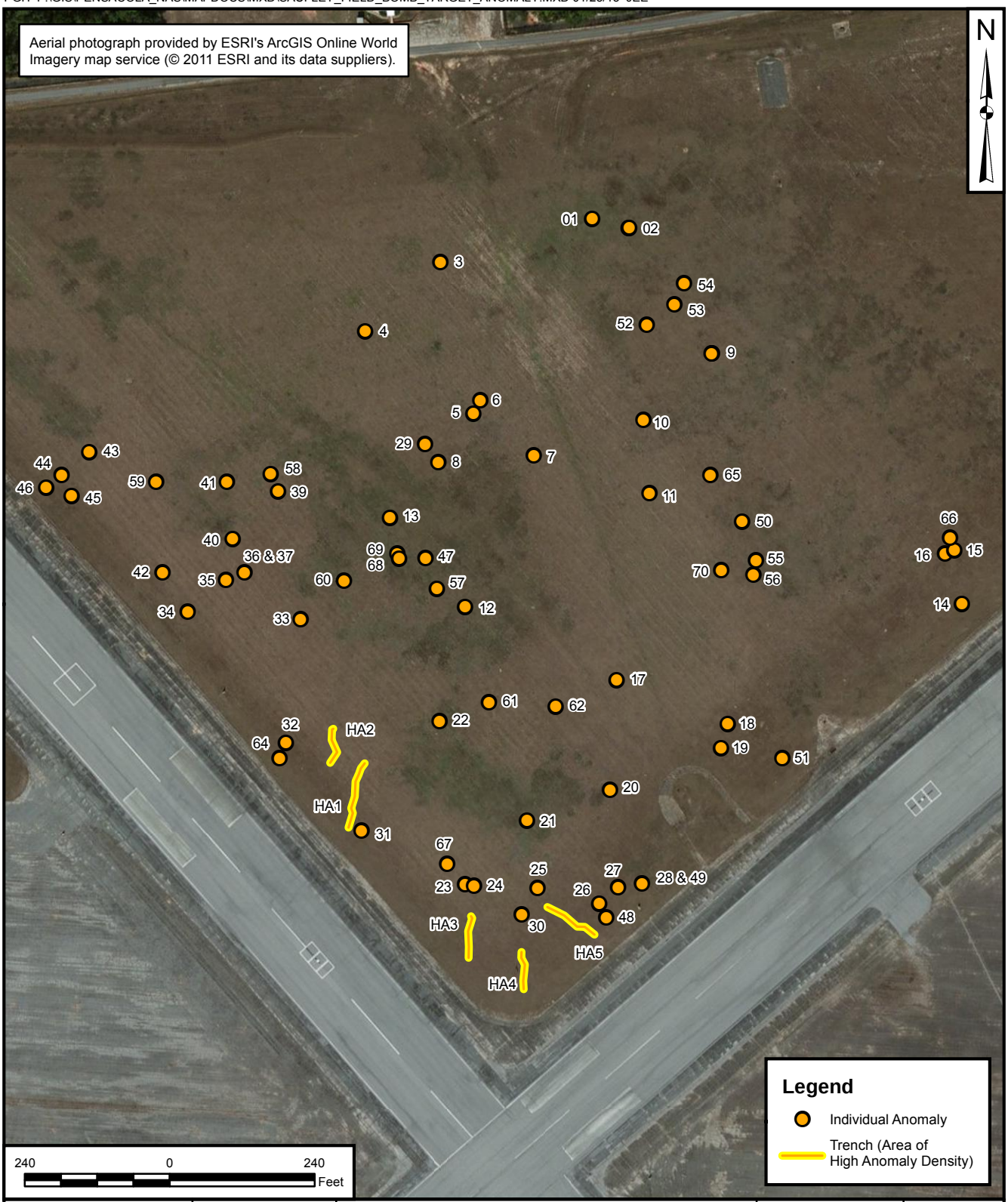


DRAWN BY S. STROZ	DATE 11/03/11	LOCATION OF EXCLUSION ZONES AND TYPE 2 MAGAZINES SAUFLEY FIELD BOMBING TARGETS SITE NAS PENSACOLA PENSACOLA, FLORIDA	CONTRACT NUMBER CTO 148
CHECKED BY E. LOVE	DATE 01/25/13		APPROVED BY — DATE —
COST/SCHED AREA			APPROVED BY — DATE —
SCALE AS NOTED			FIGURE NO. 4-1 REV 0

PGH P:\GIS\PENSACOLA_NAS\MAPDOCS\MXD\SAUFLEY_FIELD_NGS_LOCATIONS.MXD 01/25/13 JEE

DRAWN BY: J. ENGLISH	DATE: 06/17/11	IVS AND QC LOCATION MAP SAUFLEY FIELD BOMBING TARGETS SITE NAS PENSACOLA PENSACOLA, FLORIDA	CONTRACT NUMBER: 3440 / CTO NUMBER: 148
CHECKED BY: E. LOVE	DATE: 01/25/13		APPROVED BY: ___ / DATE: ___
REVISED BY: J. ENGLISH	DATE: 01/25/13		APPROVED BY: ___ / DATE: ___
SCALE: AS NOTED			FIGURE NO.: 4-2 / REV: 0

PGH P:\GIS\PENSACOLA_NAS\MAPDOCS\MXD\SAUFLEY_FIELD_BOMB_TARGET_ANOMALY.MXD 01/25/13 JEE



DRAWN BY: S. PAXTON	DATE: 08/13/12	INTRUSIVE INVESTIGATION SAUFLEY BOMBING TARGETS SITE NAS PENSACOLA PENSACOLA, FLORIDA	CONTRACT NUMBER: 3440 / CTO NUMBER: 148
CHECKED BY: E. LOVE	DATE: 01/25/13		APPROVED BY: ___ / DATE: ___
REVISED BY: J. ENGLISH	DATE: 01/25/13		APPROVED BY: ___ / DATE: ___
SCALE: AS NOTED			FIGURE NO.: 5-1 / REV: 0

FIGURE 5-2
MEC/MPPEH EXPOSURE PATHWAY ANALYSIS
SAUFLEY FIELD BOMBING TARGETS
NAS PENSACOLA
PENSACOLA, FLORIDA

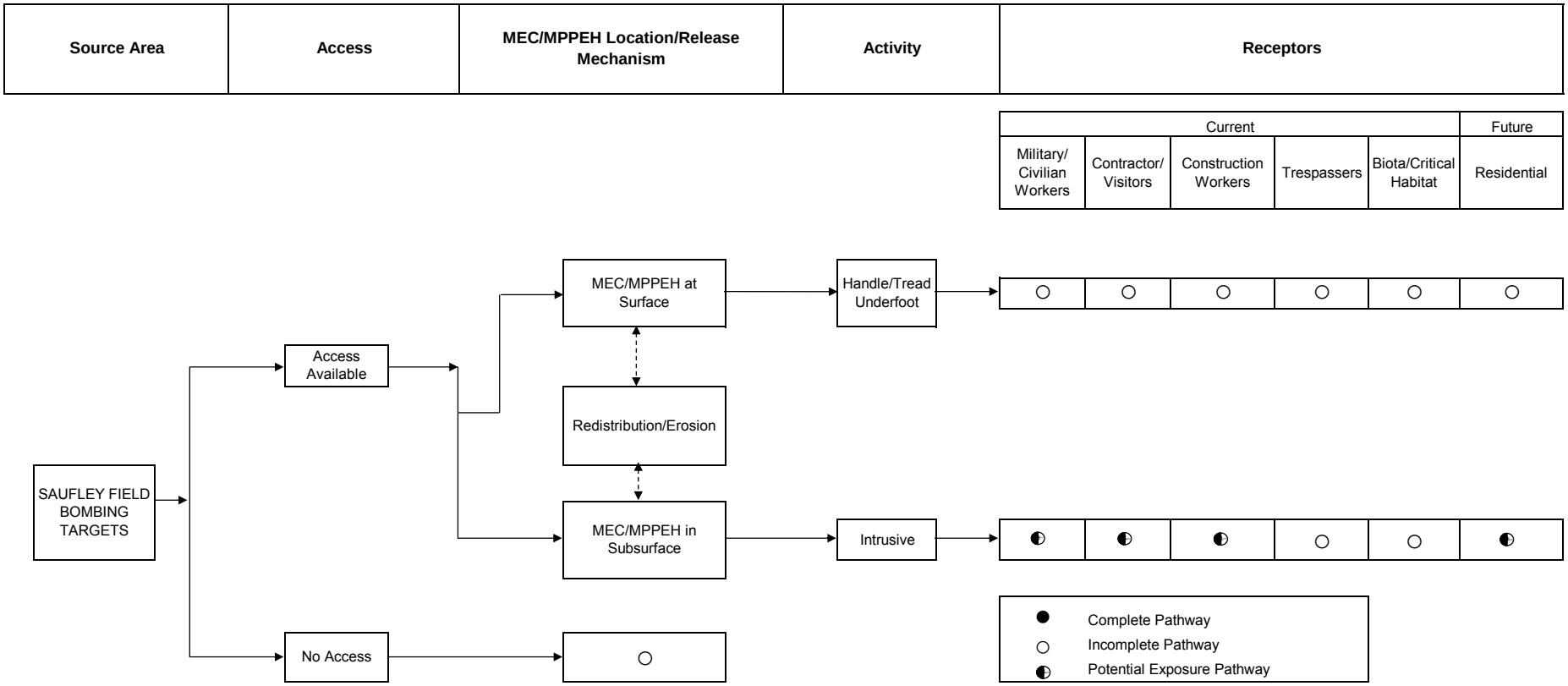
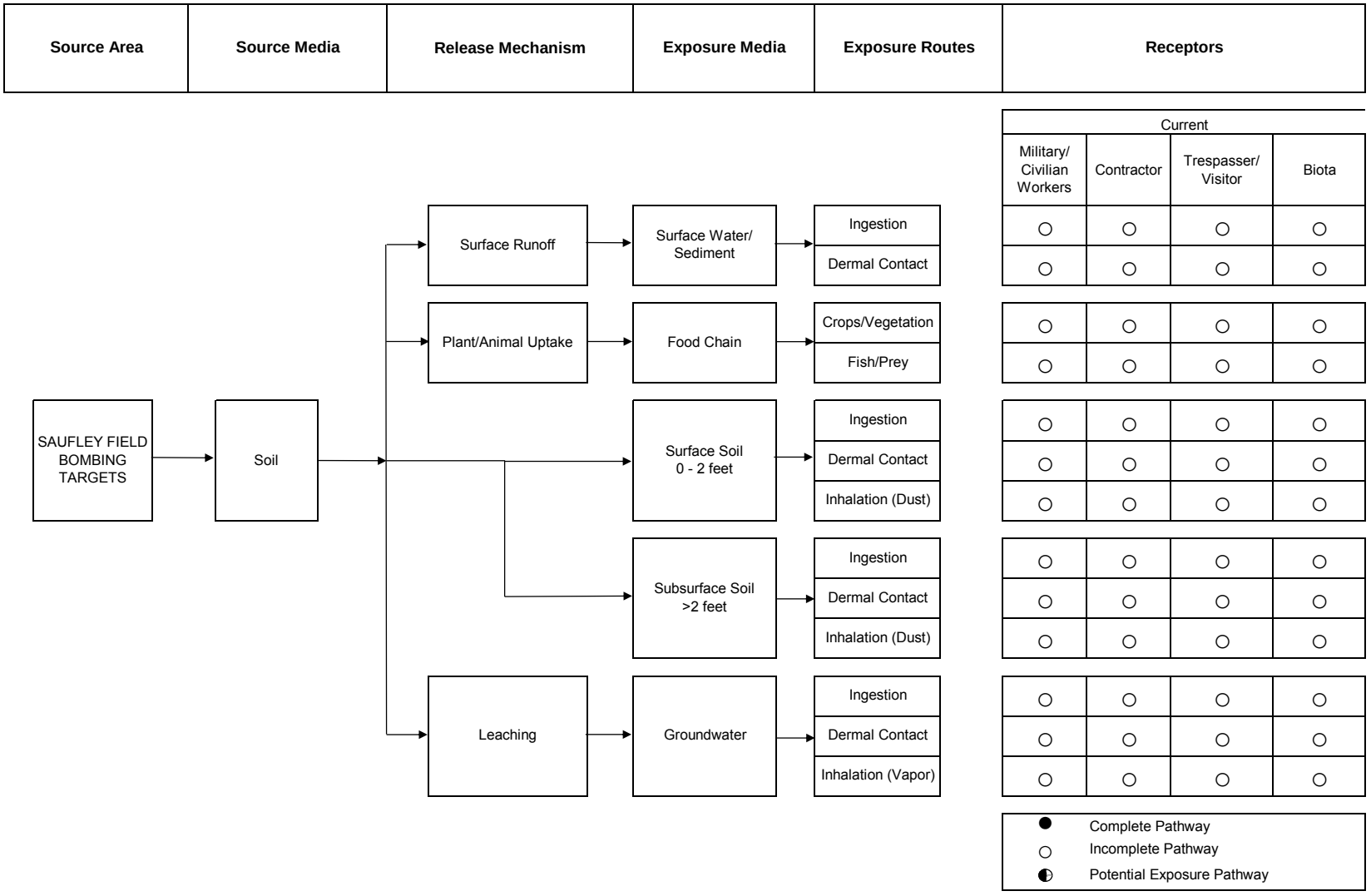


FIGURE 5-3
MC EXPOSURE PATHWAY ANALYSIS
SAUFLEY FIELD BOMBING TARGETS
NAS PENSACOLA
PENSACOLA, FLORIDA



APPENDIX A

MEC FIELD FORMS

TETRA TECH
MRP FF.2
DAILY MEC ACTIVITY LOG

Facility/Location: NAS Pensacola

Site(s): Saufley Field

FIELD ACTIVITY SUBJECT: MEC Remedial Investigation	Date: 06/25/2012
PROJECT NO: 112G03440	**TASK CODES:** FI.IA

SUMMARY OF DAILY PROGRESS: (Update Definable Feature of Work - Worksheet 12)

Mobilization/Site Preparation: Cassidy, Ladd, Clements, Alder, Corder, Turner, Piper attended Initial Safety Brief, Review of HASP, ESS, and Work Plan. Received Heavy Equipment at site. Received Explosive Storage Magazines. Assembled bravo flags, barricades and set up exclusion zones. Safety Brief given to Senior Geophysicist Jim Coffman.

Site Survey: Reacquire of known anomaly points

Vegetation Management: N/A

GPS Positional Data: QC checks of GPS at SI QC points. Begin Reacquire of anomalies for intrusive investigation.

Detector-Aided Visual Survey and Manual MEC/MPPEH Operations: Conducted detector aided visual survey of the area to install IVS and began reacquisition efforts.

Mechanized (low-input) Operations: N/A

Donor Explosives Handling and Storage: N/A

MEC Management (Treatment): N/A

MPPEH Management (Inspections): N/A

MPPEH Management (Certification): N/A

MPPEH Management (Disposal): N/A

Demobilization: N/A

Other:

LIST OF MEC ITEMS ID, MPPEH ITEM ID, MDAS, OR NONE
(for documentation see MEC/MPPEH/MDAS Tracking Logs for added details):

Item ID	Description N/A	Item ID	Description

None

TETRA TECH
MRP FF.2
DAILY MEC ACTIVITY LOG

Facility/Location: NAS Pensacola

Site(s): Saufley Field

FIELD ACTIVITY SUBJECT: MEC Remedial Investigation	Date: 06/25/2012

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0630: The SUXOS, Safety/QC and Team Leader held a short meeting to discuss the day's schedule.

0700: The initial team meeting began with Cassidy, Ladd, Clements, Alder, Turner, Corder, and Piper. Covered the Work Plan, HASP, APP, and ESS. Signed all paperwork for qualifications and understanding the Task Items.

0900: Piper departs to receive explosive lockers on site.

1100: Break for lunch.

1130: The team went to the Home Depot for additional supplies.

1200: Team caravaned to the job site at Saufley Field and held a short meeting with the Fire Chief and then took a tour of the work site.

1300: Located the GPS landmarks.

1310: Located the IVS site and established the IVS. Schonstedts were tested on the IVS.

1430: Began assembly of the road barriers.

1500: Jim Coffman arrived and began target acquiring and set flags.

1530: MDAS Barrel was acquired and placed on site.

1630: Tested the Schonstedts on the IVS and checked the Trimble on the landmarks.

1645: Held the post shift meeting.

1700: Team secured for the day.

IMPORTANT PHONE CALLS/DECISIONS: N/A

FIELD TASK MODIFICATIONS: N/A

WEATHER CONDITIONS: Partly cloudy 88 degrees F.

VISITORS ON SITE: None

PERSONNEL ON SITE: Cassidy, Ladd, Clements, Alder, Turner, Corder, Piper and Coffman.

SIGNATURE:	DATE: 6/25/12

TETRA TECH
MRP FF.2
DAILY MEC ACTIVITY LOG

Facility/Location: NAS Pensacola

Site(s): Saufley Field

FIELD ACTIVITY SUBJECT: MEC Remedial Investigation	Date: 06/26/2012
PROJECT NO: 112G03440	**TASK CODES:** FI.IA

SUMMARY OF DAILY PROGRESS: (Update Definable Feature of Work - Worksheet 12)

Mobilization/Site Preparation: Type II Storage Magazines grounded by certified electrician.

Site Survey: Reacquire of known anomaly points. 51 Points reacquired and 13 holes intrusively investigated (see dig sheet). No munition items recovered.

Vegetation Management: N/A

GPS Positional Data: QC checks performed and Trimble used for reacquire.

Detector-Aided Visual Survey and Manual MEC/MPPEH Operations: Conducted detector aided visual survey of area.

Mechanized (low-input) Operations: N/A

Donor Explosives Handling and Storage: Initiating systems delivered and stored.

MEC Management (Treatment): N/A

MPPEH Management (Inspections): N/A

MPPEH Management (Certification): N/A

MPPEH Management (Disposal): N/A

Demobilization: N/A

Other:

LIST OF MEC ITEMS ID, MPPEH ITEM ID, MDAS, OR NONE
(for documentation see MEC/MPPEH/MDAS Tracking Logs for added details):

Item ID	Description N/A	Item ID	Description

NONE

TETRA TECH
MRP FF.2
DAILY MEC ACTIVITY LOG

Facility/Location: NAS Pensacola

Site(s): Saufley Field

FIELD ACTIVITY SUBJECT: MEC Remedial Investigation	Date: 06/26/2012

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0700: Tailgate Safety Brief with Piper, Cassidy, Ladd, Clements, Alder, Turner and Corder.

0720: AM Checks on Schonstedts against IVS and Trimble on landmarks.

0800: Ladd meets with Fire Chief and Security regarding barricades. Begin Reacquire operations with GEO. Mini-Excavator safety inspection.

0810: Team begins reacquisition of border anomaly points.

0930: UXO Team begins intrusive operations on border anomaly points.

1200: Break for lunch. Electricians arrive to ground explosives magazines.

1230: Explosives driver arrives at front gate and is escorted by Safety to the Type II magazines. Explosives are inventoried by Cassidy and Ladd. All present with the exception of the perforators which are in route. Geo and UXO operations restart.

1430: Electricians complete grounding work on explosives magazines. Leave paperwork with SUXOS. SUXOS and Safety stow explosives in storage magazines.

1630: Put away equipment, tested the Schonstedts on the IVS and checked the Trimble on the landmarks.

1645: Held the post shift meeting.

1700: Secured for the day.

IMPORTANT PHONE CALLS/DECISIONS: N/A

FIELD TASK MODIFICATIONS: N/A

WEATHER CONDITIONS: Partly cloudy 101 degrees F.

VISITORS ON SITE: None. Electricians and Explosive Driver did not enter the EZ.

PERSONNEL ON SITE: Cassidy, Ladd, Clements, Alder, Turner, Corder, Piper and Coffman.

SIGNATURE:	DATE: 6/26/12

TETRA TECH
MRP FF.2
DAILY MEC ACTIVITY LOG

Facility/Location: NAS Pensacola

Site(s): Saufley Field

FIELD ACTIVITY SUBJECT: MEC Remedial Investigation	Date: 06/27/2012
PROJECT NO: 112G03440	**TASK CODES:** FI.IA

SUMMARY OF DAILY PROGRESS: (Update Definable Feature of Work - Worksheet 12)

Mobilization/Site Preparation: N/A

Site Survey: Reacquire of known anomaly points. 29 anomalies intrusively investigated. No MEC related items. All Scrap.

Vegetation Management: N/A

GPS Positional Data: QC checks performed. Reacquire of anomalies for intrusive investigation. Intrusive investigation locations collected.

Detector-Aided Visual Survey and Manual MEC/MPPEH Operations: Conducted detector aided visual survey of reacquire area.

Mechanized (low-input) Operations: N/A

Donor Explosives Handling and Storage: Remaining Donor charges received, inventoried, and stowed in the Type 2 explosive storage magazine.

MEC Management (Treatment): N/A

MPPEH Management (Inspections): N/A

MPPEH Management (Certification): N/A

MPPEH Management (Disposal): N/A

Demobilization: At completion of Reacquire operations team geophysicist and UXO site manager demobilized.

Other:

LIST OF MEC ITEMS ID, MPPEH ITEM ID, MDAS, OR NONE
(for documentation see MEC/MPPEH/MDAS Tracking Logs for added details):

Item ID NONE	Description N/A	Item ID	Description

None

TETRA TECH
MRP FF.2
DAILY MEC ACTIVITY LOG

Facility/Location: NAS Pensacola

Site(s): Saufley Field

FIELD ACTIVITY SUBJECT: MEC Remedial Investigation	Date: 06/27/2012

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0700: Tailgate Safety Brief with Cassidy, Ladd, Clements, Adler, Turner and Corder, Coffman, Piper.

0720: AM Checks on Schonstedts against IVS and Trimble on landmarks.

0740: Team begins reacquisition of anomaly points.

0750: Direction from Pittsburg to investigate additional 3 points due to "No Finds."

1045: Sandbags for demo operations delivered on-site. Stored next to explosive storage magazines outside of EZ.

1200: Break for lunch.

1230: Restart operations.

1445: Remaining Donor charges received and stored in Magazine.

1640: Tested the Schonstedts on the IVS and checked the Trimble on the landmarks.

1650: Held the post shift meeting.

1700: Team secured for the day.

IMPORTANT PHONE CALLS/DECISIONS: 3 additional points to be investigated due to "No Finds" on grid.

FIELD TASK MODIFICATIONS: N/A

WEATHER CONDITIONS: Partly cloudy 101 degrees F.

VISITORS ON SITE: Sandbag and Explosive delivery drivers did not enter the EZ.

PERSONNEL ON SITE: Cassidy, Ladd, Clements, Alder, Turner, Corder, Piper and Coffman

SIGNATURE:	DATE: 6/27/12

TETRA TECH
MRP FF.2
DAILY MEC ACTIVITY LOG

Facility/Location: NAS Pensacola

Site(s): Saufley Field

FIELD ACTIVITY SUBJECT: MEC Remedial Investigation	Date: 06/28/2012
PROJECT NO: 112G03440	**TASK CODES:** FI.IA

SUMMARY OF DAILY PROGRESS: (Update Definable Feature of Work - Worksheet 12)

Mobilization/Site Preparation: N/A

Site Survey: 29 Anomalies Intrusively Investigated. No MEC related items. All Scrap.

Vegetation Management: N/A

GPS Positional Data: GPS QC checks performed. Intrusive investigation locations collected.

Detector-Aided Visual Survey and Manual MEC/MPPEH Operations: Conducted detector aided visual survey of area.

Mechanized (low-input) Operations: Trenching operation

Donor Explosives Handling and Storage: N/A

MEC Management (Treatment): N/A

MPPEH Management (Inspections): N/A

MPPEH Management (Certification): N/A

MPPEH Management (Disposal): N/A

Demobilization: Turner

Other: UXO escort provided for Sampling Operation at NAS Pensacola Magazine Point Sampling Operation.

LIST OF MEC ITEMS ID, MPPEH ITEM ID, MDAS, OR NONE
(for documentation see MEC/MPPEH/MDAS Tracking Logs for added details):

Item ID	Description N/A	Item ID	Description

NONE

TETRA TECH
MRP FF.2
DAILY MEC ACTIVITY LOG

Facility/Location: NAS Pensacola

Site(s): Saufley Field

FIELD ACTIVITY SUBJECT: MEC Remedial Investigation	Date: 06/28/2012

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0700: Tailgate Safety Brief with Cassidy, Ladd, Clements, Alder, Turner and Corder.

0720: AM Checks on Schonstedts against IVS and Trimble on Landmarks.

0740: Team continues intrusive investigations of anomaly points.

0830: Alder sent to conduct UXO Escort operations in support of Tt NUS sampling with Navy RPM.

1100: Turner Demobilized to Atlanta for Tt NUS operations.

1200: Break for lunch. All Anomaly points have been investigated with the exception of the 5 trenches.

1230: Restart operations by selecting 3 anomalies/areas per trench.

1500: Trench ops complete. No MEC/MPPEH located. Begin set up for explosive demolition cleanup shot scheduled for tomorrow 1000. Sand bags brought to SDA. Area cleared with Schonstedt. Hole dug using Mini-X. Designated firing point selected and recorded. (GPS data noted on tomorrow's report.)

1640: Tested the Schonstedts on the IVS and checked the Trimble on the landmarks.

1650: Held the post shift meeting.

1700: Team secured for the day.

IMPORTANT PHONE CALLS/DECISIONS: Direction given from UXO site manager to DEMOB Turner to different operation.

