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FINAL EXPANDED SITE INVESTIGATION REPORT MILITARY MUNITIONS RESPONSE PROGRAM SITE UNEXPLODED ORDNANCE 22 (UXO 22) FORMER MUNITIONS DISPOSAL AREA MCB CAMP LEJEUNE NC

05/10/2016

CH2M HILL INC

Final

Expanded Site Investigation Report
Military Munitions Response Program
Site UXO-22 - Former Munitions Disposal Area

Marine Corps Base Camp Lejeune
North Carolina

Contract Task Order WE54

May 2016

Prepared for

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Naval Facilities Engineering Command
Mid-Atlantic

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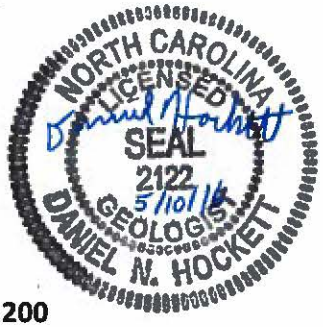
Prepared by



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Executive Summary

This report documents the findings of the Expanded Site Investigation (ESI) and previous investigations conducted at Military Munitions Response Program (MMRP) Site UXO-22, Former Munitions Disposal Area, Marine Corps Base Camp Lejeune (Camp Lejeune).

Site UXO-22 (hereafter referred to as "the Site") is located in the "Mainside" portion of Camp Lejeune, within Operable Unit (OU) 2. Since 1983, numerous phases of environmental investigations have been performed at OU 2. After munitions and explosives of concern (MEC) and material potentially presenting an explosive hazard (MPPEH) were discovered throughout OU 2 during previous investigations, 75 acres of OU 2 were designated as Site UXO-22, which was added to the MMRP in 2010.

Site UXO-22 has historically been used for disposal of waste material such as munitions debris, wood, metal, batteries, communication wire, drums, paint containers, grease containers, pesticides, transformers containing polychlorinated biphenyls, solvents, and waste oil. Site UXO-22 consists of wooded areas and partially developed land that includes the former Defense Reutilization and Marketing Office (DRMO) Storage Lot 203.

The purpose of this ESI was to address the following recommendations from the Site UXO-22 Preliminary Assessment/Site Inspection (PA/SI): define the nature and extent of MEC/MPPEH, conduct MEC surface clearance to minimize explosive risks from unintentional detonations in the former DRMO area, and evaluate the extent of a battery disposal area identified within the ephemeral drainage.

The recommendations from the PA/SI were addressed by conducting the following activities between August 2013 and April 2015:

- Surface clearance and soil screening in the former DRMO lot
- Site-wide digital geophysical mapping and intrusive investigation of anomalies representing potential subsurface MEC
- Geophysical surveying, test pit excavations, and collection of subsurface soil samples for metals analysis in the battery disposal area
- A site walk within the wooded portions of the Site to evaluate the nature and extent of MEC/MPPEH and other debris remaining on the surface

The following conclusions are based on the findings from the investigations conducted to-date:

- The nature and extent of MEC/MPPEH was characterized. MEC and MPPEH items encountered on the surface and in the subsurface had no apparent pattern of distribution. The MEC/MPPEH items found to-date are not reflective of range activities but of historical waste disposal areas.
- The potential for human contact with MEC/MPPEH was reduced by the MEC surface clearance and soil screening activities conducted at the Site. Additionally, approximately 50 percent of the Site is open storage yards where MEC/MPPEH is not present on the surface. The hazard evaluation concluded the explosive hazard is low.
- Disposed batteries were observed in the subsurface across the Site during the intrusive investigation, primarily in the former DRMO lot. The extent of batteries on the south side of the ephemeral drainage was delineated, and the potential risk to receptors from metals within the ephemeral drainage was mitigated by removing exposed batteries and covering the test pit excavation area with clean fill.
- There is uncertainty concerning risks associated with exposure to the black liquid material found within the sidewall of the battery disposal area test pit excavation.

Based on the conclusions above, management of Site UXO-22 as part of OU 2 is recommended and any further assessment of the waste disposal area should be addressed as part of the re-evaluation of OU 2. The Land Use Controls for OU 2 should be updated to include control of intrusive activities due to the potential of encountering

MEC below the ground surface. To further prevent exposure to the waste disposal area and MPPEH, surface clearance or other methods (e.g., soil cover) at Site UXO-22 and/or additional fencing and gates should also be considered.

The ephemeral drainage and potential transport pathways to Wallace Creek are currently being evaluated as part of the supplemental remedial investigation activities at OU 2.

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Acronyms and Abbreviations

bgs	below ground surface
BTV	background threshold value
Camp Lejeune	Marine Corps Base Camp Lejeune
CLEAN	Comprehensive Long-term Environmental Action—Navy
COPC	constituent of potential concern
DGM	digital geophysical mapping
DRMO	Defense Reutilization and Marketing Office
DRO	diesel-range organics
EcoSSL	ecological soil screening levels
ECP	
EM-31	EM31-MK2 electromagnetic system
EM-61	EM61-MK2 electromagnetic system
EOD	Explosive Ordnance Disposal
ERS	ecological risk screening
ESI	Expanded Site Investigation
ESS	Explosives Safety Submission
ESV	Ecological Screening Value
GPR	ground-penetrating radar
GSV	Geophysical System Verification
HE	high explosive
HEAT	high-explosive anti-tank
HI	hazard index
HHRS	human health risk screening
HQ	hazard quotient
IDW	investigation derived waste
IRP	Installation Restoration Program
ISO	industry-standard object
IVS	instrument verification strip
LUC	land use control
MC	munitions constituent
MDAS	material documented as safe
MEC	munitions and explosives of concern
MGFD	munition with the greatest fragmentation distance
mg/kg	milligram per kilogram
mm	millimeter
MMRP	Military Munitions Response Program
MPPEH	material potentially presenting an explosive hazard
MR	munitions response
MRS	Munitions Response Site
mV	millivolt
NAVFAC	Naval Facilities Engineering Command
NC SSL	North Carolina Soil Screening Level
OHM	OHM Remediation Services
ORO	oil-range organics

OU	operable unit
PA/SI	Preliminary Assessment/Site Inspection
PCB	polychlorinated biphenyl
PSI	potential source investigation
QC	quality control
RI	Remedial Investigation
ROD	Record of Decision
RSL	Regional Screening Level
SVOC	semi-volatile organic compound
TCLP	toxicity characteristic leaching procedure
TCRA	time-critical removal action
TNT	trinitrotoluene
TPH	total petroleum hydrocarbon
UCL	upper confidence limit
UFP-SAP	Uniform Federal Policy-Sampling and Analysis Plan
USEPA	United States Environmental Protection Agency
UTL	upper tolerance limit
UXO	unexploded ordnance
VOC	volatile organic compound
VSP	Visual Sample Plan

SECTION 1

Introduction

This report documents the findings of the Expanded Site Investigation (ESI) conducted at Military Munitions Response Program (MMRP) Site UXO-22 – Former Munitions Disposal Area at Marine Corps Base Camp Lejeune (Camp Lejeune), North Carolina (**Figure 1-1**).

The Site UXO-22 ESI was conducted by CH2M HILL under the Naval Facilities Engineering Command (NAVFAC) Comprehensive Long-term Environmental Action—Navy (CLEAN) Contract N62470-11-D-8012, Contract Task Orders WE54, WE1A, and WE1F.

1.1 Objectives and Approach

The purpose of this ESI is address the following recommendations from the Site UXO-22 Preliminary Assessment/Site Inspection (PA/SI) (CH2M HILL, 2013a): define the nature and extent of munitions and explosives of concern (MEC)/material potentially presenting an explosive hazard (MPPEH), conduct MEC surface clearance to minimize explosive risks from unintentional detonations in the former Defense Reutilization and Marketing Office (DRMO) area, and evaluate the extent of a battery disposal area identified within the ephemeral drainage (**Figure 1-2**).

The recommendations from the PA/SI were addressed by conducting the following activities between August 2013 and April 2015:

- Surface clearance and soil screening in the former DRMO lot
- Site-wide digital geophysical mapping (DGM) and intrusive investigation of anomalies representing potential subsurface MEC/MPPEH
- Geophysical surveying, test pit excavations, and collection of subsurface soil for metals analysis in the battery disposal area
- A site walk within the wooded portions of Site UXO-22 to evaluate the nature and extent of MEC/MPPEH and debris remaining on the surface

1.2 Report Organization

This ESI is organized as follows:

- Section 1, Introduction – Presents the objectives and approach.
- Section 2, Site Background – Describes the Site UXO-22 location, setting, history, previous investigations, geology, and hydrogeology.
- Section 3, Activities and Results – Presents the various munitions response (MR) activities and the results of the field investigations conducted.
- Section 4, Explosive Hazards Evaluation – Assesses potential explosive hazards based on site-wide findings to-date.
- Section 5, Conclusions and Recommendations – Summarizes the conclusions and recommendations.
- Section 6, References – Lists references cited in the preceding sections.

Figures and tables are provided at the end of each section and appendixes are provided at the end of the document.

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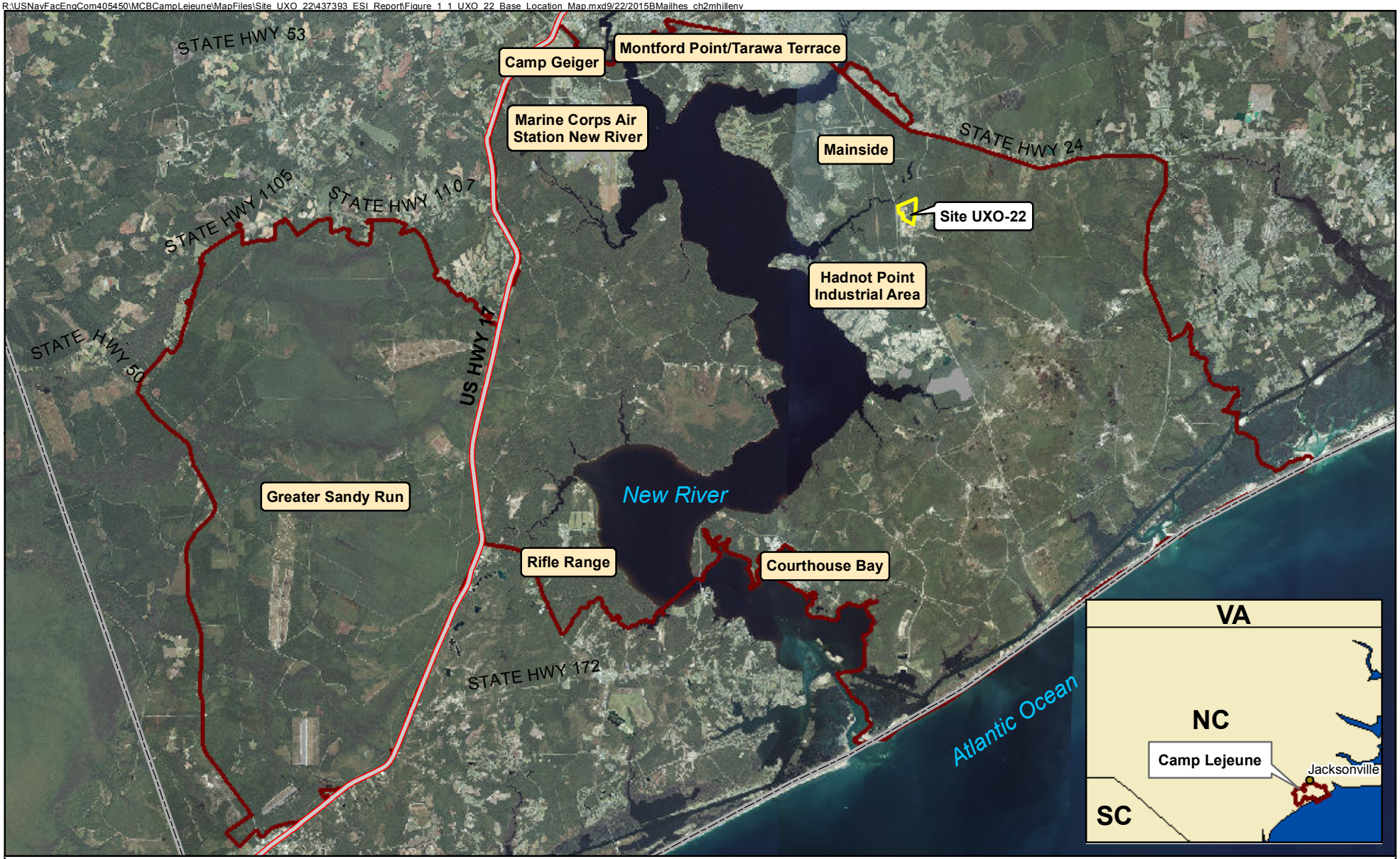

Legend

- Highways
- Onslow County
- Installation Boundary
- Site UXO-22 Boundary

N

0 7,500 15,000 Feet

1 inch = 15,000 feet

Figure 1-1
Base Location Map
Site UXO-22 ESI Report
Camp Lejeune
North Carolina

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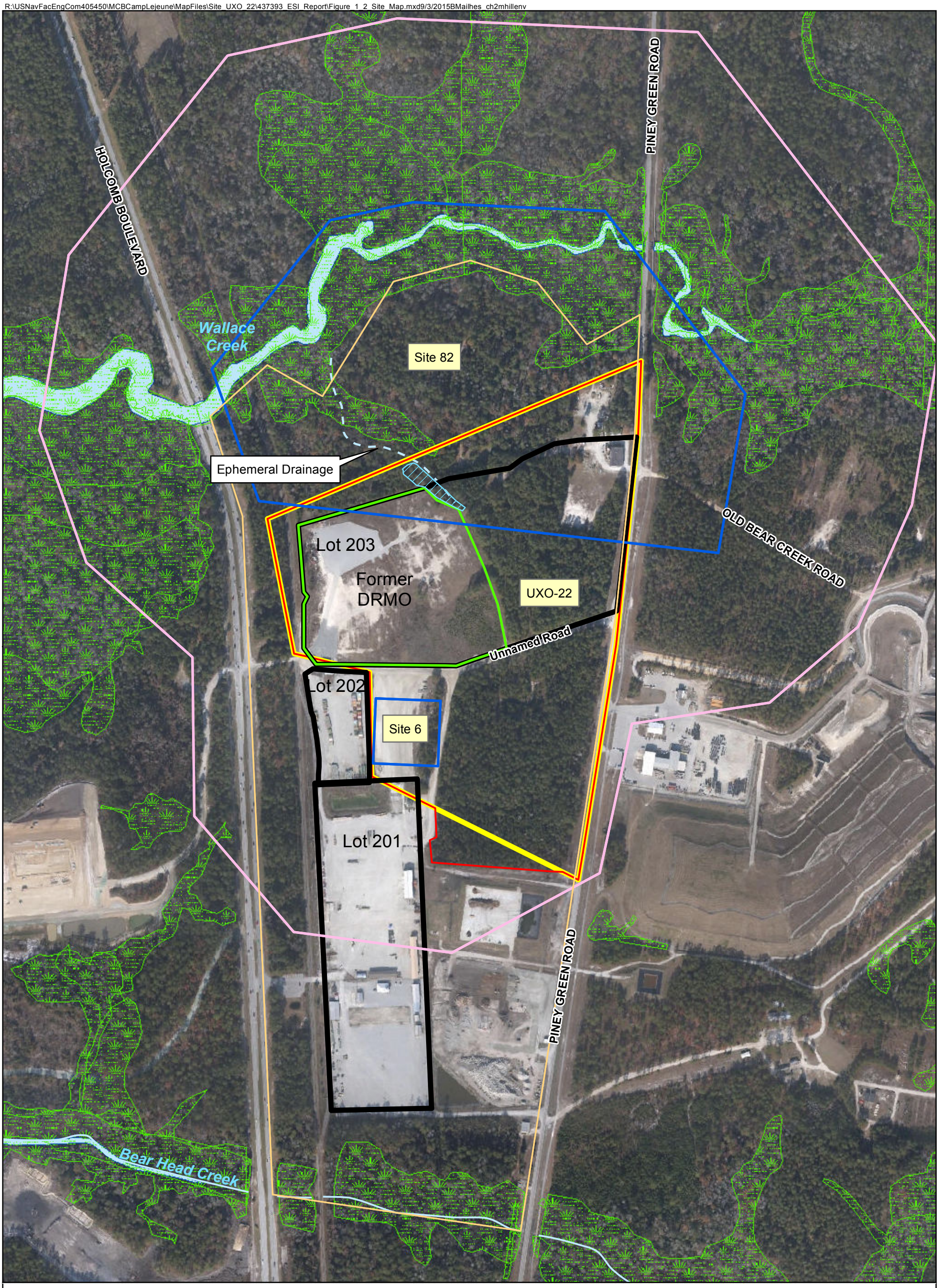

Legend

- Aquifer Use Control Boundary
- Non-Industrial Use Control Boundary
- Intrusive Activities Control Boundary (Groundwater)
- Former DRMO Lot
- Lots 201, 202, and 203
- Site UXO-22 Boundary
- UXO-22 MRS Boundary
- Battery Disposal Investigation Area
- Ephemeral Drainage Feature
- Wetland Area
- Surface Water

N

0 250 500 Feet

1 inch = 500 feet

Imagery: © 2013 Google
Modifications have been made.

Figure 1-2
Site Map
Site UXO-22 ESI Report
Camp Lejeune
North Carolina

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SECTION 2

Site Background

This section summarizes regional and site-specific information, including location, site setting, physical characteristics, and history.

2.1 Base Location and Description

Camp Lejeune covers approximately 236 square miles in Onslow County, North Carolina, and is bisected by the New River, which flows in a southeasterly direction toward the Atlantic Ocean (**Figure 1-1**). Construction of Camp Lejeune began in 1941 and the current mission of Camp Lejeune is to maintain combat-ready units for expeditionary deployment. Camp Lejeune provides housing, training facilities, logistical support, and administrative supplies for Fleet Marine Force units and other assigned units. The Base and surrounding community is home to a military active-duty and civilian population of approximately 170,000 people. Land use surrounding Camp Lejeune is varied. Commercial development is located along the northern boundary, with a mix of agricultural and residential areas located along the eastern and western boundaries of the Base. The southern boundary of Camp Lejeune extends to the New River and Atlantic Ocean.

2.2 Site Setting

Site UXO-22 (hereafter referred to as "the Site") is located in the "Mainside" of Camp Lejeune within a portion of Operable Unit (OU) 2, Installation Restoration Program (IRP) Sites 6 and 82 (**Figure 1-2**). Current land uses at Site UXO-22 are industrial and commercial and consist of operation of the Base truck scales, equipment staging areas, parking lots, and a groundwater remediation system for Site 82.

The Site encompasses an area of approximately 75 acres and is accessed from an unnamed gravel road that bisects the Site from east to west and links Piney Green Road and Holcomb Boulevard. The former DRMO lot, which comprises a portion of Site UXO-22, is surrounded by a chain-link fence with a locked gate. The former DRMO lot, the lot north of the truck scales, and the northeastern corner of the Site surrounding the groundwater remediation system are covered in compacted gravel or weedy vegetation, representing approximately 50 percent of the Site. The remainder of the Site is composed of mixed hardwood and coniferous forest with a brushy understory. Signs that provide notification of potential environmental and unexploded ordnance (UXO) hazards are posted on the fence enclosing the former DRMO lot and Lot 203.

The surface topography within the central and southern portions of the Site is generally level and slopes gently toward Wallace Creek in the northern portion of the Site. An ephemeral drainage feature is located northeast of the former DRMO lot and runs northwest to drain into Wallace Creek. Storm water runoff flows in a northeasterly direction toward the ephemeral drainage and in a northerly direction towards Wallace Creek (**Figure 1-2**). Wetlands are present north of the Site near Wallace Creek.

2.3 Site Geology and Hydrogeology

The Site is underlain by light-colored, fine-grained sands extending to depths of at least 50 feet below ground surface (bgs), with discontinuous silty or clayey sand lenses occurring at depths from 10 to 50 feet bgs. Beneath the finer-grained lenses lie massive fine-grained sands and occasional cemented limestone beds of the River Bend and Castle Hayne formations, extending to more than 200 feet bgs. Anthropogenic disturbances[1] have re-worked the surficial lithology up to depths of 18.5 feet bgs at select locations at the Site due to excavation and dumping activities.

[1] The exact dimensions of waste disposal activities, other than where previous investigations or excavations have taken place, are unknown. The areas of disturbances include evidence of buried waste in the former DRMO lot, test pit excavations during the Remedial Investigation (Baker, 2003), Time Critical Removal Action excavations (Baker and OHM, 1997), test pitting during the Potential Source Investigation (Rhea, 2011), and excavations for the Site 6 chlorobenzene investigation (CH2M HILL, 2012) that are shown on **Figure 2-1**.

Two aquifers are present beneath the Site, the surficial and Castle Hayne aquifers. The surficial aquifer is part of the Undifferentiated formation which consists of unconsolidated silt, sand, and clays to approximately 25 feet bgs. The water table is encountered at depths ranging from 5 to 15 bgs (CH2M HILL, 2013a). The surficial aquifer is typically underlain by the Belgrade formation or Castle Hayne confining unit, but this unit is absent beneath the Site. The River Bend formation underlies the Undifferentiated formation and consists of cemented sands, silt, shells, fossil fragments, and trace amounts of clay with limestone content increasing with depth (Cardinell, et al., 1993).

2.4 Site History

The earliest documentation of land use at the Site is from archival aerial photography taken in 1948 that indicated cleared land, the unnamed road between Holcomb Boulevard and Piney Green Road, and areas of reworked earth in the central portion of the Site. Subsequent photographs and maps reveal the presence of structures in the 1960s that are no longer in existence. Historically, the areas of reworked earth were used for storage and disposal of wastes and supplies, including pesticides, transformers containing polychlorinated biphenyls (PCBs), solvents, electrolytes, waste oils, batteries, and other waste debris such as communication wire and expended munitions and munitions debris. From 2001 to 2012, Lot 203, covering approximately 20 acres, was used by the DRMO as a temporary scrap and surplus storage lot. Following DRMO's demobilization from the site, metallic debris and munitions items were identified on the ground surface, including a large volume concentrated in an approximately 2-acre area in the northwest corner of the site. No former range activities are known to have occurred at the Site.

Since 1983, numerous environmental investigations have been conducted at Sites 6 and 82 and a Record of Decision (ROD) is in place. The selected remedy for Sites 6 and 82 includes groundwater extraction and treatment to address volatile organic compounds (VOCs); soil vapor extraction to address vadose zone VOC contamination; soil removal to industrial levels to address pesticide and PCB contamination; long-term monitoring of groundwater, surface water, and sediment; and land use controls (LUCs) to restrict aquifer use, soil and groundwater intrusive activities, and non-industrial use (Baker, 1993a). Additional investigations are underway at Sites 6 and 82 to further characterize potential source areas and delineate VOCs in groundwater. During the previous and ongoing investigations, MEC/MPPEH have been discovered at the site; therefore, Site UXO-22 was designated under the MMRP in May 2010.

The Site UXO-22 MMRP boundary encompasses the areas of Sites 6 and 82 where waste disposal was documented and MEC/MPPEH was discovered. **Table 2-1** presents a summary of the previous investigation and removal action activities pertinent to MEC/MPPEH discovery and the MMRP. **Figure 2-1** presents a summary of the ten MEC items and over 15,000 MPPEH items (which were confirmed to be free of explosive hazards after visually inspecting and independently re-inspecting and then certified, verified, and classified as Material Documented As Safe [MDAS]) found during the previous investigations and **Figure 2-2** presents a summary of the environmental investigation locations pertaining to historical munitions constituents.

TABLE 2-1
Previous Investigations and Removal Actions

Previous Investigation	Date	Activities	MEC/MPPEH (number of items found)
OU 2 Remedial Investigation (RI) (Baker, 1993a)	1993	A geophysical survey, ordnance survey, soil gas survey, test-pitting, and soil, groundwater and surface water sampling were conducted to characterize the nature and extent of contamination at OU2 (Sites, 6, 9, and 82). Geophysical surveys, using EM31-MK2 electromagnetic system (EM-31) and ground-penetrating radar (GPR), were conducted in formerly cleared areas identified on historical aerial photographs. Results indicated geophysical anomalies within the former DRMO area. An ordnance survey, surface sweep, and clearance, were conducted at monitoring well and soil boring locations. Test pits were also excavated. MEC/MPPEH items were discovered in both the surface and subsurface. MEC was disposed of by Base Explosive Ordnance Disposal (EOD) and MPPEH was classified as MDAS and scrapped.	MEC • Mark II hand grenade (3) MPPEH • 50-caliber cartridges (40) • 3.5-inch practice rockets (15) • 20-millimeter (mm) cartridge casings (10) • 30-mm cartridge casings (23) • 40-mm cartridge casings (54) • 90/95/105/106-mm cartridge casings (~1000) • Rocket motors, 3.5-inch (unknown) • 7.62-mm ammunition rounds (100)
OU 2 Time-Critical Removal Actions (TCRAs) (Baker and OHM Remediation Services Corporation (OHM), 1997)	1993-97	Removal of 20 drums of 4,4'-dichlorodiphenyltrichloroethane, empty drums, batteries, debris, MPPEH, and contaminated soil was conducted in trenches in the southern portion of what is now Site UXO-22 to a depth of 5 feet bgs. Furthermore, two 20-yard roll-off containers of 2-gallon containers of grease were removed from source removal trenches in the northeast area of UXO-22 (**Figure 2-1**). Approximately 2,655 cubic yards of soil and debris were removed and disposed of offsite.	MPPEH • 105-mm cartridge casings (unknown)
IRP Site 6 Chlorobenzene Investigation (CH2M HILL, 2005, 2009a, 2010a, 2012c)	2005-2011	Surface clearance, geophysical surveying using an EM-31, test-pitting, monitoring well installation, and groundwater and soil sampling were conducted to identify and characterize potential chlorobenzene source areas. During the initial investigation activities, a MPPEH burial pit was discovered and the site was entered into the MMRP. During test-pitting activities, three 3.5-inch rocket motors, drums containing chlorobenzene, and other debris, were discovered and soil samples were collected for munitions constituents (MC) analysis in 12 test pits. Explosives residues were not detected and metals were detected at concentrations greater than screening criteria. These results were incorporated into the human health risk assessment conducted as part of the PA/SI (CH2M HILL, 2013a). All MPPEH was recovered, certified, verified, and classified as MDAS upon proper inspection, and disposed of by witnessed smelting.	MPPEH • M-2 antipersonnel, mine, bounding (4) • 57-mm brass cartridge casings (5) • M-29 rocket, practice warhead only (23) • Rocket motors, 3.5-inch expended (43) • M-29 Rocket, 3.5-inch with M-405 Fuze (5) • M48 trip flares (empty), practice (8) • Full and partial 105-mm shipping containers (8) • Empty 105-mm cartridge casing (1) • Empty 75-mm recoilless rifle cartridge casing (1)

TABLE 2-1
Previous Investigations and Removal Actions

Previous Investigation	Date	Activities	MEC/MPPEH (number of items found)
Site UXO-22 Munitions Debris Burial Pit Intrusive Investigation (CH2M HILL, 2010b)	2010	Investigation activities were conducted at the MPPEH burial pit until no further visible evidence of MPPEH was observed or to the depth of the water table to facilitate removal of MEC/MPPEH and other debris. MEC items were identified and disposed by controlled detonation. The MPPEH was certified, verified, and classified as MDAS upon proper inspection. A total of 16,100 pounds of MDAS were recovered during the excavation of the burial pit and disposed of by witnessed smelting. Confirmatory soil samples were collected for MC analysis from the four sidewalls of the excavation. One explosives residue and several metals were detected in exceedance of screening criteria. These results were incorporated into the human health risk assessment conducted as part of the PA/SI (CH2M HILL, 2013a).	MEC • Mortar shell, 81-mm, high explosive (HE), M43 with fuze M45(1) • Mortar shell, 60-mm, HE, M49 without fuze (1) • Rocket, 3.5-inch, HE anti-tank (HEAT), M28 (1) MPPEH • M-29 rockets, practice warhead only (39) • M-29 rocket motors, 3.5-inch, expended (52) • Stabilizer assemblies. M9 AT, rifle grenades (2) • Grenades, practice, MK21, empty (2) • Warheads for rockets, 3.5-inch, model unknown (8) • Rocket fuzes, 3.5-inch, model unknown (3) • 3.5-inch rockets believed to be M29 practice (22) • 3.5-inch rocket fuzes believed to be practice (49) • MK21 practice hand grenades (42) • M45 mortar fuze, expended (1) • Mortar shells, 60-mm, practice, M50A2 (4) • Rocket motors (~1,500)
Phase II, Lot 203 Environmental Condition of Property (ECP) (Rhea, 2010)	2010	Geophysical surveying using EM-31, test-pitting, soil sampling, and groundwater sampling were conducted to evaluate if potential environmental problems existed at Lot 203. Large anomalies were detected north of the groundwater remediation system. During test pitting activities, small arms casings and debris (e.g., batteries, metal and wooden debris, small containers, 55-gallon drums) were identified. All MPPEH was recovered, certified, verified, and classified as MDAS upon proper inspection, and disposed of by witnessed smelting.	MPPEH • Small Arms Casings (unknown)
IRP Site 82 Potential Source Investigation (PSI) (Rhea, 2011)	2011	Vegetation clearance, test-pitting, and trenching were conducted to identify the nature of the geophysical anomalies discovered during the Lot 203 ECP. MPPEH, scrap metal, communications wire, and batteries were discovered and removed. The MPPEH was certified, verified, and classified as MDAS upon proper inspection and disposed. A black tar-like substance was also observed below and within cardboard boxes.	MPPEH • 75-mm cartridges (52) • 75-mm cartridge fragments (2 pounds) • Propellant canister (1)

TABLE 2-1
Previous Investigations and Removal Actions

Previous Investigation	Date	Activities	MEC/MPPEH (number of items found)
PA/SI Site UXO-22 – Former Munitions Disposal Area (CH2M HILL, 2013a)	2011-2013	Soil and groundwater sampling was conducted for explosives residues and metals analysis to evaluate the presence and nature of MC contamination and potential risks to human health and the environment. Three explosives residues and 13 metals were detected in soil and groundwater samples at concentrations that exceeded regulatory standards and/or screening criteria (and the background threshold values [BTV] for metals). Metals were detected in soil samples collected from areas across the site, including in areas where MEC/MPPEH were not discovered, and the samples containing the highest metal concentrations were collected in the ephemeral drainage where a potential source of metals (disposed batteries) was present. Potential human health and ecological risks were identified from exposure to metals in soil, including surface soil in the ephemeral drainage. The metals exceedances are likely associated with the long-term use as a historical storage and waste disposal area rather than with the presence of MEC/MPPEH. Therefore, it was recommended that metals in soil be addressed as part of IRP Sites 6 and 82. Potential explosive hazards were identified based on the MEC/MPPEH found on-site during previous IRP investigations. An RI was recommended to further characterize the nature and extent of MEC. Additionally, a MEC surface clearance was recommended to minimize explosive risks from unintentional detonations, especially in the wooded areas and in the former DRMO area.	Intrusive activities were not conducted during the investigation and MEC/MPPEH were not identified while practicing MEC avoidance during this investigation.
IRP Sites 6 & 82 Supplemental Investigation (CH2M HILL, 2015)	2012-2013	Soil, groundwater, and pore water sampling was conducted to further delineate the extent of VOCs and metals in groundwater over time and to identify potential additional source areas that are contributing to groundwater contamination. During site preparation, UXO technicians identified MEC/MPPEH within the vicinity of proposed environmental sampling locations at the former DRMO.	MEC • Mark II hand grenades (4) MPPEH • 40-mm practice projectiles (approximately 100) • 40-mm practice cartridges (approximately 100) • M27A1 Signal Illuminating ground flares (6) • Mark 13 Grenade Diversionary (2) • 3.5-inch rocket motors/parts (6) • 30-mm expended cartridge casing (1) • 40 mm expended cartridge casing (1)

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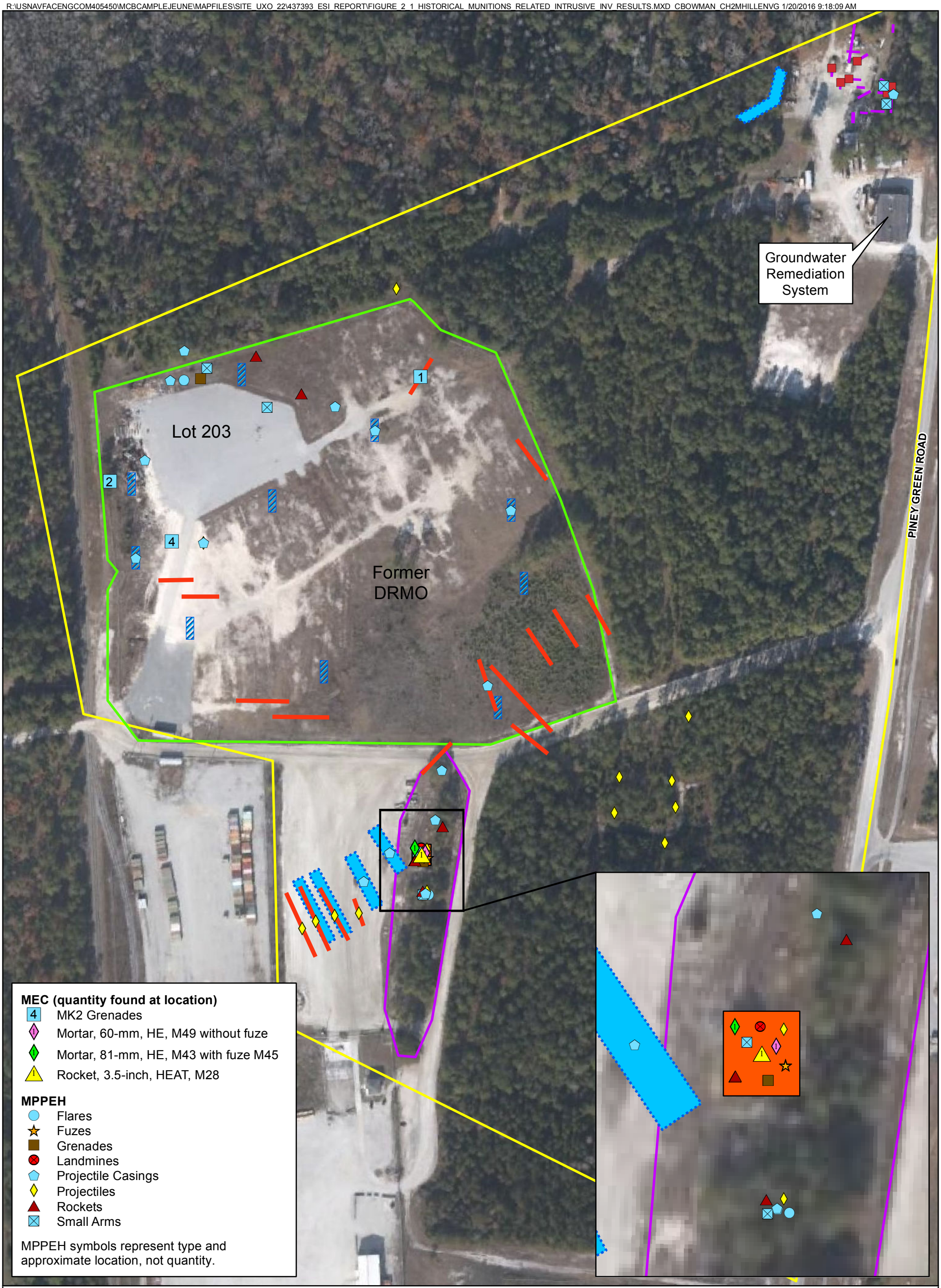

Legend

- Test Pit (Rhea, 2011)
- Trench (Baker, 1993)
- Trench (Rhea, 2011)
- Phase II ECP DRMO Test Pit (Rhea, 2010)
- Source Removal Trenches (OHM, 1997)
- MEC Surface Clearance Area (CH2M Hill, 2009)
- MPPEH Burial Pit (CH2M Hill, 2009)
- Former DRMO-Defense Reutilization and Marketing Office
- Site UXO-22

N

0 100 200 Feet

1 inch = 200 feet

Imagery Source: ©2014 Google
Modifications have been made.

Figure 2-1
Historical MEC/MPPEH and Munitions Related Investigations
Site UXO-22 ESI Report
Camp Lejeune
North Carolina

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Legend

- Monitoring Well
- Soil Boring (CH2M Hill, 2011)
- Temporary Monitoring Well/Soil Boring (CH2M Hill, 2011)
- Test Pit 9B Sample Location of Black Substance (Rhea, 2011)
- Surface Soil Sample (CH2M Hill, 2011)
- Test Pit
- MPPEH Burial Pit (CH2M Hill, 2009)
- Former DRMO-Defense Reutilization and Marketing Office
- Lots 201, 202, and 203
- Site UXO-22 Boundary
- Wetland Area
- Ephemeral Drainage Feature
- Surface Water

N

0 125 250 Feet

1 inch = 250 feet

Imagery Source: ©2014 Google
Modifications have been made

Figure 2-2
Historical Munitions Constituents Related Environmental Investigations
Site UXO-22 ESI Report
Camp Lejeune
North Carolina

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SECTION 3

Activities and Results

This section summarizes the investigation activities, conducted from August 2013 through May 2015. **Figure 3-1** depicts the various investigation activities documented below. Field activities were conducted in accordance with the following documents:

- *Sampling and Analysis Plan, Field Sampling Plan, and Quality Assurance Project Plan for Munitions Response Remedial Investigation at Site UXO-22 – Former Munitions Disposal Area, Marine Corps Installations East – Marine Corps Base Camp Lejeune, North Carolina* (RI Uniform Federal Policy-Sampling and Analysis Plan) *[UFP-SAP])* (CH2M HILL, 2013b)[2]
- *Site-specific Work Plan Addendum for Surface Clearance of Munitions and Explosives of Concern at Site UXO-22 – Former Defense Reutilization and Marketing Office, Marine Corps Installations East – Marine Corps Base Camp Lejeune, North Carolina* (CH2M HILL, 2013d)
- *Site-specific Work Plan Addendum for Soil Screening at Site UXO-22 – Former Defense Reutilization and Marketing Office, Marine Corps Installations East – Marine Corps Base Camp Lejeune, North Carolina* (CH2M HILL, 2014a)
- *Sampling and Analysis Plan, Site UXO-22 Battery Disposal Area Investigation for a Non-Time-Critical Removal Action (UFP-SAP), Marine Corps Installations East – Marine Corps Base Camp Lejeune, North Carolina* (CH2M HILL, 2014b)[3]
- MMRP Master Project Plans (CH2M HILL, 2008)
- *Explosives Safety Submission (ESS) for Munitions Response Activities, Site 6 (Operable Unit 2) – Revision 1 (ESS-104)*, Marine Corps Base Camp Lejeune, North Carolina (CH2M HILL, 2009b)
- *Amendment No. 1 Explosives Safety Submission for Munitions Response Activities Installation Restoration Site 6 and Site 82 (Operable Unit 2) (ESS-107), Marine Corps Base Camp Lejeune, North Carolina* (CH2M HILL, 2009c)
- *Amendment No. 2 ESS for Munitions Response Activities Site UXO-22 (Site 6 and Site 82) (ESS-119), Marine Corps Base Camp Lejeune, North Carolina* (CH2M HILL, 2010c).
- *Amendment No. 3 ESS for Munitions Response Activities Site UXO-22 (Site 6 and Site 82) (ESS-120), Marine Corps Base Camp Lejeune, North Carolina* (CH2M HILL, 2010d).
- *Amendment No. 4 ESS for Munitions Response Activities Site UXO-22 (Site 6 and Site 82) (ESS-136), Marine Corps Installations East – Marine Corps Base Camp Lejeune, North Carolina* (CH2M HILL, 2013c).
- *Amendment No. 5 ESS for Munitions Response Activities Site UXO-22 (Site 6 and Site 82) (ESS-139), Marine Corps Installations East – Marine Corps Base Camp Lejeune, North Carolina* (CH2M HILL, 2014c).

3.1 Defense Reutilization and Marketing Office Activities

Surface clearance and soil screening activities were conducted in the former DRMO lot.

3.1.1 Surface Clearance

A MEC surface clearance was conducted from August through October 2013 to remove metallic debris, including potential MEC/MPPEH, from the ground surface to minimize explosive hazards from unintentional detonations in

[2] Originally planned as a Remedial Investigation; however, the Marine Corps Installations East – Marine Corps Base Camp Lejeune partnering team recommended an ESI report because munitions are comingled with waste disposal areas associated with OU 2. Therefore, the Partnering Team decided to manage UXO-22 as part of the OU2 remedy in place.

[3] Originally planned as a non-time critical removal action; however, test-pitting was conducted during the ESI activities and the batteries were disposed of off-site as described in Section 3.

the former DRMO lot, to facilitate DGM and intrusive activities, and to prepare a portion of the former DRMO lot for soil screening (**Section 3.1.2**). Surface clearance activities were conducted within the fenced boundary of the former DRMO lot, which encompasses an area of approximately 20 acres (**Figure 3-2**). Field activities included the following:

- Vegetation clearance in southeast corner of former DRMO lot
- Collection and disposal/recycling of cultural debris (metallic and non-metallic) found on the ground surface
- Collection and disposal of MPPEH found on the ground surface
- Excavation of postholes

The MEC surface clearance activities were performed by UXO technicians who swept lanes that were approximately 5 feet wide across the former DRMO lot and in accessible areas surrounding the large debris piles. The surface clearance area was evaluated for metallic anomalies using a Schonstedt GA-52Cx to detect ferrous items and a White's XLT that can detect all metals.

Simultaneously with the MEC surface clearance, the large metallic debris was removed from the ground surface and inspected by UXO technicians for the presence of MEC/MPPEH. A MEC surface clearance was then performed in the areas from which the large metallic debris had been removed. Upon inspection of all non-munitions related debris by UXO technicians, metallic debris was collected and transported offsite for recycling. Nonmetallic debris was transported offsite for disposal. A photograph log of the surface MEC clearance and large metal debris removal activities is presented in **Appendix A**.

After the surface material was removed, 34 postholes were excavated in order to assess the nature and depth of buried debris that could potentially foul the soil screen and potential MEC/MPPEH within the soil screening area in preparation for the excavation and mechanical screening of soil (see **Section 3.1.2**). The MPPEH items found during the posthole activities are included in **Table 3-1**.

During MEC surface clearance activities, the primary quality control (QC) objective was verification of removal of MPPEH items visible on the surface. Ten percent of the surface clearance area was independently re-inspected and no MPPEH items were observed.

A total of 5,802 MPPEH items which were all classified as MDAS upon proper inspection were identified and recovered during MEC surface clearance activities. No MEC items were identified. Approximately 24 tons of other metallic debris (such as scrap metal) was recycled and approximately 11 tons of nonmetallic debris (such as wood, plastic, foam insulation, and other non-recyclable material) was collected and disposed offsite. **Table 3-1** and **Figure 3-2** present a summary of the MPPEH items collected during the surface clearance activities.

TABLE 3-1
Summary of MPPEH Items Found During MEC Surface Clearance of the Former DRMO Lot

Item Class	Description	Quantity
Projectile Casing	40-mm, cartridge casing	5,608
Rocket	M29 3.5-inch Rocket component M7 2.36-inch Rocket component	47 2
Flare	AN-M39 Signal Aircraft	1
Firing Device	M1, Pressure Type	1
Fuze	Grenade Fuze	1
Small Arms	Ammunition and clips	142
Total MPPEH Items		**5,802**

3.1.1.1 MPPEH Inspection

MPPEH that could not be fully visually inspected to confirm all surfaces were free of explosive hazards (3.5-inch rocket motors) were cut open onsite using donor explosives to allow inspection of interior surfaces. MPPEH was visually inspected and independently re-inspected to confirm that it was free of explosive hazards. After these two inspections, the MPPEH was certified, verified, and classified as MDAS in accordance with the ESS. The Department of Defense Form 1348-1A was used to document the certification/verification (**Appendix B**). A total of 2,200 pounds of MDAS was disposed offsite by witnessed smelting in January 2014.

3.1.2 Soil Screening

Soil screening was conducted in March and April 2014 and March 2015 to remove metallic debris, including potential MEC/MPPEH, within the surficial soil (0 to 6 inches bgs) from approximately 2 acres within the northwestern corner of the former DRMO lot to reduce risks to site workers and potential trespassers (**Figure 3-3**). Metallic debris was heavily concentrated within a 2-acre area of Lot 203 after DRMO demobilized from the site and six inches was selected as a sufficient depth for soil screening to reduce the potential risk from surface debris. Field activities included the following:

- Underground utility locating
- Excavation and mechanical soil screening
- Inspection of screened material
- Site restoration

Armored equipment was used to remove the top 6 inches of soil and process the material through a mechanical screen (2-inch) with a magnetic separator. A 2-inch screen was selected to remove items the size of an MK2 hand grenade or larger, which is the smallest MEC item expected to potentially exist at the Site based on a review of historical activities (CH2M HILL, 2014a). Material retained by the screen was inspected by UXO technicians. Non-munitions related debris was segregated and placed into roll-offs for transportation to offsite recycling and disposal facilities. Screened soil, containing material smaller than 2 inches in diameter, was staged in the soil screening area and subsequently used to backfill the excavation to a minimum of 6 inches. The area was seeded to provide vegetative cover to stabilize soil against erosion. Approximately 1,750 cubic yards of soil were processed through the mechanical screen and magnetic separator.

A total of 536 MPPEH items (which were all classified as MDAS upon proper inspection) were identified and recovered during soil screening activities (**Figure 3-3** and **Table 3-2**). No MEC items were identified. Approximately 4,000 pounds of non-munitions-related metallic debris was collected during the soil screening and was recycled offsite. Items found included wire, fence posts, steel rods, stakes, auto parts, nails, concrete, and building materials. Approximately 8 tons of screened debris (mostly wood and plastic) was disposed of off-Base. Soil and non-ferrous items smaller than 2 inches in diameter were used to backfill the excavation. UXO technicians monitored the excavation, removal of soil, and the subsequent mechanical screening activities for any suspect MEC/MPPEH items in accordance with the ESS. The primary QC objective for the soil screening was confirmation that MEC/MPPEH smaller than 2 inches was not observed in the material that passed through the mechanical screen. The material that passed through the mechanical screen was continuously monitored by UXO technicians and MEC/MPPEH items were not observed to pass through the screen. **Figure 3-4** depicts the former DRMO lot before surface clearance activities compared to after soil screening.

TABLE 3-2
Summary of MPPEH Items Found During Soil Screening

Item Class	Description	Quantity
Grenade	M21 Grenade, practice MK2 Hand grenade, practice	32 29
Rocket	M29 3.5-inch Rocket motor M29 3.5-inch Rocket warhead	288 34
Projectiles	M43 81-mm Projectile target practice mortar shell	1

TABLE 3-2
Summary of MPPEH Items Found During Soil Screening

Item Class	Description	Quantity
Projectile Casing	40-mm cartridge casing	120
Fuze	3.5-inch Rocket fuze	27
Flare	Ground signal flare	5
Total MPPEH Items		**536**

3.1.2.1 MPPEH Inspection

MPPEH that could not be fully visually inspected to confirm that all surfaces were free of explosives (3.5-inch rocket motors) were cut open onsite using donor explosives to allow for full inspection. During inspection of screened material from the soil screening operation, a practice M43 81-mm mortar shell was found. This item was perforated in an intentional detonation and found to be a wax-filled target practice 81-mm mortar shell. The munition with the greatest fragmentation distance (MGFD) specified in ESS Amendment No. 4 (CH2M HILL, 2013b) was the Mk II grenade, which has a smaller hazardous fragment distance and maximum fragment distance than an 81-mm mortar shell (assuming mortar round not to be a practice round). Therefore, since visual inspection without perforation cannot distinguish the practice 81-mm mortar shell from the HE filled item, work was stopped, and a new ESS Amendment No. 5 (CH2M HILL, 2014a) was drafted to change the MGFD to the 81-mm M43A1 (HE) mortar shell. Upon approval of ESS Amendment 5, the inspection of the remaining screened material was completed.

MPPEH was inspected as described in **Section 3.1.1**. Upon proper inspection and documentation, all MPPEH was certified, verified, and classified as MDAS (**Appendix B**). Approximately 2,100 pounds of MDAS collected during the soil screening was disposed offsite by witnessed smelting in May 2015.

3.2 Digital Geophysical Mapping and Intrusive Investigation

DGM and intrusive investigation activities were conducted across the Site.

3.2.1 Digital Geophysical Mapping

DGM activities were performed in September 2013 to identify anomalies representing potential MEC/MPPEH in preparation for an intrusive investigation. The DGM survey was conducted along 150 transects spaced approximately 25 feet apart which were cleared of vegetation in August 2013[4]. After vegetation clearance was completed and prior to the DGM activities, a North Carolina registered land surveyor placed and labeled wooden stakes along the transect center lines for fiducial positioning methods. The locations of nine buried QC seed item locations were also recorded by the surveyor. The total DGM coverage area was 8.2 acres, or approximately 10 percent, of the Munition Response Site (MRS). The geophysical survey was performed using a person-portable single-coil Geonics, Ltd., EM61-MK2 electromagnetic system (EM-61) and the results are shown on **Figure 3-5.** A total of 9,107 distinct targets representing potential subsurface MEC were identified (**Figure 3-6**). The results of the EM-61 survey depict an overall relatively high anomaly density across the majority of the survey area. The relative anomaly density decreases in the southern end of the survey area. Additional details on the DGM field survey, data processing, and anomaly selection criteria are presented in the Geophysical Investigation Report (**Appendix C).**

[4] The DGM and intrusive activities were conducted within the Site UXO-22 MRS boundary which was defined in the ESS Amendment 4 in order to include the entire wooded area south of the truck scales in the investigation. Therefore, the MRS boundary area is slightly larger than the Site UXO-22 MMRP boundary (**Figure 3-6**).

3.2.1.1 Quality Control and Quality Assurance

The geophysical system verification (GSV) process was used to verify DGM systems prior to and during site surveys where signal strength and sensor performance are compared to known response curves of industry-standard objects (ISOs). The GSV process is designed to perform initial verification of the DGM system using an instrument verification strip (IVS), followed by a blind seeding program for continued verification throughout the field operations. An existing IVS near Site UXO-21 was utilized for the DGM at Site UXO-22, and nine QC seed items, consisting of small ISOs, were buried along the transects, their locations unknown to the DGM personnel and data processors. The nine QC seeds were successfully detected during the field survey and selected for intrusive investigation. The Site UXO-22 DGM GSV Report is presented in **Appendix D**.

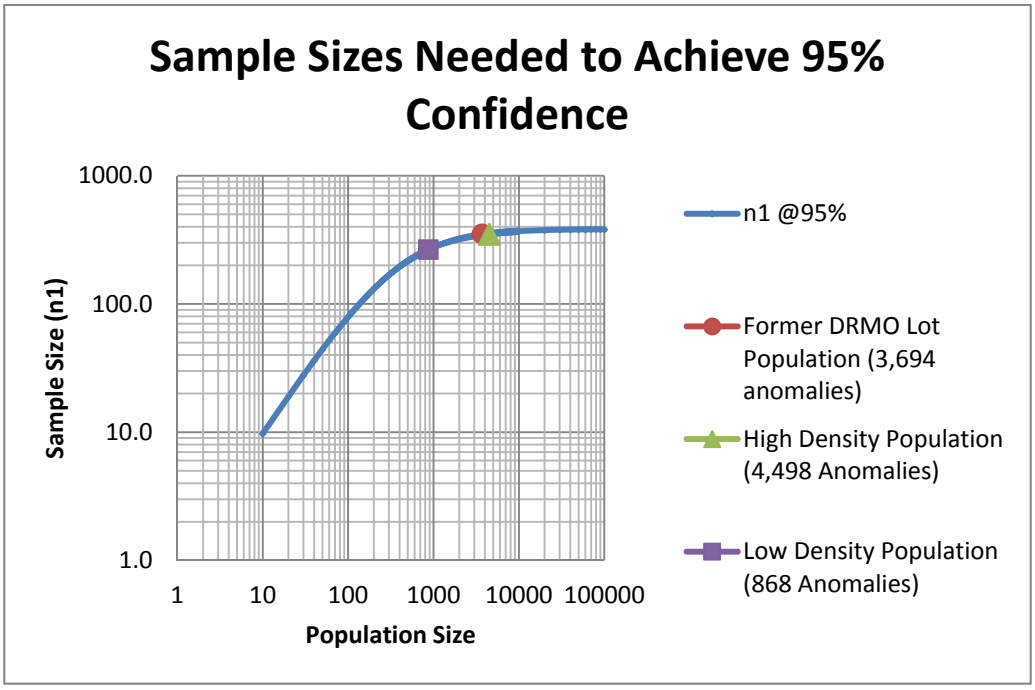
3.2.1.2 Anomaly Evaluation

Due to the high density of metallic debris across the Site and the large number of distinct anomalies, a statistics-based approach was used to select geophysical anomalies for intrusive investigation. Visual Sample Plan (VSP) software (Pacific Northwest National Laboratory, 2013) was utilized to evaluate the distribution of the geophysical anomalies for the presence of clusters, or elevated anomaly density areas.

The VSP results indicated the presence of three populations in the geophysical data, each representing an anomaly population. The three populations were referred to as the former DRMO lot population, high-density population, and the low-density population, as shown on **Figure 3-6**. The low-density population is comprised of 6 non-contiguous areas while the high-density and former DRMO lot populations are each individual contiguous areas.

Using the Estimating a Proportion Method for a known anomaly population, a statistically representative subset of anomalies was selected from each of the three populations for intrusive investigation. **Figure 3-7** depicts the number of anomalies requiring intrusive investigation for each population in order to achieve 95 percent statistical characterization. In order to determine with 95 percent confidence within ± 5 percent sampling error, it was calculated that 348 of the 3,694 anomalies from the former DRMO lot population, 354 of the 4,498 anomalies from the high-density population, and 266 of the 868 anomalies from the low-density population would need to be intrusively investigated (total of 968 anomalies to be intrusively investigated). A random number generator was used to select anomalies for intrusive investigation within each population.

FIGURE 3-7
Population Size versus Sample Size



Two biased dig locations were added for the purpose of obtaining additional subsurface data based on site reconnaissance during vegetation clearance, and the findings are not factored into the statistical characterization of the anomaly populations. In addition, anomalies corresponding to the QC seed locations were added to the dig lists as a means of providing QC during intrusive operations. As with the biased digs, the QC seeds are not factored into the statistical characterization of the geophysical anomaly populations. After addition of the biased digs and QC seeds, a total of 979 anomalies were included in the target list to determine the source of the anomaly at each location (**Figure 3-6**).

3.2.2 Intrusive Investigation

An intrusive investigation was conducted in November through December 2013 and in April 2014 at the anomaly locations selected from the statistical analysis of the DGM data, as described in **Section 3.2.1,** to define the nature and extent of subsurface MEC/ MPPEH. Anomalies targeted for intrusive investigation (**Figure 3-6**) were first reacquired and flagged by a surveyor. UXO technicians then manually removed the soil to determine the source of the anomaly.

The locations of the 979 anomalies selected for intrusive investigation are presented on **Figure 3-6**. A total of 976 anomalies were intrusively investigated; three anomalies were not investigated because the locations were blocked by parked vehicles near the Base scales. The intrusive investigation was performed to a depth of 2 feet bgs because the EM-61 can reliably detect objects the size of an MK2 grenade (111- mm by 59- mm) or larger at depths of up to 2 feet bgs. If the Schonstedt GA-52Cx response and visual observations indicated that the source of the anomaly extended beyond 2 feet bgs, then the location was investigated to a maximum depth of 4 feet bgs.

The findings from the intrusive investigation were:

- No MEC was found.
- A total of 1,006 MPPEH items which were all classified as MDAS upon proper inspection were identified at 93 intrusive locations, representing approximately 10 percent of the investigated anomalies. The MPPEH items were located at varying depths ranging from the surface to 4 feet bgs with no apparent pattern of disposal depth.
- The anomaly source was not identified at 10 locations either because the source was deeper than 4 feet bgs or because suspected noise caused an anomaly that was targeted for investigation.
- Batteries were found at 14 locations within Site UXO-22 during the intrusive investigation at depths ranging from 0.5 to 4 feet bgs and were left in place. Most of the batteries were found within the former DRMO lot during the intrusive investigation with the remainder found in the wooded area east of the DRMO lot.

Each intrusive investigation location was checked with the EM-61 after completion of the digging as part of the QC process. Additional QC inspections were performed by the UXO QC specialist and consisted of checking 10 percent of the intrusively investigated anomaly locations using an EM-61 to determine if the initial geophysical anomaly source had been removed. All nine of the QC seed items buried onsite during the DGM activities were recovered during the intrusive investigation. At 77 intrusive investigation locations, the source of the anomaly consisted of large amounts of disposed metal which were left in place. At these locations, the metallic debris was not fully removed, but rather the area was investigated to evaluate the source of the anomaly. A notation that the location was not cleared of metallic debris was made on the field dig sheets and summarized in **Appendix E**. At the remaining locations, the QC check with the EM-61 indicated that the source of the anomaly had been removed.

Table 3-3 presents a summary of the MPPEH items (which were all classified as MDAS upon proper inspection) identified during the intrusive investigation activities. Data collected during the intrusive investigation are provided in **Appendix E**. The MPPEH items (with corresponding quantities) and battery locations identified during the intrusive investigation are depicted on **Figure 3-8**.

3.2.2.1 MPPEH Inspection

MPPEH that could not be fully visually inspected to confirm that all surfaces were free of explosives (3.5-inch rocket motors) were cut open onsite using donor explosives to allow for full inspection.

MPPEH was inspected as described in **Section 3.1.1**. Upon proper inspection and documentation, all MPPEH was certified, verified, and classified as MDAS (**Appendix B**). Approximately 550 pounds of MDAS collected during the intrusive investigation was disposed offsite by witnessed smelting in January 2014.

TABLE 3-3
Summary of MPPEH Items Found During the Intrusive Investigation

Item Class	Description	Quantity
Grenade	M8 Hand grenade, smoke	1
	M69 Hand grenade, practice	3
	MK2 Hand grenade, practice	3
	M9 Grenade, rifle	1
Rocket	M29 3.5-inch Rocket motor	17
	M29 3.5-inch Rocket nose cone	6
	M29 3.5-inch Rocket shipping container	1
Flare	M127 Signal flare, illumination	2
Projectiles	M43 81-mm Projectile fins	4
	3-inch Projectile shells	15
Projectile Casings	40-mm Cartridge casing	95
	105-mm Projectile casing	149
	106-mm Projectile casing	15
	105-mm Projectile casing shipping container	10
Small Arms	30-mm links	102
	0.50-caliber	2
	M1 Clips	575
Miscellaneous	Bomb lug	1
	Ammunition can	4
Total MPPEH Items		**1,006**

3.3 Battery Disposal Area Investigation

The battery disposal area investigation was conducted in a phased approach to evaluate the horizontal and vertical extent of the batteries disposed within the ephemeral drainage and to characterize the soil beneath the disposed batteries. The soil sample results were screened to assess potential risks to human health and the environment.

3.3.1 Phase I

The Phase I activities included hand-dug posthole and test pit excavations and soil sampling. The purpose of the post hole and test pit activities was to evaluate the nature and extent of the battery disposal area to prepare for potential large scale test pit excavations using armored earth moving equipment. The purpose of the soil sampling was to obtain preliminary information for investigation derived waste (IDW) disposal activities.

The Phase I battery disposal area activities were conducted in March and April 2014 and consisted of the following:

- Vegetation clearance

- Topographic survey
- Underground utility location
- DGM of battery disposal investigation area
- Digging of postholes and test pits in areas of observed surficial batteries and of suspected buried battery disposal areas based on DGM results
- Collection of subsurface soil samples from representative posthole locations and test pits

In March 2014 following removal of vegetation less than 6 inches in diameter, a North Carolina registered land surveyor conducted an existing feature and topographical survey (**Appendix F**) of the battery disposal area and established a 50-foot by 50-foot grid network for maintaining location control during the DGM survey within the battery disposal investigation area.

Prior to test pit activities, DGM was conducted to evaluate the horizontal extent of batteries within the ephemeral drainage area. The DGM results are presented in **Appendix G**. DGM was conducted across approximately 1 acre using a line spacing of five feet, and the geophysical survey was performed using a combination of electromagnetic terrain conductivity and magnetic gradient instruments. The following equipment was used:

- Geonics, Ltd., EM31-MK2 electromagnetic system (EM-31) Terrain Conductivity meter
- Geometrics, Inc., 858 Cesium Vapor Magnetometer

In order to evaluate the vertical extent of batteries, 10 posthole and five test pit locations were excavated based on visual observance of batteries at the surface and results of the geophysical survey. Batteries and some metallic debris were found in the posthole and test pit locations; however, material was not removed until the Phase II activities (see below). **Figure 3-9** shows the Phase I investigation DGM area, posthole locations, test pits, and soil sample locations.

Four subsurface soil samples were collected and analyzed for metals and hexavalent chromium by the United States Environmental Protection Agency (USEPA) Methods 6010 and 7199 (**Figure 3-9**). The subsurface soil samples were analyzed for metals and were screened against North Carolina soil screening levels (NC SSLs), adjusted USEPA regional screening levels (RSLs) for industrial and residential soil, and BTVs for developed areas (combined soil type). The concentrations of metals in the soil samples were considered to be in exceedance of the regulatory standard only if analyte concentrations were greater than both the BTVs and at least one additional regulatory standard (i.e., adjusted RSLs or NC SSL). The subsurface soil sample results are presented in **Table 3-4**. Mercury exceeded the BTV, residential RSL, and NC SSL in one sample collected from 1.5 to 2 feet bgs.

The soil samples were also analyzed by Toxicity Characteristic Leaching Procedure (TCLP) for metals (SW-846 1311) for disposal purposes and all analytical results were non-hazardous. The analytical data for the TCLP sampling is found in **Appendix H**.

Upon completion of the Phase I activities, further characterization was recommended to delineate the extent of the battery disposal area and was implemented as the Phase II activities.

3.3.2 Phase II

The Phase II activities included surface clearance and large-scale test pit excavation with armored earth-moving equipment. The purpose of the surface clearance was to remove metallic debris, including potential MEC/MPPEH from the ground surface in preparation for the test pit activities. The purpose of the test pit activities was to delineate the nature and extent of the battery disposal area.

The Phase II battery disposal area activities were conducted from March to June 2015 and consisted of the following:

- Underground utility location
- Surface clearance of MPPEH
- Test pit excavation on the western bank of the ephemeral drainage

- Analysis of black unknown substance from wall of test pit excavations
- Analysis of pressure vessel tanks for asbestos
- Collection of subsurface soil samples from base of test pit excavations
- Management of IDW
- Site restoration

Prior to test pit excavation, surface debris was removed, including MPPEH consisting of four practice rocket parts and six 106-mm cartridge casings (**Table 3-5**). Armored earth-moving equipment was used to excavate the Phase II test pits which resulted in the removal of the soil encompassing the Phase I postholes and test pits. The excavated material was spread so that it could be inspected for MEC and/or MPPEH (**Table 3-5**). The material excavated from the test pits included predominantly dry-cell batteries. In addition, communication wire and small pressure vessel tanks were identified. The small pressure vessel tanks (approximately 18 inches long and 12 inches in diameter) were covered with a felt-like substance which was tested for asbestos. Laboratory results indicated that the substance was not asbestos (**Appendix H**) and the tanks were then recycled off-Base. **Appendix A** shows photographs of representative debris excavated from the test pits.

TABLE 3-5
Summary of MPPEH Items Found During Surface Clearance and Test Pitting within the Battery Disposal Area

Item Class	Description	Quantity
Grenade	MK2 Hand grenade, practice	1
Rocket	M29 3.5-inch Rocket motor	10
	M7 2.36-inch Rocket, Practice	1
Projectiles	90-mm cartridge casing	2
	106-mm cartridge casing	600
Total MPPEH Items		**614**

After completion of test pit activities but before the excavation was backfilled, a thick black liquid material[5] with the appearance and consistency of lubricating grease was observed within a 1 foot by 1 foot area on the sidewall of the excavation (**Figure 3-10**). The material was collected for laboratory analysis of VOCs, semi-volatile organic compounds (SVOCs), pesticides, PCBs, metals, and total petroleum hydrocarbons (TPH). The sample contained elevated detections of TPH diesel-range organics (DRO), TPH-oil-range organics (ORO), and lead and the analytical results are presented on **Table 3-6**.

The depth and width of the test pit excavations was determined based on the actual horizontal and vertical extent of the battery debris. The depth of the test pits ranged from approximately 1 to 5.2 feet bgs. Upon delineation of the batteries and other debris, the test pits were backfilled with at least two feet of soil, contoured to match existing grades as closely as possible, and vegetated to stabilize the backfill.

3.3.2.1 MPPEH Inspection

MPPEH that could not be fully visually inspected to confirm that all surfaces were free of explosives (3.5-inch rocket motors) were cut open onsite using donor explosives to allow for full inspection. No MEC items were identified. 604 MPPEH items were removed from the test pits, the majority of which were 106-mm cartridge casings. However, one 2.36-inch practice rocket was also found. Visual inspection alone was not sufficient to determine the nature of the filler in the 2.36-inch rocket warhead; therefore, the item was perforated and

[5] A thick black liquid was also found during the Site 82 Potential Source Investigation (Rhea, 2011) and it is unknown whether the thick black liquid identified during this investigation is the same as that found in 2011 (**Figures 2-2** and **3-10**, respectively). The Site 82 Potential Source Investigation report does not indicate if the material was removed; therefore, it is believed that the material was left in place.

confirmed to be an empty practice rocket. MPPEH was inspected as described in **Section 3.1.1**. Upon proper inspection and documentation, all MPPEH was certified, verified, and classified as MDAS (**Appendix B**). Approximately 12,600 pounds of MDAS collected during the test pit activities were disposed offsite by witnessed smelting in May 2015.

3.3.2.2 IDW Management

Upon removal of MPPEH, the material removed from the test pits was managed as IDW. Samples were collected for waste characterization (TCLP) per approximately every 180 tons of IDW. Of the 573 tons of IDW that were disposed of off-Base, 400 tons were disposed as non-hazardous waste and 173 tons were disposed as hazardous waste. The hazardous waste was characterized as toxic due to lead concentrations from the TCLP analysis. Waste manifests are presented in **Appendix I**.

3.3.2.3 Soil Sampling

Twenty soil samples were collected across the test pits from depths of 1 to approximately 5 feet bgs and analyzed for metals and hexavalent chromium by USEPA Methods 6010 and 7199 prior to backfilling. Laboratory data were validated by a third-party validator. Samples were collected from the side walls and native soil beneath the batteries at the base of the test pits (**Figure 3-10**). Analytical detections from the soil samples are presented on **Table 3-4**. The subsurface soil sample results were screened against NC SSLs, adjusted RSLs for industrial and residential soil, and BTVs for developed areas (combined soil type). The concentrations of metals in the soil samples were considered to be in exceedance of the regulatory standard only if analyte concentrations were greater than both the BTVs (if available) and at least one additional regulatory standard (i.e., adjusted RSLs or NC SSLs). A summary of the soil sample exceedances is provided in **Table 3-7**. Eight metals exceeded the screening criteria and BTV, with most of the exceedances confined to sample MR22-SB115.

TABLE 3-7
Summary of Metal Exceedances in Subsurface Soil Samples from the Phase II Test Pit Investigation

Chemical Name	Frequency of Detection (# detected/ # analyzed)	Minimum Concentration (mg/kg)	Maximum Concentration (mg/kg)	Location of Maximum Concentration	Regulatory standards (mg /kg)		Frequency of Exceedances
Arsenic	6/20	2.48 J	36.5 J	MR22-SB115	NC SSL	5.8	1
					Res RSL	0.67	1
Barium	20/20	3.43	1,700	MR22-SB115	NC SSL	580	1
					Res RSL	1,500	1
Cobalt	20/20	0.042 J	7.44	MR22-SB115	NC SSL	0.9	4
					Res RSL	2.3	1
Manganese	20/20	3.62	793	MR22-SB121	NC SSL	65	3
					Res RSL	180	1
Mercury	16/20	0.0068 J	1.2 J	MR22-SB107 MR22-SB114	NC SSL	1	2
Selenium	17/20	0.042 J	7.93	MR22-SB115	NC SSL	2.1	1
Thallium	19/20	0.014 J	0.62	MR22-SB115	NC SSL	0.28	1
					Res RSL	0.078	3
Zinc	19/20	3.29 J	2,240	MR22-SB121	NC SSL	1,200	1

mg/kg = milligrams per kilogram

J - Analyte present, value may or may not be accurate or precise

Res RSL – Residential Regional Screening Level

3.3.3 Human Health Risk Screening

A human health risk screening (HHRS) was performed to evaluate potential risks associated with exposure to subsurface soil at the battery disposal area (**Figure 3-10**). The HHRS provides a preliminary indication of potential risks from exposure to metals detected in soil in this area of Site UXO-22, and are used to help evaluate whether unrestricted (i.e., residential) use of the Site is acceptable, or if the Site requires further evaluation (e.g., additional data collection, a baseline risk assessment).

The analytical data evaluated in the HHRS include soil samples collected during the Phase II[6] battery disposal area sampling activities (**Section 3.3.2**). It should be noted that the subsurface soil samples were only analyzed for metals since these are the contaminants expected to be related to the past use of this site as a battery disposal area. As indicated in **Section 3.3.2**, a thick black liquid material with the appearance and consistency of lubricating grease was observed within a 1 foot by 1 foot area on the sidewall of the test pit excavation (**Figure 3-10**). The material was collected for laboratory analysis of VOCs, SVOCs, pesticides, PCBs, metals, and TPH; however, these analytical results were not included in the subsurface soil data set evaluated in the HHRS because the sample was collected to characterize the material not the surrounding soil and because the material was not associated with the batteries. The sample collected from the black liquid material contained elevated detections of TPH- DRO, TPH- ORO, and lead as presented on **Table 3-6**.

The data evaluated in the HHRS were validated. Validation of the data identified the following criteria for data usability:

- Estimated values flagged with a J qualifier were treated as unqualified detected concentrations.
- For duplicate samples, the maximum concentration between the two samples was used as the sample concentration. If the analyte was only detected in one of the samples, the detected concentration was used as the sample concentration. If the analyte was not detected in either of the samples, the higher detection limit was used as the sample detection limit.

3.3.3.1 Human Health Risk Screening Methodology

The HHRS was conducted in three steps using a risk ratio technique (U.S. Navy, 2000). Constituents of potential concern (COPCs) identified in Step 1 were evaluated in Step 2. COPCs identified in Step 2 were evaluated in Step 3. The three-step screening process is described below.

3.3.3.2 Step 1

The maximum detected soil concentrations were compared to the USEPA residential soil risk based RSLs (USEPA, 2015). RSLs based on non-carcinogenic effects were based on a hazard quotient (HQ) of 0.1 to account for exposure to multiple constituents. RSLs based on carcinogenic endpoints were based on a carcinogenic risk of 1×10^{-6}. Soil data were also compared to the Camp Lejeune subsurface soil BTVs (CH2M HILL, 2011) for combined soil types in developed areas. In addition, the NC SSLs are shown on the Step 1 soil screening table; however, they were not used to identify COPCs but used to indicate the potential for leaching from the soil to groundwater at concentrations of potential concern to human receptors.

If the maximum detected concentration of an analyte exceeded the RSL and the BTV (if available), the analyte was identified as a COPC and the screening level risk evaluation proceeded to Step 2.

6 The soil samples collected during the Phase I test pits were not validated and the soil in that area was removed and disposed offsite during the Phase II test pit activities. Therefore, the Phase I soil samples were not included in this HHRS.

3.3.3.3 Step 2

For analytes identified as COPCs in Step 1, a corresponding risk level was calculated using the following equation as discussed in *Overview of Screening, Risk Ratio, and Toxicological Evaluation, Procedures for Northern Division Human Health Risk Assessments* (U.S. Navy, 2000):

$$\text{corresponding risk level} = \frac{\text{concentration x acceptable risk level}}{\text{RSL}}$$

The concentration is the maximum detected concentration (the same concentration that was used in Step 1). The acceptable risk level is 1 for noncarcinogens and 10^{-6} for carcinogens. RSLs for noncarcinogens are based on a hazard quotient of 1, instead of the hazard quotient of 0.1 used in Step 1, following the Navy guidance (Navy, 2000).

The corresponding risk levels for each analyte were summed to calculate the cumulative corresponding carcinogenic risk (for carcinogens) and cumulative corresponding hazard index ([HI], for noncarcinogens). If the cumulative corresponding carcinogenic risk is greater than 5×10^{-5}, or the cumulative corresponding HI for a target organ/effect is greater than 0.5, the anayltes contributing to these values are retained as COPCs and carried forward to Step 3.

3.3.3.4 Step 3

For analytes identified as COPCs in Step 2, a corresponding risk level was calculated as discussed above for Step 2; however, the 95 percent upper confidence limit (UCL) was used as the exposure concentration instead of the maximum detected concentration. ProUCL Version 5.0 (USEPA, 2013) was used to calculate the 95 percent UCL.

If the cumulative corresponding HI by target organ/effect is greater than 0.5, or the cumulative corresponding carcinogenic risk is greater than 5×10^{-5}, the analytes contributing to these values are considered COPCs.

3.3.3.5 Human Health Risk Screening Results

Tables J-1 through J-3 in **Appendix J** present the risk-based screening for soil. As shown on Table J-1, five metals (arsenic, barium, cobalt, manganese, and thallium) exceeded the residential soil RSL and BTV (if available) and were identified as COPCs for evaluation in Step 2. Arsenic and thallium were identified as a COPC in Step 2 (Table J-1), however they were both eliminated as COPCs in Step 3. Therefore, exposure to subsurface soil would not be expected to result in unacceptable human health risks.

3.3.3.6 Human Health Risk Screening Summary

The HHRS for subsurface soil within the battery disposal area indicates that potential current and future exposures to soil at this area of Site UXO-22 are within acceptable levels for potential receptor populations. Although exposure to metals in subsurface soil would not result in any unacceptable risks, there is uncertainty concerning risks associated with exposure to the black liquid material which was observed and is present within the waste disposal area. Any further assessment of the waste disposal area should be addressed as part of the re-evaluation of OU 2.

3.3.4 Ecological Risk Screening

An ecological risk screening (ERS) was conducted to evaluate potential risks associated with exposure to soil at the battery disposal area. The analytical data evaluated in the ERS include soil samples collected during the Phase II[7] battery disposal area sampling activities (**Section 3.3.2**). The ERS provides a preliminary indication of potential risks to ecological receptors from exposure to metals detected in soil in this area of Site UXO-22. An ecological checklist that identifies the terrestrial and aquatic habitats on and adjacent to the Site is included in the Site UXO-22 PA/SI Report (CH2M HILL, 2013a).

[7] The soil samples collected during the Phase I test pits were not validated and the soil in that area was removed and disposed offsite during the Phase II test pit activities. Therefore, the Phase I soil samples were not part of this ERS.

3.3.4.1 Ecological Risk Screening Methodology

For the subsurface soil samples, maximum and arithmetic mean concentrations of chemicals (i.e., exposure concentrations) were compared to ecological screening values (ESVs) intended to be protective of ecological receptors. HQs were calculated by dividing the exposure concentrations by the ESVs.

Because samples were collected at depths greater than 1 foot bgs and at least 2 feet of clean backfill was placed over the excavation areas, a complete exposure pathway does not exist for birds and mammals. Consequently, only the soil screening values for invertebrates and plants were considered. For soil, the lowest of the USEPA ecological soil screening levels (EcoSSL) (USEPA, 2011) for plants and invertebrates were preferentially selected over USEPA Region 4 values (USEPA, 2001). When no Eco-SSL was available for a constituent, the USEPA Region 4 value was selected.