FIELD TASK MODIFICATIONS: N/A

WEATHER CONDITIONS: Partly cloudy 97 degrees F.

VISITORS ON SITE: None

PERSONNEL ON SITE: Cassidy, Ladd, Clements, Alder, Turner, Corder.

SIGNATURE:	DATE: 6/28/12

TETRA TECH
MRP FF.2
DAILY MEC ACTIVITY LOG

Facility/Location: NAS Pensacola

Site(s): Saufley Field

FIELD ACTIVITY SUBJECT: MEC Remedial Investigation	**Date: 06/29/2012**
PROJECT NO: 112G03440	**TASK CODES:** FI.IA

SUMMARY OF DAILY PROGRESS: (Update Definable Feature of Work - Worksheet 12)

Mobilization/Site Preparation: N/A

Site Survey: N/A

Vegetation Management: N/A

GPS Positional Data: N/A

Detector-Aided Visual Survey and Manual MEC/MPPEH Operations: N/A

Mechanized (low-input) Operations: N/A

Donor Explosives Handling and Storage: Clean up shot conducted

MEC Management (Treatment): N/A

MPPEH Management (Inspections): N/A

MPPEH Management (Certification): N/A

MPPEH Management (Disposal): N/A

Demobilization: Ladd, Corder, Clement, Alder DMOB Saturday June 30, 2012. Cassidy to DMOB after Explosive Storage Magazine and Fork Lift/Mini-Excavator pick up.

Other: N/A

LIST OF MEC ITEMS ID, MPPEH ITEM ID, MDAS, OR NONE
(for documentation see MEC/MPPEH/MDAS Tracking Logs for added details):

Item ID NONE	Description N/A	Item ID	Description

None

TETRA TECH
MRP FF.2
DAILY MEC ACTIVITY LOG

Facility/Location: NAS Pensacola

Site(s): Saufley Field

FIELD ACTIVITY SUBJECT: MEC Remedial Investigation	Date: 06/29/2012

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0700: Tailgate Safety Brief with Cassidy, Ladd, Clements, Adler and Corder. Demolition Safety Brief conducted by Clements.

0750: IVS removed. Recovered IVS items packed for shipping.

0800: Barricades in place, notifications made to base Security, base Fire, Navy RPM. Team begins set up for demolition to dispose of donor charges consisting of 20 perforator charges for a NEW of 0.83 lbs.

0930: Final notifications made prior to shot.

0936: Shot fired.

0941: :05 wait time observed prior to shot inspection by Demo Sup and Safety Sup.

0951: All Clear given.

1015: Remaining caps and shock tube disposed of by firing.

1030: Clean up of sandbags and spent Nonel.

1130: Mini-X and forklift moved to staging area for pick up.

1200: Lunch

1230: Finalize clean up on base. Begin clean up of tools for shipping. Shipping and Admin.

1650: Held final meeting.

1700: Secured the team.

IMPORTANT PHONE CALLS/DECISIONS: Notifications to base Security and Fire. Navy RPM notified of demo shot.

FIELD TASK MODIFICATIONS: N/A

WEATHER CONDITIONS: Partly cloudy 97 degrees F.

VISITORS ON SITE: None

PERSONNEL ON SITE: Cassidy, Ladd, Clement, Alder, Corder

SIGNATURE:	DATE: 6/29/12

TETRA TECH
DAILY SAFETY LOG

Facility/Location: NAS Pensacola, Fl.

Site(s): Saufley Field

FIELD ACTIVITY SUBJECT: Saufley Field Remedial Investigation	Date	25 Jun 12
PROJECT NO.: 112G03440	TASK CODES: FI.IA	

SUMMARY OF DAILY ACTIVITIES AND EVENTS:

0630: The SUXOS, Safety/QC and Team Leader held a short meeting to discuss the day's schedule.

0700: The initial team meeting began.

1100: Break for lunch.

1130: The team went to the Home Depot for supplies.

1200: We went to the job site at Saufley Field and held a short meeting with the Fire Chief and then took a tour of the work site.

1300: Located the GPS landmarks.

1310: Located the IVS site and established the IVS.

Team is hydrating and taking breaks as necessary with high temperatures.

1430: Began assembly of the road barriers.

1500: Jim Coffman arrived, safety brief given and began target reacquisition.

UXO escort provided for Geo operations. All work being performed safely and IAW approved HASP.

1530: MDAS Barrel was acquired and placed on site.

1630: Put away equipment and tested the schonstedts on the IVS and checked the Trimble on the landmarks.

1645: Held the post shift meeting.

1700: Secured the team.

VISITORS ON SITE (indicate if received Site-Specific raining): **None**

CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS:
None

WEATHER CONDITIONS: (temp, wind, humidity, precipitation)	**IMPORTANT TELEPHONE CALLS**:
Partly sunny with a high of 85	None

PERSONNEL ON SITE: See Tailgate Safety Briefing/Training Record

SIGNATURE: Mark A. Ladd **DATE:** 25 Jun 12

TETRA TECH
DAILY SAFETY LOG

Facility/Location: NAS Pensacola, Fl.

Site(s): Saufley Field

FIELD ACTIVITY SUBJECT: Saufley Field intrusive activities	Date	26 Jun 12
PROJECT NO.: 112G03440	TASK CODES: FI.IA	

SUMMARY OF DAILY ACTIVITIES AND EVENTS:

0700: Held the team tailgate safety meeting.

0730: Checked out an emergency radio from the Fire Chief.

0745: Held a meeting with the security on base and the grounds keeper to ensure exclusion zone security.

0800: Set all Exclusion Zone barriers.

Performed Equipment Check on Mini-Excavator.

0830 Observed the team acquire targets in a safe and accurate manner.

0900: Received the portable toilet.

1100: Observed the team dig targets in accordance with the HASP, ESS and Work Plan.

1130: The electrical contractor arrived to ground the Type 2 Magazines

1145: The team took a lunch break

1200: The explosives showed up and we inventoried and received them.

Reiterated the importance of Hydrating to the field team.

1230: I gave a detailed safety brief to the TT team performing trenching operations just north of our magazine location.

1630: The team checked all equipment on the IVS for accuracy and stowed equipment.

1645: Held a post shift meeting.

1700: Secured the team.

VISITORS ON SITE (indicate if received Site-Specific raining): **None**

CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS:
None

WEATHER CONDITIONS: (temp, wind, humidity, precipitation)	IMPORTANT TELEPHONE CALLS:
Partly sunny with a high of 95	None

TETRA TECH
DAILY SAFETY LOG

Facility/Location: NAS Pensacola, Fl.

Site(s): Saufley Field

FIELD ACTIVITY SUBJECT: Saufley Field intrusive activities	**Date**	26 Jun 12
PERSONNEL ON SITE: See Tailgate Safety Briefing/Training Record		
SIGNATURE: Mark A. Ladd	**DATE**: 26 Jun 12	

TETRA TECH
DAILY SAFETY LOG

Facility/Location: NAS Pensacola, Fl.

Site(s): Saufley Field

FIELD ACTIVITY SUBJECT: Saufley Field Remedial Investigation	Date	27 Jun 12
PROJECT NO.: 112G03440	TASK CODES: FI.IA	

SUMMARY OF DAILY ACTIVITIES AND EVENTS:

0700: Held the team tailgate safety meeting..

0730: Checked out an emergency radio from the Fire Chief.

0800: Set all barriers.

Performed equipment check on Mini-Excavator.

0830 Observed the team acquire targets in a safe and accurate manner.

0900: Observed the team dig targets in accordance with the ESS and Work Plan.

Discussed necessary hydration, sunscreen, heat stress.

1130: The team took a lunch break.

1200: Team continued to dig targets. Seed item planted.

1330: Seed Recovered.

Observed Team using proper UXO digging techniques.

1445: Received explosives and placed them in the magazine.

1630: The team checked all equipment on the IVS for accuracy and stowed equipment.

1645: Held a post shift meeting.

1700: Secured the team.

VISITORS ON SITE (indicate if received Site-Specific raining): **None**

CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS:
None

WEATHER CONDITIONS: (temp, wind, humidity, precipitation)	IMPORTANT TELEPHONE CALLS:
Partly sunny with a high of 95	None

PERSONNEL ON SITE: See Tailgate Safety Briefing/Training Record

TETRA TECH
DAILY SAFETY LOG

Facility/Location: NAS Pensacola, Fl.

Site(s): Saufley Field

FIELD ACTIVITY SUBJECT: Saufley Field Remedial Investigation	**Date**	27 Jun 12
SIGNATURE: Mark A. Ladd	**DATE**: 27 Jun 12	

TETRA TECH
DAILY SAFETY LOG

Facility/Location: NAS Pensacola, Fl.

Site(s): Saufley Field

FIELD ACTIVITY SUBJECT: Saufley Remedial Investigation activities	Date	28 Jun 12
PROJECT NO.: 112G03440	TASK CODES: FI.IA	

SUMMARY OF DAILY ACTIVITIES AND EVENTS:

0700: Held the team tailgate safety meeting.

0730: Checked out an emergency radio from the Fire Chief.

Performed Equipment Check on Mini-Excavator.

0800: Set all barriers.

0830 Observed the team intrusively investigate anomalies in a safe manner. Proper PPE being worn.

0900: Observed the team dig targets in accordance with the ESS and Work Plan.

1130: The team took a lunch break.

1200: Team continued to dig targets. All intrusive investigations are being performed IAW approved HASP and Work Plan.

1330: Seed Recovered.

1630: The team checked all equipment on the IVS for accuracy and stowed equipment.

1645: Held a post shift meeting.

1700: Secured the team.

VISITORS ON SITE (indicate if received Site-Specific raining): **None**

CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS:
None

WEATHER CONDITIONS: (temp, wind, humidity, precipitation)	**IMPORTANT TELEPHONE CALLS:**
Partly sunny with a high of 95	Notification calls for scheduled demo.

PERSONNEL ON SITE: See Tailgate Safety Briefing/Training Record

SIGNATURE: Mark A. Ladd **DATE**: 28 Jun 12

TETRA TECH
DAILY SAFETY LOG

Facility/Location: NAS Pensacola, Fl.

Site(s): Saufley Field

FIELD ACTIVITY SUBJECT: Saufley Field intrusive activities	**Date** 29 Jun 12
PROJECT NO.: 112G03440	**TASK CODES**: FI.IA

SUMMARY OF DAILY ACTIVITIES AND EVENTS:

0700: Held the team tailgate safety meeting and detailed demo brief.

0730: Checked out an emergency radio from the Fire Chief.

0800: Set all barriers.

0830: Arranged for the fire department to man the runway with a water truck and obtained an emergency radio.

0900: Set up Demo shot.

All demo operations being performed IAW HASP and ESS. All clear for personnel.

0945: Initiated the shot and achieved high order.

Observed necessary wait time.

1000: Check the shot and all clear.

1015: Started the clean-up of the entire site and get all equipment cleaned and packed for shipment, packaged and transported equipment to Fed-Ex location.

Returned Radio to Fire Station and gave out brief.

1645: Post shift operation close out meeting. Demob Safety discussed.

1700: Team secured for the day.

VISITORS ON SITE (indicate if received Site-Specific raining): **None**

CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS:
None

WEATHER CONDITIONS: (temp, wind, humidity, precipitation) Partly sunny with a high of 95	**IMPORTANT TELEPHONE CALLS**: None.

PERSONNEL ON SITE: See Tailgate Safety Briefing/Training Record

SIGNATURE: Mark A. Ladd **DATE**: 29 Jun 12

TETRA TECH

MRP FF.22
DAILY TAILGATE SAFETY BRIEFING/TRAINING RECORD

Facility/Location: NAS Pensacola, Fl. Site(s): Saufley Field

1. Briefing(s) Given By:	Name	Signature	Position
	Mark Ladd		SUXOS/UXOSO/QC
Date: 25 Jun 12	Time: 0700	Team #: N/A	

2. Reason for Briefing:

X Initial Safety Briefing	___ New Site Procedure
___ Daily Safety Briefing	___ New Site Information
___ New Task Briefing	___ Review of Site Information
___ Periodic Safety Meeting	___ Other: (Specify)

3. List Today's Project Tasks (reference definable features of work – See Worksheet 12.):

☒ Site Preparation (incl. mobilization)	☒ Detector Aided Survey	☐ MPPEH Management (Inspection)
☒ Site Survey	☐ Target Acquisition	☐ MPPEH Management (Cert.)
☐ Vegetation Management	☐ Manual Intrusive Operations	☐ MPPEH Management (Disposal)
☐ GPS Positional Data	☐ Donor Explosives Handling	☐ Demobilization
☐ Construction Support	☐ MEC Management (Treatment)	☐ Other:

4. Safety Topics: (Check All That Apply – per AHA or Work Permit)

_X Site Safety Personnel	___ Decontamination Procedures
_X Site/Work Area Description	_X Emergency Response/Equipment
_X Physical Hazards	___ On-Site Injuries/Illness
___ Chemical/Biological Hazards	___ Reporting Procedures
_X Heat/Cold Stress	_X Directions to Medical Facility
___ Work/Support Zones	___ Drug and Alcohol Policies
_X PPE	___ Medical Monitoring
_X Safe Work Practices	_X Evacuation/Egress Procedures
__ Air Monitoring	_X Communications
___ Task Training	___ Confined Spaces
___ OE Precautions	___ Other:

5. Remarks:

6. Personnel Attending

Name	Signature	Position
Steve Casidy		SUXOS
Jake Clement		Lead Tech
James Corder		Tech
Tye Turner		Tech
Ed Alder		Tech
Norm Piper		Project Manager

TETRA TECH

MRP FF.22

DAILY TAILGATE SAFETY BRIEFING/TRAINING RECORD

Facility/Location: NAS Pensacola, Fl. Site(s): Saufley Field

1. Briefing(s) Given By:	Name	Signature	Position
	Mark Ladd		SUXOS/UXOSO/QC
Date: 25 Jun 12	Time: 0700	Team #: N/A	

2. Reason for Briefing:

__ Initial Safety Briefing	___ New Site Procedure
XX Daily Safety Briefing	___ New Site Information
___ New Task Briefing	___ Review of Site Information
___ Periodic Safety Meeting	___ Other: (Specify)

3. List Today's Project Tasks (reference definable features of work – See Worksheet 12.):

☐ Site Preparation (incl. mobilization)	☒ Detector Aided Survey	☐ MPPEH Management (Inspection)
☐ Site Survey	☒ Target Acquisition	☐ MPPEH Management (Cert.)
☐ Vegetation Management	☒ Manual Intrusive Operations	☐ MPPEH Management (Disposal)
☒ GPS Positional Data	☐ Donor Explosives Handling	☐ Demobilization
☐ Construction Support	☐ MEC Management (Treatment)	☐ Other:

4. Safety Topics: (Check All That Apply – per AHA or Work Permit)

_X Site Safety Personnel	___ Decontamination Procedures
_X Site/Work Area Description	_X Emergency Response/Equipment
_X Physical Hazards	___ On-Site Injuries/Illness
___ Chemical/Biological Hazards	___ Reporting Procedures
_X Heat/Cold Stress	_X Directions to Medical Facility
___ Work/Support Zones	___ Drug and Alcohol Policies
_X PPE	___ Medical Monitoring
_X Safe Work Practices	_X Evacuation/Egress Procedures
__ Air Monitoring	_X Communications
___ Task Training	___ Confined Spaces
___ OE Precautions	___ Other:

5. Remarks: Fire Ants - snakes - High Grass hiding holes - Sun exposure Drink lots of water.

6. Personnel Attending

Name	Signature	Position
Steve Casidy		SUXOS
Jake Clement		Lead Tech
James Corder		Tech
Tye Turner		Tech
Ed Alder		Tech
Norm Piper		Project Manager
Jim Coffman		GEO

TETRA TECH

MRP FF.22
DAILY TAILGATE SAFETY BRIEFING/TRAINING RECORD

Facility/Location: NAS Pensacola, Fl. Site(s): Saufley Field

1. Briefing(s) Given By:	Name	Signature	Position
	Mark Ladd		SUXOS/UXOSO/QC
Date: 27 Jun 12	Time: 0700	Team #: N/A	

2. Reason for Briefing:

__ Initial Safety Briefing	___ New Site Procedure
XX Daily Safety Briefing	___ New Site Information
___ New Task Briefing	___ Review of Site Information
___ Periodic Safety Meeting	___ Other: (Specify)

3. List Today's Project Tasks (reference definable features of work – See Worksheet 12.):

☐ Site Preparation (incl. mobilization)	☒ Detector Aided Survey	☐ MPPEH Management (Inspection)
☐ Site Survey	☒ Target Acquisition	☐ MPPEH Management (Cert.)
☐ Vegetation Management	☒ Manual Intrusive Operations	☐ MPPEH Management (Disposal)
☒ GPS Positional Data	☐ Donor Explosives Handling	☐ Demobilization
☐ Construction Support	☐ MEC Management (Treatment)	☐ Other:

4. Safety Topics: (Check All That Apply – per AHA or Work Permit)

_X Site Safety Personnel	___ Decontamination Procedures
_X Site/Work Area Description	_X Emergency Response/Equipment
_X Physical Hazards	___ On-Site Injuries/Illness
___ Chemical/Biological Hazards	___ Reporting Procedures
_X Heat/Cold Stress	_X Directions to Medical Facility
___ Work/Support Zones	___ Drug and Alcohol Policies
_X PPE	___ Medical Monitoring
_X Safe Work Practices	_X Evacuation/Egress Procedures
__ Air Monitoring	_X Communications
___ Task Training	___ Confined Spaces
___ OE Precautions	___ Other:

5. Remarks:

6. Personnel Attending

Name	Signature	Position
Steve Casidy		SUXOS
Jake Clement		Lead Tech
James Corder		Tech
Tye Turner		Tech
Ed Alder		Tech
Norm Piper		Project Manager

John, SC hoolie VA 10 navy. mil

TETRA TECH

MRP FF.22

DAILY TAILGATE SAFETY BRIEFING/TRAINING RECORD

Facility/Location: NAS Pensacola, Fl. Site(s): Saufley Field

Date:

Name	Signature	Position
John Schoolfield	John Schoolfield	RPM - NAVFAC
Jean C. Rancourt	Jean C. Rancourt	V
Patrick Owens	Patrick Owens	DON - BASO

TETRA TECH

MRP FF.22
DAILY TAILGATE SAFETY BRIEFING/TRAINING RECORD

Facility/Location: NAS Pensacola, Fl. Site(s): Saufley Field

1. Briefing(s) Given By:	Name	Signature	Position
	Mark Ladd		SUXOS/UXOSO/QC
Date: 28 Jun 12	Time: 0700	Team #: N/A	

2. Reason for Briefing:

__ Initial Safety Briefing	___ New Site Procedure
XX Daily Safety Briefing	___ New Site Information
___ New Task Briefing	___ Review of Site Information
___ Periodic Safety Meeting	___ Other: (Specify)

3. List Today's Project Tasks (reference definable features of work – See Worksheet 12.):

☐ Site Preparation (incl. mobilization)	☒ Detector Aided Survey	☐ MPPEH Management (Inspection)
☐ Site Survey	☒ Target Acquisition	☐ MPPEH Management (Cert.)
☐ Vegetation Management	☒ Manual Intrusive Operations	☐ MPPEH Management (Disposal)
☒ GPS Positional Data	☐ Donor Explosives Handling	☐ Demobilization
☐ Construction Support	☐ MEC Management (Treatment)	☐ Other:

4. Safety Topics: (Check All That Apply – per AHA or Work Permit)

_X Site Safety Personnel	___ Decontamination Procedures
_X Site/Work Area Description	_X Emergency Response/Equipment
_X Physical Hazards	___ On-Site Injuries/Illness
___ Chemical/Biological Hazards	___ Reporting Procedures
_X Heat/Cold Stress	_X Directions to Medical Facility
___ Work/Support Zones	___ Drug and Alcohol Policies
_X PPE	___ Medical Monitoring
_X Safe Work Practices	_X Evacuation/Egress Procedures
__ Air Monitoring	_X Communications
___ Task Training	___ Confined Spaces
___ OE Precautions	___ Other:

5. Remarks:

6. Personnel Attending

Name	Signature	Position
Steve Casidy		SUXOS
Jake Clement		Lead Tech
James Corder		Tech
Tye Turner		Tech
Ed Alder		Tech
Norm Piper		Project Manager

TETRA TECH

MRP FF.22
DAILY TAILGATE SAFETY BRIEFING/TRAINING RECORD

Facility/Location: NAS Pensacola, Fl. Site(s): Saufley Field

1. Briefing(s) Given By:	Name	Signature	Position
	Mark Ladd		SUXOS/UXOSO/QC
Date: ~~29~~ Jun 12	Time: 0700	Team #: N/A	

2. Reason for Briefing:

__ Initial Safety Briefing	___ New Site Procedure
XX Daily Safety Briefing	___ New Site Information
___ New Task Briefing	___ Review of Site Information
___ Periodic Safety Meeting	X Other: (Specify) Demo

3. List Today's Project Tasks (reference definable features of work – See Worksheet 12.):

☐ Site Preparation (incl. mobilization)	☒ Detector Aided Survey	☐ MPPEH Management (Inspection)
☐ Site Survey	☒ Target Acquisition	☐ MPPEH Management (Cert.)
☐ Vegetation Management	☒ Manual Intrusive Operations	☐ MPPEH Management (Disposal)
☒ GPS Positional Data	☒ Donor Explosives Handling	☒ Demobilization
☐ Construction Support	☐ MEC Management (Treatment)	☐ Other:

4. Safety Topics: (Check All That Apply – per AHA or Work Permit)

_X Site Safety Personnel	___ Decontamination Procedures
_X Site/Work Area Description	_X Emergency Response/Equipment
_X Physical Hazards	___ On-Site Injuries/Illness
___ Chemical/Biological Hazards	___ Reporting Procedures
_X Heat/Cold Stress	_X Directions to Medical Facility
___ Work/Support Zones	___ Drug and Alcohol Policies
_X PPE	___ Medical Monitoring
_X Safe Work Practices	_X Evacuation/Egress Procedures
__ Air Monitoring	_X Communications
___ Task Training	___ Confined Spaces
___ OE Precautions	___ Other:

5. Remarks: Detailed Demo Brief.

6. Personnel Attending

Name	Signature	Position
Steve Casidy		SUXOS
Jake Clement	Clement	Lead Tech
James Corder		Tech
~~Tyler Tanner~~		~~Tech~~
Ed Alder		Tech
~~Newt Piper~~		~~Project Manager~~

SIGNATURE :	DATE:	ON FILE
FINAL PERMIT APPROVAL: Comments:	SIGNATURE: Bol Ruff	6-25-12 DATE:
13. PROJECT CLOSEOUT: As-built record drawings to Real Property Management Division		
2.1 FORM 1 Rev. A	Note: This permit is void if survey markings are removed/ relocated/ altered in any way prior to start of construction.	

EXCAVATION PERMIT INSTRUCTIONS

~ PLEASE READ THOUROUGHLY ~

The point of contact for ALL excavation permits is

The Requestor will fill out blocks 1 – 4 of Excavation Permit. A POC and contact phone number is mandatory. Save Excavation Permit as a permit and provide a detailed drawing/sketch. Choose appropriate site map and mark project site of disturbance with relevant information (detail) of the project. Save map as a map. Insert both attachments in an email and send to HEATHER.DANIEL.CTR@NAVY.MIL. Requestor is responsible for notifying the Sunshine State One-Call and getting a ticket number for block 6, you must be assigned a permit number before calling Sunshine. Blocks 8 through 13 and final permit approval are by the NAS Pensacola BOS Contractor.

Block 1: Title of project.

Block 2: Provide street address, nearest intersecting streets AND the nearest building number.

Block 2a: Provide name and phone number of sponsor or contact person.

Block 3: Detailed description of project and estimated duration. Give estimated dimensions of the excavation along with any type(s) of machinery that is/are to be used.

Block 4: The name and phone number of a POC is essential. Provide a FAX number and an e-mail address if available.

Block 5: Real Property Management Division will review all new routes/locations for acceptability. (POC: Steven Ward 850-452-3131 x 3024)

Block 6: The contractor ACTUALLY doing the excavation must contact Sunshine State One-Call at 1-800-432-4770, not less than two days nor more than five days prior to excavation. They will provide a ticket number, which must be recorded on the permit, along with the date and time of contact.

Block 7: The Cultural Resources Manager (CRM) will evaluate site for Archeological value. Archeological clearance could require an extended amount of time depending on location of project and archeological sensitivity of the area.

*** All inadvertent archeological discoveries must be reported to Carrie Bourgeois 452-3131 x 3011 or Bill Taylor 452-3131 x3003***

Block 8: Evaluation of the environmental impact of excavation. **[obtained by Irby Engineering]** (POC: Greg Campbell 850-452-3131 x3007)

Block 9: Safety evaluation **[obtained by Irby Engineering]** (POC: Dodie Matlock 850-452-5115 or Renay Riley 452-8167)

Block 10: Excavator must call the SCADA Desk 850-452-2271, at the beginning of each day of digging.
If research indicates the presence of Ground Electronics, the excavator must notify them at 850-452-2849.

Block 11: Base Communication Office (BCO) evaluation **[obtained by Irby Engineering]** (POC: Alethia Brewer 850-452-7990)

Block 12: Fire Inspection in area around excavation **[obtained by Irby Engineering]** (POC: Steven Burke 850-452-2898)

Block 13: Contractor MUST provide 'As Built' record drawings to the Real Property Management Division upon completion of project.

The final approval block will be signed by Irby Engineering upon satisfactory completion of all of the above blocks. A copy of the approved excavation permit is required to be posted or readily available at the job site at all times.