Maximum concentrations of metals in subsurface soil were also compared to the subsurface soil BTV for developed areas and combined soil types (CH2M HILL, 2011). The BTV represents a 95/95 upper tolerance limit (UTL), which is an upper bound (with 95 percent confidence) of the background 95th percentile.

3.3.4.2 Ecological Risk Screening Results

This section addresses constituents that were detected. Non-detected constituents are not expected to pose a risk to ecological receptors and are therefore not discussed further. Table J-4 in **Appendix J** presents the subsurface soil screening.

Of the detected analytes with available ESVs, 11 metals (aluminum; antimony; arsenic; barium; iron; lead; manganese; mercury; selenium; vanadium; and zinc) had maximum-based HQs greater than 1. Of these, aluminum, antimony, iron, and vanadium were consistent with background values. Hexavalent chromium was detected in 11 of 20 samples. No ESV is available for hexavalent chromium; however, the maximum detected concentration was consistent with background.

Arsenic and lead concentrations exceeded the ESV in only 1 of 20 samples and both constituents had low magnitude of exceedances (HQs equal to or less than 2). Barium concentrations exceeded the ESV in only 1 of 20 samples, have a mean-based HQ of less than one (0.34), and are not expected to pose an unacceptable risk to plants and invertebrates. While selenium had a maximum- and mean-based HQ greater than one, concentrations exceeded the background BTV in only 4 of 20 samples, and risk from selenium was expected to be low.

Mercury and zinc had maximum-based HQs greater than one and maximum concentrations that exceeded background BTVs. However, mean-based HQs had a low magnitude of exceedance for both mercury and zinc (HQs less than 3). Additionally, elevated concentrations of these constituents occurred in areas where a minimum of 2 feet of clean backfill was placed over the excavated area. While mercury and zinc have some potential to pose risk to invertebrates that burrow and plants that root deeper than 2 feet, overall risk was low due to the depth and the overlying clean backfill.

3.3.4.3 Ecological Risk Screening Summary

Mercury and zinc concentrations in subsurface soil pose low potential risk to plant and invertebrate receptors and no unacceptable risk to bird and mammal populations.

3.4 Site Walk

A site walk was conducted in April 2015 to evaluate the nature and extent of MEC/MPPEH and debris remaining on the surface in the wooded areas within Site UXO-22 and OU 2. Various types of debris, including batteries, drums, vehicle parts, wire, and munitions-related items, were found on the surface, scattered throughout the Site with no discernible pattern. Mounds were also noted throughout the site. The area included in the site walk and the results of the surface debris noted are presented on **Figure 3-11**. A photograph log of the items observed during the site walk is presented in **Appendix A**.

The results of the site walk document the widespread presence of surficial debris across the wooded areas of OU 2.

3.5 Summary

The extent of debris (munitions-related and other) both on the surface and in the subsurface is widespread, although surface debris is confined to the wooded areas of Site UXO-22 following the investigation activities in the former DRMO lot (see **Section 3.1** above). The nature of the munitions related debris at the Site is consistent with disposal of practice and expended items related to range residue, which aligns the historical use of the area for waste disposal rather than as an active range or other type of active munitions use area.

The battery disposal area contained typical debris encountered at the site, including batteries, communication wire, and MPPEH. A similar appearing substance as the unknown black substance found during the test pit investigation was also identified during test pit activities conducted during the Site 82 Potential Source Investigation (Rhea, 2011) (**Table 2-1**). Furthermore, during a Time-Critical Removal Action (TCRA), two 20-yard roll-off containers of 2-gallon containers of grease were removed from several locations in the northeast area of UXO-22 (**Table 2-1**) (OHM, 1997). The findings of the ESI field activities confirm the wide-spread presence of disposed waste. A comprehensive analysis of potential explosives hazards associated with the MPPEH present at the Site is provided in the next section.

TABLE 3-4

Subsurface Soil Analytical Results

Site UXO-22 Expanded SI Report

Camp Lejeune, North Carolina

Station ID	**Camp Lejeune Background Developed SB Combined Soil Types**	**NCSSL (February 2012)**	**Adjusted Industrial Soil RSLs (January 2015)**	**Adjusted Residential Soil RSLs (January 2015)**	MR22-SB99	MR22-SB100		MR22-SB101	MR22-SB102	MR22-SB103
Sample ID					MR22-SB99-18-24-14B	MR22-SB100-36-40-14B	MR22-SB100D-36-40-14B	MR22-SB101-24-30-14B	MR22-SB102-30-34-14B	MR22-SB103-24-26-15A
Sample Date					04/15/14	04/15/14	04/15/14	04/15/14	04/15/14	03/31/15
Chemical Name										
Total Metals (MG/KG)										
Aluminum	26,600	--	100,000	7,700	6,550	3,270	3,750	71.1	3,650	1,590
Antimony	1.79	0.9	47	3.1	0.075 UJ	0.042 UJ	0.039 UJ	0.039 UJ	0.077 UJ	0.12 J
Arsenic	14.7	5.8	3	0.67	0.97 J	0.14 J	0.3 U	0.14 J	0.63 J	0.37 UJ
Barium	53.2	580	22,000	1,500	10.5	5.07	5.19	0.648	3.74	11.7
Beryllium	--	63	230	16	0.0533 J	0.033 J	0.0414 J	0.016 U	0.0402 J	0.032 J
Cadmium	1.3	3	98	7	0.204	0.234	0.197	0.034 J	0.196	0.115
Calcium	720	--	--	--	175 U	70.7 U	56 U	6.3 U	18 U	322
Chromium (hexavalent)	6.15	3.8	6.3	0.3	1.89	1.7	1.75	0.8	1.83	0.38 U
Chromium	32.7	3.8	6.3	0.3	**7.91**	5.21	5.5	0.63 U	5.39	1.9 U
Cobalt	1	0.9	35	2.3	0.353	0.156	0.174	0.01 J	0.207	0.106
Copper	6.61	700	4,700	310	4.39	2.19	1.54	0.811 U	4.92	2.1 J
Iron	33,600	150	82,000	5,500	2,600 J	684 J	779 J	156 J	2,420 J	774
Lead	14.4	270	800	400	12.2 J	4.64 J	5.4 J	3.77 J	14.8 J	8.01 J
Magnesium	732	--	--	--	281 J	121 U	136 U	6.3 U	141 U	59.2
Manganese	16.9	65	2,600	180	28.9 J	7.58 J	12.1 J	2.1 U	21.4 J	17.7
Mercury	0.148	1	35	2.3	3.04 J	0.015 J	0.016 U	0.0633 J	0.0661 J	0.107 J
Nickel	8.86	130	2,200	150	1.01 U	0.922 U	0.9 U	0.2 U	0.711 U	0.531 U
Potassium	1,020	--	--	--	254 J	204 J	219 J	32 U	218 J	64.8 J
Selenium	0.948	2.1	580	39	0.23 U	0.25 U	0.22 U	0.24 U	0.17 U	0.053 J
Silver	--	3.4	580	39	0.0095 J	0.028 U	0.036 U	0.033 U	0.033 U	0.02 J
Sodium	81.1	--	--	--	38.4 U	33 U	30 U	32 U	22 U	47 U
Thallium	--	0.28	1.2	0.078	0.048 J	0.022 J	0.025 J	0.032 U	0.025 J	0.014 J
Vanadium	76.1	6	580	39	10.2	4.9 U	5.32	1.07 U	7.95	2.69
Zinc	16.6	1,200	35,000	2,300	104	238	197	7.13	112	22.1 J

Notes:

Shading indicates exceedance of base background for subsurface soil (developed)

Bold box indicates exceedance of NCSSL

Bold text indicates exceedance of Adjusted Industrial Soil RSLs

Underline indicates exceedance of Adjusted Residential Soil RSLs

J - Analyte present, value may or may not be accurate or precise

U - The material was analyzed for, but not detected

UJ - Analyte not detected, quantitation limit may be inaccurate

MG/KG - Milligrams per kilogram

TABLE 3-4

Subsurface Soil Analytical Results

Site UXO-22 Expanded SI Report

Camp Lejeune, North Carolina

Station ID	Camp Lejeune Background Developed SB Combined Soil Types	NCSSL (February 2012)	Adjusted Industrial Soil RSLs (January 2015)	Adjusted Residential Soil RSLs (January 2015)	MR22-SB104	MR22-SB105	MR22-SB106		MR22-SB107	MR22-SB108
Sample ID					MR22-SB104-24-26-15A	MR22-SB105-48-50-15A	MR22-SB106-60-62-15A	MR22-SB106D-60-62-15A	MR22-SB107-48-50-15A	MR22-SB108-24-26-15A
Sample Date					03/31/15	03/31/15	03/31/15	03/31/15	03/31/15	03/31/15
Chemical Name										
Total Metals (MG/KG)										
Aluminum	26,600	--	100,000	7,700	5,800	3,640	4,320	4,600	2,830	11,000
Antimony	1.79	0.9	47	3.1	0.041 UJ	0.674 J	0.356 J	0.378 J	0.097 UJ	0.045 UJ
Arsenic	14.7	5.8	3	0.67	1 UJ	0.8 UJ	0.4 UJ	1.1 UJ	0.33 UJ	0.8 UJ
Barium	53.2	580	22,000	1,500	4.76	35.9	4.7	4.61	4.44	14.8
Beryllium	--	63	230	16	0.0504 J	0.105	0.0501 J	0.0476 J	0.032 J	0.0604 J
Cadmium	1.3	3	98	7	0.224	0.724	0.207	0.253	0.153	0.018 U
Calcium	720	--	--	--	14 U	372	41.9 U	43.1 U	32.1 U	458
Chromium (hexavalent)	6.15	3.8	6.3	0.3	2.87	0.23 U	1.74	2	3.08	4.83
Chromium	32.7	3.8	6.3	0.3	**7.82**	4.91	**6.61**	**7.68**	5.05	**10.4**
Cobalt	1	0.9	35	2.3	0.269	0.486	0.237	0.249	0.143	0.406
Copper	6.61	700	4,700	310	1.71 J	58.4	3.76	4.35	4.27	0.36 J
Iron	33,600	150	82,000	5,500	8,360	2,470	1,290 J	2,950 J	1,370	4,970
Lead	14.4	270	800	400	6.76 J	66.9 J	13.7 J	16.9 J	13.3 J	5.2 J
Magnesium	732	--	--	--	254	134	199	206	114	430
Manganese	16.9	65	2,600	180	5.61	36.6	6.69	6.81	17.6	11.1
Mercury	0.148	1	35	2.3	0.017 U	0.078 J	0.0098 J	0.0068 J	1.2 J	0.026 J
Nickel	8.86	130	2,200	150	0.991	1.81	0.806	0.864	0.563 U	1.98
Potassium	1,020	--	--	--	276	137	261	259	167	311
Selenium	0.948	2.1	580	39	0.25 U	0.15 J	0.3 U	0.098 J	0.069 J	0.24 J
Silver	--	3.4	580	39	0.033 U	0.132	0.017 J	0.025 J	0.0082 J	0.036 U
Sodium	81.1	--	--	--	41 U	46 U	50 U	41 U	41 U	45 U
Thallium	--	0.28	1.2	0.078	0.043 J	0.04 J	0.027 J	0.028 J	0.022 J	0.075 J
Vanadium	76.1	6	580	39	9.26	6.21	6.52	9.39	4.68	15.7
Zinc	16.6	1,200	35,000	2,300	83.2 J	151 J	51 J	61.5 J	112 J	3.29 J

Notes:

Shading indicates exceedance of base background for subsurface soil (developed)

Bold box indicates exceedance of NCSSL

Bold text indicates exceedance of Adjusted Industrial Soil RSLs

Underline indicates exceedance of Adjusted Residential Soil RSLs

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MG/KG - Milligrams per kilogram

TABLE 3-4

Subsurface Soil Analytical Results

Site UXO-22 Expanded SI Report

Camp Lejeune, North Carolina

Station ID	**Camp Lejeune Background Developed SB Combined Soil Types**	**NCSSL (February 2012)**	**Adjusted Industrial Soil RSLs (January 2015)**	**Adjusted Residential Soil RSLs (January 2015)**	MR22-SB109	MR22-SB110	MR22-SB111	MR22-SB112	MR22-SB113	MR22-SB114
Sample ID					MR22-SB109-24-26-15A	MR22-SB110-18-20-15A	MR22-SB111-18-20-15A	MR22-SB112-24-26-15A	MR22-SB113-24-26-15A	MR22-SB114-18-20-15A
Sample Date					03/31/15	03/31/15	03/31/15	03/31/15	03/31/15	03/31/15
Chemical Name										
Total Metals (MG/KG)										
Aluminum	26,600	--	100,000	7,700	8,080	6,210	5,270	8,140	1,600	3,510
Antimony	1.79	0.9	47	3.1	0.048 UJ	0.069 UJ	0.058 UJ	0.048 UJ	0.041 UJ	0.314 J
Arsenic	14.7	5.8	3	0.67	0.73 UJ	0.62 UJ	2.48 J	2.88 J	0.58 UJ	0.64 UJ
Barium	53.2	580	22,000	1,500	9.19	8.34	5.61	15.3	8.06	15.1
Beryllium	--	63	230	16	0.0541 J	0.028 J	0.0513 J	0.082 J	0.028 J	0.0415 J
Cadmium	1.3	3	98	7	0.273	0.263	0.032 J	0.17	0.037 J	0.163
Calcium	720	--	--	--	79.8 U	52.6 U	83 U	313	103	349
Chromium (hexavalent)	6.15	3.8	6.3	0.3	2.35	3.68	1.77	1.87	0.85	1.08
Chromium	32.7	3.8	6.3	0.3	**9.12**	**7.43**	**7.44**	**11.4**	2.58	5.38
Cobalt	1	0.9	35	2.3	0.379	0.239	0.284	0.435	0.162	0.253
Copper	6.61	700	4,700	310	10.2	5.68	1.6 J	5.31	1.2 J	5.9
Iron	33,600	150	82,000	5,500	2,570	4,190	3,630	5,170	1,100	1,790
Lead	14.4	270	800	400	8.45 J	22.7 J	49.6 J	6.4 J	2.6 J	153 J
Magnesium	732	--	--	--	360	227	225	414	90	150
Manganese	16.9	65	2,600	180	49	7	7.26	15	7.37	11.7
Mercury	0.148	1	35	2.3	0.03 J	0.0497 J	0.017 U	0.02 J	0.016 U	1.2 J
Nickel	8.86	130	2,200	150	1.53	1.17	1.03	1.67	0.513 U	0.874
Potassium	1,020	--	--	--	305	140	274	440	95.5	146
Selenium	0.948	2.1	580	39	0.06 J	0.12 J	0.3 U	0.09 J	0.062 J	0.12 J
Silver	--	3.4	580	39	0.0066 J	0.0082 J	0.0067 J	0.0068 J	0.033 U	0.0554 J
Sodium	81.1	--	--	--	45 U	40 U	50 U	48 U	41 U	42 U
Thallium	--	0.28	1.2	0.078	0.065 J	0.043 J	0.035 J	0.059 J	0.015 J	0.033 J
Vanadium	76.1	6	580	39	12.3	9.28	11	16.9	3.86	5.94
Zinc	16.6	1,200	35,000	2,300	275 J	138 J	23.6 J	69.8 J	15.4 J	77.5 J

Notes:

Shading indicates exceedance of base background for subsurface soil (developed)

Bold box indicates exceedance of NCSSL

Bold text indicates exceedance of Adjusted Industrial Soil RSLs

Underline indicates exceedance of Adjusted Residential Soil RSLs

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MG/KG - Milligrams per kilogram

TABLE 3-4

Subsurface Soil Analytical Results

Site UXO-22 Expanded SI Report

Camp Lejeune, North Carolina

Station ID	**Camp Lejeune Background Developed SB Combined Soil Types**	**NCSSL (February 2012)**	**Adjusted Industrial Soil RSLs (January 2015)**	**Adjusted Residential Soil RSLs (January 2015)**	MR22-SB115	MR22-SB116		MR22-SB117	MR22-SB118	MR22-SB119
Sample ID					MR22-SB115-18-20-15A	MR22-SB116-18-20-15A	MR22-SB116D-18-20-15A	MR22-SB117-24-26-15A	MR22-SB118-18-20-15A	MR22-SB119-18-20-15A
Sample Date					03/31/15	03/31/15	03/31/15	03/31/15	03/31/15	03/31/15
Chemical Name										
Total Metals (MG/KG)										
Aluminum	26,600	--	100,000	7,700	8,760	1,970	1,970	1,280	4,710	4,780
Antimony	1.79	0.9	47	3.1	0.553 J	0.059 UJ	0.042 UJ	0.042 UJ	0.051 UJ	0.17 J
Arsenic	14.7	5.8	3	0.67	**36.5 J**	0.32 UJ	0.24 UJ	0.34 UJ	0.48 UJ	1.42 UJ
Barium	53.2	580	22,000	1,500	1,700	6.13	5.84	3.43	23.4	56.6
Beryllium	--	63	230	16	2.7	0.028 J	0.022 J	0.0089 J	0.0691 J	0.17
Cadmium	1.3	3	98	7	0.15 J	0.02 J	0.028 J	0.017 U	0.101	0.365
Calcium	720	--	--	--	6,820	74.3 U	72.6 U	334	3,250	757
Chromium (hexavalent)	6.15	3.8	6.3	0.3	0.42 U	0.95	0.82	0.21 U	0.22 U	0.23 U
Chromium	32.7	3.8	6.3	0.3	**14.2**	2.04 U	2.12	1.25 U	4.85	4.64
Cobalt	1	0.9	35	2.3	7.44	0.146	0.151	0.042 J	0.439	0.65
Copper	6.61	700	4,700	310	40.6	2.53	3.19	0.25 J	2.26	21.9
Iron	33,600	150	82,000	5,500	17,800	582	679	174	1,740	1,840
Lead	14.4	270	800	400	7.44 J	4.1 J	2.54 J	1.58 J	6.89 J	29 J
Magnesium	732	--	--	--	526	54.3	62.3	51.6	510	167
Manganese	16.9	65	2,600	180	34.4	3.63	4.7	3.62	35.8	62.8
Mercury	0.148	1	35	2.3	0.444 J	0.171 J	0.021 J	0.015 U	0.033 J	0.152 J
Nickel	8.86	130	2,200	150	16.5	0.759	0.81	0.283 U	1.68	2.87
Potassium	1,020	--	--	--	1,380	46.8 J	59.2	34.7 J	159	182
Selenium	0.948	2.1	580	39	7.93	0.24 U	0.042 J	0.26 U	0.15 J	0.385 J
Silver	--	3.4	580	39	0.04 J	0.0056 J	0.0064 J	0.034 U	0.012 J	0.024 J
Sodium	81.1	--	--	--	238 U	40 U	28 U	42 U	35 U	39 U
Thallium	--	0.28	1.2	0.078	0.62	0.011 J	0.016 J	0.034 U	0.029 J	0.048 J
Vanadium	76.1	6	580	39	38.8	2.86	2.99	1.22	5.59	5.55
Zinc	16.6	1,200	35,000	2,300	30.4 J	10.4 J	16 J	0.85 UJ	11.8 J	145 J

Notes:

Shading indicates exceedance of base background for subsurface soil (developed)

Bold box indicates exceedance of NCSSL

Bold text indicates exceedance of Adjusted Industrial Soil RSLs

Underline indicates exceedance of Adjusted Residential Soil RSLs

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MG/KG - Milligrams per kilogram

TABLE 3-4

Subsurface Soil Analytical Results

Site UXO-22 Expanded SI Report

Camp Lejeune, North Carolina

Station ID	**Camp Lejeune Background Developed SB Combined Soil Types**	**NCSSL (February 2012)**	**Adjusted Industrial Soil RSLs (January 2015)**	**Adjusted Residential Soil RSLs (January 2015)**	MR22-SB120	MR22-SB121	MR22-SB122
Sample ID					MR22-SB120-18-20-15A	MR22-SB121-24-26-15A	MR22-SB122-12-14-15A
Sample Date					03/31/15	03/31/15	03/31/15
Chemical Name							
Total Metals (MG/KG)							
Aluminum	26,600	--	100,000	7,700	6,630	4,150	5,030
Antimony	1.79	0.9	47	3.1	0.221 J	0.616	0.877
Arsenic	14.7	5.8	3	0.67	2.54 J	**5.04**	**4.86**
Barium	53.2	580	22,000	1,500	80.9	132	110
Beryllium	--	63	230	16	0.296	0.477	0.53
Cadmium	1.3	3	98	7	0.631	1.7	1.32
Calcium	720	--	--	--	755	7,010	724
Chromium (hexavalent)	6.15	3.8	6.3	0.3	0.24 U	0.24 U	0.34 U
Chromium	32.7	3.8	6.3	0.3	**6.81**	**10.4**	**7.3**
Cobalt	1	0.9	35	2.3	1.01	2.21	1.92
Copper	6.61	700	4,700	310	31.2	58.4	56.4
Iron	33,600	150	82,000	5,500	6,400	6,720	4,670
Lead	14.4	270	800	400	29.5 J	106	59.1
Magnesium	732	--	--	--	177	271	191
Manganese	16.9	65	2,600	180	175	793	136
Mercury	0.148	1	35	2.3	0.857 J	0.744 J	0.358 J
Nickel	8.86	130	2,200	150	3.24	9.17	4.98
Potassium	1,020	--	--	--	268	340	393
Selenium	0.948	2.1	580	39	0.708	1.14	1.22
Silver	--	3.4	580	39	0.028 J	0.0897	0.0629 J
Sodium	81.1	--	--	--	52.1 U	77.5 U	91.3
Thallium	--	0.28	1.2	0.078	0.071 J	0.143	0.133
Vanadium	76.1	6	580	39	8.87	10.1	11.8
Zinc	16.6	1,200	35,000	2,300	190 J	2,240	395

Notes:

Shading indicates exceedance of base background for subsurface soil (developed)

Bold box indicates exceedance of NCSSL

Bold text indicates exceedance of Adjusted Industrial Soil RSLs

Underline indicates exceedance of Adjusted Residential Soil RSLs

J - Analyte present, value may or may not be accurate or precise

U - The material was analyzed for, but not detected

UJ - Analyte not detected, quantitation limit may be inaccurate

MG/KG - Milligrams per kilogram

TABLE 3-6

Uknown Substance Analytical Results

Site UXO-22 Expanded SI Report

Camp Lejeune, North Carolina

Sample ID	MR22-UNKNOWN-040915	
Sample Date	4/9/15	
Chemical Name		
Volatile Organic Compounds (UG/KG)		
Ethylbenzene	9,450 D	15,900 D
Isopropylbenzene	19,500 D	45,900 D
Methylcyclohexane	4,820 D	7,190 DJ
Methylene chloride	8,100 DB	9,200 DJB
Toluene	913 DJ	4630 U
Xylene, Total	114,000 D	227,000 D
Semivolatile Organic Compounds (UG/KG)		
1-Methylnaphthalene	124,000 DJ	NS
2-Methylnaphthalene	192,000 DJ	NS
Naphthalene	552,000 QD	NS
Pesticide/Polychlorinated Biphenyls (UG/KG)		
Methoxychlor	537 PDJ	NS
Total Metals (MG/KG)		
Aluminum	478	NS
Barium	38.1	NS
Calcium	235	NS
Copper	3.73	NS
Iron	2,630	NS
Lead	15,000	NS
Manganese	85.7	NS
Mercury	0.197 F2 F1	NS
Nickel	6.56	NS
Vanadium	35.8	NS
Zinc	234	NS
Total Petroleum Hydrocarbons (MG/KG)		
TPH-diesel range	171,000 QD	NS
TPH-oil range	27,800 D	NS

Notes:

B - Analyte was also detected in the method blank.

D - Compound identified in an analysis at a secondary dilution factor.

J - Analyte present. Value may or may not be accurate or precise.

F2 F1 - MS/MSD Recovery and RPD exceeds control limits

MG/KG - Milligrams per kilogram

NS - Not sampled

P - Estimated; there is greater than a 40% difference between the two GC columns for the detected concentrations.

Q - The relative percent difference (RPD) and/or percent recovery exceeded limits in the associated Blank Spike and/or Blank Spike Duplicate.

U - The material was analyzed for, but not detected

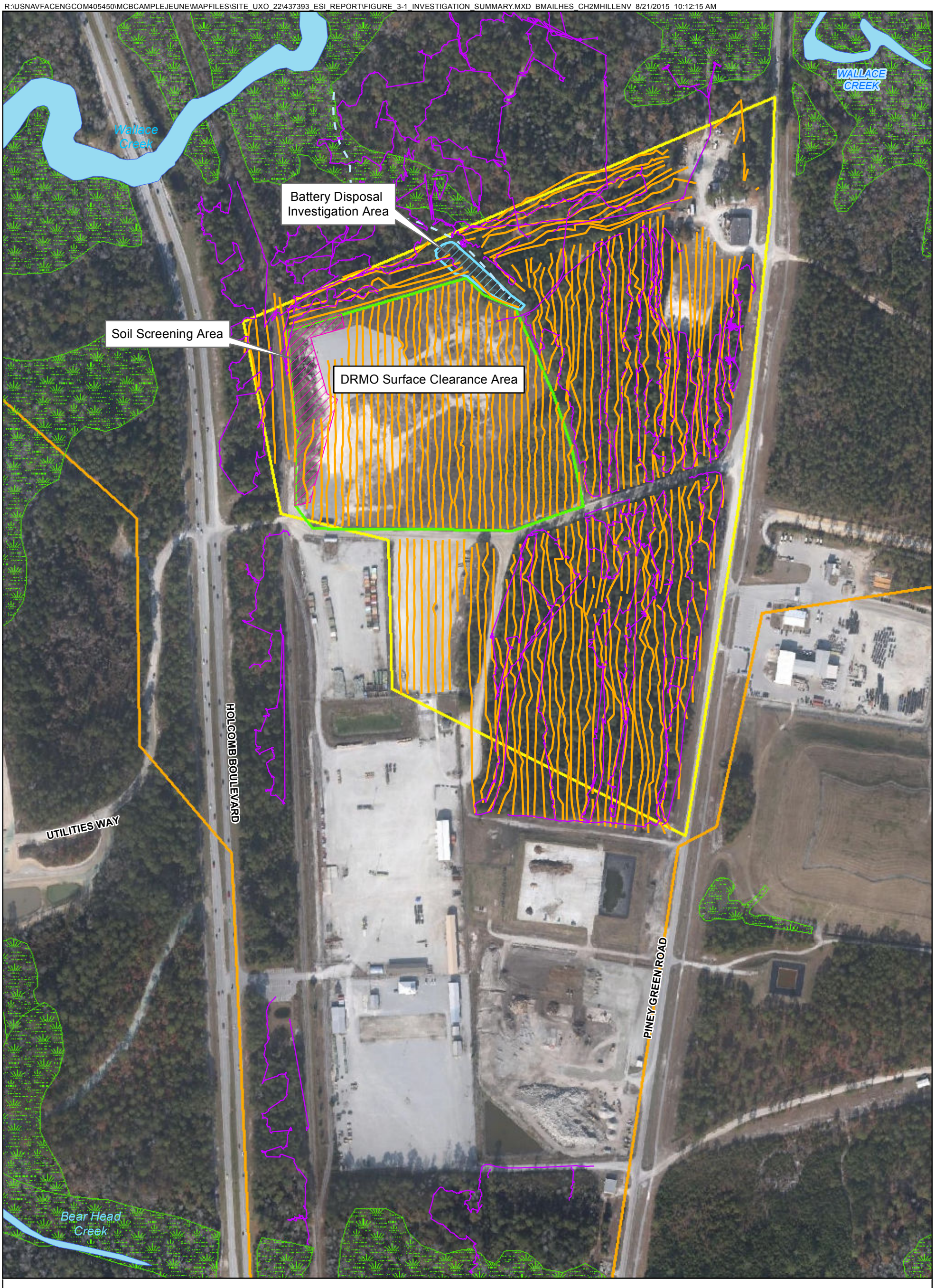
UG/KG - Micrograms per kilogram

X - The parameter shows a potential positive bias due to an initial or continuing calibration exceeding the upper control limit.

Y- The parameter shows a potential positive bias due to

Shading indicates detection

R:\USNAVFACENGCOM405450\MCBCAMPLEJEUNE\MAPFILES\SITE_UXO_22\437393_ESI_REPORT\FIGURE_3-1_INVESTIGATION_SUMMARY.MXD BMAILHES_CH2MHILLENV 8/21/2015 10:12:15 AM



Legend

- Transects
- Site Walk Track
- Ephemeral Drainage Feature
- Wetland Area
- DRMO Surface Clearance Area
- Site UXO-22 Boundary
- Site 6 & 82 Boundary
- Battery Disposal Investigation Area
- Soil Screening Area

N

0 175 350

Feet

1 inch = 350 feet

Figure 3-1
Investigation Summary
Site UXO-22 ESI Report
Camp Lejeune
North Carolina

CH2MHILL

R:\USNAVFACENGCOM405450\MCBCAMPLEJEUNE\MAPFILES\SITE_UXO_22\437393_ESI_REPORT\FIGURE_3_2_UXO_22_SURFACECLEARANCE_MEC_MPPEH_MAP.MXD BMAILHES CH2MHILLENV 9/22/2015 12:06:49 PM

Legend

- Site UXO-22
- UXO-22 MRS Boundary
- Former DRMO Lot

MEC/MPPEH symbols represent type and approximate location, not quantity.

N

0 125 250

Feet

1 inch = 250 feet

Imagery Source: ©2014 Google
Modifications have been made

Figure 3-2
DRMO Surface Clearance Investigation Results
Site UXO-22 ESI Report
Camp Lejeune
North Carolina

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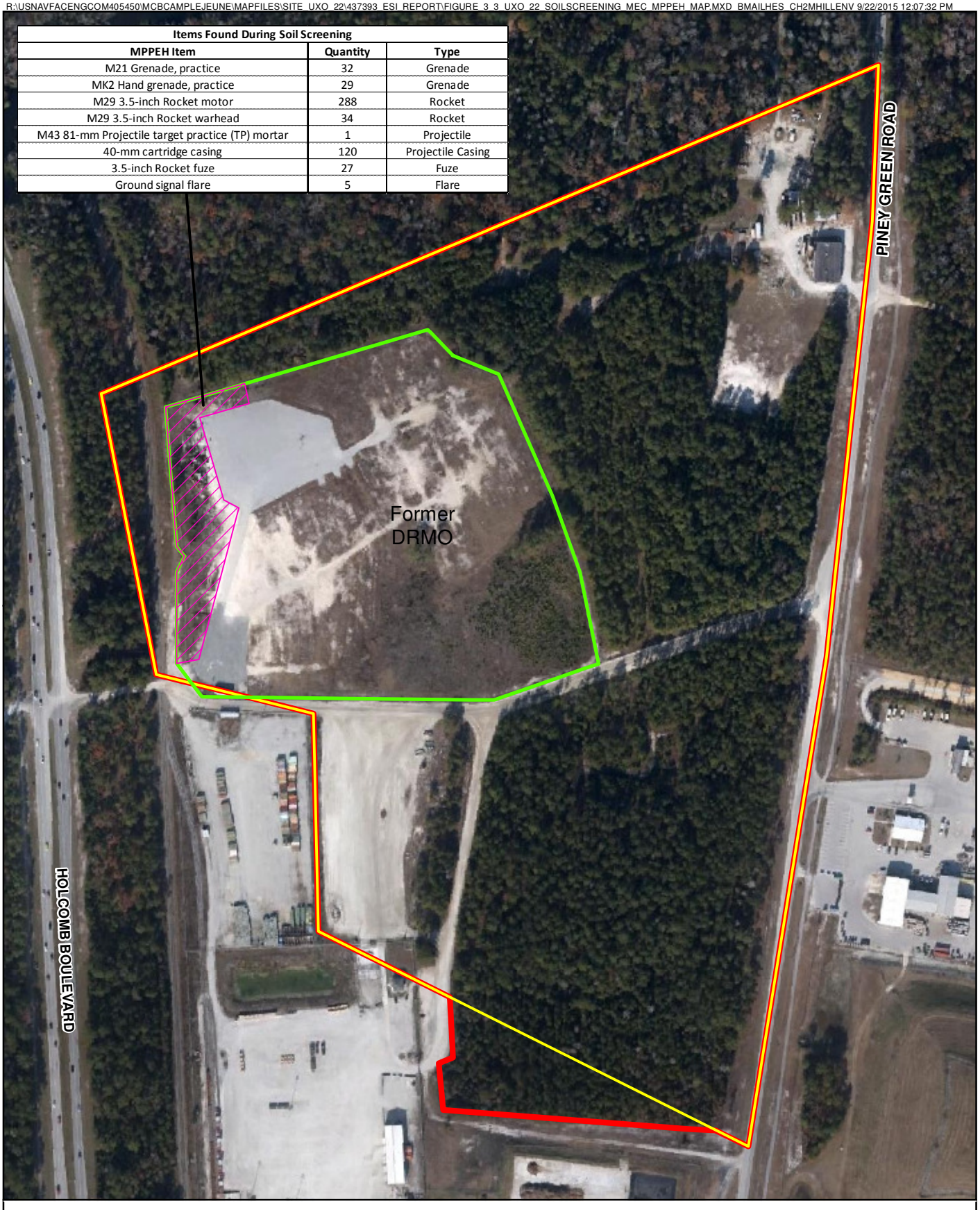
R:\USNAVFACENGCOM405450\MCBCAMPLEJEUNE\MAPFILES\SITE_UXO_22\437393_ESI_REPORT\FIGURE_3_3_UXO_22_SOILSCREENING_MEC_MPPEH_MAP.MXD BMAILHES CH2MHILLENV 9/22/2015 12:07:32 PM



Legend

- Soil Screening Area
- Site UXO-22
- UXO-22 MRS Boundary
- Former DRMO Lot

N

0 175 350 Feet

1 inch = 350 feet

Imagery Source: ©2014 Google
Modifications have been made

Figure 3-3
Soil Screening Investigation Results
Site UXO-22 ESI Report
Camp Lejeune
North Carolina

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R:\USNAVFACENGCOM405450\MCBCAMPLEJEUNE\MAPFILES\SITE_UXO_22\437393_ESI_REPORT\FIGURE_3_4_DRMO_BEFORE_AND_AFTER_MR_ACTIVITIES.MXD BMAILHES_CH2MHILLENV 9/22/2015 12:11:09 PM

Legend
Former DRMO Lot

N

0 37.5 75
Feet

1 inch = 75 feet

Imagery Source: ©2012, 2014 Google
Modifications have been made.

Figure 3-4
DRMO Before and After MR Activities
Site UXO-22 ESI Report
Camp Lejeune
North Carolina

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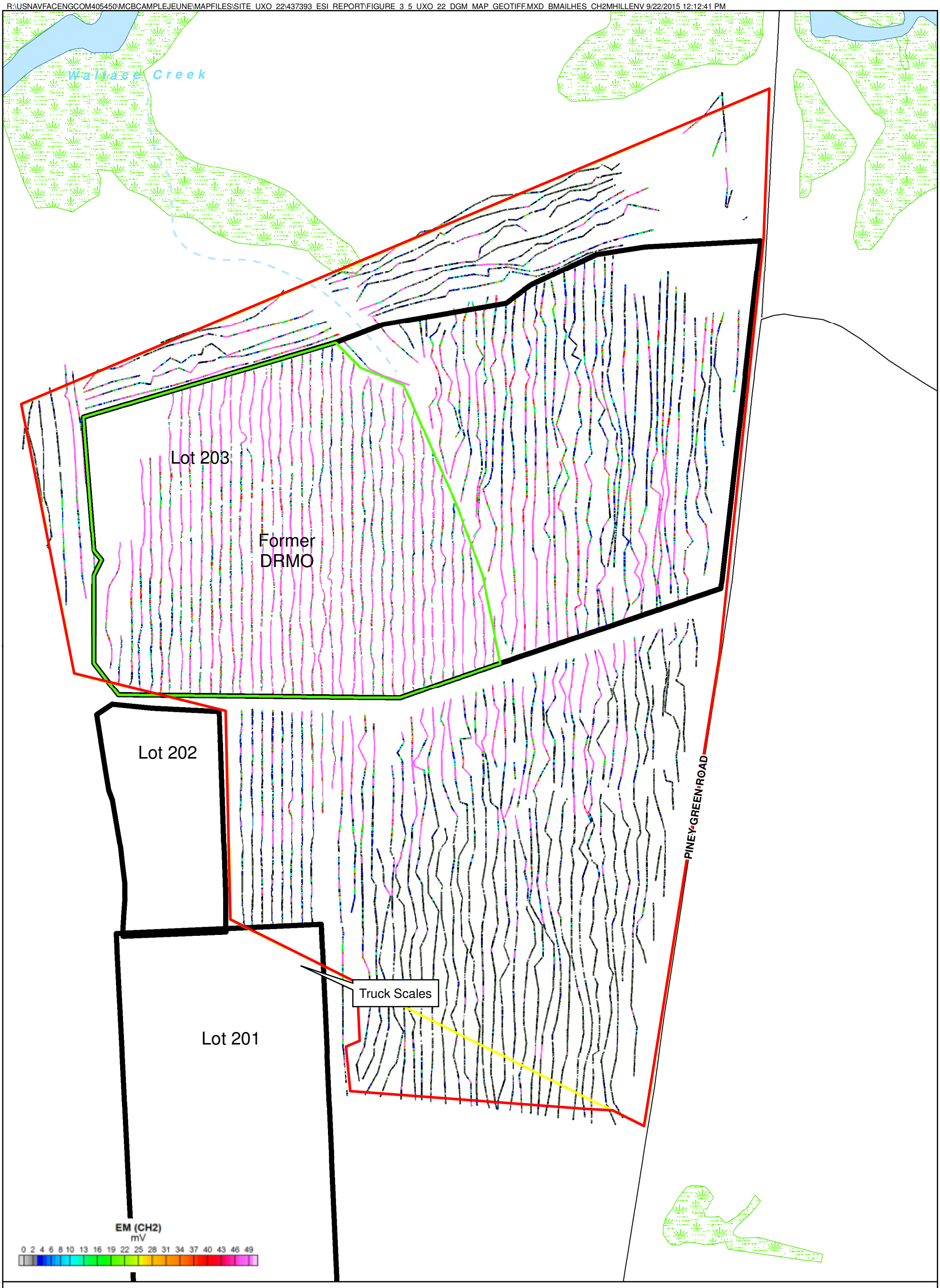
R:\USNAVFACENGCOM405450\MCBCAMPLEJEUNE\MAPFILES\SITE_UXO_22\437393_ESI_REPORT\FIGURE_3_5_UXO_22_DGM_MAP_GEOTIFF.MXD BMAILHES CH2MHILLENV 9/22/2015 12:12:41 PM



Legend

- Ephemeral Drainage Feature
- Road Centerline
- Site UXO-22 Boundary
- UXO-22 MRS Boundary
- Wetland Area
- Former DRMO-Defense Reutilization and Marketing Office
- Lots 201, 202, and 203
- Surface Water

N

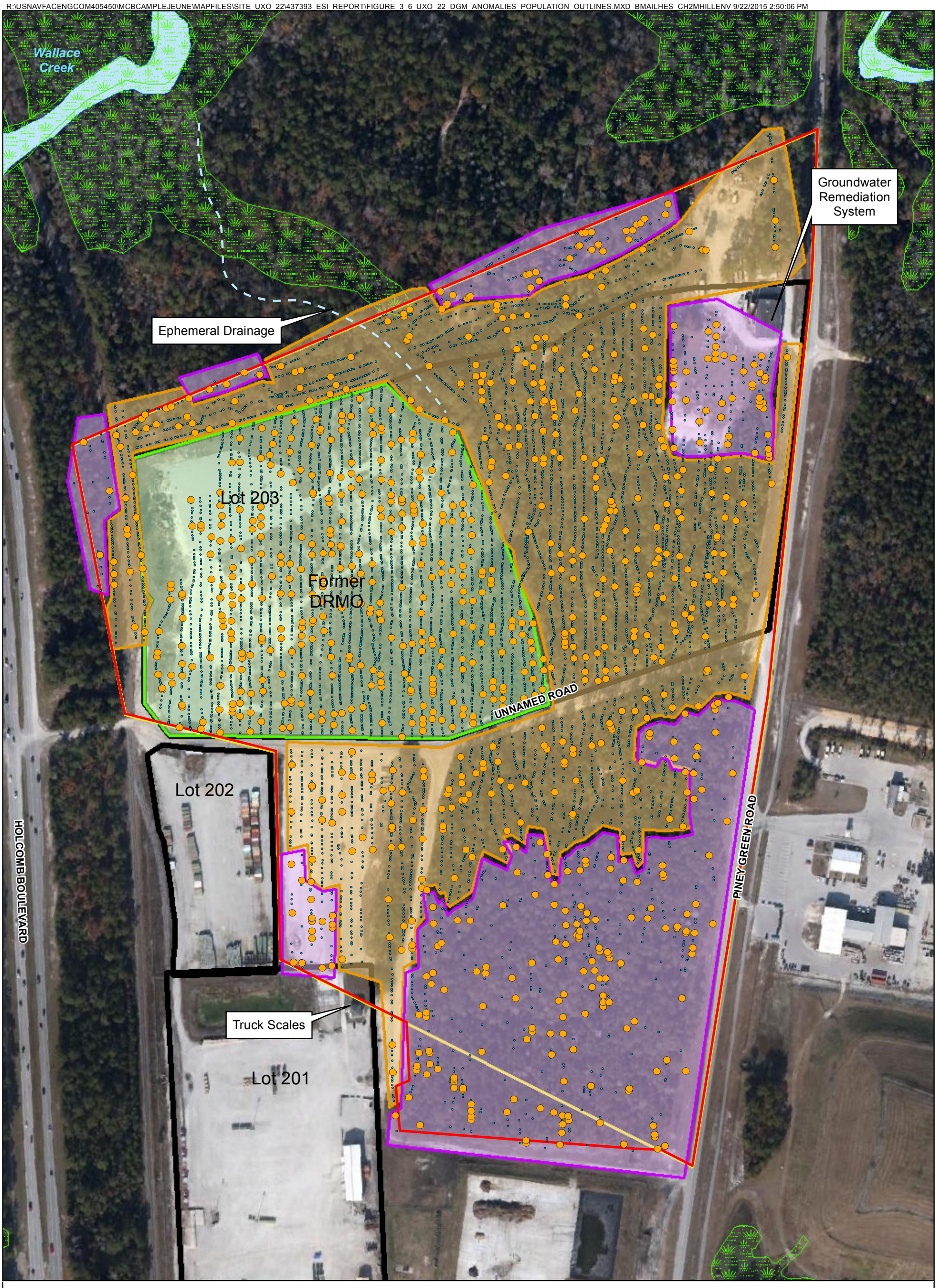
0 125 250 500 Feet

1 inch = 250 feet

Figure 3-5
DGM Results
Site UXO-22 ESI Report
Camp Lejeune
North Carolina

CH2MHILL

R:\USNAVFACENGCOM405450\MCBCAMPLEJEUNE\MAPFILES\SITE_UXO_22\437393_ESI_REPORT\FIGURE_3_6_UXO_22_DGM_ANOMALIES_POPULATION_OUTLINES.MXD BMAILHES_CH2MHILLENV 9/22/2015 2:50:06 PM



Legend

- Anomalies Representing Potential MEC/MPPEH
- Anomalies Selected for Intrusive Investigation
- Ephemeral Drainage Feature
- Low Density Population
- High Density Population
- Site UXO-22 Boundary
- UXO-22 MRS Boundary
- Wetland Area
- Former DRMO Lot Population
- Lots 201, 202, and 203
- Surface Water

N

0 125 250 500 Feet

1 inch = 250 feet

Imagery Source: ©2014 Google
Modifications have been made

Figure 3-6
DGM Anomalies and Population Outlines
Site UXO-22 ESI Report
Camp Lejeune
North Carolina

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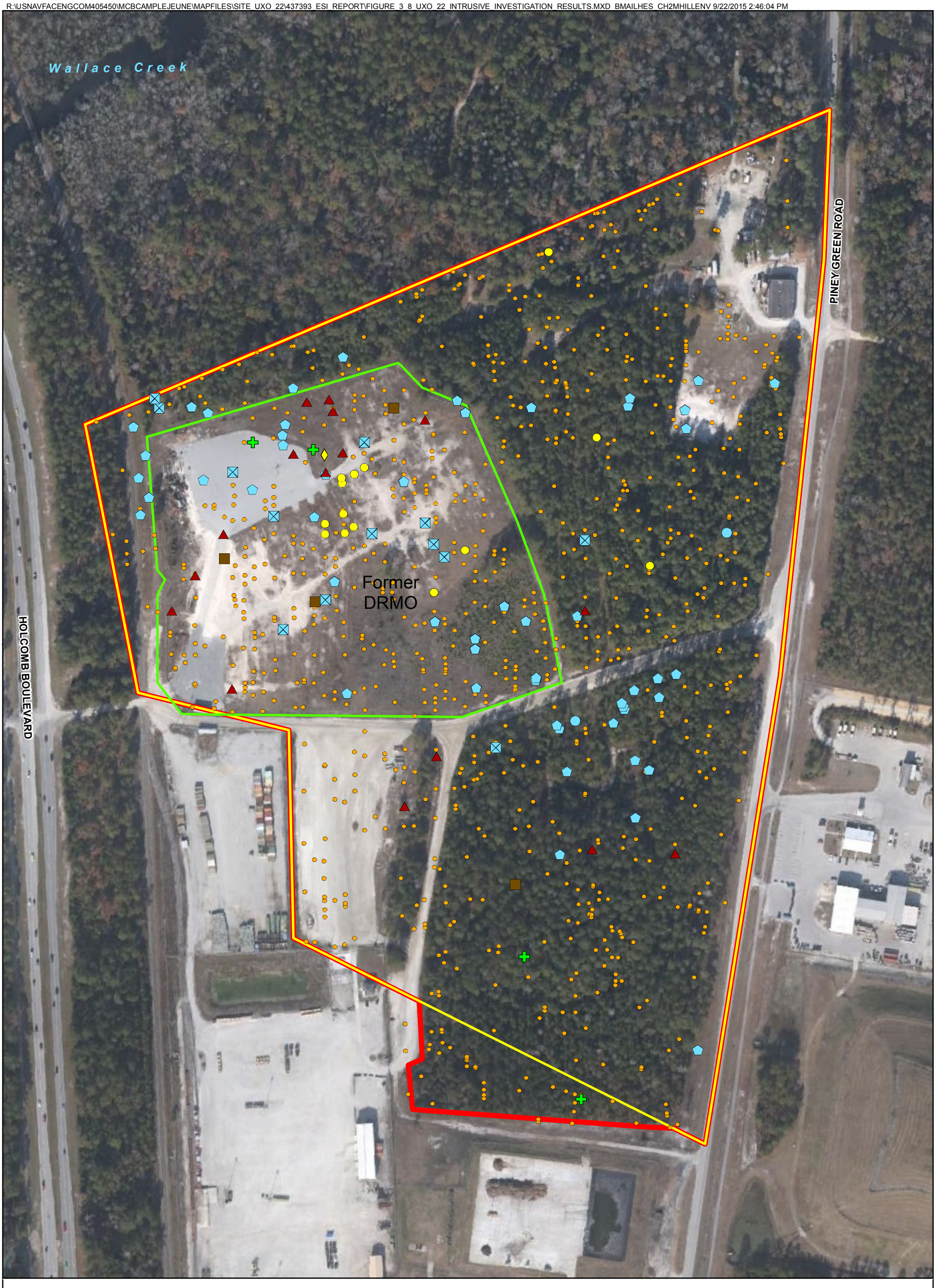
R:\USNAVFACENGCOM405450\MCBCAMPLEJEUNE\MAPFILES\SITE_UXO_22\437393_ESI_REPORT\FIGURE_3_8_UXO_22_INTRUSIVE_INVESTIGATION_RESULTS.MXD BMAILHES CH2MHILLENV 9/22/2015 2:46:04 PM



Legend

- Battery Location

MPPEH

- Flares
- Grenades
- Projectile Casings
- Projectiles
- Rockets
- Small Arms
- Miscellaneous MPPEH Items

- Investigated Anomaly, Other Debris
- Site UXO-22
- UXO-22 MRS Boundary
- Former DRMO Lot

MEC/MPPEH symbols represent type and approximate location, not quantity.

N

0 125 250 Feet

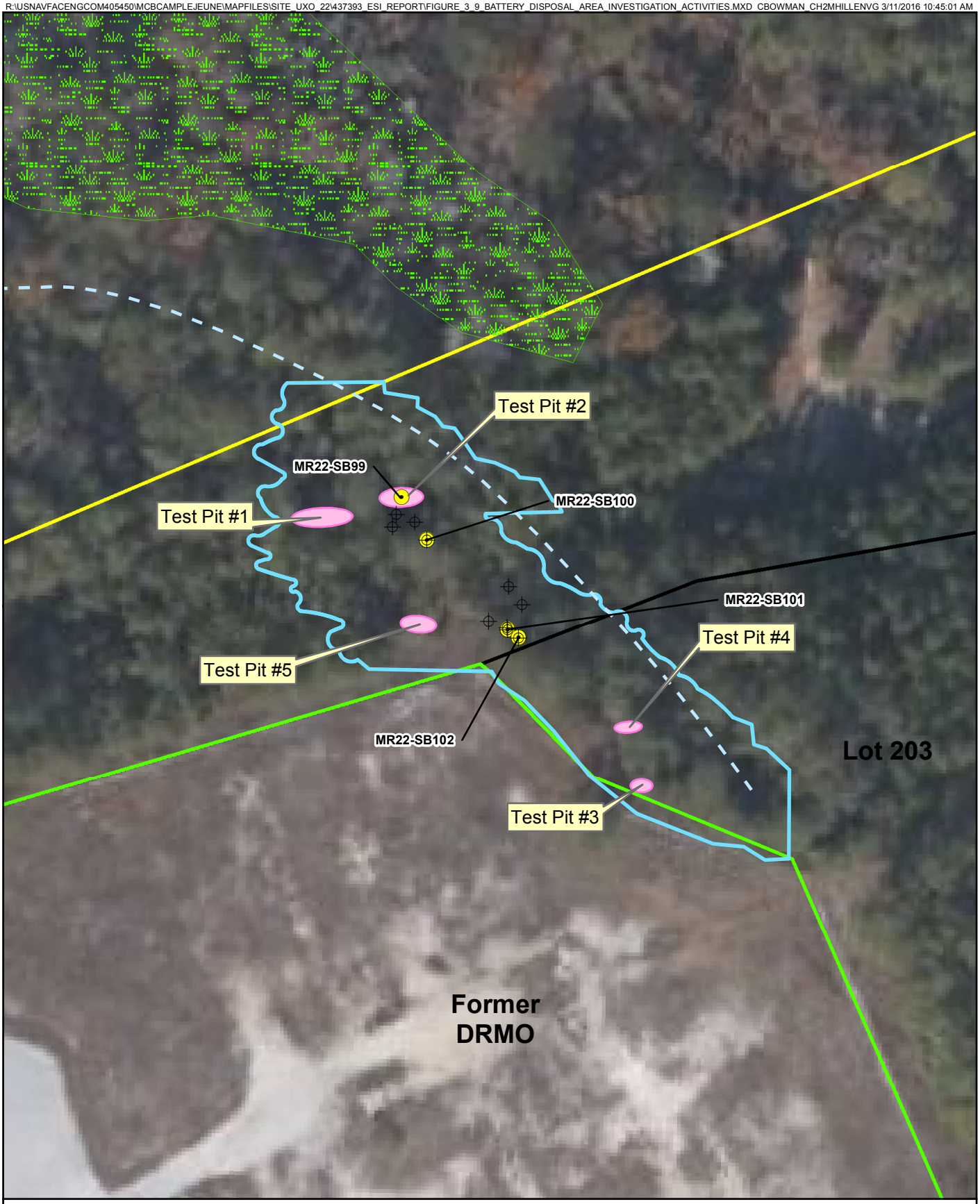
1 inch = 250 feet

Imagery Source: ©2014 Google
Modifications have been made

Figure 3-8
Intrusive Investigation Results
Site UXO-22 ESI Report
Camp Lejeune
North Carolina

CH2MHILL

R:\USNAVFACENGCOM405450\MCBCAMPLEJEUNE\MAPFILES\SITE_UXO_22\437393_ESI_REPORT\FIGURE_3_9_BATTERY_DISPOSAL_AREA_INVESTIGATION_ACTIVITIES.MXD CBOWMAN CH2MHILLENVG 3/11/2016 10:45:01 AM



Legend

- Postholes
- Subsurface Soil Sample Location
- Ephemeral Drainage Feature
- DGM Investigation Area
- Phase 1 Test Pit Locations
- Wetland Area
- Former DRMO Lot
- Lot 203
- Site UXO-22 Boundary

Imagery: © 2014 Google
Modifications have been made

N

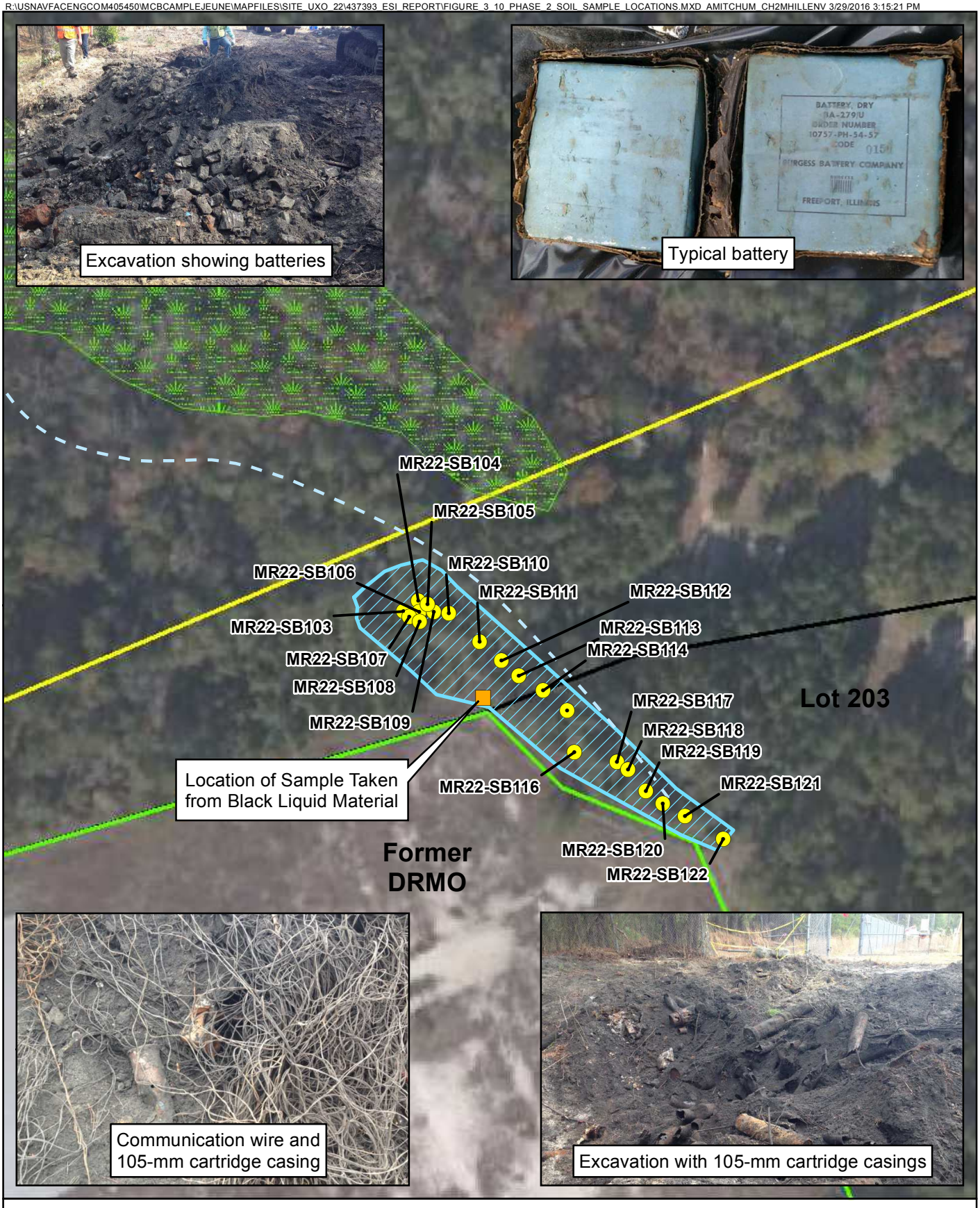
0 40 80 Feet

1 inch = 80 feet

Figure 3-9
Phase 1 Soil Sample Locations
Site UXO-22 ESI Report
Camp Lejeune
North Carolina

CH2MHILL

R:\USNAVFACENGCOM405450\MCBCAMPLEJEUNE\MAPFILES\SITE_UXO_22\437393_ESI_REPORT\FIGURE_3_10_PHASE_2_SOIL_SAMPLE_LOCATIONS.MXD AMITCHUM CH2MHILLENV 3/29/2016 3:15:21 PM



Legend

- Black Liquid Material Sample Location
- Soil Sample Location
- Ephemeral Drainage Feature
- Phase II Test Pit Location
- Wetland Area
- Former DRMO Lot
- Lot 203
- Site UXO-22 Boundary

N

0 60 120

Feet

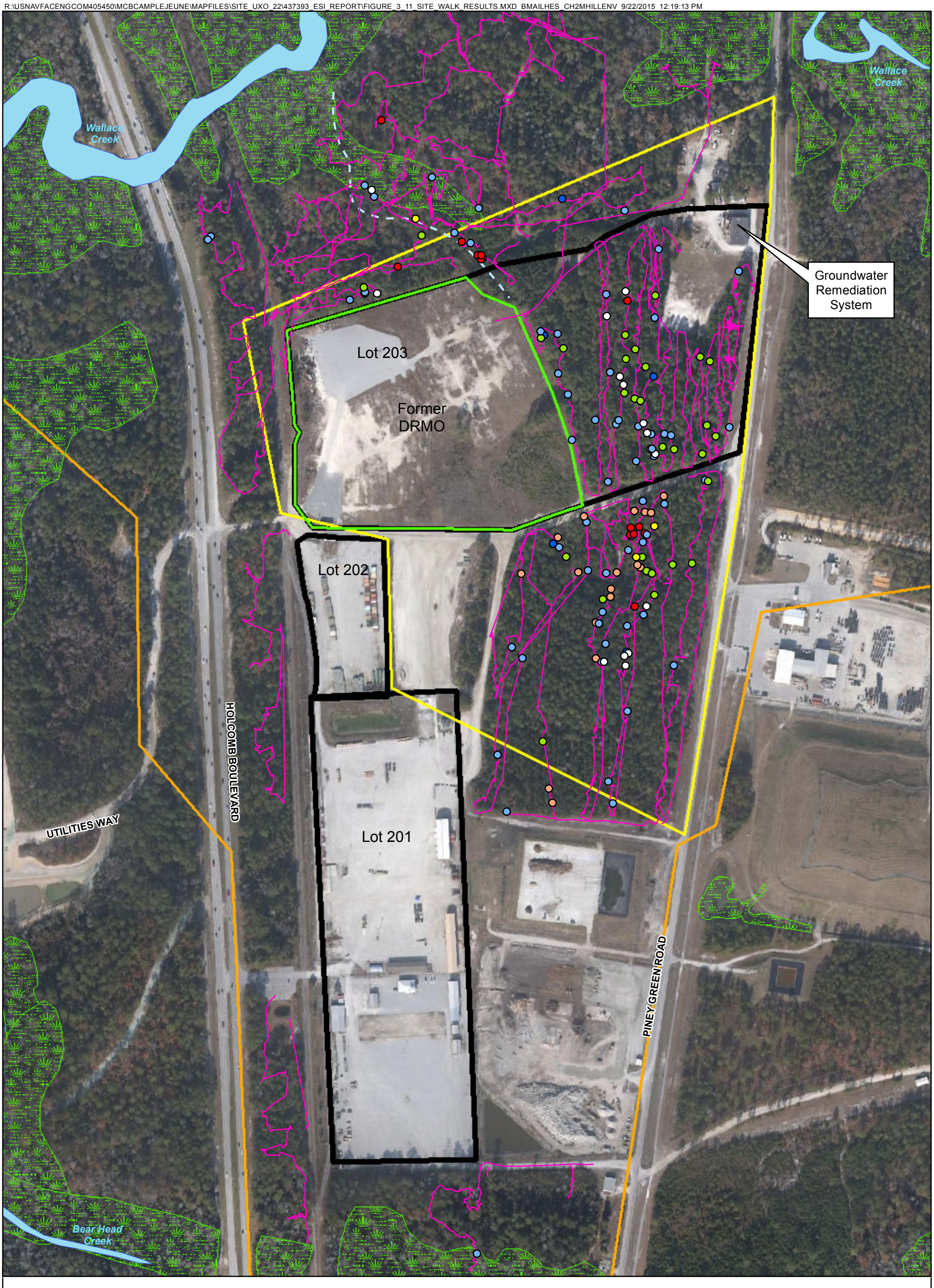
1 inch = 120 feet

Imagery: © 2014 Google
Modifications have been made

Figure 3-10
Phase II Soil Sample Locations
Site UXO-22 ESI Report
Camp Lejeune
North Carolina

CH2MHILL.

R:\USNAVFACENGCOM405450\MCBCAMPLEJEUNE\MAPFILES\SITE_UXO_22\437393_ESI_REPORT\FIGURE_3_11_SITE_WALK_RESULTS.MXD BMAILHES_CH2MHILLENV 9/22/2015 12:19:13 PM



Legend

- GPS Survey Track
- Ephemeral Drainage Feature
- Wetland Area
- Former DRMO Lot
- Lots 201, 202, and 203
- Site UXO-22 Boundary
- Site 6 & 82 Boundary
- Surface Water

Debris Type

- Batteries
- Wire
- Drums/Tanks
- Mound
- Munition Items
- Vehicle Parts
- Scrap metal/Concrete/Other debris

N

0 175 350

Feet

1 inch = 350 feet

Figure 3-11
Site Walk Results
Site UXO-22 ESI Report
Camp Lejeune
North Carolina

CH2MHILL

SECTION 4

Explosives Hazards Evaluation

This section presents a site-wide summary of MEC/MPPEH found at the Site to date and evaluates the potential explosive hazards.

4.1 Munitions and Explosives of Concern and Material Potentially Presenting an Explosive Hazard

Various investigation activities (**Table 2-1** and **Figure 3-1**) have been conducted across Site UXO-22 and a total of 10 MEC items and 15,125 MPPEH items (which were all classified as MDAS upon proper inspection) have been found to-date (**Figure 4-1**). **Tables 4-1** and **4-2** provide a summary of the MEC and MPPEH items, respectively, found to-date. **Figure 4-2** shows a graphical distribution of the types and quantities of MPPEH items found to date. The items listed on **Table 4-2** were classified as MDAS upon proper inspection and were determined not to present an explosive hazard.

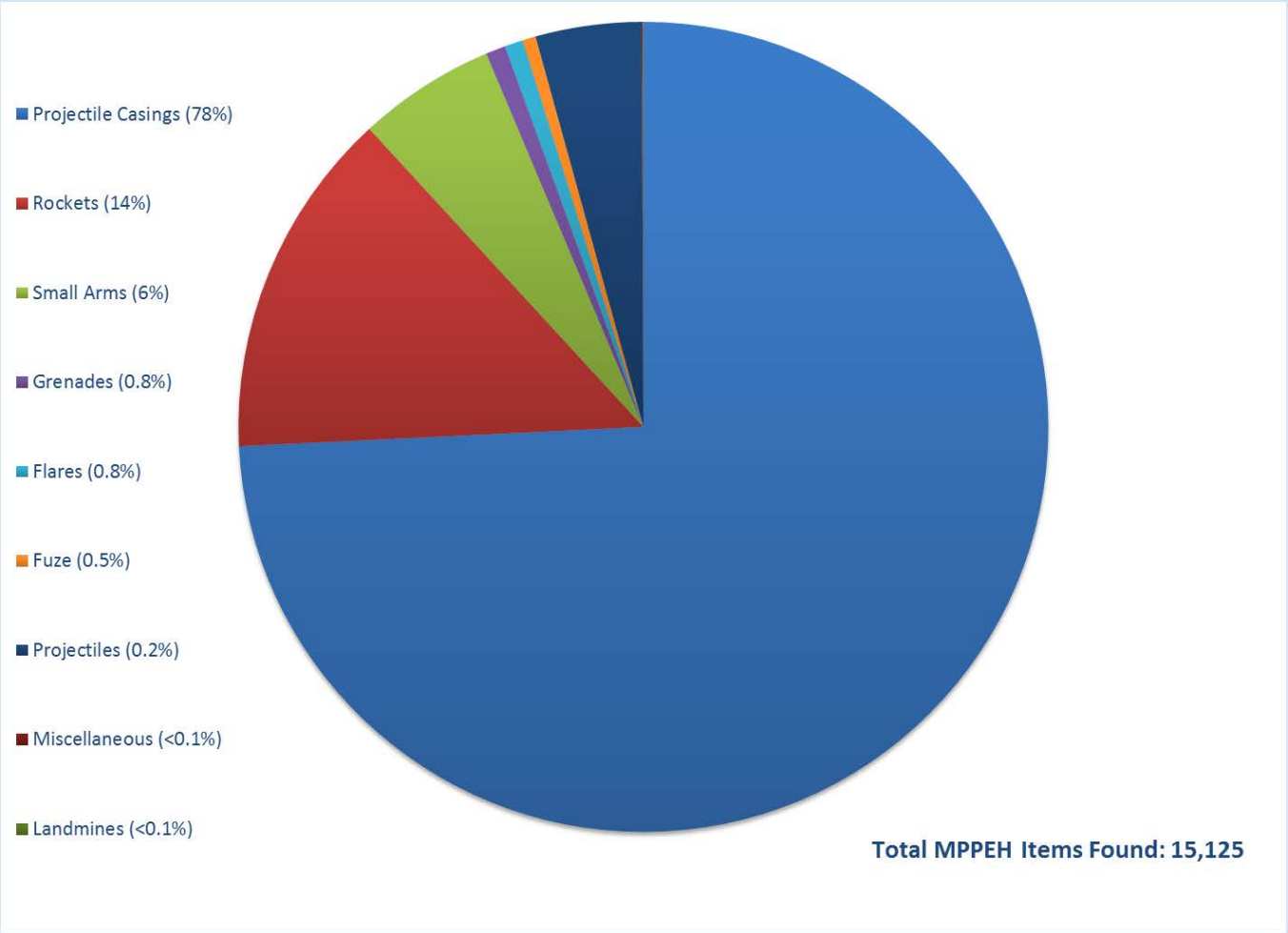
TABLE 4-1
Summary of MEC Items Found

Item Category	Description	Quantity
Projectile	Mortar Shell, 81-mm, HE, M43 with fuze M45	1
	Mortar Shell, 60-mm, HE, M49 without fuze	1
Rocket	Rocket, 3.5-inch, HEAT, M28	1
Grenade	Mark II Hand Grenade	7
Total MEC Items		**10**

TABLE 4-2
Summary of MPPEH Items Found

Item Category	Total
Grenade (practice, rifle, smoke)	119
Flare (signal flares)	111
Rocket (warhead, motors, fins, nosecones)	2,105
Projectile (fins, shells)	639
Projectile Casing (40-mm, 105-mm, 106-mm)	11,225
Small Arms	831
Fuze (rocket fuzes)	80
Landmine	4
Miscellaneous (bomb lug, ammunition can, and so forth)	6
Total MPPEH Items	**15,125**

FIGURE 4-2
Distribution of MPPEH Classifications



4.2 Methods for the Evaluation of Explosive Hazards

A qualitative method was used to assess the explosive hazards and to evaluate the relative risks posed to human receptors by MEC/MPPEH potentially present at Site UXO-22. For the presence of MEC or MPPEH to result in a human injury or casualty, MEC must be present, a human receptor must come into contact with, or be in the vicinity of, the MEC, and an event to cause the functioning of the MEC must take place.

In order to assess the likelihood of an explosive injury occurring, three types of factors were evaluated:

- Site Factors – These factors address site-specific features that impact the likelihood that a human receptor may come into contact with MEC/MPPEH, or be within close enough proximity to be injured during a MEC/MPPEH explosive event. Site factors include physical features related to accessibility of the Site.
- Human Factors – These factors address the likelihood that a human receptor would come into contact with or be in close proximity to MEC/MPPEH. Human factors include the number of people accessing the Site, the frequency and duration of access, and the activities conducted while onsite.
- Ordnance Factors – These factors address whether an explosive event is likely to occur if contact is made with MEC/MPPEH and the severity of the explosive event if one did occur. Ordnance factors include type, sensitivity, location, density, and depth.

4.2.1 Site Factors

Land uses at Site UXO-22 are industrial and commercial, consisting of equipment staging areas, a groundwater remediation system, and parking areas. Generally, the Site was historically used for storage and as a waste disposal area and is composed of either gravel lots or wooded areas. Site UXO-22 was not used as a range; therefore, the number of MPPEH items found at the Site should not be indicative of the number of potential MEC items. Site features related to accessibility of potentially present MEC/MPPEH are explained as follows for the different areas and land uses onsite (**Figure 4-1**).

1. The former DRMO lot is a large gravel lot secured by a fence with locked gates. Signs warning of potential UXO are posted, and access is restricted. MR surface clearance has been conducted across the former DRMO lot and soil screening of the top 6 inches of soil was conducted in the northwest corner (**Section 3.1**).
2. The Base truck scale is located in a large open gravel lot with an adjacent wooded area that is accessible. MR surface clearance has been conducted on the 1.5-acre wooded area in the central part of the Site. Signs warning of potential UXO have also been posted. The gravel areas surrounding the Base truck scales, including the gravel road between Piney Green Road and Holcomb Boulevard, have been routinely graded over the last 15 years. In August 2012, during ditch grading along the road between Piney Green Road and Holcomb Boulevard, an expended 106-mm recoilless rifle cartridge was dislodged from the subsurface.
3. The remaining open, gravel lot areas contain the groundwater remediation system and field trailers for environmental contractors working on-Base and are accessible.
4. The surrounding wooded areas are not fenced but access in some areas is limited by physical features. For example, access to the ephemeral drainage is severely restricted by heavy vegetation growth and steep terrain. The wooded area between Piney Green Road and the Base truck scales is also heavily vegetated, but unauthorized site visitors could potentially venture into this area.

Except for two MK2 hand grenades found on the surface in 1992 in the former DRMO lot area, all items classified as MEC have been discovered beneath the ground surface. Additionally, the potential for human contact with MEC/MPPEH was reduced within the former DRMO lot where MEC surface clearance and soil screening activities were conducted. A LUC for OU 2, encompassing UXO-22, is in place, which restricts intrusive activities to mitigate exposure to soil and groundwater contamination. Therefore, access to subsurface MEC is unlikely.

4.2.2 Human Factors

The most active and accessible areas of the Site are the gravel lots surrounding the groundwater remediation system and the Base truck scales. The staff that operate the groundwater remediation system and a limited number of contractors work out of field trailers around the groundwater remediation system and travel along maintained roads to recovery wells located south of the Site UXO-22 boundary. The truck scale attendants and truck drivers work at the truck scales. The responsibilities of these workers do not require them to venture into the wooded area; therefore, site workers generally remain in the gravel areas or on maintained roads where MEC/MPPEH is unlikely to be encountered on the surface. Furthermore, site workers are required to attend UXO awareness training. Therefore, if MEC/MPPEH is encountered by site workers, it is unlikely that it would be handled or contacted.

There are no residential or recreational areas within the vicinity of Site UXO-22. However, individuals attempting to access Wallace Creek and the Wallace Creek floodplain to the north of Site UXO-22 could potentially venture into the Site. Also, because the gravel cut-through road between Holcomb Boulevard and Piney Green Road is accessible, the Site could be accessed by trespassers and casual site visitors. Therefore, trespassers, site visitors or site workers who venture beyond their typical work areas or gravel road areas could encounter and potentially contact MEC/MPPEH, especially in the wooded areas where MEC surface clearance has not been conducted.

4.2.3 Ordnance Factors

Ten items classified as MEC and over 15,000 MPPEH items (which were all classified as MDAS upon proper inspection) have been discovered on the ground surface or in the shallow subsurface during previous

investigation activities (**Table 4-1, Table 4-2,** and **Figure 4-1**). The MPPEH items listed on **Table 4-2** were classified as MDAS upon proper inspection and did not present an explosive hazard.

The following MEC items have been discovered with quantities noted:

- M43 81-mm HE mortar shell (fuzed) (1)
- M49 60-mm HE mortar shell (no fuze) (1)
- M28 HEAT rocket (1)
- MK II hand grenades (7)

Material recovered from this site does not indicate that any extraordinarily sensitive munitions were discovered; however, all MEC has associated hazards and does present a degree of risk. In almost all instances, some contact with MEC is required to cause it to function. The sensitivity of MEC depends largely on its condition when encountered and the probability of it functioning if encountered depends on the type of contact with the MEC.

MK II Hand Grenades were recovered at Site UXO-22. Of the 126 hand grenades found at the site, 119 of them were classified as MPPEH (which were all determined to be MDAS) and seven of them were classified as MEC but were not perforated to determine if they were practice items. These grenades function by pulling a safety pin when throwing the grenade. When the grenade is released, a spring loaded striker impacts a primer which ignites a short delay element. After a few seconds the delay functions the detonator, which in turns detonates the main charge. If the grenade fails to function as designed, the probability of an unintentional detonation by casual contact such as accidently stepping on it is high. More aggressive contact, such as striking the grenade or putting it in a fire, would raise the probability of detonation to even higher. The MK II does have a somewhat unique hazard associated with the explosive filler. Some early models were loaded with granulated trinitrotoluene (TNT). Over time some TNT may have migrated to the threads of the fuze and grenade body. An attempt to loosen or tighten the grenade fuze may cause enough friction to detonate the TNT.

One 81-mm HE mortar shell was recovered at the Site that had a point-detonating fuze. This item was disposed by countercharging with explosives followed by intentional detonation. During firing, physical forces such as setback and sustained acceleration allow the fuze to become armed. On impact, a striker is driven into a detonator causing the main charge to function. If the mortar shell fails to function as designed, the probability of an unintentional detonation by casual contact such as accidently stepping on it is high. More aggressive contact, such as striking the mortar shell or putting it in a fire, would make the probability of detonation even higher. A second 81-mm mortar shell was recovered during the soil screening activities. This item was perforated in an intentional detonation and found to be a wax-filled target practice 81-mm mortar shell.

The 3.5-inch M28 HEAT rockets discovered at the Site are shoulder fired anti-tank rockets with an integral base-detonating fuze. Two thousand one hundred and six 3.5-inch rocket motors and practice warheads have also been found at the Site. Only one of them was classified as MEC and was not perforated to determine if it was a practice item. The M28 HEAT rocket is not armed until a safety band is removed and the rocket has fired and experienced inertia. A creep spring holds the firing mechanism away from the detonator while the rocket is in flight and also prevents it from striking the detonator if small objects such as thin brush or undergrowth are struck during flight. On impact with a more resistant object, impact inertia causes the creep spring to be overcome and the firing mechanism is allowed to strike the detonator. If the M28 HEAT rocket fails to function as designed, the probability of an unintentional detonation by casual contact such as accidently stepping on it is high. More aggressive contact, such as striking the rocket or putting it in a fire, would raise the probability of detonation even higher.

4.2.4 Summary of Potential Explosive Hazards

This explosive hazards assessment considered site, human, and ordnance factors in the evaluation of potential explosive threats posed to human receptors by the potential presence of MEC. The overall explosive hazard for the Site is deemed low based on the following:

- Site Factors - Access to most of the Site is restricted by fencing, posted warning signs, heavy vegetation, and an intrusive activity LUC that is in place for OU 2. Additionally, approximately 50 percent of the Site is open gravel areas or roadways that no longer contain surface MEC/MPPEH because of the surface clearance activities.
- Human Factors - Site workers are required to attend UXO awareness training and the responsibilities of the site workers do not require them to venture into the wooded area. If MEC/MPPEH is encountered by site workers, it is unlikely that it would be handled or contacted.
- Ordnance Factors - The site was never used for activities that made use of live ordnance (such as ranges, firing positions, and impact areas), so UXO or discarded military munitions would not be expected to be present. Furthermore, recovered MPPEH does not indicate that any extraordinarily sensitive munitions were discovered. The site was historically used for scrap metal processing and waste disposal, so any munitions-related items would likely be expended munitions discarded as scrap metal.

R:\USNAVFACENGCOM405450\MCBCAMPLEJEUNE\MAPFILES\SITE_UXO_22\437393_ESI_REPORT\FIGURE_4_1_UXO_22_SUMMARY_MEC_MPPEH_MAPV2.MXD CBOWMAN_CH2MHILLENVG 3/21/2016 7:37:15 AM

Items Found During Soil Screening		
MPPEH Item	**Quantity**	**Type**
M21 Grenade, practice	32	Grenade
MK2 Hand grenade, practice	29	Grenade
M29 3.5-inch Rocket motor	288	Rocket
M29 3.5-inch Rocket warhead	34	Rocket
M43 81-mm Projectile target practice (TP) mortar	1	Projectile
40-mm cartridge casing	120	Projectile Casing
3.5-inch Rocket fuze	27	Fuze
Ground signal flare	5	Flare

Items Found During Battery Disposal Area Investigation		
MPPEH Item	**Quantity**	**Type**
Grenade, Hand, Practice, MK2	1	Grenade
Projectile, 106mm casing	600	Projectile
Projectile, 90mm casing	2	Projectile
Rocket motor, 3.5-inch, M29	9	Rocket
Rocket warhead, 3.5-inch, M29	1	Rocket
Rocket, 2.36-inch, M7	1	Rocket

Wallace Creek

HOLCOMB BOULEVARD

PINEY GREEN ROAD

Former DRMO

Truck Scales

MEC (quantity found at location)

- 4 MK2 Grenades
- Mortar, 60-mm, HE, M49 without fuze
- Mortar, 81-mm, HE, M43 with fuze M45
- Rocket, 3.5-inch, HEAT, M28

MPPEH

- Flares
- Fuzes
- Grenades
- Landmines
- Projectile Casings
- Projectiles
- Rockets
- Small Arms
- Miscellaneous MPPEH Items

MEC/MPPEH symbols represent type and approximate location, not quantity.

Legend

- Ephemeral Drainage Feature
- Battery Disposal Investigation Area
- Soil Screening Area
- Site UXO-22
- UXO-22 MRS Boundary
- Former DRMO-Defense Reutilization and Marketing Office
- Surface Water

Note: Open symbols represent items found during site walk

N

0 125 250 Feet

1 inch = 250 feet

Imagery Source: ©2014 Google
Modifications have been made

Figure 4-1
Summary of MEC and MPPEH Items
Site UXO-22 ESI Report
Camp Lejeune
North Carolina

CH2MHILL

SECTION 5

Conclusions and Recommendations

This section presents conclusions and provides recommendations for Site UXO-22.

5.1 Conclusions

The following are conclusions based on the findings from the investigations conducted to date:

- The nature and extent of MEC/MPPEH was characterized. MEC from beneath the ground surface and MPPEH items (which were all classified as MDAS upon proper inspection) were encountered on the surface and in the subsurface with no apparent pattern of distribution. The MEC/MPPEH items found to-date are not reflective of range activities but of historical waste disposal areas.
- The potential for human contact with MEC/MPPEH was reduced by the MEC surface clearance and soil screening activities conducted at the Site. Additionally, approximately 50 percent of the Site is open storage yards where MEC/MPPEH is not present on the surface. The hazard evaluation concluded the explosive hazard is low.
- Disposed batteries were observed in the subsurface across the Site during the intrusive investigation, primarily in the former DRMO lot. The extent of batteries on the south side of the ephemeral drainage was delineated, and the potential risk to receptors from metals within the ephemeral drainage was mitigated by removing exposed batteries and covering the test pit excavation area with clean fill.
- There is uncertainty concerning risks associated with exposure to the black liquid material found within the waste disposal area.

5.2 Recommendations

Based on the conclusions above, management of Site UXO-22 as part of OU 2 is recommended and any further assessment of the waste disposal area should be addressed as part of the re-evaluation of OU 2. The LUCs for OU 2 should be updated to include control of intrusive activities due to the potential of encountering MEC below the ground surface. To further prevent exposure to the waste disposal area and MPPEH, surface clearance or other methods (e.g., soil cover) at Site UXO-22 and/or additional fencing and gates should also be considered.

The ephemeral drainage and potential transport pathways to Wallace Creek are currently being evaluated as part of the supplemental RI activities at OU 2.

SECTION 6

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Appendix A
Photograph Log

APPENDIX A

Photographs of Investigation Findings

Large Metal Debris Removal

1. Loading large metal debris

2. Large metal debris removal

Surface Clearance

3. Establishing surface clearance grids

4. Surface clearance grids

Soil Screening

5. Loading mechanical screen

6. Screened material less than 2-inches

Surface Clearance and Soil Screening Munitions Items

7. 3.5-inch practice rockets, practice mortars, and practice hand grenades

8. Expended 40-mm cartridge casings

Surface Clearance and Soil Screening Munitions Items (continued)

9. 3.5-inch practice rocket parts

10. MK2 practice hand grenades

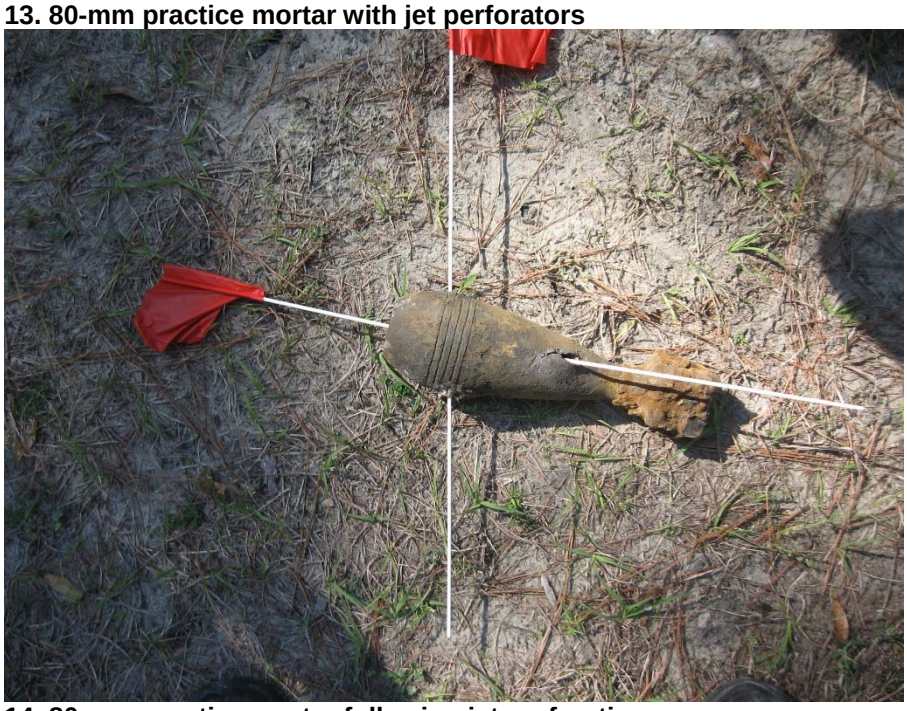
Surface Clearance and Soil Screening Munitions Items (continued)

11. 3.5-inch rocket motor parts

12. 3.5-inch practice rocket, showing practice warhead, motor, and tail fin

Surface Clearance and Soil Screening Munitions Items (continued)

13. 80-mm practice mortar with jet perforators



14. 80-mm practice mortar following jet perforation

Surface Clearance and Soil Screening Munitions Items (continued)

15. Expended illumination flares

16. 3.5-inch practice rocket parts and practice hand grenades

Test Pitting Items

17. Example of disposed battery

18. Example of disposed battery, showing internal electrolyte

Test Pitting Items (continued)

19. Example of disposed battery

20. Test pitting, excavation

Test Pitting Items (continued)

21. Test Pitting, black unknown substance

Test Pitting Items (continued)

22. Test Pitting, tank

23. Test Pitting, wire

Test Pitting Items (continued)

24. Test Pitting, munitions Items

25. Test Pitting, munitions Items

Test Pitting Items (continued)

26. Test Pitting, pressure vessel

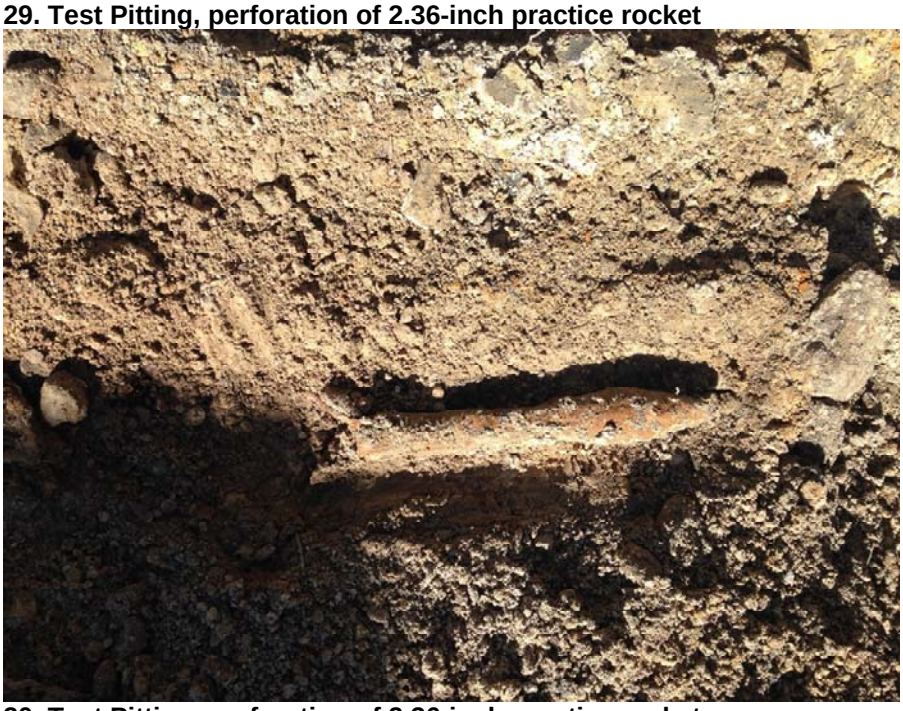
27. Test Pitting, pressure vessel

Test Pitting Items (continued)

28. Test Pitting, pressure Vessel Fibers

Test Pitting Items (continued)

29. Test Pitting, perforation of 2.36-inch practice rocket



30. Test Pitting, perforation of 2.36-inch practice rocket

Site Walk Items

31. Site Walk, batteries on surface

32. Site Walk, batteries on surface

Site Walk Items (continued)

33. Site Walk, batteries on surface

34. Site Walk, batteries on surface

Site Walk Items (continued)

35. Site Walk, concrete filled drum

36. Site Walk, rusted drum

Site Walk Items (continued)

37. Site Walk, tanks

38. Site Walk, buried drum

Site Walk Items (continued)

39. Site Walk, mounds

40. Site Walk, mounds

Site Walk Items (continued)

41. Site Walk, mounds

42. Site Walk, mounds

Site Walk Items (continued)

43. Site Walk, 3.5-inch rocket parts

44. Site Walk, 3.5-inch rocket parts

Site Walk Items (continued)

45. Site Walk, expended 106-mm cartridge casings

46. Site Walk, expended 106-mm cartridge casings

Site Walk Items (continued)

47. Site Walk, expended 106-mm cartridge casings

48. Site Walk, expended 106-mm cartridge casing

Site Walk Items (continued)

49. Site Walk, 3.5-inch rocket tail fin assembly

50. Site Walk, flare

Site Walk Items (continued)

51. Site Walk, tire

52. Site Walk, tire

Site Walk Items (continued)

53. Site Walk, vehicle exhaust parts

54. Site Walk, vehicle exhaust parts and tire

Site Walk Items (continued)

55. Site Walk, tires

56. Site Walk, vehicle muffler

Site Walk Items (continued)

57. Site Walk, vehicle part

58. Site Walk, tire and debris

Site Walk Items (continued)

59. Site Walk, communication wire

60. Site Walk, concertina wire

Site Walk Items (continued)

61. Site Walk, concertina wire

62. Site Walk, concertina wire

Site Walk Items (continued)

63. Site Walk, communication wire spools

64. Site Walk, communication wire

Site Walk Items (continued)

65. Site Walk, communication wire

66. Site Walk, communication wire and spools

Site Walk Items (continued)

67. Site Walk, concrete

68. Site Walk, steel chain

Site Walk Items (continued)

69. Site Walk, steel

70. Site Walk, gas mask canisters

Site Walk Items (continued)

71. Site Walk, gas mask canisters

72. Site Walk, plastic debris

Site Walk Items (continued)

73. Site Walk, steel cable and debris

74. Site Walk, furniture

Appendix B
Munitions Debris Disposal Documents

Bonetti Explosives, LLC

January 19, 2014 Invoice # 3096

Mr. George Mackanin
American EOD Services, Inc.
P.O. Box 1237
Spearfish, South Dakota 57783-1237

Re: MDAS sent from Fort LeJeune, NC by CH2MHILL

Mr. Mackanin,

This letter is to verify that Bonetti Explosives, LLC has smelted and prepared for recycling, in the presence of a CH2MHILL representative, ten (10) drums weighing 2,747 lbs of MDAS which was sent on December 20, 2013. The contents of the container was not sold, traded or otherwise given to another party until the contents were properly prepared for recycle and only identifiable by their basic content. On January 14, 2014, the material was dispositioned into civilian recycling in accordance with EM 1110-1-4009; this is your final letter regarding this matter.

Thank you for your Business,

Gina Barnett

(979) 739-5597

P.O. Box 116, Columbus TX, 78934
www.Bonettiexplosives.com
(979) 739-5597
Bonetti4@yahoo.com

Bonetti Explosives, LLC

January 12, 2014 Invoice # 3096

Mr. George Mackanin
American EOD Services, Inc.
P.O. Box 1237
Spearfish, South Dakota 57783-1237

Re: MDAS sent from Camp LeJeune, NC by CH2MHILL

Mr. Mackanin,

This letter is to verify that Bonetti Explosives, LLC has received ten (10) drums weighing 3,167 lbs of assumed MDAS from CH2MHILL from Camp LeJeune, NC. The material was not removed from the drums and could not be verified. However, the weight of the MDAS was calculated using standard drum and pallet weights and was found to be 2,747 lbs. The material arrived on December 20, 2013 in good condition. Security seal numbers and notations are as follows:

Drum#	Security seal #s
1.	173783
2.	173753
3.	173759
4.	173713
5.	173728
6.	173711
7.	173720
8.	173721
9.	173756
10.	646799

This shipment of MDAS has not been opened; therefore release of liability cannot be issued at this time. These drums will not be opened until a representative from the client is present as per client's request. This material is being stored in A-1 processing area until it is opened, verified with accompanying 1348, and smelted in the presence of a witness from the client. After that time, a final disposition letter will be issued.

Thank you for your Business,

Gina Barnett

303 Washington St, Columbus TX, 78934 (979) 739-5597
www.Bonettiexplosives.com Bonetti4@yahoo.com

Bonetti Explosives, LLC

Invoice # 3127

Mr. George Mackanin
American EOD Services, Inc.
P.O. Box 1237
Spearfish, South Dakota 57783-1237

May 29, 2015

Re: MDAS sent from Camp LeJeune, NC by USAE/CH2MHILL

Mr. Mackanin,

This letter is to verify that Bonetti Explosives, LLC has smelted and prepared for recycling, in the presence of a CH2MHILL representative, forty-two (42) drums weighing 10,466 lbs of MDAS which was received on April 15, 2015. The contents of the container was not sold, traded or otherwise given to another party until the contents were properly prepared for recycle and only identifiable by their basic content. On May 26, 2015, the material was dispositioned into civilian recycling in accordance with EM 200-1-15, NAVSEA OP 5, DOD 4160.28 AND DOD 4160.62; this is your final letter regarding this matter.

Thank you for your Business,

Matt Barnett

(979) 739-5597

P.O. Box 116, Columbus TX, 78934
www.Bonettiexplosives.com

(979) 739-5597
Bonetti4@yahoo.com

DD FORM 1348-1A, JUL 91 (EG) ISSUE RELEASE/RECEIPT DOCUMENT

1	2	3	4	5	6	7	23	24	25	26	27	28	29	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
DOC NT	DDEMT	RI FROM	M&S	UNIT	ISS	QUANTITY	SER	SUPPLEMENTARY ADDRESS	SIG	FUND	DISTRIBUTION	PROJECT	PRI	REQD	DEL DATE	ADV	RI	O/P	COND	MGT	UNIT PRICE DOLLARS	UNIT PRICE CTS	DOLLARS	CTS
							EA	0001																																													

1. TOTAL PRICE

2. SHIP FROM
Lot 203
Piney Green Rd
Camp LeJeune, NC
28542

3. SHIP TO

4. MARK FOR

24. DOCUMENT NUMBER & SUFFIX (30-44)

UXO-22, Camp LeJeune, NC

Contract No: N62470-08-D-1000
Task Order: 039

Material Documented As Safe (MDAS)
Seal Serial No: 173783

5. DOC DATE	6. NMFC	7. FRT RATE	8. TYPE CARGO	9. PS

10. QTY. REC'D	11. UP	12. UNIT WEIGHT	13. UNIT CUBE	14. UFC	15. SL
		300 Lbs			

16. FREIGHT CLASSIFICATION NOMENCLATURE

17. ITEM NOMENCLATURE
Mixed Metal Scrap including Material Documented As Safe

18. TY CONT	19. NO CONT	20. TOTAL WEIGHT	21. TOTAL CUBE

22. RECEIVED BY
AB

23. DATE RECEIVED
12/20/13

25. NATIONAL STOCK NO. & ADD (8-22)

"The material listed on this form has been inspected or processed by DDESB-approved means, as required by DOD policy, and to the best of my knowledge and belief does not pose an explosive hazard." Reference: NAVSEA OP-5, Vol 1, Change 11, Para 13-15.5.

26. RIC (4-6) UI (23-24) QTY (25-28) CON CODE (71) DIST (55-56) UP (74-80)

MDAS Container #001

27. ADDITIONAL DATA

CERTIFIED:
CLIFF WALDEN, CH2M HILL, UXOQCS, 352-514-9022

INSPECTOR:
JAMES KEESEE, USAE, SUXOS, 813-343-6336

CONTRACTING OFFICER: (SIGNATURE NOT REQUIRED)
CHARITY RYCHECK, EMD, 910-451-9385

PREVIOUS EDITION MAY BE USED

Adobe Designer 8.0

DD FORM 1348-1A, JUL 91 (EG) ISSUE RELEASE/RECEIPT DOCUMENT

DOC CT	DODAAC	RI FROM	M&S	UNIT ISS	QUANTITY	SER	SUPPLEMENTARY ADDRESS	SIG	FUND	DISTRIBUTION	PROJECT	PRI	REQD DEL	DATE	ADV	RI	O/P	COND	MGT
				EA	0001														

1. TOTAL PRICE			2. SHIP FROM	3. SHIP TO
UNIT PRICE DOLLARS	UNIT PRICE CTS	DOLLARS / CTS	Lot 203 Piney Green Rd Camp LeJeune, NC 28542	
			4. MARK FOR	

5. DOC DATE	6. NMFC	7. FRT RATE	8. TYPE CARGO	9. PS

10. QTY. REC'D	11. UP	12. UNIT WEIGHT	13. UNIT CUBE	14. UFC	15. SL
		435 LBS			

16. FREIGHT CLASSIFICATION NOMENCLATURE

17. ITEM NOMENCLATURE
Mixed Metal Scrap including Material Documented As Safe

18. TY CONT	19. NO CONT	20. TOTAL WEIGHT	21. TOTAL CUBE

22. RECEIVED BY: AB — 23. DATE RECEIVED: 12/20/13

PREVIOUS EDITION MAY BE USED

24. DOCUMENT NUMBER & SUFFIX (30-44)

UXO-22, Camp LeJeune, NC

Contract No: N62470-08-D-1000
Task Order: 039

Material Documented As Safe (MDAS)
Seal Serial No: 173753

25. NATIONAL STOCK NO. & ADD (8-22)

"The material listed on this form has been inspected or processed by DDESB-approved means, as required by DOD policy, and to the best of my knowledge and belief does not pose an explosive hazard." Reference: NAVSEA OP-5, Vol 1, Change 11, Para 13-15.5.

26. RIC (4-6)
UI (23-24)
QTY (25-28)
CON CODE (71)
DIST (55-56)
UP (74-80)

MDAS Container #002

27. ADDITIONAL DATA

CERTIFIED:
CLIFF WALDEN, CH2M HILL, UXOQCS, 352-514-9022

INSPECTOR:
JAMES KEESEE, USAE, SUXOS, 813-343-6336

CONTRACTING OFFICER: (SIGNATURE NOT REQUIRED)
CHARITY RYCHECK, EMD, 910-451-9385

Adobe Designer 8.0

DD FORM 1348-1A, JUL 91 (EG) ISSUE RELEASE/RECEIPT DOCUMENT

DOC IDENT	RI FROM	M&S	UNIT	ISS	QUANTITY	SER	SUPPLEMENTARY ADDRESS	SIG	FUND	DISTRIBUTION	PROJECT	PRI	REQD	DEL DATE	ADV	RI	O/P	COND	MGT	UNIT PRICE DOLLARS	UNIT PRICE CTS	DOLLARS	CTS
			EA		0001																		

1. TOTAL PRICE

2. SHIP FROM
Lot 203
Piney Green Rd
Camp LeJeune, NC
28542

3. SHIP TO

4. MARK FOR

5. DOC DATE | 6. NMFC | 7. FRT RATE | 8. TYPE CARGO | 9. PS

10. QTY. REC'D | 11. UP | 12. UNIT WEIGHT | 13. UNIT CUBE | 14. UFC | 15. SL

595 LBS

16. FREIGHT CLASSIFICATION NOMENCLATURE

17. ITEM NOMENCLATURE
Mixed Metal Scrap including Material Documented As Safe

18. TY CONT | 19. NO CONT | 20. TOTAL WEIGHT | 21. TOTAL CUBE

22. RECEIVED BY
AB

23. DATE RECEIVED
12/20/13

PREVIOUS EDITION MAY BE USED

24. DOCUMENT NUMBER & SUFFIX (30-44)

UXO-22, Camp LeJeune, NC

Contract No: N62470-08-D-1000
Task Order: 039

Material Documented As Safe (MDAS)
Seal Serial No: 173759

25. NATIONAL STOCK NO. & ADD (8-22)

"The material listed on this form has been inspected or processed by DDESB-approved means, as required by DOD policy, and to the best of my knowledge and belief does not pose an explosive hazard." Reference: NAVSEA OP-5, Vol 1, Change 11, Para 13-15.5.

26. RIC (4-6) UI (23-24) QTY (25-29) CON CODE (71) DIST (55-56) UP (74-80)

MDAS Container #003

27. ADDITIONAL DATA

CERTIFIED:
CLIFF WALDEN, CH2M HILL, UXOQCS, 352-514-9022

INSPECTOR:
JAMES KEESEE, USAE, SUXOS, 813-343-6336

CONTRACTING OFFICER: (SIGNATURE NOT REQUIRED)
CHARITY RYCHECK, EMD, 910-451-9385

Adobe Designer 8.0

DD FORM 1348-1A, JUL 91 (EG) ISSUE RELEASE/RECEIPT DOCUMENT

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DOC IDENT				RI FROM		M&S	UNIT	ISS	QUANTITY					SER	SUPPLEMENTARY ADDRESS					SIG	FUND		DISTRIBUTION			PROJECT			PRI		REQD	DEL	DATE		ADV			RI			O/P		COND		MGT							
							EA			0	0	0	1																																							

1. TOTAL PRICE			2. SHIP FROM	3. SHIP TO
UNIT PRICE		DOLLARS CTS	Lot 203 Piney Green Rd Camp LeJeune, NC 28542	
DOLLARS	CTS		4. MARK FOR	

5. DOC DATE	6. NMFC	7. FRT RATE	8. TYPE CARGO	9. PS

10. QTY. REC'D	11. UP	12. UNIT WEIGHT	13. UNIT CUBE	14. UFC	15. SL
		507 LBS			

PREVIOUS EDITION MAY BE USED

24. DOCUMENT NUMBER & SUFFIX (30-44)

UXO-22, Camp LeJeune, NC

Contract No: N62470-08-D-1000
Task Order: 039

Material Documented As Safe (MDAS)
Seal Serial No: 173713

16. FREIGHT CLASSIFICATION NOMENCLATURE

17. ITEM NOMENCLATURE

Mixed Metal Scrap including Material Documented As Safe

25. NATIONAL STOCK NO. & ADD (8-22)

"The material listed on this form has been inspected or processed by DDESB-approved means, as required by DOD policy, and to the best of my knowledge and belief does not pose an explosive hazard." Reference: NAVSEA OP-5, Vol 1, Change 11, Para 13-15.5.

18. TY CONT	19. NO CONT	20. TOTAL WEIGHT	21. TOTAL CUBE

22. RECEIVED BY	23. DATE RECEIVED
AB	12/20/13

26. RIC (4-6)
UI (23-24)
QTY (25-29)
CON CODE (71)
DIST (55-56)
UP (74-80)

MDAS Container #004

27. ADDITIONAL DATA

CERTIFIED:
CLIFF WALDEN, CH2M HILL, UXOQCS, 352-514-9022

INSPECTOR:
JAMES KEESEE, USAE, SUXOS, 813-343-6336

CONTRACTING OFFICER: (SIGNATURE NOT REQUIRED)
CHARITY RYCHECK, EMD, 910-451-9385

Adobe Designer 8.0

DD FORM 1348-1A, JUL 91 (EG) ISSUE RELEASE/RECEIPT DOCUMENT

1	2	3	4	5	6	7	23	24	25	26	27	28	29	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
CODE	DENT		RI FROM			M&S	UNIT		ISS		QUANTITY			SER	SUPPLE-MENTARY ADDRESS					SIG	FUND		DIS-TRI-BU-TION		PRO-JECT		PRI		REQD	DEL DATE		ADV			RI			O/P	COND	MGT									
							EA			0001																																									

1. TOTAL PRICE

2. SHIP FROM
Lot 203
Piney Green Rd
Camp LeJeune, NC
28542

3. SHIP TO

4. MARK FOR

UNIT PRICE: DOLLARS | CTS

DOLLARS | CTS

5. DOC DATE | 6. NMFC | 7. FRT RATE | 8. TYPE CARGO | 9. PS

10. QTY. REC'D | 11. UP | 12. UNIT WEIGHT | 13. UNIT CUBE | 14. UFC | 15. SL

12. UNIT WEIGHT: 56 LBS

16. FREIGHT CLASSIFICATION NOMENCLATURE

17. ITEM NOMENCLATURE
Mixed Metal Scrap Including Material Documented As Safe

18. TY CONT | 19. NO CONT | 20. TOTAL WEIGHT | 21. TOTAL CUBE

22. RECEIVED BY: AB

23. DATE RECEIVED: 12/20/13

PREVIOUS EDITION MAY BE USED

24. DOCUMENT NUMBER & SUFFIX (30-44)

UXO-22, Camp LeJeune, NC

Contract No: N62470-08-D-1000
Task Order: 039

Material Documented As Safe (MDAS)
Seal Serial No: 173728

25. NATIONAL STOCK NO. & ADD (8-22)

"The material listed on this form has been inspected or processed by DDESB-approved means, as required by DOD policy, and to the best of my knowledge and belief does not pose an explosive hazard." Reference: NAVSEA OP-5, Vol 1, Change 11, Para 13-15.5.

26. RIC (4-6)
UI (23-24)
QTY (25-29)
CON CODE (71)
DIST (55-56)
UP (74-80)

MDAS Container #005

27. ADDITIONAL DATA

CERTIFIED:
CLIFF WALDEN, CH2M HILL, UXOQCS, 352-514-9022

INSPECTOR:
JAMES KEESEE, USAE, SUXOS, 813-343-6336

CONTRACTING OFFICER: (SIGNATURE NOT REQUIRED)
CHARITY RYCHECK, EMD, 910-451-9385

Adobe Designer 8.0

DD FORM 1348-1A, JUL 91 (EG) ISSUE RELEASE/RECEIPT DOCUMENT

1	2	3	4	5	6	7	23	24	25	26	27	28	29	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
DOC IDENT			RI FROM			M&S	UNIT		ISS			QUANTITY		SER	SUPPLEMENTARY ADDRESS				SIG	FUND	DISTRIBUTION			PROJECT			PRI	REQD		DEALT		ADV			RI			O/P	CONDITION		MGT									
EA 0001																																																	

UNIT PRICE		DOLLARS	CTS
DOLLARS	CTS		

1. TOTAL PRICE

2. SHIP FROM
Lot 203
Piney Green Rd
Camp LeJeune, NC
28542

3. SHIP TO

4. MARK FOR

5. DOC DATE	6. NMFC	7. FRT RATE	8. TYPE CARGO	9. PS

10. QTY. REC'D	11. UP	12. UNIT WEIGHT	13. UNIT CUBE	14. UFC	15. SL
		507 LBS			

PREVIOUS EDITION MAY BE USED

24. DOCUMENT NUMBER & SUFFIX (30-44)

UXO-22, Camp LeJeune, NC

Contract No: N62470-08-D-1000
Task Order: 039

Material Documented As Safe (MDAS)
Seal Serial No: 173711

16. FREIGHT CLASSIFICATION NOMENCLATURE

17. ITEM NOMENCLATURE
Mixed Metal Scrap including Material Documented As Safe

25. NATIONAL STOCK NO. & ADD (8-22)

"The material listed on this form has been inspected or processed by DDESB-approved means, as required by DOD policy, and to the best of my knowledge and belief does not pose an explosive hazard." Reference: NAVSEA OP-5, Vol 1, Change 11, Para 13-15.5.

18. TY CONT	19. NO CONT	20. TOTAL WEIGHT	21. TOTAL CUBE

22. RECEIVED BY	23. DATE RECEIVED
AB	12/20/13

26. RIC (4-6) UI (23-24) QTY (25-29) CON CODE (71) DIST (55-56) UP (74-80)

MDAS Container #006

27. ADDITIONAL DATA

CERTIFIED:
CLIFF WALDEN, CH2M HILL, UXOQCS, 352-514-9022

INSPECTOR:
JAMES KEESEE, USAE, SUXOS, 813-343-6336

CONTRACTING OFFICER: (SIGNATURE NOT REQUIRED)
CHARITY RYCHECK, EMD, 910-451-9385

Adobe Designer 8.0

DD FORM 1348-1A, JUL 91 (EG) ISSUE RELEASE/RECEIPT DOCUMENT

DOC	ITEM	RI FROM	M&S	UNIT	ISS	QUANTITY	SER	SUPPLEMENTARY ADDRESS	SIG	FUND	DISTRIBUTION	PROJECT	PRI	REQD	DEL DATE	ADV	RI	O/P	COND	MGT	UNIT PRICE DOLLARS	UNIT PRICE CTS	DOLLARS	CTS
				EA		0001																		

1. TOTAL PRICE

2. SHIP FROM
Lot 203
Piney Green Rd
Camp LeJeune, NC
28542

3. SHIP TO

4. MARK FOR

5. DOC DATE	6. NMFC	7. FRT RATE	8. TYPE CARGO	9. PS

10. QTY. REC'D	11.UP	12. UNIT WEIGHT	13. UNIT CUBE	14. UFC	15. SL
		200 LBS			

16. FREIGHT CLASSIFICATION NOMENCLATURE

17. ITEM NOMENCLATURE
Mixed Metal Scrap including Material Documented As Safe

18. TY CONT	19. NO CONT	20. TOTAL WEIGHT	21. TOTAL CUBE

22. RECEIVED BY
AB 12/20/13

23. DATE RECEIVED

PREVIOUS EDITION MAY BE USED

24. DOCUMENT NUMBER & SUFFIX (30-44)

UXO-22, Camp LeJeune, NC

Contract No: N62470-08-D-1000
Task Order: 039

Material Documented As Safe (MDAS)
Seal Serial No: 173720

25. NATIONAL STOCK NO. & ADD (8-22)

"The material listed on this form has been inspected or processed by DDESB-approved means, as required by DOD policy, and to the best of my knowledge and belief does not pose an explosive hazard." Reference: NAVSEA OP-5, Vol 1, Change 11, Para 13-15.5.

26. RIC (4-6) UI (23-24) QTY (25-29) CON CODE (71) DIST (55-56) UP (74-80)

MDAS Container #007

17 Dec 13

27. ADDITIONAL DATA

CERTIFIED:
CLIFF WALDEN, CH2M HILL, UXOQCS, 352-514-9022

INSPECTOR:
PAT GILDEA, USAE, SUXOS, 813-343-6336

CONTRACTING OFFICER: (SIGNATURE NOT REQUIRED)
CHARITY RYCHECK, EMD, 910-451-9385

Adobe Designer 8.0

DD FORM 1348-1A, JUL 91 (EG) ISSUE RELEASE/RECEIPT DOCUMENT

1 2 3 4 5 6 7	23 24 25 26 27 28 29	45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80	1. TOTAL PRICE	2. SHIP FROM	3. SHIP TO
DOC IDENT	UNIT ISS	SER SUPPLEMENTARY ADDRESS SIG FUND DISTRIBUTION PROJECT PRI REQD DEL DATE ADV RI O/P COND MGT	UNIT PRICE DOLLARS CTS	DOLLARS CTS	Lot 203 Piney Green Rd Camp LeJeune, NC 28542
RI FROM M&S	QUANTITY				4. MARK FOR
	EA 0001				

5. DOC DATE	6. NMFC	7. FRT RATE	8. TYPE CARGO	9. PS

10. QTY. REC'D	11.UP	12. UNIT WEIGHT	13. UNIT CUBE	14. UFC	15. SL
		320 LBS			

16. FREIGHT CLASSIFICATION NOMENCLATURE

17. ITEM NOMENCLATURE
Mixed Metal Scrap including Material Documented As Safe

18. TY CONT	19. NO CONT	20: TOTAL WEIGHT	21. TOTAL CUBE

22. RECEIVED BY: AB

23. DATE RECEIVED: 12/20/13

PREVIOUS EDITION MAY BE USED

24. DOCUMENT NUMBER & SUFFIX (30-44)

UXO-22, Camp LeJeune, NC

Contract No: N62470-08-D-1000
Task Order: 039

Material Documented As Safe (MDAS)
Seal Serial No: 173721

25. NATIONAL STOCK NO. & ADD (8-22)

"The material listed on this form has been inspected or processed by DDESB-approved means, as required by DOD policy, and to the best of my knowledge and belief does not pose an explosive hazard." Reference: NAVSEA OP-5, Vol 1, Change 11, Para 13-15.5.

26. RIC (4-6) UI (23-24) QTY (25-29) CON CODE (71) DIST (55-56) UP (74-80)

MDAS Container #008

27. ADDITIONAL DATA

CERTIFIED:
CLIFF WALDEN, CH2M HILL, UXOQCS, 352-514-9022

INSPECTOR:
PATRICK GILDEA, USAE, SUXOS, 813-343-6336

CONTRACTING OFFICER: (SIGNATURE NOT REQUIRED)
CHARITY RYCHECK, EMD, 910-451-9385

Adobe Designer 8.0

DD FORM 1348-1A, JUL 91 (EG) ISSUE RELEASE/RECEIPT DOCUMENT

PREVIOUS EDITION MAY BE USED

DOC IDENT	RI FROM	M&S	UNIT ISS	QUANTITY	SER	SUPPLEMENTARY ADDRESS	SIG	FUND	DISTRIBUTION	PROJECT	PRI	REQD DEL DATE	ADV	RI	O/P	COND	MGT	UNIT PRICE DOLLARS	UNIT PRICE CTS	DOLLARS	CTS
A				EA 0001																	

1. TOTAL PRICE

2. SHIP FROM
Lot 203
Piney Green Rd
Camp LeJeune, NC
28542

3. SHIP TO

4. MARK FOR

5. DOC DATE	6. NMFC	7. FRT RATE	8. TYPE CARGO	9. PS

10. QTY. REC'D	11.UP	12. UNIT WEIGHT	13. UNIT CUBE	14. UFC	15. SL
		200 LBS			

24. DOCUMENT NUMBER & SUFFIX (30-44)

UXO-22, Camp LeJeune, NC

Contract No: N62470-08-D-1000
Task Order: 039

Material Documented As Safe (MDAS)
Seal Serial No: 173756

16. FREIGHT CLASSIFICATION NOMENCLATURE

17. ITEM NOMENCLATURE
Mixed Metal Scrap including Material Documented As Safe

18. TY CONT	19. NO CONT	20. TOTAL WEIGHT	21. TOTAL CUBE

25. NATIONAL STOCK NO. & ADD (6-22)

"The material listed on this form has been inspected or processed by DDESB-approved means, as required by DOD policy, and to the best of my knowledge and belief does not pose an explosive hazard." Reference: NAVSEA OP-5, Vol 1, Change 11, Para 13-15.5.

22. RECEIVED BY
AB

23. DATE RECEIVED
12/20/13

26. RIC (4-6) UI (23-24) QTY (25-29) CON CODE (71) DIST (55-56) UP (74-80)

MDAS Container #009

27. ADDITIONAL DATA

CERTIFIED:
CLIFF WALDEN, CH2M HILL, UXOQCS, 352-514-9022

INSPECTOR:
PATRICK GILDEA, USAE, SUXOS, 813-343-6336

CONTRACTING OFFICER: (SIGNATURE NOT REQUIRED)
CHARITY RYCHECK, EMD, 910-451-9385

Adobe Designer 8.0

DD FORM 1348-1A, JUL 91 (EG) ISSUE RELEASE/RECEIPT DOCUMENT

1	2	3	4	5	6	7		23	24	25	26	27	28	29	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
DOD IAC			RI FROM			M&S		UNIT		QUANTITY					SUPPLE-MENTARY ADDRESS				SIG	FUND	DIS-TRI-BU-TION		PROJECT		PRI		REQD	DATE		ADV		RI		O/P	COND	MGT															

Contract: N62470-11-D-8012 CTO: WE5A

1. TOTAL PRICE			2. SHIP FROM	3. SHIP TO
UNIT PRICE	DOLLARS	CTS		
DOLLARS CTS			4. MARK FOR	

5. DOC DATE	6. NMFC	7. FRT RATE	8. TYPE CARGO	9. PS

10. QTY. REC'D	11.UP	12. UNIT WEIGHT	13. UNIT CUBE	14. UFC	15. SL

16. FREIGHT CLASSIFICATION NOMENCLATURE

17. ITEM NOMENCLATURE
Metal Scrap, (MDAS)

18. TY CONT	19. NO CONT	20. TOTAL WEIGHT	21. TOTAL CUBE
Drum, 55 Gal	1	548 lbs	

22. RECEIVED BY	23. DATE RECEIVED
AB	12/20/13

24. DOCUMENT NUMBER & SUFFIX (30-44)

25. NATIONAL STOCK NO. & ADD (8-22)

26. RIC (4-6)
UI (23-24)
QTY (25-29)
CON CODE (71)
DIST (55-56)
UP (74-80)

27. ADDITIONAL DATA

Basic Material Content: Material Documented as Safe (MDAS)

Estimate Weight (lbs): 548 lbs

Container ID No.: 1 Seal ID No.: 646799

Site address: USA Environmental, Inc.
UXO-29 MCAS New River
Camp Lejeune, NC
Tel: (910) 728-7794

Ship To: Bonetti Explosives, Inc.
Attn: Matt Barnett
1618 Smith Rau Rd
Columbus, TX 78394
Tel: (979) 739-5597

"The material listed on this form has been inspected or processed by DDESB-approved means, as required by DOD policy, and to the best of my knowledge and belief does not pose an explosive hazard"

Certify By: Jim Keesee

Jim Keesee Date: 11/21/13

USA Environmental, Inc SUXOS , Tel: (910) 728-7794

Verified By: Steve Brown

Steve Brown Date: 11/21/13

CH2M Hill UXOQCS, Tel: 910-265-1199

USA Environmental, Inc., 720 Brooker Creek Boulevard, Suite 204, Oldsmar, Florida 34677, Telephone: 813.343.6336, Fax: 813.343.6377

Appendix C
Site UXO-22 DGM Report

NAEVA GEOPHYSICS INC.
THE LEADER IN SUBSURFACE DETECTION
Subsurface Geophysical Surveys

GPR
MAGNETICS
ELECTROMAGNETICS
SEISMICS
RESISTIVITY
UTILITY LOCATION
UXO DETECTION
BOREHOLE CAMERA
STAFF SUPPORT

Geophysical Investigation Report

Munitions Response Remedial Investigation at Site UXO-22, Former Munitions Disposal Area

Marine Corps Installation East- Marine Corps Base Camp Lejeune
North Carolina

Task Order WE54

Under the
NAVFAC CLEAN 8012 Program
Contract N62470-11-D-8012

Dates of Investigation:
September 18th – 22nd, 2013

Prepared for

CH2MHILL

Charlotte, North Carolina

NEW YORK
225 N. Route 303
Suite 102
Congers
New York 10920
(845) 268-1800
(845) 268-1802 Fax

VIRGINIA
P.O. Box 7325
Charlottesville
Virginia 22906
(434) 978-3187
(434) 973-9791 Fax

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Acronyms and Abbreviations

AED	Automated External Defibrillator
AHA	Activity Hazard Analysis
AOC	Area of Concern
ASCII	American Standard Code for Information Interchange
CLEAN	Comprehensive Long-term Environmental Action - Navy
cm	Centimeter
CPR	Cardiopulmonary Resuscitation
DGM	Digital Geophysical Mapping
DRMO	Defense Reutilization and Marketing Office
FTP	File Transfer Protocol
GIP	Geophysical Investigation Plan
GNSS	Global Navigation Satellite System
GPO	Geophysical Prove-Out
GPS	Global Positioning System
GSV	Geophysical System Verification
HAZWOPER	Hazardous Waste Operations and Emergency Response
ISO	Industry standard object
IVS	Instrument Verification Strip
m	Meter
MC	Munitions Constituents
MCIEAST-MCB CAMLEJ	Marine Corps Installation East- Marine Corps Base Camp Lejeune
MEC	munitions and explosives of concern
MRS	Munitions Response Site
MRSIMS	Munitions Response Site Information Management System
mV	Millivolt
NAVFAC	Naval Facilities Engineering Command
NAD83	North American Datum of 1983
NAEVA	NAEVA Geophysics, Inc.
OSHA	Occupational Safety and Health Administration
QC	Quality Control
RI	Remedial Investigation
RTK	Real-Time Kinematic
SOP	Standard Operating Procedure
UHF	Ultra-High Frequency
UTM	Universal Transverse Mercator
UXO	Unexploded Ordnance

1 INTRODUCTION

1.1 Background and Project Objectives

NAEVA Geophysics, Inc. (NAEVA) was contracted to perform digital geophysical mapping (DGM) for CH2M HILL under the Naval Facilities Engineering Command (NAVFAC) Comprehensive Long-term Environmental Action – Navy (CLEAN) 8012 Program as part of a Remedial Investigation (RI) at Site Unexploded Ordnance (UXO)-22, Former Munitions Disposal Area, onboard Marine Corps Installation East– Marine Corps Base Camp Lejeune (MCIEAST-MCB CAMLEJ), Jacksonville, North Carolina. Field operations were conducted from September 18th to September 22nd, 2013.

1.2 Scope of Work

NAEVA provided qualified personnel and necessary equipment for the execution of the Geophysical Investigation Plan (GIP) included as Appendix C to the Final Site- Specific Work Plan (CH2M HILL, 2013). Two Field Geophysicists worked on site with support from the Project Geophysicist, Quality Control (QC) Geophysicist, and Geophysical Data Processor at NAEVA's Charlottesville, Virginia office. CH2M HILL's Project Geophysicist and Unexploded Ordnance (UXO) Technician provided onsite logistics, UXO avoidance assistance, and Health and Safety Plan administration.

Key duties performed include:

- Instrument Verification Strip (IVS) installation and characterization; **Appendix A**
- Daily instrument calibration and verification; **Appendix B**
- Data acquisition along transects of varying length separated 10 meters (m) to centerline;
- Quality control of data at all steps of the project;
- Maintenance of project documentation within the Munitions Response Site Information Management System (MRSIMS);
- Data processing and target anomaly selection;
- Reporting and delivery.

1.3 Site Location and Description

Site UXO-22 covers an area of approximately 75 acres between Piney Green Road and Holcomb Boulevard at MCIEAST–MCB CAMLEJ. The site is composed of portions of Operable Unit 2,

Site 6, and Site 82, which have undergone investigation and remediation associated with non-munitions constituents (MC) under the Installation Restoration Program. (CH2M HILL, 2013)

The earliest documented land use at UXO-22 is from archival aerial photography taken in 1948 that shows cleared land, the unnamed road between Holcomb Boulevard and Piney Green Road, and areas of re-worked earth. Subsequent photographs and maps reveal the presence of structures in the 1960s that are no longer in existence. Historically, these areas of re-worked earth at Site UXO-22 were used for storage and disposal of wastes and supplies, including pesticides, transformers containing polychlorinated biphenyls, solvents, electrolytes, waste oils, batteries, and undocumented discard military munitions. Lot 201 is currently used to store military equipment, vehicles, hydraulic oils, and other non-hazardous supplies. The western portion of Lot 203 is an open field, with 21 acres formerly used from 2001 through 2012 by the Defense Reutilization and Marketing Office (DRMO) as a temporary scrap and surplus storage lot. No former range activities are known to have occurred at the site. (CH2M HILL, 2013)

2 EQUIPMENT

2.1 Geonics EM61-MK2

The geophysical instrument used for the investigations was the Geonics EM61-MK2 metal detector. The EM61-MK2 is a high resolution time-domain electromagnetic instrument designed to detect, with high spatial resolution, shallow ferrous and non-ferrous metallic objects. In comparison with other metal detectors, especially magnetometers, it is much better suited for work in close proximity to man-made structures and in areas of dense subsurface metallic debris (i.e., burial pits).

The EM61-MK2 system used for this project consisted of one, 1-meter by 0.5-meter air-cored coil, a digital data recorder, batteries and processing electronics. The EM61-MK2's transmitter generates a pulsed primary magnetic field, which then induces eddy currents in nearby metallic objects. The receiver measures the secondary magnetic field generated by the eddy currents at four time intervals in the sensor coil (Geonics, 2005). Earlier time gates provide enhanced detection of smaller metallic objects. Secondary voltages induced in the sensor coil are measured in millivolts (mV). Mounted on the manufacturer-supplied wheels, there is a vertical separation of 40 centimeters (cm) from the ground to the sensor coil. Assuming accurate data positioning, target resolution of approximately 0.5 meters can be expected. The data are collected using Geonics' EM61-MK2 program and temporarily stored in a Juniper Allegro CX data logger prior to downloading to a laptop computer.

2.2 Data Logger

A Microsoft Windows-based Allegro CX data logger was used to monitor and record data from the EM61-MK2. The four time gates, or channels, recorded for this investigation are geometrically spaced in time after the termination of the transmitter pulse. The Allegro stores raw data in the .R61 format (Geonics, 2005).

2.3 Trimble RTK GPS

A Trimble R7 Global Navigation Satellite System (GNSS) Real-Time Kinematic (RTK) Global Positioning System (GPS) base station and rover were used for positioning in open areas. A rover antenna mounted on a survey staff was used to survey the IVS Industry Standard Object (ISO) locations and associated points. For DGM, the rover antenna was mounted directly above the

center of the EM61-MK2. Real-time corrections are broadcast to the roving GPS unit via a radio link using a Trimble TDL450 Ultra-High Frequency (UHF) radio modem. This system provides positional corrections at a rate of 1 Hertz, with an accuracy of 3 cm horizontal and 5 cm vertical when a minimum of 5 satellites are available. The base station was established at a survey monument with known coordinates, and the calibration of the rover was checked against one of the transect waypoints before performing any surveys **(Table 1)**.

Survey Monument ID	X Location UTM (m)	Y Location UTM (m)
UXO 22 base 2	286700.905	3841493.502

Table 1. Coordinate location of base station monument
UTM Zone 18N NAD83

2.4 Information Management

Project documentation, including instrument serial numbers and data file names, was recorded in the MCIEAST-MCB CAMLEJ MRSIMS forms on a Palm Treo mobile device provided by CH2M HILL. Completed field forms were synchronized to the MRSIMS Master Database and posted to the CH2M HILL file transfer protocol (ftp) site for QC review and use during data processing and reporting.

3.0 METHODOLOGY

3.1 DGM Survey Activities

Vegetation removal was completed in advance of DGM operations throughout the Area of Concern (AOC). Land survey activities were conducted in wooded areas before NAEVA's data collection at MCIEAST-MCB CAMLEJ. Transects were spaced approximately 10m to centerline (**Figure 1**). Some transects were altered on-site by CH2M HILL personnel based on the presence of fences, structures, and other impediments. Fiducial positioning methods were employed in portions of the AOC where GPS interference from vegetation canopy and structures was anticipated. When performing DGM in open areas of the AOC, GPS positioning was used for data collection and for guidance in lieu of surveyed stakes. For each transect, the instrument was positioned at the starting stake location with the long axis perpendicular to the intended line path. The operator then proceeded to pull the instrument from stake to stake stopping at the last accessible stake, creating a 1-meter wide swath. In fiducial portions, the instrument operator depressed a button attached to the data logger as the coil's center passed over each marked stake. The process was repeated with the next series of stakes until all transects were covered. An integrated odometer wheel automatically triggered data readings every 10 cm in areas where fiducial positioning was used. Where GPS positioning was used, readings were collected at a rate of 10 readings per second.

The individual reading or readings corresponding to the stake location were then marked in the raw data. Notes were recorded for each transect, documenting filename, line name, culture comments and all associated stakes in order of collection. Using these notes, the fiducial marks in the data were fitted to corresponding North American Datum 1983 (NAD83) Universal Transverse Mercator (UTM) coordinates provided for each of the stakes by CH2M HILL. The positions of data points in between stakes were interpolated as a straight line between the known positions.

3.2 Data Processing and Interpretation

EM61-MK2 data were temporarily stored in an Allegro CX data logger using Geonics' EM61-MK2 software and then downloaded into a laptop computer for further on-site processing using Geonics' DAT61MK2 program. Initial data processing was performed by the field team. This included reviewing data for integrity, repeatability, and completeness. Once the in-field review was completed, the data were transferred to NAEVA's Charlottesville, Virginia office for preprocessing, analysis/target selection, and final map production using Geosoft's Oasis Montaj program.

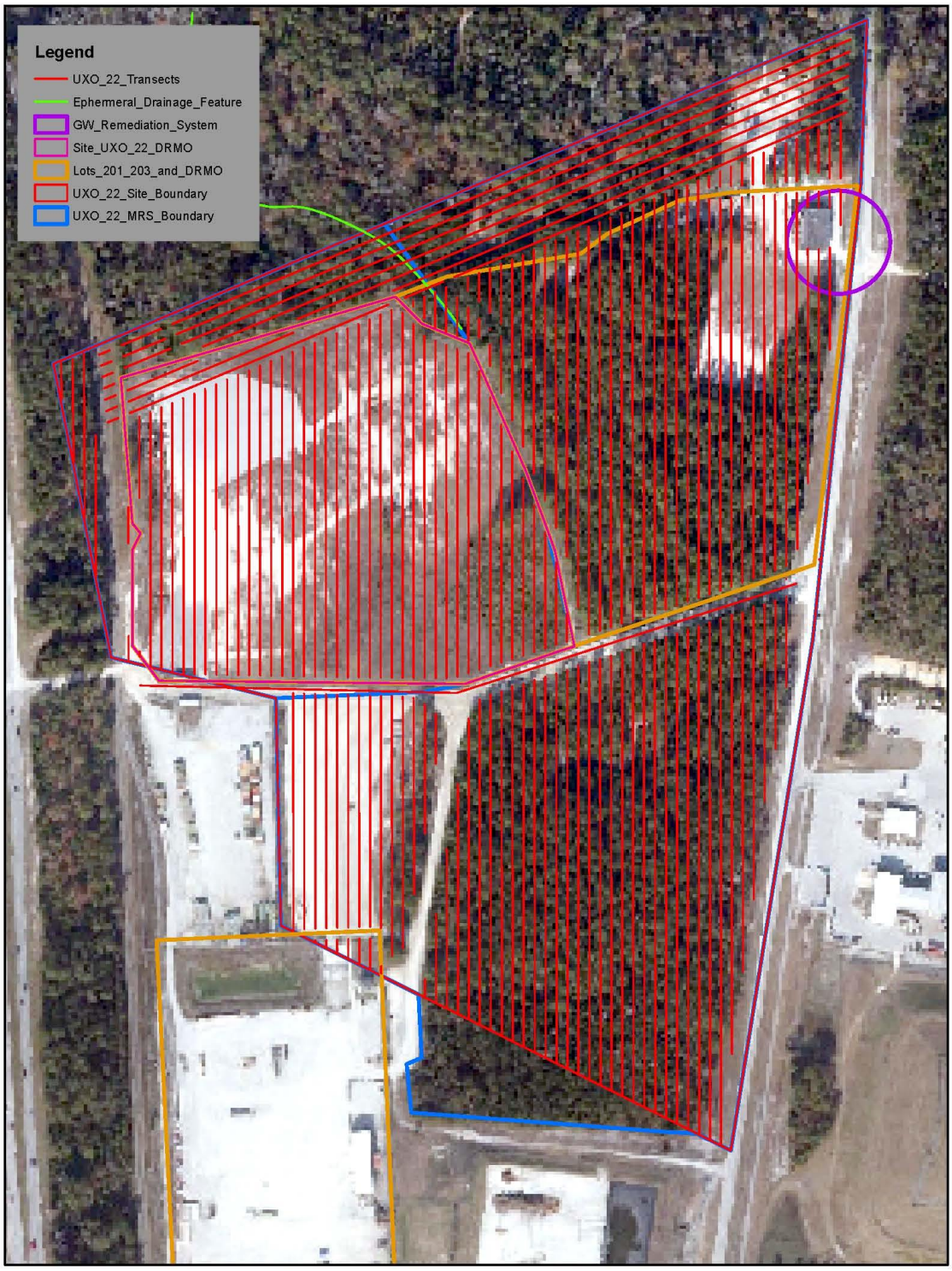


Figure 1: UXO-22 Planned Transect Design

3.2.1 Pre-Processing

Converted raw data files were imported into Geosoft's Oasis Montaj to perform the following:

- Review and finalize all QC tests (IVS, cable shake, personnel, and static) prior to processing DGM data for that day;
- Conversion of raw coordinates to projected NAD83 UTM Zone 18 North coordinates in meters by matching fiducial marker locations with surveyed control points provided by a licensed land surveyor;
- Evaluation of data density;
- Application of auto leveling and instrument drift corrections for EM61-MK2 data;
- Application of a default lag correction based on the lag determined from the initial collection of the 5-line IVS **(Section 5.1.1)**;
- Generation of preliminary contour map(s) from gridded data;
- Generation of preliminary original versus repeat profiles by dataset;
- Generation of formatted American Standard Code for Information Interchange Two (ASCII) files containing preprocessed data by dataset.

3.2.2 Final Processing

After completion of preprocessing, the data were further evaluated and processed to generate final processed data files. Final processing steps included:

- Evaluation and refinement of auto leveling and instrument drift corrections for EM61-MK2;
- Evaluation and refinement of lag correction;
- Additional digital filtering and enhancement, as necessary;
- Targeting of data,**(Section 3.2.3)**;
- Generation of formatted ASCII files containing processed data by dataset;
- Generation of final maps for each dataset showing contoured, gridded data, target locations, areas of interest, and cultural features;
- Generation of final original versus repeat profiles by dataset.

3.2.3 Analysis and Target Selection

The target anomaly threshold was set at 3mV in channel 2 based on the goals of the investigation and the relatively low background response observed at the site. The UX-Detect module within Oasis Montaj identifies peak amplitude responses associated with, but not limited to, MEC items.

Single-source anomalies may generate multiple target designations depending on shape and orientation. Initial target selections were auto-selected using a peak picking algorithm based on the Channel 2 profile data. Data profiles corresponding to the anomalies selected by Geosoft were then analyzed by trained geophysicists, with the targets evaluated as to their validity and position. Responses decay between the four time gates was analyzed in order to identify possible noise or other false positive responses. Any anomalies suspected as originating from noise (e.g., channel readings out of phase) are noted and referenced by an identification number on the target lists. Targets found to be invalid or incorrectly located were removed or adjusted. Additionally, anomalies that were not selected by the UX-Detect module, yet deemed to represent potential MEC targets, were manually selected. All final selected anomalies were identified using a unique ID number. All targets were selected from final processed Channel 2 data of the EM61-MK2 coil.

3.2.4 Deliverables

Final processed XYZ (ASCII) files were created by dataset, and individual target lists were created for each transect. Each target list provides a Target ID, Grid Cell ID, Easting (X1) and Northing (Y1) UTM coordinate location for each target, Type, and the recorded peak amplitude in mV as shown in **Table 2**.

ID	GRIDCELLID	X1 (m)	Y1 (m)	TYPE	AMPLITUDE	UNITS
1	BA	286564.330	3841527.740	1	59.75	mV
2	BA	286565.536	3841528.068	1	8.815	mV

Table 2. Sample target list.

The target IDs were assigned by numbering the targets with increasing IDs starting from the south end of each transect. All target lists and both raw and processed data have been submitted to CH2M HILL's geophysicist and can be found on the attached CD-ROM. Also included are processing reports, a copy of the MRSIMS database, and target lists in MRSIMS format.

4 RESULTS

4.1 Summary of Work

NAEVA performed DGM at Site UXO-22 from September 18th to September 22nd, 2013. NAEVA installed an onsite IVS for QC and validation of the EM61-MK2 system on site. Transect data were collected, processed, and reviewed. Raw data, processed data, final data, associated reports, and target lists were delivered to CH2M HILL in the specified formats.

4.2 Mobilization and Site Setup

Prior to mobilization, an Activity Hazard Analysis (AHA) and Standard Operating Procedures (SOPs) were provided to CH2M HILL, and all personnel had 40-hour Occupational Safety and Health Administration (OSHA) Hazardous Waste Operations and Emergency Response (HAZWOPER) training, with current (annual) 8-hour refresher training, as well as First Aid and Cardiopulmonary Resuscitation (CPR) and Automated External Defibrillator (AED) certification issued by the American Red Cross.

NAEVA mobilized one field crew to MCIEAST-MCB CAMLEJ on September 16th, 2013. An IVS was established in an unobstructed location free of external interference on September 17th in association with a project at nearby Site UXO-06. DGM at Site UXO-22 began September 18th.

Transect lanes were cleared of vegetation to allow access for survey work and safe passage of the DGM system and personnel. Vegetation removal paths deviated from proposed transects where terrain, culture, or vegetation prohibited safe passage. Following vegetation removal, wooden stakes were installed by a Professional Land Surveyor at regular intervals or any deviation from a straight line along the lanes, serving as reference points for data positioning during DGM. Transect stakes were identically color-coded down line and alternately color-coded by transect and given sequential identification numbers specific to each transect. Survey stakes were not placed in open areas where GPS positioning was used for DGM.

Site-specific health and safety briefs were given each morning by the CH2M HILL UXO Technician.

4.3 DGM Survey Activities

DGM data were collected along 150 transects covering 8.2 acres at UXO-22. A total of 9107 anomalies were identified. All but 28 of these were above the targeting threshold of 3 mV in

Channel 2. The 28 anomalies selected below the threshold were targeted based on decay characteristics and classified as type 2. 19 anomalies were suspected of resulting from some form of interference, and were classified as type 5.

The average target density was 1111 targets per acre. Target density was particularly high in the open areas and the northern half of the site, and decreased south of the dirt road that bisects the site.

Weather conditions during the geophysical investigation were sunny to partly cloudy. The terrain was mostly level to gently sloping across the site. Much of the site was heavily wooded, with a large open area in the west-central portion.

4.4 Data Processing and Interpretation

All data were processed as described in-depth in **Section 3.2**. Part of the process included analyzing channel decay in order to identify possible noise or other false positive responses. Any anomalies suspected as originating from noise (e.g., channel readings out of phase) are noted and designated with a number based on the type of anomaly. Type 1 anomalies are point-source anomalies. Type 2 anomalies are targets selected below the targeting threshold based on their decay characteristics. Type 3 anomalies are known culture. Type 4 anomalies are suspected culture. Type 5 anomalies are suspected data spikes resulting from terrain response or ambient electrical noise. Types 3 and 4 were not used.

The data processing reports also list down-line data density statistics and leveling, lag, and gridding parameters used in processing each dataset.

5 QUALITY CONTROL

To establish confidence in the data reliability, QC tests were conducted throughout the project. Tests were conducted prior to, during, and after all data collection sessions. All QC tests for the EM61-MK2 were conducted after a minimum 15 minute warm-up period for the electronics. Sample graphical displays of QC data are included in **Appendices A and B**.

5.1 Geophysical System Verification Plan

The geophysical system verification (GSV) plan (Appendix B of Site-Specific Work Plan Addendum, (CH2M HILL, 2012)), is an alternative to traditional geophysical prove-outs (GPO). The protocol is based on extensive physics-based modeling of instrument response to ISOs at different orientations and depths. Two small ISOs (1in x 4in steel pipes) were emplaced vertically at 15 cm measured to item center below ground surface to create an IVS **(Section 5.1.1)**. A small ISO was elevated 43cm above the bottom coil on a Polyvinyl Chloride (PVC) pipe section used as static spike test item for daily QC and verification **(Section 5.2.1)**.

Advantages of the GSV program include:

- ISOs are easily obtained, economical, and standard;
- The IVS is small and requires little time to install;
- Blind seeding of survey areas ensures continual system verification during production.

5.1.1 Instrument Verification Strip

The IVS is an integral component of the GSV process. The purpose of surveying the IVS is to demonstrate the effectiveness of all instrumentation, methods, and personnel prior to the initiation of fieldwork and to document the site-specific capabilities of a DGM system. Serial number identifications were recorded in the MRSIMS database for all instrumentation (i.e. data logger, EM61-MK2 electronics, coils), and the IVS was mapped using the same personnel, equipment, and methodologies employed for the DGM survey.

A suitable area between transects, free of interference and anomalous response, was chosen. Prior to finalizing the IVS location, the DGM team thoroughly checked the area using the EM61-MK2 in an analog mode. Any pre-existing anomalies were marked and avoided during IVS construction. Once the final IVS location was approved, tape measures were used to locally establish a 15m x 5m grid oriented approximately North-South. After the seeding was completed,

the start and end points of the IVS line and the locations of the ISOs were recorded using a Trimble RTK GPS.

A 5-line seeded IVS survey was performed using the same instrumentation and methodology planned for the field investigation **(Section 3.1)**. In this dataset, fiducial markers were entered in the data when passing directly over the seed items. The IVS data were used to document the repeatable responses of known objects at known depths. Daily peak responses were compared to the ideal response as documented during the initial 5-line IVS, which can be found in **Appendix A** of this report.

5.1.2 Blind Seeding

The blind seeding portion of the GSV was conducted and evaluated by CH2M HILL. Seed items were emplaced at varying depths throughout the survey area, so that on average at least one seed item would be surveyed each day. The locations of these items were not provided to NAEVA. The CH2M HILL Geophysicist evaluated the data delivered by NAEVA and reported that all seeds were detected and targeted.

5.2 QC Test Descriptions and Acceptance Criteria

The following QC procedures were performed and documented during the data collection process and reviewed by a qualified geophysicist on a daily basis.

5.2.1 Static Quality Control Tests

Each day of data collection, the instrument was powered-on for a warm-up period of at least 15 minutes to stabilize readings and minimize instrument drift. After warm-up, a series of 60-second static QC tests were performed with the instrument immobilized over an area of minimal background response in order to document proper instrument function. These tests were also performed at the end of each day. While checking instrument performance, the static background test also documents local site noise levels. The file naming convention for the static tests is detailed in **Table 3**. The instrument operator monitored the response during the tests for abnormal behavior. During data processing, the tests were further analyzed quantitatively. Sample daily static QC test profiles can be found in **Appendix B** of this report.

Daily Static QC Tests					
File Name*	Line Number				
MMDDQC1	0	1	2	3	4
MMDDQC2	0	1	2	--	--
Test Type	Background	Spike	Background	Cable Shake	Personnel

Table 3. Daily static QC test file naming convention.

* MM is the 2-digit month. DD is the 2-digit day. QC1 represents beginning of day file, and QC2 represents end of day file.

Personnel Test: While logging the data, the operator looked for changes in response associated with personnel in proximity to the instrument coil. Support personnel not actively operating the instrument generally do not approach the coil during production surveys. This test is designed to confirm that the instrument operator, who is closest to the coil during logging, does not interfere with the data. Common sources of operator interference include metal items in pockets and steel-toed boots.

Cable Shake Test: In the cable shake test, all system cables are shaken while logging and monitoring for data spikes. This test functions to detect problems associated with damaged or loose connectors, damaged cables, and other defects. Replacing the offending component usually resolves problems in this test.

Background/Spike Test: Performed at the beginning and end of each day, the background/spike test consists of three 60-second lines of data: background, ISO/spike, and background. Background lines are monitored for data spikes and noise level while the spike line is examined for consistent response. Monitoring background noise enables the Geophysical Data Processor to calibrate data leveling during processing. For the spike test, a small ISO is approximately centered above the EM61-MK2 coil with a measured height of 43 cm to ISO center **(Figure 2)**. Daily spike response values were plotted against the small ISO response curve at the given depth **(Figure 3)**. The acceptance criterion for the spike response was ± 20% of the expected response according to the NRL response curve (22.5 mV in Channel 2); static tests were also plotted on a scale of ± 2 mV so that any abnormally high data spikes could be observed.

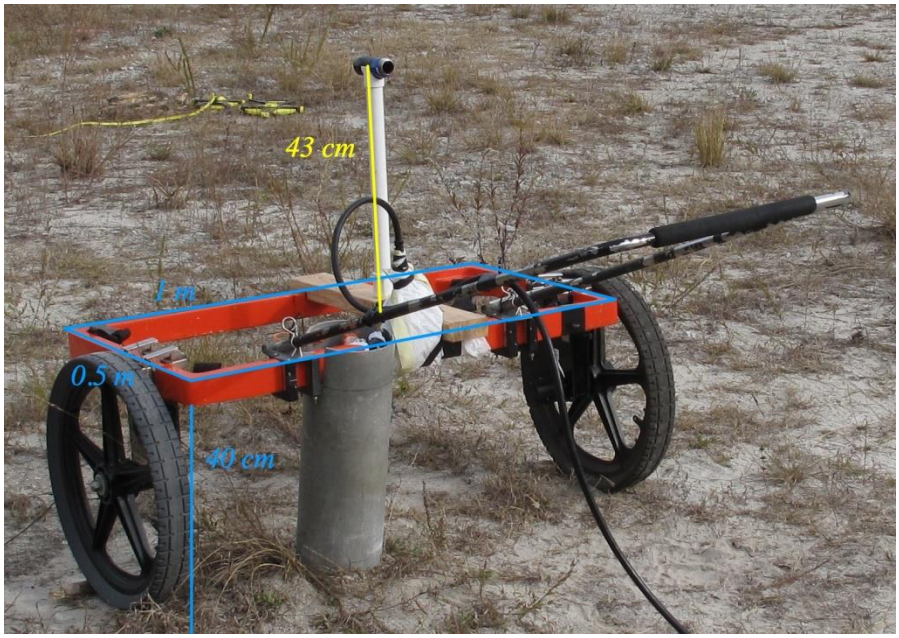


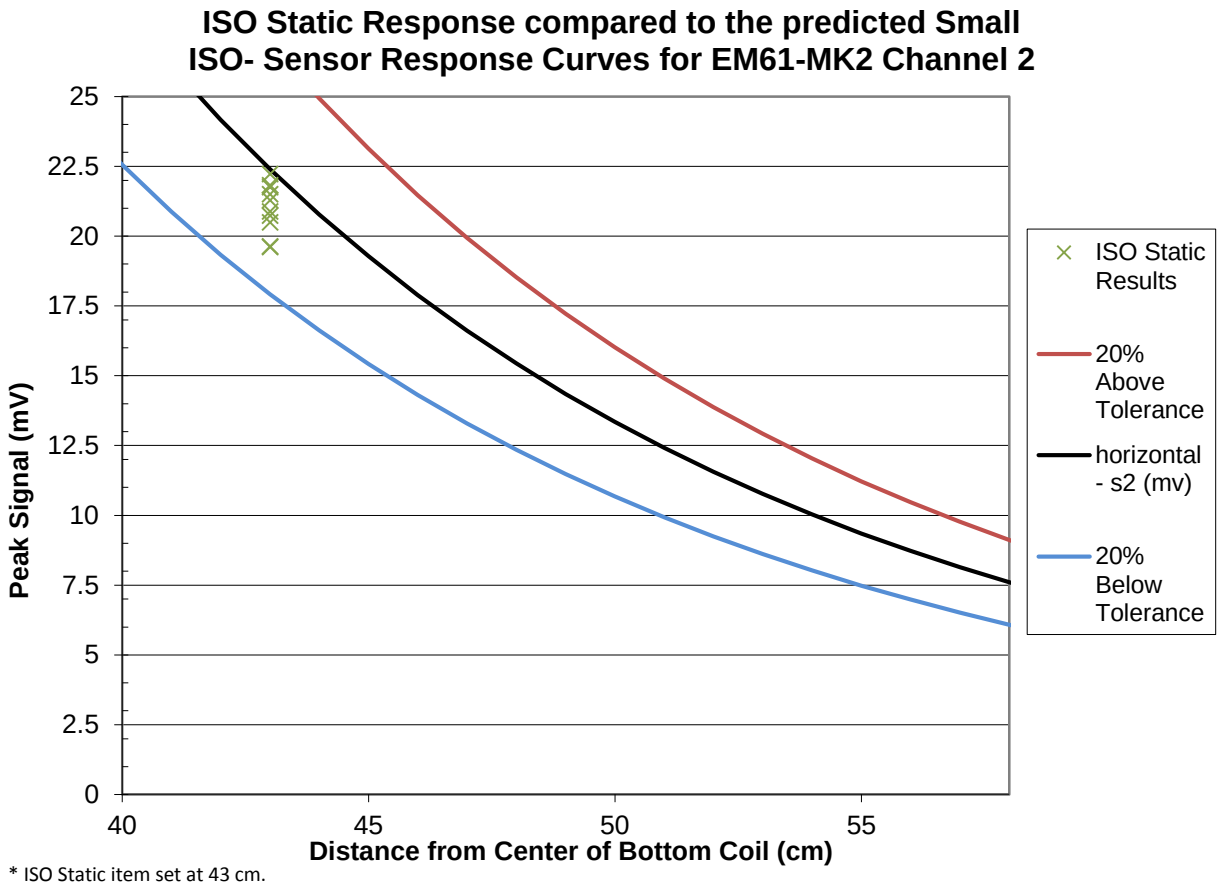
Figure 2: EM61-MK2 wheel mode and Spike Test configuration.

5.2.2 Repeat Data

After completion of each dataset, approximately 2% of the data were recollected in a separate file to demonstrate instrument consistency and data integrity throughout the course of the survey. Repeat data also serves to evaluate and validate the particular collection and positioning methods. It is essential in the fiducial method for the operator to maintain a centered and straight line path. If the instrument passes verification while failing repeatability, one may attribute failure to incorrect line paths. Evaluation of repeat data was conducted qualitatively against original data profiles.

5.3 QC Test Results

All submitted data met the quality objectives of the project. The instrument passed static ISO/spike tests and IVS seed detection with all peak responses falling within 20% of the expected values **(Figure 3)**. Static, spike, cable shake, and personnel test profiles were plotted with an acceptance criterion of ± 2 mV from the mean. Any readings outside this range were flagged on the profiles, and an associated failure percentage was reported. IVS seed detection met positional accuracies within 25 cm, and response amplitudes were consistent. No failures to detect or target blind seeds were reported.



* ISO Static item set at 43 cm.

Figure 3: EM61-MK2 Channel 2 Response curve and plot for small ISO static item test

6 CONCLUSIONS

Although the brush removal paths varied from the planned transect locations in order to avoid various obstacles, the vegetation clearance and the stake locations and labeling were satisfactory for data collection.

The DGM survey covered 8.2 acres resulting in the targeting of 9107 anomalies. Anomaly density is high in much of the survey area. The open portion in particular appears to present large areas of saturated response. Target density decreases toward the southern end of the AOC. Interference from utilities was not a significant problem on the site, and only 19 targets were classified as suspected noise.

7 REFERENCES

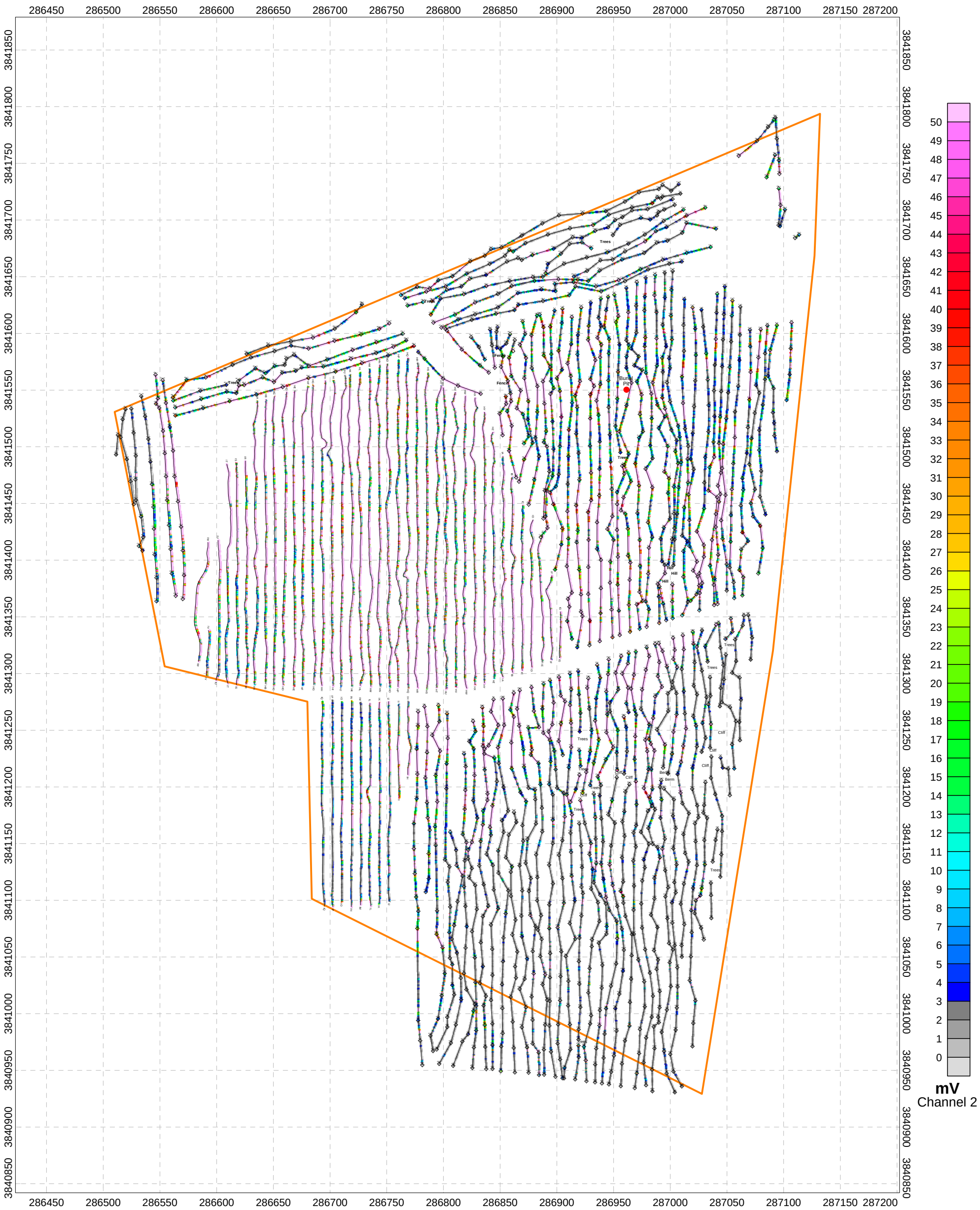
CH2M HILL. 2013. *Field Sampling Plan and Quality Assurance Project Plan for Munitions Response Remedial Investigation at Site UXO-22 – Former Munitions Disposal Area*. May.