*** DO NOT BEGIN EXCAVATION OF ANY TYPE PRIOR TO RECEIVING FINAL APPROVAL ***

EXCAVATION PERMIT
NAVAL AIR STATION PENSACOLA

Revised Excavation Permit 29NOV2011

An excavation permit must be obtained prior to any excavation on board Naval Air Station Pensacola, to include NOLF Bronson, Corry Station, and Saufley Field. **This permit must be displayed on the job site at all times.** To obtain a permit, fill out blocks 1-4, below, attach a site plan and other appropriate documentation, and submit this form to Heather Daniel at Irby Engineering (850) 452-5525 x3312. Instructions are on the second page of this form

PERMIT NO: 12-465	**DATE: 6/19/2011**	**SPONSOR**
1. PROJECT TITLE Title: Remedial Investigation for MEC at Munitions Response Site Saufley Field 2 of 2	**2. PROJECT LOCATION** Street Address: Saufley Field US Naval Outlying Field (NOLF) Nearest Intersection: Sprague Ave. and Saufley Field Rd. Nearest Building: Saufley Field US Naval Air Base	**2a. NAME:** Gregory A. Campbell **PHONE#:** 850-452-3131 (EXT. 3007)
3. PROJECT DESCRIPTION Detailed Descriptions: All intrusive investigations will be to a maximum depth, width and length of 4 feet. Operations will be performed using manual digging methods. In the event that machinery is required a mini-excavator will be used in conjunction with a schonstedt magnetometer. When within one foot of a metallic item dig teams will switch to manual digging methods. Proposal Start Date: 6-25-2012 Duration: 1 week Machinery: Not Anticipated / If required Mini Excavator Depth: 4 ft. Max. Width: 4 ft. Length: 4 ft. Drawing Attached: Fig 2,	**4. REQUESTOR INFORMATION** Name: Norm Piper Command/Company: Tetra Tech Inc. E-Mail Address: Norm.Piper@tetratech.com Phone: 770-413-0965 FAX:	

5. NASP REAL PROPERTY MANAGEMENT DIVISION (Lawrence Clifton 452-3131 x 3031)
SIGNATURE: ON FILE **DATE:**
* THIS PERMIT WILL REMAIN VALID AS LONG AS CONTRACTOR MAINTAINS UTILITY MARKINGS *

6. COMMERICAL AND OTHER UTILITIES CLEARANCE
For AT&T, Gulf Power and Mediacom contact Sunshine State One-Call at 1-800-432-4770 between two and five days prior to the excavation.

Ticket Number:170203961, 170204071, 170204221 TIME: DATE:

7. NASP ARCHEOLOGICAL REVIEW (Carrie Williams Bourgeois 452-3131 x 3011 or Bill Taylor 452-3131 x3003)
Comments: **DESPITE THE FACT THAT NO KNOWN ARCHAEOLOGICAL RESOURCES HAVE BEEN IDENTIFIED IN THE PROJECT AREA OF POTENTIAL EFFECTS (APE), THE CONTRACTOR IS ADVISED TO BE VIGILANT AND CONTACT THIS OFFICE IMMEDIATELY IN THE EVENT OF INADVERTENT ARCHAEOLOGICAL DISCOVERY.**
SIGNATURE: ON FILE **DATE:**

8. NASP ENVIRONMENTAL REVIEW (Greg Campbell 452-3131 x3007)
Comments: * PROTECT ALL TREES ADJACENT TO SITE *
SIGNATURE: **DATE:** ON FILE

9. NASP SAFETY REVIEW (Dodie Matlock 452-5115 or Renay Riley 452-8167)
Contact for all projects to ensure a competent person has been assigned to each excavation and provide standard operating procedures for excavation. Contractors have the ultimate responsibility to ensure compliance with applicable OSHA on their project.
Comments: * EXCAVATION 5 FEET AND DEEPER IN DEPTH REQUIRES AN APPROVED EXCAVATION PLAN
SIGNATURE: **DATE:** ON FILE

NOTE: When locating services have revealed a concentration of telephone cables and or utilities in areas where excavation operations will be performed, a trench greater than the depth of the intended work, six (6) feet to either side and perpendicular to the intended line of work shall be hand dug to verify that all cables and or utilities in this area have been properly located and or identified. Machine excavation in areas of concentration shall not be undertaken until hand-digging operations have completed. One mark or flag could identify multiple utilities. Color code markings used are as established by Sunshine State One-Call conventions as provided by RPMD.

10. UTILITY CLEARANCE (Utility markings valid for 5 working days.) Contact SCADA Desk at 452-2271 each day of digging
Date Located: _____
Contact Irby Engineering at 452-5525 x3339/3340. Comments:
Electrical/Ground Electronics Present: YES / NO **SIGNATURE:** ON FILE
For Ground Electronics contact NASP at 452-2849 or Sherman Field at 452-3460 if applicable. Date Contacted: _____
* EXCAVATIONS WITHIN 2 FEET OF MARKED UTILITIES MUST BE HAND DUG UNTIL UTILITIES ARE FULLY EXPOSED *

11. BASE COMMUNICATIONS OFFICER (BCO) – Fiber Optic Cable and Navy Telephone Clearance Date Located: _____
Comments: CABLE MARKED
When locating services have revealed a concentration of telephone cables and or utilities in areas where excavation operations will be performed, a trench greater than the depth of the intended work, six (6) feet to either side and perpendicular to the intended line of work shall be hand dug to verify that all cables and or utilities in this area have been properly located and or identified. Machine excavation in areas of concentration shall not be undertaken until hand-digging operations have completed.
SIGNATURE: ON FILE

12. FIRE INSPECTION BUREAU (Steven Burke 452-2898)

SIGNATURE :	DATE:
FINAL PERMIT APPROVAL: Comments: SIGNATURE:	6-25-12 DATE:
13. PROJECT CLOSEOUT: As-built record drawings to Real Property Management Division	
2.1 FORM 1 Rev. A	Note: This permit is void if survey markings are removed/ relocated/ altered in any way prior to start of construction.

EXCAVATION PERMIT INSTRUCTIONS
~ PLEASE READ THOUROUGHLY ~

The point of contact for ALL excavation permits is

The Requestor will fill out blocks 1 – 4 of Excavation Permit. A POC and contact phone number is mandatory. Save Excavation Permit as a permit and provide a detailed drawing/sketch. Choose appropriate site map and mark project site of disturbance with relevant information (detail) of the project. Save map as a map. Insert both attachments in an email and send to HEATHER.DANIEL.CTR@NAVY.MIL. Requestor is responsible for notifying the Sunshine State One-Call and getting a ticket number for block 6, you must be assigned a permit number before calling Sunshine. Blocks 8 through 13 and final permit approval are by the NAS Pensacola BOS Contractor.

Block 1: Title of project.

Block 2: Provide street address, nearest intersecting streets AND the nearest building number.

Block 2a: Provide name and phone number of sponsor or contact person.

Block 3: Detailed description of project and estimated duration. Give estimated dimensions of the excavation along with any type(s) of machinery that is/are to be used.

Block 4: The name and phone number of a POC is essential. Provide a FAX number and an e-mail address if available.

Block 5: Real Property Management Division will review all new routes/locations for acceptability. (POC: Steven Ward 850-452-3131 x 3024)

Block 6: The contractor ACTUALLY doing the excavation must contact Sunshine State One-Call at 1-800-432-4770, not less than two days nor more than five days prior to excavation. They will provide a ticket number, which must be recorded on the permit, along with the date and time of contact.

Block 7: The Cultural Resources Manager (CRM) will evaluate site for Archeological value. Archeological clearance could require an extended amount of time depending on location of project and archeological sensitivity of the area.
* All inadvertent archeological discoveries must be reported to Carrie Bourgeois 452-3131 x 3011 or Bill Taylor 452-3131 x3003*

Block 8: Evaluation of the environmental impact of excavation. **[obtained by Irby Engineering]** (POC: Greg Campbell 850-452-3131 x3007)

Block 9: Safety evaluation **[obtained by Irby Engineering]** (POC: Dodie Matlock 850-452-5115 or Renay Riley 452-8167)

Block 10: Excavator must call the SCADA Desk 850-452-2271, at the beginning of each day of digging.
If research indicates the presence of Ground Electronics, the excavator must notify them at 850-452-2849.

Block 11: Base Communication Office (BCO) evaluation **[obtained by Irby Engineering]** (POC: Alethia Brewer 850-452-7990)

Block 12: Fire Inspection in area around excavation **[obtained by Irby Engineering]** (POC: Steven Burke 850-452-2898)

Block 13: Contractor MUST provide 'As Built' record drawings to the Real Property Management Division upon completion of project.

The final approval block will be signed by Irby Engineering upon satisfactory completion of all of the above blocks. A copy of the approved excavation permit is required to be posted or readily available at the job site at all times.

*** DO NOT BEGIN EXCAVATION OF ANY TYPE PRIOR TO RECEIVING FINAL APPROVAL ***

EXCAVATION PERMIT
NAVAL AIR STATION PENSACOLA

Revised Excavation Permit 29NOV2011

An excavation permit must be obtained prior to any excavation on board Naval Air Station Pensacola, to include NOLF Bronson, Corry Station, and Saufley Field. **This permit must be displayed on the job site at all times.** To obtain a permit, fill out blocks 1-4, below, attach a site plan and other appropriate documentation, and submit this form to Heather Daniel at Irby Engineering (850) 452-5525 x3312. Instructions are on the second page of this form

PERMIT NO: 12-464	**DATE: 6/19/2011**	**SPONSOR**
1. PROJECT TITLE Title: Remedial Investigation for MEC at Munitions Response Site Saufley Field 1 of 2	**2. PROJECT LOCATION** Street Address. Saufley Field US Naval Outlying Field (NOLF) Nearest Intersection: Sprague Ave. and Saufley Field Rd. Nearest Building: Saufley Field US Naval Air Base	**2a. NAME:** Gregory A. Campbell **PHONE#:** 850-452-3131 (EXT. 3007)
3. PROJECT DESCRIPTION Detailed Descriptions: All intrusive investigations will be to a maximum depth, width and length of 4 feet. Operations will be performed using manual digging methods. In the event that machinery is required a mini-excavator will be used in conjunction with a schonstedt magnetometer. When within one foot of a metallic item dig teams will switch to manual digging methods. Proposal Start Date: 6-25-2012 Duration: 1 week Machinery: Not Anticipated / If required Mini Excavator Depth: 4 ft. Max. Width: 4 ft. Length: 4 ft. Drawing Attached: Fig 2,	**4. REQUESTOR INFORMATION** Name: Norm Piper Command/Company: Tetra Tech Inc. E-Mail Address: Norm.Piper@tetratech.com Phone: 770-413-0965 FAX:	

5. NASP REAL PROPERTY MANAGEMENT DIVISION (Lawrence Clifton 452-3131 x 3031)
SIGNATURE: ON FILE **DATE:**
* THIS PERMIT WILL REMAIN VALID AS LONG AS CONTRACTOR MAINTAINS UTILITY MARKINGS *

6. COMMERICAL AND OTHER UTILITIES CLEARANCE
For AT&T, Gulf Power and Mediacom contact Sunshine State One-Call at 1-800-432-4770 between two and five days prior to the excavation.

Ticket Number:170203961, 170204071, 170204221 TIME: DATE:

7. NASP ARCHEOLOGICAL REVIEW (Carrie Williams Bourgeois 452-3131 x 3011 or Bill Taylor 452-3131 x3003)
Comments: **DESPITE THE FACT THAT NO KNOWN ARCHAEOLOGICAL RESOURCES HAVE BEEN IDENTIFIED IN THE PROJECT AREA OF POTENTIAL EFFECTS (APE), THE CONTRACTOR IS ADVISED TO BE VIGILANT AND CONTACT THIS OFFICE IMMEDIATELY IN THE EVENT OF INADVERTENT ARCHAEOLOGICAL DISCOVERY.**
SIGNATURE: ON FILE **DATE:**

8. NASP ENVIRONMENTAL REVIEW (Greg Campbell 452-3131 x3007)
Comments: * PROTECT ALL TREES ADJACENT TO SITE *
SIGNATURE: **DATE:** ON FILE

9. NASP SAFETY REVIEW (Dodie Matlock 452-5115 or Renay Riley 452-8167)
Contact for all projects to ensure a competent person has been assigned to each excavation and provide standard operating procedures for excavation. Contractors have the ultimate responsibility to ensure compliance with applicable OSHA on their project.
Comments: * EXCAVATION 5 FEET AND DEEPER IN DEPTH REQUIRES AN APPROVED EXCAVATION
SIGNATURE: **DATE:** ON FILE

NOTE: When locating services have revealed a concentration of telephone cables and or utilities in areas where excavation operations will be performed, a trench greater than the depth of the intended work, six (6) feet to either side and perpendicular to the intended line of work shall be hand dug to verify that all cables and or utilities in this area have been properly located and or identified. Machine excavation in areas of concentration shall not be undertaken until hand-digging operations have completed. One mark or flag could identify multiple utilities. Color code markings used are as established by Sunshine State One-Call conventions as provided by RPMD.

10. UTILITY CLEARANCE (Utility markings valid for 5 working days.) **Contact SCADA Desk at 452-2271 each day of digging**
Date Located: _____
Contact Irby Engineering at 452-5525 x3339/3340. Comments:
Electrical/Ground Electronics Present: YES / NO **SIGNATURE:** ON FILE
For Ground Electronics contact NASP at 452-2849 or Sherman Field at 452-3460 if applicable. Date Contacted: _____
* EXCAVATIONS WITHIN 2 FEET OF MARKED UTILITIES MUST BE HAND DUG UNTIL UTILITIES ARE FULLY EXPOSED *

11. BASE COMMUNICATIONS OFFICER (BCO) – Fiber Optic Cable and Navy Telephone Clearance Date Located: _____
Comments: CABLE MARKED
When locating services have revealed a concentration of telephone cables and or utilities in areas where excavation operations will be performed, a trench greater than the depth of the intended work, six (6) feet to either side and perpendicular to the intended line of work shall be hand dug to verify that all cables and or utilities in this area have been properly located and or identified. Machine excavation in areas of concentration shall not be undertaken until hand-digging operations have completed.
SIGNATURE: ON FILE

12. FIRE INSPECTION BUREAU (Steven Burke 452-2898)

APPENDIX B

QC REPORTS AND GEOPHYSICAL FIELD FORMS

APPENDIX B.1

QC REPORTS

Facility/Location: NAS Pensacola, Fl.

Site(s): Saufley Field

DAILY QUALITY CONTROL REPORT

Project Name: Saufley Field Remedial Investigation Report No: 1

Project No: 112G03440 Location: NAS Pensacola Saufley Field Date: 25 Jun 12

I. Personnel Present (Reference/attach SUXOS's daily report if applicable): See Daily Tailgate Safety Form

II. Definable Feature of Work (see SAP Worksheet No. 12 and revise list as needed)

☒ Mob/Site Prep/Site Security	☐ MPPEH Management Disposal	☐
☒ Site Survey	☐ Demobilization	☐
☒. Detector-Aided Visual Survey	☐	☐
☒ Manual MEC/MPPEH Ops	☐	☐
☐ UXO Escort/ Avoidance Operations	☐	☐
☐ Donor Explosives Handling	☐	☐
☐ MEC Treatment	☐	☐
☐ MPPEH Management Inspection	☐	☐
☐ MPPEH Management Certification	☐	☐ Other:

III. Quality Control Activities (Include blind seed coordinates and results and reference/attach inspection/surveillance reports):

Initial team safety meeting was conducted which covered the WP, HASP/APP, and ESS. The IVS was established IAW with the work plans and pictures were taken for the record. Road barriers were made. Personal Protection Equipment (PPE) was checked. The MDAS barrel was placed as well as the Type 2 Magazines. I observed equipment checks of the schonstedts on the IVS Trimble GPS on known monuments.

IV. Problems Encountered / Corrective Actions Taken

None

V. Directions Given / Received:

None

VI. Special Notes / Lessons Learned

None

VII. Visitors:

☐ Yes (see Visitor's Log/Daily Activity Log) ☒ No

VIII. Approval

Name and Signature: Mark A. Ladd	Title/Company: Safety/QC Tetra Tech	Date: 25 Jun 12

Facility/Location: NAS Pensacola, Fl.

Site(s): Saufley Field

DAILY QUALITY CONTROL REPORT

Project Name: Saufley Field Remedial Investigation Report No: 2

Project No: 112G03440 Location: NAS Pensacola Saufley Field Date: 26 Jun 12

I. Personnel Present (Reference/attach SUXOS's daily report if applicable): See Daily Tailgate Safety Form

II. Definable Feature of Work (see SAP Worksheet No. 12 and revise list as needed)

☐ Mob/Site Prep/Site Security	☐ MPPEH Management Disposal	☐
☒ Site Survey	☐ Demobilization	☐
☒. Detector-Aided Visual Survey	☐	☐
☒ Manual MEC/MPPEH Ops	☐	☐
☐ UXO Escort/ Avoidance Operations	☐	☐
☒ Donor Explosives Handling	☐	☐
☐ MEC Treatment	☐	☐
☐ MPPEH Management Inspection	☐	☐
☐ MPPEH Management Certification	☐	☐ Other:

III. Quality Control Activities (Include blind seed coordinates and results and reference/attach inspection/surveillance reports):

Held the team tailgate safety meeting. A safety brief was also given to the Tetra Tech team performing trenching just north of our magazine area. Set all road barriers. Observed the IVS checks. Planted a blind seed. Seed #B11 was recovered by the dig team located at N547379.36 E1073736.85. Observed the grounding of the Type 2 magazines. Observed the receipt of the explosives and the safe handling of them. Checked 25% of the targets acquired and found no discrepancies. No ordnance related material was recovered today.

IV. Problems Encountered / Corrective Actions Taken

None

V. Directions Given / Received:

None

VI. Special Notes / Lessons Learned

None

VII. Visitors:

☐ Yes (see Visitor's Log/Daily Activity Log) ☒ No

VIII. Approval

Name and Signature: Mark A. Ladd	Title/Company: Safety/QC Tetra Tech	Date: 26 Jun 12

Facility/Location: NAS Pensacola, Fl.

Site(s): Saufley Field

DAILY QUALITY CONTROL REPORT

Project Name: Saufley Field Remedial Investigation Report No: 3

Project No: 112G03440 Location: NAS Pensacola Saufley Field Date: 27 Jun 12

I. Personnel Present (Reference/attach SUXOS's daily report if applicable): See Daily Tailgate Safety Form

II. Definable Feature of Work (see SAP Worksheet No. 12 and revise list as needed)

☐ Mob/Site Prep/Site Security	☐ MPPEH Management Disposal	☐
☒ Site Survey	☒ Demobilization	☐
☒. Detector-Aided Visual Survey	☐	☐
☒ Manual MEC/MPPEH Ops	☐	☐
☐ UXO Escort/ Avoidance Operations	☐	☐
☒ Donor Explosives Handling	☐	☐
☐ MEC Treatment	☐	☐
☐ MPPEH Management Inspection	☐	☐
☐ MPPEH Management Certification	☐	☐ Other:

III. Quality Control Activities (Include blind seed coordinates and results and reference/attach inspection/surveillance reports):

Held the team tailgate safety meeting. Safety brief was performed for the Tetra Tech team performing trenching operations just north of our magazine area. Set all road barriers. Observed the IVS checks. Planted a blind seed and it was located by the dig team. Seed #B11 located at N547173.01 E1073872.65. Checked 25% of the targets acquired and found no discrepancies. Received Perforator explosives and stored them in accordance with the work plan. GPS checked against NGS Monuments.

IV. Problems Encountered / Corrective Actions Taken

None

V. Directions Given / Received:

None

VI. Special Notes / Lessons Learned

None

VII. Visitors:

☐ Yes (see Visitor's Log/Daily Activity Log) ☒ No

VIII. Approval

Name and Signature: Mark A. Ladd	Title/Company: Safety/QC Tetra Tech	Date: 27 Jun 12

Facility/Location: NAS Pensacola, Fl.

Site(s): Saufley Field

DAILY QUALITY CONTROL REPORT

Project Name: Saufley Field Remedial Investigation Report No: 4

Project No: 112G03440 Location: NAS Pensacola Saufley Field Date: 28 Jun 12

I. Personnel Present (Reference/attach SUXOS's daily report if applicable): See Daily Tailgate Safety Form

II. Definable Feature of Work (see SAP Worksheet No. 12 and revise list as needed)

☐ Mob/Site Prep/Site Security	☐ MPPEH Management Disposal	☐
☒ Site Survey	☐ Demobilization	☐
☒. Detector-Aided Visual Survey	☐	☐
☒ Manual MEC/MPPEH Ops	☐	☐
☒ UXO Escort/ Avoidance Operations	☐	☐
☐ Donor Explosives Handling	☐	☐
☐ MEC Treatment	☐	☐
☐ MPPEH Management Inspection	☐	☐
☐ MPPEH Management Certification	☐	☐ Other:

III. Quality Control Activities (Include blind seed coordinates and results and reference/attach inspection/surveillance reports):

Held the team tailgate safety meeting and held a safety tailgate meeting for the Tetra Tech team performing trenching operations just north of our magazine area. Set all road barriers. Observed the IVS checks. Planted a blind seed and it was located by the dig team. Seed #B11 located at N546399,04 E1073567.57. Checked 25% of the targets acquired and found no discrepancies. GPS checked against NGS monuments. All intrusive digs have been completed. No Ordnance related material has been recovered.

IV. Problems Encountered / Corrective Actions Taken

None

V. Directions Given / Received:

None

VI. Special Notes / Lessons Learned

None

VII. Visitors:

☐ Yes (see Visitor's Log/Daily Activity Log) ☒ No

VIII. Approval

Name and Signature: Mark A. Ladd	Title/Company: Safety/QC Tetra Tech	Date: 28 Jun 12

Facility/Location: NAS Pensacola, Fl.

Site(s): Saufley Field

DAILY QUALITY CONTROL REPORT

Project Name: Saufley Field Remedial Investigation Report No: 5

Project No: 112G03440 Location: NAS Pensacola Saufley Field Date: 29 Jun 12

I. Personnel Present (Reference/attach SUXOS's daily report if applicable): See Daily Tailgate Safety Form

II. Definable Feature of Work (see SAP Worksheet No. 12 and revise list as needed)

☐ Mob/Site Prep/Site Security	☐ MPPEH Management Disposal	☐
☒ Site Survey	☒ Demobilization	☐
☒. Detector-Aided Visual Survey	☐	☐
☒ Manual MEC/MPPEH Ops	☐	☐
☐ UXO Escort/ Avoidance Operations	☐	☐
☒ Donor Explosives Handling	☐	☐
☐ MEC Treatment	☐	☐
☐ MPPEH Management Inspection	☐	☐
☐ MPPEH Management Certification	☐	☐ Other:

III. Quality Control Activities (Include blind seed coordinates and results and reference/attach inspection/surveillance reports):

Held the team tailgate safety meeting and held a detailed demo brief. Set all road barriers. Observed the IVS checks and removal. Observed the movement of the explosives to the demo site. Observed the setup of the demo clean up shot required to dispose of donor charges. Observed the initiation of the shot and the cleanup. Observed the cleanup of the site. Equipment stowed, packed and shipped. Operations complete.