ESTCP. 2009. *Geophysical System Verification (GSV): A Physics- Based Alternative to Geophysical Prove- Outs for Munitions Response.* July.

Geonics Limited. 2005. *EM61-MK2 and EM61-MK2HP 4 Channel High Sensitivity Metal Detectors Operating Manual.* July.

Plate 1:

Site UXO-22 EM61-MK2 Channel 2 Mosaic



Legend

- Transect Path
- Survey Boundary
- A_2 — Surveyed Stake Location with ID (See NOTE)
- brush — Culture (if noted)

NOTE: No stake coordinates were provided from the client for the open areas (GPS areas, Blocks HA and IH).

50 0 50 100
(meters)
NAD83 / UTM zone 18N

NAEVA GEOPHYSICS INC.
THE LEADER IN SUBSURFACE DETECTION
Subsurface Geophysical Surveys

Client: CH2M HILL

EM61 MK2 Bottom Coil
Mosaic
UXO-22
Marine Corps Base, Camp Lejeune
Jacksonville, North Carolina

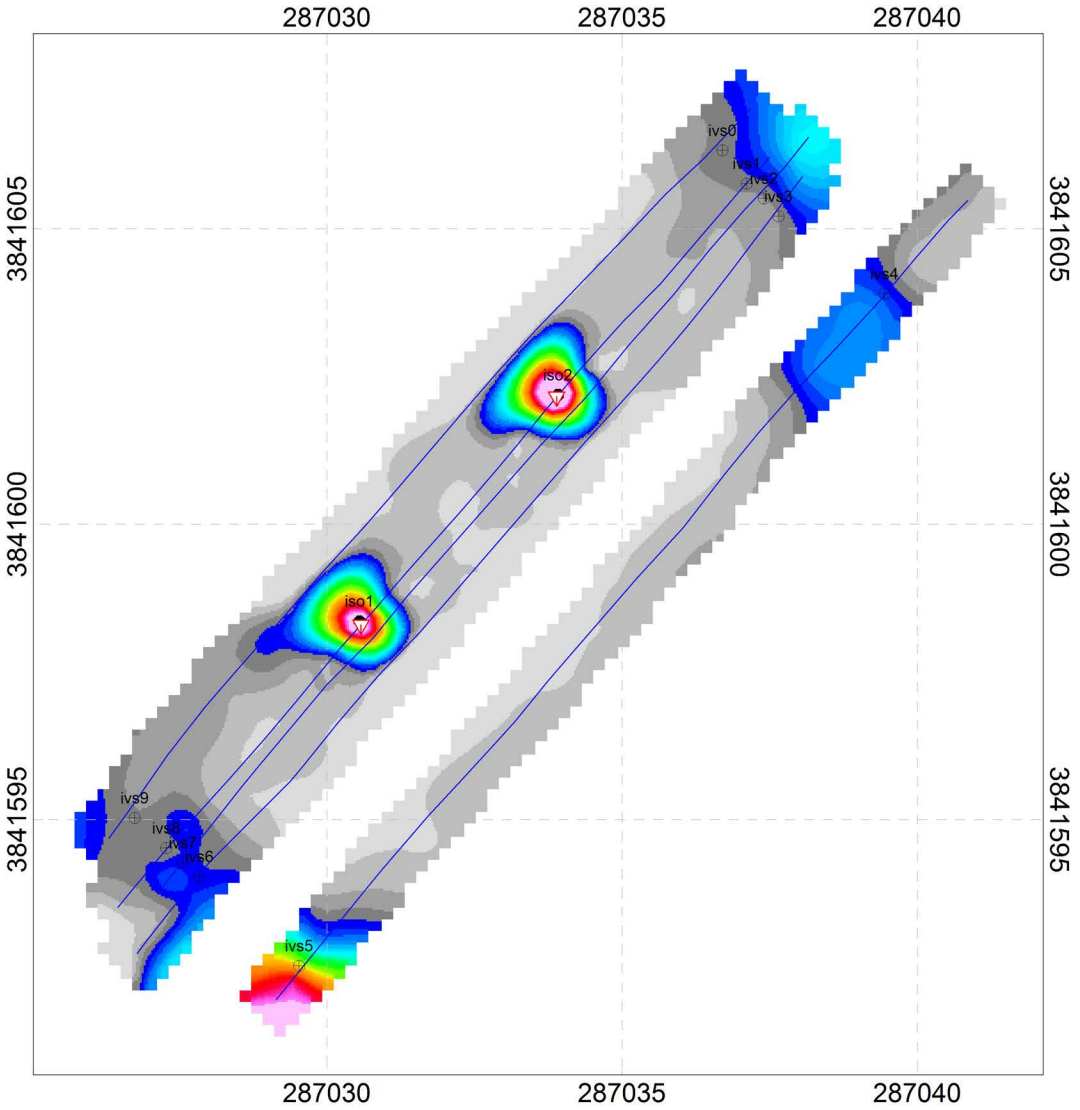
Dates of Survey: 09/18/2013 - 09/21/2013
Date of Map Creation: 10/11/2013

Map Approver: J. Guillard

Appendix A:

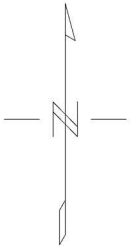
IVS Results

NAEVA GEOPHYSICS INC.
THE LEADER IN SUBSURFACE DETECTION
Subsurface Geophysical Surveys



Legend

- Survey Point
- Seed Location
- Line Path



Scale 1:128

2.5 0 2.5

(meters)

WGS 84 / UTM zone 18N

Client: CH2M HILL
EM61 MK2 Bottom Coil 0918IVS1 (IVS Test - 5 Lines) Seeded Camp Lejeune North Carolina
Date of Survey: 09/18/2012 Date of Map Creation: 09/19/2012
Map Approver: J. Guillard

Appendix B:

Sample Daily QC Profiles

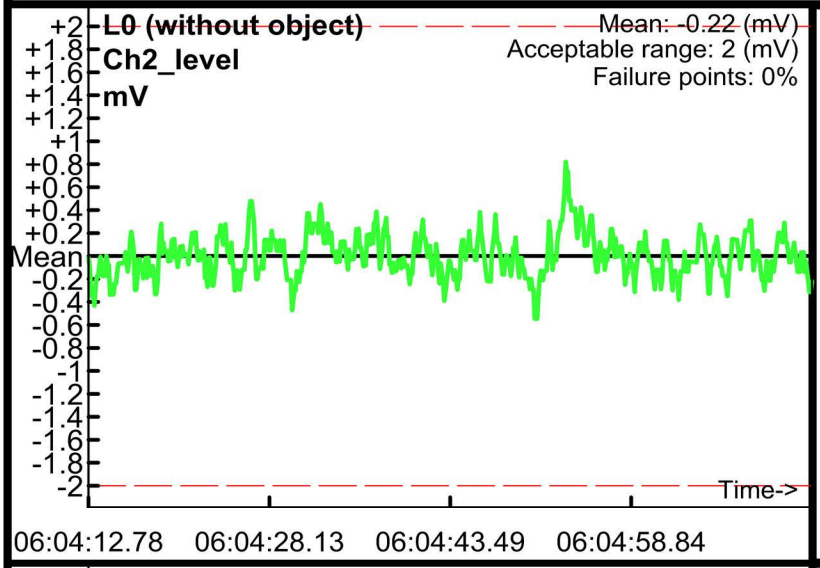
Static Calibration Test

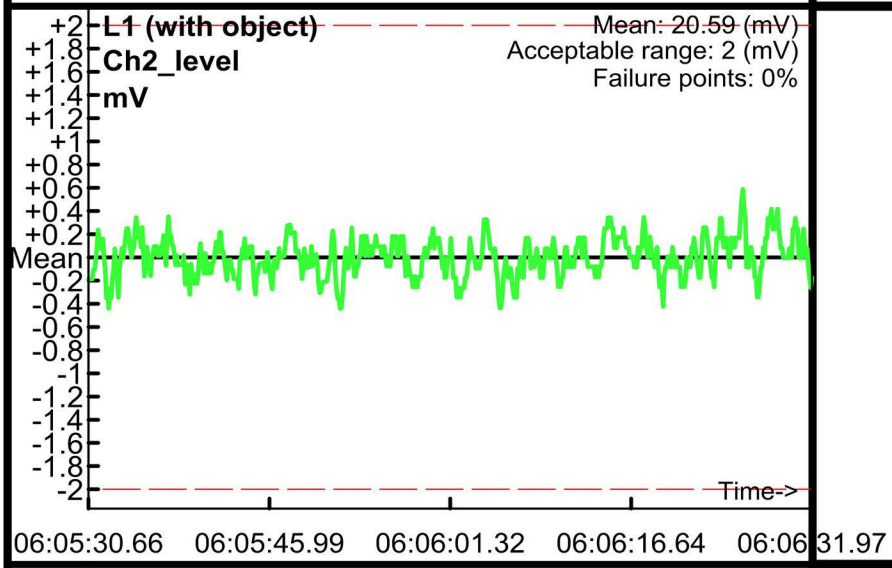
Mean Response Values
Ch2_level Without Object: -0.91
Ch2_level Signal Strength With Object: 21.50

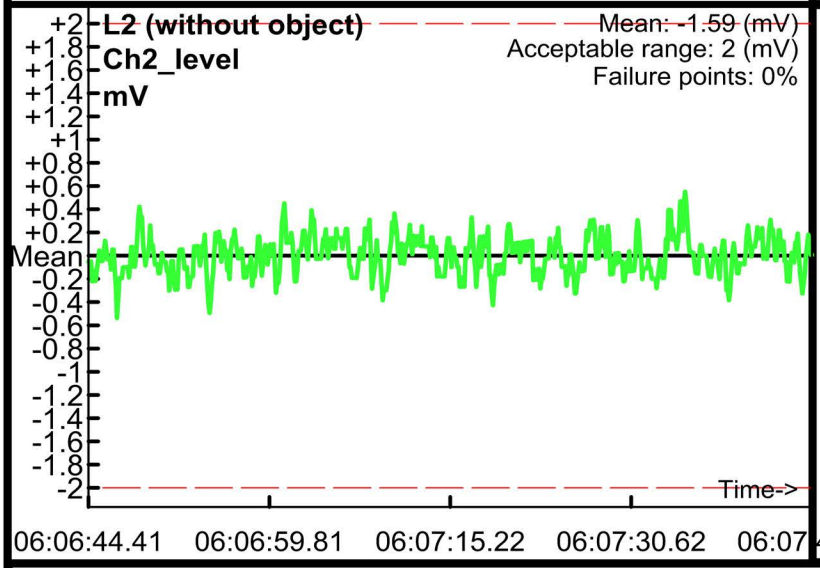
Project: UXO-22, Camp Lejeune, NC
Equipment: EM-61 Mark II
Grid/Location: Localized QC Area

• Outside range
— — Acceptable limits

QC1 test
Operator: GeoA
Date: 09/19/2013







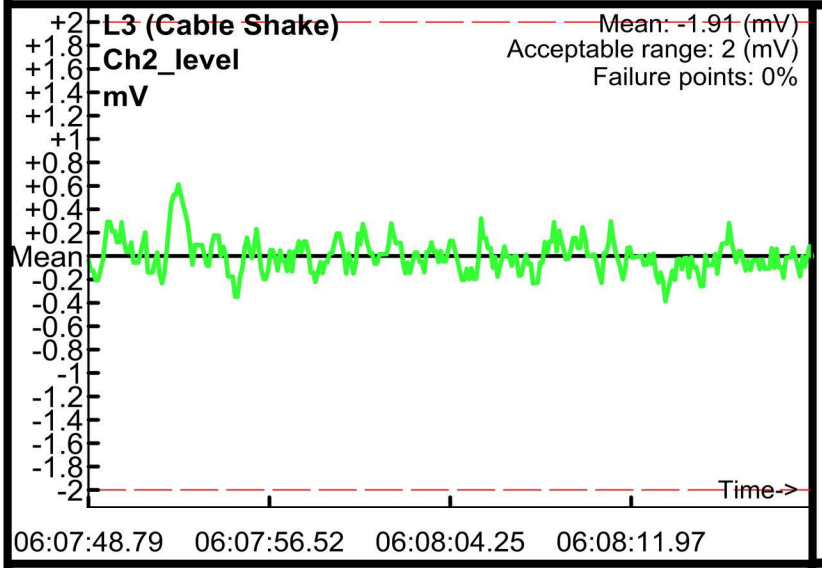
Database: q:\virginia office\ch2m hill\camp lejeune\cto-we54_uxo-22\Data\Geosoft\QC\091913\0919QC1.gdb
Line Name: L0 L1 L2

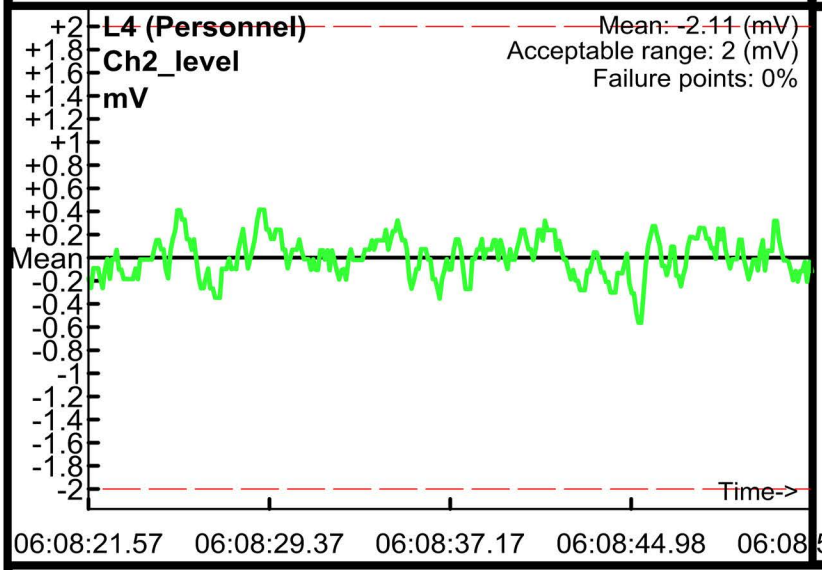
Cable Shake & Personnel Test

Project: UXO-22, Camp Lejeune, NC
Equipment: EM-61 Mark II
Grid/Location: Localized QC Area

Outside range
Acceptable limits

QC1 test
Operator: GeoA
Date: 09/19/2013





Database: .\0919QC1.gdb
Line Name: L3 L4 L4

Appendix D
GSV Report

Geophysical System Verification Report
UXO-22 – Former Munitions Disposal Area

Marine Corps Base Camp Lejeune
North Carolina

Contract Task Orders WE54

September 2015

Prepared for

Department of the Navy
Naval Facilities Engineering Command
Mid-Atlantic Division

Under the

NAVFAC CLEAN 8012 Program
Contract N62470-11-D-8012

Prepared by

14120 Ballantyne Corporate Pl, Suite 200
Charlotte, North Carolina

Geophysical System Verification

CH2M HILL implemented the Geophysical System Verification (GSV) process for the digital geophysical mapping (DGM) conducted for the site investigation at UXO-22, Former Munitions Disposal Area at Marine Corps Base Camp Lejeune and Marine Corps Air Station New River (Camp Lejeune) in North Carolina (**Figure 1**). The DGM was conducted in accordance with the project-specific GSV Plan (CH2M HILL, 2013b).

The GSV process compares signal strength and sensor performance to known response curves of industry standard objects (ISOs) to validate DGM systems before and during site surveys. Validation is initially performed along an Instrument Verification Strip (IVS), followed by a blind seeding program for continued validation throughout the duration of the site survey.

For the DGM at UXO-22, the Geonics, Ltd. EM61-MK2 was presumptively-selected and validated. Positioning data were recorded using real time kinematic global positioning system (RTK GPS) and fiducial methods at UXO-22. This report documents the results of the DGM system verification process for the investigation at UXO-22.

Section 1: Instrument Verification Strip (IVS) Location

On Tuesday, September 17, 2013, CH2M HILL's DGM subcontractor, NAEVA Geophysics, Inc., with support from the CH2M HILL field geophysicist, built an IVS at site UXO-22 and conducted validation surveys with the EM61-MK2 (**Figure 1)**. The IVS was constructed to support the GSV process for sites UXO-06 and UXO-22 (DGM was being performed consecutively during the same mobilization for these sites) and was built in accordance with the GSV Plans for both sites (CH2M HILL, 2013a, CH2M HILL, 2013b).

Two small ISOs were buried along the center transect of the IVS strip and the locations, along with the start and end location of each of the five lines comprising the IVS transects were surveyed using RTK GPS at the time of IVS construction. The locations, depths, and orientations of the test ISOs used in the IVS plot, as well as the start and end coordinates for the seeded IVS transect (Line-2), are provided in **Table 1**. Both seed items were identified within the IVS by pin flags, and the EM61-MK2 passed directly over the seeds during the IVS survey (**Figure 2**). An "as-built" map of the IVS is shown as **Figure 3**.

FIGURE 1
UXO-22 Location Map

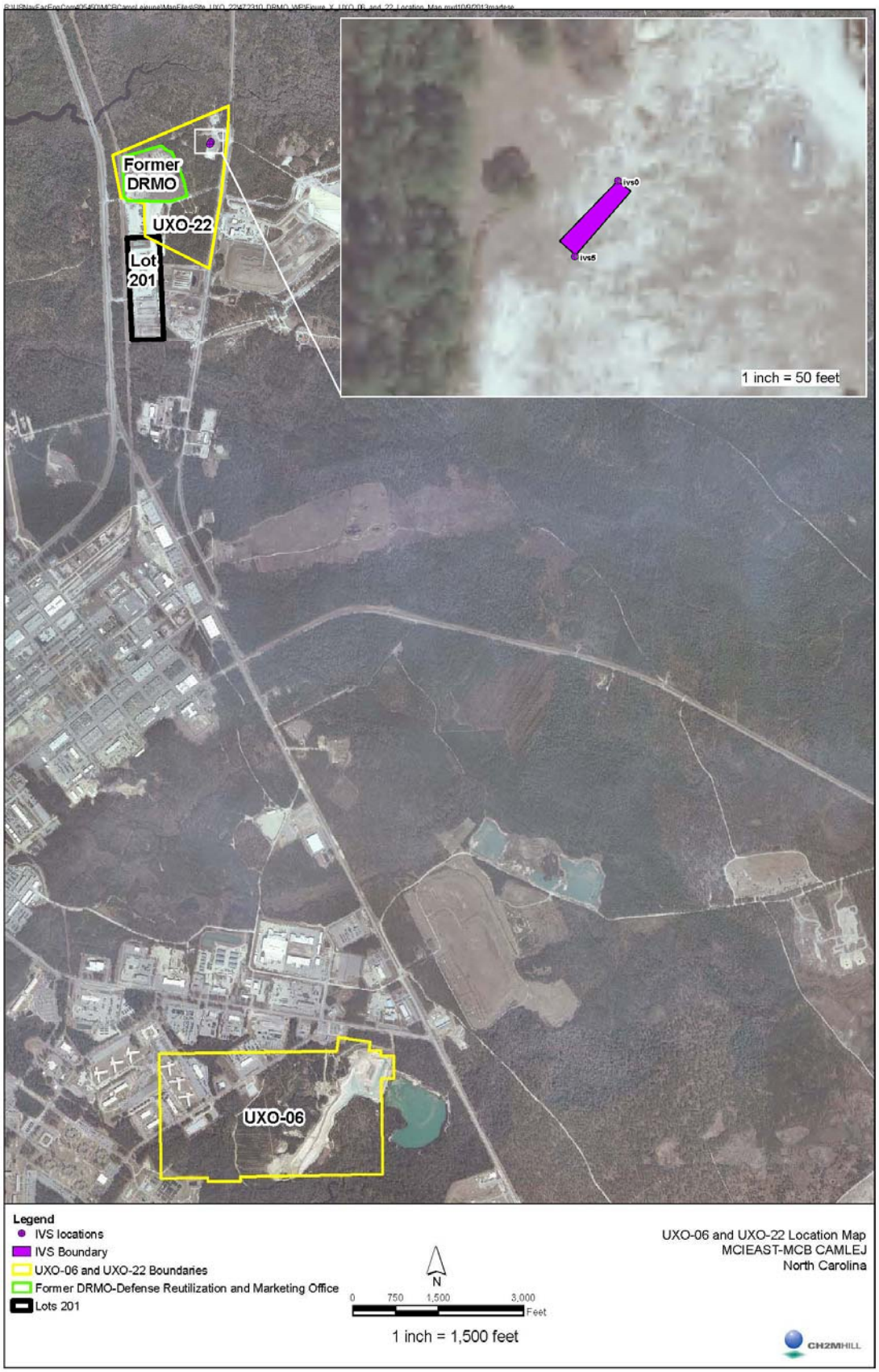


FIGURE 2
Photos of IVS Survey – Pin Flags Mark ISO and Line End Locations

TABLE 1
IVS Seeded Transect Details

Seeded Transect Point ID	Easting (meters)	Northing (meters)	ISO Orientation
Line 2_Start	287027.283	3841594.517	N/A
ISO 1	287030.554	3841598.355	V; 15.24 cm deep
ISO 2	287033.914	3841602.189	V; 17.78 cm deep*
Line 2_End	287037.112	3841605.768	N/A

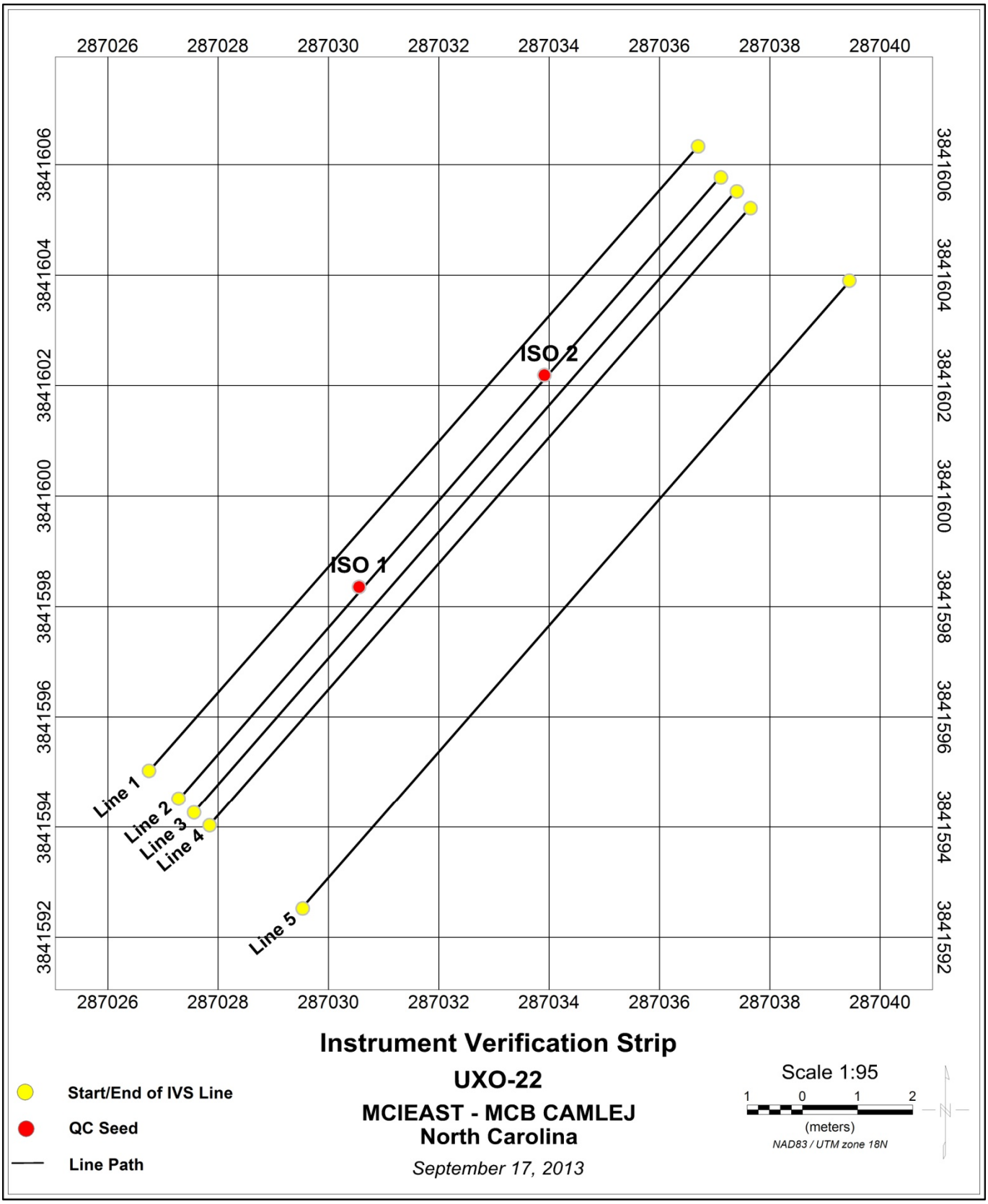
Notes:

Coordinates are North American Datum of 1983 (NAD83), Universal Transverse Mercator (UTM) Zone 18 North, meters

Depths reflect depth below ground surface (in centimeters [cm]) to approximate ISO center of mass; V = Vertical Orientation

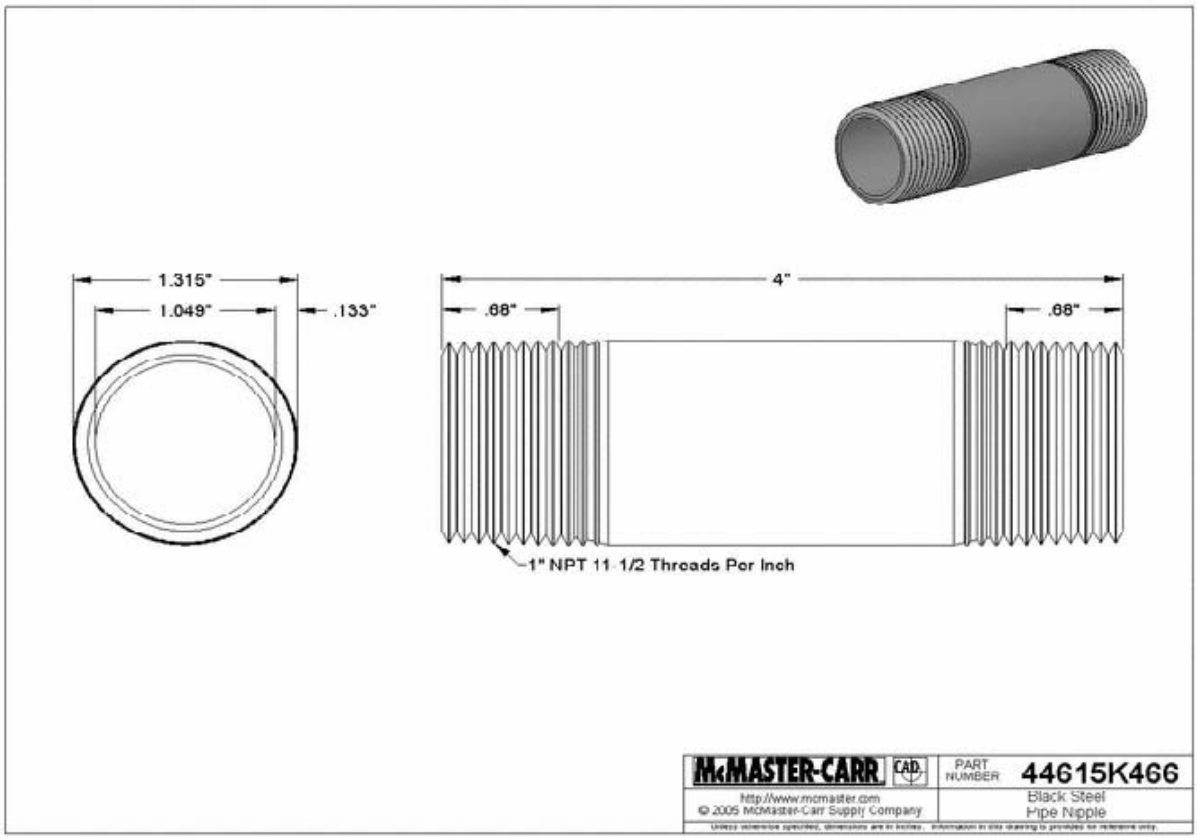
N/A = Not Applicable. *ISO 2 was initially buried at 15.4 cm, however, the depths of both items were measured on September 24th and ISO2 was discovered to be at 17.78 cm due to settling in soft sediment.

FIGURE 3
IVS As-Built Layout



The IVS plot measures approximately 15 meters x 15 meters (approximately 49 feet by 49 feet). The ISOs buried along the IVS center strip (Line 2) consisted of 1-inch (2.54 centimeters [cm]) by 4-inch (10.16 cm) Schedule 40 threaded pipe segments (McMaster-Carr part number 44615K466) (**Figure 4**). During installation of the ISOs at the IVS, CH2M HILL UXO personnel conducted Munitions and Explosives of Concern (MEC) avoidance at the ISO locations using analog geophysical instruments.

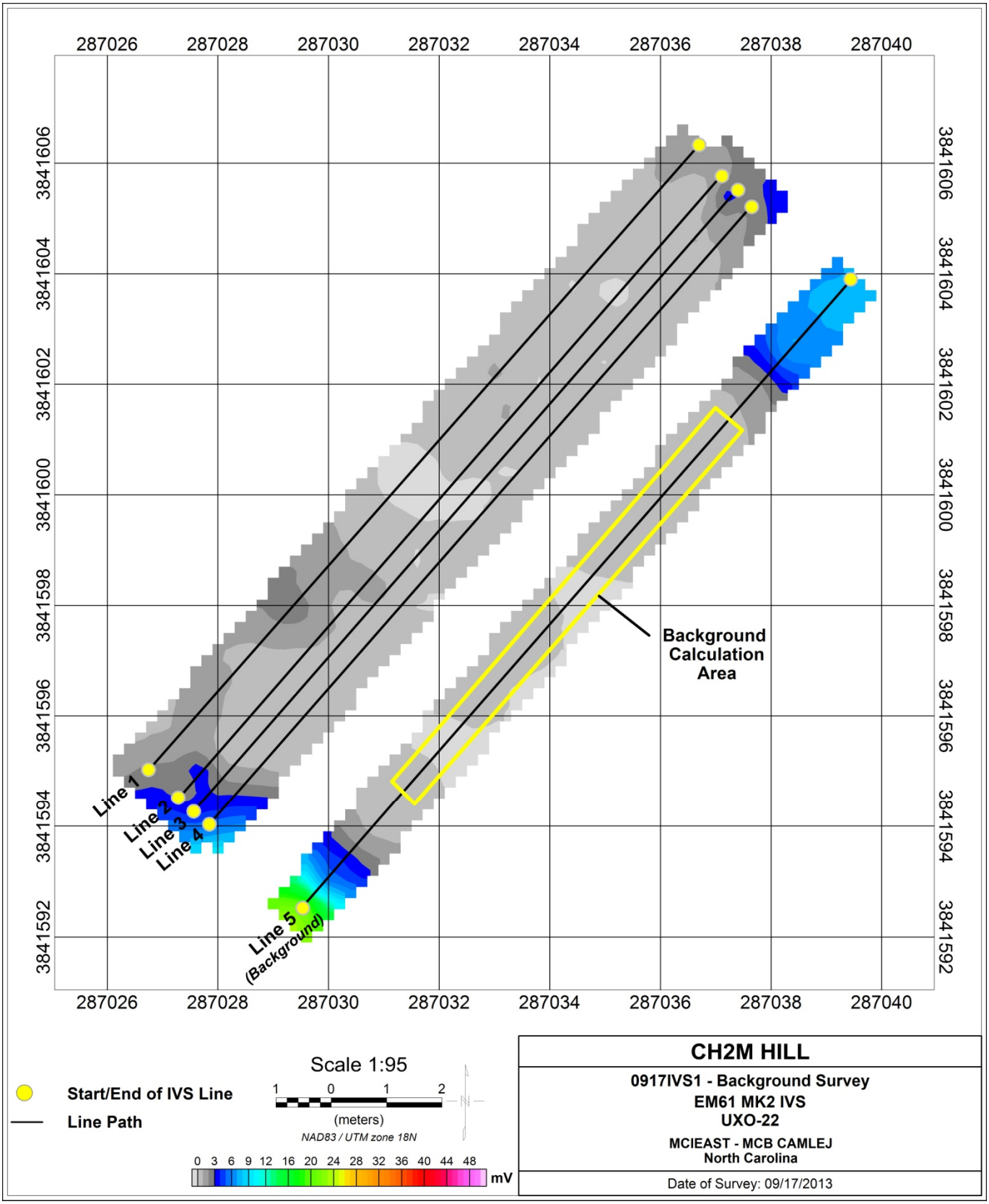
FIGURE 4
Small ISO



Section 2: Initial Background Surveys

Prior to constructing the IVS, an initial background survey with the EM61-MK2 was conducted. The objective of the background survey was to assess the suitability of the area for an IVS by evaluating background conditions and identifying potential anomalies to avoid during placement of the ISOs. **Figure 5** depicts the results of the background survey (September 17, 2013) at the UXO-22 IVS location. The background survey was completed using fiducial positioning methods, where the track path of the EM61-MK2 is depicted by the thin lines on **Figure 5**.

FIGURE 5
UXO-22 IVS Background Survey



The results of the background survey indicated suitable conditions for construction of an IVS. A small portion of the northeastern and southeastern corners of the survey area yielded responses above 3 mV on Channel 2 (the current Camp Lejeune program target selection threshold). A statistical analysis was conducted on the background data within the polygon displayed on Line 5 (**Figure 4)**. The mean Channel 2 response of the background data was 0.19 mV and the standard deviation 0.27 mV.

Section 3: IVS Measurement Quality Objectives

Table 2 summarizes the Measurement Quality Objectives (MQOs) for the IVS survey at UXO-22. These MQOs provide validation of the IVS field procedures and provide added confidence that the geophysical data are of continuing sufficient quality to meet the requirements of the GSV process. MQOs, Measurement Performance Criteria (MPC), and evaluation methods implemented for the GSV process are presented in **Table 2**.

TABLE 2
IVS MQOs and MPCs

MQO	MPC	Test Method During IVS
General System Verification		
DGM System Positioning. Accurate ISO location coordinates are obtained from kinematic (i.e. in-motion) DGM positioning systems.	Positional error of ISO seeds will not exceed 25 cm (9.8 in) relative to surveyed locations.	Results of IVS DGM survey versus IVS seed locations were evaluated for compliance.
DGM System Munitions Detection. DGM system response is within industry standards for decision.	Response to ISO will not vary more than ±20% from known response for specific distance from sensors in static test.	Results of IVS surveys over seed items in strip were qualitatively reviewed. Results of daily static tests described in GIP were quantitatively reviewed to ensure compliance.
Data Handling		
Data must be delivered in a timely manner and in a useable format.	IVS survey results are delivered within 24 hours of completion of survey. Final processed packages delivered within 3 days.	Evaluated based on actual delivery of data

[1] NRL/MR/6110--09-9183

Section 3: IVS Surveys

A 5-line IVS survey was conducted at the IVS on September 17, 2013 utilizing fiducial positioning methods to validate the approach and equipment employed for the UXO-22 DGM wooded transect surveys. The fiducial data were subsequently warped to NAD83, UTM Zone 18 North, meters. A second 5-line IVS survey was conducted on September 18, 2013 utilizing RTK GPS positioning methods to validate the approach and equipment employed for the UXO-22 DGM open transect survey. All data were collected in wheel mode with a coil height of 42 cm.

Seven additional QC 2-line IVS surveys were conducted at the IVS site over the seeded center line (Line 2) and the background line (Line 5) prior to and following daily DGM of the production survey areas at UXO-22. The approach and equipment for the 2-line IVS surveys was the same as that used for the 5-line IVS surveys.

As part of the QC program, a small ISO was placed on a wooden stand at 43 cm from the center of the bottom coil, and the response was recorded while the EM61-MK2 remained stationary to provide a quantitative measure of the system's response to the small ISO (**Figure 5**). This response was subsequently compared against the published responses (Naval Research Laboratory [NRL], 2009).

FIGURE 5
EM61-MK2 Spike Test Configuration

Section 4: IVS Results

The results of the 5-line IVS survey using fiducial positioning methods are presented as **Figure 6**, and the results of the 5-line IVS survey using RTK GPS positioning methods are presented as **Figure 7**. The results of the 2-line QC IVS surveys are presented as **Figure 8**. The peak responses selected during data processing are depicted as inverted triangles. The RTK GPS locations of the ISOs recorded at the time of emplacement are represented by the circles on Line 2 in each figure. Background response values are indicated by the grey contours and correspond to values of less than 3 mV on Channel 2. The yellow circles on each figure represent the start and end locations of each IVS transect shown.

Peak responses from the buried ISOs in the IVS may differ from the expected values because of variables that intrinsically inject error into the measurement, including the following:

- Depth measurement: if terrain is not completely flat around excavated holes, an average of the ground level must be determined in the field, resulting in differences of up to several centimeters
- Instrument path: while the instrument operator attempts to maintain a direct path over the seeded items, slight variation to either side can impact the measured response
- Measurement location: because the instrument records are at set measurement intervals, the actual measured response may not be directly over the item when it is at the measurement location used to predict the response curve
- Instrument "bounce": unless terrain is absolutely flat around the seeded item location, the transmit/receive coil can vary in height above the ground surface by several centimeters from the height used to predict the response curve

Because there is limited ability to control these error variables, the primary measure of the instrument response is the static test with the ISO at a controlled distance from the transmit/receive coil. The survey over the IVS seeds is a secondary measure and can be used to demonstrate kinematic (i.e. in-motion) detection of the ISOs, demonstrate appropriate fall-off of response from deeper items, measure representative background response, and demonstrate positioning system accuracy under kinematic conditions.

Raw IVS data were posted to the project file transfer protocol (FTP) site and transferred to the CH2M HILL QC geophysicist at the end of the work day. Final processed data packages were delivered within 3 days of the survey's completion.

FIGURE 6
UXO-22 5-Line IVS Results from 09/17/2013 – Fiducial Positioning with EM61-MK2 Deployed in Wheel Mode

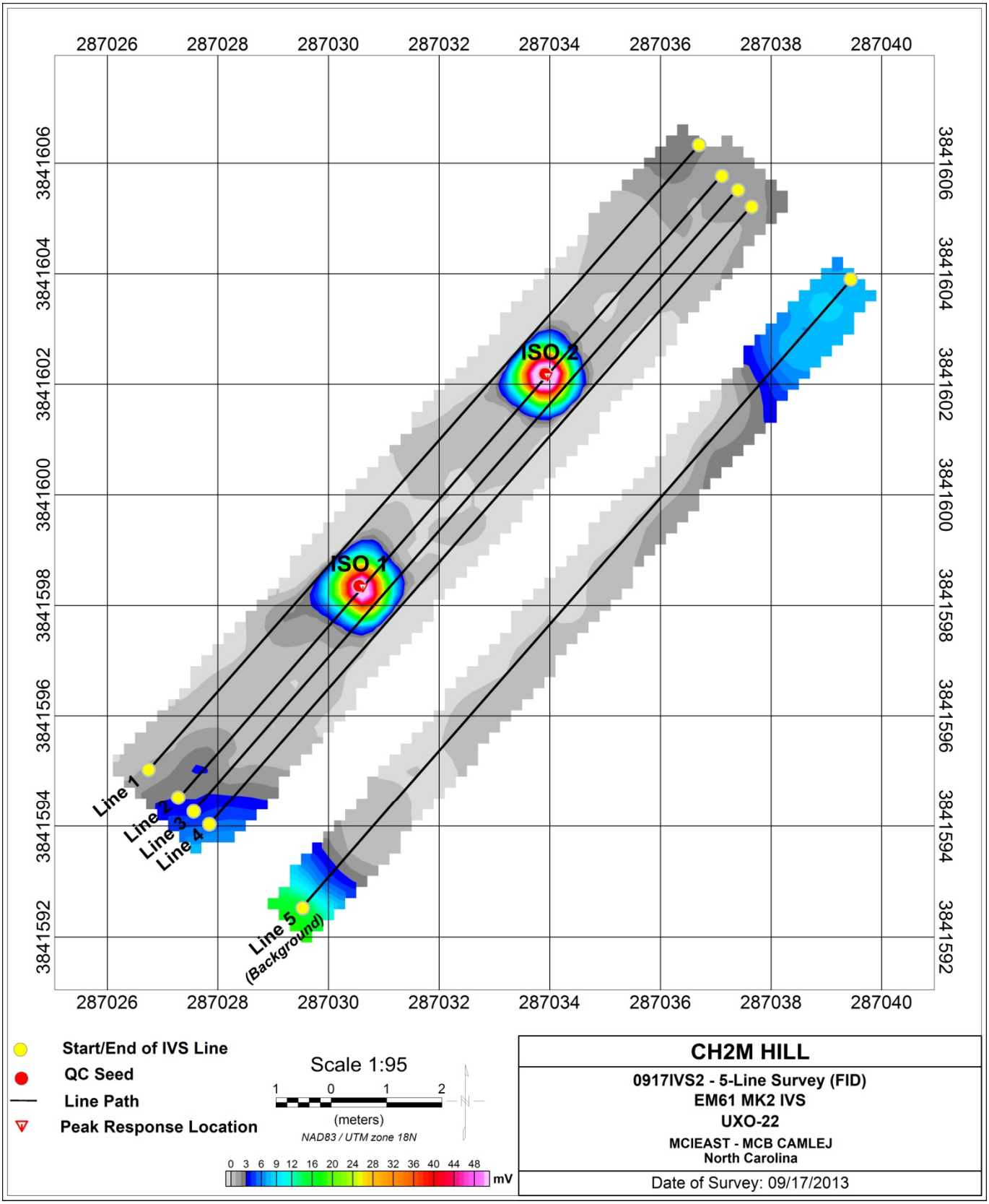


FIGURE 7
UXO-22 5-Line IVS Results from 09/18/2013 – RTK GPS Positioning with EM61-MK2 Deployed in Wheel Mode

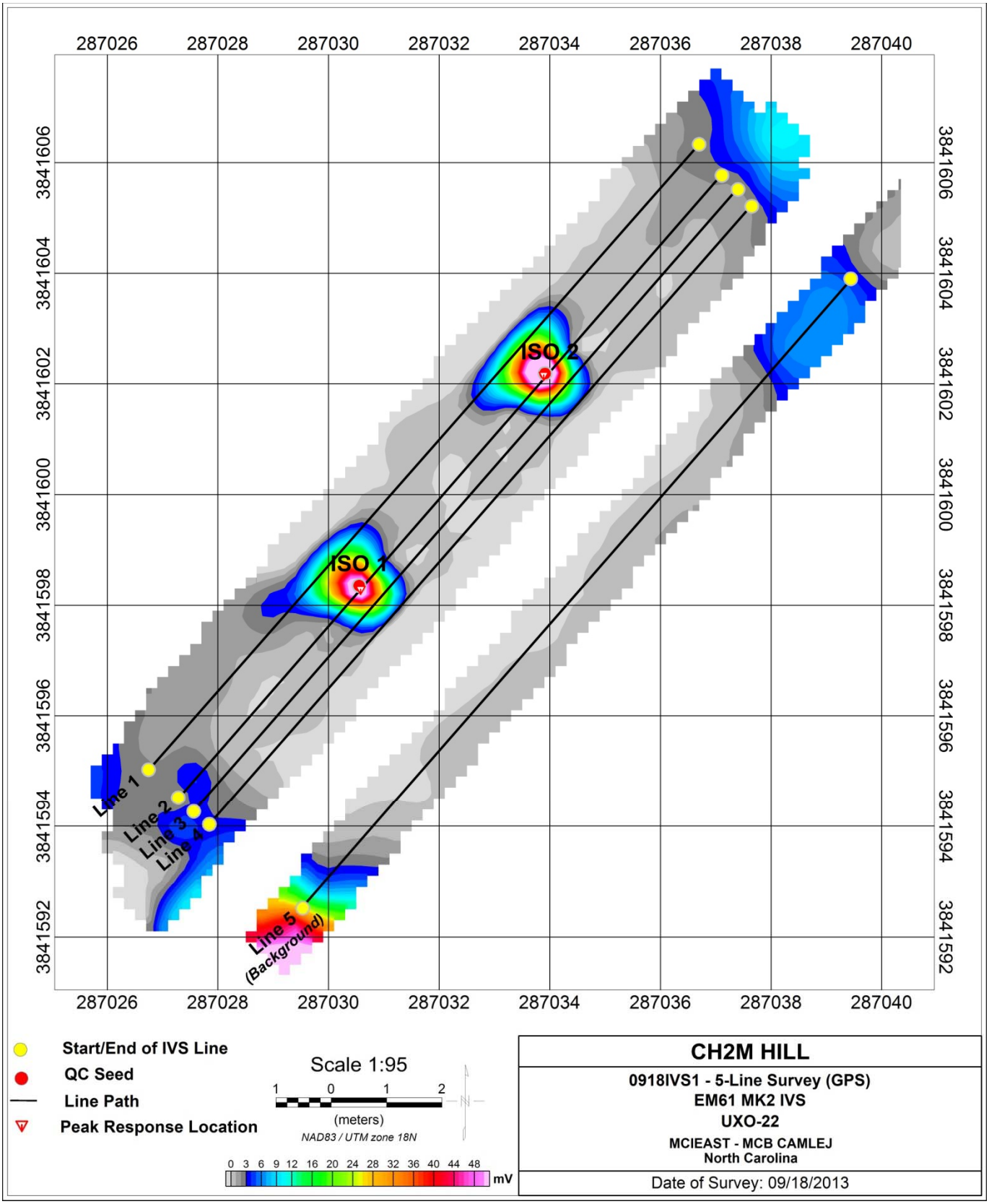
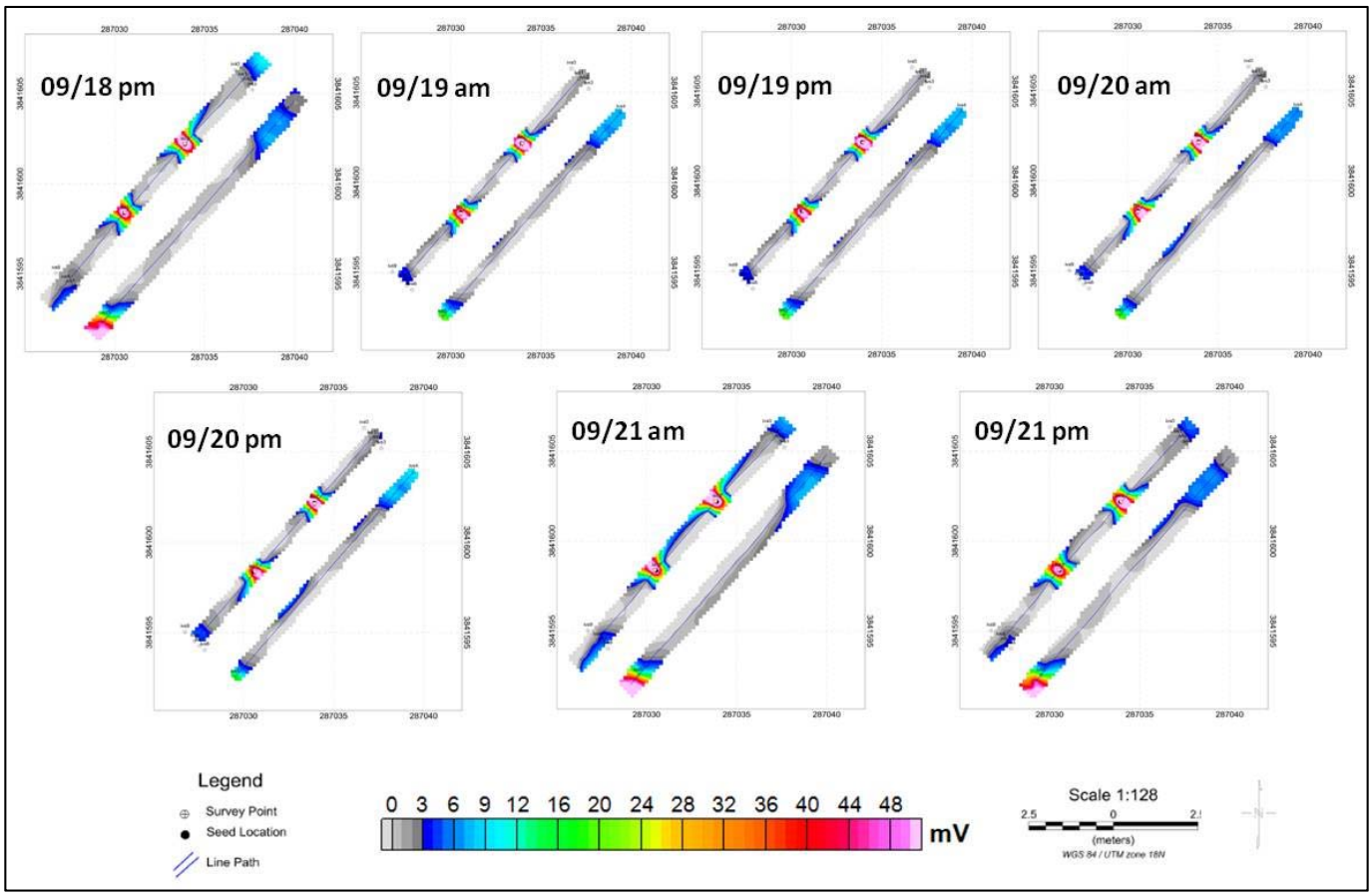


FIGURE 8
UXO-22 2-Line QC IVS Results – EM61-MK2 Deployed in Wheel Mode



The results of the 5-line IVS surveys shown in **Figure 6** and **Figure 7** and the 2-line QC IVS surveys shown in **Figure 8** indicate that the background responses were relatively low and consistent with the background survey results. A statistical analysis of the background response within the polygon on Line 5 (background line) for the 5-line and 2-line surveys, where applicable, is presented as **Table 3**.

The buried ISOs were successfully detected by the EM61-MK2 system and selected as targets during data processing. The DGM System Positioning MQO (±25 cm) was met for the IVS surveys, as presented in **Table 5**.

TABLE 3
UXO-22 IVS Statistical Analysis of Background Response

Date	Survey Type	File Name	Mean Background (mV)	Standard Deviation
9/17/2013	5-line	0917IVS2	0.30	0.41
9/18/2013	5-line	0918IVS1	0.27	0.36
9/18/2013	2-line	0918IVS2	0.27	0.34
9/19/2013	2-line	0919IVS1	0.31	0.40
9/19/2013	2-line	0919IVS2	0.34	0.46
9/20/2013	2-line	0920IVS1	0.33	0.47
9/20/2013	2-line	0920IVS2	0.57	0.69
9/21/2013	2-line	0921IVS1	0.22	0.24
9/21/2013	2-line	0921IVS2	0.26	0.38

Notes:

Coordinates are NAD83, UTM Zone 18N, meters
Offsets measured relative to ISO 1 and ISO 2 coordinates in Table 1.

TABLE 5
UXO-22 IVS ISO Positional Offsets

Date	Survey Type	File Name	ISO 1 Easting (meters)	ISO 1 Northing (meters)	ISO 1 Offset (centimeters)	ISO 2 Easting (meters)	ISO 2 Northing (meters)	ISO 2 Offset (centimeters)
09/17/2013	5-line	0917IVS2	287030.62	3841598.34	0.07	287033.96	3841602.16	0.05
09/18/2013	5-line	0917IVS2	287030.58	3841598.29	0.07	287033.89	3841602.16	0.04
09/18/2013	2-line	0918IVS1	287030.58	3841598.40	0.05	287033.90	3841602.21	0.03
09/19/2013	2-line	0919IVS1	287030.56	3841598.27	0.09	287033.96	3841602.16	0.06
09/19/2013	2-line	0919IVS2	287030.62	3841598.34	0.07	287033.96	3841602.16	0.05
09/20/2013	2-line	0920IVS1	287030.58	3841598.29	0.07	287033.94	3841602.14	0.06
09/20/2013	2-line	0920IVS2	287030.64	3841598.36	0.09	287033.94	3841602.14	0.06
09/21/2013	2-line	0921IVS1	287030.46	3841598.38	0.10	287033.84	3841602.20	0.07
09/21/2013	2-line	0921IVS2	287030.53	3841598.40	0.05	287033.98	3841602.19	0.07

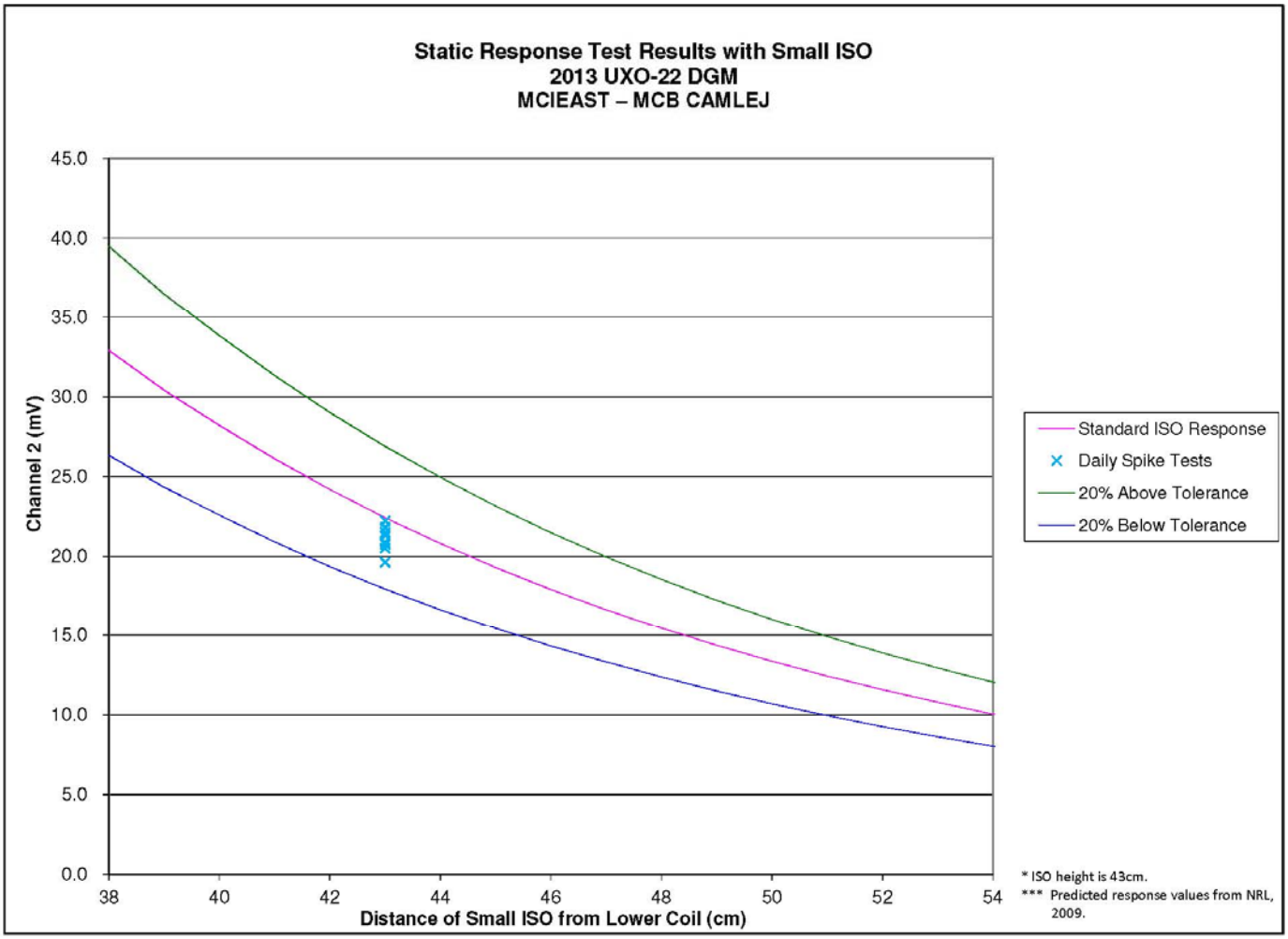
Notes:

Coordinates are NAD83, UTM Zone 18N, meters
Offsets measured relative to ISO 1 and ISO 2 coordinates in Table 1.

The results of the ISO response analysis for the 5-line IVS and 2-line QC IVS surveys indicate that the EM61-MK2 system adequately detected the items above background levels and exhibited overall good correlation with expected values for a kinematic system.

The results of the static ISO tests from September 17 to September 21, 2013 are presented as **Figure 9**. The results of the static spike tests are within the ±20% range of the expected response, thereby meeting the MQO. The average Channel 2 response for the static tests from September 17 to September 21, 2013 was 21.0 mV compared to a predicted Channel 2 response of 24.2 mV for a horizontal ISO (orientation on wooden stand) at a height of 43 cm. The standard deviation of the responses from the static tests was 0.9 mV.

FIGURE 9
ISO Static Test Results UXO-22 (09/17/2013 – 09/21/2013)



Section 5: Geophysical Anomaly Selection

The results of the background, 5-line, and 2-line QC IVS surveys conducted at the UXO-22 IVS indicate that the established Camp Lejeune target threshold of 3 mV on Channel 2 can be utilized for selection of targets in EM61-MK2 data collected at UXO-22. Further validation of the EM61-MK2 system was demonstrated by the comparable results in background response between the 5-line and 2-line QC IVS surveys and the background survey.

Section 7: Blind Seed Program

As a continuation of the GSV process and on-going verification of the EM61-MK2 system operation, nine small ISOs at UXO-22 were used as blind seeds and buried at a depth of approximately 10 cm (6 in) along the DGM

transects so that a blind seed was emplaced for approximately every 13,124 linear feet (4,000 linear meters) of transect. The locations of the QC seed items were known only to CH2M HILL QC personnel.

All blind seeds emplaced along DGM production transects were successfully detected by the EM61-MK2 within a 1-meter radius of their surveyed locations (not to be confused with the MQO of 0.25 m for seeds emplaced in the IVS), and were successfully selected as targets of interest for intrusive investigation.

Section 7: IVS Conclusions

CH2M HILL performed two 5-line IVS surveys utilizing fiducial positioning methods on September 17, 2013 as part of the GSV process in support of the DGM investigation of the wooded portion of UXO-22, and a 5-line IVS survey utilizing RTK GPS positioning methods on September 18, 2013 in support of the investigation of the open areas of UXO-22, at Camp Lejeune. The EM61-MK2 system used for this investigation was successfully validated and was determined to be capable of meeting the investigation objective and project MQOs. All blind QC seed items emplaced at the UXO-22 survey area were identified during the DGM survey and selected as target anomalies.

Section 8: References

CH2M HILL, 2013a. *Site-Specific Work Plan Addendum for Remedial Investigation at Site UXO-06, Former Fortified Beach Assault Area (ASR #2.65), Marine Corps Base Camp Lejeune, Jacksonville, North Carolina*. June.

CH2M HILL, 2013b. *Geophysical Investigation Plan UXO-22 – Former Munitions Disposal Area, Marine Corps Base Camp Lejeune, Jacksonville, North Carolina*. August.

Naval Research Laboratory, 2009. *EM61-MK2 Response of Three Surrogates, NRL/MR/6110-09-9183*. March.

Appendix E
MEC Intrusive Investigation Results

Table E-1

MEC Intrusive Investigation Results

Site UXO-22 Expanded SI Report

Camp Lejeune, North Carolina

Anomaly ID	Amplitude	Easting	Northing	Group	Class	Category	Type	Description	Quantity	Depth	Weight	ADPit	Action	DemoReq	Item Comment
A-00027	67.345	287106.771	3841603.631	Cultural Debris	Scrap	rebar, pipe	N/A	N/A	2	6	51		Scrap Bin	None	
AA-00048	34.048	286892.263	3841566.629	Cultural Debris	Scrap	rebar	N/A	N/A	1	12	3		Scrap Bin	None	
AA-00061	51.871	286888.238	3841598.82	Cultural Debris	Scrap	rebar, steel rod	N/A	N/A	2	36	10		Scrap Bin	None	
AB-00029	43.8	286882.652	3841529.943	Cultural Debris	Scrap	steel	N/A	N/A	3	10	2		Scrap Bin	None	
AB-00037	448.241	286882.809	3841545.22	MPPEH	Projectile	Projectile, 105mm, casing only	None (empty)	Unfuzed	1	8	2		Consolidation Point	Demil	
AB-00051	106.356	286877.722	3841583.19	Cultural Debris	Scrap	metal	N/A	N/A	3	10	2		Scrap Bin	None	
AB-00061	8.799	286880.94	3841610.32	Cultural Debris	Scrap	metal stake	N/A	N/A	3	36	1		Scrap Bin	None	
AC-00021	17.038	286874.502	3841528.87	Cultural Debris	Scrap	wire	N/A	N/A	2	10	0.25		Scrap Bin	None	
AC-00026	169.443	286874.016	3841544.899	Cultural Debris	Scrap	reinforced concrete	N/A	N/A	1	10	10		Left in Place	None	
AD-00001	32.721	286871.86	3841504.343	Cultural Debris	Scrap	spike	N/A	N/A	1	10	5		Scrap Bin	None	
AD-00014	168.045	286867.461	3841546.561	Cultural Debris	Scrap	metal	N/A	N/A	3	10	10		Scrap Bin	None	
AD-00017	249.52	286865.499	3841553.646	Cultural Debris	Scrap	metal	N/A	N/A	4	36	80		Scrap Bin	None	
AD-00027	14.71	286859.044	3841582.093	Cultural Debris	Scrap	aluminum	N/A	N/A	4	12	0.2		Scrap Bin	None	
AE-00010	56.169	286858.163	3841499.308	Cultural Debris	Scrap	bolt, nails	N/A	N/A	2	10	0.5		Scrap Bin	None	
AE-00015	7092.003	286859.495	3841511.977	Cultural Debris	Scrap	comm wire spools	N/A	N/A	4	24	0		Left in Place	None	
AE-00017	2053.247	286860	3841516.776	Cultural Debris	Scrap	PSP matting	N/A	N/A	1	6	50		Scrap Bin	None	
AE-00037	333.967	286852.22	3841567.532	Cultural Debris	Scrap	Pipe	N/A	N/A	5	36	20		Scrap Bin	None	
AE-00041	42.624	286851.684	3841575.101	Cultural Debris	Scrap	brass, tires	N/A	N/A	1	36	0.5		Scrap Bin	None	
AE-00045	32.503	286851.343	3841582.72	Cultural Debris	Scrap	metal, spikes	N/A	N/A	1	36	1		Scrap Bin	None	
AE-00049	5.553	286853.051	3841589.17	Cultural Debris	Scrap	bolt	N/A	N/A	1	8	0.1		Scrap Bin	None	
AF-00014	62.287	286854.264	3841536.304	Cultural Debris	Scrap	metal	N/A	N/A	6	10	5		Scrap Bin	None	
AF-00018	7.084	286847.022	3841587.754	Cultural Debris	Scrap	tires	N/A	N/A	1	12	0.5		Scrap Bin	None	
AF-00020	11.061	286846.843	3841597.101	Cultural Debris	Scrap	steel	N/A	N/A	1	36	1		Scrap Bin	None	
AH-00002	4.349	286834.771	3841580.539	Cultural Debris	Scrap	metal, bolt	N/A	N/A	1	18	0.25		Scrap Bin	None	
AH-00003	17.489	286834.18	3841581.79	Cultural Debris	Scrap	metal	N/A	N/A	1	36	0.25		Scrap Bin	None	
AI-00005	5324.049	286820.918	3841551.005	MPPEH	Projectile	Projectile, 105mm, casing only	None (empty)	Unfuzed	1	10	3	Y	Consolidation Point	Demil	
AI-00013	8382.953	286799.873	3841560.048	Cultural Debris	vault	vault	N/A	N/A	1	24	0		Left in Place	None	
AI-00016	3.94	286792.626	3841567.723	Cultural Debris	Scrap	bolt	N/A	N/A	1	8	0.5		Scrap Bin	None	
B-00001	20.523	287093.731	3841498.172	Cultural Debris	Scrap	rebar	N/A	N/A	1	8	1		Scrap Bin	None	
B-00007	4.936	287091.694	3841519.969	Cultural Debris	Scrap	scrap metal	N/A	N/A	1	3	0.2		Scrap Bin	None	
B-00008	7.555	287091.474	3841522.707	Cultural Debris	Scrap	bolt	N/A	N/A	1	10	0.2		Scrap Bin	None	
B-00009	3.217	287090.928	3841526.963	Cultural Debris	Scrap	bolt	N/A	N/A	1	3	0.2		Scrap Bin	None	
B-00012	4.401	287090.762	3841538.988	Cultural Debris	Scrap	metal	N/A	N/A	1	3	0.2		Scrap Bin	None	
B-00015	9.385	287086.93	3841560.772	Cultural Debris	Scrap	wire	N/A	N/A	2	2	0.2		Scrap Bin	None	
B-00017	6.048	287086.4	3841565.47	MPPEH	Projectile	Projectile, 105mm, casing only	None (empty)	Unfuzed	1	12	5		Consolidation Point	Demil	
B-00020	106.831	287087.91	3841584.087	Cultural Debris	Scrap	rebar, wire	N/A	N/A	2	10	2		Scrap Bin	None	
B-00021	32.856	287088.457	3841586.906	Cultural Debris	Scrap	rebar	N/A	N/A	1	10	3		Scrap Bin	None	
BA-00017	51.755	286612.471	3841540.524	MPPEH	Projectile	Projectile, 105mm, casing only	None (empty)	Unfuzed	1	18	5		Consolidation Point	Demil	
BA-00024	24.129	286624.41	3841543.509	Cultural Debris	Scrap	rebar	N/A	N/A	1	2	10		Scrap Bin	None	
BA-00032	42.08	286643.527	3841548.574	Cultural Debris	Scrap	metal	N/A	N/A	2	6	1		Scrap Bin	None	
BA-00047	440.754	286683.827	3841561.355	MPPEH	Projectile	Projectile, 105mm, casing only	None (empty)	Unfuzed	2	0	10		Consolidation Point	Demil	
BA-00054	385.59	286708.338	3841567.446	Cultural Debris	Scrap	fence post	N/A	N/A	1	0	10		Scrap Bin	None	
BA-00059	26.603	286725.185	3841572.906	Cultural Debris	Scrap	metal	N/A	N/A	4	6	10		Scrap Bin	None	
BA-00065	140.168	286738.671	3841576.934	Cultural Debris	Scrap	metal	N/A	N/A	2	6	0.5		Scrap Bin	None	
BB-00012	276.822	286598.852	3841545.753	MPPEH	Grenade	Grenade, 40mm, casing only	None (empty)	Unfuzed	1	4	2		Consolidation Point	Demil	
BB-00016	37.697	286610.211	3841548.454	Cultural Debris	Scrap	metal	N/A	N/A	1	4	1		Scrap Bin	None	
BB-00058	13.443	286730.412	3841580.351	Cultural Debris	Scrap	bolt	N/A	N/A	1	12	1		Scrap Bin	None	
BC-00001	32.333	286562.829	3841541.161	Cultural Debris	Scrap	sheet metal	N/A	N/A	1	10	1		Scrap Bin	None	
BC-00005	18.29	286571.811	3841544.443	MPPEH	Other	M1 clips	None (empty)	Unfuzed	10	6	1	Y	Consolidation Point	Demil	
BC-00008	859.301	286580.334	3841547.558	Cultural Debris	Scrap	pipe	N/A	N/A	1	0	2		Scrap Bin	None	
BC-00018	3.852	286605.977	3841554.079	Cultural Debris	Scrap	pipe	N/A	N/A	1	6	0.5		Scrap Bin	None	
BC-00027	9.809	286645.646	3841566.889	Cultural Debris	Scrap	sheet metal	N/A	N/A	1	6	1		Scrap Bin	None	
BC-00043	4.228	286700.134	3841577.936	Cultural Debris	Scrap	sheet metal	N/A	N/A	1	2	0.2		Scrap Bin	None	
BC-00053	11.426	286725.715	3841587.245	MPPEH	Grenade	Grenade, 40mm, casing only	None (empty)	Unfuzed	1	2	0.5		Consolidation Point	Demil	
BD-00006	41.56	286568.072	3841552.198	MPPEH	Other	M1 clips	None (empty)	Unfuzed	10	2	1	Y	Consolidation Point	Demil	
BD-00009	51.696	286570.913	3841555.859	Cultural Debris	Scrap	metal	N/A	N/A	3	6	2		Scrap Bin	None	
BD-00016	7.704	286588.448	3841560.922	Cultural Debris	Scrap	metal	N/A	N/A	1	0	0.5		Scrap Bin	None	
BD-00018	58.051	286592.768	3841562.288	Cultural Debris	Scrap	metal	N/A	N/A	2	2	2		Scrap Bin	None	
BD-00022	4.561	286607.46	3841569.22	Cultural Debris	Scrap	steel	N/A	N/A	1	2	0.25		Scrap Bin	None	
BD-00023	11.385	286624.666	3841576.605	Cultural Debris	Scrap	aluminum	N/A	N/A	1	2	0.2		Scrap Bin	None	
BD-00025	30.82	286638.682	3841581.09	Cultural Debris	Scrap	drum lid	N/A	N/A	1	1	5		Scrap Bin	None	

Table E-1

MEC Intrusive Investigation Results

Site UXO-22 Expanded SI Report

Camp Lejeune, North Carolina

Anomaly ID	Amplitude	Easting	Northing	Group	Class	Category	Type	Description	Quantity	Depth	Weight	ADPit	Action	DemoReq	Item Comment
BD-00028	5.951	286666.532	3841589.088	Cultural Debris	Scrap	can	N/A	N/A	1	2	0.2		Scrap Bin	None	
BD-00035	340.723	286696.135	3841591.138	Cultural Debris	Scrap	sheet metal	N/A	N/A	1	6	2		Scrap Bin	None	
BD-00038	138.161	286701.074	3841592.616	Cultural Debris	Scrap	Pipe	N/A	N/A	1	2	2		Scrap Bin	None	
BD-00056	90.053	286742.815	3841603.847	QC	QC	QC Seed	N/A	N/A	1	6	1		Consolidation Point	None	Seed #02
BE-00003	26.025	286653.749	3841590.864	Cultural Debris	Scrap	cylindar	N/A	N/A	1	1	1		Scrap Bin	None	
BE-00007	105.027	286682.781	3841595.911	Cultural Debris	Scrap	spike	N/A	N/A	2	6	1		Scrap Bin	None	
BE-00008	168.649	286684.393	3841596.177	Cultural Debris	Scrap	spike	N/A	N/A	4	2	10		Scrap Bin	None	
C-00026	7.269	287079.774	3841523.811	Cultural Debris	Scrap	pipe	N/A	N/A	1	3	0.5		Scrap Bin	None	
C-00035	3.625	287083.533	3841563.124	Cultural Debris	Scrap	nail	N/A	N/A	1	1	0.2		Scrap Bin	None	
C-00036	7.5	287083.545	3841566.769	Cultural Debris	Scrap	wire	N/A	N/A	1	2	0.2		Scrap Bin	None	
C-00037	5.582	287083.555	3841569.838	Cultural Debris	Scrap	metal	N/A	N/A	1	0	0.2		Scrap Bin	None	
C-00040	42.974	287084.261	3841590.411	Cultural Debris	Scrap	rebar	N/A	N/A	1	6	1		Scrap Bin	None	
C-00043	77.333	287085.434	3841604.524	Cultural Debris	Scrap	rebar	N/A	N/A	1	6	2		Scrap Bin	None	
CA-00018	74.967	286808.116	3841596.058	Cultural Debris	Scrap	vehicle parts	N/A	N/A	1	0	1		Scrap Bin	None	
CB-00020	5.761	286872.822	3841626.367	Cultural Debris	Scrap	metal	N/A	N/A	2	2	0.2		Scrap Bin	None	
CB-00042	12.167	286932.905	3841638.247	Cultural Debris	Scrap	metal	N/A	N/A	2	3	0.5		Scrap Bin	None	
CC-00014	20.862	286840.92	3841620.742	Cultural Debris	Scrap	metal	N/A	N/A	3	3	0.25		Scrap Bin	None	
CC-00023	9.894	286869.299	3841636.191	Cultural Debris	Scrap	spike	N/A	N/A	1	6	1		Scrap Bin	None	
CC-00026	19.351	286877.832	3841637.571	Cultural Debris	Scrap	metal	N/A	N/A	2	2	2		Scrap Bin	None	
CC-00032	80.966	286889.59	3841638.532	QC	QC	QC Seed	N/A	N/A	1	6	1		Consolidation Point	None	Seed #01
CD-00024	13.449	286864.258	3841642.827	Cultural Debris	Scrap	metal	N/A	N/A	2	3	0.5		Scrap Bin	None	
CD-00041	4.692	286921.872	3841647.042	Cultural Debris	Scrap	spring	N/A	N/A	2	6	0.5		Scrap Bin	None	
CD-00051	87.011	286951.867	3841662.403	Cultural Debris	Scrap	rebar, banding	N/A	N/A	2	0	3		Scrap Bin	None	
CD-00070	115.788	287036.154	3841693.153	Cultural Debris	Scrap	rebar, nail	N/A	N/A	3	6	1		Scrap Bin	None	
CD-00072	24.703	287038.759	3841692.631	Cultural Debris	Scrap	bolt, nails	N/A	N/A	3	6	0.25		Scrap Bin	None	
CE-00004	654.961	286921.861	3841653.122	Cultural Debris	Scrap	metal, banding	N/A	N/A	5	3	1		Scrap Bin	None	
CE-00022	157.573	287024.962	3841708.398	Cultural Debris	Scrap	concrete with rebar	N/A	N/A	1	24	0		Left in Place	None	
CF-00001	62.298	286789.181	3841617.15	Cultural Debris	Scrap	rebar	N/A	N/A	1	6	1		Scrap Bin	None	
CF-00002	22.708	286789.774	3841618.131	Cultural Debris	Scrap	scrap metal	N/A	N/A	1	2	0.5		Scrap Bin	None	
CF-00004	68.512	286791.65	3841621.238	Cultural Debris	Scrap	rebar	N/A	N/A	1	6	1		Scrap Bin	None	
CF-00019	32.404	286864.401	3841647.249	Cultural Debris	Scrap	scrap metal	N/A	N/A	2	6	0.2		Scrap Bin	None	
CF-00027	9.806	286942.95	3841671.133	Cultural Debris	Scrap	vehicle parts	N/A	N/A	1	24	2		Scrap Bin	None	
CF-00031	5.149	286955.019	3841675.834	Cultural Debris	Scrap	aluminum	N/A	N/A	1	0	0.1		Scrap Bin	None	
CF-00035	9.278	286986.207	3841693.415	Cultural Debris	Scrap	wire	N/A	N/A	1	10	1		Scrap Bin	None	
CG-00003	5.479	286892.587	3841661.723	Cultural Debris	Scrap	wire	N/A	N/A	2	3	0.2		Scrap Bin	None	
CG-00004	11.92	286899.679	3841667.226	Cultural Debris	Scrap	aluminum	N/A	N/A	1	0	0.2		Scrap Bin	None	
CG-00012	6.676	286952.91	3841691.81	Cultural Debris	Scrap	wire	N/A	N/A	1	3	0.1		Scrap Bin	None	
CG-00014	14.777	286974.312	3841701.923	Cultural Debris	Scrap	wire	N/A	N/A	2	6	0.2		Scrap Bin	None	
CH-00015	40.094	286818.635	3841643.983	Cultural Debris	Scrap	banding	N/A	N/A	3	6	1		Scrap Bin	None	
CH-00017	165.249	286822.187	3841647.273	Cultural Debris	Scrap	rebar	N/A	N/A	4	6	5		Scrap Bin	None	
CH-00018	64.758	286823.212	3841648.222	Cultural Debris	Scrap	rebar, scrap metal	N/A	N/A	3	10	5		Scrap Bin	None	
CH-00021	199.689	286839.684	3841652.929	Cultural Debris	Scrap	Pipe	N/A	N/A	1	2	10		Scrap Bin	None	
CH-00022	86.981	286841.364	3841654.002	Cultural Debris	Scrap	aluminum	N/A	N/A	2	6	2		Scrap Bin	None	
CH-00023	24.659	286842.373	3841654.645	Cultural Debris	Scrap	rebar	N/A	N/A	1	8	2		Scrap Bin	None	
CH-00028	91.061	286888.994	3841672.334	Cultural Debris	Scrap	banding	N/A	N/A	4	6	1		Scrap Bin	None	
CH-00029	55.237	286891.658	3841673.119	Cultural Debris	Scrap	banding	N/A	N/A	6	6	1		Scrap Bin	None	
CH-00032	5.765	286897.079	3841674.716	Battery	Battery Pit	N/A	N/A	N/A	2	6	0.5		Left in Place	None	
CH-00037	3.543	286925.139	3841685.984	Cultural Debris	Scrap	nail	N/A	N/A	2	3	0.2		Scrap Bin	None	
CH-00041	5.103	286943.765	3841693.276	Cultural Debris	Scrap	wire	N/A	N/A	1	6	0.2		Scrap Bin	None	
CH-00042	34.854	286949.122	3841697.63	Cultural Debris	Scrap	wire, spike	N/A	N/A	2	6	1		Scrap Bin	None	
CH-00044	74.194	286972.376	3841709.005	Cultural Debris	Scrap	wire	N/A	N/A	4	6	0.1		Scrap Bin	None	
CH-00045	4.329	286977.844	3841709.432	Cultural Debris	Scrap	nail	N/A	N/A	2	6	0.2		Scrap Bin	None	
CI-00005	73.059	286773.578	3841633.378	Cultural Debris	Scrap	metal	N/A	N/A	5	36	10		Scrap Bin	None	
CI-00010	175.271	286787.02	3841637.475	Cultural Debris	Scrap	metal rod	N/A	N/A	4	10	6		Scrap Bin	None	
CI-00022	13.492	286827.565	3841655.696	Cultural Debris	Scrap	metal	N/A	N/A	1	0	0.2		Scrap Bin	None	
CI-00033	37.668	286932.413	3841695.913	Cultural Debris	Scrap	wire	N/A	N/A	3	12	0.5		Scrap Bin	None	
CI-00034	17.298	286933.531	3841696.656	Cultural Debris	Scrap	wire	N/A	N/A	1	3	0.2		Scrap Bin	None	
CI-00040	15.009	286981.108	3841714.193	Cultural Debris	Scrap	barbed wire	N/A	N/A	4	6	0.25		Scrap Bin	None	
CI-00042	50.626	286984.39	3841715.169	Cultural Debris	Scrap	barbed wire	N/A	N/A	6	6	1		Scrap Bin	None	
CI-00043	276.219	286987.662	3841719.052	Cultural Debris	Scrap	scrap metal	N/A	N/A	1	3	3		Scrap Bin	None	
CI-00044	3.572	287004.948	3841722.635	No Contact	No Contact	N/A	N/A	N/A	0	0	0		Left in Place	None	

Table E-1

MEC Intrusive Investigation Results

Site UXO-22 Expanded SI Report

Camp Lejeune, North Carolina

Anomaly ID	Amplitude	Easting	Northing	Group	Class	Category	Type	Description	Quantity	Depth	Weight	ADPit	Action	DemoReq	Item Comment
CJ-00009	298.671	286786.785	3841639.817	Cultural Debris	Scrap	pipe	N/A	N/A	6	12	25		Scrap Bin	None	
CJ-00011	51.236	286791.72	3841643.294	Cultural Debris	Scrap	rebar	N/A	N/A	8	10	5		Scrap Bin	None	
CJ-00017	963.238	286817.47	3841658.504	Cultural Debris	Scrap	rebar, scrap metal	N/A	N/A	10	10	15		Scrap Bin	None	
CJ-00033	3.572	286935.82	3841707.075	Cultural Debris	Scrap	washer	N/A	N/A	1	2	0.2		Scrap Bin	None	
CJ-00034	3.353	286938.254	3841707.308	Cultural Debris	Scrap	metal	N/A	N/A	4	6	0.2		Scrap Bin	None	
CJ-00036	3.374	286943.555	3841707.987	Cultural Debris	Scrap	spike	N/A	N/A	1	3	0.2		Scrap Bin	None	
CJ-00038	3.989	287007.174	3841731.342	Cultural Debris	Scrap	nail	N/A	N/A	1	3	0.2		Scrap Bin	None	
D-00004	92.147	287080.608	3841405.737	Cultural Debris	Scrap	sheet metal	N/A	N/A	4	8	2		Scrap Bin	None	
D-00028	153.97	287070.424	3841481.503	Cultural Debris	Scrap	rebar	N/A	N/A	1	1	1		Scrap Bin	None	
D-00038	801.33	287077.748	3841578.839	TBD	Greater than 4 feet	N/A	N/A	N/A	1	48	0		Left in Place	None	
D-00039	809.753	287077.922	3841581.019	TBD	Greater than 4 feet	N/A	N/A	N/A	1	48	0		Left in Place	None	
D-00040	20.923	287079.23	3841597.321	Cultural Debris	Scrap	wire	N/A	N/A	2	6	0.2		Scrap Bin	None	
DB-00004	4.196	287095.801	3841751.482	Cultural Debris	Scrap	nail	N/A	N/A	2	3	0.2		Scrap Bin	None	
DD-00008	53.439	287096.798	3841717.453	Cultural Debris	Scrap	metal	N/A	N/A	4	10	0.2		Scrap Bin	None	
DE-00001	7.768	287096.942	3841695.188	Cultural Debris	Scrap	wire	N/A	N/A	10	18	0.2		Scrap Bin	None	
E-00010	371.278	287061.438	3841396.716	Cultural Debris	Scrap	Pipe	N/A	N/A	1	48	2		Scrap Bin	None	
E-00012	55.885	287061.889	3841402.04	Cultural Debris	Scrap	metal	N/A	N/A	6	8	5		Scrap Bin	None	
E-00036	12.725	287063.977	3841467.45	Cultural Debris	Scrap	pipe	N/A	N/A	1	48	10		Scrap Bin	None	
E-00060	45.581	287070.441	3841591.579	Cultural Debris	Scrap	wire, fence	N/A	N/A	2	18	5		Scrap Bin	None	
EA-00002	5.104	286779.924	3840971.015	Cultural Debris	Scrap	wire	N/A	N/A	1	24	5		Consolidation Point	None	
EA-00011	7.981	286777.573	3841007.135	Facility Resource	Road	N/A	N/A	N/A	1	0	0		Left in Place	None	In road, lots of trucks moving in area
EA-00017	21.331	286777.364	3841029.916	Facility Resource	Road	N/A	N/A	N/A	1	0	0		Left in Place	None	In road, lots of trucks moving in area
EA-00042	32.069	286774.912	3841120.023	Cultural Debris	Scrap	metal	N/A	N/A	1	8	1		Scrap Bin	None	
EA-00052	40.989	286773.921	3841151.531	Cultural Debris	Scrap	metal, wire	N/A	N/A	4	0	0.5		Scrap Bin	None	
EA-00062	19.614	286776.482	3841194.815	Cultural Debris	Scrap	metal	N/A	N/A	1	6	1		Scrap Bin	None	
EA-00067	242.863	286776.946	3841210.15	Cultural Debris	Scrap	metal	N/A	N/A	6	10	6		Scrap Bin	None	
EA-00068	455.397	286776.966	3841211.786	MPPEH	Rocket	Rocket motor, 3.5-inch, Practice, M29	None(empty)	Unfuzed	4	12	8		Consolidation Point	Demil	
EA-00077	104.854	286776.373	3841231.524	Cultural Debris	Scrap	metal	N/A	N/A	8	10	10		Scrap Bin	None	
EA-00081	2104.672	286776.881	3841243.93	Cultural Debris	Scrap	sheet metal	N/A	N/A	8	48	40		Scrap Bin	None	
EA-00087	3124.083	286777.522	3841259.188	Cultural Debris	Scrap	metal, pieces of drums	N/A	N/A	100	48	100		Scrap Bin	None	
EB-00001	7.039	286784.815	3841109.249	Cultural Debris	Scrap	aluminum	N/A	N/A	2	10	1		Scrap Bin	None	
EB-00008	279.81	286786.984	3841129.006	Cultural Debris	Scrap	I-beam	N/A	N/A	2	8	20		Scrap Bin	None	
EB-00028	1538.036	286784.897	3841195.07	Cultural Debris	Scrap	comm wire spools	N/A	N/A	5	36	80		Scrap Bin	None	
EB-00044	28.724	286785.646	3841240.482	Cultural Debris	Scrap	metal	N/A	N/A	8	10	5		Scrap Bin	None	
EC-00001	295.394	286790.97	3840985.951	Cultural Debris	Cable	N/A	N/A	N/A	1	6	0		Left in Place	None	buried cable
EC-00006	18.172	286797.257	3841008.552	Cultural Debris	Scrap	sheet metal	N/A	N/A	2	0	1		Consolidation Point	None	
EC-00007	9.834	286797.881	3841012.463	Cultural Debris	Scrap	steel	N/A	N/A	2	2	0.5		Consolidation Point	None	
EC-00010	112.514	286799.458	3841023.31	Cultural Debris	Cable	wire	N/A	N/A	1	6	0		Left in Place	None	lots of wire in ground
EC-00013	28.17	286799.44	3841055.236	Cultural Debris	Scrap	metal	N/A	N/A	2	0	1		Scrap Bin	None	
EC-00031	27.654	286793.954	3841110.443	Cultural Debris	Scrap	wire	N/A	N/A	1	2	0.5		Scrap Bin	None	
EC-00033	4.612	286793.894	3841113.204	Cultural Debris	Scrap	wire	N/A	N/A	1	1	0.2		Scrap Bin	None	
EC-00037	15.252	286793.456	3841133.485	Cultural Debris	Scrap	metal	N/A	N/A	1	1	0.2		Scrap Bin	None	
EC-00063	17.061	286794.441	3841217.501	Cultural Debris	Scrap	metal	N/A	N/A	1	6	1		Scrap Bin	None	
ED-00002	401.207	286805.976	3841005.38	Cultural Debris	Cable	N/A	N/A	N/A	1	6	0		Left in Place	None	buried cable
ED-00003	3.575	286808.616	3841013.972	Cultural Debris	Cable	N/A	N/A	N/A	1	24	0		Left in Place	None	buried cable
ED-00004	17.376	286808.225	3841023.055	Cultural Debris	Scrap	N/A	N/A	N/A	1	0	75		Consolidation Point	None	
ED-00005	6.546	286807.852	3841024.93	Cultural Debris	Scrap	Banding	N/A	N/A	1	1	0.2		Consolidation Point	None	
ED-00007	3.163	286805.548	3841053.353	Cultural Debris	Scrap	metal	N/A	N/A	1	0	0.2		Scrap Bin	None	
ED-00008	36.472	286805.461	3841056.847	Cultural Debris	Scrap	metal	N/A	N/A	3	6	1		Scrap Bin	None	
ED-00015	230.061	286805.655	3841087.148	Cultural Debris	Scrap	pipe	N/A	N/A	1	0	7		Scrap Bin	None	
ED-00026	9.038	286801.826	3841160.68	Cultural Debris	Scrap	metal	N/A	N/A	1	6	0.5		Scrap Bin	None	
ED-00030	3.835	286801.961	3841167.868	Cultural Debris	Scrap	metal	N/A	N/A	1	18	0.5		Scrap Bin	None	
ED-00041	4.808	286802.577	3841201.751	Cultural Debris	Scrap	metal	N/A	N/A	2	8	0.5		Scrap Bin	None	
ED-00051	58.518	286803.042	3841226.079	QC	QC	QC Seed	N/A	N/A	1	6	1		Consolidation Point	None	Seed #07
ED-00062	1013.614	286803.468	3841253.333	MPPEH	Rocket	Rocket motor, 3.5-inch, Practice, M29	None(empty)	Unfuzed	1	12	2		Consolidation Point	Demil	
ED-00064	42.744	286803.299	3841258.939	Cultural Debris	Scrap	sheet metal	N/A	N/A	6	8	5		Scrap Bin	None	
EE-00001	11.087	286800.314	3840962.99	Cultural Debris	Scrap	vehicle parts	N/A	N/A	2	10	2		Consolidation Point	None	
EE-00003	7.55	286815.116	3841010.027	Cultural Debris	Scrap	metal	N/A	N/A	1	6	0.5		Consolidation Point	None	
EE-00011	35.051	286809.859	3841080.897	Cultural Debris	Scrap	metal	N/A	N/A	1	0	0.5		Scrap Bin	None	
EE-00013	29.817	286811.176	3841090.102	Cultural Debris	Scrap	metal	N/A	N/A	1	0	1		Scrap Bin	None	
EE-00015	14.336	286815.116	3841112.436	Cultural Debris	Scrap	metal	N/A	N/A	1	6	1		Scrap Bin	None	

Table E-1

MEC Intrusive Investigation Results

Site UXO-22 Expanded SI Report

Camp Lejeune, North Carolina

Anomaly ID	Amplitude	Easting	Northing	Group	Class	Category	Type	Description	Quantity	Depth	Weight	ADPit	Action	DemoReq	Item Comment
EE-00018	261.322	286811.563	3841130.987	Cultural Debris	Scrap	metal	N/A	N/A	3	0	1		Scrap Bin	None	
EE-00019	8.822	286810.974	3841144.821	Cultural Debris	Scrap	metal	N/A	N/A	3	3	0.5		Scrap Bin	None	
EE-00022	9.841	286806.384	3841159.001	Cultural Debris	Scrap	metal	N/A	N/A	1	6	0.5		Scrap Bin	None	
EF-00004	10.423	286820.472	3841075.996	Cultural Debris	Scrap	vehicle parts	N/A	N/A	1	0	4		Scrap Bin	None	
EF-00006	3.891	286818.203	3841115.062	Cultural Debris	Scrap	metal	N/A	N/A	1	1	0.5		Scrap Bin	None	
EF-00026	397.033	286819.465	3841209.493	Cultural Debris	Scrap	metal	N/A	N/A	1	0	0.5		Scrap Bin	None	
EF-00027	3.783	286819.508	3841212.459	Cultural Debris	Scrap	metal	N/A	N/A	1	6	0.2		Scrap Bin	None	
EF-00031	197.804	286818.437	3841226.794	Cultural Debris	Scrap	vehicle parts	N/A	N/A	1	0	1		Scrap Bin	None	
EG-00006	49.001	286828.884	3840994.298	Cultural Debris	Scrap	steel	N/A	N/A	1	10	1.5		Consolidation Point	None	
EG-00009	109.386	286828.9	3840999.4	Shared	SHD	N/A	N/A	N/A	1	0	0		Left in Place	None	Shared with EG-00010
EG-00010	35.824	286828.906	3841001.229	Cultural Debris	Pipe	N/A	N/A	N/A	1	0	0		Left in Place	None	
EG-00011	65.864	286828.91	3841002.48	Shared	SHD	N/A	N/A	N/A	1	0	0		Left in Place	None	Shared with EG-00010
EG-00023	28.913	286829.046	3841169.17	Cultural Debris	Scrap	metal	N/A	N/A	6	8	1		Scrap Bin	None	
EG-00038	102.589	286826.821	3841227.928	Cultural Debris	Scrap	cable	N/A	N/A	1	10	1		Scrap Bin	None	
EG-00043	3.855	286823.251	3841239.329	Cultural Debris	Scrap	metal	N/A	N/A	4	10	1		Scrap Bin	None	
EG-00045	27.682	286824.606	3841243.164	Cultural Debris	Scrap	bolt	N/A	N/A	4	6	0.5		Scrap Bin	None	
EH-00005	38.183	286836.224	3840992.719	Cultural Debris	Scrap	N/A	N/A	N/A	1	0	0.5		Consolidation Point	None	
EH-00006	9.933	286836.153	3840993.886	Cultural Debris	Scrap	N/A	N/A	N/A	2	0	10		Consolidation Point	None	
EH-00015	5.771	286831.788	3841133.961	Cultural Debris	Scrap	steel	N/A	N/A	1	1	2		Scrap Bin	None	
EH-00027	873.407	286838.813	3841192.89	Cultural Debris	Scrap	sheet metal	N/A	N/A	1	10	20		Scrap Bin	None	
EH-00037	825.598	286834.877	3841233.914	Cultural Debris	Scrap	metal	N/A	N/A	4	18	10		Scrap Bin	None	
EH-00041	45.898	286835.14	3841248.307	Cultural Debris	Scrap	steel rod	N/A	N/A	1	10	1		Scrap Bin	None	
EH-00043	29.355	286835.311	3841253.896	Cultural Debris	Scrap	steel	N/A	N/A	2	10	0.5		Scrap Bin	None	
EH-00050	55.668	286834.239	3841270.176	Cultural Debris	Scrap	banding	N/A	N/A	5	10	1		Scrap Bin	None	
EI-00002	55.021	286843.214	3840967.47	Cultural Debris	Scrap	metal	N/A	N/A	1	6	1		Consolidation Point	None	
EI-00004	7.208	286843.205	3840970.266	Cultural Debris	Scrap	wire	N/A	N/A	1	6	0.5		Consolidation Point	None	
EI-00005	19.958	286843.189	3840974.81	Cultural Debris	Scrap	N/A	N/A	N/A	1	0	5		Consolidation Point	None	
EI-00006	5.229	286843.166	3840980.528	Cultural Debris	Scrap	metal	N/A	N/A	2	6	0.5		Consolidation Point	None	
EI-00010	66.516	286847.596	3841091.216	Cultural Debris	Scrap	sheet metal	N/A	N/A	2	6	20		Scrap Bin	None	
EI-00012	29.032	286842.066	3841133.51	Cultural Debris	Scrap	pipe	N/A	N/A	20	10	10		Scrap Bin	None	
EI-00024	104.476	286843.759	3841186.763	No Contact	No Contact	N/A	N/A	N/A	0	0	0		Left in Place	None	Large contact outside of transect
EI-00036	151.957	286837.532	3841234.547	Cultural Debris	Scrap	cable	N/A	N/A	3	10	10		Scrap Bin	None	
EI-00039	323.593	286840.963	3841238.959	Cultural Debris	Scrap	metal	N/A	N/A	10	10	10		Scrap Bin	None	
EI-00047	344.919	286847.178	3841256.674	Cultural Debris	Scrap	I-beam	N/A	N/A	4	18	50		Scrap Bin	None	
EJ-00004	5.663	286851.663	3841024.211	Cultural Debris	Scrap	wire	N/A	N/A	1	3	1		Scrap Bin	None	
EJ-00006	6.494	286852.865	3841062.361	Cultural Debris	Scrap	cable	N/A	N/A	1	3	1		Scrap Bin	None	
EJ-00008	33.744	286855.035	3841089.566	Cultural Debris	Scrap	rebar	N/A	N/A	1	10	1		Scrap Bin	None	
EJ-00009	3.429	286855.644	3841094.903	Cultural Debris	Scrap	bolt	N/A	N/A	3	18	0.5		Scrap Bin	None	
EJ-00037	284.934	286853.197	3841260.818	MPPEH	Projectile	3-inch shells	Expended	N/A	15	24	5		Consolidation Point	Demil	
EJ-00039	384.837	286852.992	3841264.947	Cultural Debris	Scrap	sheet metal	N/A	N/A	10	48	10		Scrap Bin	None	
EK-00003	5.167	286872.764	3840973.894	Cultural Debris	Scrap	metal	N/A	N/A	1	2	0.4		Consolidation Point	None	
EK-00010	11.161	286869.436	3841146.203	MPPEH	Grenade	Grenade, Rifle, M9	None(empty)	Unfuzed	1	6	1		Consolidation Point	Demil	
EK-00016	4.677	286869.284	3841192.999	Cultural Debris	Scrap	metal	N/A	N/A	1	6	0.2		Scrap Bin	None	
EK-00031	271.751	286859.904	3841239.65	Cultural Debris	Scrap	sheet metal	N/A	N/A	4	48	10		Scrap Bin	None	
EK-00051	410.614	286861.169	3841279.01	Cultural Debris	Scrap	metal	N/A	N/A	4	0	2		Scrap Bin	None	
EM-00005	20.496	286878.59	3840984.578	Cultural Debris	Scrap	wire	N/A	N/A	1	6	0.4		Consolidation Point	None	
EM-00008	6.944	286880.268	3841068.919	Cultural Debris	Scrap	bolt	N/A	N/A	1	8	0.5		Scrap Bin	None	
EM-00009	582.995	286877.02	3841085.862	MPPEH	Ammo Can	N/A	Empty	N/A	1	12	5		Consolidation Point	Demil	
EM-00016	25.338	286881.385	3841173.807	Cultural Debris	Scrap	metal	N/A	N/A	1	0	1		Scrap Bin	None	
EM-00018	44.884	286880.798	3841195.009	Cultural Debris	Scrap	pipe	N/A	N/A	2	3	2		Scrap Bin	None	
EM-00020	17.39	286872.959	3841208.621	Cultural Debris	Scrap	wire	N/A	N/A	2	6	0.5		Scrap Bin	None	
EM-00033	181.92	286867.371	3841250.47	Cultural Debris	Scrap	metal	N/A	N/A	4	36	2		Scrap Bin	None	
EM-00039	1706.76	286865.299	3841266.103	Cultural Debris	Scrap	pipe	N/A	N/A	100	48	25		Scrap Bin	None	
EN-00001	12.106	286888.772	3840948.13	Cultural Debris	Scrap	wire	N/A	N/A	1	6	0.5		Consolidation Point	None	
EN-00002	15.316	286888.755	3840950.157	Cultural Debris	Scrap	metal	N/A	N/A	1	4	0.2		Consolidation Point	None	
EN-00006	246.61	286889.678	3841034.663	Cultural Debris	Scrap	metal	N/A	N/A	15	18	15		Scrap Bin	None	
EN-00017	101.199	286884.296	3841215.484	Cultural Debris	Scrap	cable	N/A	N/A	2	2	10		Scrap Bin	None	
EN-00027	25.365	286875.9	3841245.435	Cultural Debris	Scrap	metal	N/A	N/A	2	10	1		Scrap Bin	None	
EO-00003	156.385	286893.975	3841040.863	Cultural Debris	Scrap	metal	N/A	N/A	1	10	25		Scrap Bin	None	
EO-00004	11032.064	286894.007	3841043.918	Cultural Debris	Scrap	steel rod	N/A	N/A	1	3	100		Scrap Bin	None	
EO-00011	4.424	286893.72	3841098.495	Cultural Debris	Scrap	wire	N/A	N/A	2	2	0.2		Scrap Bin	None	

Table E-1

MEC Intrusive Investigation Results

Site UXO-22 Expanded SI Report

Camp Lejeune, North Carolina

Anomaly ID	Amplitude	Easting	Northing	Group	Class	Category	Type	Description	Quantity	Depth	Weight	ADPit	Action	DemoReq	Item Comment
EO-00012	5.984	286896.365	3841155.118	Cultural Debris	Scrap	wire	N/A	N/A	1	0	0.2		Scrap Bin	None	
EO-00027	1734.373	286888.029	3841248.717	Cultural Debris	Scrap	metal	N/A	N/A	200	24	30	Y	Scrap Bin	None	trash pit
EP-00002	56.695	286900.791	3840977.092	QC	QC	QC Seed	N/A	N/A	1	6	1		Consolidation Point	None	Seed #08
EP-00008	702.155	286906.743	3841171.65	MPPEH	Projectile	Projectile, 105mm, casing only	None(empty)	Unfuzed	1	12	5	Y	Consolidation Point	Demil	
EP-00014	806.705	286906.265	3841189.071	Cultural Debris	Scrap	comm wire spools	N/A	N/A	1	48	0		Left in Place	None	
EP-00016	4.306	286900.618	3841198.81	Cultural Debris	Scrap	bolt	N/A	N/A	1	6	0.2		Scrap Bin	None	
EQ-00003	4.644	286911.841	3840973.51	Cultural Debris	Scrap	wire	N/A	N/A	1	0	0.2		Consolidation Point	None	
EQ-00005	23.977	286910.125	3841021.892	Cultural Debris	Scrap	aluminum	N/A	N/A	2	3	0.2		Scrap Bin	None	
EQ-00008	47.464	286909.102	3841039.418	Cultural Debris	Scrap	steel	N/A	N/A	2	18	2		Scrap Bin	None	
EQ-00009	441.614	286915.989	3841066.8	Cultural Debris	Scrap	metal	N/A	N/A	1	2	3		Scrap Bin	None	
EQ-00011	6.312	286915.626	3841101.279	Cultural Debris	Scrap	metal	N/A	N/A	1	10	0.5		Scrap Bin	None	
EQ-00013	9.305	286913.744	3841115.998	Cultural Debris	Scrap	building debris	N/A	N/A	1	36	1		Scrap Bin	None	
EQ-00018	811.612	286912.386	3841146.897	Cultural Debris	Scrap	vehicle parts	N/A	N/A	4	3	10		Scrap Bin	None	
EQ-00020	7.234	286912.4	3841164.224	No Contact	No Contact	N/A	N/A	N/A	0	0	0		Left in Place	None	Large contact north of flag
EQ-00039	1494.265	286912.627	3841240.798	MPPEH	Projectile	Projectile, 105mm, casing only	None(empty)	Unfuzed	2	10	10	Y	Consolidation Point	Demil	
ER-00019	1107.404	286906.264	3841276.722	MPPEH	Projectile	Projectile, 106mm, casing only	None(empty)	Unfuzed	1	12	5	Y	Consolidation Point	Demil	
ER-00021	1330.555	286904.044	3841279.668	MPPEH	Projectile	Projectile, 106mm, casing only	None(empty)	Unfuzed	2	12	10	Y	Consolidation Point	Demil	
ER-00024	47.949	286902.071	3841294.734	Cultural Debris	Scrap	vehicle parts	N/A	N/A	50	48	15		Left in Place	None	More car parts left in place, deep than 48 inch
ES-00001	77.992	286916.892	3840946.605	Cultural Debris	Scrap	steel	N/A	N/A	1	1	3		Consolidation Point	None	
ES-00002	17.578	286918.472	3840956.529	Cultural Debris	Scrap	bearing cover	N/A	N/A	1	2	1		Consolidation Point	None	
ES-00004	3.138	286919.254	3840963.797	Cultural Debris	Scrap	wire	N/A	N/A	1	3	0.4		Consolidation Point	None	
ES-00006	82.726	286919.095	3840970.946	Cultural Debris	Scrap	cable	N/A	N/A	1	0	1		Consolidation Point	None	
ES-00009	6.623	286920.275	3840999.468	Cultural Debris	Scrap	steel	N/A	N/A	1	2	0.5		Scrap Bin	None	
ES-00013	11.748	286919.527	3841039.519	Cultural Debris	Scrap	banding	N/A	N/A	2	3	1		Scrap Bin	None	
ES-00014	4.826	286919.551	3841053.123	Cultural Debris	Scrap	bolt	N/A	N/A	1	3	0.2		Scrap Bin	None	
ES-00015	11185.025	286920.378	3841072.278	Cultural Debris	Scrap	sheet metal	N/A	N/A	1	0	100		Scrap Bin	None	
ES-00019	9.311	286921.767	3841114.167	Cultural Debris	Scrap	comm wire spools	N/A	N/A	1	0	0.2		Scrap Bin	None	
ES-00021	4.064	286922.109	3841129.736	Cultural Debris	Scrap	aluminum	N/A	N/A	1	1	0.2		Scrap Bin	None	
ES-00022	4.921	286921.664	3841141.758	Cultural Debris	Scrap	wire	N/A	N/A	1	3	0.2		Scrap Bin	None	
ES-00036	3.234	286920.791	3841264.046	Cultural Debris	Scrap	stake	N/A	N/A	1	6	1		Scrap Bin	None	
ES-00037	70.269	286920.746	3841266.246	Cultural Debris	Scrap	wire	N/A	N/A	1	2	1		Scrap Bin	None	
ES-00041	26.13	286919.374	3841283.094	MPPEH	Flare	Flare, Signal, Illum, M127	None(empty)	Unfuzed	1	0	1		Consolidation Point	Demil	
ET-00004	222.181	286924.4	3840966.895	MPPEH	Ammo Can	Empty	Empty	N/A	2	18	5		Consolidation Point	Demil	
ET-00005	15.267	286923.934	3840970.434	Cultural Debris	Scrap	wire	N/A	N/A	1	3	0.2		Consolidation Point	None	
ET-00007	50.529	286928.162	3841026.209	Cultural Debris	Scrap	rebar	N/A	N/A	1	3	2		Scrap Bin	None	
ET-00010	21.708	286936.759	3841091.43	Cultural Debris	Scrap	wire	N/A	N/A	1	1	0.2		Scrap Bin	None	
ET-00011	4.372	286931.076	3841121.553	Cultural Debris	Scrap	metal	N/A	N/A	1	1	0.2		Scrap Bin	None	
ET-00013	10763.136	286930.865	3841130.605	Cultural Debris	Scrap	vehicle parts	N/A	N/A	1	6	50		Scrap Bin	None	
ET-00020	18.018	286923.293	3841174.653	Cultural Debris	Scrap	comm wire	N/A	N/A	4	0	0		Left in Place	None	Comm wire in roots
ET-00033	28.848	286927.423	3841221.032	Cultural Debris	Scrap	comm wire	N/A	N/A	1	0	0		Left in Place	None	Comm wire in roots
ET-00034	6.599	286927.689	3841222.467	Cultural Debris	Scrap	wire	N/A	N/A	1	1	0.2		Scrap Bin	None	
ET-00045	25.641	286930.461	3841250.526	Cultural Debris	Scrap	stake	N/A	N/A	1	1	0.5		Scrap Bin	None	
ET-00046	136.031	286928.244	3841272.724	Cultural Debris	Scrap	stake	N/A	N/A	1	0	1		Scrap Bin	None	
ET-00047	103.169	286927.845	3841276.774	Cultural Debris	Scrap	wire	N/A	N/A	10	0	0.2		Scrap Bin	None	
EU-00005	5.51	286938.005	3841055.939	Cultural Debris	Scrap	wire	N/A	N/A	1	1	0.2		Scrap Bin	None	
EU-00007	34.568	286943.896	3841078.337	Cultural Debris	Scrap	metal	N/A	N/A	1	10	1		Scrap Bin	None	
EU-00010	20.929	286932.832	3841118.827	Cultural Debris	Scrap	vehicle parts	N/A	N/A	1	6	1		Scrap Bin	None	
EU-00011	17.266	286933.119	3841120.936	Cultural Debris	Scrap	vehicle parts	N/A	N/A	1	3	1		Scrap Bin	None	
EU-00012	7.134	286933.718	3841125.344	Cultural Debris	Scrap	wire	N/A	N/A	1	3	0.2		Scrap Bin	None	
EU-00015	34.333	286934.488	3841144.284	Cultural Debris	Scrap	sheet metal	N/A	N/A	1	2	5		Scrap Bin	None	
EU-00016	31.808	286934.461	3841145.547	Cultural Debris	Scrap	sheet metal	N/A	N/A	1	6	2		Scrap Bin	None	
EU-00019	11.428	286933.668	3841175.543	MPPEH	Rocket	Rocket motor, 3.5-inch, Practice, M29	None(empty)	Unfuzed	1	3	2		Consolidation Point	Demil	
EV-00005	1253.475	286942.881	3840995.672	Cultural Debris	Scrap	vehicle parts	N/A	N/A	1	2	5		Scrap Bin	None	
EV-00007	4.939	286953.035	3841061.989	Cultural Debris	Scrap	metal	N/A	N/A	1	2	0.2		Scrap Bin	None	
EV-00008	263.535	286953.173	3841065.584	Cultural Debris	Scrap	metal	N/A	N/A	1	0	2		Scrap Bin	None	
EV-00011	5.907	286953.06	3841071.145	Cultural Debris	Scrap	metal	N/A	N/A	1	3	0.5		Scrap Bin	None	
EV-00013	159.872	286950.195	3841085.339	Cultural Debris	Scrap	stake	N/A	N/A	1	1	5		Scrap Bin	None	
EV-00014	164.291	286945.973	3841091.86	Cultural Debris	Scrap	metal	N/A	N/A	4	3	1		Scrap Bin	None	
EV-00015	637.069	286943.987	3841099.839	Cultural Debris	Scrap	metal	N/A	N/A	2	1	5		Scrap Bin	None	
EV-00024	9.566	286939.187	3841133.378	Cultural Debris	Scrap	metal	N/A	N/A	1	10	1		Scrap Bin	None	
EV-00026	48.794	286939.704	3841139.601	Cultural Debris	Scrap	rebar	N/A	N/A	2	18	5		Scrap Bin	None	

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Camp Lejeune, North Carolina

Anomaly ID	Amplitude	Easting	Northing	Group	Class	Category	Type	Description	Quantity	Depth	Weight	ADPit	Action	DemoReq	Item Comment
EV-00028	12.449	286938.622	3841180.858	Cultural Debris	Scrap	metal	N/A	N/A	1	3	1		Scrap Bin	None	
EV-00029	17.474	286938.428	3841183.619	Cultural Debris	Scrap	rebar	N/A	N/A	1	3	1		Scrap Bin	None	
EV-00058	24.765	286943.802	3841279.76	Cultural Debris	Scrap	rebar	N/A	N/A	1	3	1		Scrap Bin	None	
EW-00001	6.58	286950.571	3840964.934	Cultural Debris	Scrap	wire	N/A	N/A	1	0	0.3		Consolidation Point	None	
EW-00008	232.381	286958.227	3841065.53	Cultural Debris	Scrap	metal	N/A	N/A	1	1	1		Scrap Bin	None	
EW-00011	18.819	286955.214	3841085.3	Cultural Debris	Scrap	post	N/A	N/A	1	18	2		Scrap Bin	None	
EW-00012	7.476	286950.404	3841107.907	Cultural Debris	Scrap	metal	N/A	N/A	1	6	0.5		Scrap Bin	None	
EW-00013	9583.461	286949.722	3841111.02	Cultural Debris	Scrap	metal tank	N/A	N/A	2	0	400		Scrap Bin	None	
EW-00020	12.291	286946.743	3841134.093	Cultural Debris	Scrap	vehicle parts	N/A	N/A	1	10	1		Scrap Bin	None	
EW-00040	953.19	286951.382	3841281.596	MPPEH	Projectile	Projectile, 105mm, casing only	None(empty)	Unfuzed	2	10	10	Y	Consolidation Point	Demil	
EX-00002	22.8	286958.514	3841102.329	Cultural Debris	Scrap	comm wire spools	N/A	N/A	10	0	0.2		Scrap Bin	None	
EX-00004	86.791	286957.406	3841105.523	Cultural Debris	Scrap	pipe	N/A	N/A	1	0	1		Scrap Bin	None	
EX-00005	65.382	286956.529	3841107.389	Cultural Debris	Scrap	metal	N/A	N/A	1	0	1		Scrap Bin	None	
EX-00008	22.706	286959.192	3841176.68	Cultural Debris	Scrap	steel rod	N/A	N/A	2	10	2		Scrap Bin	None	
EX-00009	9.859	286959.93	3841186.383	Cultural Debris	Scrap	comm wire spools	N/A	N/A	1	36	0		Left in Place	None	
EY-00009	5517.79	286960.469	3841293.093	MPPEH	Projectile	Projectile, 105mm, casing only	None(empty)	Unfuzed	1	10	5	Y	Consolidation Point	Demil	
EY-00010	10766.52	286959.467	3841295.549	MPPEH	Projectile	Projectile, 105mm, casing only	None(empty)	Unfuzed	2	10	10	Y	Consolidation Point	Demil	
EY-00012	11029.67	286958.322	3841298.356	MPPEH	Projectile	Projectile, 105mm, casing only	None(empty)	Unfuzed	1	10	10	Y	Consolidation Point	Demil	
EZ-00001	94.697	286970.402	3840946.894	Cultural Debris	Scrap	shovel	N/A	N/A	1	2	1		Consolidation Point	None	
EZ-00002	7.707	286974.441	3840991.659	Cultural Debris	Scrap	wire	N/A	N/A	1	10	0.2		Scrap Bin	None	
EZ-00003	4.761	286974.824	3840993.426	Cultural Debris	Scrap	wire	N/A	N/A	1	1	0.2		Scrap Bin	None	
EZ-00005	609.656	286972.909	3841043.609	Cultural Debris	Scrap	fence post	N/A	N/A	1	0	5		Scrap Bin	None	
EZ-00008	38.811	286967.788	3841098.186	Cultural Debris	Scrap	wire	N/A	N/A	5	18	1		Scrap Bin	None	
EZ-00013	5.753	286969.924	3841167.07	Cultural Debris	Scrap	wire	N/A	N/A	1	3	0.5		Scrap Bin	None	
EZ-00014	51.326	286970.268	3841183.975	Cultural Debris	Scrap	metal	N/A	N/A	1	18	10		Scrap Bin	None	
EZ-00019	181.816	286969.727	3841202.403	MPPEH	Projectile	Projectile, 106mm, casing only	None(empty)	Unfuzed	1	0	1		Consolidation Point	Demil	
EZ-00034	403.523	286969.396	3841250.362	MPPEH	Projectile	Projectile, 105mm, casing only	None(empty)	Unfuzed	1	6	5	Y	Consolidation Point	Demil	
EZ-00055	9987.2	286968.76	3841308.74	MPPEH	Projectile	Projectile, 106mm, casing only	None(empty)	Unfuzed	1	6	5	Y	Consolidation Point	Demil	
F-00008	18.188	287052.565	3841398.081	Cultural Debris	Scrap	metal	N/A	N/A	2	8	1		Scrap Bin	None	
F-00021	257.466	287053.295	3841423.865	Cultural Debris	Scrap	metal	N/A	N/A	4	6	20		Scrap Bin	None	
F-00027	9.473	287053.391	3841439.495	Cultural Debris	Scrap	metal	N/A	N/A	1	12	1		Scrap Bin	None	
F-00037	56.03	287054.708	3841469.799	QC	QC	QC Seed	N/A	N/A	1	6	1		Consolidation Point	None	Seed #06
F-00041	25.867	287055.677	3841486.95	Cultural Debris	Scrap	rebar	N/A	N/A	1	18	2		Scrap Bin	None	
F-00046	870.342	287056.926	3841509.628	Cultural Debris	Scrap	possible underground tank	N/A	N/A	1	24	0		Left in Place	None	
F-00047	3.173	287057.058	3841530.876	Cultural Debris	Scrap	wire	N/A	N/A	1	6	0.2		Scrap Bin	None	
F-00048	8.788	287057.889	3841537.456	Cultural Debris	Scrap	wire	N/A	N/A	1	3	0.2		Scrap Bin	None	
F-00054	12.62	287060.675	3841569.598	Cultural Debris	Scrap	wire	N/A	N/A	10	8	0.2		Scrap Bin	None	
F-00060	924.982	287061.454	3841602.651	Facility Resource	Utility	N/A	N/A	N/A	1	24	0		Left in Place	None	
FA-00004	78.317	286570.564	3841374.102	Cultural Debris	Scrap	rebar	N/A	N/A	2	36	1		Scrap Bin	None	
FA-00026	1146.522	286568.745	3841427.127	Cultural Debris	Scrap	comm wire spools	N/A	N/A	1	12	0		Left in Place	None	
FA-00030	141.95	286567.512	3841438.302	Cultural Debris	Scrap	vehicle parts	N/A	N/A	3	6	1		Scrap Bin	None	
FA-00044	162.216	286563.353	3841469.902	MPPEH	Projectile	Projectile, 106mm, casing only	None(empty)	Unfuzed	2	3	1		Consolidation Point	Demil	
FA-00057	597.189	286560.373	3841505.107	MPPEH	Projectile	Projectile, 105mm, casing only	None(empty)	Unfuzed	3	6	20		Consolidation Point	Demil	Also, 20- M1 clips
FB-00005	18.829	286562.116	3841378.554	Cultural Debris	Scrap	metal rod	N/A	N/A	3	3	10		Scrap Bin	None	
FB-00019	589.699	286558.332	3841424.737	Cultural Debris	Scrap	sheet metal	N/A	N/A	2	10	6		Scrap Bin	None	
FB-00031	73.636	286556.149	3841455.533	MPPEH	Projectile	Projectile, 106mm, casing only	None(empty)	Unfuzed	2	24	12		Consolidation Point	Demil	
FB-00033	61.794	286555.936	3841460.342	Cultural Debris	Scrap	sheet metal	N/A	N/A	5	18	3		Scrap Bin	None	
FB-00043	1324.399	286554.674	3841486.207	MPPEH	Projectile	Projectile, 105mm, casing only	None(empty)	Unfuzed	5	8	30		Consolidation Point	Demil	
FB-00059	347.554	286550.229	3841528.947	MPPEH	Projectile	Projectile, 105mm, casing only	None(empty)	Unfuzed	2	8	5		Consolidation Point	Demil	
FB-00063	113.413	286546.691	3841538.573	Cultural Debris	Scrap	rebar	N/A	N/A	1	8	2		Scrap Bin	None	
FC-00017	18.016	286545.052	3841413.848	Cultural Debris	Scrap	metal	N/A	N/A	3	10	1		Scrap Bin	None	
FC-00021	69.884	286544.814	3841422.784	Cultural Debris	Scrap	pipe	N/A	N/A	1	12	10		Scrap Bin	None	
FC-00024	30.004	286544.546	3841433.186	Cultural Debris	Scrap	spike	N/A	N/A	1	2	1		Scrap Bin	None	
FC-00042	5.535	286541.065	3841492.332	Cultural Debris	Scrap	sheet metal	N/A	N/A	1	0	1		Scrap Bin	None	
FD-00006	48.831	286533.177	3841438.795	Cultural Debris	Scrap	metal	N/A	N/A	1	6	1		Scrap Bin	None	
FE-00002	4.025	286519.464	3841532.776	Cultural Debris	Scrap	metal	N/A	N/A	1	3	0.25		Scrap Bin	None	
G-00015	57.338	287046.362	3841417.44	Cultural Debris	Scrap	metal	N/A	N/A	1	6	5		Scrap Bin	None	
G-00022	151.536	287045.784	3841440.293	MPPEH	Flare	Flare, Signal, Illum, M127	None(empty)	Unfuzed	1	3	0.5		Consolidation Point	Demil	
G-00028	190.289	287047.937	3841452.649	Cultural Debris	Scrap	vehicle parts	N/A	N/A	20	10	20		Scrap Bin	None	
G-00029	1340.806	287048.196	3841454.135	Cultural Debris	Scrap	vehicle parts	N/A	N/A	10	12	100	Y	Scrap Bin	None	
G-00046	32.374	287048.657	3841519.049	Cultural Debris	Scrap	metal	N/A	N/A	10	36	1		Scrap Bin	None	

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Anomaly ID	Amplitude	Easting	Northing	Group	Class	Category	Type	Description	Quantity	Depth	Weight	ADPit	Action	DemoReq	Item Comment
G-00050	21.504	287051.367	3841553.533	TBD	Greater than 4 feet	N/A	N/A	N/A	1	48	0		Left in Place	None	
G-00051	27.078	287052.038	3841565.25	Cultural Debris	Scrap	concrete with rebar	N/A	N/A	1	24	0		Left in Place	None	
G-00056	3.399	287054.022	3841605.358	Cultural Debris	Scrap	bolt	N/A	N/A	1	2	0.2		Scrap Bin	None	
GA-00002	15.838	286979.299	3841049.474	Cultural Debris	Scrap	metal	N/A	N/A	1	18	1		Scrap Bin	None	
GA-00004	6.488	286976.698	3841136.153	Cultural Debris	Scrap	metal	N/A	N/A	1	6	0.5		Scrap Bin	None	
GA-00024	269.976	286978.138	3841240.376	Cultural Debris	Scrap	comm wire spools	N/A	N/A	1	12	0	Y	Left in Place	None	
GA-00046	2171.284	286979.811	3841308.673	Cultural Debris	Scrap	comm wire spools	N/A	N/A	10	12	0	Y	Left in Place	None	
GB-00005	325.482	286990.19	3841135.362	Cultural Debris	Scrap	fence post	N/A	N/A	1	2	50		Scrap Bin	None	
GB-00007	20.494	286981.459	3841166.011	Cultural Debris	Scrap	metal	N/A	N/A	1	18	1		Scrap Bin	None	
GB-00012	454.343	286982.437	3841192.622	Cultural Debris	Scrap	pipe	N/A	N/A	3	18	20		Scrap Bin	None	
GB-00027	55.115	286981.227	3841242.125	MPPEH	Projectile	Projectile, 106mm, casing only	None(empty)	Unfuzed	1	12	5	Y	Consolidation Point	Demil	
GB-00031	3.894	286985.381	3841265.621	Cultural Debris	Scrap	wire	N/A	N/A	1	0	0.2		Scrap Bin	None	
GB-00034	1407.98	286991.782	3841287.007	Cultural Debris	Scrap	comm wire spools	N/A	N/A	1	18	0	Y	Left in Place	None	
GB-00035	940.922	286991.88	3841290.199	Cultural Debris	Scrap	comm wire spools	N/A	N/A	1	12	0	Y	Left in Place	None	
GB-00037	3649.577	286989.596	3841302.894	MPPEH	Projectile	Projectile, 106mm, casing only	None(empty)	Unfuzed	1	6	5	Y	Consolidation Point	Demil	
GB-00044	1414.742	286988.388	3841318.57	MPPEH	Projectile	Projectile, 106mm, casing only	None(empty)	Unfuzed	1	18	5	Y	Consolidation Point	Demil	
GC-00001	8.189	286998.555	3840943.279	Cultural Debris	Scrap	steel	N/A	N/A	1	4	1		Consolidation Point	None	
GC-00002	8.085	286996.163	3840952.765	Cultural Debris	Scrap	wire	N/A	N/A	4	2	0.2		Scrap Bin	None	
GC-00003	6.887	286995.897	3840955.117	Cultural Debris	Scrap	wire	N/A	N/A	1	2	0.2		Scrap Bin	None	
GC-00004	7.417	286995.07	3840962.457	Cultural Debris	Scrap	wire	N/A	N/A	2	3	0.2		Scrap Bin	None	
GC-00007	5.375	286997.751	3841007.841	Cultural Debris	Scrap	metal	N/A	N/A	1	10	0.2		Scrap Bin	None	
GC-00011	10973.971	286993.215	3841143.926	Cultural Debris	Scrap	sheet metal	N/A	N/A	1	10	50		Scrap Bin	None	
GD-00001	7.054	287004.682	3840945.664	Cultural Debris	Scrap	post with spikes	N/A	N/A	1	24	0		Left in Place	None	
GD-00006	53.548	287006.234	3841017.173	Cultural Debris	Scrap	metal	N/A	N/A	1	6	1		Scrap Bin	None	
GD-00008	14.641	287005.071	3841127.464	Cultural Debris	Scrap	bolt	N/A	N/A	4	1	0.5		Scrap Bin	None	
GD-00012	3.756	287003.349	3841170.066	Cultural Debris	Scrap	metal	N/A	N/A	1	18	0.5		Scrap Bin	None	
GD-00013	7.268	287002.902	3841172.134	MPPEH	Rocket	Rocket motor, 3.5-inch, Practice, M29	None(empty)	Unfuzed	1	18	2		Consolidation Point	Demil	
GD-00014	5.645	287002.66	3841179.634	Cultural Debris	Scrap	metal	N/A	N/A	1	1	0.2		Scrap Bin	None	
GD-00036	4233.578	287003.77	3841322.131	MPPEH	Projectile	Projectile, 106mm, casing only	None(empty)	Unfuzed	1	18	10		Consolidation Point	Demil	
GE-00001	23.093	287021.877	3841008.17	MPPEH	Grenade	Grenade, 40mm, casing only	None(empty)	Unfuzed	3	16	0.5		Consolidation Point	Demil	
GE-00003	9.475	287018.802	3841068.767	Cultural Debris	Scrap	cable	N/A	N/A	1	10	1		Scrap Bin	None	
GE-00010	3.103	287022.289	3841123.577	Cultural Debris	Scrap	wire	N/A	N/A	1	1	0.2		Scrap Bin	None	
GE-00011	3.353	287022.485	3841124.737	Cultural Debris	Scrap	wire	N/A	N/A	1	1	0.2		Scrap Bin	None	
GE-00013	14.187	287023.079	3841138.842	Cultural Debris	Scrap	bolt	N/A	N/A	3	10	0.5		Scrap Bin	None	
GE-00014	149.252	287019.576	3841212.184	Cultural Debris	Scrap	stake	N/A	N/A	4	1	2		Scrap Bin	None	
GE-00024	63.279	287023.294	3841240.557	QC	QC	QC Seed	N/A	N/A	1	6	1		Consolidation Point	None	Seed #09
GE-00026	31.673	287021.7	3841257.602	Cultural Debris	Scrap	metal	N/A	N/A	1	10	1		Scrap Bin	None	
GE-00029	3.499	287021.363	3841306.377	Cultural Debris	Scrap	metal	N/A	N/A	1	5	0.5		Scrap Bin	None	
GF-00003	38.175	287014.819	3841127.569	Cultural Debris	Scrap	banding	N/A	N/A	1	5	10		Scrap Bin	None	
GF-00004	738.971	287015.103	3841128.884	Cultural Debris	Scrap	banding	N/A	N/A	1	4	10		Scrap Bin	None	
GF-00011	8.682	287008.487	3841218.396	Cultural Debris	Scrap	comm wire	N/A	N/A	1	18	0.5		Scrap Bin	None	
GF-00028	9.385	287012.622	3841269.123	Cultural Debris	Scrap	comm wire	N/A	N/A	1	18	.		Scrap Bin	None	
GF-00029	5.285	287011.998	3841283.095	Cultural Debris	Scrap	wire	N/A	N/A	2	10	5		Scrap Bin	None	
GF-00032	4.476	287010.924	3841311.547	Cultural Debris	Scrap	wire	N/A	N/A	1	10	0.5		Scrap Bin	None	
GG-00005	13.294	287026.878	3841105.994	Cultural Debris	Scrap	wire	N/A	N/A	1	12	0.2		Scrap Bin	None	
GG-00008	33.533	287027.745	3841111.052	Cultural Debris	Scrap	wire	N/A	N/A	1	12	0.5		Scrap Bin	None	
GG-00012	297.12	287029.403	3841123.362	Cultural Debris	Scrap	sheet metal	N/A	N/A	1	0	5		Scrap Bin	None	
GG-00015	3.485	287030.184	3841147.36	Cultural Debris	Scrap	wire	N/A	N/A	1	0	0.2		Scrap Bin	None	
GG-00019	13.343	287028.903	3841235.315	Cultural Debris	Scrap	aluminum	N/A	N/A	1	1	0.2		Scrap Bin	None	
GG-00020	15.523	287028.428	3841256.468	Cultural Debris	Scrap	bolt	N/A	N/A	4	2	0.5		Scrap Bin	None	
GG-00023	24.559	287030.685	3841270.899	Cultural Debris	Scrap	steel	N/A	N/A	2	18	2		Scrap Bin	None	
GG-00024	3.518	287031.878	3841278.533	Cultural Debris	Scrap	nail	N/A	N/A	3	1	0.2		Scrap Bin	None	
GI-00001	63.541	287044.616	3841130.847	Cultural Debris	Scrap	metal	N/A	N/A	1	3	2		Scrap Bin	None	
GI-00005	6.633	287041.393	3841188.078	Cultural Debris	Scrap	metal	N/A	N/A	1	2	0.2		Scrap Bin	None	
GI-00006	13.164	287035.398	3841242.96	Cultural Debris	Scrap	wire	N/A	N/A	2	0	0.2		Scrap Bin	None	
GI-00013	38.252	287032.601	3841312.691	Cultural Debris	Scrap	wire	N/A	N/A	4	0	0.5		Scrap Bin	None	
GI-00019	109.927	287039.428	3841341.101	Cultural Debris	Scrap	banding	N/A	N/A	20	18	10		Scrap Bin	None	
GI-00020	248.684	287040.281	3841342.799	Cultural Debris	Scrap	steel	N/A	N/A	15	18	10		Scrap Bin	None	
GJ-00004	3.69	287046.489	3841309.717	Cultural Debris	Scrap	nail	N/A	N/A	3	1	0.2		Scrap Bin	None	
GJ-00005	12.017	287045.844	3841313.441	Cultural Debris	Scrap	spike	N/A	N/A	2	2	1		Scrap Bin	None	
GK-00001	7.646	287056.414	3841216.466	Cultural Debris	Scrap	bolt	N/A	N/A	1	1	0.2		Scrap Bin	None	

Table E-1

MEC Intrusive Investigation Results

Site UXO-22 Expanded SI Report

Camp Lejeune, North Carolina

Anomaly ID	Amplitude	Easting	Northing	Group	Class	Category	Type	Description	Quantity	Depth	Weight	ADPit	Action	DemoReq	Item Comment
GK-00003	6.971	287046.925	3841290.556	Cultural Debris	Scrap	metal	N/A	N/A	20	2	0.5		Scrap Bin	None	
GK-00004	4.556	287048.944	3841315.363	Cultural Debris	Scrap	nail	N/A	N/A	2	2	0.2		Scrap Bin	None	
GL-00001	3.754	287061.017	3841256.654	Cultural Debris	Scrap	bolt	N/A	N/A	2	2	0.2		Scrap Bin	None	
GL-00005	6.761	287057.684	3841320.182	Cultural Debris	Scrap	bolt	N/A	N/A	1	1	0.2		Scrap Bin	None	
GM-00006	12.371	287071.116	3841337.657	Cultural Debris	Scrap	wire	N/A	N/A	2	2	0.5		Scrap Bin	None	
H-00014	36.765	287041.23	3841398.087	Cultural Debris	Scrap	pipe	N/A	N/A	1	18	10		Scrap Bin	None	
H-00020	117.341	287040.837	3841421.163	Cultural Debris	Scrap	pipe	N/A	N/A	5	18	10		Scrap Bin	None	
H-00044	17.562	287043.765	3841490.13	Cultural Debris	Scrap	cast iron	N/A	N/A	1	12	3		Scrap Bin	None	
H-00051	10.431	287043.272	3841510.689	Cultural Debris	Scrap	bolt	N/A	N/A	1	12	0.5		Scrap Bin	None	
H-00064	10.037	287046.732	3841602.053	Cultural Debris	Scrap	pipe	N/A	N/A	3	6	10		Scrap Bin	None	
H-00065	3.509	287046.879	3841606.643	No Contact	No Contact	N/A	N/A	N/A	0	0	0		Left in Place	None	
H-00066	5.472	287047.064	3841612.405	TBD	Greater than 4 feet	N/A	N/A	N/A	1	48	0		Left in Place	None	
H-00068	6.185	287047.352	3841621.105	Cultural Debris	Scrap	fence post	N/A	N/A	1	36	5		Scrap Bin	None	
H-00070	4.502	287047.682	3841630.765	Cultural Debris	Scrap	metal	N/A	N/A	1	3	0.2		Scrap Bin	None	
HA-00001	11.586	286633.34	3841290.66	Cultural Debris	Scrap	metal	N/A	N/A	4	12	1		Scrap Bin	None	
HA-00010	164.528	286632.68	3841309.62	MPPEH	Rocket	Nose cone, 3.5-inch, Practice, M29	None(empty)	Unfuzed	1	36	2	Y	Consolidation Point	Demil	
HA-00020	58.959	286633.59	3841329.37	Cultural Debris	Scrap	metal	N/A	N/A	4	6	2		Scrap Bin	None	
HA-00039	180.97	286635.84	3841379.07	Cultural Debris	Scrap	metal	N/A	N/A	15	36	3	Y	Scrap Bin	None	
HA-00041	28.308	286635.24	3841384.41	Cultural Debris	Scrap	nail	N/A	N/A	10	36	5		Scrap Bin	None	
HA-00043	125.493	286634.52	3841388.01	Cultural Debris	Scrap	banding	N/A	N/A	8	36	5		Scrap Bin	None	
HA-00050	77.669	286633.43	3841402.98	Cultural Debris	Scrap	banding	N/A	N/A	10	36	3		Scrap Bin	None	
HA-00056	156.536	286635.37	3841412.78	Cultural Debris	Scrap	banding	N/A	N/A	8	36	3		Scrap Bin	None	
HA-00070	3.996	286633.51	3841450.4	Cultural Debris	Scrap	banding	N/A	N/A	2	36	0.2		Scrap Bin	None	
HA-00072	31.563	286634.22	3841463.63	Cultural Debris	Scrap	metal	N/A	N/A	1	36	25		Scrap Bin	None	
HA-00075	39.327	286634.86	3841471.12	Cultural Debris	Scrap	pipe	N/A	N/A	4	18	20		Scrap Bin	None	
HA-00078	236.433	286633.57	3841480.17	Cultural Debris	Scrap	vehicle parts	N/A	N/A	15	10	10		Scrap Bin	None	
HA-00081	2945.952	286633.43	3841490.85	MPPEH	Small Arms	.50 Caliber	Expended	N/A	1	18	0.25		Consolidation Point	Demil	
HB-00007	27.222	286643.45	3841307.24	Cultural Debris	Scrap	pipe	N/A	N/A	5	36	5		Scrap Bin	None	
HB-00009	135.74	286643.73	3841310.66	Cultural Debris	Scrap	steel	N/A	N/A	15	36	40		Scrap Bin	None	
HB-00011	135.975	286643.92	3841314.51	Cultural Debris	Scrap	steel	N/A	N/A	5	36	10		Scrap Bin	None	
HB-00024	114.287	286642.36	3841343.76	Cultural Debris	Scrap	vehicle parts	N/A	N/A	6	12	10		Scrap Bin	None	
HB-00038	61.399	286642.69	3841368.44	Cultural Debris	Scrap	stake	N/A	N/A	8	12	5		Scrap Bin	None	
HB-00040	136.768	286642.48	3841373.67	Cultural Debris	Scrap	pipe	N/A	N/A	5	36	2		Scrap Bin	None	
HB-00043	241.56	286642.59	3841383.63	Cultural Debris	Scrap	crushed drums	N/A	N/A	5	36	5		Scrap Bin	None	
HB-00048	343.398	286643.53	3841397.35	Cultural Debris	Scrap	crushed drums	N/A	N/A	15	36	5		Scrap Bin	None	
HB-00050	350.734	286643.45	3841404.66	Cultural Debris	Scrap	crushed drums	N/A	N/A	40	36	20	Y	Scrap Bin	None	
HB-00057	25.726	286643.57	3841420.55	Cultural Debris	Scrap	wire	N/A	N/A	2	36	1	Y	Scrap Bin	None	
HB-00061	263.557	286644.01	3841428.01	Cultural Debris	Scrap	crushed drums	N/A	N/A	8	36	10	Y	Scrap Bin	None	
HB-00067	209.784	286642.97	3841451.4	Cultural Debris	Scrap	concrete with rebar	N/A	N/A	1	18	0		Left in Place	None	
HB-00087	17.51	286643.13	3841515.7	Cultural Debris	Scrap	metal	N/A	N/A	4	36	5		Scrap Bin	None	
HC-00005	133.147	286650.29	3841304.33	Cultural Debris	Scrap	rebar	N/A	N/A	5	36	10		Scrap Bin	None	
HC-00009	429.323	286650.33	3841315.05	Cultural Debris	Scrap	sheet metal	N/A	N/A	2	36	40		Scrap Bin	None	
HC-00013	6.523	286650.83	3841324.52	Cultural Debris	Scrap	steel	N/A	N/A	10	1	3		Scrap Bin	None	
HC-00023	18.57	286651.66	3841343.01	Cultural Debris	Scrap	metal	N/A	N/A	4	2	5		Scrap Bin	None	
HC-00028	30.687	286651.92	3841352.61	Cultural Debris	Scrap	metal	N/A	N/A	5	12	2		Scrap Bin	None	
HC-00031	91.866	286651.78	3841356.73	Cultural Debris	Scrap	rebar	N/A	N/A	10	10	5		Scrap Bin	None	
HC-00045	162.161	286651.3	3841401.85	Cultural Debris	Scrap	metal	N/A	N/A	15	6	5		Scrap Bin	None	
HC-00048	234.971	286651.32	3841411.75	Cultural Debris	Scrap	metal	N/A	N/A	10	36	5		Scrap Bin	None	
HC-00056	804.987	286651.18	3841444.12	Cultural Debris	Scrap	sheet metal	N/A	N/A	100	48	10	Y	Scrap Bin	None	
HC-00069	47.198	286649.89	3841476.53	MPPEH	Grenade	Grenade, 40mm, casing only	None(empty)	Unfuzed	1	10	0.5		Consolidation Point	Demil	
HC-00081	69.833	286650.08	3841515.8	MPPEH	Other	bomb lug	None(empty)	Unfuzed	1	36	5		Consolidation Point	Demil	
HC-00088	6381.539	286650.14	3841536.09	Cultural Debris	Scrap	metal	N/A	N/A	400	12	1000	Y	Scrap Bin	None	
HD-00002	332.82	286658.58	3841291.32	Cultural Debris	Scrap	metal	N/A	N/A	10	48	5		Scrap Bin	None	
HD-00008	32.995	286659.08	3841307.15	Cultural Debris	Scrap	metal	N/A	N/A	15	18	1		Scrap Bin	None	
HD-00014	371.887	286659.56	3841322.84	Cultural Debris	Scrap	metal	N/A	N/A	20	36	20		Scrap Bin	None	
HD-00031	75.11	286658.58	3841355.15	Cultural Debris	Scrap	concrete with rebar	N/A	N/A	1	36	0		Left in Place	None	
HD-00060	130.602	286660.33	3841414.23	Cultural Debris	Scrap	metal	N/A	N/A	100	36	10		Scrap Bin	None	
HD-00069	65.976	286660.08	3841434.34	Cultural Debris	Scrap	metal	N/A	N/A	4	10	2		Scrap Bin	None	
HD-00077	23.789	286660.54	3841460.33	Cultural Debris	Scrap	metal	N/A	N/A	2	10	1		Scrap Bin	None	
HD-00080	28.448	286660.63	3841467.05	Cultural Debris	Scrap	metal	N/A	N/A	1	36	0		Left in Place	None	
HE-00006	289.73	286667.82	3841299.73	Cultural Debris	Scrap	banding	N/A	N/A	10	36	80		Scrap Bin	None	

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MEC Intrusive Investigation Results

Site UXO-22 Expanded SI Report

Camp Lejeune, North Carolina

Anomaly ID	Amplitude	Easting	Northing	Group	Class	Category	Type	Description	Quantity	Depth	Weight	ADPit	Action	DemoReq	Item Comment
HE-00013	78.023	286669.32	3841324.92	Cultural Debris	Scrap	wire	N/A	N/A	30	36	10		Scrap Bin	None	
HE-00019	200.793	286668.84	3841334.16	Cultural Debris	Scrap	pipe	N/A	N/A	20	18	50		Scrap Bin	None	
HE-00030	29.804	286668.39	3841366.9	Cultural Debris	Scrap	metal	N/A	N/A	2	8	1		Scrap Bin	None	
HE-00031	196.123	286668.29	3841369.46	Cultural Debris	Scrap	rebar	N/A	N/A	2	18	3		Scrap Bin	None	
HE-00046	8.73	286668.54	3841402.55	Cultural Debris	Scrap	metal	N/A	N/A	1	6	0.5		Scrap Bin	None	
HE-00062	13.436	286667.78	3841439.5	Cultural Debris	Scrap	metal	N/A	N/A	2	2	1		Scrap Bin	None	
HE-00067	127.733	286667.61	3841453.89	MPPEH	Small Arms	30mm links	Expended	N/A	2	36	1		Consolidation Point	Demil	
HE-00070	68.632	286667.63	3841463.25	Cultural Debris	Scrap	cast iron	N/A	N/A	5	48	10		Scrap Bin	None	
HE-00072	101.421	286667.64	3841469.81	Cultural Debris	Scrap	rebar	N/A	N/A	4	36	5		Scrap Bin	None	
HE-00075	133.816	286667.58	3841479.06	Cultural Debris	Scrap	rebar	N/A	N/A	4	36	2		Scrap Bin	None	
HE-00087	441.889	286667.52	3841519.36	Cultural Debris	Scrap	metal	N/A	N/A	20	36	10		Scrap Bin	None	
HE-00096	2404.943	286668.4	3841544.29	Cultural Debris	Scrap	metal	N/A	N/A	2	8	20		Scrap Bin	None	
HF-00028	278.685	286675.55	3841359.15	MPPEH	Other	M1 clips	None(empty)	Unfuzed	100	8	5		Consolidation Point	Demil	
HF-00054	327.741	286676.72	3841421	Cultural Debris	Scrap	cast iron	N/A	N/A	3	8	20		Scrap Bin	None	
HF-00077	301.813	286675.67	3841513.67	MPPEH	Projectile	Projectile, 105mm, casing only	None(empty)	Unfuzed	15	18	50	Y	Consolidation Point	Demil	2- Rocket motor, 3.5-inch, Practice, M29
HF-00080	1518.593	286675.07	3841521.97	MPPEH	Projectile	Projectile, 105mm, casing only	None(empty)	Unfuzed	100	12	40	Y	Consolidation Point	Demil	
HF-00084	113.646	286677.4	3841531.08	MPPEH	Grenade	Grenade, 40mm, casing only	None(empty)	Unfuzed	80	12	40	Y	Consolidation Point	Demil	
HF-00088	5327.606	286679	3841540.36	Cultural Debris	Scrap	metal	N/A	N/A	50	36	200		Scrap Bin	None	
HG-00002	7567.949	286685.7	3841294.37	Cultural Debris	Scrap	sheet metal	N/A	N/A	1	0	2		Scrap Bin	None	
HG-00013	189.033	286687.36	3841314.76	Cultural Debris	Scrap	cast iron	N/A	N/A	4	18	20		Scrap Bin	None	
HG-00022	118.669	286685.26	3841339.05	Cultural Debris	Scrap	vehicle parts	N/A	N/A	20	36	100		Scrap Bin	None	
HG-00035	149.185	286684.72	3841369.19	Cultural Debris	Scrap	cast iron	N/A	N/A	3	18	10		Scrap Bin	None	
HG-00038	123.386	286684.42	3841377.05	Cultural Debris	Scrap	cast iron	N/A	N/A	6	8	15		Scrap Bin	None	
HG-00047	39.252	286684.08	3841406.5	Cultural Debris	Scrap	metal	N/A	N/A	3	6	2		Scrap Bin	None	
HG-00058	709.161	286684.27	3841431.42	Cultural Debris	Scrap	vehicle parts	N/A	N/A	4	3	50		Scrap Bin	None	
HG-00060	8.727	286684.09	3841437.71	Cultural Debris	Scrap	steel	N/A	N/A	3	6	0.5		Scrap Bin	None	
HG-00081	1081.878	286684.22	3841506.13	MPPEH	Rocket	Rocket motor, 3.5-inch, Practice, M29	None(empty)	Unfuzed	1	18	5	Y	Consolidation Point	Demil	
HH-00003	3708.106	286692.03	3841294.87	Cultural Debris	Scrap	sheet metal	N/A	N/A	3	0	50		Scrap Bin	None	
HH-00011	305.834	286693	3841315.22	Cultural Debris	Scrap	wire	N/A	N/A	5	10	5		Scrap Bin	None	
HH-00012	58.369	286693.11	3841317.29	Cultural Debris	Scrap	wire	N/A	N/A	2	8	2		Scrap Bin	None	
HH-00027	202.352	286693.6	3841357.9	Cultural Debris	Scrap	metal	N/A	N/A	4	36	50		Scrap Bin	None	
HH-00045	255.63	286692.95	3841405.97	Cultural Debris	Scrap	metal	N/A	N/A	20	18	5		Scrap Bin	None	
HH-00051	125.223	286691.47	3841418.76	Cultural Debris	Scrap	comm wire	N/A	N/A	1	36	2		Scrap Bin	None	
HH-00057	177.923	286691.9	3841431.27	Cultural Debris	Scrap	comm wire	N/A	N/A	3	2	15		Scrap Bin	None	
HH-00081	254.453	286694.2	3841499.03	Cultural Debris	Scrap	vehicle parts	N/A	N/A	1	12	5		Scrap Bin	None	
HH-00088	2836.328	286691.84	3841524.7	Cultural Debris	Scrap	sheet metal	N/A	N/A	2	12	20		Scrap Bin	None	
HH-00092	3448.402	286692.85	3841536.09	Cultural Debris	Scrap	sheet metal	N/A	N/A	1	18	25		Scrap Bin	None	
HH-00098	2031.448	286695.44	3841549.56	MPPEH	Rocket	Rocket motor, 3.5-inch, Practice, M29	None(empty)	Unfuzed	1	6	1	Y	Consolidation Point	Demil	
HI-00010	106.078	286701.29	3841314.6	Cultural Debris	Scrap	concrete with rebar	N/A	N/A	1	4	0		Left in Place	None	
HI-00021	54.15	286701.82	3841337.89	Cultural Debris	Scrap	steel	N/A	N/A	2	8	5		Scrap Bin	None	
HI-00033	69.003	286701.31	3841363.65	Cultural Debris	Scrap	rebar	N/A	N/A	6	8	3		Scrap Bin	None	
HI-00036	31.844	286701.65	3841370.99	Cultural Debris	Scrap	rebar	N/A	N/A	3	8	2		Scrap Bin	None	
HI-00039	212.258	286701.98	3841377.93	Cultural Debris	Scrap	cast iron	N/A	N/A	5	36	5		Scrap Bin	None	
HI-00042	9.11	286702.18	3841382.62	MPPEH	Grenade	Grenade, Hand, Practice, Mk2	None(empty)	Unfuzed	3	6	2		Consolidation Point	Demil	
HI-00059	164.677	286701.01	3841426.75	Cultural Debris	Scrap	wire	N/A	N/A	4	36	15		Scrap Bin	None	
HI-00071	55.633	286701.66	3841453.68	MPPEH	Grenade	Grenade, 40mm, casing only	None(empty)	Unfuzed	1	36	0.5	Y	Consolidation Point	Demil	
HI-00087	8534.946	286700.7	3841509.6	MPPEH	Ammo can	empty	None(empty)	Unfuzed	1	36	1	Y	Consolidation Point	Demil	
HJ-00008	19.35	286709.73	3841304.2	Cultural Debris	Scrap	rebar	N/A	N/A	1	36	100		Scrap Bin	None	
HJ-00017	225.405	286709	3841323.5	Cultural Debris	Scrap	rebar	N/A	N/A	10	48	5		Scrap Bin	None	
HJ-00039	121.947	286710.39	3841368.69	Cultural Debris	Scrap	rebar	N/A	N/A	4	36	2		Scrap Bin	None	
HJ-00043	204.393	286710.59	3841381.72	Cultural Debris	Scrap	rebar	N/A	N/A	10	18	20		Scrap Bin	None	
HJ-00045	201.467	286710.91	3841384.19	MPPEH	Small Arms	.50 Caliber	Expended	N/A	1	24	0.1	Y	Consolidation Point	Demil	
HJ-00052	355.125	286710.61	3841405.63	Cultural Debris	Scrap	metal	N/A	N/A	3	6	2		Scrap Bin	None	
HJ-00057	103.873	286710.59	3841419.67	Cultural Debris	Scrap	metal	N/A	N/A	4	8	3		Scrap Bin	None	
HJ-00069	19.211	286710.24	3841438.95	Battery	Battery Pit	N/A	N/A	N/A	4	36	0		Left in Place	None	
HJ-00073	51.416	286710.35	3841447.55	Battery	Battery Pit	N/A	N/A	N/A	3	18	0		Left in Place	None	
HJ-00085	316.009	286711.23	3841489.36	MPPEH	Projectile	Projectile, 105mm, casing only	None(empty)	Unfuzed	1	12	10	Y	Consolidation Point	Demil	
HJ-00086	704.3	286711.13	3841490.87	MPPEH	Rocket	Rocket motor, 3.5-inch, Practice, M29	None(empty)	Unfuzed	1	24	1	Y	Consolidation Point	Demil	
HJ-00093	1675.519	286710.14	3841505.04	MPPEH	Projectile	Projectile, 81mm, M43, fins only	None(empty)	Unfuzed	4	12	12	Y	Consolidation Point	Demil	
HJ-00103	10508.154	286709.97	3841530.3	Cultural Debris	Scrap	vehicle parts	N/A	N/A	1	0	0		Left in Place	None	
HJ-00112	693.771	286713.86	3841551.61	MPPEH	Rocket	Rocket motor, 3.5-inch, Practice, M29	None(empty)	Unfuzed	1	25	0.5	Y	Consolidation Point	Demil	