IV. Problems Encountered / Corrective Actions Taken

None

V. Directions Given / Received:

None

VI. Special Notes / Lessons Learned

None

VII. Visitors:

☐ Yes (see Visitor's Log/Daily Activity Log) ☒ No

VIII. Approval

Name and Signature: Mark A. Ladd	Title/Company: Safety/QC Tetra Tech	Date: 29 Jun 12

TETRA TECH
MRP FF.7
DAILY IVS REPORT

Facility/Location: **NAS Pensacola, Florida**

Site(s): **Saufley Field**

Project No:112G03440	**Date**: 26 Jun 12

I. Test Plot Information

Location: (See IVS Installation Checklist)

Item No.	Inert Item/Surrogate Description	Depth (inches)	Comments
1	Medium ISO 2” by 8” Pipe	8	N547471.47 E1072943.72
2	Medium ISO 2” by 8” Pipe	12	N547442.93 E1072954.28
3	Large ISO 4” by 12” Pipe	24	N547475.80 E1072964.41

II. Instrument Information

Instrument Type/Manufacture	Instrument Serial Number	Test Plot Items Instrument Tested on (List Item Numbers)	Test Results - Initials of personnel Testing Equipment ☒ indicates good for operation				Comments (pass/fail) Explain below
			AM	AM	PM	PM	
Schonstedt	263216	1,2,3	☒		☒		
Schonstedt	225137	1,2,3	☒		☒		
Schonstedt	262458	1,2,3	☒		☒		
Schonstedt	224958	1,2,3	☒		☒		
			☐		☐		
			☐		☐		
			☐		☐		
			☐		☐		

III. Problems Encountered / Corrective Actions Taken.

explain in space below:

IV. Supervisor

Name and Signature: Jake Clement	**Title/Company**: Team Leader Tetra Tech	**Date**: 26 Jun 12

TETRA TECH
MRP FF.7
DAILY IVS REPORT

Facility/Location: NAS Pensacola, Florida

Site(s): Saufley Field

Project No: 112G03440 | **Date:** 27 Jun 12

I. Test Plot Information

Location: (See IVS Installation Checklist)

Item No.	Inert Item/Surrogate Description	Depth (inches)	Comments
1	Medium ISO 2" by 8" Pipe	8	N547471.47 E1072943.72
2	Medium ISO 2" by 8" Pipe	12	N547442.93 E1072954.28
3	Large ISO 4" by 12" Pipe	24	N547475.80 E1072964.41

II. Instrument Information

Instrument Type/Manufacture	Instrument Serial Number	Test Plot Items Instrument Tested on (List Item Numbers)	Test Results - Initials of personnel Testing Equipment ☒ indicates good for operation				Comments (pass/fail) Explain below
			AM	AM	PM	PM	
Schonstedt	263216	1,2,3	☒	[signature]	☒	[signature]	
Schonstedt	225137	1,2,3	☒	[signature]	☒	[signature]	
Schonstedt	262458	1,2,3	☒	JC	☒	JC	
Schonstedt	224958	1,2,3	☒	JC	☒	JC	
			☐		☐		
			☐		☐		
			☐		☐		
			☐		☐		

III. Problems Encountered / Corrective Actions Taken.

explain in space below:

IV. Supervisor

Name and Signature: Jake Clement	Title/Company: Team Leader Tetra Tech	Date: 27 Jun 12

TETRA TECH
MRP FF.7
DAILY IVS REPORT

Facility/Location: NAS Pensacola, Florida

Site(s): Saufley Field

Project No: 112G03440 | **Date:** 28 Jun 12

I. Test Plot Information

Location: (See IVS Installation Checklist)

Item No.	Inert Item/Surrogate Description	Depth (inches)	Comments
1	Medium ISO 2" by 8" Pipe	8	
2	Medium ISO 2" by 8" Pipe	12	
3	Large ISO 4" by 12" Pipe	24	
4			
5			
6			
7			

II. Instrument Information

Instrument Type/Manufacture	Instrument Serial Number	Test Plot Items Instrument Tested on (List Item Numbers)	Test Results - Initials of personnel Testing Equipment ☒ indicates good for operation				Comments (pass/fail) Explain below
			AM	AM	PM	PM	
Schonstedt		1,2,3	☒	JC	☒	JC	
Schonstedt		1,2,3	☒	JC	☒	JC	
Schonstedt		1,2,3	☒	SC	☒	SC	
Schonstedt		1,2,3	☒	SC	☒	SC	
			☐		☐		
			☐		☐		
			☐		☐		
			☐		☐		

III. Problems Encountered / Corrective Actions Taken.

explain in space below:

IV. Supervisor

Name and Signature: Jake Clement	Title/Company: Team Leader Tetra Tech	Date: 28 Jun 12

TETRA TECH
MRP FF.7
DAILY IVS REPORT

Facility/Location: NAS Pensacola, Florida

Site(s): Saufley Field

Project No:112G03440 | **Date**: 29 Jun 12

I. Test Plot Information

Location: (See IVS Installation Checklist)

Item No.	Inert Item/Surrogate Description	Depth (inches)	Comments
1	Medium ISO 2" by 8" Pipe	8	
2	Medium ISO 2" by 8" Pipe	12	
3	Large ISO 4" by 12" Pipe	24	
4			
5			
6			
7			

II. Instrument Information

Instrument Type/Manufacture	Instrument Serial Number	Test Plot Items Instrument Tested on (List Item Numbers)	Test Results - Initials of personnel Testing Equipment ☒ indicates good for operation				Comments (pass/fail) Explain below
			AM	AM	PM	PM	
Schonstedt		1,2,3	☒		☒		
Schonstedt		1,2,3	☒		☒		
Schonstedt		1,2,3	☒		☒		
Schonstedt		1,2,3	☒		☒		
			☐		☐		
			☐		☐		
			☐		☐		
			☐		☐		

III. Problems Encountered / Corrective Actions Taken.

explain in space below:

IV. Supervisor

Name and Signature: Jake Clement	Title/Company: Team Leader Tetra Tech	Date: 29 Jun 12

Facility/Location: NAS Pensacola, Fl.
Site(s): Saufley Field

INITIAL PHASE INSPECTION REPORT

Project Name: Saufley Field Remedial Investigation Report No: 1

Project No: 112G03440 Location: NAS Pensacola, Saufley Field Date: 25 Jun 12

I. Definable Feature of Work (See Worksheet No. 12 and update list)

☒ Site Preparation (incl. mobilization)	☒ UXO Escort/ Avoidance Operations	☐ De-Mobilize
☒ Site Survey	☐ MEC Treatment	☐
☒ Detector/Visual Survey	☐ MPPEH inspect	☐
☒ Manual MEC/MPPEH	☐ MPPEH Cert	☐
☐ Donor Explosives Handling	☐ MPPEH Disposal	☐

II. References (DOD Inst, Corporate references, SOPs, etc.):

HEALTH AND SAFETY PLAN (HASP)
EXPLOSIVE SAFETY SUBMISSION (ESS)
WORK PLAN (WP)

III. Personnel Present (employees performing the work) Attach supplemental sheet if necessary

Name	Position	Company
Steve Casidy	SUXOS	Tetra Tech
Mark Ladd	Safety/QC	Tetra Tech
Jake Clement	Team Lead	Tetra Tech
James Corder	Tech	Tetra Tech
Tye Turner	Tech	Tetra Tech
Ed Alder	Tech	Tetra Tech
Norm Piper	UXO Site Manager	Tetra Tech

IV. Preparatory Work (equipment set up & testing, EZ set up, logbook entries, etc.)

Is preliminary work complete and correct?	☒ Yes	☐ No
If No, what action(s) will be taken?		

V. Task Execution

Is work being completed in accordance with plans and specifications?	☒ Yes	☐ No
If No, what corrective action(s) will be taken?		
Is workmanship acceptable?	☒ Yes	☐ No
If No, what action(s) will be taken?		

V. Resolve Differences

Facility/Location: NAS Pensacola, Fl.
Site(s): Saufley Field

INITIAL PHASE INSPECTION REPORT

Project Name: Saufley Field Remedial Investigation Report No: 1

Project No: 112G03440 Location: NAS Pensacola, Saufley Field Date: 25 Jun 12

Comments: None

VI. Safety (Review work conditions using HASP and AHAs)

Comments: None

VII. Results of Inspection

☒ Acceptable ☐ Unacceptable NCR #:

Name: Mark Ladd | Signature: | Date: 25 Jun 12

QC Manager Comments

None

QC Manager Review

☒ Concur ☐ Non-Concur | Signature: Mark Ladd | Date: 25 Jun 12

VIII. Distribution

☐ PM ☐ UXO Project MGR ☒ UXOS/QC ☒ SUXOS ☐ CLIENT REP

Facility/Location: NAS Pensacola, Fl.
Site(s): Saufley Field

PREPARATORY PHASE INSPECTION REPORT

Project Name: Saufley Field RI | Project No: 112G03440 | Report No: 1
UXO Team: 1 | Location: Pensacola Fl. Saufley Field | Date: 25 Jun 12

I. Definable Feature of Work (see SAP Worksheet No. 12 and revise list as needed)

☒ Site Preparation (incl. mobilization)	☒ UXO Escort/ Avoidance Operations	☒ Demobilization
☒ Site Survey	☒. MEC Treatment	☐
☒ Detector/Visual Survey	☒ MPPEH inspect	☐
☒ Manual MEC/MPPEH	☒ MPPEH Cert	☐
☒ Donor Explosives Handling	☒ MPPEH Disposal	☐

II. References (DOD Inst., Corporate references, SOPs, etc.):

III. Personnel Present (employees performing the work) Attach supplemental sheet if necessary

Name	Position	Company
Steve Casidy	SUXOS	Tetra Tech
Mark Ladd	Safety/QC	Tetra Tech
Jake Clement	Team Lead	Tetra Tech
James Corder	TECH	Tetra Tech
Ed Alder	TECH	Tetra Tech
Tye Turner	TECH	Tetra Tech
Norm Piper	UXO Site Manager	Tetra Tech

IV. Submittals Reviewed (Work Plan, EHSP, Permits, etc.) Attach supplemental sheet if necessary

Submittals Reviewed.	Item No.	Date	Approval Authority
HASP		March 2012	**N62472-03-D-0057**
ESS		March 2012	**N62472-03-D-0057**
WORK PLAN		March 2012	**N62472-03-D-0057**

Have all submittals been approved? ☒ Yes ☐ No

If No, what items have not been submitted/ approved?

Are all submittals on hand? ☒ Yes ☐ No

If No, what items are missing?

Check approved submittals against delivered material. (This should be done as material arrives.)

Comments:

V. Resources (Personnel & Equipment)

Are adequate resources on hand to effectively conduct work? ☒ Yes ☐ No

Facility/Location: NAS Pensacola, Fl.
Site(s): Saufley Field

PREPARATORY PHASE INSPECTION REPORT

Project Name: Saufley Field RI | Project No: 112G03440 | Report No: 1
UXO Team: 1 | Location: Pensacola Fl. Saufley Field | Date: 25 Jun 12

If No, what action will be taken?

VI. Procedures (Project Manger should be involved in this stage of the inspection)

Review contract specifications. (List special requirements such as location accuracy, format for deliverables, etc.)

Discuss procedure for accomplishing the work (Reference WP Section or SOP).

The work plan and various SOP's were covered in the "kick off" meeting with all team members present.

Clarify any differences (revisions needed).

VII. Resolve Differences (What did you do to resolve outstanding issues/problems)

Comments:

VIII. Testing/ Surveillance

Identify Tests/ Surveillance to be performed, frequency, and by whom.

Daily and random testing of instruments was discussed and personnel assigned.

Where will the testing to take place (in the test bed, at a selected monument, etc.)?

IVS location was assigned and monuments for daily Trimble checks were identified.

Is the Testing/ Surveillance Plan Adequate?

Yes

IX. Safety

Review applicable portion of the Health and Safety Plan.

The "Initial" safety brief was conducted.

Has the Activity Hazard Analysis been approved? ☒ Yes ☐ No

X. Results of Inspection

☒ Acceptable ☐ Unacceptable | NCR #:

Name: Mark Ladd | Signature: | Date: 25 Jun 12

QCM Comments

None.

QCM Review

☐ Concur | ☐ Non-Concur | Signature: | Date

XI. Distribution

☐ PM ☐ UXO Project MGR ☒ UXOSO/QC ☒ SUXOS ☐ CLIENT REP

FOLLOW-UP INSPECTION/SURVEILLANCE REPORT

Project Name: Saufley Field Remedial Investigation | Report No: 1

Project No: 112G03440 | Location: NAS Pensacola, Saufley Field | Date: 29 Jun 12

I. Definable Feature of Work

☒ Site Preparation (incl. mobilization)	☒ UXO Escort/ Avoidance Operations	☒ De-Mobilize
☒ Site Survey	☐ MEC Treatment	☐
☒ Detector/Visual Survey	☐ MPPEH inspect	☐
☒ Manual MEC/MPPEH	☐ MPPEH Cert	☐
☒ Donor Explosives Handling	☐ MPPEH Disposal	☐

II. Type of Inspection

☒ Follow-up ☒ Surveillance

II. References (DOD Inst, Corporate references, SOPs, etc.):

HEALTH AND SAFETY PLAN (HASP)
EXPLOSIVE SAFETY SUBMISSION (ESS)
WORK PLAN (WP)
BIP procedures

III. Activities/Conditions Observed

- Site Restoration has been performed.
- All Intrusive Operations and target investigation complete. No MEC/MPPEH recovered.
- Removal of the IVS and packaging/shipment of field equipment.
- Donor Explosives were totally consumed during clean-up shot.
- Type II storage magazines will be shipped on Monday 6 Jun 12.
- All operations at RI site Saufley Field are complete.

Conducted By: Mark Ladd	Signature:	Date: 29 Jun 12

X. UXOSO/QC Review

☒ Acceptable ☐ Unacceptable | NCR #:

Comments:

Name:	Signature:	Date:

XI. Distribution

☒ PM ☒ SUXOS ☒ UXOSO/QC ☒ UXO Program Manager ☐ Client Rep

Revised May 2006

Facility/Location: NAS Pensacola, Fl.
Site(s): Saufley Field

INITIAL PHASE INSPECTION REPORT

Project Name: Saufley Field Remedial Investigation Report No: 2

Project No: 112G03440 Location: NAS Pensacola, Saufley Field Date: 29 Jun 12

I. Definable Feature of Work (See Worksheet No. 12 and update list)

☐ Site Preparation (incl. mobilization)	☐ UXO Escort/ Avoidance Operations	☒ De-Mobilize
☐ Site Survey	☐ MEC Treatment	☐
☐ Detector/Visual Survey	☐ MPPEH inspect	☐
☐ Manual MEC/MPPEH	☐ MPPEH Cert	☐
☒ Donor Explosives Handling	☐ MPPEH Disposal	☐

II. References (DOD Inst, Corporate references, SOPs, etc.):

HEALTH AND SAFETY PLAN (HASP)
EXPLOSIVE SAFETY SUBMISSION (ESS)
WORK PLAN (WP)
BIP procedures

III. Personnel Present (employees performing the work) Attach supplemental sheet if necessary

Name	Position	Company
Steve Casidy	SUXOS	Tetra Tech
Mark Ladd	Safety/QC	Tetra Tech
Jake Clement	Team Lead	Tetra Tech
James Corder	Tech	Tetra Tech
Ed Alder	Tech	Tetra Tech

IV. Preparatory Work (equipment set up & testing, EZ set up, logbook entries, etc.)

Is preliminary work complete and correct?	☒ Yes	☐ No
If No, what action(s) will be taken?		

V. Task Execution

Is work being completed in accordance with plans and specifications?	☒ Yes	☐ No
If No, what corrective action(s) will be taken?		
Is workmanship acceptable?	☒ Yes	☐ No
If No, what action(s) will be taken?		

V. Resolve Differences

Facility/Location: NAS Pensacola, Fl.
Site(s): Saufley Field

INITIAL PHASE INSPECTION REPORT

Project Name: Saufley Field Remedial Investigation | Report No: 2

Project No: 112G03440 | Location: NAS Pensacola, Saufley Field | Date: 29 Jun 12

Comments: Tye Turner Demobilized.

VI. Safety (Review work conditions using HASP and AHAs)

Comments: A detailed All demolition assignments have been made and the area has been prepared in accordance with the Work Plan and the Safety Plan. All notifications were made and base fire department provided a water truck at the runway check point and security was on standby. All entry points were manned. Demo took place at 1000. It was a clean shot without incident. No discrepancies noted.

VII. Results of Inspection

☒ Acceptable ☐ Unacceptable		NCR #:
Name: Mark Ladd	Signature:	Date: 29 Jun 12

QC Manager Comments

None

QC Manager Review

☒ Concur	☐ Non-Concur	Signature: Mark Ladd	Date: 25 Jun 12

VIII. Distribution

☐ PM ☐ UXO Project MGR ☒ UXOS/QC ☒ SUXOS ☐ CLIENT REP

Process Supervisor's Statement

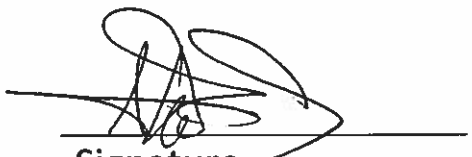
I have read and understand this SOP(s). To the best of my knowledge, the processes described within this SOP(s) as amended by the Site Specific Work Plan can be done in a safe, healthful and environmentally sound manner. I have made sure all persons assigned to this process are qualified, have read and understand the requirements of this SOP(s), and the Site Specific Work Plan and have signed the worker's/operator's statement for this process. I will ensure the SOP(s) and Site Specific Work Plan has current procedures. If a major change to the procedure(s) is necessary, I will ensure that the process is stopped until the SOP(s) and/or Site Specific Work Plan is revised and approved. If unexpected safety, health, or environmental hazards are found, I will make sure the process is stopped until the hazards have been eliminated.

Review and Check all Applicable SOP(s) applicable to Definable Features of Work.

SOP	Process	Reviewed ☒
SOP 1	Detector Aided Surface Survey	☑
SOP 2	MEC Management and Accountability	☑
SOP 3	Digital Geophysical Mapping	☑
SOP 4	Geophysical Data Processing and Analysis	☑
SOP 5	GPS	☑
SOP 6	Vegetation Management	☑
SOP 7	UXO Demolition Disposal Operations	☑
SOP 8	UXO Documentation	☑
SOP 9	MPPEH Management and Certification	☑
SOP 10	UXO Intrusive Investigation	☑
Other		☐
SOP		☐
SOP		☐
SOP		☐
SOP		☐

Note: The reviewed SOP's have been incorporated with site specific planning documents in order to provide the necessary process to perform required tasks. Site Specific Planning Documents may provide more detailed process information and will supersede SOP general process information.

Steven G. Cassidy — Supervisor's Name

 — Signature

6/25/17 — Date

Process Worker's/Operators Statement

I have read this SOP(s) and Site Specific Work Plan and I have received adequate training to perform the process according to the SOP(s) as amended by the Site Specific Work Plan. I will follow the SOP and Site Specific Work Plan unless I Identify a hazard not addressed in it or encounter an operation I cannot perform according to the SOP as amended by the Site Specific Work Plan. If that occurs, I will stop the process and notify my immediate supervisor of the problem.

Review and Check all SOP(s) Applicable to Project Definable Features of Work.

SOP	Process	Reviewed ☒
SOP 1	Detector Aided Surface Survey	☑
SOP 2	MEC Management and Accountability	☑
SOP 3	Digital Geophysical Mapping	☑
SOP 4	Geophysical Data Processing and Analysis	☑
SOP 5	GPS	☑
SOP 6	Vegetation Management	☑
SOP 7	UXO Demolition Disposal Operations	☑
SOP 8	UXO Documentation	☑
SOP 9	MPPEH Management and Certification	☑
SOP 10	UXO Intrusive Investigation	☑
Other		☐
SOP		☐
SOP		☐
SOP		☐
SOP		☐

Note: The reviewed SOP's have been incorporated with site specific planning documents in order to provide the necessary process to perform required tasks. Site Specific Planning Documents may provide more detailed process information and will supersede SOP general process information.

*See attached Signature Sheet

Process Worker's/Operators Statement Signature Sheet

Name	Signature	Date
James Calder		6-25-12
Tye Turner		6-25-12
ED ALDER		6-25-12
Jacob Clement		6/25/12

Mark A. Ladd
Supervisor's Name

Signature

25 Jun 12
Date

SITE-SPECIFIC TRAINING DOCUMENTATION

My signature below indicates that I am aware of the potential hazardous nature of performing field investigation activities at NAS Pensacola OLF Saufley, and that I have received site-specific training which includes the following elements:

- Names of personnel responsible for site safety and health
- Safety, health, and other hazards present on site
- Use of personal protective equipment
- Safe use of engineering controls and equipment
- Medical surveillance requirements
- Signs and symptoms of overexposure
- Emergency response procedures (evacuation/assembly area)
- Incipient response procedures
- Review of the contents of relevant Material Safety Data Sheets
- Review of the use of AHAs
- MEC and UXP safety precautions
- Stop work authorization and process

I have been given the opportunity to ask questions and my questions have been satisfactorily answered. The dates of my training and medical surveillance requirements indicated below are accurate.

Name Printed and Signature	Site-Specific	40-Hour	8-Hour Refresher	8-Hour Supervisor	Medical Exam	Basic First Aid/BBP	Other
STEVEN G. CASSITY	✓	✓	✓	✓	✓	✓	30 Hour CONST
Jacob A. Clement	✓	✓	✓	✓	✓		30 hr Const.
James Colder	✓	✓	✓		✓		Heavy Equip
Tye Turner	✓	✓	✓	✓	✓		excavator cert.
ED ALDER	✓	✓	✓		✓	✓	8 HR CONST

APPENDIX B.2

GEOPHYSICAL QC AND PROJECT DOCUMENTATION

APPENDIX B.2

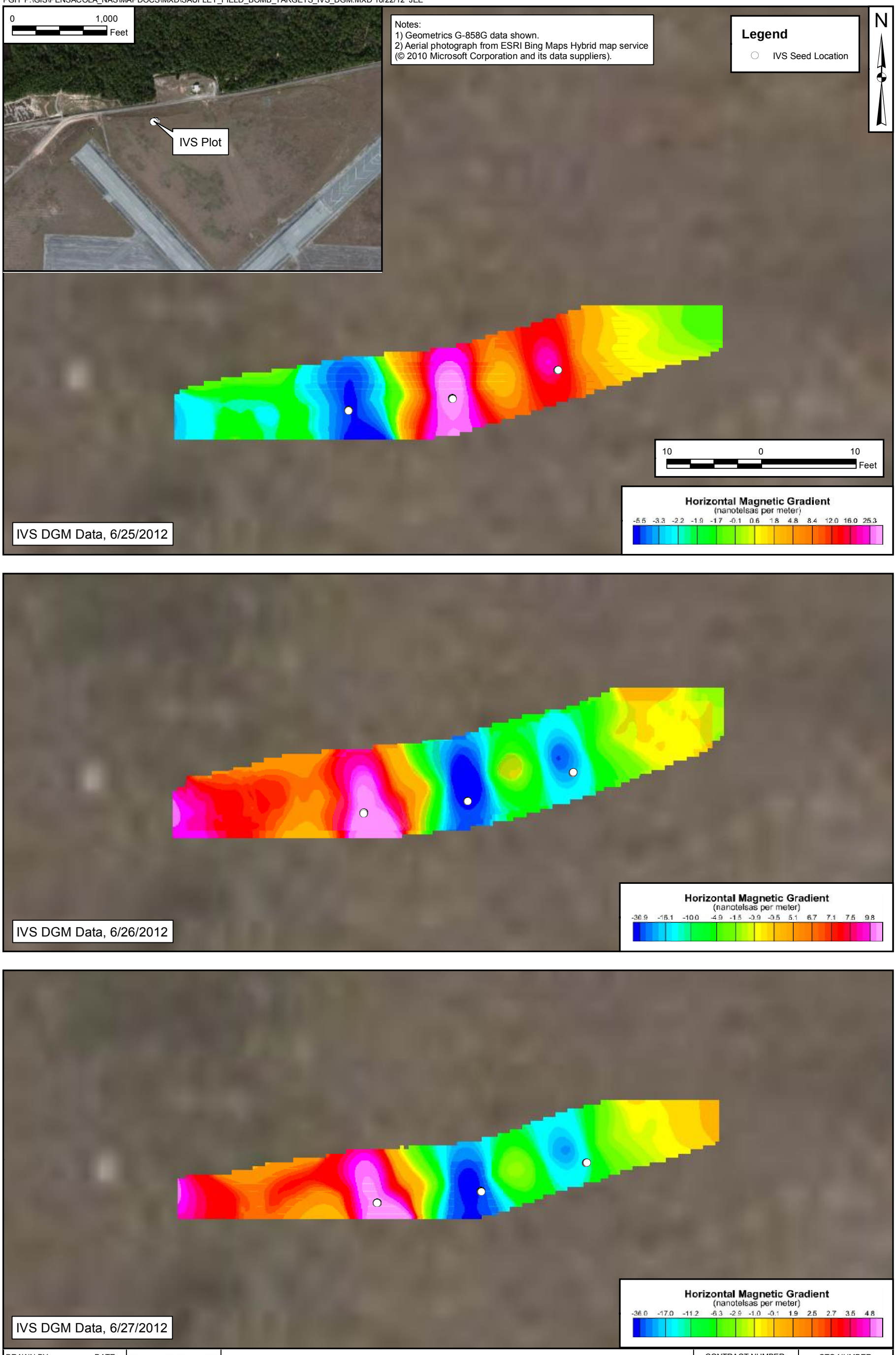
GEOPHYSICAL QC AND INSTRUMENT VERIFICATION STRIP (IVS)

QC Checks

To help ensure that high quality data were achieved, several QC checks and procedures described below were conducted according to procedures outlined in the SAP, and corresponding QC documentation is provided on checklists and forms included in Attachment 1. Each time the magnetometer was powered on, the unit was allowed to warm up for several minutes. Manufacturer's recommendations were followed for instrument calibration. Sensor positions were established to replicate those same relative positions used in the SI (both in height above ground surface and in horizontal spacing between sensors). Personnel inspected themselves daily for ferrous metallic items to remove any potential interference with instrument readings. A pull-away test was conducted to ensure GPS equipment would not interfere with the magnetometer readings. A static background and static spike test was performed in a non-anomalous (free of metallic items) location by collecting 3 minutes of ambient data, followed by 1 minute of spike data when a standard metallic test item (medium ISO) was emplaced below the sensors creating anomalous response, followed by another 1 minute of ambient data. This test was used to check stability of the magnetometer's readings in the presence and in the absence of ferrous metal. An Instrument Verification Strip (IVS) was performed daily to test instrument detections of three known buried ferrous metallic items (referred to as seed items) to within one meter positional accuracy. The IVS data from each survey day is presented as color contour composite maps on Figure C2.-1.

The results of the aforementioned QC checks were evaluated by Tetra Tech and determined to have met acceptance criteria stated in the SAP. Each of the IVS tests resulted in three detections within a meter positional accuracy of established buried seed item locations as documented on daily IVS reports (Attachment 1) and the IVS data (Figure D2-1). Static background responses all varied less than 1 nanotesla, and static spike responses all varied by 1 percent or less (with respect to the average spike anomaly value). No DGM blind seeding was required because step-out DGM surveying was not performed based on intrusive investigation results.