Table E-1

MEC Intrusive Investigation Results

Site UXO-22 Expanded SI Report

Camp Lejeune, North Carolina

Anomaly ID	Amplitude	Easting	Northing	Group	Class	Category	Type	Description	Quantity	Depth	Weight	ADPit	Action	DemoReq	Item Comment
HK-00006	72.767	286718.5	3841300.77	Cultural Debris	Scrap	vehicle parts	N/A	N/A	20	36	50		Left in Place	None	
HK-00010	321.343	286718.66	3841307.29	Cultural Debris	Scrap	steel	N/A	N/A	100	36	20		Scrap Bin	None	
HK-00032	37.106	286720.38	3841375.25	Cultural Debris	Scrap	steel	N/A	N/A	1	6	1		Scrap Bin	None	
HK-00036	518.371	286719.46	3841387.25	Cultural Debris	Scrap	wire	N/A	N/A	1	24	0	Y	Left in Place	None	
HK-00040	302.633	286718.6	3841399.74	MPPEH	Projectile	Projectile, 106mm, casing only	None(empty)	Unfuzed	1	6	20		Consolidation Point	Demil	
HK-00043	1031.371	286719.18	3841412.16	Cultural Debris	Scrap	cast iron	N/A	N/A	20	8	60		Scrap Bin	None	
HK-00046	266.981	286719.27	3841418.95	Cultural Debris	Scrap	vehicle parts	N/A	N/A	20	36	15		Scrap Bin	None	
HK-00054	21.045	286719.67	3841440.2	Cultural Debris	Scrap	metal	N/A	N/A	3	10	2		Scrap Bin	None	
HK-00094	557.949	286717.23	3841541.92	MPPEH	Rocket	Rocket motor, 3.5-inch, Practice, M29	None(empty)	Unfuzed	3	36	10		Consolidation Point	Demil	
HK-00095	538.54	286717.25	3841543.82	Cultural Debris	Scrap	metal	N/A	N/A	5	24	10		Scrap Bin	None	
HL-00006	24.036	286728.29	3841297.06	Cultural Debris	Scrap	rebar	N/A	N/A	6	18	5		Scrap Bin	None	
HL-00010	184.4	286728.92	3841306.15	MPPEH	Projectile	Projectile, 105mm, casing only	None(empty)	Unfuzed	2	18	5		Consolidation Point	Demil	
HL-00024	73.112	286727.16	3841338.19	Cultural Debris	Scrap	rebar	N/A	N/A	4	48	2		Scrap Bin	None	
HL-00031	26.031	286725.95	3841353.67	Cultural Debris	Scrap	metal	N/A	N/A	3	48	10		Scrap Bin	None	
HL-00037	116.457	286726.2	3841365.4	Cultural Debris	Scrap	rebar	N/A	N/A	10	18	4		Scrap Bin	None	
HL-00063	106.783	286726.82	3841439.77	Battery	Battery Pit	N/A	N/A	N/A	1	8	0		Left in Place	None	
HL-00068	179.911	286726.12	3841447.27	Cultural Debris	Scrap	cast iron	N/A	N/A	1	8	5		Scrap Bin	None	
HL-00071	155.74	286725.48	3841455.94	Battery	Battery Pit	N/A	N/A	N/A	1	36	0		Left in Place	None	
HL-00073	6.829	286725.46	3841459.44	Cultural Debris	Scrap	metal	N/A	N/A	1	0	0.2		Scrap Bin	None	
HL-00082	159.074	286724.68	3841482.07	Battery	Battery Pit	N/A	N/A	N/A	1	18	0		Left in Place	None	
HL-00084	62.281	286724.04	3841486.03	Battery	Battery Pit	N/A	N/A	N/A	1	18	0		Left in Place	None	
HL-00095	342.971	286725.33	3841507.01	MPPEH	Rocket	Nose cone, 3.5-inch, Practice, M29	None(empty)	Unfuzed	1	24	0.25		Consolidation Point	Demil	
HL-00112	60.493	286725.9	3841534.6	Cultural Debris	Scrap	rebar	N/A	N/A	3	8	3		Scrap Bin	None	
HM-00007	435.74	286735.27	3841306.78	Cultural Debris	Scrap	steel	N/A	N/A	2	18	25		Scrap Bin	None	
HM-00047	978.181	286734.9	3841394.59	Cultural Debris	Scrap	cast iron	N/A	N/A	15	12	100		Scrap Bin	None	
HM-00058	600.639	286734.01	3841427.71	Cultural Debris	Scrap	vehicle parts	N/A	N/A	100	12	30		Scrap Bin	None	
HM-00068	100.694	286734.19	3841445.06	Battery	Battery Pit	N/A	N/A	N/A	1	12	0		Left in Place	None	
HM-00069	59.297	286734.17	3841446.25	Cultural Debris	Scrap	metal	N/A	N/A	3	6	1		Scrap Bin	None	
HM-00077	27.9	286735.06	3841466.55	Cultural Debris	Scrap	metal	N/A	N/A	1	12	2		Scrap Bin	None	
HM-00086	156.195	286734.76	3841489.01	Battery	Battery Pit	N/A	N/A	N/A	1	36	0		Left in Place	None	
HM-00092	4553.762	286734.06	3841503.43	Cultural Debris	Scrap	metal	N/A	N/A	2	0	50		Scrap Bin	None	
HM-00111	54.795	286735	3841542.82	Cultural Debris	Scrap	metal	N/A	N/A	3	3	0.1		Scrap Bin	None	
HM-00115	139.677	286735.26	3841550.17	Cultural Debris	Scrap	metal	N/A	N/A	4	3	3		Scrap Bin	None	
HM-00118	105.548	286735.19	3841555.38	Cultural Debris	Scrap	metal	N/A	N/A	20	12	10		Scrap Bin	None	
HN-00002	77.561	286743.77	3841292.3	Cultural Debris	Scrap	cast iron	N/A	N/A	10	48	20		Scrap Bin	None	
HN-00014	385.292	286743.05	3841310.16	Cultural Debris	Scrap	sheet metal	N/A	N/A	10	18	50		Scrap Bin	None	
HN-00033	143.001	286743.2	3841343.03	Cultural Debris	Scrap	pipe	N/A	N/A	4	8	10		Scrap Bin	None	
HN-00038	82.636	286741.28	3841351.72	Cultural Debris	Scrap	angle iron	N/A	N/A	10	8	5		Scrap Bin	None	
HN-00039	182.246	286741.56	3841354.45	Cultural Debris	Scrap	cast iron	N/A	N/A	10	18	50		Scrap Bin	None	
HN-00070	212.136	286744.11	3841417.34	Cultural Debris	Scrap	aluminum	N/A	N/A	10	36	20		Scrap Bin	None	
HN-00076	291.476	286743.49	3841429.33	Cultural Debris	Scrap	rebar	N/A	N/A	2	8	20		Scrap Bin	None	
HN-00106	92.113	286743.03	3841494.7	Battery	Battery Pit	N/A	N/A	N/A	1	6	0		Left in Place	None	
HN-00111	34.976	286743.07	3841506.55	Cultural Debris	Scrap	metal	N/A	N/A	3	0	1		Scrap Bin	None	
HN-00113	99.168	286743.39	3841515.7	MPPEH	Other	M1 Clips	None(empty)	Unfuzed	20	10	1		Consolidation Point	Demil	
HN-00129	99.291	286742.67	3841554.63	Cultural Debris	Scrap	metal	N/A	N/A	2	6	4		Scrap Bin	None	
HO-00014	243.784	286752.86	3841311.88	Cultural Debris	Scrap	pipe	N/A	N/A	10	36	25		Scrap Bin	None	
HO-00029	64.646	286750.92	3841346.45	Cultural Debris	Scrap	angle iron	N/A	N/A	10	36	15		Scrap Bin	None	
HO-00056	80.719	286751.02	3841398.09	Cultural Debris	Scrap	cast iron	N/A	N/A	5	24	10		Scrap Bin	None	
HO-00064	234.895	286751.01	3841423	Cultural Debris	Scrap	metal	N/A	N/A	6	18	20		Scrap Bin	None	
HO-00072	861.739	286749.73	3841439.52	MPPEH	Small Arms	30mm links	Expended	N/A	100	0	5		Consolidation Point	Demil	
HO-00094	1091.111	286752.18	3841489.56	Cultural Debris	Scrap	banding	N/A	N/A	15	48	5		Scrap Bin	None	
HO-00099	1133.765	286749.65	3841501.73	Cultural Debris	Scrap	pipe	N/A	N/A	15	48	20		Scrap Bin	None	
HO-00127	179.587	286750.13	3841569.05	Cultural Debris	Scrap	metal	N/A	N/A	50	48	20		Scrap Bin	None	
HP-00023	2325.719	286759.87	3841329.78	Cultural Debris	Scrap	cast iron	N/A	N/A	100	8	20		Scrap Bin	None	
HP-00029	222.819	286761.29	3841342.31	Cultural Debris	Scrap	cast iron	N/A	N/A	15	18	10		Scrap Bin	None	
HP-00052	1608.239	286758.5	3841390.35	Cultural Debris	Scrap	metal	N/A	N/A	3	48	20		Scrap Bin	None	
HP-00055	28.833	286758.94	3841393.73	Cultural Debris	Scrap	stake	N/A	N/A	8	10	2		Scrap Bin	None	
HP-00069	43.734	286760.45	3841416	Cultural Debris	Scrap	vehicle parts	N/A	N/A	6	10	2		Scrap Bin	None	
HP-00076	232.016	286760.68	3841431.02	Cultural Debris	Scrap	vehicle parts	N/A	N/A	10	10	5		Scrap Bin	None	
HP-00120	55.509	286761.16	3841539.48	Cultural Debris	Scrap	metal	N/A	N/A	15	18	5		Scrap Bin	None	
HP-00124	6081.755	286760.84	3841547.05	Cultural Debris	Scrap	drum lid	N/A	N/A	8	12	25		Scrap Bin	None	

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MEC Intrusive Investigation Results

Site UXO-22 Expanded SI Report

Camp Lejeune, North Carolina

Anomaly ID	Amplitude	Easting	Northing	Group	Class	Category	Type	Description	Quantity	Depth	Weight	ADPit	Action	DemoReq	Item Comment
HP-00130	318.389	286759.85	3841559.27	Cultural Debris	Scrap	pipe	N/A	N/A	6	36	15		Scrap Bin	None	
HQ-00006	231.309	286768.85	3841298.57	Cultural Debris	Scrap	metal	N/A	N/A	5	10	10		Scrap Bin	None	
HQ-00018	29.199	286768.3	3841328.37	Cultural Debris	Scrap	angle iron	N/A	N/A	5	10	10		Scrap Bin	None	
HQ-00020	223.188	286767.72	3841332.5	Cultural Debris	Scrap	cast iron	N/A	N/A	20	10	50		Scrap Bin	None	
HQ-00024	80.33	286767.48	3841338.82	Cultural Debris	Scrap	steel	N/A	N/A	2	10	75		Scrap Bin	None	
HQ-00040	950.66	286767.72	3841384.4	Cultural Debris	Scrap	steel	N/A	N/A	1	12	15		Scrap Bin	None	
HQ-00044	11.17	286766.51	3841390.49	Cultural Debris	Scrap	metal	N/A	N/A	4	10	0.5		Scrap Bin	None	
HQ-00047	141.713	286767.06	3841398.71	Cultural Debris	Scrap	banding	N/A	N/A	10	8	5		Scrap Bin	None	
HQ-00082	35.844	286767.88	3841470.74	Cultural Debris	Scrap	metal	N/A	N/A	3	8	1		Scrap Bin	None	
HQ-00087	334.114	286767.29	3841477.22	Cultural Debris	Scrap	cast iron	N/A	N/A	10	48	2		Scrap Bin	None	
HQ-00096	4.462	286768.15	3841501.36	Cultural Debris	Scrap	bolt	N/A	N/A	1	2	0.5		Scrap Bin	None	
HQ-00102	76.396	286768.03	3841517.58	Cultural Debris	Scrap	metal	N/A	N/A	6	24	8		Scrap Bin	None	
HQ-00114	204.989	286768.21	3841541.83	Cultural Debris	Scrap	steel	N/A	N/A	20	36	100		Scrap Bin	None	
HQ-00116	70.785	286768.06	3841544.51	MPPEH	Grenade	Grenade, Hand, Practice, M69	None(empty)	Unfuzed	3	3	2		Consolidation Point	Demil	
HR-00031	262.762	286776.55	3841369.7	Cultural Debris	Scrap	metal	N/A	N/A	12	10	10		Scrap Bin	None	
HR-00070	256.805	286776.54	3841457.85	Cultural Debris	Scrap	pipe	N/A	N/A	20	18	2		Scrap Bin	None	
HR-00074	158.004	286776.18	3841468.89	Cultural Debris	Scrap	cast iron	N/A	N/A	10	12	25		Scrap Bin	None	
HR-00081	530.996	286776.28	3841483.5	MPPEH	Projectile	Projectile, 105mm, casing only	None(empty)	Unfuzed	1	12	5		Consolidation Point	Demil	
HR-00083	21.239	286776.32	3841488.68	Cultural Debris	Scrap	metal	N/A	N/A	1	6	2		Scrap Bin	None	
HR-00088	30.801	286776.21	3841499.2	Cultural Debris	Scrap	rachette	N/A	N/A	1	2	0.5		Scrap Bin	None	
HR-00099	32.2	286776.42	3841530.95	Cultural Debris	Scrap	metal	N/A	N/A	2	3	2		Scrap Bin	None	
HR-00116	16.798	286776.49	3841559.49	Cultural Debris	Scrap	metal	N/A	N/A	20	18	10		Scrap Bin	None	
HS-00001	7.392	286785.43	3841287.07	Cultural Debris	Scrap	metal	N/A	N/A	2	18	5		Scrap Bin	None	
HS-00022	13.387	286787.41	3841339.53	Cultural Debris	Scrap	metal	N/A	N/A	2	8	2		Scrap Bin	None	
HS-00035	111.181	286786.17	3841362.73	Cultural Debris	Scrap	metal	N/A	N/A	5	12	20		Scrap Bin	None	
HS-00057	246.145	286785.23	3841411.76	Cultural Debris	Scrap	pipe	N/A	N/A	2	12	20		Scrap Bin	None	
HS-00081	31.493	286785.22	3841461.5	Cultural Debris	Scrap	pipe	N/A	N/A	6	10	10		Scrap Bin	None	
HS-00087	56.87	286785.33	3841473.34	Cultural Debris	Scrap	building debris	N/A	N/A	10	10	1		Scrap Bin	None	
HS-00090	49.192	286785.12	3841482.58	Cultural Debris	Scrap	bracket	N/A	N/A	1	6	2		Scrap Bin	None	
HS-00092	16.547	286785.28	3841485.29	Cultural Debris	Scrap	metal	N/A	N/A	1	6	2		Scrap Bin	None	
HS-00109	363.092	286784.61	3841534.65	Cultural Debris	Scrap	pipe	N/A	N/A	1	3	10		Scrap Bin	None	
HT-00005	1519.025	286793.92	3841298.39	Cultural Debris	Scrap	metal	N/A	N/A	1	24	0		Left in Place	None	
HT-00010	2758.495	286793.31	3841309.19	Cultural Debris	Scrap	vehicle parts	N/A	N/A	1	12	100		Scrap Bin	None	
HT-00016	47.935	286792.65	3841324.06	Cultural Debris	Scrap	metal	N/A	N/A	3	12	10		Scrap Bin	None	
HT-00017	223.395	286792.44	3841325.85	Cultural Debris	Scrap	sheet metal	N/A	N/A	2	6	5		Scrap Bin	None	
HT-00021	2961.196	286791.62	3841334.84	Cultural Debris	Scrap	metal	N/A	N/A	10	6	100		Scrap Bin	None	
HT-00040	36.633	286793.71	3841364.56	Cultural Debris	Scrap	banding	N/A	N/A	8	18	10		Scrap Bin	None	
HT-00077	91.595	286794.05	3841448.32	MPPEH	Other	M1 Clips	None(empty)	Unfuzed	200	8	20		Consolidation Point	Demil	
HT-00087	19.992	286795.31	3841473.32	Cultural Debris	Scrap	vehicle parts	N/A	N/A	200	8	10		Scrap Bin	None	
HT-00088	108.857	286795.23	3841476.15	Cultural Debris	Scrap	stake	N/A	N/A	8	8	1		Scrap Bin	None	
HT-00090	467.031	286794.91	3841480.18	Cultural Debris	Scrap	metal	N/A	N/A	15	36	10		Scrap Bin	None	
HT-00112	87.664	286793.98	3841534.5	MPPEH	Rocket	Nose cone, 3.5-inch, Practice, M29	None(empty)	Unfuzed	4	12	5		Consolidation Point	Demil	
HT-00117	61.612	286794.36	3841540.34	Cultural Debris	Scrap	trash pit	N/A	N/A	6	12	3		Scrap Bin	None	
HU-00003	112.969	286802.66	3841292.14	Cultural Debris	Scrap	vehicle parts	N/A	N/A	4	8	7		Scrap Bin	None	
HU-00005	3.392	286802.61	3841297.94	Cultural Debris	Scrap	bolt	N/A	N/A	1	4	0.2		Scrap Bin	None	
HU-00007	25.224	286802.64	3841302.07	Cultural Debris	Scrap	metal	N/A	N/A	3	8	2		Scrap Bin	None	
HU-00013	17.743	286803.28	3841313.05	Cultural Debris	Scrap	vehicle parts	N/A	N/A	6	8	1		Scrap Bin	None	
HU-00035	114.63	286801.94	3841358.39	Cultural Debris	Scrap	rebar	N/A	N/A	4	6	2		Scrap Bin	None	
HU-00040	142.281	286802.26	3841366.19	MPPEH	Grenade	Grenade, 40mm, casing only	None(empty)	Unfuzed	4	2	1		Consolidation Point	Demil	
HU-00044	58.318	286801.76	3841374.45	Cultural Debris	Scrap	banding	N/A	N/A	15	48	10		Scrap Bin	None	
HU-00052	831.652	286801.36	3841390.29	Battery	Battery Pit	N/A	N/A	N/A	15	48	0		Left in Place	None	
HU-00058	174.485	286802.92	3841403.21	Cultural Debris	Scrap	sheet metal	N/A	N/A	2	12	10		Scrap Bin	None	
HU-00071	8.175	286801.25	3841430.68	MPPEH	Other	M1 Clips	None(empty)	Unfuzed	200	48	20		Consolidation Point	Demil	
HU-00079	201.121	286803.01	3841448.67	Cultural Debris	Scrap	banding	N/A	N/A	4	24	7		Scrap Bin	None	
HU-00081	38.673	286802.96	3841452.66	Cultural Debris	Scrap	metal	N/A	N/A	5	24	2		Scrap Bin	None	
HU-00087	127.538	286802.69	3841464.63	Cultural Debris	Scrap	pipe	N/A	N/A	10	48	10		Scrap Bin	None	
HU-00099	165.336	286801.02	3841486.66	Cultural Debris	Scrap	pipe	N/A	N/A	4	12	0.5		Scrap Bin	None	
HU-00106	6.135	286800.1	3841502.47	Cultural Debris	Scrap	nail	N/A	N/A	12	6	0.25		Scrap Bin	None	
HU-00108	50.315	286799.64	3841508.26	Cultural Debris	Scrap	banding	N/A	N/A	2	48	4		Scrap Bin	None	
HU-00116	4.323	286800.98	3841521.68	Cultural Debris	Scrap	metal	N/A	N/A	1	2	0.2		Scrap Bin	None	
HU-00117	5.852	286801.04	3841522.61	Cultural Debris	Scrap	metal	N/A	N/A	1	6	0.2		Scrap Bin	None	

Table E-1

MEC Intrusive Investigation Results

Site UXO-22 Expanded SI Report

Camp Lejeune, North Carolina

Anomaly ID	Amplitude	Easting	Northing	Group	Class	Category	Type	Description	Quantity	Depth	Weight	ADPit	Action	DemoReq	Item Comment
HV-00007	642.786	286810.6	3841301.67	Cultural Debris	Scrap	vehicle parts	N/A	N/A	50	48	30		Scrap Bin	None	
HV-00011	5.813	286811.27	3841307.65	Cultural Debris	Scrap	metal	N/A	N/A	2	6	0.5		Scrap Bin	None	
HV-00017	4.22	286811.03	3841322.62	Cultural Debris	Scrap	steel	N/A	N/A	1	6	1		Scrap Bin	None	
HV-00018	550.775	286811.16	3841324.93	Cultural Debris	Scrap	vehicle parts	N/A	N/A	10	10	30		Scrap Bin	None	
HV-00019	93.173	286811.15	3841326.42	Cultural Debris	Scrap	pipe	N/A	N/A	4	6	8		Scrap Bin	None	
HV-00022	12.911	286811.08	3841330.62	Cultural Debris	Scrap	rebar	N/A	N/A	2	18	1		Scrap Bin	None	
HV-00025	625.574	286810.75	3841335.57	Cultural Debris	Scrap	banding	N/A	N/A	4	10	10		Scrap Bin	None	
HV-00039	35.433	286810.77	3841363.91	Cultural Debris	Scrap	metal	N/A	N/A	2	18	1		Scrap Bin	None	
HV-00042	205.206	286810.18	3841368.38	Cultural Debris	Scrap	metal	N/A	N/A	100	12	100		Scrap Bin	None	
HV-00065	49.205	286810.28	3841420.07	MPPEH	Other	M1 Clips	None(empty)	Unfuzed	15	12	5		Consolidation Point	Demil	
HV-00103	10.136	286810.26	3841509.36	Cultural Debris	Scrap	nail	N/A	N/A	3	6	0.5		Scrap Bin	None	
HW-00006	764.578	286818.58	3841301	Cultural Debris	Scrap	banding	N/A	N/A	10	36	15		Scrap Bin	None	
HW-00025	307.496	286817.54	3841345.64	Cultural Debris	Scrap	cast iron	N/A	N/A	10	10	25		Scrap Bin	None	
HW-00032	154.209	286818.72	3841358.56	Cultural Debris	Scrap	cast iron	N/A	N/A	4	18	20		Scrap Bin	None	
HW-00059	48.926	286818.22	3841423.68	Cultural Debris	Scrap	metal	N/A	N/A	6	12	2		Scrap Bin	None	
HW-00063	19.018	286818.22	3841432.19	Cultural Debris	Scrap	cast iron	N/A	N/A	4	6	2		Scrap Bin	None	
HW-00080	56.807	286819.18	3841466.46	Cultural Debris	Scrap	metal	N/A	N/A	2	3	1		Scrap Bin	None	
HW-00083	95.207	286819.25	3841472.15	Cultural Debris	Scrap	vehicle parts	N/A	N/A	2	6	2		Scrap Bin	None	
HW-00090	85.409	286818.25	3841490.55	Cultural Debris	Scrap	bolt	N/A	N/A	3	6	2		Scrap Bin	None	
HX-00004	89.855	286827.4	3841295.27	Cultural Debris	Scrap	vehicle parts	N/A	N/A	15	12	10		Scrap Bin	None	
HX-00016	9490.755	286827.83	3841315.78	Cultural Debris	Scrap	vehicle parts	N/A	N/A	50	18	100		Scrap Bin	None	
HX-00039	535.901	286828.12	3841372.8	Cultural Debris	Scrap	metal	N/A	N/A	1	0	15	Y	Scrap Bin	None	
HX-00059	13.069	286826.39	3841414.24	Cultural Debris	Scrap	metal	N/A	N/A	4	24	0.5		Scrap Bin	None	
HX-00062	825.151	286827.1	3841425.56	Battery	Battery Pit	N/A	N/A	N/A	5	36	0		Left in Place	None	
HX-00077	36.524	286827.27	3841466.96	Cultural Debris	Scrap	pipe	N/A	N/A	2	3	5		Scrap Bin	None	
HX-00084	28.957	286827.81	3841479.73	Cultural Debris	Scrap	pipe	N/A	N/A	3	3	5		Scrap Bin	None	
HX-00101	147.403	286827.17	3841524.16	Cultural Debris	Scrap	pipe	N/A	N/A	1	3	2		Scrap Bin	None	
HX-00109	10185.86	286827.79	3841540.84	MPPEH	Projectile	Projectile, 106mm, casing only	None(empty)	Unfuzed	1	3	3		Consolidation Point	Demil	
HY-00007	3070.624	286835.95	3841305.05	Cultural Debris	Scrap	vehicle parts	N/A	N/A	20	36	100	Y	Scrap Bin	None	
HY-00010	2862.975	286836.76	3841310.75	MPPEH	Projectile	Projectile, 105mm, shipping container	None(empty)	Unfuzed	3	12	40	Y	Consolidation Point	Demil	
HY-00025	1423.767	286835.92	3841343.19	MPPEH	Projectile	Projectile, 105mm, casing only	None(empty)	Unfuzed	1	12	50	Y	Consolidation Point	Demil	
HY-00031	7272.469	286835.86	3841351.93	MPPEH	Projectile	Projectile, 105mm, shipping container	None(empty)	Unfuzed	1	12	40	Y	Consolidation Point	Demil	
HY-00042	69.641	286835.63	3841382.25	Cultural Debris	Scrap	metal	N/A	N/A	1	3	3		Scrap Bin	None	
HY-00049	21.626	286835.69	3841399.58	Cultural Debris	Scrap	metal	N/A	N/A	2	6	2		Scrap Bin	None	
HY-00052	13.51	286836.38	3841408.08	Cultural Debris	Scrap	metal	N/A	N/A	2	6	1		Scrap Bin	None	
HY-00057	10.801	286835.93	3841421.07	Cultural Debris	Scrap	wire	N/A	N/A	6	36	1		Scrap Bin	None	
HY-00059	1441.297	286835.96	3841429.46	Cultural Debris	Scrap	vehicle parts	N/A	N/A	12	48	200		Scrap Bin	None	
HY-00075	735.66	286836.17	3841472.21	Cultural Debris	Scrap	metal	N/A	N/A	3	6	25		Scrap Bin	None	
HY-00081	50.576	286836.27	3841481.28	Cultural Debris	Scrap	metal	N/A	N/A	4	6	1		Scrap Bin	None	
HZ-00001	17.79	286844.72	3841298.26	Cultural Debris	Scrap	metal	N/A	N/A	2	8	1		Scrap Bin	None	
HZ-00004	7.476	286844.61	3841304.1	Cultural Debris	Scrap	rebar	N/A	N/A	1	18	1		Scrap Bin	None	
HZ-00026	733.304	286844.17	3841348.67	Cultural Debris	Scrap	vehicle parts	N/A	N/A	5	48	100		Scrap Bin	None	
HZ-00038	1385.385	286844.15	3841378.68	Cultural Debris	Scrap	vehicle parts	N/A	N/A	10	12	100		Scrap Bin	None	
HZ-00048	5.006	286844.36	3841400.2	Cultural Debris	Scrap	vehicle parts	N/A	N/A	4	6	0.5		Scrap Bin	None	
HZ-00061	908.311	286842.52	3841441.77	Cultural Debris	Scrap	trash pit	N/A	N/A	1	24	0	Y	Left in Place	None	
HZ-00065	222.015	286843.59	3841455.23	Cultural Debris	Scrap	trash pit	N/A	N/A	3	48	50	Y	Scrap Bin	None	
HZ-00070	38.994	286842.98	3841467.93	Cultural Debris	Scrap	metal	N/A	N/A	3	12	3		Scrap Bin	None	
HZ-00080	3215.473	286844.59	3841497.36	Cultural Debris	Scrap	metal	N/A	N/A	2	6	50		Scrap Bin	None	
I-00003	9.761	287038.515	3841370.495	Cultural Debris	Scrap	wire	N/A	N/A	3	10	0.5		Scrap Bin	None	
I-00064	39.622	287038.861	3841559.185	Cultural Debris	Scrap	rebar	N/A	N/A	3	6	1		Scrap Bin	None	
I-00070	5.363	287040.38	3841602.518	Cultural Debris	Scrap	metal	N/A	N/A	1	3	0.2		Scrap Bin	None	
I-00074	335.896	287041.042	3841625.125	Cultural Debris	Scrap	steel	N/A	N/A	1	2	5		Scrap Bin	None	
IA-00012	929.471	286853.1	3841322.42	Cultural Debris	Scrap	vehicle parts	N/A	N/A	15	36	100		Scrap Bin	None	
IA-00028	22.375	286851.47	3841365.29	Cultural Debris	Scrap	metal	N/A	N/A	3	36	3		Scrap Bin	None	
IA-00050	109.053	286852.3	3841407.5	Cultural Debris	Scrap	banding	N/A	N/A	3	24	3		Scrap Bin	None	
IA-00060	39.958	286851.94	3841421.78	Cultural Debris	Scrap	chain	N/A	N/A	2	36	10		Scrap Bin	None	
IA-00063	43.321	286852.2	3841425.09	Cultural Debris	Scrap	rebar	N/A	N/A	7	10	7		Scrap Bin	None	
IB-00007	5222.587	286861.69	3841318	Cultural Debris	Scrap	trash pit	N/A	N/A	10	36	100	Y	Scrap Bin	None	
IB-00010	268.48	286861.26	3841327.62	Cultural Debris	Scrap	banding	N/A	N/A	10	24	30		Scrap Bin	None	
IB-00014	302.08	286861.44	3841333.36	Cultural Debris	Scrap	vehicle parts	N/A	N/A	10	18	30		Scrap Bin	None	
IB-00035	538.816	286860.28	3841373.85	Cultural Debris	Scrap	banding	N/A	N/A	20	48	25		Scrap Bin	None	

Table E-1

MEC Intrusive Investigation Results

Site UXO-22 Expanded SI Report

Camp Lejeune, North Carolina

Anomaly ID	Amplitude	Easting	Northing	Group	Class	Category	Type	Description	Quantity	Depth	Weight	ADPit	Action	DemoReq	Item Comment
IB-00038	5.04	286860.26	3841379.19	MPPEH	Projectile	Projectile, 105mm, shipping container	None(empty)	Unfuzed	3	24	4		Consolidation Point	Demil	
IB-00057	7.135	286859.41	3841414.2	Cultural Debris	Scrap	wire	N/A	N/A	1	3	0.2		Scrap Bin	None	
IB-00059	4.681	286859.68	3841417.97	Cultural Debris	Scrap	spring	N/A	N/A	1	6	0.2		Scrap Bin	None	
IB-00064	341.07	286860.26	3841426.24	Cultural Debris	Scrap	pipe	N/A	N/A	2	24	5		Scrap Bin	None	
IC-00005	7.215	286869.22	3841308.56	Cultural Debris	Scrap	wire	N/A	N/A	2	2	0.2		Scrap Bin	None	
IC-00006	5.734	286869.31	3841309.54	Cultural Debris	Scrap	nail	N/A	N/A	1	8	0.2		Scrap Bin	None	
IC-00007	15.304	286869.43	3841312.11	Cultural Debris	Scrap	wire	N/A	N/A	3	8	1		Scrap Bin	None	
IC-00009	73.491	286869.24	3841318.63	Cultural Debris	Scrap	rail	N/A	N/A	4	36	40		Scrap Bin	None	
IC-00012	5.42	286869.73	3841325.56	Cultural Debris	Scrap	metal	N/A	N/A	4	6	1		Scrap Bin	None	
IC-00013	2632.558	286869.84	3841328.56	Cultural Debris	Scrap	banding	N/A	N/A	3	0	20		Scrap Bin	None	
IC-00026	5217.076	286868.69	3841357.47	Cultural Debris	Scrap	metal	N/A	N/A	1	36	200		Scrap Bin	None	
ID-00026	4059.075	286878.16	3841366.54	MPPEH	Projectile	Projectile, 105mm, shipping container	None(empty)	Unfuzed	1	24	5		Consolidation Point	Demil	
ID-00033	199.21	286876.91	3841378.57	Cultural Debris	Scrap	trash pit	N/A	N/A	5	48	10	Y	Scrap Bin	None	
ID-00036	97.51	286877.29	3841384.11	Cultural Debris	Scrap	rebar	N/A	N/A	10	18	6		Scrap Bin	None	
IE-00003	5387.705	286886.72	3841317.04	MPPEH	Projectile	Projectile, 105mm, shipping container	None(empty)	Unfuzed	1	36	5	Y	Consolidation Point	Demil	
IE-00004	10001.515	286887	3841319.05	MPPEH	Projectile	Projectile, 105mm, shipping container	None(empty)	Unfuzed	1	36	5	Y	Consolidation Point	Demil	
IE-00015	878.895	286887.5	3841341.05	Cultural Debris	Scrap	vehicle parts	N/A	N/A	30	18	30		Scrap Bin	None	
IE-00030	2711.245	286885.8	3841372.22	Cultural Debris	Scrap	vehicle parts	N/A	N/A	50	48	200		Scrap Bin	None	
IE-00034	129.065	286885.27	3841381.73	Cultural Debris	Scrap	sheet metal	N/A	N/A	1	48	50		Scrap Bin	None	
IE-00037	730.845	286884.74	3841390.38	Cultural Debris	Scrap	sheet metal	N/A	N/A	6	48	10		Scrap Bin	None	
IF-00004	6.861	286895.66	3841317.32	Cultural Debris	Scrap	metal	N/A	N/A	4	10	1		Scrap Bin	None	
IF-00007	23.641	286896.09	3841321.54	Cultural Debris	Scrap	metal	N/A	N/A	8	8	2		Scrap Bin	None	
IF-00012	2598.944	286894.79	3841335.27	Cultural Debris	Scrap	steel	N/A	N/A	10	18	100		Scrap Bin	None	
IF-00019	2346.559	286894.46	3841348.35	Cultural Debris	Scrap	burn pit	N/A	N/A	20	48	150		Scrap Bin	None	
IF-00024	737.014	286893.77	3841359.62	Cultural Debris	Scrap	burn pit	N/A	N/A	50	48	75		Scrap Bin	None	
IF-00027	2988.554	286892.69	3841366.38	Cultural Debris	Scrap	trash pit	N/A	N/A	20	48	200		Scrap Bin	None	
IF-00036	22.981	286894.69	3841381.61	Cultural Debris	Scrap	cable	N/A	N/A	10	48	20		Scrap Bin	None	
IG-00006	343.304	286902.6	3841326.32	Cultural Debris	Scrap	metal	N/A	N/A	10	18	10		Scrap Bin	None	
IG-00014	1202.569	286903.45	3841342.38	Cultural Debris	Scrap	metal	N/A	N/A	1	0	1		Scrap Bin	None	
IG-00020	61.622	286903.36	3841351.79	Cultural Debris	Scrap	metal	N/A	N/A	4	10	1		Scrap Bin	None	
IH-00008	90.596	286769.578	3841242.076	Cultural Debris	Scrap	metal	N/A	N/A	4	36	5		Scrap Bin	None	
II-00003	41.15	286760.89	3841192.893	Cultural Debris	Scrap	metal	N/A	N/A	2	24	15		Scrap Bin	None	
II-00020	17.357	286760.282	3841250.992	Cultural Debris	Scrap	wire	N/A	N/A	4	24	0.5		Scrap Bin	None	
II-00022	4.326	286760.395	3841255.628	Cultural Debris	Scrap	wire	N/A	N/A	1	3	0.1		Scrap Bin	None	
IJ-00020	51.896	286752.353	3841203.025	Cultural Debris	Scrap	rebar	N/A	N/A	1	10	2		Scrap Bin	None	
IK-00022	536.111	286743.69	3841191.532	Facility Resource	Road	N/A	N/A	N/A	1	0	0		Left in Place	None	
IK-00040	10.059	286743.692	3841253.795	Cultural Debris	Scrap	rebar	N/A	N/A	3	12	2		Scrap Bin	None	
IK-00049	26.875	286743.553	3841274.439	Cultural Debris	Scrap	trash pit	N/A	N/A	1	24	10		Scrap Bin	None	
IL-00002	10.48	286735.324	3841101.455	Facility Resource	Utility	N/A	N/A	N/A	1	24	0		Left in Place	None	
IL-00028	11.03	286735.481	3841224.329	Cultural Debris	Scrap	metal	N/A	N/A	1	12	0.5		Scrap Bin	None	
IL-00031	6.536	286735.444	3841238.233	Cultural Debris	Scrap	cable	N/A	N/A	1	24	5		Scrap Bin	None	
IL-00034	4.365	286735.066	3841257.216	Cultural Debris	Scrap	wire	N/A	N/A	1	0	0.2		Scrap Bin	None	
IM-00001	56.634	286726.877	3841096.048	Cultural Debris	Scrap	metal	N/A	N/A	1	3	10		Scrap Bin	None	
IM-00006	3.982	286727.291	3841127.905	No Contact	No Contact	N/A	N/A	N/A	0	0	0		Left in Place	None	
IM-00007	9.986	286727.311	3841130.292	Cultural Debris	Scrap	metal	N/A	N/A	2	26	5		Scrap Bin	None	
IM-00008	285.18	286727.462	3841137.702	Cultural Debris	Scrap	trash pit	N/A	N/A	20	48	50		Scrap Bin	None	
IM-00023	6.375	286726.957	3841215.152	Cultural Debris	Scrap	metal	N/A	N/A	2	48	10		Scrap Bin	None	
IN-00001	992.036	286718.82	3841094.244	Cultural Debris	Scrap	metal	N/A	N/A	1	3	300		Scrap Bin	None	
IN-00004	167.017	286718.792	3841132.941	Cultural Debris	Scrap	vehicle parts	N/A	N/A	1	36	100		Scrap Bin	None	
IN-00025	10.643	286718.632	3841217.649	Cultural Debris	Scrap	metal	N/A	N/A	15	36	30		Scrap Bin	None	
IN-00030	375.917	286718.524	3841234.27	Cultural Debris	Scrap	wire	N/A	N/A	1	48	10		Scrap Bin	None	
IO-00003	3.393	286710.278	3841118.857	Cultural Debris	Scrap	wire	N/A	N/A	1	0	0.1		Scrap Bin	None	
IO-00005	191.055	286710.284	3841124.977	Cultural Debris	Scrap	metal	N/A	N/A	1	6	3		Scrap Bin	None	
IO-00007	21.672	286710.204	3841132.755	Cultural Debris	Scrap	metal	N/A	N/A	1	24	2		Scrap Bin	None	
IO-00008	100.37	286710.106	3841135.661	Cultural Debris	Scrap	metal	N/A	N/A	1	24	5		Scrap Bin	None	
IO-00011	8.124	286709.57	3841151.245	Cultural Debris	Scrap	metal	N/A	N/A	1	0.2	0.5		Scrap Bin	None	
IO-00014	6.526	286709.531	3841165.825	Cultural Debris	Scrap	metal	N/A	N/A	1	24	1		Scrap Bin	None	
IO-00018	677.253	286710.509	3841184.501	Cultural Debris	Scrap	metal	N/A	N/A	5	36	40		Scrap Bin	None	
IO-00035	25.485	286710.218	3841245.423	Facility Resource	Monitoring well	N/A	N/A	N/A	1	0	0		Left in Place	None	
IO-00036	51.636	286710.258	3841246.192	Facility Resource	Monitoring well	N/A	N/A	N/A	1	0	0		Left in Place	None	
IP-00002	49.334	286701.922	3841098.276	Cultural Debris	Scrap	metal	N/A	N/A	1	6	1		Scrap Bin	None	

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Site UXO-22 Expanded SI Report

Camp Lejeune, North Carolina

Anomaly ID	Amplitude	Easting	Northing	Group	Class	Category	Type	Description	Quantity	Depth	Weight	ADPit	Action	DemoReq	Item Comment
IP-00007	7.091	286701.767	3841167.087	Cultural Debris	Scrap	metal	N/A	N/A	2	6	0.5		Scrap Bin	None	
IQ-00002	6.264	286694.732	3841098.754	Cultural Debris	Scrap	nail	N/A	N/A	3	6	0.2		Scrap Bin	None	
IQ-00005	6.449	286693.636	3841139.951	Cultural Debris	Scrap	wire	N/A	N/A	1	3	0.2		Scrap Bin	None	
IQ-00009	116.892	286692.885	3841180.635	Cultural Debris	Scrap	vehicle parts	N/A	N/A	4	24	5		Scrap Bin	None	
IQ-00019	58.419	286692.891	3841224.352	Cultural Debris	Scrap	vehicle parts	N/A	N/A	1	6	2		Scrap Bin	None	
IQ-00029	6.509	286693.441	3841263.657	Cultural Debris	Scrap	wire	N/A	N/A	3	6	0.2		Scrap Bin	None	
IR-00029	10.115	286625.239	3841353.089	Cultural Debris	Scrap	metal	N/A	N/A	1	24	3		Scrap Bin	None	
IR-00055	89.96	286626.251	3841418.47	MPPEH	Grenade	Grenade, Hand, Smoke, M8	None(empty)	Unfuzed	1	10	0.25		Consolidation Point	Demil	
IR-00060	506.825	286625.52	3841439.121	MPPEH	Rocket	Rocket motor, 3.5-inch, Practice, M29	None(empty)	Unfuzed	1	24	5	Y	Consolidation Point	Demil	
IR-00064	4.215	286626.19	3841453.56	Cultural Debris	Scrap	metal	N/A	N/A	2	6	0.2		Scrap Bin	None	
IS-00005	60.777	286617.63	3841293.604	Cultural Debris	Scrap	stake	N/A	N/A	1	0	0		Left in Place	None	
IS-00009	10.674	286619.032	3841299.136	Cultural Debris	Scrap	metal	N/A	N/A	1	8	1		Scrap Bin	None	
IS-00064	597.41	286617.611	3841460.915	Cultural Debris	Scrap	vehicle parts	N/A	N/A	15	36	30		Scrap Bin	None	
IS-00066	448.925	286617.678	3841463.485	Cultural Debris	Scrap	sheet metal	N/A	N/A	15	48	20		Scrap Bin	None	
IT-00020	11.295	286610.069	3841345.566	Cultural Debris	Scrap	cable	N/A	N/A	1	12	15		Scrap Bin	None	
IT-00062	543.28	286610.12	3841462.93	Cultural Debris	Scrap	sheet metal	N/A	N/A	3	48	30		Scrap Bin	None	
IT-00069	395.29	286608.876	3841484.74	MPPEH	Grenade	Grenade, 40mm, casing only	None(empty)	Unfuzed	1	18	0.5		Consolidation Point	Demil	
IU-00001	121.654	286599.576	3841294.874	Facility Resource	Utility	N/A	N/A	N/A	1	24	0		Left in Place	None	
IU-00006	26.284	286601.806	3841312.248	Cultural Debris	Scrap	cable	N/A	N/A	1	12	1		Scrap Bin	None	
IU-00007	99.278	286601.696	3841313.765	Cultural Debris	Scrap	sheet metal	N/A	N/A	4	18	1		Scrap Bin	None	
IU-00016	8.625	286601.89	3841337.872	Cultural Debris	Scrap	banding	N/A	N/A	1	2	0.2		Scrap Bin	None	
IU-00022	20.385	286601.831	3841347.651	Cultural Debris	Scrap	metal	N/A	N/A	1	2	0.5		Scrap Bin	None	
IU-00027	85.405	286601.467	3841362.766	Cultural Debris	Scrap	rebar	N/A	N/A	2	48	2		Scrap Bin	None	
IU-00038	98.32	286602.35	3841385.874	Cultural Debris	Scrap	vehicle parts	N/A	N/A	2	18	1		Scrap Bin	None	
IU-00051	1840.335	286601.87	3841404.36	MPPEH	Rocket	Rocket motor, 3.5-inch, Practice, M29	None(empty)	Unfuzed	1	12	1	Y	Consolidation Point	Demil	
IU-00052	2017.58	286601.875	3841406.054	Cultural Debris	Scrap	metal	N/A	N/A	4	10	1		Scrap Bin	None	
IV-00015	16.093	286593.428	3841331.47	Cultural Debris	Scrap	spike	N/A	N/A	1	10	1		Scrap Bin	None	
IV-00017	134.911	286592.738	3841338.015	Cultural Debris	Scrap	metal	N/A	N/A	2	10	10		Scrap Bin	None	
IW-00006	58.88	286585.191	3841326.339	Cultural Debris	Scrap	metal	N/A	N/A	2	6	5		Scrap Bin	None	
IW-00007	20.66	286585.161	3841327.358	Cultural Debris	Scrap	fence post	N/A	N/A	1	3	1		Scrap Bin	None	
IW-00013	40.1	286581.768	3841338.788	Cultural Debris	Scrap	spike	N/A	N/A	2	6	1		Scrap Bin	None	
IW-00020	2380.23	286580.769	3841353.899	Cultural Debris	Scrap	burn pit	N/A	N/A	1	36	4		Scrap Bin	None	
IW-00021	41.245	286581.168	3841357.081	Cultural Debris	Scrap	burn pit	N/A	N/A	2	36	2		Scrap Bin	None	
IW-00028	96.355	286582.405	3841374.957	MPPEH	Rocket	Rocket motor, 3.5-inch, Practice, M29	None(empty)	Unfuzed	1	12	5		Consolidation Point	Demil	
IW-00040	834.765	286591.992	3841401.392	Cultural Debris	Scrap	metal	N/A	N/A	30	12	50		Scrap Bin	None	
IW-00044	1185.995	286592.126	3841410.84	Cultural Debris	Scrap	trash pit	N/A	N/A	25	18	50	Y	Scrap Bin	None	
IW-00045	3403.38	286592.354	3841413.998	Cultural Debris	Scrap	metal	N/A	N/A	100	18	100		Scrap Bin	None	
J-00008	2520.45	287026.349	3841385.92	Cultural Debris	Scrap	pipe	N/A	N/A	1	6	20		Scrap Bin	None	
J-00012	10140.318	287027.246	3841394.184	Cultural Debris	Scrap	steel	N/A	N/A	25	18	100		Scrap Bin	None	
J-00020	145.933	287028.863	3841414.657	Cultural Debris	Scrap	fence post	N/A	N/A	4	8	10		Scrap Bin	None	
J-00024	113.227	287023.789	3841426.572	Cultural Debris	Scrap	pipe	N/A	N/A	2	10	2		Scrap Bin	None	
J-00055	3.863	287033.793	3841532.298	Cultural Debris	Scrap	bolt	N/A	N/A	1	3	0.2		Scrap Bin	None	
J-00059	11.127	287033.359	3841549.858	Cultural Debris	Scrap	sheet metal	N/A	N/A	1	48	1		Scrap Bin	None	
K-00013	1781.823	287021.427	3841389.077	Cultural Debris	Scrap	pipe	N/A	N/A	15	18	40		Scrap Bin	None	
K-00031	16.179	287016.739	3841437.725	Cultural Debris	Scrap	metal	N/A	N/A	1	6	1		Scrap Bin	None	
K-00043	40.917	287018.467	3841469.321	Cultural Debris	Scrap	wire	N/A	N/A	2	0	1		Scrap Bin	None	
K-00049	5.119	287018.289	3841492.39	Cultural Debris	Scrap	banding	N/A	N/A	1	2	0.5		Scrap Bin	None	
K-00054	4.555	287019.645	3841509.558	Cultural Debris	Scrap	nail	N/A	N/A	2	3	0.5		Scrap Bin	None	
K-00066	10.86	287022.301	3841567.784	MPPEH	Grenade	Grenade, 40mm, casing only	None(empty)	Unfuzed	1	24	1	Y	Consolidation Point	Demil	
K-00069	4.208	287022.34	3841591.473	Cultural Debris	Scrap	metal	N/A	N/A	1	2	0.25		Scrap Bin	None	
L-00010	6.712	287013.48	3841374.783	Cultural Debris	Scrap	metal	N/A	N/A	1	18	2		Scrap Bin	None	
L-00012	19.006	287012.39	3841380.822	Cultural Debris	Scrap	barbed wire	N/A	N/A	2	10	2		Scrap Bin	None	
L-00024	7.15	287012.77	3841419.092	Cultural Debris	Scrap	metal	N/A	N/A	1	3	1		Scrap Bin	None	
L-00042	439.931	287015.541	3841474.831	Cultural Debris	Scrap	cable	N/A	N/A	1	0	0		Left in Place	None	
L-00048	50.566	287015.186	3841504.123	Cultural Debris	Scrap	pipe	N/A	N/A	1	6	1		Scrap Bin	None	
L-00054	888.152	287012.087	3841527.784	MPPEH	Grenade	Grenade, 40mm, casing only	None(empty)	Unfuzed	1	6	1	Y	Consolidation Point	Demil	
L-00057	7.469	287011.088	3841543.155	MPPEH	Grenade	Grenade, 40mm, casing only	None(empty)	Unfuzed	1	24	1	Y	Consolidation Point	Demil	
L-00061	81.767	287010.732	3841566.713	No Contact	No Contact	N/A	N/A	N/A	0	0	0		Left in Place	None	Large contact outside of transect
L-00063	6.66	287011.804	3841580.558	Cultural Debris	Scrap	nail	N/A	N/A	2	2	0.2		Scrap Bin	None	
L-00065	11.272	287011.963	3841591.829	Cultural Debris	Scrap	metal	N/A	N/A	3	0	0.2		Scrap Bin	None	
L-00066	46.685	287011.897	3841595.161	Cultural Debris	Scrap	rebar	N/A	N/A	1	6	1		Scrap Bin	None	

Table E-1

MEC Intrusive Investigation Results

Site UXO-22 Expanded SI Report

Camp Lejeune, North Carolina

Anomaly ID	Amplitude	Easting	Northing	Group	Class	Category	Type	Description	Quantity	Depth	Weight	ADPit	Action	DemoReq	Item Comment
L-00067	6.207	287011.861	3841596.969	Cultural Debris	Scrap	metal	N/A	N/A	2	2	0.2		Scrap Bin	None	
L-00068	4.693	287011.789	3841600.586	Cultural Debris	Scrap	metal	N/A	N/A	1	2	0.2		Scrap Bin	None	
L-00074	5.616	287012.372	3841629.928	Cultural Debris	Scrap	metal	N/A	N/A	1	2	0.2		Scrap Bin	None	
M-00001	39.452	287002.08	3841349.866	Cultural Debris	Scrap	metal	N/A	N/A	1	6	1		Scrap Bin	None	
M-00006	1226.041	287001.692	3841361.86	Cultural Debris	Scrap	trash pit	N/A	N/A	1	12	0	Y	Left in Place	None	
M-00016	8.244	287003.035	3841402.531	Cultural Debris	Scrap	metal	N/A	N/A	1	6	0.2		Scrap Bin	None	
M-00027	4.05	287005.83	3841439.751	Cultural Debris	Scrap	pipe	N/A	N/A	1	1	1		Scrap Bin	None	
M-00057	11.638	287003.567	3841528.593	Cultural Debris	Scrap	bolt	N/A	N/A	1	18	0.2		Scrap Bin	None	
M-00059	13.353	287001.545	3841534.705	Cultural Debris	Scrap	metal	N/A	N/A	2	6	1		Scrap Bin	None	
M-00061	4.275	286998.945	3841545.309	Cultural Debris	Scrap	nail	N/A	N/A	5	8	0.2		Scrap Bin	None	
M-00067	5.402	286999.22	3841567.056	Cultural Debris	Scrap	nail	N/A	N/A	2	6	0.2		Scrap Bin	None	
M-00072	4.322	286999.245	3841579.905	Cultural Debris	Scrap	nail	N/A	N/A	2	6	0.2		Scrap Bin	None	
M-00073	9.864	287000.15	3841585.826	Cultural Debris	Scrap	metal	N/A	N/A	1	6	0.2		Scrap Bin	None	
N-00002	44.387	286995.238	3841353.205	QC	QC	QC Seed	N/A	N/A	1	6	1		Consolidation Point	None	Seed #05
N-00039	23.924	287006.052	3841480.987	Cultural Debris	Scrap	steel	N/A	N/A	1	6	1		Scrap Bin	None	
N-00047	8.428	287005.38	3841503.368	Cultural Debris	Scrap	spike	N/A	N/A	1	3	0.2		Scrap Bin	None	
N-00070	69.75	286993.177	3841571.134	QC	QC	QC Seed	N/A	N/A	1	6	1		Consolidation Point	None	Seed #04
N-00086	126.197	286994.457	3841622.405	Cultural Debris	Scrap	metal	N/A	N/A	2	6	2		Scrap Bin	None	
O-00008	312.566	286989.564	3841371.649	Cultural Debris	Scrap	vehicle parts	N/A	N/A	15	0	100		Scrap Bin	None	
O-00029	8.465	286992.476	3841422.222	Cultural Debris	Scrap	metal	N/A	N/A	2	6	0.5		Scrap Bin	None	
O-00033	308.097	286996.536	3841431.917	Cultural Debris	Scrap	comm wire spools	N/A	N/A	1	36	0		Left in Place	None	
O-00035	3.981	286999.244	3841435.83	Cultural Debris	Scrap	metal	N/A	N/A	1	6	0.2		Scrap Bin	None	
O-00038	4.101	286999.223	3841442.691	Cultural Debris	Scrap	metal	N/A	N/A	2	3	0.2		Scrap Bin	None	
O-00043	39.309	286998.164	3841461.81	Cultural Debris	Scrap	concrete with rebar	N/A	N/A	2	36	0		Left in Place	None	
O-00077	78.413	286986.465	3841547.097	Cultural Debris	Scrap	nail	N/A	N/A	100	18	1	Y	Scrap Bin	None	
O-00084	24.125	286988.131	3841571.315	Cultural Debris	Scrap	metal	N/A	N/A	2	6	0.5		Scrap Bin	None	
O-00096	3.763	286987.886	3841611.207	Cultural Debris	Scrap	metal	N/A	N/A	1	6	0.2		Scrap Bin	None	
O-00098	28.018	286986.833	3841627.437	Cultural Debris	Scrap	metal	N/A	N/A	3	6	1		Scrap Bin	None	
P-00006	13.012	286980.471	3841358.084	Cultural Debris	Scrap	trash pit	N/A	N/A	4	36	1	Y	Left in Place		
P-00012	50.909	286978.835	3841369.997	Cultural Debris	Scrap	rebar	N/A	N/A	3	18	5		Scrap Bin	None	
P-00013	204.745	286979.353	3841375.447	Cultural Debris	Scrap	rebar	N/A	N/A	15	36	50		Scrap Bin	None	
P-00021	249.559	286981.021	3841406.619	Cultural Debris	Scrap	vehicle parts	N/A	N/A	10	36	100		Scrap Bin	None	
P-00023	335.769	286981.1	3841409.737	Cultural Debris	Scrap	vehicle parts	N/A	N/A	4	2	15		Scrap Bin	None	
P-00025	357.842	286981.678	3841412.663	Battery	Battery Pit	N/A	N/A	N/A	1	12	0		Left in Place	None	
P-00039	63.062	286981.566	3841443.244	Cultural Debris	Scrap	steel	N/A	N/A	2	10	10		Scrap Bin	None	
P-00053	17.974	286981.987	3841486.182	Cultural Debris	Scrap	metal	N/A	N/A	1	3	1		Scrap Bin	None	
P-00063	30.255	286983.594	3841523.599	Cultural Debris	Scrap	chain link	N/A	N/A	2	10	1		Scrap Bin	None	
P-00076	12.116	286978.406	3841566.712	Cultural Debris	Scrap	nail	N/A	N/A	4	3	15		Scrap Bin	None	
P-00097	8.468	286978.203	3841646.545	Cultural Debris	Scrap	spike	N/A	N/A	2	6	0.2		Scrap Bin	None	
Q-00036	8.448	286971.67	3841433.638	Cultural Debris	Scrap	rebar	N/A	N/A	1	6	0.5		Scrap Bin	None	
Q-00044	158.882	286971.983	3841458.898	Cultural Debris	Scrap	metal	N/A	N/A	1	8	1		Scrap Bin	None	
Q-00094	4.09	286966.85	3841585.247	Cultural Debris	Scrap	nail	N/A	N/A	1	6	10		Scrap Bin	None	
R-00002	624.085	286964.222	3841343.246	Cultural Debris	Scrap	tank parts	N/A	N/A	20	36	0.2	Y	Left in Place	None	
R-00029	2296.11	286962.665	3841412.232	Cultural Debris	Scrap	vehicle parts	N/A	N/A	20	48	70	Y	Left in Place	None	
R-00042	314.157	286958.737	3841442.113	Cultural Debris	Scrap	vehicle parts	N/A	N/A	3	10	150	Y	Scrap Bin	None	
R-00058	22.155	286962.858	3841475.59	Cultural Debris	Scrap	vehicle parts	N/A	N/A	4	10	50		Scrap Bin	None	
R-00060	79.616	286960.958	3841480.316	Cultural Debris	Scrap	sheet metal	N/A	N/A	3	10	1		Scrap Bin	None	
R-00062	59.6	286959.667	3841483.526	Cultural Debris	Scrap	rebar	N/A	N/A	4	18	3		Scrap Bin	None	
R-00087	10926.861	286963.602	3841546.417	MPPEH	Projectile	Projectile, 105mm, casing only	None(empty)	Unfuzed	1	6	5		Consolidation Point	Demil	
R-00088	5400.826	286965.103	3841553.161	MPPEH	Projectile	Projectile, 105mm, casing only	None(empty)	Unfuzed	1	6	5		Consolidation Point	Demil	
R-00093	13.513	286961.853	3841567.963	Cultural Debris	Scrap	rebar	N/A	N/A	1	10	3		Scrap Bin	None	
R-00098	5.386	286962.149	3841583.454	Cultural Debris	Scrap	wire	N/A	N/A	2	10	0.5		Scrap Bin	None	
R-00101	34.345	286962.891	3841587.642	Cultural Debris	Scrap	rebar	N/A	N/A	2	36	2		Scrap Bin	None	
R-00105	5.832	286962.134	3841606.149	Cultural Debris	Scrap	nail	N/A	N/A	1	3	0.2		Scrap Bin	None	
S-00001	203.299	286955.417	3841335.193	Cultural Debris	Scrap	metal	N/A	N/A	20	48	10		Scrap Bin	None	
S-00002	1442.943	286955.146	3841342.19	Cultural Debris	Scrap	metal	N/A	N/A	20	48	15		Scrap Bin	None	
S-00010	10871.505	286954.345	3841361.976	Cultural Debris	Scrap	vehicle parts	N/A	N/A	15	36	50		Scrap Bin	None	
S-00019	17.473	286953.673	3841385.776	Cultural Debris	Scrap	vehicle parts	N/A	N/A	1	18	1		Scrap Bin	None	
S-00031	29.717	286953.306	3841418.459	Cultural Debris	Scrap	tires	N/A	N/A	1	36	0.2		Scrap Bin	None	
S-00047	15.05	286953.032	3841459.591	Cultural Debris	Scrap	pipe	N/A	N/A	1	24	1		Scrap Bin	None	
S-00049	22.789	286954.376	3841463.347	Cultural Debris	Scrap	vehicle parts	N/A	N/A	2	8	0.5		Scrap Bin	None	

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MEC Intrusive Investigation Results

Site UXO-22 Expanded SI Report

Camp Lejeune, North Carolina

Anomaly ID	Amplitude	Easting	Northing	Group	Class	Category	Type	Description	Quantity	Depth	Weight	ADPit	Action	DemoReq	Item Comment
S-00052	33.528	286956.418	3841468.449	Cultural Debris	Scrap	pipe	N/A	N/A	2	8	1		Scrap Bin	None	
S-00055	1425.923	286959.263	3841475.556	Cultural Debris	Scrap	vehicle parts	N/A	N/A	4	4	10		Scrap Bin	None	
S-00066	34.471	286951.799	3841517.565	Cultural Debris	Scrap	metal	N/A	N/A	1	18	1		Scrap Bin	None	
T-00001	114.908	286949.008	3841333.591	Cultural Debris	Scrap	vehicle parts	N/A	N/A	15	48	10		Scrap Bin	None	
T-00011	57.663	286948.21	3841356.557	Cultural Debris	Scrap	vehicle parts	N/A	N/A	5	36	5		Scrap Bin	None	
T-00028	3599.284	286948.223	3841406.218	Cultural Debris	Scrap	vehicle parts	N/A	N/A	20	36	10		Scrap Bin	None	
T-00063	19.56	286947.102	3841494.477	Cultural Debris	Scrap	cable	N/A	N/A	3	48	1		Scrap Bin	None	
T-00066	20.389	286946.866	3841503.241	Cultural Debris	Scrap	metal	N/A	N/A	1	48	1		Scrap Bin	None	
T-00071	36.672	286946.515	3841514.4	Cultural Debris	Scrap	nail	N/A	N/A	1	0	0.2		Scrap Bin	None	
T-00092	40.349	286946.053	3841593.278	Cultural Debris	Scrap	chain link	N/A	N/A	1	8	5		Scrap Bin	None	
T-00100	69.229	286942.384	3841611.513	Cultural Debris	Scrap	barbed wire	N/A	N/A	2	6	0.5		Scrap Bin	None	
U-00004	2451.872	286937.991	3841334.213	Cultural Debris	Scrap	trash pit	N/A	N/A	1	48	0	Y	Left in Place	None	
U-00007	139.83	286938.185	3841341.08	Cultural Debris	Scrap	trash pit	N/A	N/A	1	48	0	Y	Left in Place	None	
U-00012	44.296	286938.529	3841353.265	Cultural Debris	Scrap	trash pit	N/A	N/A	1	48	0	Y	Left in Place	None	
U-00046	423.31	286935.819	3841438.14	Cultural Debris	Scrap	trash pit	N/A	N/A	10	48	5	Y	Scrap Bin	None	
U-00061	85.427	286937.472	3841468.801	Cultural Debris	Scrap	metal	N/A	N/A	3	2	1		Scrap Bin	None	
U-00080	42.372	286937.112	3841519.783	Battery	Battery Pit	N/A	N/A	N/A	1	12	0		Left in Place	None	
U-00118	3.636	286938.43	3841605.315	Cultural Debris	Scrap	nail	N/A	N/A	2	6	0.5		Scrap Bin	None	
V-00001	75.736	286928.78	3841327.561	Cultural Debris	Scrap	metal	N/A	N/A	2	10	5		Scrap Bin	None	
V-00010	116.214	286928.661	3841352.28	Cultural Debris	Scrap	trash pit	N/A	N/A	1	48	0	Y	Left in Place	None	
V-00015	93.695	286928.133	3841361.962	Cultural Debris	Scrap	metal	N/A	N/A	3	8	10		Scrap Bin	None	
V-00021	601.36	286927.697	3841375.183	MPPEH	Rocket	Rocket, 3.5-inch, shipping containers	None(empty)	Unfuzed	1	24	0	Y	Consolidation Point	Demil	
V-00026	2200.3	286927.715	3841386.533	Cultural Debris	Scrap	metal	N/A	N/A	15	36	10		Scrap Bin	None	
V-00033	114.605	286927.957	3841418.782	Cultural Debris	Scrap	pipe	N/A	N/A	4	8	10		Scrap Bin	None	
V-00038	41.773	286927.644	3841433.863	MPPEH	Other	M1 Clips	None(empty)	Unfuzed	20	8	10	Y	Consolidation Point	Demil	
V-00042	53.733	286927.519	3841442.553	Cultural Debris	Scrap	metal	N/A	N/A	3	6	5		Scrap Bin	None	
V-00089	76.093	286929.819	3841559.086	Cultural Debris	Scrap	steel rod	N/A	N/A	2	2	5		Scrap Bin	None	
V-00095	1743.901	286933.08	3841573.037	Cultural Debris	Scrap	steel rod	N/A	N/A	4	8	30		Scrap Bin	None	
W-00014	1779.911	286921.286	3841362.44	Cultural Debris	Scrap	sheet metal	N/A	N/A	4	36	25		Scrap Bin	None	
W-00016	582.054	286921.285	3841366.011	Cultural Debris	Scrap	sheet metal	N/A	N/A	5	36	10		Scrap Bin	None	
W-00018	213.698	286921.184	3841371.015	MPPEH	Projectile	Projectile, 105mm, casing only	None(empty)	Unfuzed	1	24	5	Y	Consolidation Point	Demil	
W-00020	51.108	286921.011	3841373.304	Cultural Debris	Scrap	angle iron	N/A	N/A	2	12	2		Scrap Bin	None	
W-00043	46.527	286918.323	3841426.419	Cultural Debris	Scrap	angle iron	N/A	N/A	3	10	1		Scrap Bin	None	
W-00049	226.19	286917.532	3841439.524	Cultural Debris	Scrap	metal	N/A	N/A	4	10	10		Scrap Bin	None	
W-00079	4.475	286917.334	3841519.445	Cultural Debris	Scrap	metal	N/A	N/A	1	3	0.2		Scrap Bin	None	
W-00106	3.94	286918.414	3841593.293	Cultural Debris	Scrap	metal	N/A	N/A	1	6	0.2		Scrap Bin	None	
X-00007	55.784	286909.519	3841344.672	Cultural Debris	Scrap	banding	N/A	N/A	2	6	2		Scrap Bin	None	
X-00035	381.679	286909.224	3841403.086	Cultural Debris	Scrap	vehicle parts	N/A	N/A	1	3	5		Scrap Bin	None	
X-00045	160.384	286909.891	3841423.392	Cultural Debris	Scrap	metal	N/A	N/A	4	24	6		Scrap Bin	None	
X-00057	7.112	286909.333	3841448.453	Cultural Debris	Scrap	wire	N/A	N/A	1	3	12		Scrap Bin	None	
X-00087	33.021	286911.71	3841524.533	Cultural Debris	Scrap	banding	N/A	N/A	2	3	1		Scrap Bin	None	
X-00093	10.165	286913.395	3841539.345	Cultural Debris	Scrap	metal	N/A	N/A	1	6	0.5		Scrap Bin	None	
X-00100	36.992	286912.666	3841553.816	Cultural Debris	Scrap	metal	N/A	N/A	1	3	3		Scrap Bin	None	
X-00102	333.205	286912.288	3841561.34	Cultural Debris	Scrap	metal	N/A	N/A	2	3	5		Scrap Bin	None	
X-00103	61.007	286911.695	3841564.459	Cultural Debris	Scrap	metal	N/A	N/A	1	3	2		Scrap Bin	None	
X-00104	106.746	286911.341	3841565.864	Cultural Debris	Scrap	metal	N/A	N/A	4	6	3		Scrap Bin	None	
X-00122	22.809	286913.069	3841610.07	Cultural Debris	Scrap	metal	N/A	N/A	2	6	2		Scrap Bin	None	
Y-00040	4.902	286901.763	3841479.518	Cultural Debris	Scrap	vehicle parts	N/A	N/A	1	3	10		Scrap Bin	None	
Y-00051	144.016	286903.346	3841514.853	Cultural Debris	Scrap	vehicle parts	N/A	N/A	1	6	10		Scrap Bin	None	
Y-00052	38.298	286903.588	3841519.309	Cultural Debris	Scrap	banding	N/A	N/A	2	6	2		Scrap Bin	None	
Y-00063	7.861	286903.119	3841541.27	Cultural Debris	Scrap	wire	N/A	N/A	2	3	0.2		Scrap Bin	None	
Y-00064	39.65	286903.053	3841542.415	Cultural Debris	Scrap	banding	N/A	N/A	2	6	2		Scrap Bin	None	
Y-00075	46.904	286903.087	3841565.647	Cultural Debris	Scrap	metal	N/A	N/A	2	12	4		Scrap Bin	None	
Y-00076	10.34	286904.237	3841567.533	Cultural Debris	Scrap	metal	N/A	N/A	1	12	1		Scrap Bin	None	
Y-00081	200.08	286902.698	3841578.108	Cultural Debris	Scrap	rebar	N/A	N/A	2	12	6		Scrap Bin	None	
Y-00083	119.222	286901.818	3841582.969	QC	QC	QC Seed	N/A	N/A	1	6	1		Consolidation Point	None	Seed #03
Y-00099	97.456	286904.831	3841620.041	Cultural Debris	Scrap	cable	N/A	N/A	1	3	20		Scrap Bin	None	
Z-00019	1625.79	286890.782	3841457.977	Cultural Debris	Scrap	wire	N/A	N/A	2	0	100		Scrap Bin	None	
Z-00040	679.954	286896.258	3841518.378	Cultural Debris	Scrap	metal	N/A	N/A	1	2	10		Scrap Bin	None	
Z-00055	25.138	286896.104	3841554.49	Cultural Debris	Scrap	metal	N/A	N/A	1	6	0.5		Scrap Bin	None	
Z-00065	30.24	286895.105	3841581.571	Cultural Debris	Scrap	metal	N/A	N/A	2	6	0.5		Scrap Bin	None	

Table E-1

MEC Intrusive Investigation Results

Site UXO-22 Expanded SI Report

Camp Lejeune, North Carolina

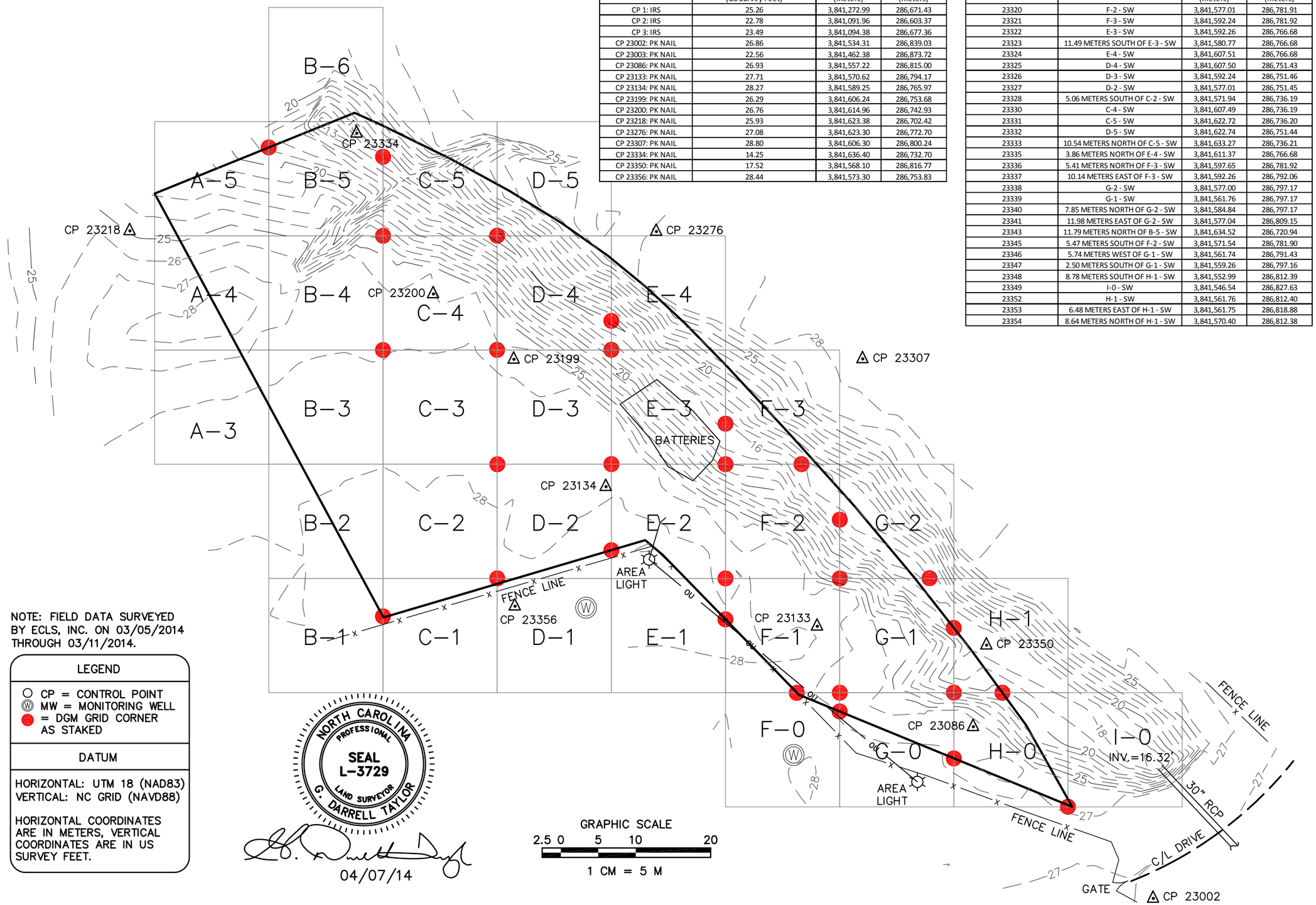
Anomaly ID	Amplitude	Easting	Northing	Group	Class	Category	Type	Description	Quantity	Depth	Weight	ADPit	Action	DemoReq	Item Comment
Z-00069	15.591	286894.564	3841595.044	Cultural Debris	Scrap	rebar	N/A	N/A	4	8	5		Scrap Bin	None	
Z-00074	92.581	286895.802	3841612.245	Cultural Debris	Scrap	banding	N/A	N/A	3	24	1		Scrap Bin	None	
Z-00076	9.56	286897.797	3841619.617	Cultural Debris	Scrap	banding	N/A	N/A	1	12	1		Scrap Bin	None	

Appendix F
Topographical Survey

CONTROL USED	ELEVATION	NORTHING	EASTING
	(US Survey Feet)	(meters)	(meters)
CP 1: IRS	25.26	3,841,272.99	286,671.43
CP 2: IRS	22.78	3,841,091.96	286,603.37
CP 3: IRS	23.49	3,841,094.38	286,677.36
CP 23002: PK NAIL	26.86	3,841,534.31	286,839.03
CP 23003: PK NAIL	22.56	3,841,462.38	286,873.72
CP 23086: PK NAIL	26.93	3,841,557.22	286,815.00
CP 23133: PK NAIL	27.71	3,841,570.62	286,794.17
CP 23134: PK NAIL	28.27	3,841,589.25	286,765.97
CP 23199: PK NAIL	26.29	3,841,606.24	286,753.68
CP 23200: PK NAIL	26.76	3,841,614.96	286,742.93
CP 23218: PK NAIL	25.93	3,841,623.38	286,702.42
CP 23276: PK NAIL	27.08	3,841,623.30	286,772.70
CP 23307: PK NAIL	28.80	3,841,606.30	286,800.24
CP 23334: PK NAIL	14.25	3,841,636.40	286,732.70
CP 23350: PK NAIL	17.52	3,841,568.10	286,816.77
CP 23356: PK NAIL	28.44	3,841,573.30	286,753.83

POINT ID	GRID ID	NORTHING	EASTING
		(meters)	(meters)
23320	F-2 - SW	3,841,577.01	286,781.91
23321	F-3 - SW	3,841,592.24	286,781.92
23322	E-3 - SW	3,841,592.26	286,766.68
23323	11.49 METERS SOUTH OF E-3 - SW	3,841,580.77	286,766.68
23324	E-4 - SW	3,841,607.51	286,766.68
23325	D-4 - SW	3,841,607.50	286,751.43
23326	D-3 - SW	3,841,592.24	286,751.46
23327	D-2 - SW	3,841,577.01	286,751.45
23328	5.06 METERS SOUTH OF C-2 - SW	3,841,571.94	286,736.19
23330	C-4 - SW	3,841,607.49	286,736.19
23331	C-5 - SW	3,841,622.72	286,736.20
23332	D-5 - SW	3,841,622.74	286,751.44
23333	10.54 METERS NORTH OF C-5 - SW	3,841,633.27	286,736.21
23335	3.86 METERS NORTH OF E-4 - SW	3,841,611.37	286,766.68
23336	5.41 METERS NORTH OF F-3 - SW	3,841,597.65	286,781.92
23337	10.14 METERS EAST OF F-3 - SW	3,841,592.26	286,792.06
23338	G-2 - SW	3,841,577.00	286,797.17
23339	G-1 - SW	3,841,561.76	286,797.17
23340	7.85 METERS NORTH OF G-2 - SW	3,841,584.84	286,797.17
23341	11.98 METERS EAST OF G-2 - SW	3,841,577.04	286,809.15
23343	11.79 METERS NORTH OF B-5 - SW	3,841,634.52	286,720.94
23345	5.47 METERS SOUTH OF F-2 - SW	3,841,571.54	286,781.90
23346	5.74 METERS WEST OF G-1 - SW	3,841,561.74	286,791.43
23347	2.50 METERS SOUTH OF G-1 - SW	3,841,559.26	286,797.16
23348	8.78 METERS SOUTH OF H-1 - SW	3,841,552.99	286,812.39
23349	I-0 - SW	3,841,546.54	286,827.63
23352	H-1 - SW	3,841,561.76	286,812.40
23353	6.48 METERS EAST OF H-1 - SW	3,841,561.75	286,818.88
23354	8.64 METERS NORTH OF H-1 - SW	3,841,570.40	286,812.38

UTM 18 (NAD 83)



NOTE: FIELD DATA SURVEYED BY ECLS, INC. ON 03/05/2014 THROUGH 03/11/2014.

LEGEND
○ CP = CONTROL POINT Ⓦ MW = MONITORING WELL ● = DGM GRID CORNER AS STAKED
DATUM
HORIZONTAL: UTM 18 (NAD83) VERTICAL: NC GRID (NAVD88) HORIZONTAL COORDINATES ARE IN METERS, VERTICAL COORDINATES ARE IN US SURVEY FEET.

NORTH CAROLINA PROFESSIONAL SEAL L-3729 LAND SURVEYOR G. DARRELL TAYLOR

04/07/14

GRAPHIC SCALE

2.5 0 5 10 20

1 CM = 5 M

ECLS
SURVEYING THE EAST COAST
227 FISH DRIVE
ANGIER, NC 27501
910.897.3257
910.897.2328 FAX

TOPOGRAPHICAL SURVEY
LAND SURVEYING SERVICES CTO-WE1A
BATTERY DISPOSAL INVESTIGATION AREA AT SITE UXO-22
MARINE CORPS INSTALLATION EAST - MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

PROJ. NO.: CTO-WE1A	FILENAME: UXO-22	DRAWN BY: DWS	SCALE: 1CM=5M	DATE: 04-07-2014

ECLS

Appendix G
Battery Disposal Investigation Area DGM Report

GEOPHYSICAL INVESTIGATION REPORT

SITE LOCATION:

WE1A (Mod 1), (MRS) UXO-22
MCB Camp Lejeune, NC

PREPARED FOR:

CH2M Hill
11301 Carmel Commons, Blvd Ste 304
Charlotte, NC 28226

PREPARED BY:

Martin Young
Delta Geophysics Inc.
738 Front Street
Catasauqua, PA 18032

May 27, 2014

Delta Geophysics, Inc. (Delta) is pleased to provide the results of the geophysical survey conducted at the (MRS) UXO-22 site. This project was undertaken under CH2M Hill project number 472310.

1.0 INTRODUCTION

On March 21, 2014 Delta Geophysics personnel commenced a limited geophysical investigation at the UXO-22 site. Site activities concluded on March 21, 2014. Surface conditions at the time of survey consisted of vegetation over soils. Subsurface conditions were not well known at the time of survey.

2.0 SCOPE OF WORK

The primary area of concern within the site was a client directed survey area outlined in the statement of work provided by the client. The survey was conducted to delineate potential battery disposal areas.

3.0 METHODOLOGY

A combination of Electromagnetic terrain conductivity and Magnetic gradient were used during the investigation to provide the required information on the subsurface within the site. The following equipment used during this project:

- Geonics LTD. EM-31 Terrain Conductivity meter.
- Geometrics Inc. 858 Cesium Vapor Magnetometer.
- Trimble Pro XRS GPS 12 Channel Receiver.

The GPS Pathfinder® Pro XRS Mapping System is a 12 channel differential beacon GPS receiver. The Pro XRS uses an integrated differential beacon receiver and antenna to receive real-time differential corrections from a subscription-based satellite correction service. This system provides for real-time sub-meter position data collection.

This system is used in a wide range of applications, including utility asset management, environmental monitoring and scientific research, hazardous waste clean-up, municipal asset management, and natural resource and land management. Feature and attribute data are input with a hand-held Asset Surveyor data logger.

Terrain conductivity (EM-31) measurements are made by inducing an electromagnetic current into the ground from a transmitter coil, and recording the resulting secondary electromagnetic field at a receiver coil a fixed distance away. The strength of the secondary field depends upon the conductivity of materials in the ground. Measurements are recorded in units of conductivity called milli-Siemens per meter (mS/m).

Terrain conductivity may be affected by a number of factors including moisture content, mineralogy, and soil thickness. Groundwater conductivity can have an influence on survey readings as apparent conductivity will increase with increased ion concentration (total dissolved solids) in the groundwater.

In addition to conductivity readings, measurements of the inphase component of the electromagnetic field are recorded. The inphase measurement is sensitive to the presence of metallic conductors and this measurement is used for metal detection. Abrupt negative spikes in the inphase and conductivity measurements are indicative of metallic conductors.

The ground magnetic method refers to a geophysical surveying method where the earth's magnetic field is sampled at discrete points or continuously along a single traverse, or several traverses spaced closely together to form a grid pattern. The object of a ground magnetic survey is to detect anomalous fluctuations of the magnetic field due to intrinsically magnetic and/or magnetically susceptible objects buried beneath the surveyed traverse or grid. A buried ferrous object, such as a steel drum or tank, locally distorts the earth's magnetic field and results in a magnetic anomaly. The presence of ferrous materials in ordinary municipal trash and in most industrial waste does allow the magnetometer to be effective in direct detection of landfills. Other ferrous objects, which may be detected, include pipelines, underground storage tanks, and some ordnance.

The Geometrics 858 Cesium Vapor Magnetometer is typically used where a higher performance magnetometer is needed. In cases where the sensor is moved through an area and many accurate magnetic field measurements are needed, the cesium magnetometer has advantages over other types of magnetometers. It allows a faster measurement rate and a lower noise level providing more precise measurements of small variations in the field with position.

For the intent of this survey the Magnetometer was operated in a Gradiometer configuration. Magnetic gradiometers are in effect pairs of magnetometers with their sensor assemblies coils separated by a fixed distance. The readings are compared in order to measure the differences between the sensed magnetic fields (i.e. field gradients caused by magnetic anomalies). This is one way of compensating both for the variability in time of the Earth's magnetic field and for other sources of electromagnetic interference, allowing more sensitive detection of anomalies.

4.0 SURVEY FINDINGS

Survey grid markers were established throughout the survey area referenced to stake markers placed at the site prior to this task. Grid markers were placed on 5 foot intervals. All data collection for this project was accomplished in point mode on this grid due to the variability of GPS signals in this environment.

For both the EM-31 and Magnetometer data collection tasks QA/OC procedures as specified in section 4 of the statement of work were performed prior to and after data acquisition. The data graphs for these functional tests are included in appendix 1.

EM-31 data were obtained on a grid with line spacing equal to 5 feet upon which a station spacing of 2.5 feet was maintained. Data collected were in point mode. Electromagnetic data were obtained in the vertical dipole coil configuration. Data collected included terrain conductivity or quadrature, and the in-phase component.

Data obtained with the EM-31 were not processed. The instrument produces direct readings of terrain conductivity therefore it was sufficient to plot raw instrument readings for interpretation. Data were plotted in contour format for the EM-31 quadrature and inphase components. The included site plots (140319-01 and 140319-02) show the color contours of the terrain conductivity and inphase data respectively.

Magnetic gradient and total field data was collected in a generally North-South orientation. Data collected were in point mode. Line spacing was 5 feet with 2.5 foot station spacing. The magnetic gradient data were collected in a vertical gradient configuration.

Data obtained included the total magnetic field, measured in nano-Teslas (nT), upper and lower sensors, and the magnetic field vertical gradient, measured in nT/. Data obtained with the G-858 were unprocessed for diurnal variations due to the short data collection time. Magnetic gradient data were plotted in the included contour map (140319-03). Total field data is shown in the included contour map (140319-04).

Due to the presence of large amounts of scrap metal and debris the objective of locating discrete battery disposal areas was not possible. In the data there was a change of characteristics in both the EM-31 and Magnetometer data. This is interpreted as a potential boundary of buried debris. This interpreted boundary is shown in the included site plots.

5.0 SURVEY LIMITATIONS

Some areas of heavy vegetation limited data coverage. Areas where data could not be acquired are represented as white hatched or missing data zones in the included data plots. No other significant limitations to data collection were present during the survey.

6.0 WARRANTIES AND DISCLAIMER

As with any geophysical method, it must be stressed that caution be used during any excavation or intrusive testing in proximity to any anomalies indicated in this report. In addition, the absence of detected signatures does not preclude the possibility that targets may exist. To the extent the client desires more definitive conclusions than are warranted by the currently available facts; it is specifically Delta's intent that the conclusions stated herein will be intended as guidance.

This report is based upon the application of scientific principles and professional judgment to certain facts with resultant subjective interpretations. Professional judgments expressed herein are based on the facts currently available within the limit or scope of work, budget and schedule. Delta represents that the services were performed in a manner consistent with currently accepted professional practices employed by geophysical/geological consultants under similar circumstances. No other representations to Client, express or implied, and no warranty or guarantee is included or intended in this agreement, or in any report, document, or otherwise.

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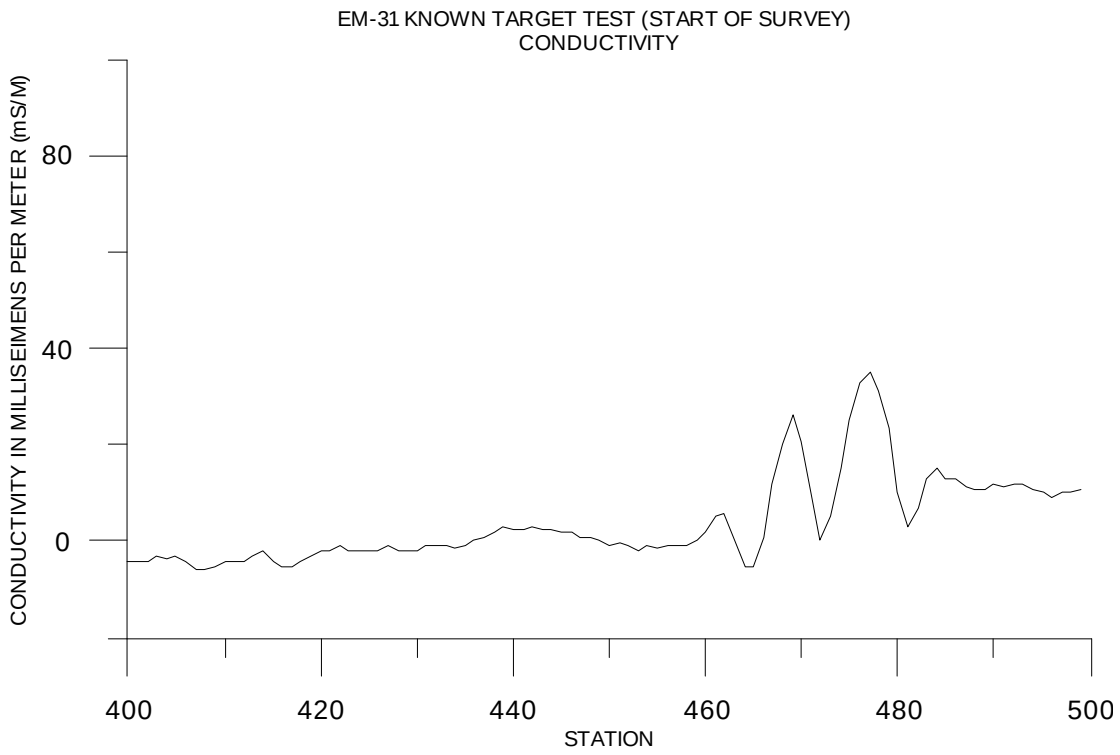
Appendix 1



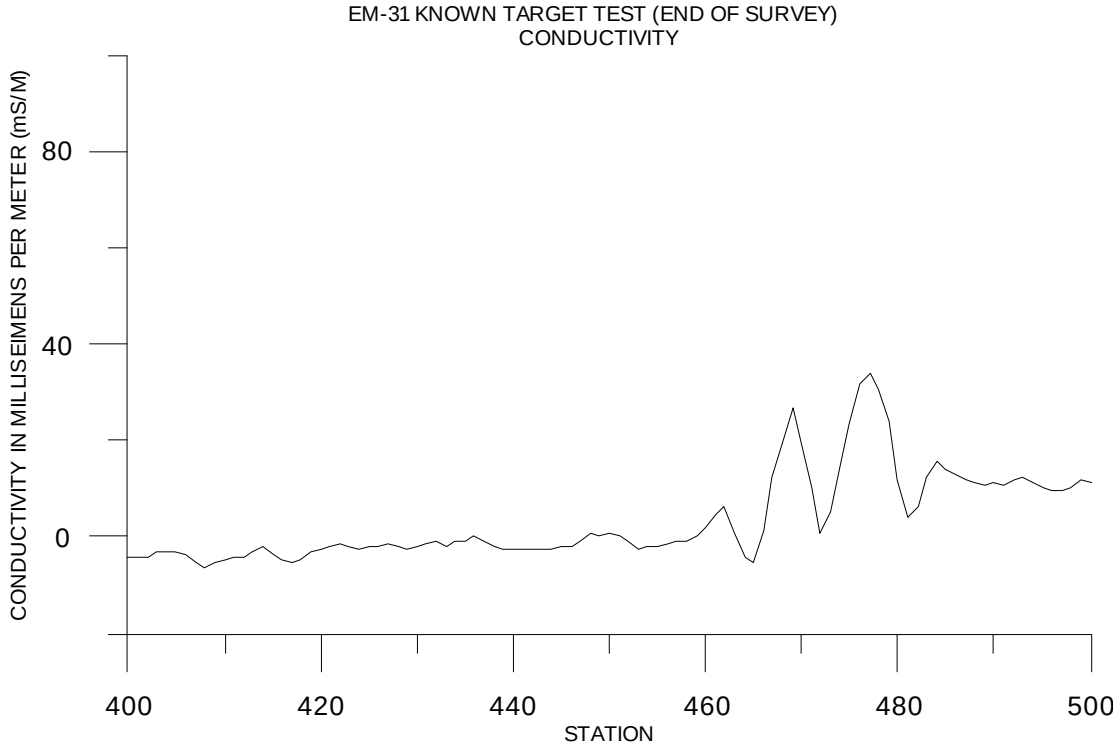
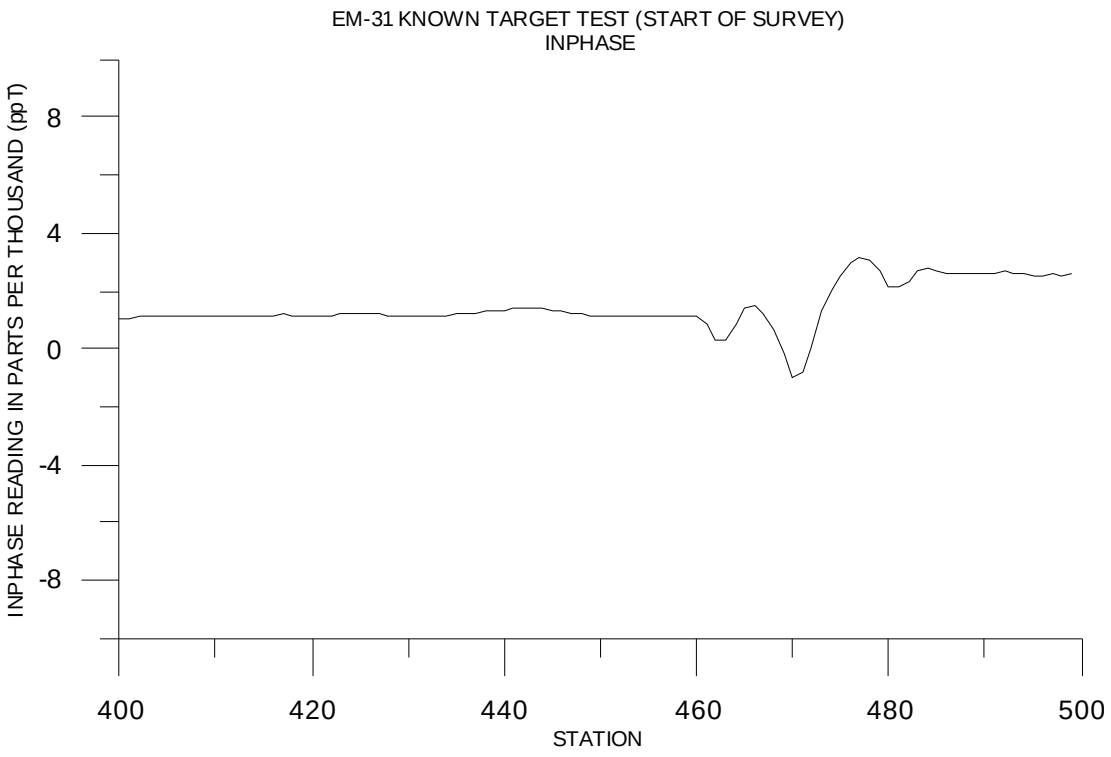


Figure 1, EM-31 known target data (Conductivity)



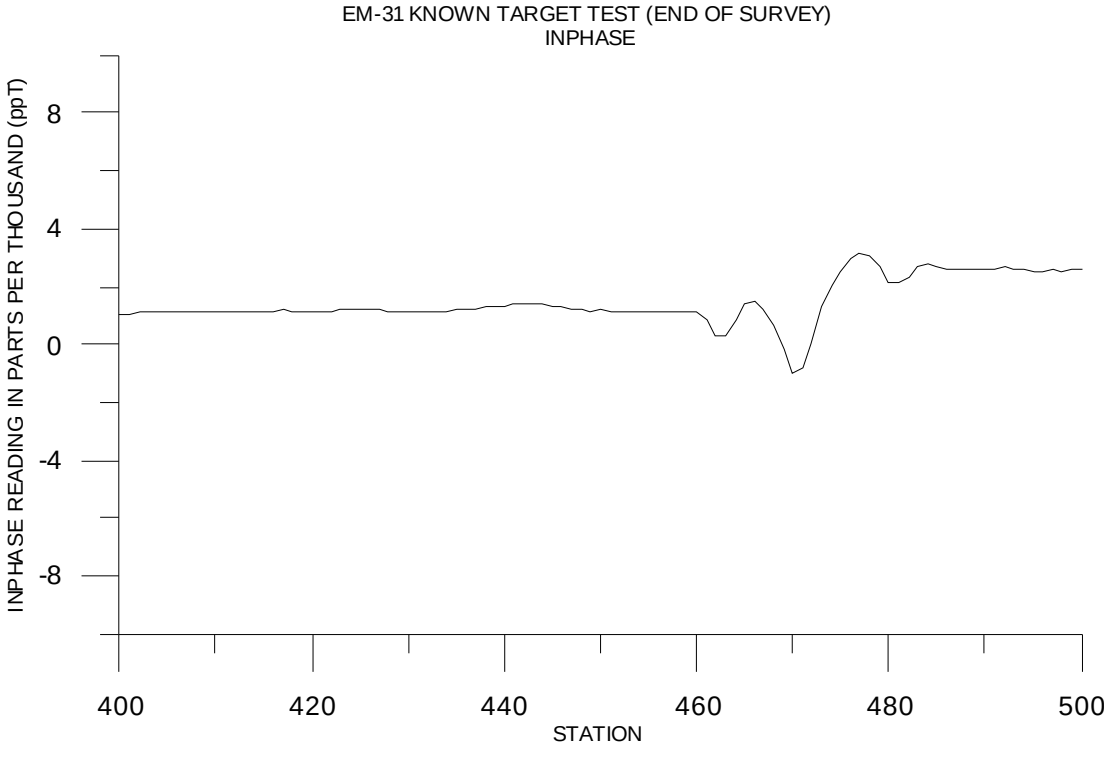
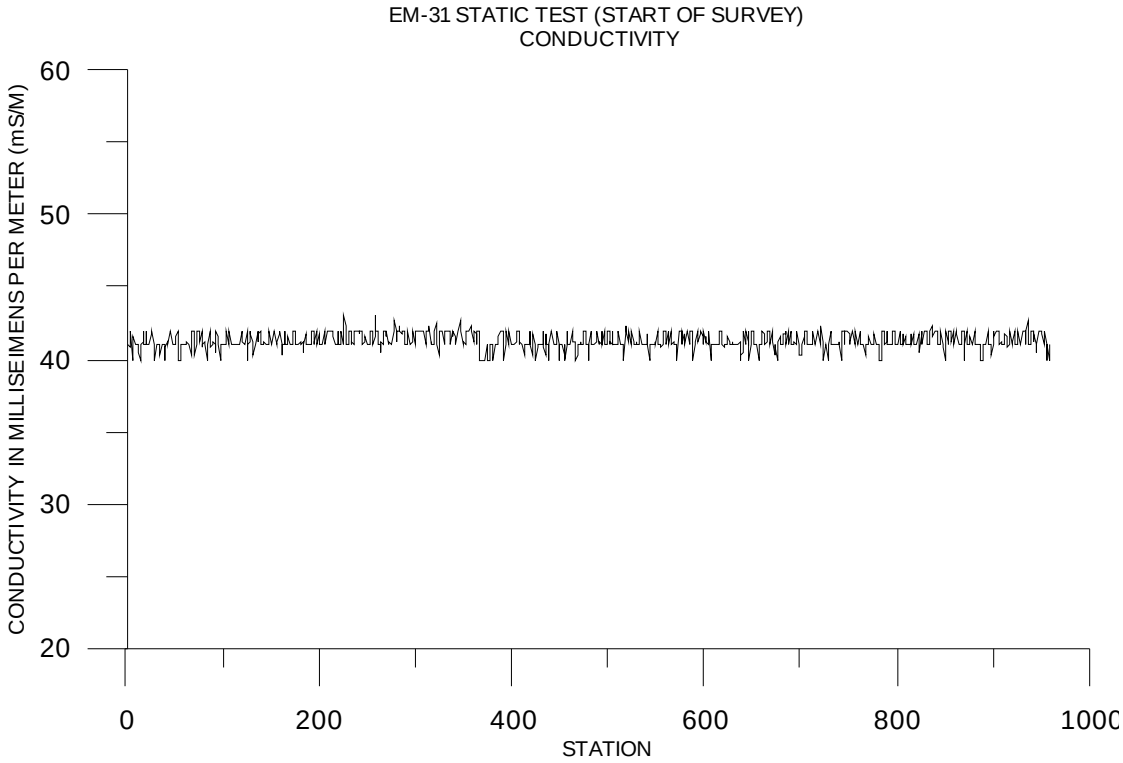


Figure 2, EM-31 known target data (Inphase)



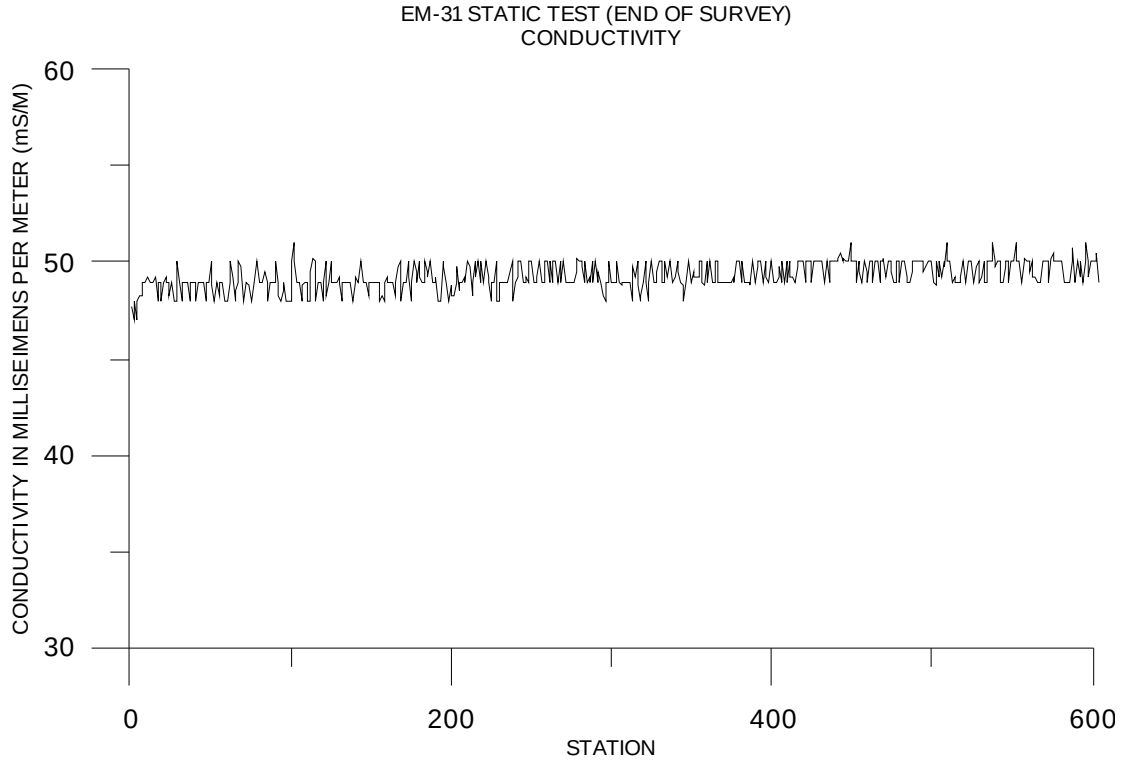
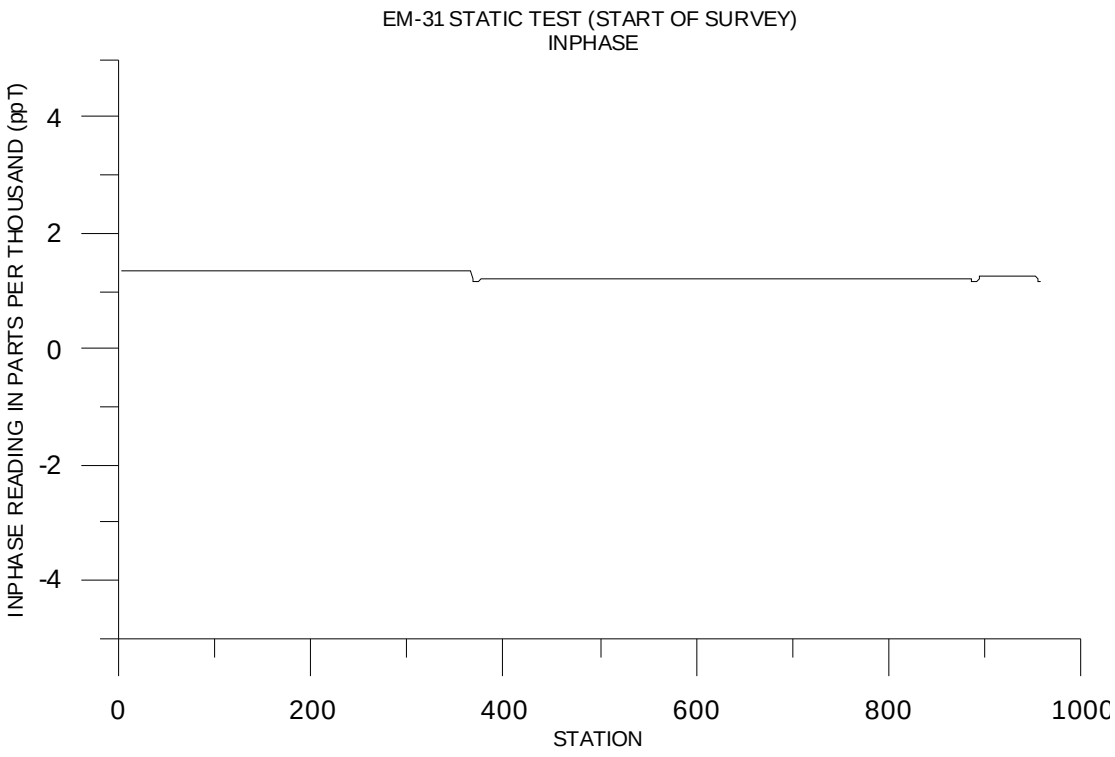


Figure 3, EM-31 static data (Conductivity)



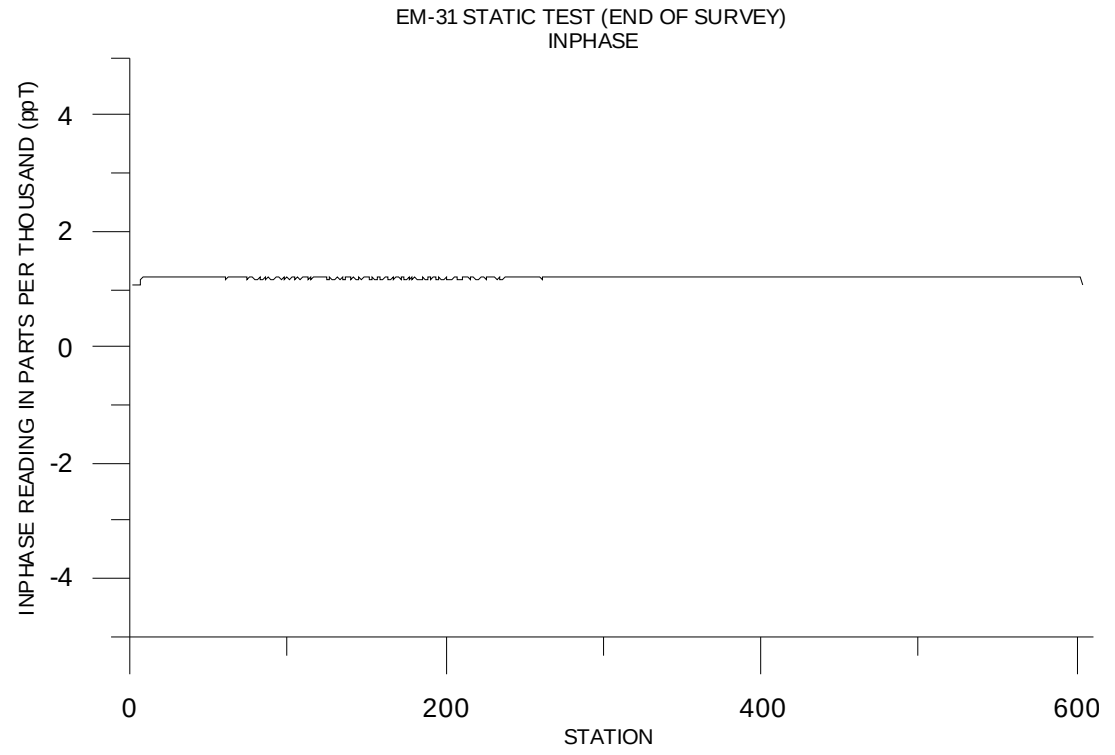


Figure 4, EM-31 static data (Inphase)

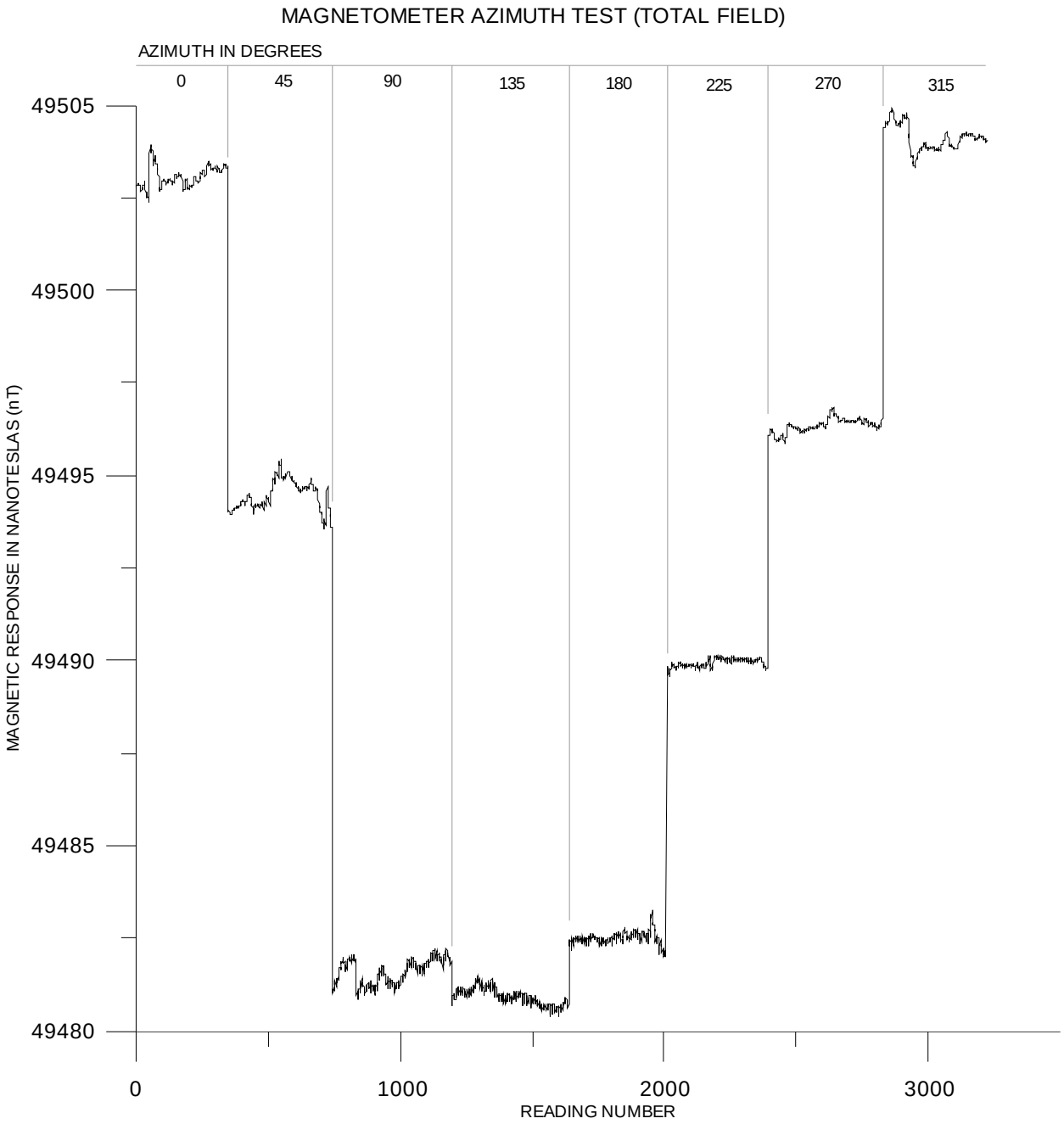


Figure 5, Magnetometer azimuth test, total field readings

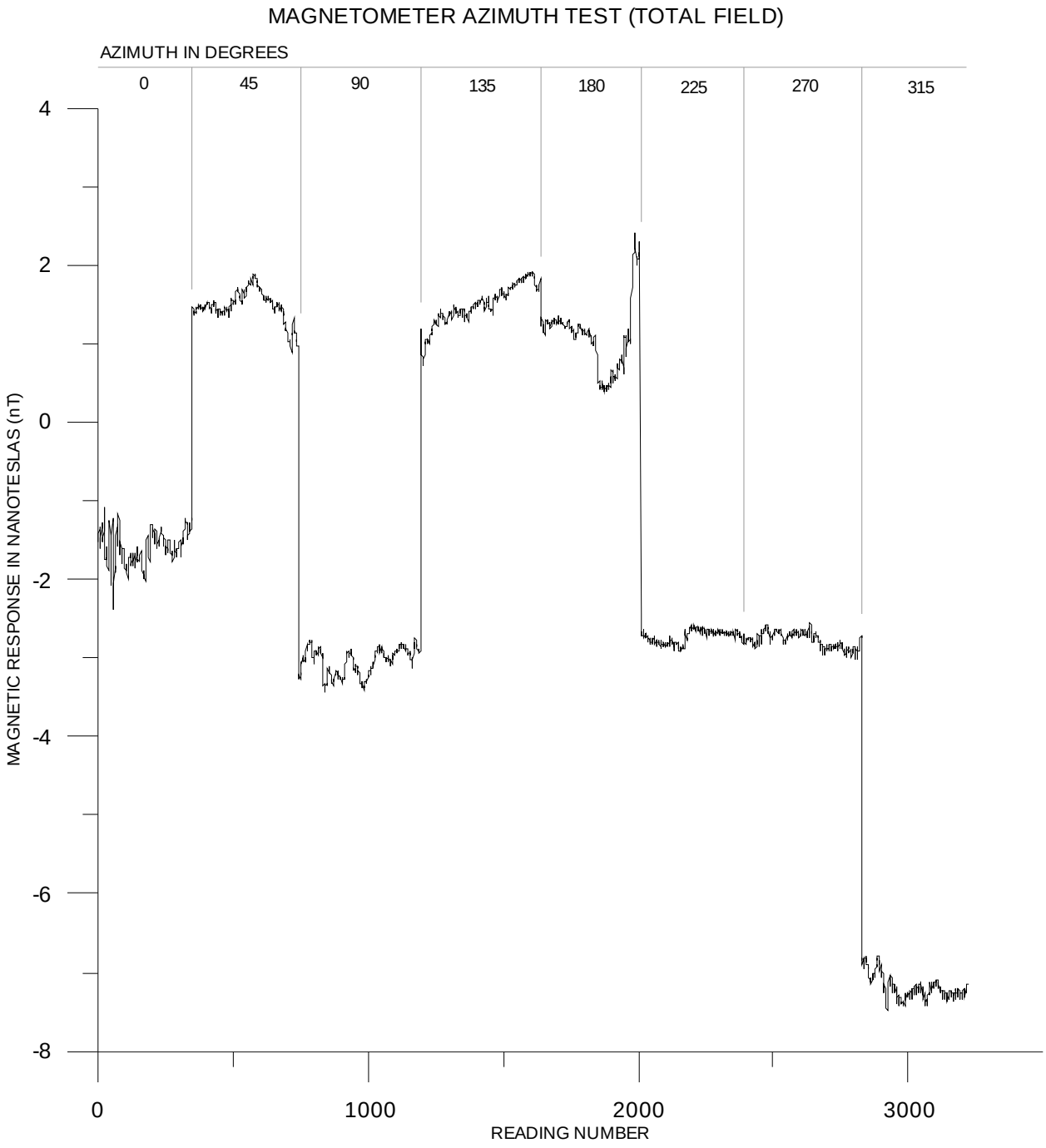
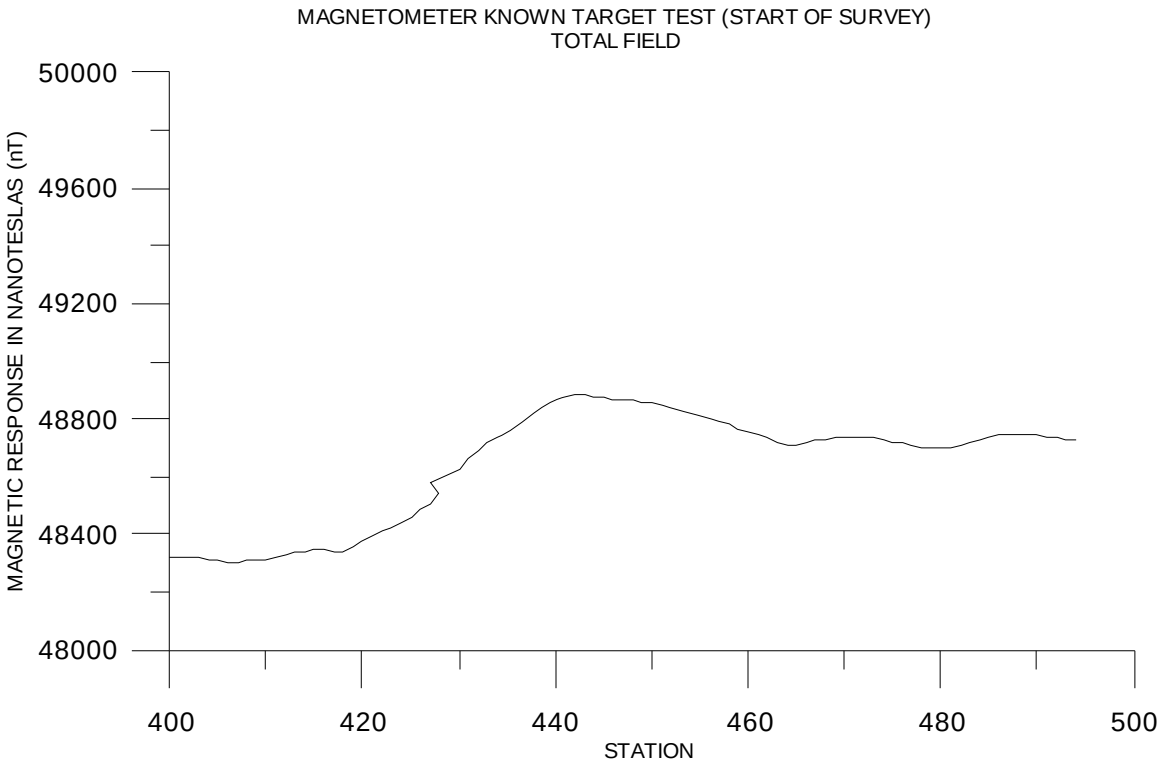


Figure 5, Magnetometer azimuth test, gradiometer readings



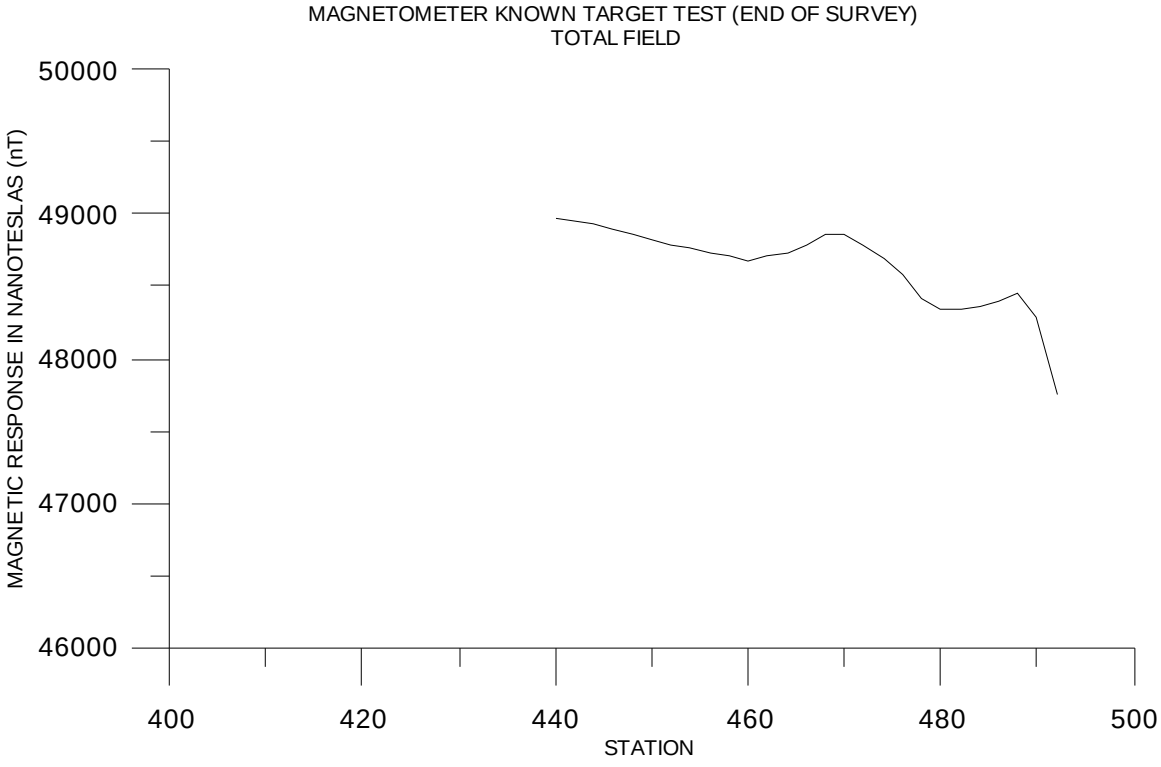
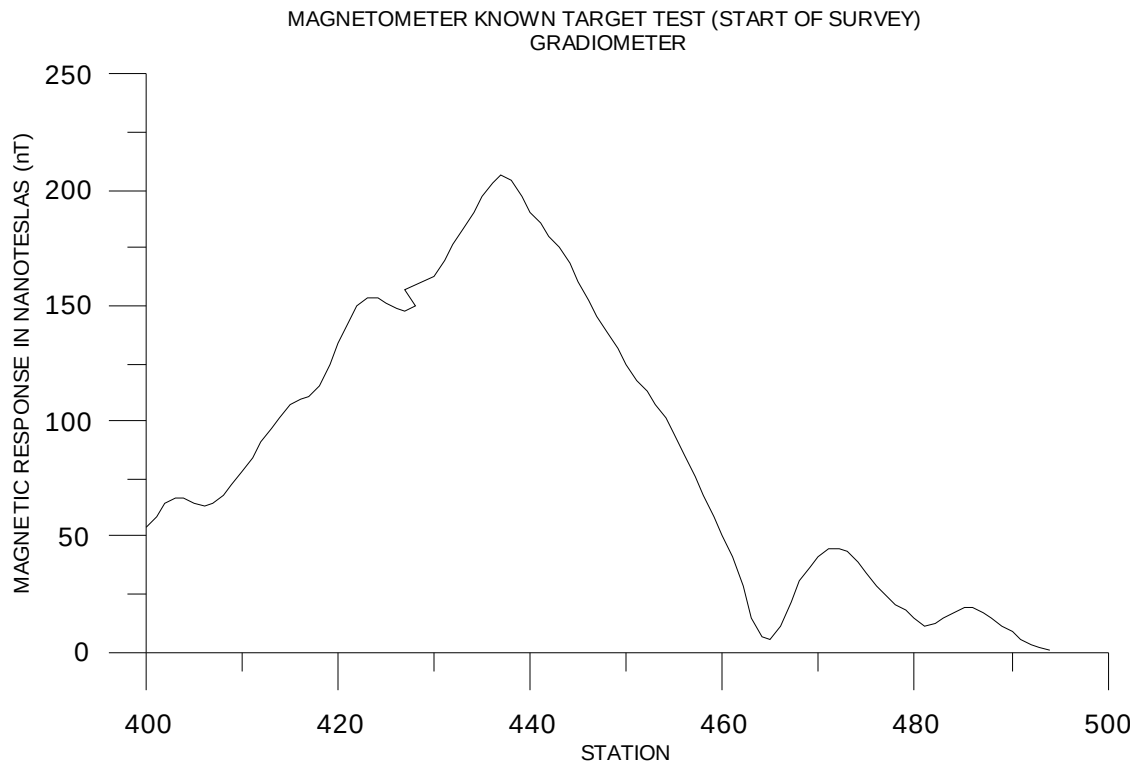


Figure 6, Magnetometer known target test, total field readings



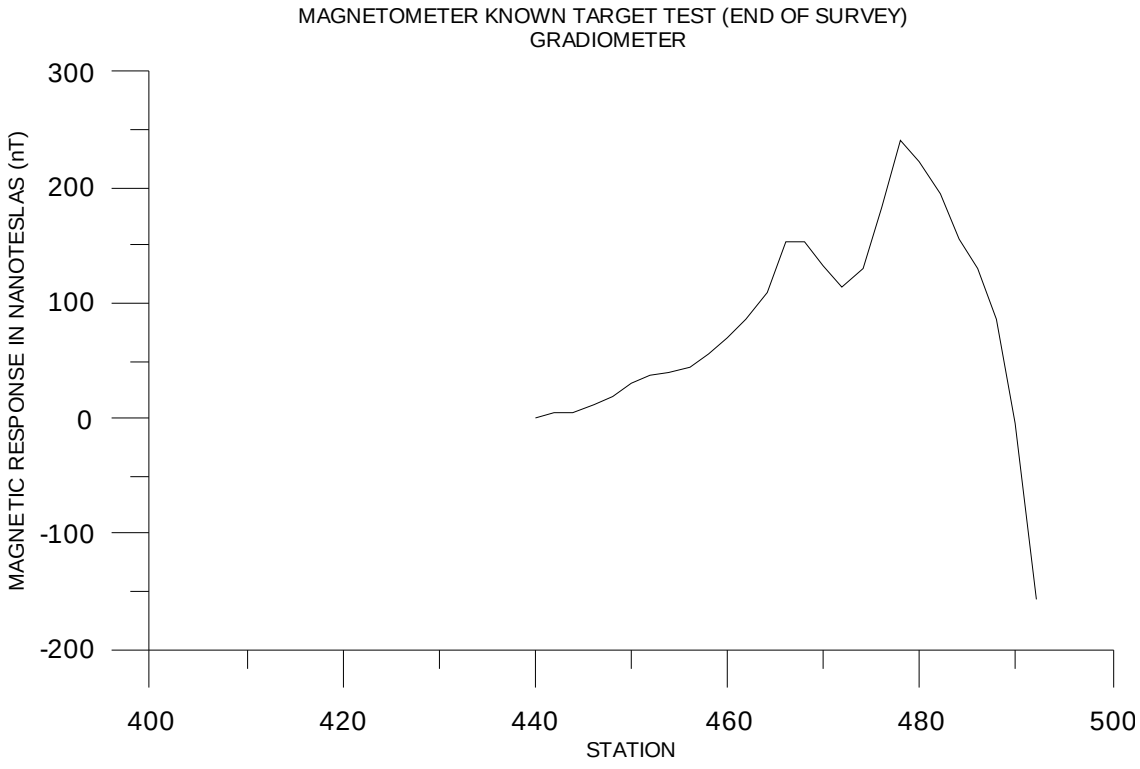
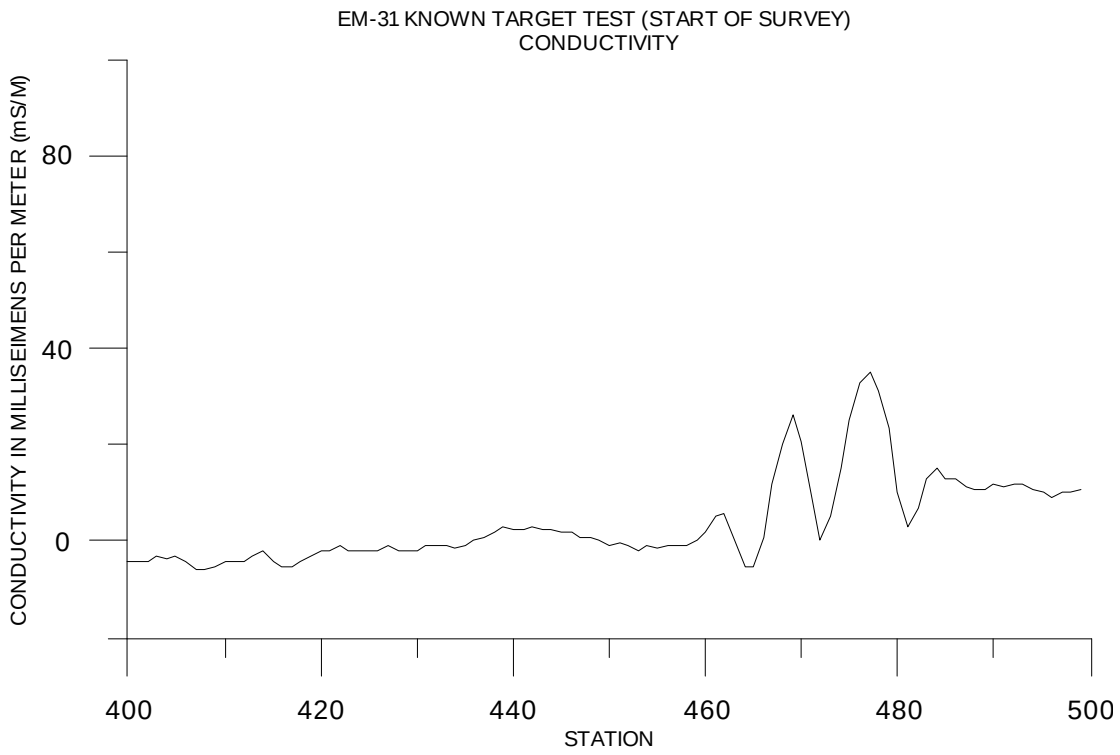


Figure 7, Magnetometer known target test, gradiometer readings



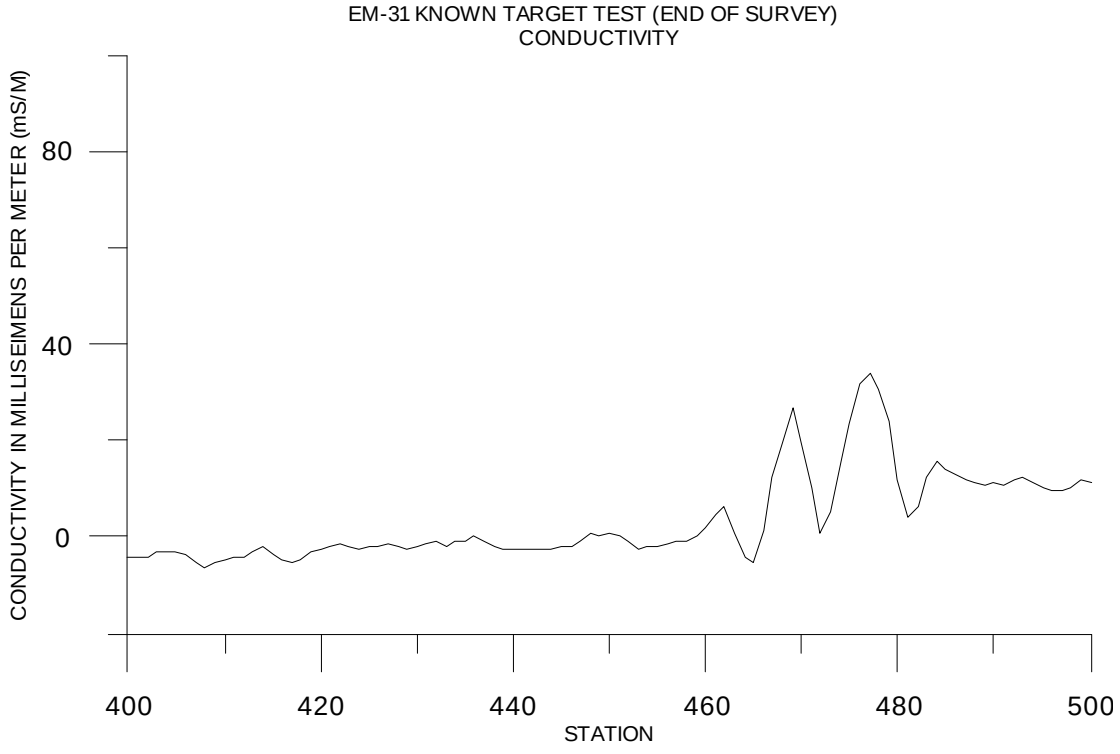
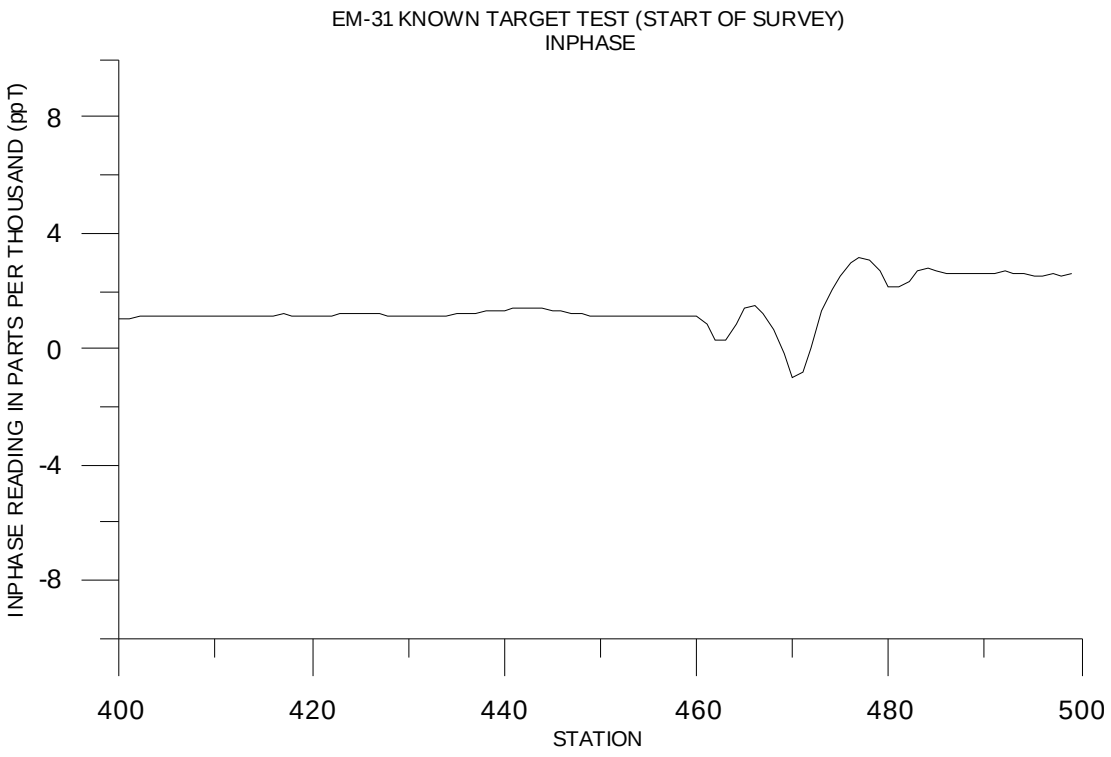


Figure 1, EM-31 known target data (Conductivity)



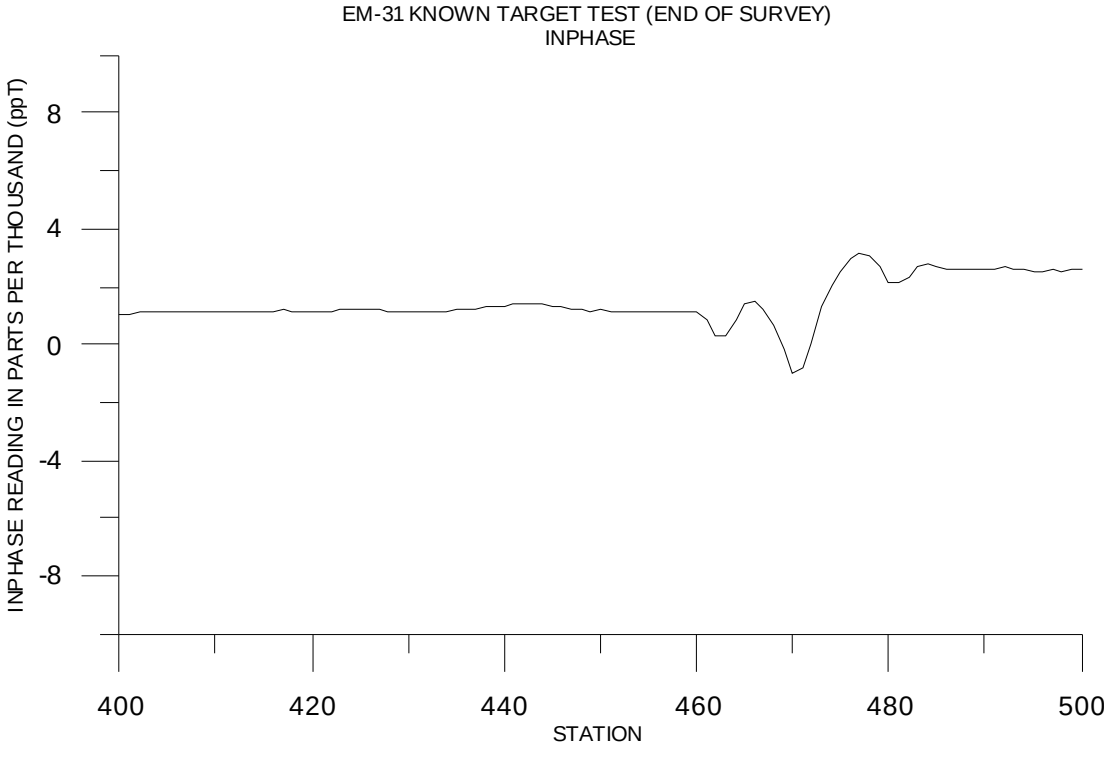
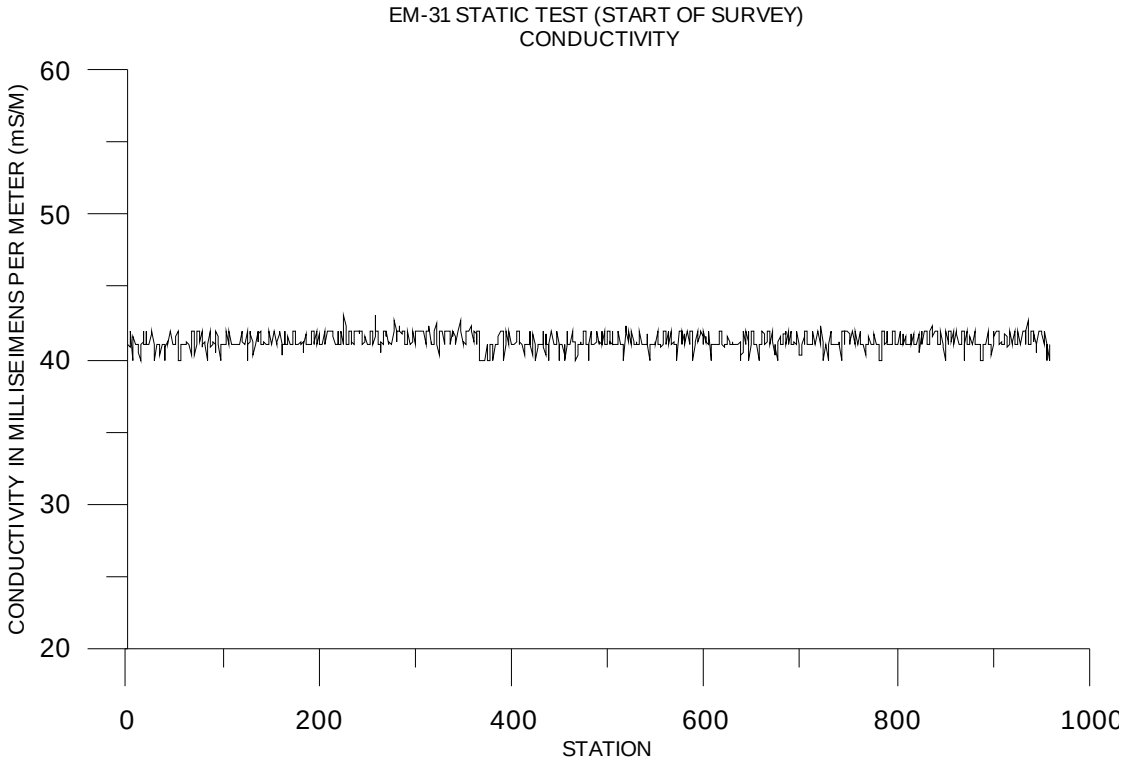


Figure 2, EM-31 known target data (Inphase)



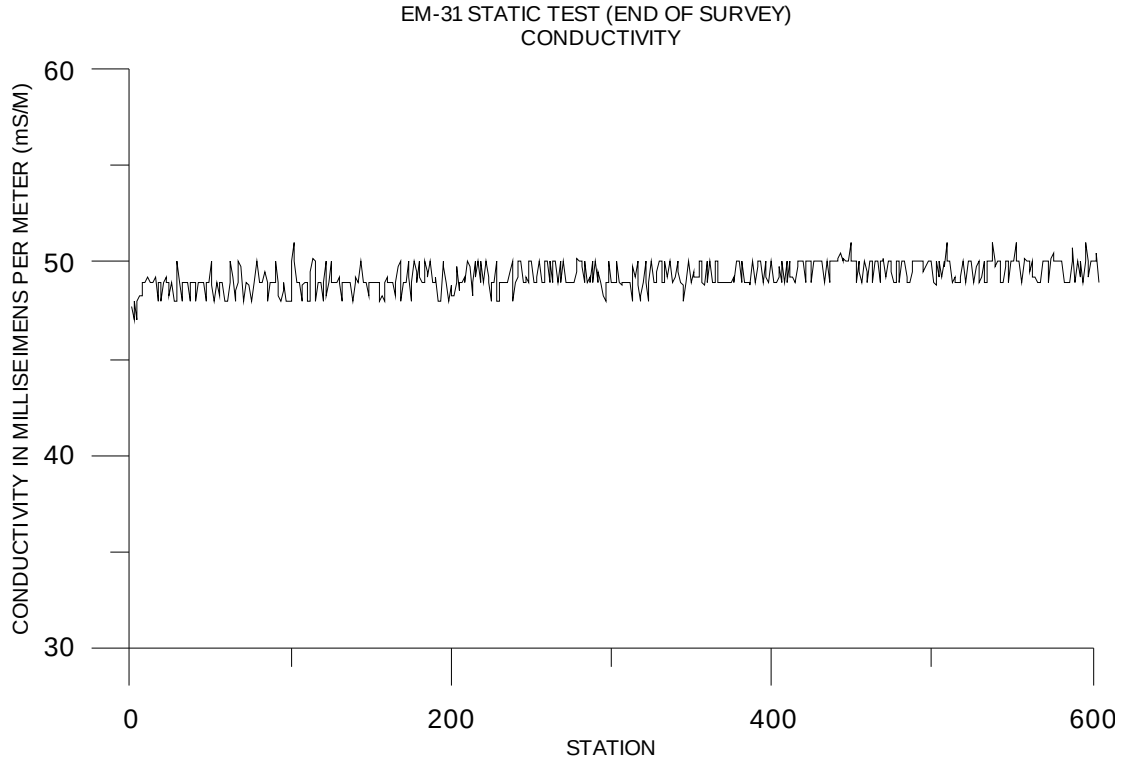
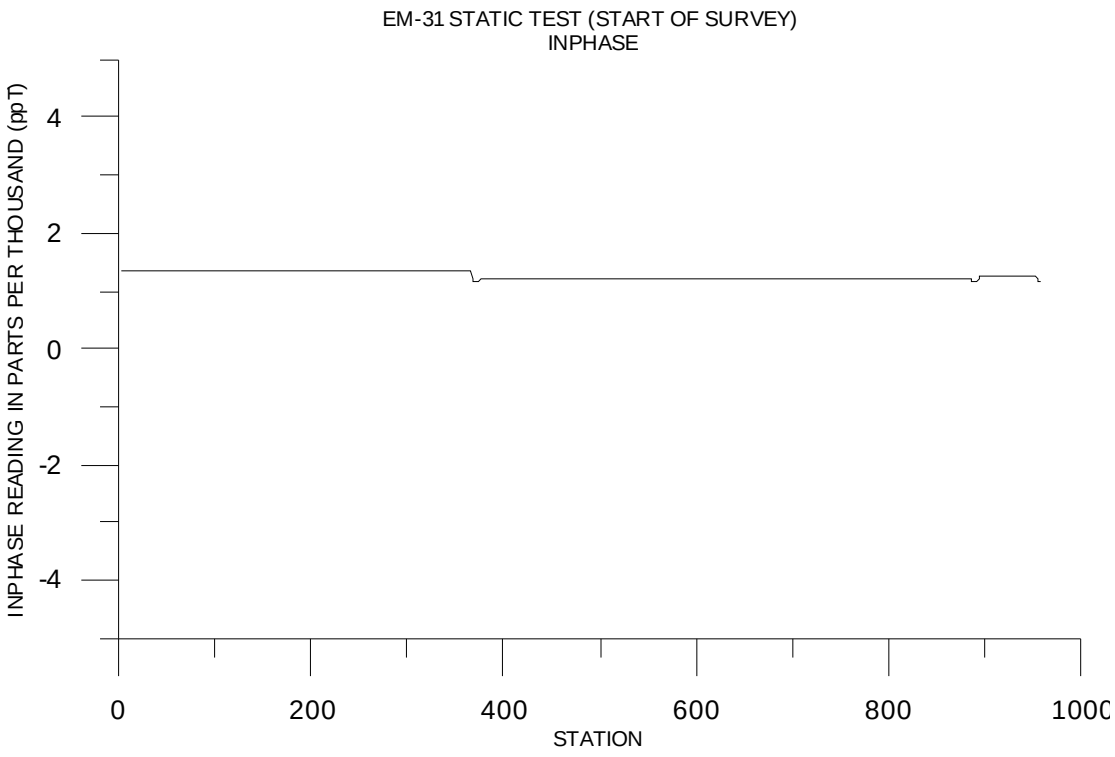


Figure 3, EM-31 static data (Conductivity)



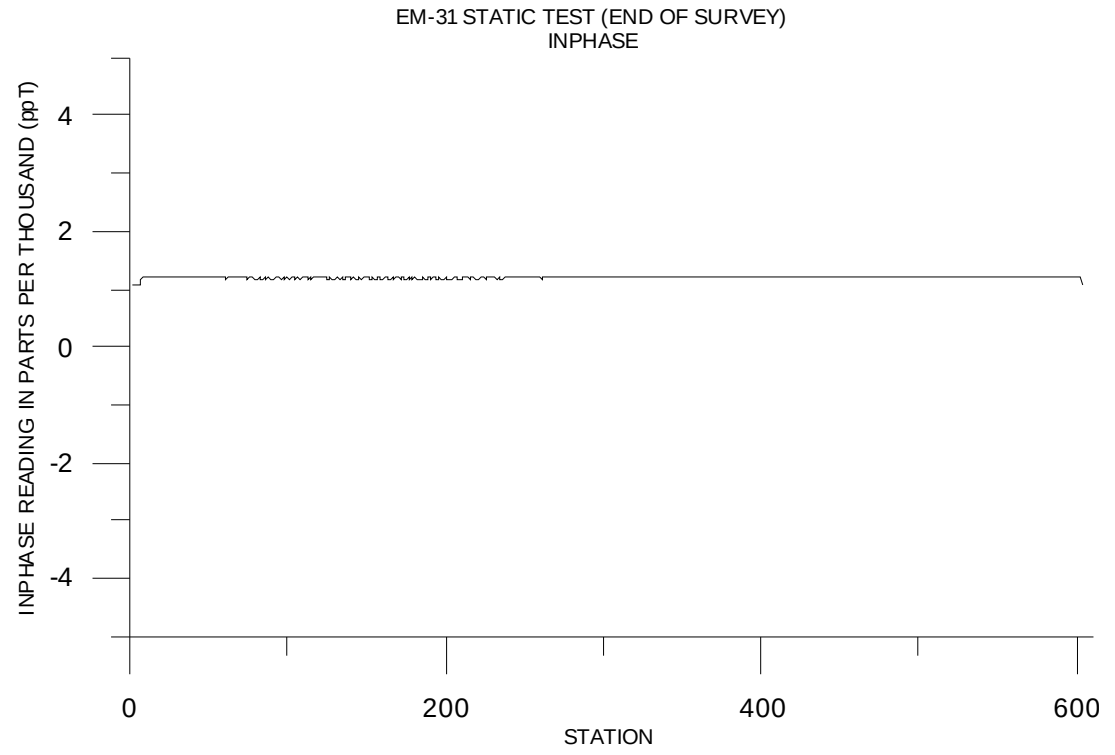


Figure 4, EM-31 static data (Inphase)

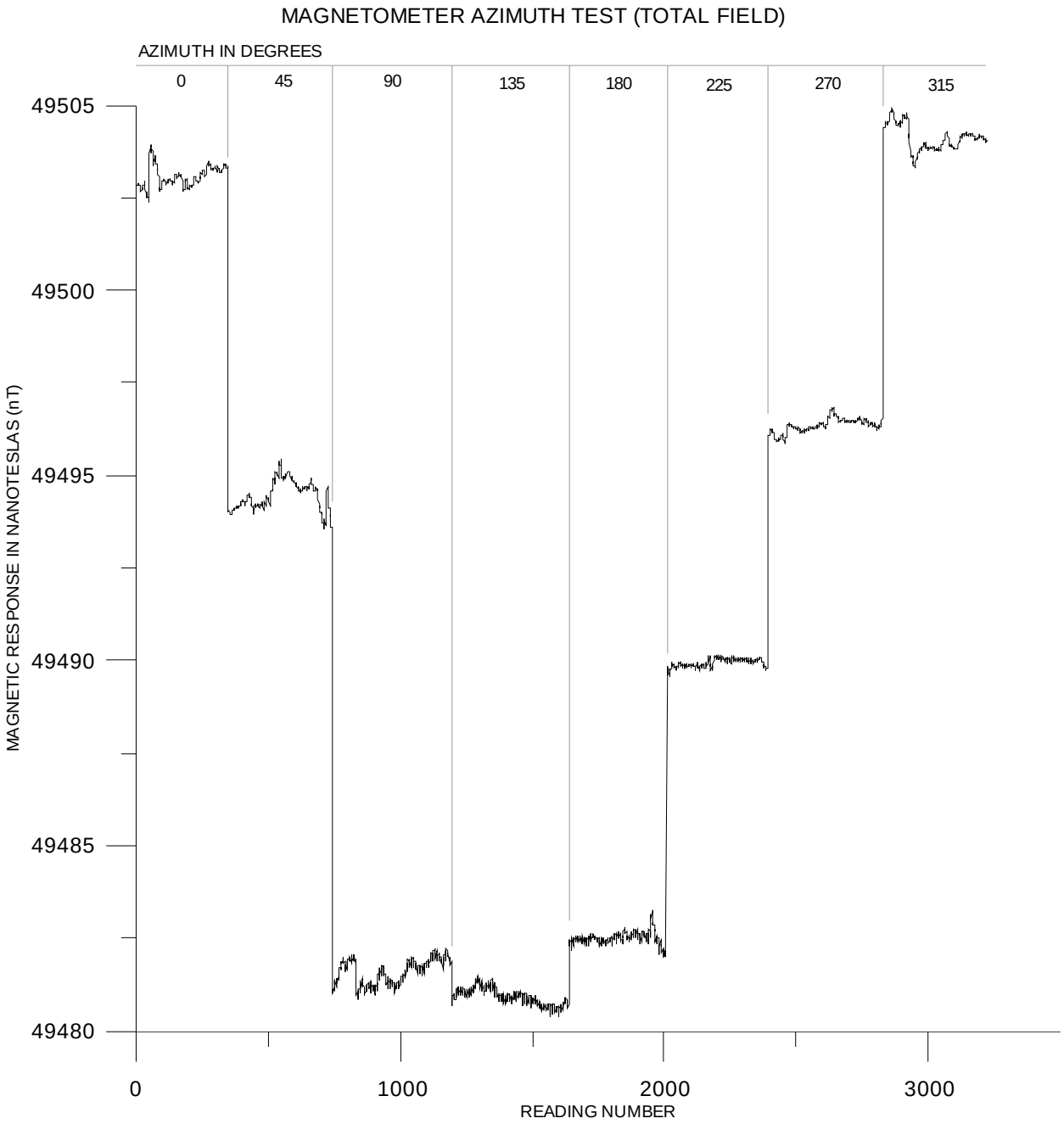


Figure 5, Magnetometer azimuth test, total field readings

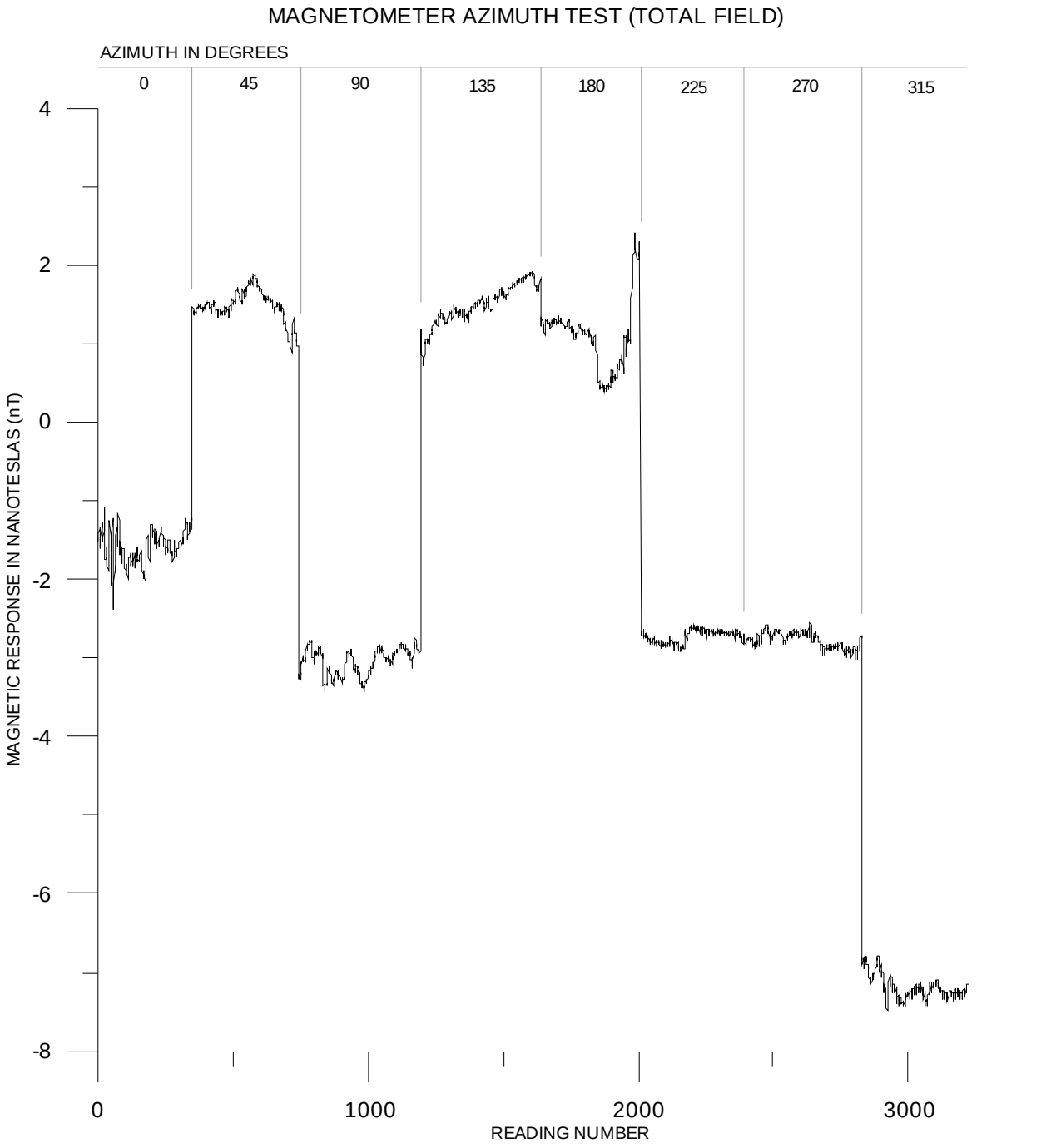
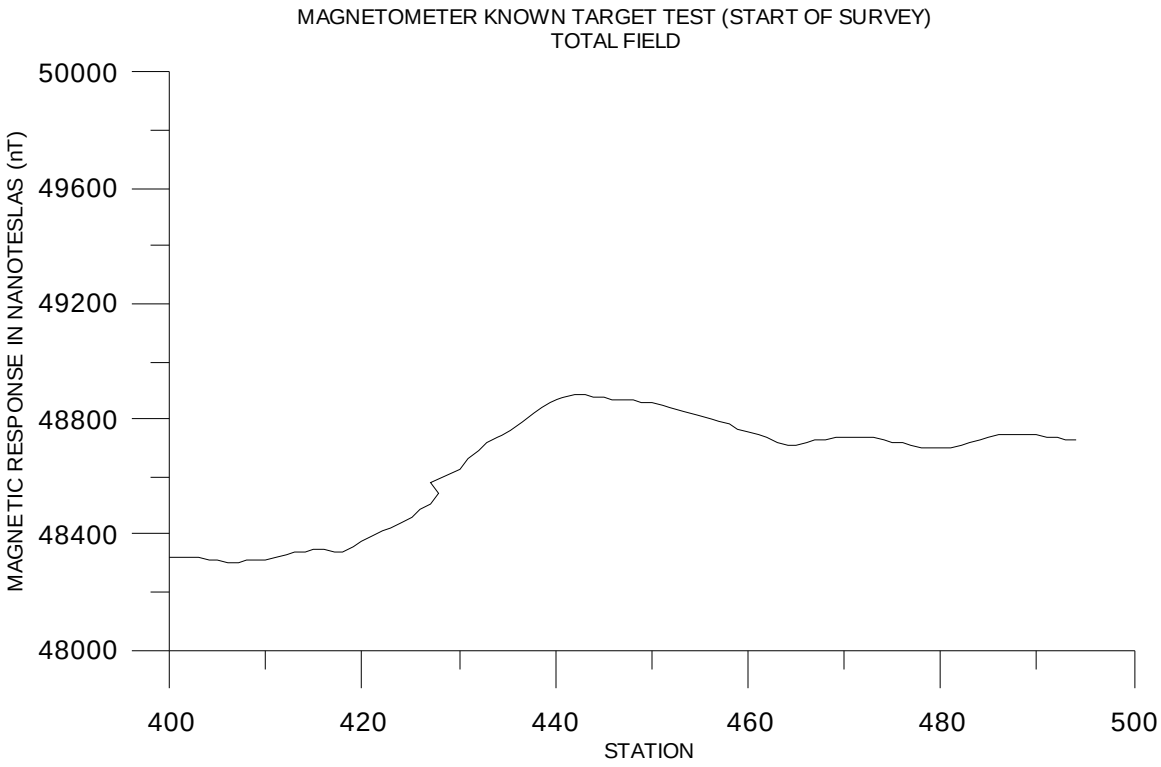