PGH P:\GIS\PENSACOLA_NAS\MAPDOCS\MXD\SAUFLEY_FIELD_BOMB_TARGETS_IVS_DGM.MXD 10/22/12 JEE



DRAWN BY: J. ENGLISH	DATE: 10/22/12	DGM IVS DATA COLOR CONTOUR COMPOSITE MAP SAUFLEY FIELD BOMBING TARGET SITE MEC REMEDIAL INVESTIGATION NSA PENSACOLA PENSACOLA, FLORIDA	CONTRACT NUMBER: 3440
CHECKED BY: J. COFFMAN	DATE: 10/22/12		CTO NUMBER: 148
REVISED BY: ___	DATE: ___		APPROVED BY: ___ DATE: ___
SCALE: AS NOTED			APPROVED BY: ___ DATE: ___
			FIGURE NO.: B2-1 REV: 0

TETRA TECH
MRP FF.14.1
DAILY DGM QUALITY CONTROL REPORT

Facility/Location: NAS Pensacola

Site(s): Saufley Field Bombing Target

Project Number: CTO 0148	Date: 6/25/12
Personnel Present: Jim Coffman - Project Geophysicist / UXO Escort	
List Features of Work and Equipment Used, Locations (areas surveyed)	
IVS check over 3 ISOs. Anomaly reacquisition of 10 hand dig locations. Equipment: Geometrics G-858G horizontal magnetometer gradiometer.	
Rework Items Identified Today (Not Corrected by Close of Business)	Rework Items Corrected Today
Remarks/Describe any Idle or Downtime and/or Equipment Problems	
On behalf of the contractor, I certify that this report is complete and correct and the equipment and material used and work performed during this reporting period is in compliance with the contract drawings and specifications to the best of my knowledge except as noted in this report.	DDC 6/25/12 TT ERT Representative Date
Tetra Tech Quality Assurance	
Quality Assurance Representative Remarks and/or Exceptions to the Report	
Inspection of Field Activities Performed	
	Tetra Tech QA Representative Date

TETRA TECH
MRP FF.14.1
DAILY DGM QUALITY CONTROL REPORT

Facility/Location: NAS Pensacola
Site(s): Saufley Field Bombing Target

Project Number: CTO 0148	Date: 6/26/12
Personnel Present: Jim Coffman - Project Geophysicist/UXO Escort	
List Features of Work and Equipment Used, Locations (areas surveyed)	
IVS Checksover 3 150s. Static Background and static Spike Test near IVS. Anomaly reacquisition of 5~~4~~ handdig locations. Two no-finds, three replacement anomalies added to cover no finds. Equipment: Geometrics G-858G horizontal magnetometer gradiometer.	
Rework Items Identified Today (Not Corrected by Close of Business)	Rework Items Corrected Today
	2 no finds replaced by 3 new anomalies selected from SI data.
Remarks/Describe any Idle or Downtime and/or Equipment Problems	
On behalf of the contractor, I certify that this report is complete and correct and the equipment and material used and work performed during this reporting period is in compliance with the contract drawings and specifications to the best of my knowledge except as noted in this report. TC	JDC ERT Representative 6/26/12 Date
Tetra Tech Quality Assurance	
Quality Assurance Representative Remarks and/or Exceptions to the Report	
Inspection of Field Activities Performed	
	Tetra Tech QA Representative Date

TETRA TECH
MRP FF.14.1
DAILY DGM QUALITY CONTROL REPORT

Facility/Location: NAS Pensacola

Site(s): Saufley Field Bombing Target

Project Number: CTO 0148	Date: 6/27/12
Personnel Present: Jim Coffman - Project Geophysicist / UXO Escort	
List Features of Work and Equipment Used, Locations (areas surveyed)	
IVS check over 3 150s. Static Background and static Spike Test near IVS. Anomaly reacquisition of 6 hand dig locations. Equipment: Geometrics G-858G horizontal magnetometer gradiometer.	

Rework Items Identified Today (Not Corrected by Close of Business)	Rework Items Corrected Today

Remarks/Describe any Idle or Downtime and/or Equipment Problems

On behalf of the contractor, I certify that this report is complete and correct and the equipment and material used and work performed during this reporting period is in compliance with the contract drawings and specifications to the best of my knowledge except as noted in this report.	TT JDC ERT Representative	6/27/12 Date

Tetra Tech Quality Assurance

Quality Assurance Representative Remarks and/or Exceptions to the Report

Inspection of Field Activities Performed	Tetra Tech QA Representative	Date

TETRA TECH
MRP FF.14.2
DGM INSTRUMENT VERIFICATION STRIP (IVS) INSTALLATION CHECKLIST

Facility/Location: NAS Pensacola

Site(s): Saufley Field Bombing Target

Project No: CTO 0148 **Date:** 6/25/12

I. Test Plot Information

Have survey objectives been determined, clarified, and documented?	(Y)	N	NA
Will the IVS be available during the project for the evaluation of suspected instrument malfunctions or evaluation of new equipment and operators?	(Y)	N	NA
Has surface clearance been performed?	(Y)	N	NA
Has background geophysical survey been performed before burial? UXO Team	(Y)	N	NA
Measure depth to top and center of mass of each object? UXO Team	(Y)	N	NA

Item No.	Inert Item/Surrogate Description	Depth (inches)	Azimuth/ Inclination Angle (Degrees)	GPSed (Y/N0	Expected Response Range (DGM)	Comment
1	Large ISO(steel)	24	horizontal	Y	NA - MAG	
2	Medium(SO(steel)	12	"	Y	"	
3	Medium ISO (steel)	8	"	Y	"	
4						
5						
6						
7						

II. Instrument Information

Instrument Type/Manufacture	Instrument Serial Number	Measured Response (DGM)	Test Results - Initials of personnel Testing Equipment ☒ indicates good for operation AM	AM	PM	PM	Comments (pass/fail) Explain below
Geometrics G-858G			☐		☒	JAC	1/2 day survey - 2 IVS.
			☐		☐		
			☐		☐		
			☐		☐		
			☐		☐		
			☐		☐		
			☐		☐		

III. Problems Encountered / Corrective Actions Taken.

explain in space below:

IV. Supervisor

Name and Signature:	Title/Company:	Date:

TETRA TECH
MRP FF.14.3
DGM DAILY IVS CHECKLIST

Facility/Location: NAS Pensacola

Site(s): Saufley Field Bombing Target

Project No: CTO 0148	**Date:** 6/26/12

I. Test Plot Information

Location: (See IVS Installation Checklist)

Item No.	Inert Item/Surrogate Description	Depth (inches)	Expected Response Range (DGM)	Comments
1	Large 150 (steel)	24	NA-MAG	
2	Medium 150 (steel)	12	"	
3	" " "	8	"	
4				
5				
6				
7				

II. Instrument Information

Instrument Type/ Manufacture	Instrument Serial Number	Measured Response (DGM)	GPS Monuments	Test Results,- Personnel Testing Equipment ☒ indicates good for operation				Comments
				AM	AM	PM	PM	
Geometrics G-858G				☒	QC	☒	QC	horizontal gradient
				☐		☐		
				☐		☐		
				☐		☐		
				☐		☐		
				☐		☐		
				☐		☐		
				☐		☐		
				☐		☐		
				☐		☐		
				☐		☐		

III. Problems Encountered / Corrective Actions Taken.

explain in space below:

IV. Supervisor

Name and Signature:	**Title/Company:**	**Date:**

TETRA TECH
MRP FF.14.3
DGM DAILY IVS CHECKLIST

Facility/Location: NAS Pensacola

Site(s): Saufley Field Bombing Target

Project No: CTO 0148	**Date:** 6/27/12

I. Test Plot Information

Location: (See IVS Installation Checklist)

Item No.	Inert Item/Surrogate Description	Depth (inches)	Expected Response Range (DGM)	Comments
1	Large 150 (steel)	24	NA-MAG	
2	Medium 150 (steel)	12	"	
3	" " "	8	"	
4				
5				
6				
7				

II. Instrument Information

Instrument Type/ Manufacture	Instrument Serial Number	Measured Response (DGM)	GPS Monuments	Test Results,- Personnel Testing Equipment ☒ indicates good for operation				Comments
				AM	AM	PM	PM	
Geometrics G-858G				☒	gpc	☐		horizontal gradient
				☐		☐		½ day surveying -
				☐		☐		1 IVS
				☐		☐		
				☐		☐		
				☐		☐		
				☐		☐		
				☐		☐		
				☐		☐		
				☐		☐		
				☐		☐		

III. Problems Encountered / Corrective Actions Taken.

explain in space below:

IV. Supervisor

Name and Signature:	**Title/Company:**	**Date:**

TETRA TECH
MRP FF.14.4
DGM INITIAL INSTRUMENT CHECKLIST

Facility/Location: NAS Pensacola

Site(s): Saufley Field Bombing Target

Name and Title: Jim Coffman - Project Glophysicist
Date: 6/25/12

Has the sensor travel test been performed (for underwater surveys), and are the results acceptable to meet survey objectives?	Y	N	(NA)
Has the GPS unit been checked for accuracy requirements against two known locations? UXO Team	(Y)	N	NA
Has the optimum sensor height for each instrument been determined?	(Y)	N	NA
Have the pull-away and/or interferences tests been performed and successfully demonstrated no influence for navigational or towing equipment?	(Y)	N	NA
Has an appropriate data acquisition rate been selected?	(Y)	N	NA

TETRA TECH
MRP FF.14.5
DGM DAILY INSTRUMENT CHECKLIST

Facility/Location: NAS Pensacola
Site(s): Saufley Field Bombing Target

Name and Title: Jim Coffman - Project Geophysicist
Date: 6/25/12

Has the operator been checked for presence of metal?	(Y)	N	NA
Has the instrument been warmed-up?	(Y)	N	NA
Have the sensor positions been measured and recorded?	(Y)	N	NA
Has a static background and spike test been performed successfully? waiting for spike item	Y	(N)	NA
Has the equipment function test been performed with detection of all the test targets? IVS	(Y)	N	NA
Have all loose cables been secured?	(Y)	N	NA
Has the EM61 or EM31 been nulled (power on)?			(NA)
Has the geophysical equipment been set up according to manufacturer's specifications?	(Y)	N	NA
Were the data monitored during data collection for anything unusual?	(Y)	N	NA

TETRA TECH
MRP FF.14.5
DGM DAILY INSTRUMENT CHECKLIST

Facility/Location: NAS Pensacola
Site(s): Saufley Field Bombing Target

Name and Title: Jim Coffman - Project Geophysicist
Date: 6/26/12

Has the operator been checked for presence of metal?	(Y)	N	NA
Has the instrument been warmed-up?	(Y)	N	NA
Have the sensor positions been measured and recorded?	(Y)	N	NA
Has a static background and spike test been performed successfully?	(Y)	N	NA
Has the equipment function test been performed with detection of all the test targets? 1 of 5	(Y)	N	NA
Have all loose cables been secured?	(Y)	N	NA
Has the EM61 or EM31 been nulled (power on)?			(NA)
Has the geophysical equipment been set up according to manufacturer's specifications?	(Y)	N	NA
Were the data monitored during data collection for anything unusual?	(Y)	N	NA

TETRA TECH
MRP FF.14.5
DGM DAILY INSTRUMENT CHECKLIST

Facility/Location: NAS Pensacola
Site(s): Saufley Field Bombing Target

Name and Title: Jim Coffman - Project Geophysicist
Date: 6/27/12

Has the operator been checked for presence of metal?	(Y)	N	NA
Has the instrument been warmed-up?	(Y)	N	NA
Have the sensor positions been measured and recorded?	(Y)	N	NA
Has a static background and spike test been performed successfully?	(Y)	N	NA
Has the equipment function test been performed with detection of all the test targets? IVS	(Y)	N	NA
Have all loose cables been secured?	(Y)	N	NA
Has the EM61 or EM31 been nulled (power on)?			(NA)
Has the geophysical equipment been set up according to manufacturer's specifications?	(Y)	N	NA
Were the data monitored during data collection for anything unusual?	(Y)	N	NA

TETRA TECH
MRP FF.14.6
DGM FIELD EDITING CHECKLIST

Facility/Location: NAS Pensacola

Site(s): Saufley Field Bombing Target

Name and Title: Jim Goffman - Project Geophysicist
Date: 6/25/12

Have the following items been evaluated for correctness and edited if necessary:

Line numbers?	(Y)	N	NA
Start and end points?	(Y)	N	NA
Line direction?	Y	N	(NA)
Fiducial locations?	Y	N	(NA)

Have the data been examined for geophysical noise?	(Y)	N	NA
Have the data been examined for the presence of drop-outs and spikes?	(Y)	N	NA
Have the edited data been converted to the appropriate .xyz format?	(Y)	N	NA

If using magnetics, have the following steps been taken:

Examined base station data for any problems?	Y	N	(NA)
Performed diurnal correction to field magnetometer data?	Y	N	(NA)

Have the positional data been evaluated for accuracy and completeness?	(Y)	N	NA

↑ UXO Team

TETRA TECH
MRP FF.14.6
DGM FIELD EDITING CHECKLIST

Facility/Location: NAS Pensacola

Site(s): Saufley Field Bombing Target

Name and Title: Jim Coffman - Project Geophysicist
Date: 6/26/10

Have the following items been evaluated for correctness and edited if necessary:

Line numbers?	(Y)	N	NA
Start and end points?	(Y)	N	NA
Line direction?	Y	N	(NA)
Fiducial locations?	Y	N	(NA)

Have the data been examined for geophysical noise?	(Y)	N	NA
Have the data been examined for the presence of drop-outs and spikes?	(Y)	N	NA
Have the edited data been converted to the appropriate .xyz format?	(Y)	N	NA

If using magnetics, have the following steps been taken:

Examined base station data for any problems?	Y	N	(NA)
Performed diurnal correction to field magnetometer data?	Y	N	(NA)

Have the positional data been evaluated for accuracy and completeness?	(Y)	N	NA

UXO Team

TETRA TECH
MRP FF.14.6
DGM FIELD EDITING CHECKLIST

Facility/Location: NAS Pensacola

Site(s): Saufley Field Bombing Target

Name and Title: Jim Coffman / Project Geophysicist

Date: 6/27/12

Have the following items been evaluated for correctness and edited if necessary:			
Line numbers?	(Y)	N	NA
Start and end points?	(Y)	N	NA
Line direction?	Y	N	(NA)
Fiducial locations?	Y	N	(NA)
Have the data been examined for geophysical noise?	(Y)	N	NA
Have the data been examined for the presence of drop-outs and spikes?	(Y)	N	NA
Have the edited data been converted to the appropriate .xyz format?	Y	(N)	NA
If using magnetics, have the following steps been taken:			
Examined base station data for any problems?	Y	N	(NA)
Performed diurnal correction to field magnetometer data?	Y	N	(NA)
Have the positional data been evaluated for accuracy and completeness?	(Y)	N	NA

UXO Team

6/25/12 SanFleyField/T4

MAG reacquire

Anomaly Ct		Orig ID		Reacq		Line
43	R	~~182~~ 179		~~8~~ 125	*	0
44	R	182		~~-55~~	*	1 - original 2 - moved
46	R	186		-55	*	3
59	R	8.0		0	*	4
41	R	169	NW2'	3	*	5
58	R	7.0	SE7'	6		6
39	R	~~13~~ 161	NW3'	55	*	7
40	R	165	E2'	22	*	8
36	R	152	NW5'	—	*	9
6/25 37	R	153		—	*	10
6/26 35		151		18		11
34		149		50		12
42		~~72~~	TR	27		13
14		75		-30		14
15		77		-40		15
16		78	2.5 NW	2		16
66		15		4		17
56		5		~~-6~~ 4		18
55		4		-6		19
10		40		14		20
11		45		50		21
50		193		3		22

6/26/12 Saufley Field ~~MCAS Pensacola~~ / FL

Anomaly ID	Orig ID		Reacq	Line
65	14		3	23
9	38		-3	24
54	53		2	25
53	2	3'SE	-3	26
52	1		50	27
2	10		-15	28
1	9		-15	29

2, 72, 78

Anomaly ID	Orig ID	Reacq	Line
53	2		30
3	14	25	31
4	17	-20	32
38	160	no find	33
47	187	8	34
57	160	-3	35
12	51	7	36
13	81	4	37 38
18	83	14	39
51	99	-7	40
19	87	4	41
17	81	56	42

6/26/12 Sayfley Field ~~ACRD Parms~~ / TE

Anomaly ID	Orig ID	Reacq	Line	
7	32	-30	43	
8	34		44	
63	12	no find	45	
9	9	50	46	
20	19	8	48	
28	122	2	49	
27	121	Anom 4.5N 8	~~50~~	
26	118	7	~~51~~	
48	191	Anom 4.5NW * no find	52	
62	11	12	53	
5	27	112	54	
6	28	5	55	
24	116	13	56	
~~23~~	114	-10	~~57~~	6/26
~~39~~	126	-6	0	6/27
30	128	6	1	
25	117	-10	2	
67	16	-20	3	
21	101	-7	4	
31	133	-3	5	
61	10	7	6	
22	113	8	7	
32	137	2	8	
64	13	-3	9	

6/27/12 Saufley Field ~~MCKD Parris~~ / TT

Anomaly ID	Orig ID	Reacq
33	148	-60
60	9	4
13	52	14
68	49	-150
69	48	35
70	62	-12

Line
10
11
12
13
14
15

APPENDIX C

VSP ANOMALY COORDINATES

Appendix C.1

POINT ANOMALIES
SAUFLEY FIELD BOMBING TARGET SITE
NAS PENSACOLA
PENSACOLA, FLORIDA

BURIED METALLIC FERROUS ITEMS				Selected for
Anomaly Number	Response	State Plane Easting	State Plane Northing	Investigation
1	-14.11	1073509.88	547546.15	--
2	19.62	1073405.6	547489.2	--
3	-7.16	1073462.54	547461.84	--
4	-0.62	1073413.73	547429.3	--
5	0.31	1073398.2	547419.69	--
6	-7.55	1073424.09	547411.55	--
7	-31.81	1073333.86	547384.93	--
8	-4.57	1073649.65	547425.6	--
9	-7.06	1073677.75	547393.8	**YES**
10	1.19	1073734.7	547378.27	**YES**
11	-6.87	1073815.31	547426.34	--
12	-9.37	1073824.92	547391.58	**No Find**
13	-7.14	1073379.72	547333.16	--
14	-7.87	1073420.39	547328.72	**YES**
15	-24.11	1073428.53	547316.89	--
16	3.21	1073486.21	547283.61	--
17	46.46	1073304.28	547207.44	**YES**
18	12.67	1073295.41	547216.31	--
19	25.28	1073345.7	547234.06	--
20	29.87	1073351.61	547225.92	--
21	7.77	1073381.19	547225.19	--
22	4.16	1073376.76	547239.98	--
23	244.76	1073501	547148.27	--
24	7.15	1073361.23	547078.75	--
25	-10.97	1073483.99	547073.58	--
26	-33.12	1073486.21	547064.7	--
27	6.06	1073472.9	547072.84	**YES**
28	3.9	1073492.87	547088.37	**YES**
29	3.63	1073398.2	547021.07	--
30	-12.95	1073471.42	547029.2	--
31	-20.46	1073503.22	547032.16	--
32	-21.3	1073581.61	547001.1	**YES**
33	2.51	1073611.93	546994.45	--
34	-5.41	1073425.57	546988.53	**YES**
35	9.54	1073350.87	546961.91	--
36	10.46	1073671.1	547097.24	--
37	3.91	1073650.39	547109.08	--

Appendix C.1

POINT ANOMALIES
SAUFLEY FIELD BOMBING TARGET SITE
NAS PENSACOLA
PENSACOLA, FLORIDA

BURIED METALLIC FERROUS ITEMS				Selected for
Anomaly Number	Response	State Plane Easting	State Plane Northing	**Investigation**
38	4.08	1073874.47	547172.68	**YES**
39	13.72	1073870.78	547049.17	--
40	-1.18	1073761.32	547061.01	**YES**
41	-20.42	1073789.43	547084.67	--
42	5.74	1073838.98	546979.65	--
43	-6.61	1073803.48	547069.88	--
44	1.2	1073733.96	546977.44	--
45	10	1073774.63	546934.54	**YES**
46	10.85	1073540.2	546901.26	--
47	10.83	1073524.67	546887.21	--
48	4.36	1073351.61	546838.4	**YES**
49	-164.87	1073353.09	546829.53	**YES**
50	5.28	1073366.4	546833.96	--
51	19.62	1073465.5	546751.13	**YES**
52	-6.97	1073339.04	546899.04	**YES**
53	0.94	1073449.97	546689.75	--
54	4.99	1073804.22	546747.44	--
55	-3.93	1073614.15	546796.25	--
56	2.57	1073501	546736.34	--
57	-2.96	1073836.02	546793.29	--
58	-3.71	1073842.67	546757.79	--
59	-4.24	1073838.24	546727.47	--
60	-4.62	1073920.33	546774.8	--
61	3.15	1073912.19	546712.68	--
62	13.9	1073888.53	546811.04	**YES**
63	-4.44	1073955.08	546782.2	--
64	-4.02	1073972.83	546737.08	--
65	6.26	1074101.52	546813.26	--
66	-1.41	1074110.39	547007.02	--
67	1.03	1074071.93	547013.67	--
68	64.25	1074148.85	547047.69	--
69	37.71	1074151.8	547036.6	--
70	11.11	1074259.04	546884.25	--
71	1.84	1074144.41	546889.43	--
72	0.38	1074134.8	546773.32	--
73	2.66	1074249.43	546714.9	--
74	6.43	1074269.39	546763.71	--

Appendix C.1

POINT ANOMALIES
SAUFLEY FIELD BOMBING TARGET SITE
NAS PENSACOLA
PENSACOLA, FLORIDA

BURIED METALLIC FERROUS ITEMS				Selected for
Anomaly Number	Response	State Plane Easting	State Plane Northing	Investigation
75	8.45	1074283.44	546760.01	**YES**
76	-5.59	1074290.84	546751.87	--
77	-18.35	1074276.05	546847.28	**YES**
78	-8.18	1074259.04	546840.62	**YES**
79	-5.85	1073721.39	546889.43	--
80	-8.7	1073733.96	546890.17	--
81	-4.66	1073716.95	546629.85	**YES**
82	-3.27	1073849.33	546603.22	--
83	6.53	1073899.62	546559.59	**YES**
84	8.1	1073935.12	546598.05	--
85	-2.57	1073921.07	546627.63	--
86	-0.69	1073929.2	546541.84	--
87	-2.3	1073888.53	546518.18	**YES**
88	-14.44	1074308.59	546777.76	--
89	-0.77	1074325.6	546837.66	--
90	-5.62	1073759.1	546460.49	--
91	-31.06	1073705.86	546447.92	**YES**
92	-8.38	1073796.08	546342.9	--
93	-8.35	1073759.84	546351.04	--
94	15.53	1073728.04	546367.31	--
95	4.67	1073733.96	546342.16	--
96	2.1	1073754.67	546319.24	--
97	13.7	1073702.9	546305.19	--
98	16.69	1073620.81	546337.73	--
99	-5.15	1073641.52	546320.72	--
100	14.83	1073533.54	546381.36	--
101	-5.76	1073567.56	546393.93	**YES**
102	28.49	1073595.66	546474.54	--
103	13.03	1073603.06	546472.32	--
104	-18.84	1073612.67	546461.23	--
105	-13.07	1073523.19	546463.45	--
106	10.23	1073412.99	546525.57	--
107	-8.72	1073424.83	546484.9	--
108	15.81	1073417.43	546423.51	--
109	-5.57	1073483.99	546364.35	--
110	14.11	1073346.44	546369.53	--
111	-5.27	1073404.12	546330.33	--

Appendix C.1

POINT ANOMALIES
SAUFLEY FIELD BOMBING TARGET SITE
NAS PENSACOLA
PENSACOLA, FLORIDA

BURIED METALLIC FERROUS ITEMS				Selected for
Anomaly Number	Response	State Plane Easting	State Plane Northing	Investigation
112	-4.67	1073520.97	546554.41	--
113	-4.8	1073422.61	546561.07	**YES**
114	12.68	1073466.24	546290.39	**YES**
115	12.81	1073472.16	546296.31	--
116	-16.14	1073481.03	546288.18	**YES**
117	-5.88	1073582.35	546288.18	**YES**
118	5.5	1073677.01	546265.25	**YES**
119	31.67	1073686.63	546257.11	--
120	-11.04	1073700.68	546274.12	--
121	-10.97	1073716.95	546287.44	**YES**
122	3.56	1073756.15	546296.31	**YES**
123	-17.96	1073594.18	546260.81	--
124	-6.67	1073589.01	546228.27	--
125	20.55	1073607.5	546189.08	--
126	3	1073634.12	546166.15	**YES**
127	7.81	1073532.8	546234.19	--
128	4.49	1073560.9	546244.54	**YES**
129	9.96	1073504.7	546260.07	--
130	-16.56	1073449.23	546251.2	--
131	73.76	1073447.75	546218.66	--
132	4.52	1073391.55	546268.95	--
133	5.03	1073293.93	546380.62	**YES**
134	14.93	1073248.08	546595.83	--
135	-3.68	1073242.9	546495.25	--
136	-50.64	1073180.04	546493.77	--
137	-5.25	1073170.42	546521.87	**YES**
138	-2.46	1073171.9	546532.97	--
139	-7.58	1073117.18	546556.63	--
140	26.22	1073164.51	546609.88	--
141	8.83	1073174.86	546607.66	--
142	4.74	1073180.78	546666.83	--
143	11.03	1073110.52	546660.17	--
144	4.43	1073091.29	546658.69	--
145	5.06	1073092.77	546638.72	--
146	13.24	1073136.4	546720.07	--
147	-4.4	1073144.54	546713.42	--
148	-130.07	1073192.61	546729.69	**YES**

Appendix C.1

POINT ANOMALIES
SAUFLEY FIELD BOMBING TARGET SITE
NAS PENSACOLA
PENSACOLA, FLORIDA

BURIED METALLIC FERROUS ITEMS				Selected for
Anomaly Number	Response	State Plane Easting	State Plane Northing	Investigation
149	5.51	1073005.5	546740.04	**YES**
150	13.51	1073129.75	546785.15	--
151	9	1073066.15	546796.25	**YES**
152	-5.18	1073102.38	546808.82	**YES**
153	4.83	1073107.56	546804.38	**YES**
154	2.88	1073267.3	546846.54	--
155	4.57	1073274.7	546867.98	--
156	-4.67	1073279.88	546861.33	--
157	-2.34	1073289.49	546929.37	--
158	10.4	1073194.83	546913.1	--
159	23.08	1073197.79	546907.18	--
160	-5.15	1073217.01	547112.03	**YES**
161	3.82	1073154.15	546944.16	**YES**
162	5.2	1073174.86	546928.63	--
163	-8.67	1073137.14	546919.01	--
164	-6.96	1073121.61	546867.98	--
165	-3.58	1073083.16	546862.81	**YES**
166	-3.73	1073072.06	546868.72	--
167	8.51	1073055.05	546888.69	--
168	6.66	1073055.05	546957.47	--
169	4.01	1073070.58	546954.51	**YES**
170	-1.77	1073048.4	546968.56	--
171	-1.3	1073021.77	547046.21	--
172	-20.91	1072967.79	546805.86	--
173	-10.56	1072961.87	546813.26	**YES**
174	25.5	1072893.83	546822.13	--
175	163.02	1072886.44	546824.35	--
176	-2.98	1072862.03	546950.81	--
177	-3.61	1072867.21	546945.64	--
178	-7.31	1072837.63	546924.93	--
179	-4.33	1072841.32	547008.5	**YES**
180	2.63	1072824.31	546964.86	--
181	41.42	1072796.95	546973	--
182	29.51	1072801.39	546964.12	**YES**
183	2.28	1072796.21	546933.06	--
184	6.14	1072805.82	546920.49	--
185	6.29	1072808.78	546938.98	**YES**

Appendix C.1

POINT ANOMALIES
SAUFLEY FIELD BOMBING TARGET SITE
NAS PENSACOLA
PENSACOLA, FLORIDA

BURIED METALLIC FERROUS ITEMS				**Selected for**
Anomaly Number	Response	State Plane Easting	State Plane Northing	**Investigation**
186	-17.28	1072774.02	546947.85	**YES**
187	-3.67	1073400.42	546832.48	**YES**
188	-2.65	1073324.99	546422.03	--
189	-8.92	1073438.88	546319.98	--
190	-4.28	1073486.95	546359.17	--
191	5.59	1073700.68	546236.41	**No Find**
192	4.73	1073754.67	546300.01	**YES**
193	3.71	1073921.07	546893.87	**YES**
194	3.38	1073484.73	546748.18	--
195	8.75	1073055.05	547184.51	--
196	7.04	1073058.75	547210.39	--
197	2.83	1073552.77	547351.65	--
198	-4.01	1073784.25	547189.69	--
199	5.23	1073988.36	546501.17	**YES**
Number of randomly selected anomalies				**53**

Note: Coordinates stated in NAD83 Florida State Plane North in US Survey Feet.
Response values stated in nanoteslas per meter.

Appendix C.2

SMALL POINT ANOMALIES
SAUFLEY FIELD BOMBING TARGET SITE
NAS PENSACOLA
PENSACOLA, FLORIDA

SMALL BURIED FERROUS METALLIC ITEMS				Selected for Investigation
Anomaly Number	Response	State Plane Easting	State Plane Northing	
1	-0.69	1073761.64	547220.34	**Yes**
2	1.57	1073814.46	547249.60	**Yes**
3	1.52	1073825.84	547286.98	**Yes**
4	-2.78	1073948.55	546824.57	**Yes**
5	-6.35	1073940.43	546802.62	**Yes**
6	3.96	1073417.06	546781.49	**Yes**
7	2.02	1073143.18	546967.60	**Yes**
8	-3.42	1072951.39	546955.41	**Yes**
9	-0.04	1073264.27	546795.31	**Yes**
10	3.65	1073505.64	546590.51	**Yes**
11	-2.82	1073617.79	546584.82	**Yes**
12	6.57	1073638.92	546579.95	**Yes**
13	4.30	1073159.44	546497.87	**Yes**
14	-3.38	1073871.35	546970.04	**Yes**
15	5.25	1074269.56	546866.01	**Yes**
16	3.74	1073432.50	546327.20	**Yes**

Note: Coordinates stated in NAD83 Florida State Plane North in US Survey Feet.
Response stated in nanoteslas per meter (horizontal gradient).

APPENDIX D

DIG SHEETS

TETRA TECH
MRP FF.11
DIG SHEET - MANUAL TARGET EXCAVATION RESULTS
Facility/Location: NAS Pensacola, Florida
Site(s): Saufley Field

Location or Anomaly Number (1)	Coordinates (1)		Detection Equip.	Excavation Dimensions (L x W x D) (inches)/(feet)	Number of Dig Locations	Munitions-Related Items				Non-Munitions Items			No Finds
	N	E				Number and Description	MEC/ MPPEH/ MDAS	Explosive Weight (lbs)	Disposition Date	Number and Description	Approx. Weight (lbs)	Disposition Date	Anomaly Deeper than ___'? (Y/N)
T-1-1	AREA B		Schon	3'x3'x3'	1					Scrap Metal	< 1lbs	06/28	N
T-1-2	B			2'x2'x2'	1					Spike	2lbs.	06/28	N
T-1-3	B			2'x2'x2'	1					Spike	2lbs	06/28	N
T-1-4	B			2'x2'x2'	1					Spike	2lbs.	06/28	N
T-1-5	B			2'x2'x2	1					Spike	2lbs.	06/28	N
T-2-1	AREA A			4'x3'x3'	1					Scrap Metal	15,lbs	06/28	N
T-2-2	A			4'x3'x3'	1					Spring	2lbs.	06/28	N
T-2-3	A			4'x3'x3'	1					Scrap Metal	< 0.5lbs	06/28	N
T-3-1	AREA C			3'x3'x3'	1					Scrap Metal	< 1lbs.	06/28	N
T-3-2	C			2'x2'x2'	1					Spike	2lbs	06/28	N

-- = None found or unknown, not applicable.

TETRA TECH
MRP FF.11
DIG SHEET - MANUAL TARGET EXCAVATION RESULTS
Facility/Location: NAS Pensacola, Florida
Site(s): Saufley Field

Location or Anomaly Number (1)	Coordinates (1)		Detection Equip.	Excavation Dimensions (L x W x D) (inches)/(feet)	Number of Dig Locations	Munitions-Related Items				Non-Munitions Items			No Finds
	N	E				Number and Description	MEC/ MPPEH/ MDAS	Explosive Weight (lbs)	Disposition Date	Number and Description	Approx. Weight (lbs)	Disposition Date	Anomaly Deeper than 4'? (Y/N)
T-3-3	AREA C		Schon	2'x2'x2'	1					Spike	2lbs	06/28	N
T-4-1	AREA	E		2'x2'x2'	1					Scrap Metal	<.5lbs	06/28	N
T-4-2		E		2'x3'x3'	1					Ground Rod	UKN	06/28	Y
T-4-3		E		2'x2'x2'	1					Scrap Metal	<.5lbs	06/28	N
T-5-1	AREA	D		2'x3'x3'	1					Scrap Metal	<.5lbs	06/28	N
T-5-2		D		2'x2'x2'	1					Screw	<.5lbs	06/28	N
T-5-3		D		2'x2'x2'	1					(2) Bolts	2lbs	06/28	N

-- = None found or unknown, not applicable.

TETRA TECH
MRP FF.11
DIG SHEET - MANUAL TARGET EXCAVATION RESULTS

Facility/Location: NAS Pensacola, Florida

Site(s): Saufley Field

ation or Anomaly Number (1)	Coordinates (1)		Detection Equip.	Excavation Dimensions (L x W x D) (inches)/(feet)	Number of Dig Locations	Munitions-Related Items				Non-Munitions Items			No Finds
	N	E				Number and Description	MEC/ MPPEH/ MDAS	Explosive Weight (lbs)	Disposition Date	Number and Description	Approx. Weight (lbs)	Disposition Date	Anomaly Deeper than 4'? (Y/N)
14 (75)	546757.55	1074287.58	sch	12"x12"x6" MAX 24"	1				06/26	Ball of wire	.5LBS		N
16 (78)	546840.80	1074259.75		8"x8"x6" Max 24"	1				06/26	Scrap metal	.5LB		N
66 (15)	546867.37	1074268.46		12"x12"x6" Max 24"	1				06/26	Non visible rust	<.5LB		N
15	546846.71	1074275.46		12"x8"x4" Max 24"	1				06/26	Rebar	.5LB		N
54	547287.58	1073827.51		16"x16"x8" Max 24"	1				06/26	Nail	<.5LB		N
53	547252.81	1073812.05		18"x18"x8" Max 24"	1				06/26	Banding	<.5LB		N
52	547219.19	1073766.25		24"x18"x 36"	1				06/26	Concrete w/ Rebar	50 LBS		N
10	547061.56	1073760.39		12"x12"x 8" MAX 24"	1				06/26	Small wire	<.5LB		N
65	546870.26	1073870.9		12"x12"x6" Max 24"	1				06/26	Scrap metal	<.5LB		N

TETRA TECH
MRP FF.11
DIG SHEET - MANUAL TARGET EXCAVATION RESULTS

Facility/Location: NAS Pensacola, Florida

Site(s): Saufley Field

ation or Anomaly Number (1)	Coordinates (1)		Detection Equip.	Excavation Dimensions (L x W x D) (inches)/(feet)	Number of Dig Locations	Munitions-Related Items				Non-Munitions Items			No Finds
	N	E				Number and Description	MEC/ MPPEH/ MDAS	Explosive Weight (lbs)	Disposition Date	Number and Description	Approx. Weight (lbs)	Disposition Date	Anomaly Deeper than 4'? (Y/N)
50	546893.6	1073923.68	Schon	12"x12"x6" max 24"	1				06/26	2 pcs. cable	<.5		N
2	547378.41	1075736.09		12"x12"x6" MAX 24"	1				06/26	scrap metal seed item	4 LBS		N
1	547394.13	1073675.66		12"x12"x6" MAX 24"	1				06/26	Rebar	2 LBS		N
43	547009.34	1072842.53		24"x8"x6" MAX Depth 24"	1				06/26	unidentifiable rust	<.5LB		N
44	546971.14	1072796.44		36"x12"x8" MAX Depth 24"	1				06/27	3pcs wire	<.5LB		N
46	546950.19	1072770.87		18"x8"x6" Max 24"	1				06/27	Clothes hanger, Turn Knob	<5LB		N
13	546900.58	1073340.93		12"x12"x6" MAX 24"	1				06/27	Screwdriver	1 LB		N
69	546841.83	1073352.58		12"x12"x8" MAX 24"	1				06/27	wire	<.5LB		N
68	546833.70	1073355.85		12"x12"x6" MAX 24"	1				06/27	24" Pipe	4LBS		N

-- = None found or unknown, not applicable.
1) Coordinates supplied by GPS

Signature: _____ Date: _____

TETRA TECH
MRP FF.11

DIG SHEET - MANUAL TARGET EXCAVATION RESULTS

Facility/Location: NAS Pensacola, Florida

Site(s): Saufley Field

ation or Anomaly Number (1)	Coordinates (1)		Detection Equip.	Excavation Dimensions (L x W x D) (inches)/(feet)	Number of Dig Locations	Munitions-Related Items				Non-Munitions Items			No Finds
	N	E				Number and Description	MEC/ MPPEH/ MDAS	Explosive Weight (lbs)	Disposition Date	Number and Description	Approx. Weight (lbs)	Disposition Date	Anomaly Deeper than 4'? (Y/N)
47	546834.09	1073398.8		16"x16"x6" MAX 24"	1					Nail Pit	1LB	06/27	N
57	546782.98	1073418.17		12"x12"x6" MAX 24"	1					Scrap metal	.5LB	06/27	N
12	546752.88	1073464.89		24"x12"x12"	1					Cost Hanger Ring	<.5LB	06/27	N
61	546596.50	1073503.87		24"x24"x 24"	1					Geological Anomaly	<.5LB	06/27	N
22	546565.75	1073422.67		12x12x6" MAX 24"	1					Metal Skewer	<.5LB	06/27	N
62	546589.70	1073614.92		12"x12"x 6" MAX 24"	1					Scrap metal	2LBS	06/27	N
17	546633.72	1073715.87		12"x12"x 6" MAX 24"	1					Scrap metal	1LB	06/27	N
9	547173.01	1073872.65		12"x12"x 6" 24" max	1					Scrap metal	.5LB	06/27	N
6	547097.68	1073489.85		12"x12"x 6" 24" MAX	1					Axe Head	2LBS	06/27	N

TETRA TECH
MRP FF.11
DIG SHEET - MANUAL TARGET EXCAVATION RESULTS

Facility/Location: NAS Pensacola, Florida

Site(s): Saufley Field

ation or Anomaly Number (1)	Coordinates (1)		Detection Equip.	Excavation Dimensions (L x W x D) (inches)/(feet)	Number of Dig Locations	Munitions-Related Items				Non-Munitions Items			No Finds
	N	E				Number and Description	MEC/ MPPEH/ MDAS	Explosive Weight (lbs)	Disposition Date	Number and Description	Approx. Weight (lbs)	Disposition Date	Anomaly Deeper than 4'? (Y/N)
5	547072 .49	1073478 .19	schon	18" X 24" X 12" 24" MAX	1					Scrap Metal	2LBS	06/27	N
8	546893 .00	1073421 .72		12" X 12" X 6" 24" Max	1					Scrap metal	3 LBS	06/27	N
60	546796. 71	1073264 .36		12 X 12 X 8" 24" MAX	1					Scrap Metal	<.5LB	06/27	N
33	546732 .93	1073192. 84		12" X 6" X 6" 24" Max	1					Scrap Metal	3LBS	06/27	N
36	546810 .17	1073101. 33		18" X 36" X24"	1					Scrap metal	<.5LB	06/27	N
37	/	/	/	SEE		#36	/	/	/	/	/	/	/
35	546802 .99	1073071 .36		12" X 12" X 6" 24" Max	1					Scrap Metal	.5LB	06/27	N
40	546866. 28	1073080. 76		12"X6X6 24" Max	1					Scrap Metal	.5LB	06/27	N
59	546959 .45	1072954 29		8"X8"X6" 24" Max	1					Scrap Metal	<.5LB	06/27	N

-- = None found or unknown, not applicable.
1) Coordinates supplied by GPS

Signature: _____ Date: _____

TETRA TECH
MRP FF.11
DIG SHEET - MANUAL TARGET EXCAVATION RESULTS

Facility/Location: NAS Pensacola, Florida

Site(s): Saufley Field

ation or Anomaly Number (1)	Coordinates (1)		Detection Equip.	Excavation Dimensions (L x W x D) (inches)/(feet)	Number of Dig Locations	Munitions-Related Items				Non-Munitions Items			No Finds
	N	E				Number and Description	MEC/ MPPEH/ MDAS	Explosive Weight (lbs)	Disposition Date	Number and Description	Approx. Weight (lbs)	Disposition Date	Anomaly Deeper than 4'? (Y/N)
45	546936 .86	1072814 .61	Schon	16"X 16"X 8" 24" Max	1					Ball of wire	2LBS	06/27	N
42	546809. 11	1072963 .79		16"X12"X8" 24" MAX	1					Scrap Metal	1LB	06/27	N
34	546745 .48	1073005. 53		6"X6"X 6" 24" MAX	1					Steel Pin	2LBS	06/27	N
32	546528. 39	1073169. 47		8"X12"X 3 24" MAX	1					AA Battery	.5LB	06/27	N
64	546503.65	1073157 .49		6"X8"X4" 24" MAX	1					Nail	<.5LB	06/27	N
31	546383. 85	1073293 .67		8"X8"X3" 24" Max	1					Wire	<.5LB	06/27	N
67	546331. 29	107343 4.18		18X18X12 24" MAX	1					SCRAP METAL	<.5lb	06/28	N
23	546296 .22	1073463. 24		36"X12" X8" 24" MAX	1					Wire	<.5LB	06/28	N
24	546294. 53	1073479. 84		18"X8" X12" 24" MAX	1					wire	.5LB	06/28	N

TETRA TECH
MRP FF.11
DIG SHEET - MANUAL TARGET EXCAVATION RESULTS

Facility/Location: NAS Pensacola, Florida

Site(s): Saufley Field

ation or Anomaly Number (1)	Coordinates (1)		Detection Equip.	Excavation Dimensions (L x W x D) (inches)/(feet)	Number of Dig Locations	Munitions-Related Items				Non-Munitions Items			No Finds
	N	E				Number and Description	MEC/ MPPEH/ MDAS	Explosive Weight (lbs)	Disposition Date	Number and Description	Approx. Weight (lbs)	Disposition Date	Anomaly Deeper than 4'? (Y/N)
30	546245 .36	1073559 .64	Schon	12" X 12" X 8" 24" Max	1					Scrap metal, Trash Pit	<.5LB	06/28	N
25	546288 .78	1073583 .60		12" x 12" x 8" 24" Max	1					Scrap Metal	.5LB	06/28	N
21	546399. 04	1073567 57		12" x 12" x 6" 24" Max	1					SEED, Bil Banding	<.5LB	06/28	N
20	546449 .21	1073707 .31		12" x 12" x 6" 24" Max	1					Scrap Metal	.5LB	06/28	N
27	546289 .07	1073718 .11		12" x 12" x 6"	1					Screws	<.5LB	06/28	N
26	546268 .68	1073686 .39		12" x 12" x 6" 24" Max	1					Screw	<.5LB	06/28	N
48	546239 .33	1073697 .93		12" x 12" x 6	1					Bolt	<.5LB	06/28	N
28	546295 .79	1073758 .89		12" x 2" x 1" Max 24"	1					Scrap Metal	1LB	06/28	N
49						See 28							

-- = None found or unknown, not applicable.
1) Coordinates supplied by GPS

Signature: _____ Date: _____

TETRA TECH
MRP FF.11

DIG SHEET - MANUAL TARGET EXCAVATION RESULTS

Facility/Location: NAS Pensacola, Florida

Site(s): Saufley Field

ation or Anomaly Number (1)	Coordinates (1)		Detection Equip.	Excavation Dimensions (L x W x D) (inches)/(feet)	Number of Dig Locations	Munitions-Related Items				Non-Munitions Items			No Finds
	N	E				Number and Description	MEC/ MPPEH/ MDAS	Explosive Weight (lbs)	Disposition Date	Number and Description	Approx. Weight (lbs)	Disposition Date	Anomaly Deeper than 4'? (Y/N)
19	546520 .82	1073887 .70	Schon	6"X6"X 8" 24" Max	1					Scrap metal	.5LB	06/28	N
18	546560 .54	1073891 .37	"	6"x6"x 8" 24" Max	1					Scrap metal	1LB	06/28	N
51	546502 .55	1073920 .53	"	12"x12" x8" 24" Max	1					wire	<.5LB	06/28	N
70	546813 .97	1073889 .20	"	12"x12" x6" 24" Max	1					railroad spike	2LBS	06/28	N
56	546805 .93	1073942 .47	"	12"x12" x12" 24" Max	1					scrap metal	<.5LB	06/28	N
55	546828 .96	1073946 .55	"	12"x12" x6" 24" Max	1					scrap metal	<.5LB	06/28	N
4	547209 .35	1073299 .46	"	12"x12" x8" 24" Max	1					metal Pin flag	<.5LB	06/28	N
39	546943 .92	1073154 .78	"	12"x12"x 6" 24" Max	1					Scrap Metal	2LBS	06/28	N
58	546971 .33	1073143 .50	"	12"x12" x6" 24" Max	1					Scrap metal	1LB	06/28	N

-- = None found or unknown, not applicable.
1) Coordinates supplied by GPS

Signature: _____ Date: _____

TETRA TECH
MRP FF.11
DIG SHEET - MANUAL TARGET EXCAVATION RESULTS

Facility/Location: NAS Pensacola, Florida

Site(s): Saufley Field

on or Anomaly Number (1)	Coordinates (1)		Detection Equip.	Excavation Dimensions (L x W x D) (inches)/(feet)	Number of Dig Locations	Munitions-Related Items				Non-Munitions Items			No Finds
	N	E				Number and Description	MEC/ MPPEH/ MDAS	Explosive Weight (lbs)	Disposition Date	Number and Description	Approx. Weight (lbs)	Disposition Date	Anomaly Deeper than 4'? (Y/N)
41	546957 .32	1073072 .30	schon	12"X12"X 8" 24"Max	1					Scrap Metal	<.5LB	06/28	N
3	547324 .03	1073425 .36		12"X12"X 8" 24" Max	1					Scrap Metal	2LBS	06/28	N
7	547003 .44	1073578 .29		12"X12"X 8" 24" Max	3					Scrap Metal	5LBS	06/28	N
11	546841 .03	1073770 .40		24"X12" X8" 24" Max	3					Scrap Metal	5LBS	06/28	N
29	547022 .00	1073398 .70		12"X12"X 6" 24" Max	1					Scrap Metal	<.5LB	06/28	N

APPENDIX E

PHOTOGRAPHIC LOG

Appendix E

Photographic Log
Saufley Field Bombing Target
NAS Pensacola, Pensacola Florida

DESCRIPTION:

Anomaly

DESCRIPTION:

UXO Technicians Performing IVS Installation
Anomaly Reacquisition

Photographic Log
Saufley Field Bombing Target
NAS Pensacola, Pensacola Florida

DESCRIPTION:

UXO Technicians Performing IVS Installation

DESCRIPTION:

IVS Seed Item

Photographic Log
Saufley Field Bombing Target
NAS Pensacola, Pensacola Florida

DESCRIPTION:

IVS Installation

DESCRIPTION:

IVS seed item

Photographic Log
Saufley Field Bombing Target
NAS Pensacola, Pensacola Florida

DESCRIPTION:

SI Anomaly ID:

Target Anomaly #01

SI Anomaly ID: 9

Photo ID: IMG 0218

Item: Rebar

DESCRIPTION:

Target Anomaly # 02

SI Anomaly ID: 10

Photo ID: IMG 0217

Item: Scrap Metal

Photographic Log
Saufley Field Bombing Target
NAS Pensacola, Pensacola Florida

DESCRIPTION:

Target Anomaly
03

Photo ID: SAM 1237

SI Anomaly ID: 14

Item: Scrap Metal

DESCRIPTION:

Target Anomaly
04

SI Anomaly ID: 17

Photo ID: SAM 1232

Item: Pin Flag

Photographic Log
Saufley Field Bombing Target
NAS Pensacola, Pensacola Florida

DESCRIPTION:

Target Anomaly
05

SI Anomaly ID: 27

Photo ID: SAM 1200

Item: Scrap Metal

DESCRIPTION:

Target Anomaly
06

SI Anomaly ID: 28

Photo ID: SAM 1199

Item: Axe Head

Photographic Log
Saufley Field Bombing Target
NAS Pensacola, Pensacola Florida

DESCRIPTION:

Target Anomaly
07

SI Anomaly ID: 32

Photo ID: SAM 1239

Item: Scrap Metal

DESCRIPTION:

Target Anomaly
08

SI Anomaly ID: 34

Photo ID: SAM 1201

Item: Scrap Metal

Photographic Log
Saufley Field Bombing Target
NAS Pensacola, Pensacola Florida

DESCRIPTION:

Target Anomaly
09

SI Anomaly ID: 38

Photo ID: SAM 1198

Item: Scrap Metal

DESCRIPTION:

Target Anomaly
10

SI Anomaly ID: 40

Photo ID: IMG 0213

Item: Wire

Photographic Log
Saufley Field Bombing Target
NAS Pensacola, Pensacola Florida

DESCRIPTION:

Target Anomaly
11

SI Anomaly ID: 45

Photo ID: SAM 1238

Item: Scrap Metal

DESCRIPTION:

Target Anomaly
12

SI Anomaly ID: 51

Photo ID: SAM 1193

Item: Hanger, Ring

Photographic Log
Saufley Field Bombing Target
NAS Pensacola, Pensacola Florida

DESCRIPTION:

Target Anomaly
13

SI Anomaly ID: 52

Photo ID: 1188

Item: Screw Driver

DESCRIPTION:

Target Anomaly
14

SI Anomaly ID: 75

Photo ID: SAM 1183

Item: Ball of Wire

Photographic Log
Saufley Field Bombing Target
NAS Pensacola, Pensacola Florida

DESCRIPTION:

Target Anomaly
15

SI Anomaly ID: 77

Photo ID: SAM 1185

Item: Rebar

DESCRIPTION:

Target Anomaly
16

SI Anomaly ID: 78

Photo ID: SAM 1184

Item: Scrap Metal

Photographic Log
Saufley Field Bombing Target
NAS Pensacola, Pensacola Florida

DESCRIPTION:

Target Anomaly
17

SI Anomaly ID: 81

Photo ID: SAM 1197

Item: Scrap Metal

DESCRIPTION:

Target Anomaly
18

SI Anomaly ID: 83

Photo ID: SAM 1227

Item: Stake

Photographic Log
Saufley Field Bombing Target
NAS Pensacola, Pensacola Florida

DESCRIPTION:

Target Anomaly
19

SI Anomaly ID: 87

Photo ID: 1226

Item: Scrap Metal

DESCRIPTION:

Target Anomaly
20

SI Anomaly ID: 91

Photo ID: SAM 1221

Item: Scrap Metal

Photographic Log
Saufley Field Bombing Target
NAS Pensacola, Pensacola Florida

DESCRIPTION:

Target Anomaly
21

SI Anomaly ID: 101

Photo ID: SAM 1220

Item: Banding

DESCRIPTION:

Target Anomaly
22

SI Anomaly ID: 113

Photo ID: SAM 1195

Item: Metal Skewer

Photographic Log
Saufley Field Bombing Target
NAS Pensacola, Pensacola Florida

DESCRIPTION:

Target Anomaly
23

SI Anomaly ID: 114

Photo ID: SAM 1215

Item: Wire

DESCRIPTION:

Target Anomaly
24

SI Anomaly ID: 116

Photo ID: SAM 1217

Item: Wire

Photographic Log
Saufley Field Bombing Target
NAS Pensacola, Pensacola Florida

DESCRIPTION:

Target Anomaly
25

SI Anomaly ID: 117

Photo ID: SAM 1219

Item: Scrap Metal

DESCRIPTION:

Target Anomaly
26

SI Anomaly ID: 118

Photo ID: SAM 1223

Item: Screw

Photographic Log
Saufley Field Bombing Target
NAS Pensacola, Pensacola Florida

DESCRIPTION:

Target Anomaly
27

SI Anomaly ID: 121

Photo ID: SAM 1222

Item: Screws

DESCRIPTION:

Target Anomaly
28

SI Anomaly ID: 122

Photo ID: SAM 1225

Item: Scrap Metal

Photographic Log
Saufley Field Bombing Target
NAS Pensacola, Pensacola Florida

DESCRIPTION:

Target Anomaly
29

SI Anomaly ID: 29

Photo ID: SAM 1240

Item: Scrap Metal

DESCRIPTION:

Target Anomaly
30

SI Anomaly ID: 128

Photo ID: SAM 1218

Item: Scrap Metal

Photographic Log
Saufley Field Bombing Target
NAS Pensacola, Pensacola Florida

DESCRIPTION:

Target Anomaly
31

SI Anomaly ID: 133

Photo ID: SAM 1213

Item: Wire

DESCRIPTION:

Target Anomaly
32

SI Anomaly ID: 137

Photo ID: SAM 1211

Item: Battery

Photographic Log
Saufley Field Bombing Target
NAS Pensacola, Pensacola Florida

DESCRIPTION:

Target Anomaly
33

SI Anomaly ID: 148

Photo ID: SAM 1203

Item: Scrap Metal

DESCRIPTION:

Target Anomaly
34

SI Anomaly ID: 149

Photo ID: SAM 1210

Item: Steel Pin

Photographic Log
Saufley Field Bombing Target
NAS Pensacola, Pensacola Florida

DESCRIPTION:

Target Anomaly
35

SI Anomaly ID: 151

Photo ID: SAM 1205

Item: Scrap Metal

DESCRIPTION:

Target Anomaly
36

SI Anomaly ID: 152

Photo ID: SAM 1204

Item: Scrap Metal

Photographic Log
Saufley Field Bombing Target
NAS Pensacola, Pensacola Florida

DESCRIPTION:

Target Anomaly
37

SI Anomaly ID: 153

Photo ID: SAM 1204

Item: Scrap Metal

DESCRIPTION:

Target Anomaly
39

SI Anomaly ID: 161

Photo ID: SAM 1233

Item: Scrap Metal

Photographic Log
Saufley Field Bombing Target
NAS Pensacola, Pensacola Florida

DESCRIPTION:

Target Anomaly
40

SI Anomaly ID: 165

Photo ID: SAM 1206

Item: Scrap Metal

DESCRIPTION:

Target Anomaly
41

SI Anomaly ID: 169

Photo ID: SAM 1236

Item: Scrap Metal

Photographic Log
Saufley Field Bombing Target
NAS Pensacola, Pensacola Florida

DESCRIPTION:

Target Anomaly
42

SI Anomaly ID: 173

Photo ID: SAM 1209

Item: Scrap Metal

DESCRIPTION:

Target Anomaly
43

SI Anomaly ID: 179

Photo ID: SAM 1180

Item: Rust

Photographic Log
Saufley Field Bombing Target
NAS Pensacola, Pensacola Florida

DESCRIPTION:

Target Anomaly
44

SI Anomaly ID: 182

Photo ID: SAM 1181

Item: Wire

DESCRIPTION:

Target Anomaly
45

SI Anomaly ID: 185

Photo ID: SAM 1208

Item: Ball of wire

Photographic Log
Saufley Field Bombing Target
NAS Pensacola, Pensacola Florida

DESCRIPTION:

Target Anomaly
46

SI Anomaly ID: 186

Photo ID: SAM 1182

Item: Wire, Knob

DESCRIPTION:

Target Anomaly
47

SI Anomaly ID: 187

Photo ID: SAM 1191

Item: Nail Pit

Photographic Log
Saufley Field Bombing Target
NAS Pensacola, Pensacola Florida

DESCRIPTION:

Target Anomaly
48

SI Anomaly ID: 191

Photo ID: SAM 1224

Item: Bolt

DESCRIPTION:

Target Anomaly
49

SI Anomaly ID: 192

Photo ID: SAM 1225

Item: Scrap Metal

Photographic Log
Saufley Field Bombing Target
NAS Pensacola, Pensacola Florida

DESCRIPTION:

Target Anomaly
50

SI Anomaly ID: 193

Photo ID: IMG 0211

Item: Steel Cable

DESCRIPTION:

Target Anomaly
51

SI Anomaly ID: 199

Photo ID: SAM 1228

Item: Wire

Photographic Log
Saufley Field Bombing Target
NAS Pensacola, Pensacola Florida

DESCRIPTION:

Target Anomaly
52

SI Anomaly ID:
Small Anomaly 1

Photo ID: IMG 0216

Item: Concrete/Rebar

DESCRIPTION:

Target Anomaly
53

SI Anomaly ID:
Small Anomaly 2

Photo ID: IMG 0214

Item: Banding

Photographic Log
Saufley Field Bombing Target
NAS Pensacola, Pensacola Florida

DESCRIPTION:

Target Anomaly
54

SI Anomaly ID:
Small Anomaly 3

Photo ID: IMG 0215

Item: Nail

DESCRIPTION:

Target Anomaly
55

SI Anomaly ID:
Small Anomaly 4

Photo ID: SAM 1231

Item: Scrap Metal

Photographic Log
Saufley Field Bombing Target
NAS Pensacola, Pensacola Florida

DESCRIPTION:

Target Anomaly
56

SI Anomaly ID:
Small Anomaly 5

Photo ID: SAM 1230

Item: Scrap Metal

DESCRIPTION:

Target Anomaly
57

SI Anomaly ID:
Small Anomaly 6

Photo ID: SAM 1192

Item: Scrap Metal

Photographic Log
Saufley Field Bombing Target
NAS Pensacola, Pensacola Florida

DESCRIPTION:

Target Anomaly
58

SI Anomaly ID:
Small Anomaly 7

Photo ID: SAM 1234

Item: Scrap Metal

DESCRIPTION:

Target Anomaly
59

SI Anomaly ID:
Small Anomaly 8

Photo ID: SAM 1207

Item: Scrap Metal

Photographic Log
Saufley Field Bombing Target
NAS Pensacola, Pensacola Florida

DESCRIPTION:

Target Anomaly
60

SI Anomaly ID:
Small Anomaly 9

Photo ID: SAM 1202

Item: Scrap Metal

DESCRIPTION:

Target Anomaly
61

SI Anomaly ID:
Small Anomaly 10

Photo ID: SAM 1194

Item: Geological
Anomaly

Photographic Log
Saufley Field Bombing Target
NAS Pensacola, Pensacola Florida

DESCRIPTION:

Target Anomaly
62

SI Anomaly ID:
Small Anomaly 11

Photo ID: SAM 1196

Item: Scrap Metal

DESCRIPTION:

Target Anomaly
64

SI Anomaly ID:
Small Anomaly 13

Photo ID: SAM 1212

Item: Nail

Photographic Log
Saufley Field Bombing Target
NAS Pensacola, Pensacola Florida

DESCRIPTION:

Target Anomaly
65

SI Anomaly ID: Small Anomaly 14

Photo ID: IMG 0212

Item: Scrap Metal

DESCRIPTION:

Target Anomaly
66

SI Anomaly ID:
Small Anomaly 15

Photo ID: SAM 1186

Item: Rust

Photographic Log
Saufley Field Bombing Target
NAS Pensacola, Pensacola Florida

DESCRIPTION:

Target Anomaly
67

SI Anomaly ID:
Small Anomaly 16

Photo ID: SAM 1214

Item: Scrap Metal

DESCRIPTION:

Target Anomaly
68

SI Anomaly ID:

Photo ID: SAM 1190

Item: 24” Pipe

Photographic Log
Saufley Field Bombing Target
NAS Pensacola, Pensacola Florida

DESCRIPTION:

Target Anomaly
69

SI Anomaly ID:

Photo ID: SAM 1189

Item: Wire

DESCRIPTION:

Target Anomaly
#70

SI Anomaly ID: 62

Photo ID: SAM 1229

Item: Railroad Spike

Photographic Log
Saufley Field Bombing Target
NAS Pensacola, Pensacola Florida

DESCRIPTION:

Target Anomaly
Trench 1-1

SI Anomaly ID: B

Photo ID: SAM 1241

Item: Scrap Metal

DESCRIPTION:

Target Anomaly
Trench 1-2

SI Anomaly ID: B

Photo ID: SAM 1242

Item: Spike

Photographic Log
Saufley Field Bombing Target
NAS Pensacola, Pensacola Florida

DESCRIPTION:

Target Anomaly
Trench 1-3

SI Anomaly ID: B

Photo ID: SAM 1243

Item: Spike

DESCRIPTION:

Target Anomaly
Trench 1-4

SI Anomaly ID: B

Photo ID: SAM 1244

Item: Spike

Photographic Log
Saufley Field Bombing Target
NAS Pensacola, Pensacola Florida

DESCRIPTION:

Target Anomaly
Trench 1-5

SI Anomaly ID: B

Photo ID: SAM 1245

Item: Spike

DESCRIPTION:

Target Anomaly
Trench 2-1

SI Anomaly ID: A

Photo ID: SAM 1246

Item: Scrap Metal

Photographic Log
Saufley Field Bombing Target
NAS Pensacola, Pensacola Florida

DESCRIPTION:

Target Anomaly
Trench 2-2

SI Anomaly ID: A

Photo ID: SAM 1248

Item: Spring

DESCRIPTION:

Target Anomaly
Trench 2-3

SI Anomaly ID: A

Photo ID: SAM 1249

Item: Scrap Metal

Photographic Log
Saufley Field Bombing Target
NAS Pensacola, Pensacola Florida

DESCRIPTION:

Target Anomaly
Trench 3-1

SI Anomaly ID: C

Photo ID: SAM 1250

Item: Scrap Metal

DESCRIPTION:

Target Anomaly
Trench 3-2

SI Anomaly ID: C

Photo ID: SAM 1251

Item: Spike

Photographic Log
Saufley Field Bombing Target
NAS Pensacola, Pensacola Florida

DESCRIPTION:

Target Anomaly
Trench 3-3

SI Anomaly ID: C

Photo ID: SAM 1252

Item: Spike

DESCRIPTION:

Target Anomaly
Trench 4-1

SI Anomaly ID: E

Photo ID: SAM 1253

Item: Nail

Photographic Log
Saufley Field Bombing Target
NAS Pensacola, Pensacola Florida

DESCRIPTION:

Target Anomaly
Trench 4-2

SI Anomaly ID: E

Photo ID: SAM 1254

Item: Ground Rod

DESCRIPTION:

Target Anomaly
Trench 4-2

SI Anomaly ID: E

Photo ID: SAM 1255

Item: Ground Rod

Photographic Log
Saufley Field Bombing Target
NAS Pensacola, Pensacola Florida

DESCRIPTION:

Target Anomaly
Trench 4-3

SI Anomaly ID: E

Photo ID: SAM 1256

Item: Scrap Metal

DESCRIPTION:

Target Anomaly
Trench 5-1

SI Anomaly ID: D

Photo ID: SAM 1257

Item: Scrap Metal

Photographic Log
Saufley Field Bombing Target
NAS Pensacola, Pensacola Florida

DESCRIPTION:

Target Anomaly
Trench 5-2

SI Anomaly ID: D

Photo ID: SAM 1258

Item: Screw

DESCRIPTION:

Target Anomaly
Trench 5-3

SI Anomaly ID: D

Photo ID: SAM 1259

Item: Bolts

APPENDIX F

MEC DATA USABILITY ASSESSMENT

Appendix F

Usability Checklist Table			
Phase of Work	**Item to be checked/verified**	**Verified (Yes or No)**	**Comments or Deviations**
Pre-Survey	Qualification of Survey Team evaluated	Yes	
	Personnel reviewed and signed-off on relevant SAP section(s)	Yes	
MDAS Inventory	MDAS recorded on MDAS Addition Form. MDAS reported in daily report.	N/A	
GPS Data	Prepare a table listing planned calibration and QC checks, their occurrence, and the results (acceptable or not acceptable) for position system equipment to be used on the project. Verify uploads of GPS data to Tetra Tech's munitions response website.	Yes	
MEC Tracking Log	Conformance with SAP requirements and procedures for recording MEC items discovered. Report MEC/MPPEH and related items on Daily Reports.	N/A	
Survey	QC evaluation of survey equipment (tests and checklists satisfactorily completed)	Yes	
	IVS met requirements specified in SAP	Yes	
	Conformance to SAP requirements and procedures for all survey work and rework (including documentation requirements), and all deficiencies documented	Yes	
	Coverage of Areas to be Investigated fulfilled and located within accuracy levels required for the RI	Yes	
	Interpretation and Summary of data satisfies SAP requirements and conformance with Worksheet #17	Yes	

DATA USABILITY ASSESSMENT
QUALIFICATION AND CERTIFICATION OF SURVEY TEAM
NAVAL AIR STATION PENSACOLA - SAUFLEY FIELD
PENSACOLA, FLORIDA

Name	Title/Role	Responsibilities	Education and/or Experience Qualifications (Minimal)	Meets Requirements
Ralph Brooks	UXO Manager	Oversaw selection of qualified UXO personnel, established overall quality control program for UXO activities, addressed UXO-related issues as identified by field personnel.	B.S., General Studies; Graduate, Navy Explosive Ordnance Disposal (EOD) School - Indian Head, 25 years of military EOD experience, 6 years commercial UXO experience.	Yes
Steve Cassidy	SUXOS/UXO Technician III	Supervised the conduct of all on-site UXO-related operations. Prepared daily reports of field activities. Conducted daily site safety briefings. Escorted non-UXO personnel in suspect MEC areas. Determined location and identification of suspect MEC. Conducted detector-aided surface surveys.	Minimum of 8 years prior military EOD and or commercial UXO experience in munitions response actions or range clearance activities. (DDESB TP 18)	Yes
Mark Ladd	UXOSO	Ensured that initial site-specific training is delivered for all field personnel before field activities begin and that all safety control measures have been established. Ensured that all UXO-specific certifications are filed on site and are available for Navy inspection. Enforced personnel limits and safety exclusion zones. Conducted, documented, and reported safety inspections.	Minimum of 8 years prior military EOD and or commercial UXO experience in munitions response actions or range clearance activities and applicable safety standards. (DDESB TP 18)	Yes
	UXOQC	Conducted quality control audits. Identified, documented and reported corrective actions.	Minimum of 8 years prior military EOD and/or commercial UXO experience in munitions response actions or range clearance activities and the transportation, handling and storage of munitions and commercial explosives. (DDESB TP 18)	Yes

UXO = Unexploded Ordnance.
EOD = Explosive Ordnance Disposal.
MEC = Munitions and explosives of concern.

DDESB = Department of Defense Explosive Safety Board.

TP = Technical Paper.

This table lists each member of the detector-aided surface sweep team and the required certifications and training in order to demonstrate competency.

Appendix F
DATA USABILITY ASSESSMENT - DETECTOR-AIDED SURVEY
CERTIFICATION OF PROPER OPERATION OF DETECTION AND POSITIONING SYSTEMS
NAVAL AIR STATION PENSACOLA - SAUFLEY FIELD
PENSACOLA, FLORIDA

Date(s)	Instrument Type/Manufacture	Test Results	Personnel Testing Equipment (1)	Comments
6/25/2012	Schonstedt GA-52Cx	Acceptable	Cassidy, Ladd, Clements, Alder, Turner, Corder, Piper	None
	White's Spectrum XLT	Acceptable		
	Trimble XH GPS	Acceptable		
6/26/2012	Schonstedt GA-52Cx	Acceptable	Cassidy, Ladd, Clements, Alder, Turner, Corder, Piper	None
	White's Spectrum XLT	Acceptable		
	Trimble XH GPS	Acceptable		
6/27/2012	Schonstedt GA-52Cx	Acceptable	Cassidy, Ladd, Clements, Alder, Turner, Corder, Piper	None
	White's Spectrum XLT	Acceptable		
	Trimble XH GPS	Acceptable		
6/28/2012	Schonstedt GA-52Cx	Acceptable	Cassidy, Ladd, Clements, Alder, Turner, Corder	None
	White's Spectrum XLT	Acceptable		
	Trimble XH GPS	Acceptable		
6/29/2012	Schonstedt GA-52Cx	Acceptable	Cassidy, Ladd, Clement, Alder, Corder	None
	White's Spectrum XLT	Acceptable		
	Trimble XH GPS	Acceptable		

(1) The SUXOS and UXOQCS provided oversight of all QC activities and documentation is included in Appendix C.

APPENDIX G

APPROVAL LETTERS AND AFTER ACTION REPORT

DEPARTMENT OF THE NAVY
NAVAL ORDNANCE SAFETY AND SECURITY ACTIVITY
FARRAGUT HALL
3817 STRAUSS AVENUE, SUITE 108
INDIAN HEAD, MD 20640-5151

8020
Ser N47/1211
11 Aug 14

From: Commanding Officer, Naval Ordnance Safety and Security Activity
To: Commanding Officer, Naval Facilities Engineering Command, Southeast (OPUE3/JS)

Subj: AFTER ACTION REPORT FOR MUNITIONS RESPONSE SITE, SAUFLEY FIELD, NAVAL AIR STATION, PENSACOLA, FLORIDA [ESS/DD-035F]

Ref: (a) NAVFAC SE ltr 5090 Ser OPUE3/269 of 4 Jun 14
(b) NOSSA ltr 8020 Ser N47/892 of 13 Jun 14

Encl: (1) DDESB memo DDESB-PE of 5 Aug 14

1. The After Action Report (AAR) provided in reference (a) and endorsed to the Department of Defense Explosives Safety Board (DDESB) by reference (b), has been received and filed by the DDESB with no issues noted. DDESB correspondence to this effect is provided as enclosure (1).

2. The NOSSA point of contact for this matter is Ms. Kathy Garcia who can be reached at commercial (301) 744-5636.

TAMMY K. SCHIRF
By direction

Copy to:
CNO (N411B; N452)
COMNAVFACENGCOM (ENV3)
NAS Pensacola (ESO)
NAVFAC SE PWD Pensacola (PWO)
COMNAVREG SE (ESO; N46F)
NOSSA (N545)
NOSSA ESSOLANT (N5L)

DEPARTMENT OF DEFENSE EXPLOSIVES SAFETY BOARD
4800 MARK CENTER DRIVE, SUITE 16E12
ALEXANDRIA, VIRGINIA 22350-3606

DDESB-PE

AUG 05 2014

MEMORANDUM FOR COMMANDING OFFICER, NAVAL ORDNANCE SAFETY AND SECURITY ACTIVITY (ATTENTION: N47)

SUBJECT: DDESB Receipt of After Action Report for Remedial Investigation of Munitions Response Site Saufley Field, Naval Air Station, Pensacola, Pensacola, FL

References: (a) NOSSA ltr 8020 Ser N47/892 of 13 June 2014, Subject: After Action Report for Munitions and Explosives of Concern at Munitions Response Site Saufley Field, Naval Air Station, Pensacola, Florida

(b) DoD 6055.09-M, DoD Ammunition and Explosives Safety Standards, date varies by volume

The Department of Defense Explosives Safety Board (DDESB) Staff has received the subject after action report (AAR) forwarded by reference (a). This AAR, as required by reference (b), will be filed with no issues noted, as a permanent DDESB record of munitions response actions conducted at Munitions Response Site Saufley Field, Naval Air Station, Pensacola, Pensacola, FL.

The point of contact for this action is Ms. Kristene Bigej, (571) 372-6705, DSN 372-6705, E-mail address: kristene.a.bigej.civ@mail.mil.

THIERRY L. CHIAPELLO
Executive Director
DDESB

Final
After Action Report
for
Remedial Investigation for
MEC at
Munitions Response Site
Saufley Field

Naval Air Station Pensacola
Pensacola, Florida

Naval Facilities Engineering Command Southeast

Contract Number N62470-08-D-1001

Contract Task Order JM57

May 2014

REVISION 0
MAY 2014

FINAL
AFTER ACTION REPORT
FOR
REMEDIAL INVESTIGATION FOR MEC
AT
MUNITIONS RESPONSE SITE

SAUFLEY FIELD

PENSACOLA, FLORIDA

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

Submitted to:
Naval Facilities Engineering Command Southeast
Naval Air Station Jacksonville, Building 903
Jacksonville, Florida 32212

Submitted by:
Tetra Tech
234 Mall Boulevard, Suite 260
King of Prussia, Pennsylvania 19406

CONTRACT NO. N62470-08-D-1001
Contract Task Order No. JM57

MAY 2014

PREPARED UNDER THE DIRECTION OF:

RALPH BASINSKI
PROJECT MANAGER
TETRA TECH
PITTSBURGH, PENNSYLVANIA

APPROVED FOR SUBMISSION BY:

JOHN J. TREPANOWSKI
PROGRAM MANAGER
TETRA TECH
KING OF PRUSSIA, PENNSYLVANIA

TABLE OF CONTENTS

ACRONYMS

AAR	After Action Report
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CTO	Contract Task Order
DID	Data Item Description
DoD	Department of Defense
DoE	Department of Energy
EPA	Environmental Protection Agency
ESS	Explosives Safety Submission
EZ	Exclusion Zone
GPS	Global Positioning System
IVS	Instrument Verification Strip
MDAS	Material Documented as Safe
MDEH	Material Documented as an Explosive Hazard
MEC	Munitions and Explosives of Concern
MPPEH	Material Potentially Presenting an Explosive Hazard
NAS	Naval Air Station
NOSSA	Navy Ordnance Safety and Security Activity
NOSSAINST	Navy Ordnance Safety and Security Activity Instruction
PA	Preliminary Assessment
POC	Point of Contact
QA	Quality Assurance
QC	Quality Control
SUXOS	Senior Unexploded Ordnance Supervisor
Tetra Tech	Tetra Tech, Inc.
USACE	United States Army Corps of Engineers
UXO	Unexploded Ordnance
UXOQCS	UXO Quality Control Specialist
VSP	Visual Sampling Plan

1.0 SITE DESCRIPTION

1.1 NAS Pensacola Saufley Field

1.1.1 Facility Location

Outlying Landing Field, (OLF) Saufley Field (Saufley Field) is located in Pensacola Florida approximately 10 miles north of Naval Air Station (NAS) Pensacola. Figure 1 shows the general location of Saufley Field.

1.1.2 Facility Description

Saufley Field was acquired by the United States Navy in 1940 and was used primarily for naval aviation training throughout its history, and has been commissioned as a Naval Auxiliary Air Station, NAS, and outlying landing field. Presently, the 866-acre airfield is closed and contains two 4,000-foot runways and three aircraft hangars; 209 acres of the field are undeveloped wetlands. The current mission of Saufley Field is to serve as home for several Department of Defense (DoD) and other United States Government organizations as a joint use facility.

1.2 Saufley Field PRACTICE Bombing Targets

1.2.1 Site Location and Description

The Saufley Field Practice Bombing Target site designated as UXO-0001 - Saufley Bombing Targets, is a 91.6-acre site located in the northwestern portion of Saufley Field, just north of the intersection of Runway 14 and Runway 23. Figure 2 shows the location of the practice bombing targets.

1.2.2 Site History

The Saufley Field Practice Bombing Target site, which is not listed in the Navy Range Inventory Database, was identified during reviews of documents, maps, and still photographs obtained from the National Archives during the 2007 Preliminary Assessment (PA) (Malcolm Pirnie, Inc., 2007). The site consists of two practice bombing targets that are depicted as two 200-foot diameter circles on maps dated 1943, and 1946 through 1949. The circles are visible on aerial photographs dated 1943 and 1945. The exact period in which the range was operational is unknown. Based on current aerial photography, an uninhabited structure and a densely wooded area are located in the northern portion of the site. No additional archival records or references to the Practice Bombing Targets were located that indicate munitions used or construction details. Because the Saufley Field Practice Bombing Target site is located in close proximity to the runways, munitions use was suspected as various sizes of inert practice

bombs with spotting charges. The site is located within the northern portion of the airfield. No Munitions and Explosives of Concern (MEC) or Material Potentially Presenting an Explosive Hazard (MPPEH) were observed during the Site Inspection (SI) of the Saufley Field Practice Bombing Targets. However, 215 discrete subsurface metallic anomalies and 5 high-density subsurface metallic anomalies were identified in the geophysical data that were considered to potentially represent individual or groups of MEC or munitions-related items. The Final SI Report recommended the RI for MEC which necessitated an Explosive Safety Submission (ESS).

For the Remedial Investigation (RI), all five of the high-density areas were selected for investigation. Of the 215 discrete subsurface metallic anomalies identified during the SI through a subsurface geophysical survey, 16 small anomalies were identified and all were selected for intrusive investigation. Of the remaining 199 medium to large metallic anomalies, Visual Sampling Plan (VSP) was used to randomly select 52 anomalies at a 95 percent confidence level for intrusive investigation to achieve the primary data quality objective of the RI. The VSP, developed with support from Department of Energy (DoE), Environmental Protection Agency (EPA), and DoD, is a statistical tool used at unexploded ordnance (UXO) sites that helps ensure that the right type, quality, and quantity of data are gathered to support confident decisions and provides statistical evaluation of the data with decision recommendations.

2.0 REQUESTS TO CANCEL EZ OR OTHER APPROVALS

This After Action Report (AAR) requests the cancelation of exclusion zones (EZ) and Explosive Safety Quantity Distances established in the ESS for Remedial Investigation for MEC at Munitions Response Site Saufley Field, NAS Pensacola, Pensacola Florida, March 2012.

3.0 SUMMARY OF MEC AND MPPEH FOUND AND/OR RECOVERED

3.1 General

- A MEC Remedial Investigation operation was performed at the Saufley Field Practice Bombing Targets to collect the data required to determine the nature and extent of MEC at this site.

- A reacquisition was performed on subsurface anomalies located during SI operations.

- Of the 215 discrete subsurface anomalies identified during the SI, a total of 68 anomalies, 16 small anomalies (all that were identified) and 52 of the remaining 199 moderate to large anomalies were randomly selected using VSP, were reacquired and intrusively investigated using manual digging procedures.

- An additional five locations designated as high anomaly areas were also reacquired and intrusively investigated using mechanical procedures

A geo-referenced map showing all anomaly intrusive investigation locations is included in this AAR as Figure 3 in Appendix A. During SI geophysical surveys performed in February 2010 and the RI reacquisition and investigation in June 2012, no surface anomalies were located to suggest any presence of MEC/MPPEH. At the completion of all RI intrusive activities, no MEC/MPPEH was recovered. The Saufley Field Practice Bombing Target RI operations took place from June 25 to June 29, 2012.

3.2 MEC/MPPEH Documentation

As stated in Section 3.1 above; no MEC/MPPEH items were recovered during this operation. Items recovered included scrap metal, nails, concrete, rebar, and construction debris. A digital photo was taken and a dig sheet containing the material collected was completed for each intrusively investigated location. All recovered scrap metal from cultural debris was placed in an on-site roll off container and managed by the base. This AAR contains a geo-referenced map of the area investigated (Figure 3). Coordinate data recorded in the field during this remedial investigation was collected in the Florida State Plane Coordinate System, North American Datum 1983. These settings are consistent with existing NAS Pensacola mapping.

4.0 TECHNOLOGIES USED AND EFFECTS ON RESIDUAL RISK

4.1 Relative Effectiveness

The MEC RI was effective in collecting information that can be used to develop a technical path forward at the Saufley Field Practice Bombing Target site.

The activities conducted at the Saufley Field Practice Bombing Target were performed to assist in providing the characterization and extent, if any, of MEC/MPPEH contamination at the Site. Anomalies were investigated to depth, which ranged between 0 and 3 feet below ground surface (bgs). The maximum depth allowed for intrusive investigation was 4 feet bgs.

4.1.1 MEC/MPPEH Management Operations

No MEC/MPPEH items were recovered during this operation. Donor charges were delivered, received, and stored on-site in a Type II storage Magazine. After all anomalies were intrusively investigated and it was confirmed that no demolition of MEC/MPPEH would be required, a clean-up shot was performed in order to dispose of all donor explosive material.

4.1.2 UXO Operations

The RI Operations were conducted in four phases.

Phase 1 – Site Set-up

Site set-up included the receipt, placement, and grounding of two Type II storage magazines. One storage magazine was to be utilized in the event that safe to move MEC and or material documented as an explosive hazard (MDEH) was recovered during intrusive operations. This storage magazine remained empty and labeled as such during the duration of RI operations. The second storage magazine was used for the storage of Donor Explosives, which were kept on-site in the event that MEC/MDEH was recovered during RI operations. Barricades with contact information and Red Bravo Flags were placed at each access point. The instillation of the IVS on-site and the check out and calibration of site equipment was performed.

Phase 2 –Anomaly Reacquire

The reacquisition of 52 moderate to large subsurface anomalies and 16 small subsurface anomalies were reacquired for manual intrusive investigation. A total of five high anomaly areas were reacquired for mechanical intrusive investigation. All reacquire was performed using a G-858G horizontal gradient magnetometer the same instrumentation used during the SI geophysical survey. Reacquire locations were recorded using a Trimble GeoXH hand held GPS.

Phase 3 – Anomaly Intrusive Investigations

Anomaly intrusive investigations were performed on the 68 small to large anomalies located during the SI using manual digging techniques and 5 high anomaly areas were investigated using mechanical digging techniques. The Schonstedt GA-52Cx magnetometer was used to pinpoint each anomaly and to ensure that each intrusively investigated location was clear of additional suspect anomalies. A dig sheet was completed recording the number, coordinates, size of excavation, and recovered source of each anomaly at each intrusively investigated location. The source of each anomaly investigated was identified. All but one anomaly was identified as cultural debris such as scrap metal, nails, wire, banding, railroad spikes, axe head, coat hanger, rebar, and pipe. One anomaly was identified as a geologic anomaly. A photograph of the recovered anomalies' sources and a photograph log completed for all intrusively investigated locations is included in the supporting documentation.

Phase 4 – Demolition Operations

No MEC/MPPEH disposal was required for this operation. Demolition Operations were performed in order to consume all donor explosives stored on-site. All donor explosives and material were consumed during this operation. All demo operations were performed in accordance with the DDESB approved ESS.

4.1.3 UXO Survey Instrumentation

A G-858G horizontal gradient magnetometer and Schonstedt GA-52Cx magnetometer were the primary instruments used for the reacquire and intrusive investigation of subsurface anomalies. The detection depth for these instruments is limited by the size and orientation of a target anomaly and soil characteristics of the work area.

Field operational checks were conducted using target seed items buried in an IVS. For this operation, two medium (2 inch x 8 inch), and one large (4 inch by 12 inch) pipes, (McMaster-Carr surrogate items numbered 44615K137 and 44615K529) were used as IVS seed items. Failure to detect the test target is reason to reject an instrument. Instruments were checked daily at the IVS before starting the UXO activities and after battery changes. In addition, the UXO Technicians conducted random checks during daily operations. All instrument checks were satisfactory.

4.2 Limitations of Technologies Used

The munitions expected to be present at the Saufley Field Practice Bombing Target site were various sizes of inert practice bombs constructed with ferrous material and containing spotting charges. Therefore, industry standard equipment (G-858G horizontal gradient magnetometer and Schonstedt GA-52Cx magnetometer) were used to locate anomalies during the SI and RI phase. To manage the limitations of decreased response from potential subsurface MEC/MPPEH due to depth and orientation, all 16 small anomalies were investigated during the RI. To manage the limits of the technology in distinguishing between several small items and one large item all high-density anomaly areas were investigated. In addition, the same type of geophysical equipment and sub-meter accuracy GPS unit were used to reacquire the SI anomaly signal and provide accurate positional coordinates for each anomaly.

4.3 Effects on Residual Hazards/Risk

The 2007 PA conceptual site model assumed that the site could contain MEC/MPPEH risk and present an explosive hazard/risk because the site was a former practice bombing target. However, no evidence

Site Setup – Visual inspection of the suspected MEC area was completed by the UXO team, no hazards were located. The UXO Quality Control Specialist (UXOQCS) performed an additional visual survey of the area. No deficiencies were reported and no MEC/MPPEH were observed on the ground surface during the RI.

Anomaly Reacquisition – Reacquisition was performed by the site geophysicist with assistance of a UXO escort. Visual Inspections and detector-aided surveys were performed at each reacquire location. Millivolt levels were compared against SI levels at each anomaly to provide consistent values between the SI anomalies and RI reacquires. No deficiencies were reported.

Anomaly Intrusive Investigation - A detector-aided survey was performed on all anomaly intrusive investigation locations. Twenty five percent (25%) of each daily intrusive locations received quality control verification with no reported discrepancies. The UXOQCS placed one blind subsurface seed per daily lot of work. All blind subsurface seeds were recovered and the locations recorded by the field team. The location, placement, and seed identification number were recorded on the daily QC log. No discrepancies were noted.

GPS Positional Data – The positional accuracy of the GPS unit was checked and recorded twice daily. No issues with accuracy or discrepancies were noted.

MPPEH Management and Certification – No material designated as MEC/MDEH/Material Documented as Safe (MDAS) was recovered during this operation.

MEC Management, Treatment / Disposal – All activities prior to, during, and post disposal operations were performed under direct supervision of the UXOQCS. A total of one demolition clean-up shot was performed (6/29/12). All activities were performed in a safe and effective manner. All demolition operations were deemed successful. This includes the consumption of all donor charges and energetic materials being consumed. No discrepancies were noted.

6.0 AREAS OF INVESTIGATION

6.1 MEC/MPPEH Removal Area

Appendix A contains the following figures:

- Figure 1: Area Location Map
- Figure 2: Site Detail Map
- Figure 3: Intrusively Investigated Locations

6.2 Areas where Response Actions were not Performed

The areas investigated during this operation were the 68 subsurface anomaly locations and 5 high anomaly areas. The areas in between each of the intrusively investigated locations were not investigated (Figure 3).

6.3 Known or Reasonably Anticipated End Use for Saufley Field Practice Bombing Target

There is no change in land use planned at this time.

7.0 LAND USE CONTROLS IMPLEMENTATION

Saufley Field is currently a guarded Military Installation. The Saufley Field Practice Bombing Target Area currently has restricted access due to its location adjoining the airfield runway. The Practice Bombing Target is located within the security fence. Access via a security checkpoint is required for this site. Saufley Field security personnel monitor all access to this area, and frequent motor vehicle patrols are conducted as part of the access control program. The area adjoins the runway and as such, falls under the access control program. There are no other land use controls planned for the site at this time.

8.0 LONG TERM MANAGEMENT PROVISIONS

The MEC RI at the Saufley Field Practice Bombing Target is part of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process. The conclusion of the RI is that the former Saufley Field Practice Bombing Target site does not present any residual explosive hazard/risk. Therefore, NAVFAC does not plan to implement any long-term management provisions above the restrictions currently in place for flight line controlled areas at Saufley Field.

REFERENCES

Department of Defense (DoD), 1995. Instruction 4160-21-M-1: Defense Demilitarization Manual, February.

DoD Explosives Safety Board, Minimum Qualifications for Unexploded Ordnance (UXO) Technicians and Personnel, TP 18, 20 December 2004.

DoD 6055.09-STD, Ammunition and Explosives Safety Standards, 29 February 2008.

DoD Instruction 4140.62, Material Potentially Presenting an Explosive Hazard, 25 November 2008.

U.S. Army Engineering and Support Center (USACE), Huntsville, AL. Guidance Documents:

- USACE DID OE-005-05, Geophysical Investigation Plan, Revised, 1 December 2003.
- USACE DID MR-025, Personnel Resume, Revised, 1 December 2003.
- Engineering and Design - Military Munitions Response Actions, EM 1110-1-4009, June 2007.

Malcolm Pirnie Inc., 2007. Final Preliminary Assessment, Naval Air Station Pensacola, Florida.

Naval Sea Systems Command, 2005. Ammunition and Explosives Safety Ashore, NAVSEA OP 5 VOLUME 1, Rev 7, June. (Change 11)

Navy 2013. Navy Ordnance Safety and Security Activity Instruction (NOSSAINST) 8020.15D Explosives Safety Review, Oversight, and Verification of Munitions Responses, April.

Nelson, H., Kaye, K, Andrews A, 2009, Environmental Security Technology Certification Program, Geophysical, System Verification: A Physics Based Alternative to Geophysical Prove-Outs for Munitions Response, July.

Tetra Tech, Inc., 2009. Explosive Safety Submission Determination Request for Naval Air Station Pensacola Bombing Targets, June.

Tetra Tech, Inc., 2011. Sampling and Analysis Plan Remedial investigation for MEC at Munitions Response Site Saufley Field, September.

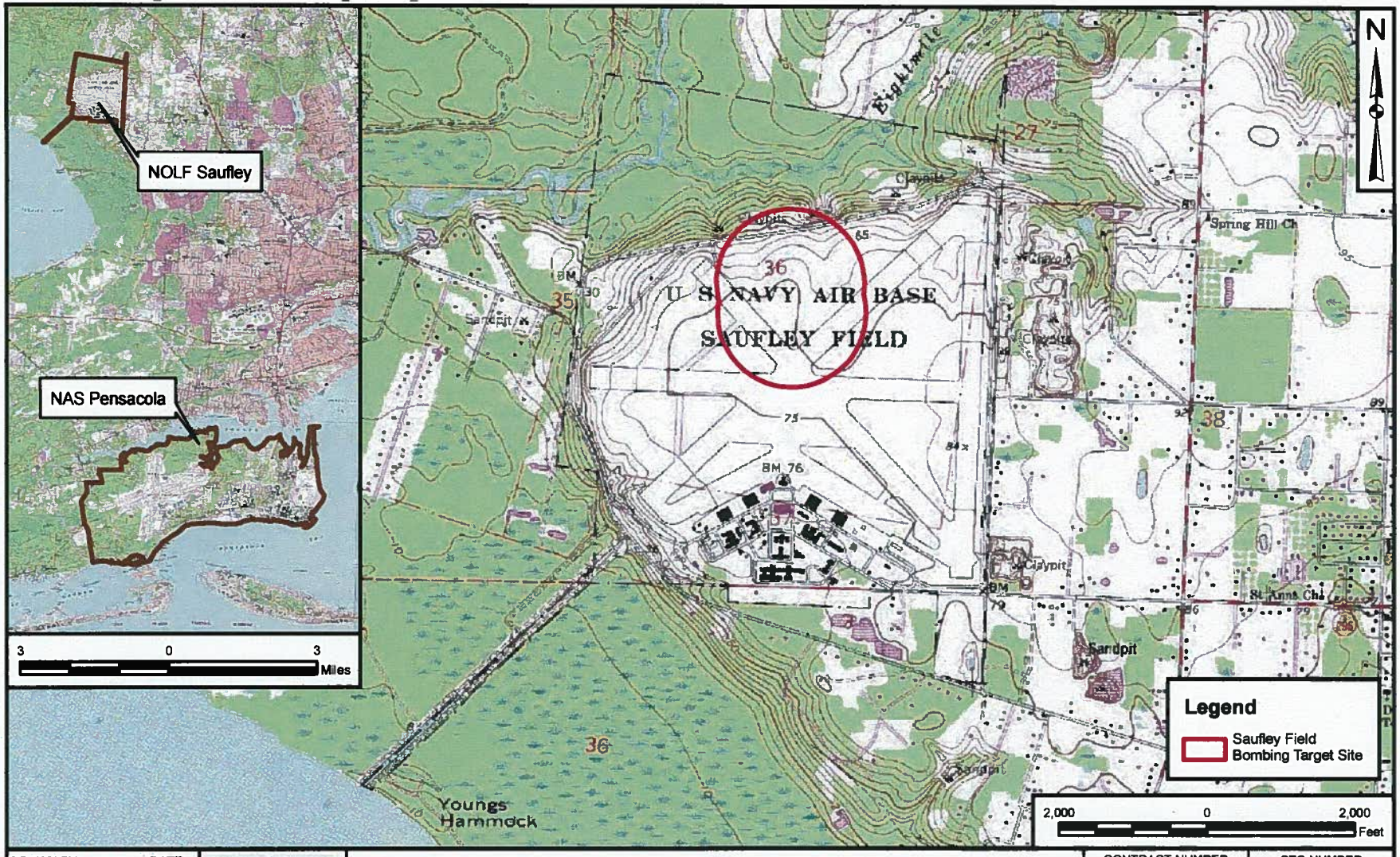
Tetra Tech, Inc., 2012. Explosives Safety Submission Remedial Investigation for MEC at Munitions Response Site Saufley Field, March.

United States Environmental Protection Agency, 2002. Guidance for Quality Assurance Project Plans (EPA QA/G-5). EPA/240/R-02/009. Office of Environmental Information, Washington, DC. December.

APPENDIX A

Maps and Figures

PGH P:\GIS\PENSACOLA_NAS\MAPDOCS\MXD\SAUFLEY_LOCATION_MAP.MXD 06/17/11 JEE



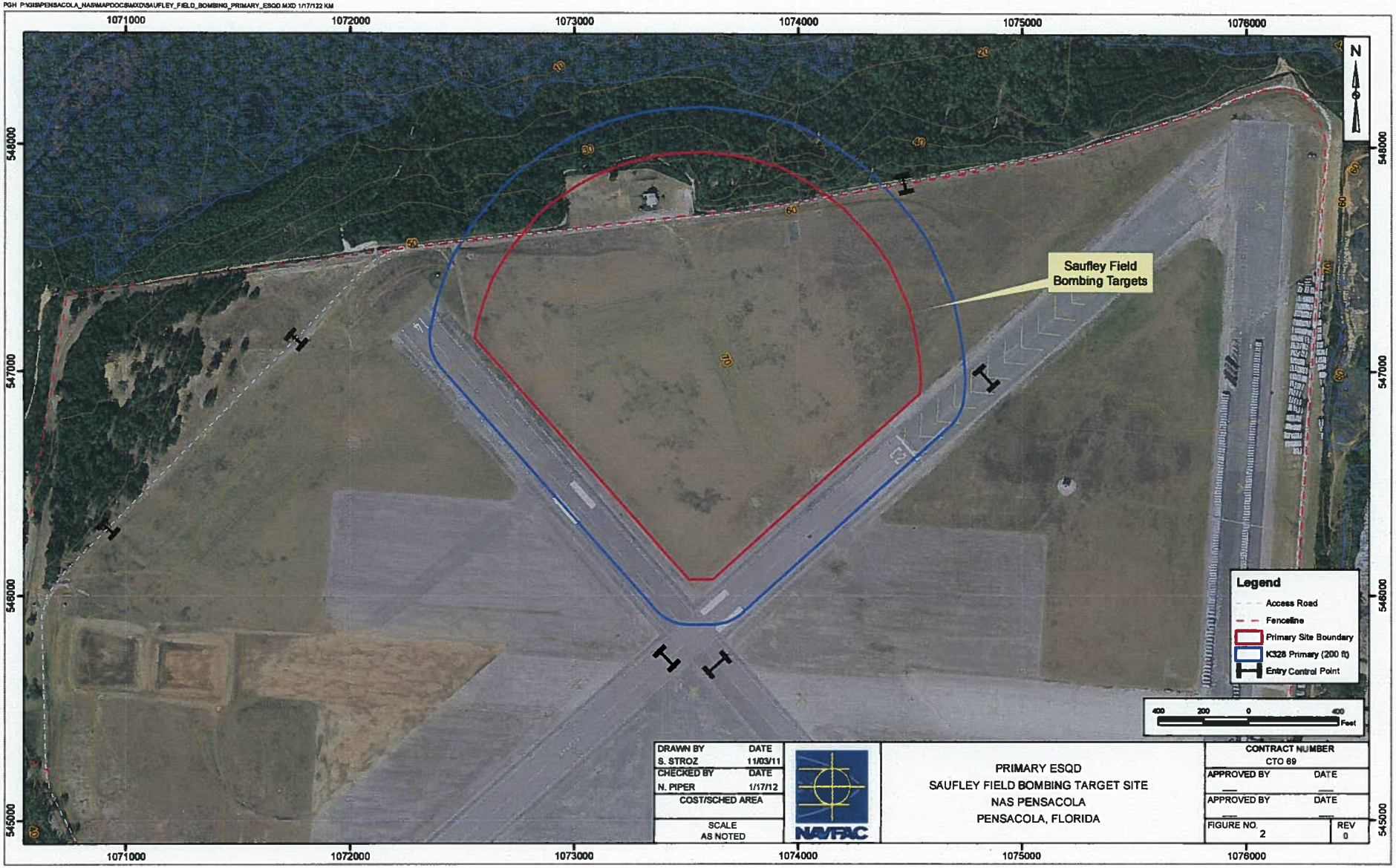
DRAWN BY	DATE
J. ENGLISH	06/17/11
CHECKED BY	DATE
E. LOVE	06/17/11
REVISED BY	DATE
SCALE	
AS NOTED	

NAVFAC

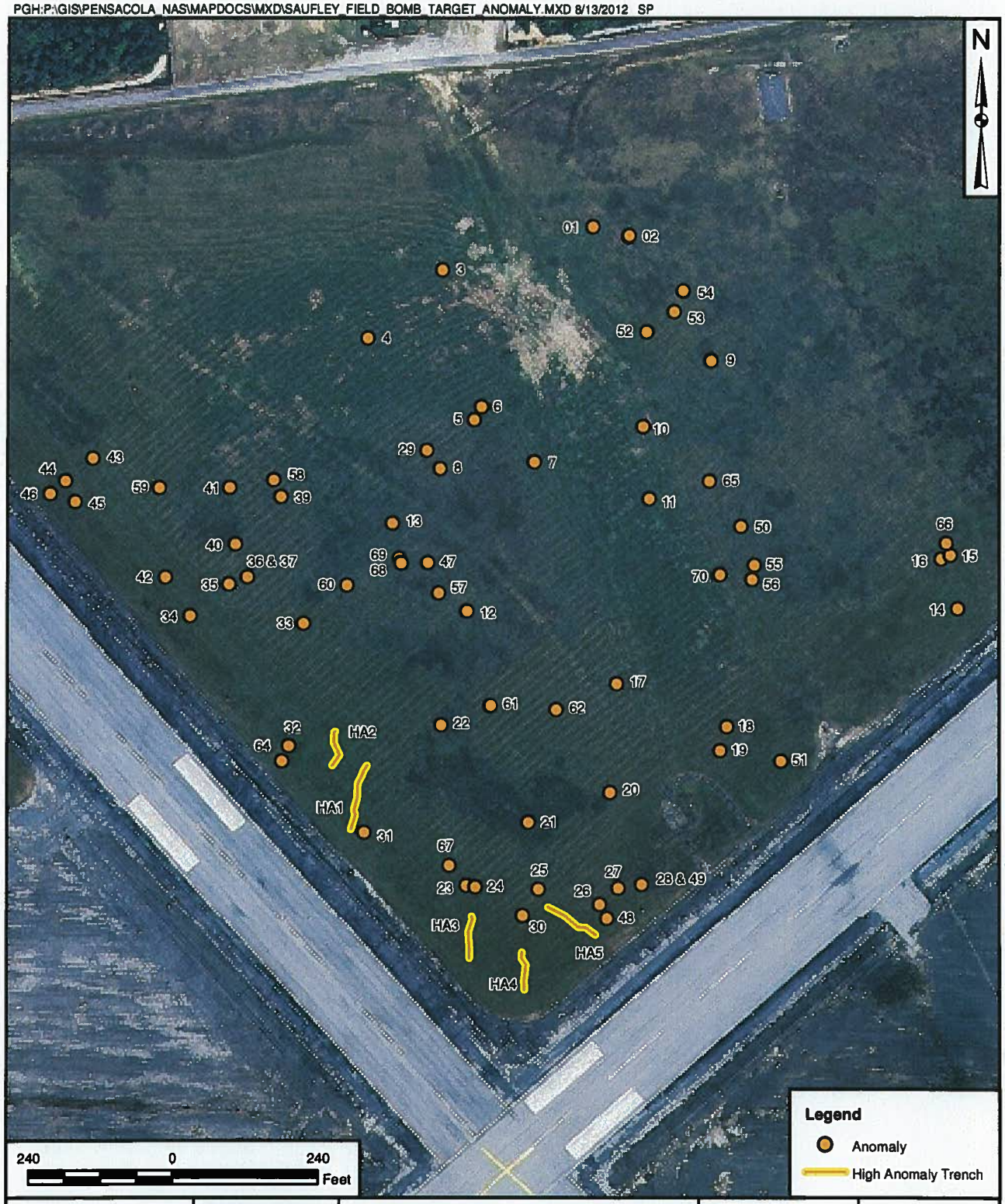
SITE LOCATION MAP
MAGAZINE BOMBING TARGET SITE
SAUFLEY FIELD BOMBING TARGET SITE
NAS PENSACOLA
PENSACOLA, FLORIDA

CONTRACT NUMBER	CTO NUMBER
03440	JM57
APPROVED BY	DATE
—	—
APPROVED BY	DATE
—	—
FIGURE NO.	REV
1	0

PGH P:\GIS\PENSACOLA_NAS\MAPDOCS\MXDS\SAUFLEY_FIELD_BOMBING_PRIMARY_ESQD.MXD 1/17/12 KM



PGH:P:\GIS\PENSACOLA_NAS\MAPDOCS\MXD\SAUFLEY_FIELD_BOMB_TARGET_ANOMALY.MXD 8/13/2012 SP



DRAWN BY	DATE
S. PAXTON	08/13/12
CHECKED BY	DATE
N. PIPER	08/13/12
REVISED BY	DATE
SCALE	
AS NOTED	

NAVFAC

INTRUSIVE INVESTIGATION
SAUFLEY BOMBING TARGET
NAS PENSACOLA
PENSACOLA, FLORIDA

CONTRACT NUMBER	CTO NUMBER
—	—
APPROVED BY	DATE
—	—
APPROVED BY	DATE
—	—
FIGURE NO.	REV
3	0