Figure 5, Magnetometer azimuth test, gradiometer readings



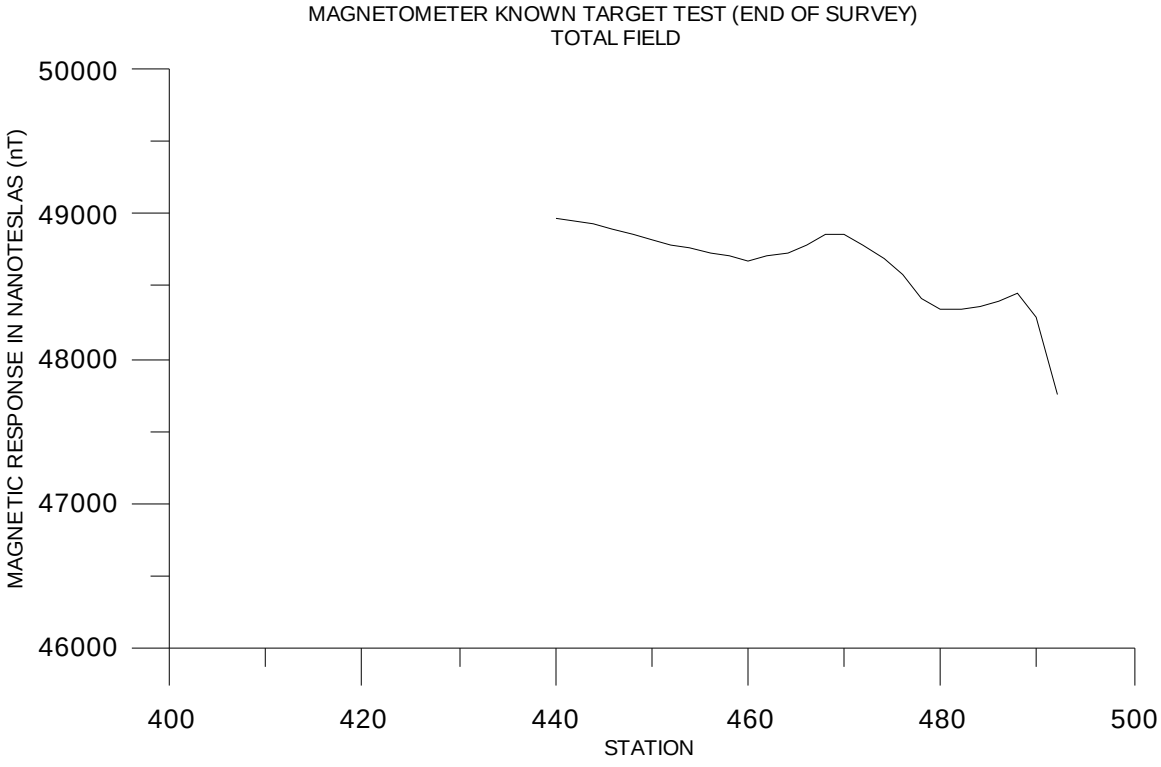
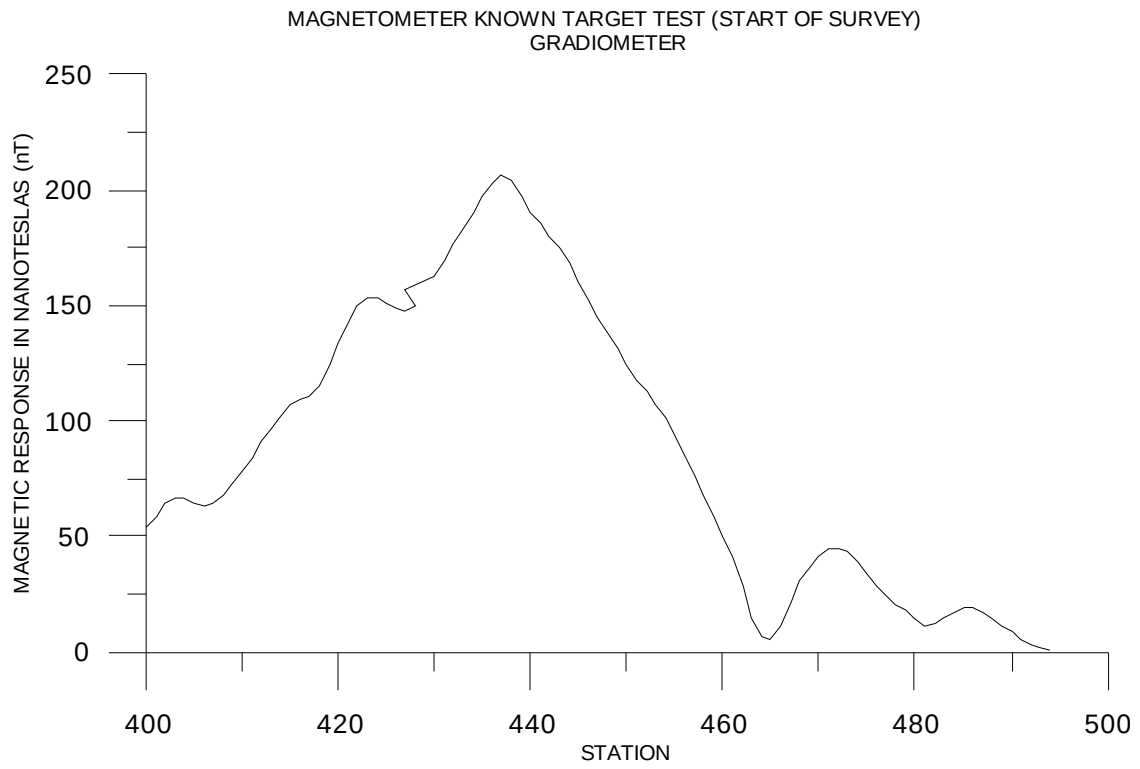


Figure 6, Magnetometer known target test, total field readings



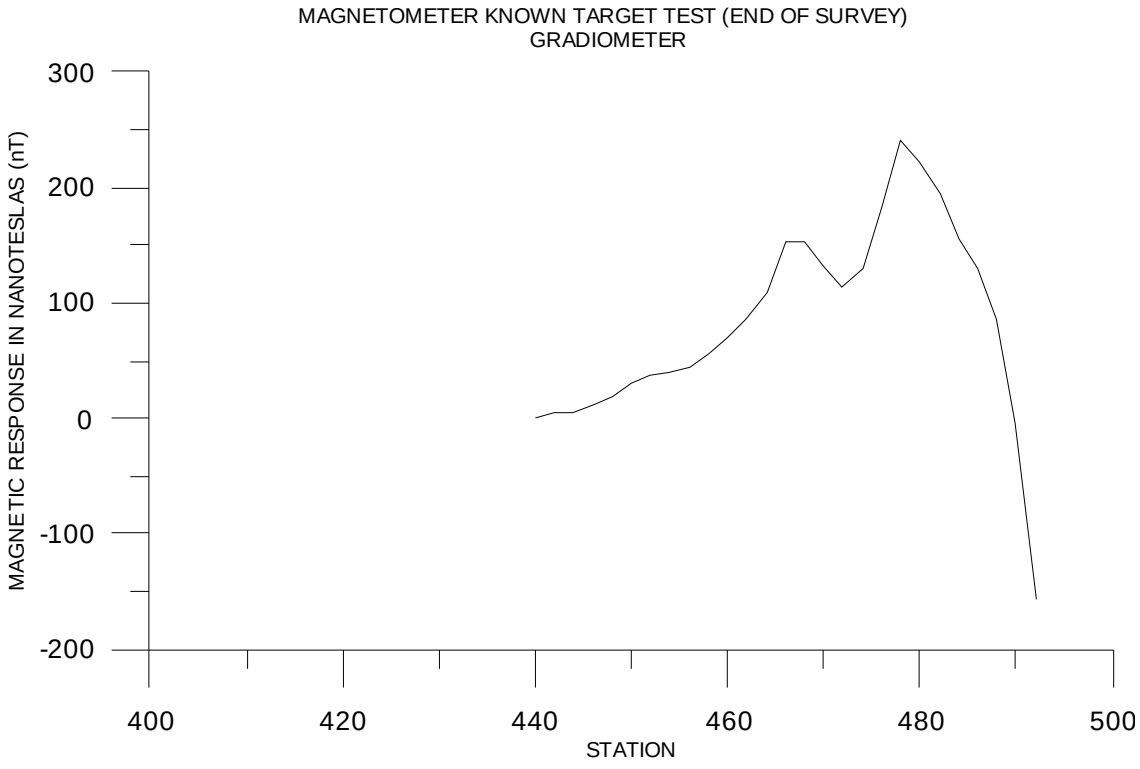
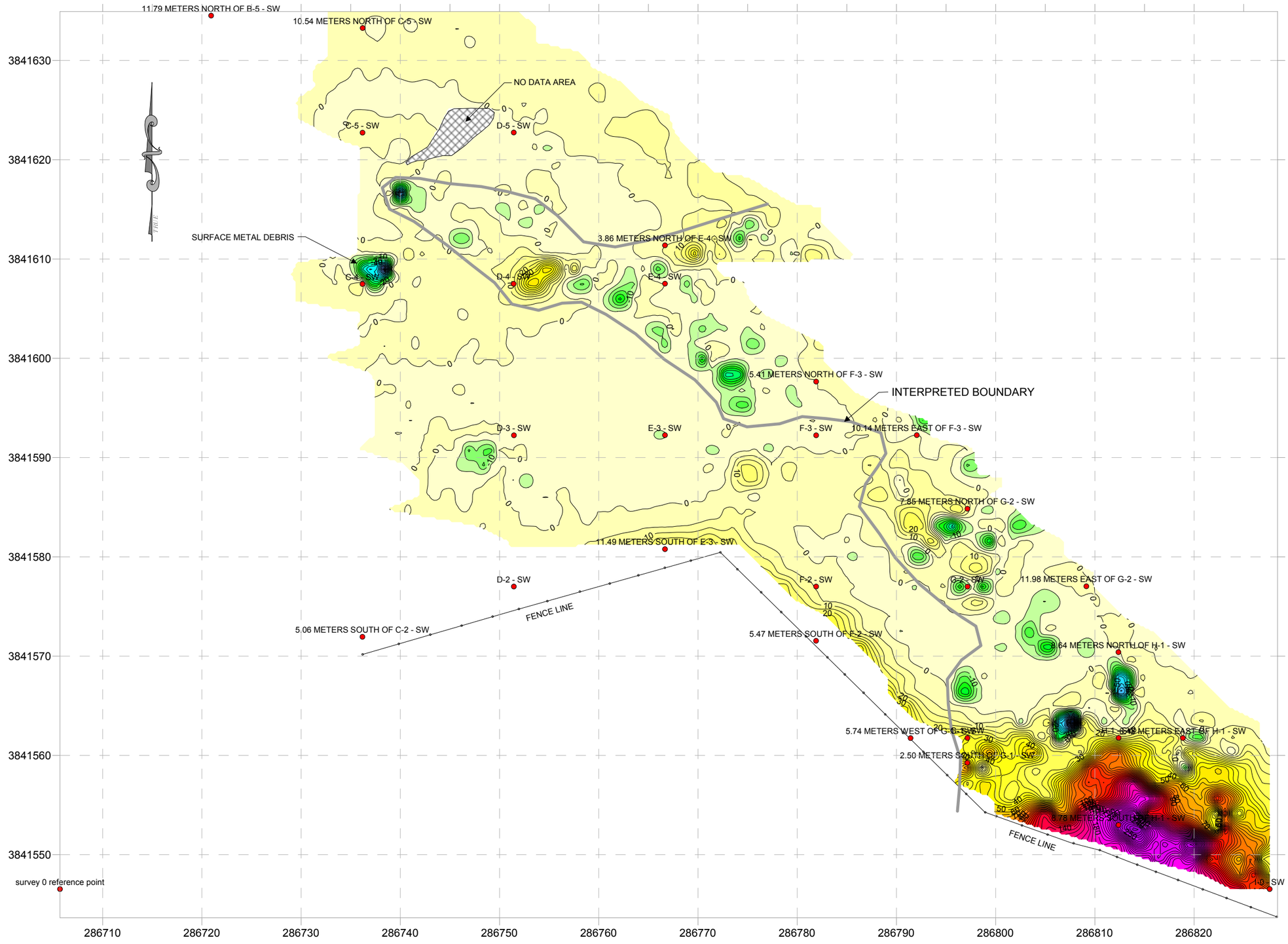


Figure 7, Magnetometer known target test, gradiometer readings



Note:

Survey map coordinates are UTM zone 18N.

This site plan was produced from data positioned by differential GPS measurments collected in the field and third party data. Due to the errors normally present in DGPS data, this document is not intended or represented to be of survey precision. Caution should be used in all field measurments based on this site plan.

As with any geophysical method, it must be stressed that caution be used during any excavation or intrusive testing in proximity of any anomalies indicated in this document The absence of detected signatures does not preclude the possibility that targets exist. The geophysical data and results presented in this site plan are based upon the application of scientific principles and professional judgements to certain facts with resultant subjective interpretations. Professional judgements expressed herein are based on the facts currently available within the limits of the existing data, scope of work, budget, and schedule.

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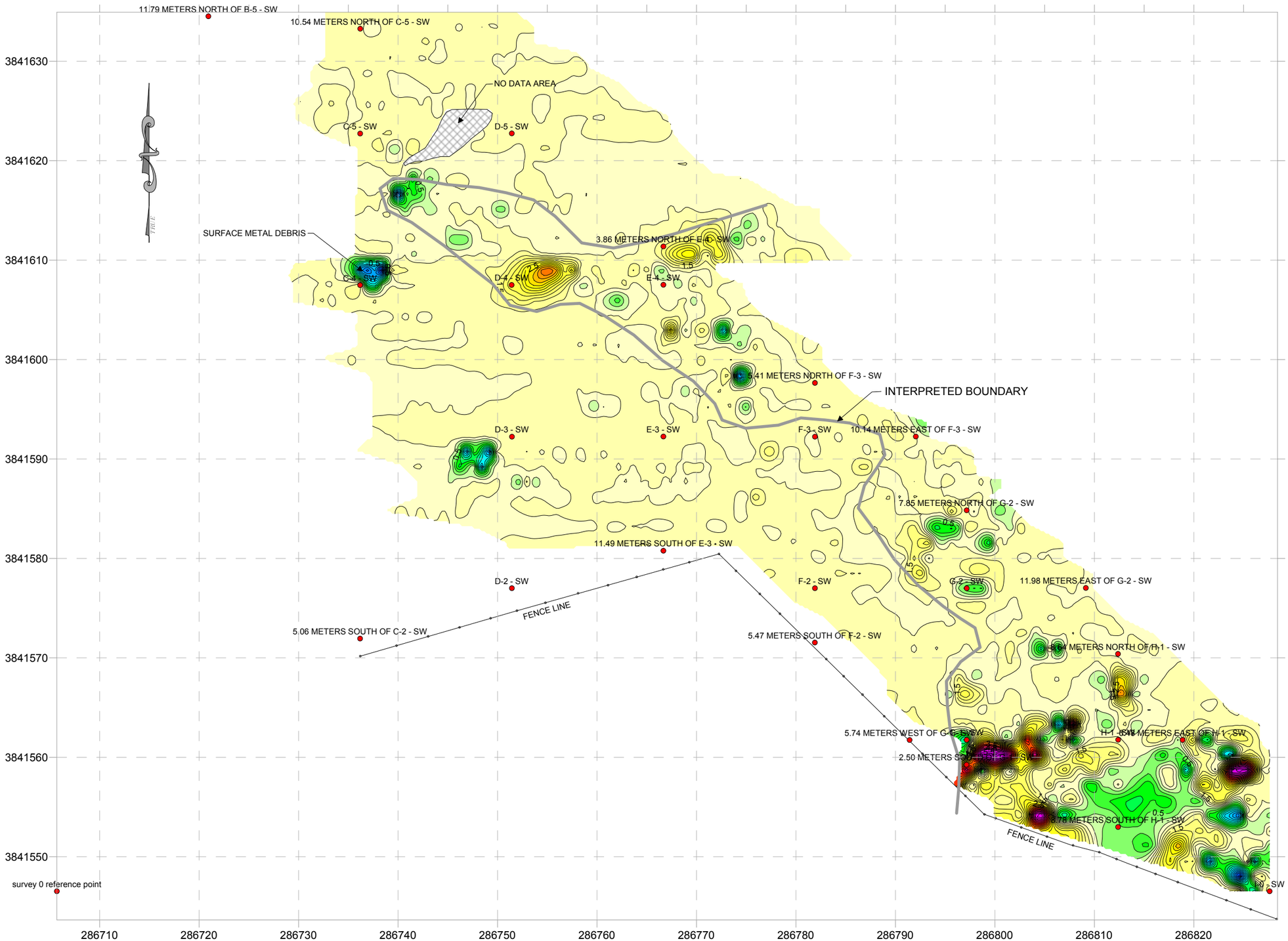
DELTA Geophysics Inc.
738 Front Street, Catasaqua, PA 18032
Phone (610) 231-3701 Fax (610 231-3703

GEOPHYSICAL INVESTIGATION, EM-31 CONDUCTIVITY DATA PLOT
BATTERY DISPOSAL INVESTIGATION, UXO-22, MCIEAST-MCB CAMLEJ

FOR

CH2M HILL

DRAWN BY	MDY
DATE	06 MAY 2014
CHECKED BY	
SCALE	1" = 10M
DRAWING	140319-01
SHEET NO.	1 of 4
PROJECT	CH2M # 472310



Note:

Survey map coordinates are UTM zone 18N.

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738 Front Street, Catasaqua, PA 18032
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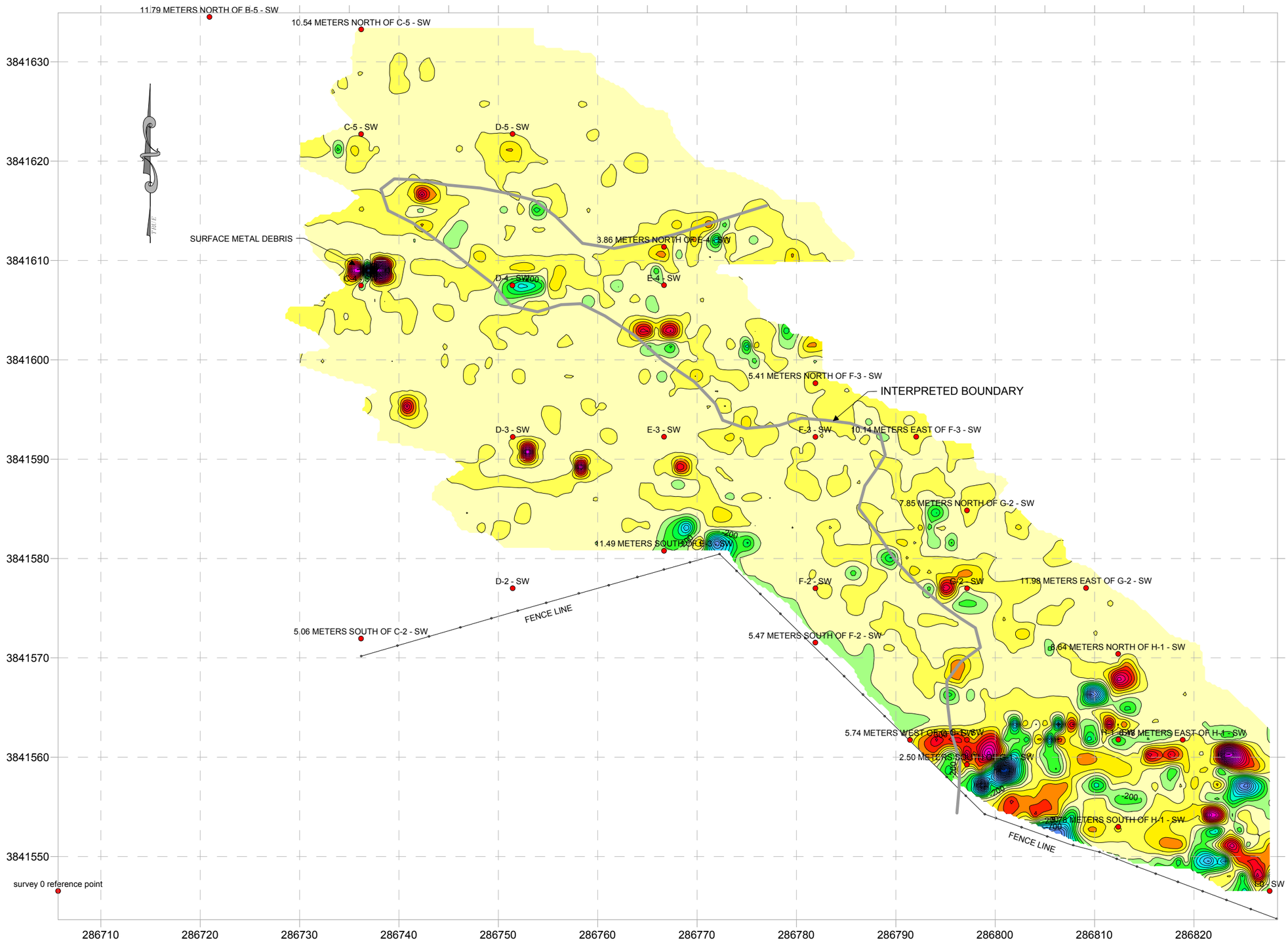
GEOPHYSICAL INVESTIGATION, EM-31 INPHASE DATA PLOT
BATTERY DISPOSAL INVESTIGATION, UXO-22, MCIEAST-MCB CAMLEJ

FOR

CH2M HILL

DRAWN BY	MDY
DATE	06 MAY 2014
CHECKED BY	
SCALE	1" = 10M
DRAWING	140319-02
SHEET NO.	2 of 4
PROJECT	CH2M # 472310



Note:

Survey map coordinates are UTM zone 18N.

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DELTA Geophysics Inc.
738 Front Street, Catasauqua, PA 18032
Phone (610) 231-3701 Fax (610 231-3703

GEOPHYSICAL INVESTIGATION, MAGNETOMETER VERTICAL GRADIENT PLOT
BATTERY DISPOSAL INVESTIGATION, UXO-22, MCIEAST-MCB CAMLEJ

FOR

CH2M HILL

DRAWN BY	MDY
DATE	06 MAY 2014
CHECKED BY	
SCALE	1" = 10M
DRAWING	140319-03
SHEET NO.	3 of 4
PROJECT	CH2M # 472310

11.79 METERS NORTH OF B-5 - SW
10.54 METERS NORTH OF C-5 - SW
C-5 - SW
D-5 - SW
SURFACE METAL DEBRIS
3.86 METERS NORTH OF E-4 - SW
D-4 - SW
E-4 - SW
50000
5.41 METERS NORTH OF F-3 - SW
INTERPRETED BOUNDARY
D-3 - SW
E-3 - SW
F-3 - SW
10.14 METERS EAST OF F-3 - SW
7.85 METERS NORTH OF G-2 - SW
11.49 METERS SOUTH OF E-3 - SW
D-2 - SW
F-2 - SW
G-2 - SW
11.98 METERS EAST OF G-2 - SW
FENCE LINE
5.06 METERS SOUTH OF C-2 - SW
5.47 METERS SOUTH OF F-2 - SW
8.64 METERS NORTH OF H-1 - SW
5.74 METERS WEST OF G-G-1 - SW
H-1 - SW
8.38 METERS EAST OF H-1 - SW
2.50 METERS SOUTH OF G-1 - SW
47500
8.78 METERS SOUTH OF H-1 - SW
FENCE LINE
survey 0 reference point
I-0 - SW

3841630
3841620
3841610
3841600
3841590
3841580
3841570
3841560
3841550

286710
286720
286730
286740
286750
286760
286770
286780
286790
286800
286810
286820

59000
58000
57000
56000
55000
54000
53000
52000
51000
50000
49000
48000
47000
46000
45000
44000
43000
42000
41000
40000

TOTAL FIELD MAGNETIC RESPONSE IN NANOTESLAS (nT)

0 2.5 5 7.5 10 15 20 30

GRAPHIC SCALE IN METERS

Note:

Survey map coordinates are UTM zone 18N.

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DELTA Geophysics Inc.
738 Front Street, Catasaqua, PA 18032
Phone (610) 231-3701 Fax (610 231-3703

GEOPHYSICAL INVESTIGATION, MAGNETOMETER TOTAL FIELD PLOT
BATTERY DISPOSAL INVESTIGATION, UXO-22, MCIEAST-MCB CAMLEJ

FOR

CH2M HILL

DRAWN BY MDY
DATE 06 MAY 2014
CHECKED BY
SCALE 1" = 10M
DRAWING 140319-04
SHEET NO. 4 of 4
PROJECT CH2M # 472310

Appendix H
Analytical Results

Table H-1

Phase I TCLP Sampling Results

Site UXO-22 Expanded SI Report

Camp Lejeune, North Carolina

Sample ID	MR22-SB100-36-40-14B	MR22-SB101-24-30-14B	MR22-SB99-18-24-14B
Sample Date	4/15/14	4/15/14	4/15/14
Chemical Name			
TCLP Volatile Organic Compounds (UG/L)			
No Detections			
TCLP Semivolatile Organic Compounds (UG/L)			
No Detections			
TCLP Pesticides/Polychlorinated Biphenyls (UG/L)			
gamma-BHC (Lindane)	0.59	0.12 U	0.12 U
TCLP Herbicides (UG/L)			
No Detections			
TCLP Metals (UG/L)			
Barium	153	131	161
Cadmium	8.71	3.19 J	7.9
Chromium	3 J	2.1 J	2.3 J
Lead	26.4	49.9	36.6
Mercury	0.1 U	0.13 J	0.1 U

Notes:

Shading indicates detection

J - Analyte present. Value may or may not be accurate or precise

L - Indicates that the flagged compound did not meet DoD criteria in the corresponding Laboratory Control Sample (LCS) and/or Laboratory Control Sample Duplicate (LCSD) prepared and/or analyzed concurrently with the sample

U - The material was analyzed for, but not detected

UG/L - Micrograms per liter

Asbestos Laboratory Report

LABORATORY REPORT

BULK ANALYSIS SAMPLING

Crystal Coast Environmental, Inc.

410 New Bridge Street Suite. 4-B, Jacksonville, NC 28540

Osage of Virginia
2618 Colley Avenue
Norfolk, VA 23517

Collected by: Robert Elbertson
Date Collected: 4/10/2015
C^2E Job #: 15-4208
CEI Labs #: A15-3297
Report Date 4/15/2015

Project: UXO-22 Lot #203
MCB Camp Lejeune, NC

Client ID	Sample Description	Lab ID	Asbestos Type	Asbestos %
4208-1-1	White Tank Insulation	A1946527	None	0
4208-1-2	White Tank Insulation	A1946528	None	0

A Polarized Light Microscopy (PLM) and Stereoscopic Microscopy (SM) coupled with a dispersion staining (DS) procedure was conducted on the above sample(s) to determine the presence and percentage of Asbestos. The results of this test are noted above.

The above named procedure was conducted on samples forwarded to CEI Labs, Inc., accredited by the NAtional Volunteer Accreditation Progrsm (NVLAP) for the analysis of Asbestos in bulk materials. The accredited test method is EPA / 600 / M4-82 / 020 for the analysis of asbestos in building materials. Procedures described in EPA / 600 / R-93 / 116 have been incorporated where applicable. The detection limit for the method is 0.1% (trace amount). CEI Labs, Inc.s accreditation number is #101768-0.

Reviewed by:

Mistery Santiago

North Carolina Department of Health and Human Services
Division of Public Health

Pat McCrory
Governor

Aldona Z. Wos, M.D.
Ambassador (Ret.)
Secretary DHHS

Penelope Slade-Sawyer
Division Director

October 8, 2014

Robert L Elbertson
410 New Bridge St Ste 4b
Jacksonville, NC 28540

Dear Mr. Elbertson:

Based upon the review of your accreditation application, the Health Hazards Control Unit (HHCU) has determined that you have fulfilled the requirements and are eligible for asbestos accreditation as a(n) INSPECTOR. Your assigned North Carolina accreditation number is 12591, which is reflected on your enclosed North Carolina Accreditation card. Please be sure to take this card with you to any asbestos work site where you are employed. The State requires that all persons conducting asbestos abatement or asbestos management activities be accredited and have their identification card on site.

Your North Carolina Inspector accreditation will expire on SEPTEMBER 30, 2015. It is NOT the policy of the HHCU to issue renewal notices. If you wish to continue working as a(n) Inspector after this expiration date, you must successfully complete the required training and submit a completed application to this office prior to September 30, 2015. If you should continue to perform asbestos management activities as a(n) Inspector without a valid North Carolina accreditation, you will be in violation of State regulations and may be cited for noncompliance.

Sincerely,

Ed Norman
Program Manager
Health Hazards Control Unit

Robert L Elbertson
410 New Bridge St Ste 4b
Jacksonville, NC 28540

105541

North Carolina
Asbestos Accreditation

EXPIRATION			
09-30-2015			
DOB	SEX	HT	WT
02-08-1968	M	6'0"	200
CLASS		#	EXP
AIR MONITOR		80800	09-15
DESIGNER		40482	01-15
INSPECTOR		12591	09-15
MGMT PLANNER		20988	01-15

The EI Group, Inc.

This certifies that

Robert Elbertson

Student Address: 410 New Bridge Street, Ste. 4B, Jacksonville, NC 28540

Has completed the requisite training for asbestos accreditation under TSCA Title II and has met the requirements of and passed the examination of an EPA approved

Asbestos Inspector Refresher (4-Hour) Training Course

7014090041
Certificate Number

7974
Social Security Number

September 17, 2014
Course Dates

September 17, 2014
Exam Date

September 17, 2015
Expiration Date

2101 Gateway Centre
Morrisville, NC 27560
(919) 657-7500

Durham,, NC
Location

Barry Maxwell, Training Manager

Frank Robinson, Principal Instructor

Frank Robinson, Exam Administrator

Appendix I
Waste Manifests

Invoice: 153629 Receipt 25-00 75244 Manifest 013315046JJK

15167

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: NC6170022580
2. Page 1 of: 1
3. Emergency Response Phone: 800-255-3924-MIS0007951
4. Manifest Tracking Number: 013315046 JJK

5. Generator's Name and Mailing Address
Marine Corps Base Camp Lejeune
PSC Box 20005:Attn I&E/EMD/EQB MCI-East
Camp Lejeune, NC 28542 USA
Generator's Phone: 910-451-5997

Generator's Site Address (if different than mailing address)
Building 626 Piney Green Road
Camp Lejeune, NC 28542

6. Transporter 1 Company Name: U.S. Bulk Transport, Inc.
U.S. EPA ID Number: PAD987347515

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
Envirite of Ohio, Inc.
2050 Central Ave. S.E.
Canton, OH 44707 USA
Facility's Phone: 330-456-6236
U.S. EPA ID Number: OHD980568992

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1. NA3077, Hazardous waste solid, N.O.S.,(lead), 9, PGIII, ERG# 171	01	DT	23.46	T	D008
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
1) Appl#: E151116EOH ___ x tons
A&D Job No: 75235 P.O. No: 29667 TRK# 105

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter. I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Eugene Adams
Signature
Month 06 Day 13 Year 15

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Kenneth D. Ard
Signature
Month 06 Day 13 Year 15

Transporter 2 Printed/Typed Name
Signature
Month Day Year

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator)
Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H110			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: Eric Dunlevy
Signature
Month 06 Day 04 Year 15

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete. DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

8183702

Invoice: 153630 Receipt 25-00 75317 Manifest 013315048JJK

15572

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) 105

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
	NC6170022580	1	800-255-3924-MIS0007951	013315048 JJK

5. Generator's Name and Mailing Address
Marine Corps Base Camp Lejeune
PSC Box 20005:Attn I&E/EMD/EQB MCI-East
Camp Lejuene, NC 28542 USA

Generator's Site Address (if different than mailing address)
Building 626 Piney Green Road
Camp Lejuene, NC 28542

Generator's Phone: 910-451-5997

6. Transporter 1 Company Name: U.S. Bulk Transport, Inc. — U.S. EPA ID Number: PAD987347515

7. Transporter 2 Company Name — U.S. EPA ID Number:

8. Designated Facility Name and Site Address
Envirite of Ohio, Inc.
2050 Central Ave. S.E.
Canton, OH 44707 USA
U.S. EPA ID Number: OHD980568992

Facility's Phone: 330-456-6238

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1. NA3077, Hazardous waste solid, N.O.S.,(lead), 9, PGIII, ERG# 171	01	DT	11.11	T	D008
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
1) Appl#: E151116ECH ___ x tons
A&D Job No: 75235 P.O. No: 24667 TRK # 105

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: EUGENE Somes — Signature: [signature] — Month 6 Day 5 Year 15

INTL
16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER
17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name	Signature	Month	Day	Year
Kenneth O. Ard	Kenneth O. Ard	6	5	15
Transporter 2 Printed/Typed Name	Signature	Month	Day	Year

DESIGNATED FACILITY
18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
18b. Alternate Facility (or Generator) U.S. EPA ID Number
Facility's Phone:
18c. Signature of Alternate Facility (or Generator) Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H110			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name	Signature	Month	Day	Year
Eric Dunlevy	Eric Dunlevy	06	08	15

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete. DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

8194339

Invoice: 152197 Receipt 25-00 75203 Manifest 013315054JJK

15160

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: NC6170022580
2. Page 1 of: 1
3. Emergency Response Phone: 800-255-3924-MIS0007951
4. Manifest Tracking Number: 013315054 JJK

5. Generator's Name and Mailing Address: Marine Corps Base Camp Lejeune, PSC Box 20005:Attn I&E/EMD/EQB MCI-East, Camp Lejeune, NC 28542 USA
Generator's Site Address (if different than mailing address): Building 629 Piney Green Road, Camp Lejeune, NC 28542
Generator's Phone: 910-451-5997

6. Transporter 1 Company Name: U.S. Bulk Transport, Inc. #177
U.S. EPA ID Number: PAD987347515

7. Transporter 2 Company Name:
U.S. EPA ID Number:

8. Designated Facility Name and Site Address: Envirite of Ohio, Inc., 2050 Central Ave. S.E., Canton, OH 44707 USA
U.S. EPA ID Number: OHD980568992
Facility's Phone: 330-456-6238

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1. NA3077, Hazardous waste solid, N.O.S.,(lead), 9, PGIII, ERG# 171	01	DT	2296	T	D008
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
1) Appl#: E151116EOH ___ x tons
A&D Job No: 75235 P.O. No: 29667

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Eugene Jones Signature: [signature] Month 06 Day 01 Year 15

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Dave Rupert Signature: [signature] Month 06 Day 01 Year 15

Transporter 2 Printed/Typed Name: Signature: Month Day Year

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator) U.S. EPA ID Number

Facility's Phone:

18c. Signature of Alternate Facility (or Generator) Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H110			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: Eric Dunlevy Signature: [signature] Month 06 Day 02 Year 15

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

8175300

Invoice: 152196 Receipt 25-00 75206 Manifest 013315053JJK

TRK#105 15159

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
	NC8170022580	1	800-255-3924-MIS0007951	013315053 JJK

5. Generator's Name and Mailing Address
Marine Corps Base Camp Lejeune
PSC Box 20005 Attn I&E/EMD/EQB MCI-East
Camp Lejeune, NC 28542 USA
Generator's Phone: 910-451-5997

Generator's Site Address (if different than mailing address)
Building 626 Piney Green Road
Camp Lejeune, NC 28542

6. Transporter 1 Company Name: U.S. Bulk Transport, Inc. #105 — U.S. EPA ID Number: PAD987347515

7. Transporter 2 Company Name — U.S. EPA ID Number

8. Designated Facility Name and Site Address
Envirite of Ohio, Inc.
2050 Central Ave. S.E.
Canton, OH 44707 USA
U.S. EPA ID Number: OHD980568992
Facility's Phone: 330-456-6238

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol	13. Waste Codes
X	1. NA3077, Hazardous waste solid, N.O.S.,(lead), 9, PGIII, ERG# 171	01	DT	22.87	T	D008
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
1) Appl#: E151116EOH ___ x tons
A&D Job No: 75235 P.O. No: 29667

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: EUGENE JONES — Signature — Month 6 Day 1 Year 15

INT'L
16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER
17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name	Signature	Month	Day	Year
Kenneth O. Ard	Kenneth O Ard	6	1	15
Transporter 2 Printed/Typed Name	Signature	Month	Day	Year

DESIGNATED FACILITY
18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
18b. Alternate Facility (or Generator) U.S. EPA ID Number
Facility's Phone:
18c. Signature of Alternate Facility (or Generator) Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H110			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name	Signature	Month	Day	Year
Eric Dunlevy	Eric Dunlevy	06	02	15

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete. DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

8175251

Invoice: 152195 Receipt 25-00 75204 Manifest 013315052JJK

15161

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: NC6170022580
2. Page 1 of: 1
3. Emergency Response Phone: 800-255-3924-MIS0007951
4. Manifest Tracking Number: 013315052 JJK

5. Generator's Name and Mailing Address: Marine Corps Base Camp Lejeune, PSC Box 20005:Attn I&E/EMD/EQB MCI-East, Camp Lejeune, NC 28542 USA
Generator's Site Address (if different than mailing address): Building 626 Piney Green Road, Camp Lejeune, NC 28542
Generator's Phone: 910-451-5997

6. Transporter 1 Company Name: U.S. Bulk Transport, Inc. #121
U.S. EPA ID Number: PAD987347515

7. Transporter 2 Company Name:
U.S. EPA ID Number:

8. Designated Facility Name and Site Address: Envirite of Ohio, Inc., 2050 Central Ave. S.E., Canton, OH 44707 USA
U.S. EPA ID Number: OHD980568992
Facility's Phone: 330-456-6238

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1. NA3077, Hazardous waste solid, N.O.S.,(lead), 9, PGIII, ERG# 171	01	DT	2352	T	D008
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
1) Appl#: E151116EOH ___ x tons
A&D Job No: 75235 P.O. No: 29667

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: EUGENE JONES Signature: [signature] Month: 6 Day: 11 Year: 15

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Rich Miller Signature: [signature] Month: 6 Day: 1 Year: 15

Transporter 2 Printed/Typed Name: Signature: Month: Day: Year:

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator) U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator) Month: Day: Year:

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H110			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: Eric Dunlevy Signature: [signature] Month: 6 Day: 6 Year: 15

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete. DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

8175283

Invoice: 152821 Receipt 25-00 75260 Manifest 013315047JJK

170 15169

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
	NC6170022580	1	800-255-3924-MIS0007951	013315047 JJK

GENERATOR

5. Generator's Name and Mailing Address
Marine Corps Base Camp Lejeune
PSC Box 20005:Attn I&E/EMD/EQB MCI-East
Camp Lejuene, NC 28542 USA
Generator's Phone: 910-451-5997

Generator's Site Address (if different than mailing address)
Building 626 Piney Green Road
Camp Lejuene, NC 28542

6. Transporter 1 Company Name: U.S. Bulk Transport, Inc. — U.S. EPA ID Number: PAD987347515

7. Transporter 2 Company Name — U.S. EPA ID Number

8. Designated Facility Name and Site Address
Envirite of Ohio, Inc.
2050 Central Ave. S.E.
Canton, OH 44707 USA
Facility's Phone: 330-456-6238
U.S. EPA ID Number: OHD980568992

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1. NA3077, Hazardous waste solid, N.O.S.,(lead), 9, PGIII, ERG# 171	01	DT	30	T	D008
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
1) Appt#: E151116EOH ___ x tons
A&D Job No: 75235 P.O. No: 29667 TRL 170A

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Eugene Jones — Signature: Eugene Jones — Month 6 Day 3 Year 15

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Bobby Harvey — Signature: Bobby Harvey — Month 6 Day 3 Year 15

Transporter 2 Printed/Typed Name — Signature — Month Day Year

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator) — U.S. EPA ID Number

Facility's Phone:

18c. Signature of Alternate Facility (or Generator) — Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H110			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: Eric Dunlevy — Signature: Eric Dunlevy — Month 06 Day 04 Year 15

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete. **DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)**

8183571

013315045JJK

15164

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
NC6170022580	1	800-255-3924-MSDS007951	013315045 JJK

GENERATOR

5. Generator's Name and Mailing Address

Marine Corps Base Camp Lejeune
PSC Box 20006:Attn I&E/EMD/EQB MCI-East
Camp Lejeune, NC 28542 USA

Generator's Site Address (if different than mailing address)

Building 826 Piney Green Road
Camp Lejeune, NC 28542

Generator's Phone: 910-451-8007

6. Transporter 1 Company Name — U.S. EPA ID Number

U.S. Bulk Transport, Inc. — PAD987347515

7. Transporter 2 Company Name — U.S. EPA ID Number

8. Designated Facility Name and Site Address — U.S. EPA ID Number

Envirite of Ohio, Inc.
2050 Central Ave. S.E.
Canton, OH 44707 USA

OHD980589692

Facility's Phone: 330-456-6236

9a HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1. NA3077, Hazardous waste solid, N.O.S.,(lead), 9, PGIII, ERG# 171	01	DT	23.69	T	D008
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information

1) Appl#: E151116EOH ___ x tons

TK - 149
TRL - 149A

A&D Job No: 75236 P.O. No: 29667

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: EUGENE JONES — Signature: Eugene Jones — Month: 6 — Day: 2 — Year: 15

INTL

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:

Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: ERIC HARTMAN — Signature: Eric Hartman — Month: 06 — Day: 02 — Year: 15

Transporter 2 Printed/Typed Name — Signature — Month — Day — Year

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator) — U.S. EPA ID Number

Facility's Phone:

18c. Signature of Alternate Facility (or Generator) — Month — Day — Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H110			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: Eric Dunlevy — Signature: Eric Dunlevy — Month: 06 — Day: 03 — Year: 15

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

013315051JJK

15162

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
NC6170022980	1	800-256-3924-MIS0007961	013315051 JJK

GENERATOR

5. Generator's Name and Mailing Address
Marine Corps Base Camp Lejeune
PSC Box 20006 Attn I&E/EMD/EQB MCI-East
Camp Lejeune, NC 28542 USA

Generator's Site Address (if different than mailing address)
Building 626 Piney Green Road
Camp Lejeune, NC 28542

Generator's Phone: 910-451-5697

6. Transporter 1 Company Name: U.S. Bulk Transport, Inc.
U.S. EPA ID Number: PAD987347515

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
Envirite of Ohio, Inc.
2050 Central Ave. S.E.
Canton, OH 44707 USA
U.S. EPA ID Number: OHD980568982

Facility's Phone: 330-456-6236

9a HM	9b U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1. NA3077, Hazardous waste solid, N.O.S.,(lead), 9, PGIII, ERG# 171	001	DT	21.21	T	D008
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
1) Appt#: E151116EOH ___ x lone
A&D Job No: 75235 P.O. No: 27667

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator/Offeror's Printed/Typed Name: EUGENE Jones
Signature: Eugene Jones
Month 6 Day 2 Year 15

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Kevin Cartwright
Signature: Kevin Cartwright
Month 06 Day 02 Year 15
Transporter 2 Printed/Typed Name
Signature
Month Day Year

DESIGNATED FACILITY

18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:

18b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator)
Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)
1. H110 2. 3. 4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: Eric Dunlevy
Signature: Eric Dunlevy
Month 06 Day 03 Year 15

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

1703 Vargrave Street
Winston-Salem, NC 27107
ph 336-725-5844
fax 336-725-6244

CERTIFICATE OF DISPOSAL

Evo Corporation does hereby certify that 399.61 tons of non-hazardous contaminated material received on 04/13/2015, 04/14/2015 and 04/15/2015 from:

Generator: MCB - Camp Lejeune

Originating at: MCAS Building 626
Camp Lejeune, NC

EC Waste ID #: 031535

has been disposed of by Evo Corporation in a manner approved by the North Carolina Department of Environment and Natural Resources.

Signature

Thomas W. Hammett
CEO
Evo Corporation

WASTE INDUSTRIES

No. 1161496
15099

NON-HAZARDOUS SPECIAL WASTE & ASBESTOS MANIFEST

If waste is asbestos waste, complete Sections I, II, III, and IV. If waste is NOT asbestos waste, complete only Sections I, II, and III.

Section I. GENERATOR (Generator complete all of Section I.)

a. Generator Name: MCIEAST-MCBCANKEJ-I&E/EMD/EQB
b. Address: PSC Box 20005
Camp Lejeune, NC 28542
c. Phone No.: 910-451-9385 Charity Delaney

d. Generating Location: MCIEAST-MCBCANKEJ
e. Address: Bldg 626 Piney Green Rd
Camp Lejeune, NC 28542
f. Phone No.: 910-451-9385 Charity Delaney
County: Onslow

If Owner of the generating facility differs from the generator, complete d, e, f:

g. Owner's Name:
h. Owner's Phone No.:

i. WI WASTE CODE: 21 | 000124446 | 021-E5-15035 | Containers
j. Description of Waste: Contaminated Soil w/ Batteries
Soil must be disposed in Subtitle D Landfill
k. Quantity: 40.10 | Units: P | No.: 01 | Type: T

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
B - BAG
BA - 6 MIL. PLASTIC BAG or WRAP
T - TRUCK
O - OTHER

UNITS
P - POUNDS
Y - YARDS
M3 - CUBIC METERS
Y3 - CUBIC YARDS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CRF Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; **AND, if the waste is a treatment residue of a previously restricted hazardous waste** subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Generator Authorized Agent Name | Signature | Shipment Date: 04/14/15

Section II. TRANSPORTER (Generator complete a-d; Transporter I complete e-g; Transporter II complete h-n)

TRANSPORTER I

a. Name: EVO Corp
b. Address: 1703 Vargrave St, Winston-Salem, NC 27107
c. Driver Name/Title: MATT DuBREE (PRINT / TYPE)
d. Phone No.: 336-725-5844 Tony Disher/Edith Basinger
e. Truck No.: 205
f. Vehicle License No./State:
Acknowledgement of Receipt of Materials.
g. Driver Signature | Shipment Date: 04/14/15

TRANSPORTER II

h. Name:
i. Address:
j. Driver Name/Title: (PRINT / TYPE)
k. Phone No.: | l. Truck No.:
m. Vehicle License No./State:
Acknowledgement of Receipt of Materials.
n. Driver Signature | Shipment Date

Section III. DESTINATION (Generator complete a-d; Destination site complete e-f)

a. Site Name: SAMPSON COUNTY DISPOSAL
b. Physical Address: 7434 ROSEBORO HWY, ROSEBORO, NC 28382
c. Phone Number: 910-525-4132
d. Mailing Address: 7423 ROSEBORO HWY, ROSEBORO, NC

e. Discrepancy Indication Space:
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.
f. Name of Authorized Agent | Signature | Receipt Date

Section IV. CUSTOMER

a. Name: EVO Corp
b. Address: 1703 Vargrave St, Winston-Salem, NC 27107
c. Name/Title: Tony Disher/Edith Basinger/John Richardson
d. Phone Number: 336-725-5844
e. Mobile:
f. Customer Number: 21-000124446

Section V. ASBESTOS (Generator complete a-d, f,g; Operator* complete e)

a. Operator's* Name:
b. Operator's* Phone No.:
c. Operator's* Address:
d. Special Handling Instructions and additional information:

OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.

e. Operator's Name & Title: (Print / Type) | Operator's* Signature | Date

f. Name and Address of Responsible Agency:

g. ☐ Friable; ☐ Non-friable; ☐ Both _____% friable _____% nonfriable

*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both.

0231-7208 (1/04)

RETURN TO GENERATOR

WASTE INDUSTRIES

No. 1161531

NON-HAZARDOUS SPECIAL WASTE & ASBESTOS MANIFEST

If waste is asbestos waste, complete Sections I, II, III, and IV. If waste is NOT asbestos waste, complete only Sections I, II, and III.

Section I. GENERATOR (Generator complete all of Section I.)

a. Generator Name: MCIEAST-MCBCANKEJ-I&E/EMD/EQB-PSC Box 20005
b. Address: Camp Lejeune, NC 28542
c. Phone No.: 910-451-9385 Charity Delaney

d. Generating Location: MCIEAST-MCBCANKEJ
e. Address: Bldg 626 Piney Green Rd Camp Lejeune, NC 28542
f. Phone No.: 910-451-9385 Charity Delaney
County: Onslow

If Owner of the generating facility differs from the generator, complete d, e, f:

g. Owner's Name:
h. Owner's Phone No.:

i. WI WASTE CODE: 21 | 000124446 | 021-E5-15038 | Containers
j. Description of Waste: Contaminated Soil w/ Batteries
Soil must be disposed in Subtitle D Landfill

k. Quantity: 21.72 | Units: P | No. | Type: T

TYPE	
DM	- METAL DRUM
DP	- PLASTIC DRUM
B	- BAG
BA	- 6 MIL. PLASTIC BAG or WRAP
T	- TRUCK
O	- OTHER

UNITS	
P	- POUNDS
Y	- YARDS
M3	- CUBIC METERS
Y3	- CUBIC YARDS
O	- OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CRF Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; **AND, if the waste is a treatment residue of a previously restricted hazardous waste** subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Generator Authorized Agent Name | Signature | Shipment Date: 04/13/15

Section II. TRANSPORTER (Generator complete a-d; Transporter I complete e-g; Transporter II complete h-n)

TRANSPORTER I

a. Name: EVO Corp
b. Address: 1703 Vargrave St, Winston-Salem, NC 27107
c. Driver Name/Title: MATT DuBREE (PRINT / TYPE)
d. Phone No.: 336-725-5844 e. Truck No.: 205
Tony Disher/Edith Basinger
f. Vehicle License No./State: LV-2780
Acknowledgement of Receipt of Materials.
g. Driver Signature | Shipment Date: 04/13/15

TRANSPORTER II

h. Name:
i. Address:
j. Driver Name/Title: (PRINT / TYPE)
k. Phone No.: l. Truck No.:
m. Vehicle License No./State:
Acknowledgement of Receipt of Materials.
n. Driver Signature | Shipment Date

Section III. DESTINATION (Generator complete a-d; Destination site complete e-f)

a. Site Name: SAMPSON COUNTY DISPOSAL
b. Physical Address: 7434 ROSEBORO HWY, ROSEBORO, NC 28382
c. Phone Number: 910-525-4132
d. Mailing Address: 7423 ROSEBORO HWY, ROSEBORO, NC

e. Discrepancy Indication Space:
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. Name of Authorized Agent | Signature | Receipt Date: 04/15

Section IV. CUSTOMER

a. Name: EVO Corp
b. Address: 1703 Vargrave St, Winston-Salem, NC 27107
c. Name/Title: Tony Disher/Edith Basinger/John Richardson
d. Phone Number: 336-725-5844
e. Mobile:
f. Customer Number: 21-000124446

Section V. ASBESTOS (Generator complete a-d, f,g; Operator* complete e)

a. Operator's* Name:
b. Operator's* Phone No.:
c. Operator's* Address:
d. Special Handling Instructions and additional information:

OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.

e. Operator's Name & Title: (Print / Type) | (Operator's* Signature) | Date

f. Name and Address of Responsible Agency:

g. ☐ Friable; ☐ Non-friable; ☐ Both _____% friable _____% nonfriable

*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both.

0231-720B (1/04)

RETURN TO GENERATOR

WASTE INDUSTRIES

No. 1161526

NON-HAZARDOUS SPECIAL WASTE & ASBESTOS MANIFEST

If waste is asbestos waste, complete Sections I, II, III, and IV. If waste is NOT asbestos waste, complete only Sections I, II, and III.

Section I. GENERATOR (Generator complete all of Section I.)

1035661

a. Generator Name: MCIEAST-MCBCANKEJ-I&E/EMD/EQB
b. Address: PSC Box 20005
Camp Lejeune, NC 28542
c. Phone No.: 910-451-9385 Charity Delaney

d. Generating Location: MCIEAST-MCBCANKEJ MCBCAMLEJ
e. Address: Bldg 626 Piney Green Rd
Camp Lejeune, NC 28542
f. Phone No.: 910-451-9385 Charity Delaney
County: Onslow

If Owner of the generating facility differs from the generator, complete d, e, f:

g. Owner's Name:
h. Owner's Phone No.:

i. WI WASTE CODE: 21 | 000124446 | 021-E5-15038 | Containers
j. Description of Waste: Contaminated Soil w/ Batteries
Soil must be disposed in Subtitle D Landfill
k. Quantity 4630 | Units P | No. 10 | Type T

TYPE: DM - METAL DRUM; DP - PLASTIC DRUM; B - BAG; BA - 6 MIL. PLASTIC BAG or WRAP; T - TRUCK; O - OTHER

UNITS: P - POUNDS; Y - YARDS; M3 - CUBIC METERS; Y3 - CUBIC YARDS; O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CRF Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations, **AND, if the waste is a treatment residue of a previously restricted hazardous waste** subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Generator Authorized Agent Name | Signature | Shipment Date: 04/13/15

Section II. TRANSPORTER (Generator complete a-d; Transporter I complete e-g; Transporter II complete h-n)

TRANSPORTER I

a. Name: EVO Corp
b. Address: 1703 Vargrave St, Winston-Salem, NC 27107
c. Driver Name/Title: PRINT / TYPE
d. Phone No.: 336-725-5844 e. Truck No.: P182
Tony Disher/Edith Basinger
f. Vehicle License No./State:
Acknowledgement of Receipt of Materials.
g. Driver Signature | Shipment Date: 04/13/15

TRANSPORTER II

h. Name:
i. Address:
j. Driver Name/Title: PRINT / TYPE
k. Phone No.: l. Truck No.:
m. Vehicle License No./State:
Acknowledgement of Receipt of Materials.
n. Driver Signature | Shipment Date

Section III. DESTINATION (Generator complete a-d; Destination site complete e-f)

a. Site Name: SAMPSON COUNTY DISPOSAL
b. Physical Address: 7434 ROSEBORO HWY, ROSEBORO, NC 28302
c. Phone Number: 910-525-4132
d. Mailing Address: 7423 ROSEBORO HWY, ROSEBORO, NC

e. Discrepancy Indication Space:
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. Name of Authorized Agent | Signature | Receipt Date: 4-13-15

Section IV. CUSTOMER

a. Name: EVO Corp
b. Address: 1703 Vargrave St, Winston-Salem, NC 27107
c. Name/Title: Tony Disher/Edith Basinger/John Richardson
d. Phone Number: 336-725-5844
e. Mobile:
f. Customer Number: 21-000124446

Section V. ASBESTOS (Generator complete a-d, f,g; Operator* complete e)

a. Operator's* Name:
b. Operator's* Phone No.:
c. Operator's* Address:
d. Special Handling Instructions and additional information:

OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.

e. Operator's Name & Title: Print / Type | Operator's* Signature | Date

f. Name and Address of Responsible Agency:

g. ☐ Friable; ☐ Non-friable; ☐ Both _____% friable _____% nonfriable

*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both.

0231-720B (1/04)

RETURN TO GENERATOR

WASTE INDUSTRIES

No. 1161499
15102

NON-HAZARDOUS SPECIAL WASTE & ASBESTOS MANIFEST

If waste is asbestos waste, complete Sections I, II, III, and IV. If waste is NOT asbestos waste, complete only Sections I, II, and III.

Section I. GENERATOR (Generator complete all of Section I.)

a. Generator Name: MCIEAST-MCBGANREd-I&E/EMD/EQB.
b. Address: PSC Box 20005
Camp Lejeune, NC 28542
c. Phone No.: 910-451-9385 Charity Delaney

d. Generating Location: MCIEAST-MCBGANREd-
e. Address: Bldg 626 Piney Green Rd
Camp Lejeune, NC 28542
f. Phone No.: 910-451-9385 Charity Delaney
County: Onslow

If Owner of the generating facility differs from the generator, complete d, e, f:

g. Owner's Name:
h. Owner's Phone No.:

i. WI WASTE CODE: 21 | 000124446 | 021-E5-15036

j. Description of Waste: Contaminated Soil w/ Batteries
Soil must be disposed in Subtitle D Landfill

k. Quantity: 23.78 Units: T | Containers No.: 01 | Type: T

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
B - BAG
BA - 6 MIL. PLASTIC BAG or WRAP
T - TRUCK
O - OTHER

UNITS
P - POUNDS
Y - YARDS
M3 - CUBIC METERS
Y3 - CUBIC YARDS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CRF Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; **AND, if the waste is a treatment residue of a previously restricted hazardous waste** subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

EVO Corp Jones — Generator Authorized Agent Name
Signature
04/14/15 — Shipment Date

Section II. TRANSPORTER (Generator complete a-d; Transporter I complete e-g; Transporter II complete h-n)

TRANSPORTER I

a. Name: EVO Corp
b. Address: 1703 Vargrave St, Winston-Salem, NC 27107
c. Driver Name/Title: Greg Van Dorpe (PRINT / TYPE)
d. Phone No.: 336-725-5844
e. Truck No.: 105371-3969
Tony Disher/Edith Basinger
f. Vehicle License No./State: MK-94
Acknowledgement of Receipt of Materials.
g. Driver Signature
04/14/15 — Shipment Date

TRANSPORTER II

h. Name:
i. Address:
j. Driver Name/Title: (PRINT / TYPE)
k. Phone No.:
l. Truck No.:
m. Vehicle License No./State:
Acknowledgement of Receipt of Materials.
n. Driver Signature
Shipment Date

Section III. DESTINATION (Generator complete a-d; Destination site complete e-f)

a. Site Name: SAMPSON COUNTY DISPOSAL
b. Physical Address: 7434 ROSEBORO HWY, ROSEBORO, NC 28302
c. Phone Number: 910-525-4132
d. Mailing Address: 7423 ROSEBORO HWY, ROSEBORO, NC

e. Discrepancy Indication Space:
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. Name of Authorized Agent
Signature
04/14/15 — Receipt Date

Section IV. CUSTOMER

a. Name: EVO Corp
b. Address: 1703 Vargrave St, Winston-Salem, NC 27107
c. Name/Title: Tony Disher/Edith Basinger/John Richardson
d. Phone Number: 336-725-5844
e. Mobile:
f. Customer Number: 21-000124446

Section V. ASBESTOS (Generator complete a-d, f,g; Operator* complete e)

a. Operator's* Name:
b. Operator's* Phone No.:
c. Operator's* Address:
d. Special Handling Instructions and additional information:

OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.

e. Operator's Name & Title:
Print / Type
Operator's* Signature
Date

f. Name and Address of Responsible Agency:

g. ☐ Friable; ☐ Non-friable; ☐ Both _____% friable _____% nonfriable

*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both.

0231-720B (1/04)

RETURN TO GENERATOR

WASTE INDUSTRIES

No. 1161497
15100

NON-HAZARDOUS SPECIAL WASTE & ASBESTOS MANIFEST

If waste is asbestos waste, complete Sections I, II, III, and IV. If waste is NOT asbestos waste, complete only Sections I, II, and III.

Section I. GENERATOR (Generator complete all of Section I.)

10538419

a. Generator Name: MCIEAST-MCBCANKEJ-I&E/EMD/EQB
b. Address: PSC Box 20005
Camp Lejeune, NC 28542
c. Phone No.: 910-451-9385 Charity Delaney

d. Generating Location: MCIEAST-MCBCANKEJ
e. Address: Bldg 626 Piney Green Rd
Camp Lejeune, NC 28542
f. Phone No.: 910-451-9385 Charity Delaney
County: Onslow

If Owner of the generating facility differs from the generator, complete d, e, f:

g. Owner's Name:
h. Owner's Phone No.:

i. WI WASTE CODE: 21 | 000124446 | 02T-E5-15038
j. Description of Waste: Contaminated Soil w/ Batteries
Soil must be disposed in Subtitle D Landfill

k. Quantity 21.03 Units P No. Type T — Containers

TYPE	
DM	- METAL DRUM
DP	- PLASTIC DRUM
B	- BAG
BA	- 6 MIL. PLASTIC BAG or WRAP
T	- TRUCK
O	- OTHER

UNITS	
P	- POUNDS
Y	- YARDS
M3	- CUBIC METERS
Y3	- CUBIC YARDS
O	- OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CRF Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; **AND, if the waste is a treatment residue of a previously restricted hazardous waste** subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

EVONNE TORRI — Generator Authorized Agent Name
Signature
04/14/15 — Shipment Date

Section II. TRANSPORTER (Generator complete a-d; Transporter I complete e-g; Transporter II complete h-n)

TRANSPORTER I

a. Name: EVO Corp
b. Address: 1703 Vargrave St, Winston-Salem, NC 27107
c. Driver Name/Title: Mike Turner
d. Phone No.: 336-725-5844 PRINT / TYPE Tony Disher/Edith Basinger
e. Truck No.: 2204
f. Vehicle License No./State: 11461
Acknowledgement of Receipt of Materials.
g. Driver Signature
Shipment Date

TRANSPORTER II

h. Name:
i. Address:
j. Driver Name/Title:
k. Phone No.: PRINT / TYPE
l. Truck No.:
m. Vehicle License No./State:
Acknowledgement of Receipt of Materials.
n. Driver Signature
Shipment Date

Section III. DESTINATION (Generator complete a-d; Destination site complete e-f)

a. Site Name: SAMPSON COUNTY DISPOSAL
b. Physical Address: 7434 ROSEBORO HWY, ROSEBORO, NC 28382
c. Phone Number: 910-525-4132
d. Mailing Address: 7423 ROSEBORO HWY, ROSEBORO, NC

e. Discrepancy Indication Space:
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. Name of Authorized Agent
Signature
Receipt Date

Section IV. CUSTOMER

a. Name: EVO Corp
b. Address: 1703 Vargrave St, Winston-Salem, NC 27107
c. Name/Title: Tony Disher/Edith Basinger/John Richardson
d. Phone Number: 336-725-5844
e. Mobile:
f. Customer Number: 21-000124446

Section V. ASBESTOS (Generator complete a-d, f,g; Operator* complete e)

a. Operator's* Name:
b. Operator's* Phone No.:
c. Operator's* Address:
d. Special Handling Instructions and additional information:

OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.

e. Operator's Name & Title:
Print / Type
Operator's* Signature
Date

f. Name and Address of Responsible Agency:

g. ☐ Friable; ☐ Non-friable; ☐ Both _____% friable _____% nonfriable

*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both.

0231-720B (1/04)

RETURN TO GENERATOR

WASTE INDUSTRIES

No. 1161498

NON-HAZARDOUS SPECIAL WASTE & ASBESTOS MANIFEST

If waste is asbestos waste, complete Sections I, II, III, and IV. If waste is NOT asbestos waste, complete only Sections I, II, and III.

Section I. GENERATOR (Generator complete all of Section I.)

a. Generator Name: MCIEAST-MCBCANKEJ-I&E/EMD/EQB-
b. Address: PSC Box 20005
Camp Lejeune, NC 28542
c. Phone No.: 910-451-9385 Charity Delaney

d. Generating Location: MCIEAST-MCBCANKEJ
e. Address: Bldg 626 Piney Green Rd
Camp Lejeune, NC 28542
f. Phone No.: 910-451-9385 Charity Delaney
County: Onslow

If Owner of the generating facility differs from the generator, complete d, e, f:

g. Owner's Name:
h. Owner's Phone No.:

i. WI WASTE CODE: Z1 | 000124446 | 021-E5-15038 | Containers
j. Description of Waste: Contaminated Soil w/ Batteries
Soil must be disposed in Subtitle D Landfill
k. Quantity: 24.40 | Units: T | No.: 1 | Type:

TYPE: DM - METAL DRUM; DP - PLASTIC DRUM; B - BAG; BA - 6 MIL. PLASTIC BAG or WRAP; T - TRUCK; O - OTHER

UNITS: P - POUNDS; Y - YARDS; M3 - CUBIC METERS; Y3 - CUBIC YARDS; O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CRF Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; **AND, if the waste is a treatment residue of a previously restricted hazardous waste** subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Eileen Jones — Generator Authorized Agent Name
Signature
04/14/15 — Shipment Date

Section II. TRANSPORTER (Generator complete a-d; Transporter I complete e-g; Transporter II complete h-n)

TRANSPORTER I

a. Name: EVO Corp
b. Address: 1703 Vargrave St, Winston-Salem, NC 27107
c. Driver Name/Title: Timothy E. O'Loone (PRINT / TYPE)
d. Phone No.: 336-725-5844 e. Truck No.: Tony Disher/Edith Basinger
f. Vehicle License No./State: ZR4607B NC
Acknowledgement of Receipt of Materials.
g. T. E. O'Loone — Driver Signature
04/14/15 — Shipment Date

TRANSPORTER II

h. Name:
i. Address:
j. Driver Name/Title: (PRINT / TYPE)
k. Phone No.: l. Truck No.:
m. Vehicle License No./State:
Acknowledgement of Receipt of Materials.
n. Driver Signature
Shipment Date

Section III. DESTINATION (Generator complete a-d; Destination site complete e-f)

a. Site Name: SAMPSON COUNTY DISPOSAL
b. Physical Address: 7434 ROSEBORO HWY, ROSEBORO, NC 28382
c. Phone Number: 910-525-4132
d. Mailing Address: 7423 ROSEBORO HWY, ROSEBORO, NC

e. Discrepancy Indication Space:
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.
f. Name of Authorized Agent
Mary Woods — Signature
04/14/15 — Receipt Date

Section IV. CUSTOMER

a. Name: EVO Corp
b. Address: 1703 Vargrave St, Winston-Salem, NC 27107
c. Name/Title: Tony Disher/Edith Basinger/John Richardson
d. Phone Number: 336-725-5844
e. Mobile:
f. Customer Number: 21-000124446

Section V. ASBESTOS (Generator complete a-d, f,g; Operator* complete e)

a. Operator's* Name:
b. Operator's* Phone No.:
c. Operator's* Address:
d. Special Handling Instructions and additional information:

OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.

e. Operator's Name & Title: (Print / Type) — Operator's* Signature — Date

f. Name and Address of Responsible Agency:

g. ☐ Friable; ☐ Non-friable; ☐ Both _____% friable _____% nonfriable

*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both.

0231-720B (1/04)

RETURN TO GENERATOR

WASTE INDUSTRIES

No. 1161524 15098

NON-HAZARDOUS SPECIAL WASTE & ASBESTOS MANIFEST

If waste is asbestos waste, complete Sections I, II, III, and IV. If waste is NOT asbestos waste, complete only Sections I, II, and III.

Section I. GENERATOR (Generator complete all of Section I.)

a. Generator Name: MCIEAST-MCBCANKEJ-I&E/EMD/EQB
b. Address: PSC Box 20005
Camp Lejeune, NC 28542
c. Phone No.: 910-451-9385 Charity Delaney

d. Generating Location: MCIEAST-MCBCANKEJ
e. Address: Bldg 626 Piney Green Rd
Camp Lejeune, NC 28542
f. Phone No.: 910-451-9385 Charity Delaney
County: Onslow

If Owner of the generating facility differs from the generator, complete d, e, f:

g. Owner's Name:
h. Owner's Phone No.:

i. WI WASTE CODE 21 000124446
021-E5-15038
Containers

j. Description of Waste: Contaminated Soil w/ Batteries
Soil must be disposed in Subtitle D Landfill

k. Quantity 2330 Units P No. 01 Type T

TYPE	
DM	- METAL DRUM
DP	- PLASTIC DRUM
B	- BAG
BA	- 6 MIL. PLASTIC BAG or WRAP
T	- TRUCK
O	- OTHER

UNITS	
P	- POUNDS
Y	- YARDS
M3	- CUBIC METERS
Y3	- CUBIC YARDS
O	- OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CRF Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; **AND, if the waste is a treatment residue of a previously restricted hazardous waste** subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Generator Authorized Agent Name | Signature | Shipment Date: 04/14/15

Section II. TRANSPORTER (Generator complete a-d; Transporter I complete e-g; Transporter II complete h-n)

TRANSPORTER I

a. Name: EVO Corp
b. Address: 1703 Vargrave St, Winston-Salem, NC 27107
c. Driver Name/Title:
d. Phone No.: 336-725-5844 PRINT / TYPE e. Truck No.:
Tony Disher/Edith Basinger
f. Vehicle License No./State:
Acknowledgement of Receipt of Materials.
g. Driver Signature | Shipment Date

TRANSPORTER II

h. Name: South River Trucking
i. Address: Asheville NC
j. Driver Name/Title: Larry Tanner
k. Phone No.: 910 990 5906 PRINT / TYPE l. Truck No.: 3078
m. Vehicle License No./State:
Acknowledgement of Receipt of Materials.
n. Driver Signature | Shipment Date: 04/19/15

Section III. DESTINATION (Generator complete a-d; Destination site complete e-f)

a. Site Name: SAMPSON COUNTY DISPOSAL
b. Physical Address: 7434 ROSEBORO HWY, ROSEBORO, NC 28382
c. Phone Number: 910-525-4132
d. Mailing Address: 7423 ROSEBORO HWY, ROSEBORO, NC

e. Discrepancy Indication Space:
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. Name of Authorized Agent | Signature | Receipt Date: 04/19/15

Section IV. CUSTOMER

a. Name: EVO Corp
b. Address: 1703 Vargrave St, Winston-Salem, NC 27107
c. Name/Title: Tony Disher/Edith Basinger/John Richardson
d. Phone Number: 336-725-5844
e. Mobile:
f. Customer Number: 21-000124446

Section V. ASBESTOS (Generator complete a-d, f,g; Operator* complete e)

a. Operator's* Name:
b. Operator's* Phone No.:
c. Operator's* Address:
d. Special Handling Instructions and additional information:

OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.

e. Operator's Name & Title: Print / Type | Operator's* Signature | Date

f. Name and Address of Responsible Agency:

g. ☐ Friable; ☐ Non-friable; ☐ Both _____% friable _____% nonfriable

*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both.

0231-720B (1/04)

RETURN TO GENERATOR

WASTE INDUSTRIES

No. 1161500 15103

NON-HAZARDOUS SPECIAL WASTE & ASBESTOS MANIFEST

If waste is asbestos waste, complete Sections I, II, III, and IV. If waste is NOT asbestos waste, complete only Sections I, II, and III.

Section I. GENERATOR (Generator complete all of Section I.)

1033952

a. Generator Name: MCIEAST-~~MCBCANKE~~J-I&E/EMD/~~EQB~~ EQS

b. Address: PSC Box 20005
Camp Lejeune, NC 28542

c. Phone No.: 910-451-9385 Charity Delaney

d. Generating Location: MCIEAST-~~MCBCANKE~~J MCB CAMLEJ

e. Address: Bldg 626 Piney Green Rd
Camp Lejeune, NC 28542

f. Phone No.: 910-451-9385 Charity Delaney
County: Onslow

If Owner of the generating facility differs from the generator, complete d, e, f:

g. Owner's Name:

h. Owner's Phone No.:

i. WI WASTE CODE 21 000124446 021-E5-15038 Containers

j. Description of Waste: Contaminated Soil w/ Batteries
Soil must be disposed in Subtitle D Landfill

k. Quantity 22.07 Units No. Type

4	4	0	6	0	P	2	1		T

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
B - BAG
BA - 6 MIL. PLASTIC BAG or WRAP
T - TRUCK
O - OTHER

UNITS
P - POUNDS
Y - YARDS
M3 - CUBIC METERS
Y3 - CUBIC YARDS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CRF Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations, **AND, if the waste is a treatment residue of a previously restricted hazardous waste** subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Eugene Jones — Generator Authorized Agent Name

Eugene Jones — Signature

04/14/15 — Shipment Date

Section II. TRANSPORTER (Generator complete a-d; Transporter I complete e-g; Transporter II complete h-n)

TRANSPORTER I

a. Name: EVO Corp

b. Address: 1703 Vargrave St, Winston-Salem, NC 27107

c. Driver Name/Title: Robert STEED DRIVER

d. Phone No.: 336-725-5844 PRINT / TYPE Tony Disher/Edith Basinger

e. Truck No.: P188

f. Vehicle License No./State: NC 3830

Acknowledgement of Receipt of Materials.

g. Driver Signature

04/14/15 — Shipment Date

TRANSPORTER II

h. Name:

i. Address:

j. Driver Name/Title:

k. Phone No.: PRINT / TYPE

l. Truck No.:

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials.

n. Driver Signature

Shipment Date

Section III. DESTINATION (Generator complete a-d; Destination site complete e-f)

a. Site Name: SAMPSON COUNTY DISPOSAL

b. Physical Address: 7434 ROSEBORO HWY, ROSEBORO, NC 28382

c. Phone Number: 910-525-4132

d. Mailing Address: 7423 ROSEBORO HWY, ROSEBORO, NC

e. Discrepancy Indication Space:

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. Name of Authorized Agent — Signature — 04/14/15 Receipt Date

Section IV. CUSTOMER

a. Name: EVO Corp

b. Address: 1703 Vargrave St, Winston-Salem, NC 27107

c. Name/Title: Tony Disher/Edith Basinger/John Richardson

d. Phone Number: 336-725-5844

e. Mobile:

f. Customer Number: 21-000124446

Section V. ASBESTOS (Generator complete a-d, f,g; Operator* complete e)

a. Operator's* Name:

b. Operator's* Phone No.:

c. Operator's* Address:

d. Special Handling Instructions and additional information:

OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.

e. Operator's Name & Title: Print / Type — Operator's* Signature — Date

f. Name and Address of Responsible Agency:

g. ☐ Friable; ☐ Non-friable; ☐ Both _____% friable _____% nonfriable

*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both.

0231-720B (1/04)

RETURN TO GENERATOR

WASTE INDUSTRIES

No. 1161523 15704

NON-HAZARDOUS SPECIAL WASTE & ASBESTOS MANIFEST

If waste is asbestos waste, complete Sections I, II, III, and IV. If waste is NOT asbestos waste, complete only Sections I, II, and III.

Section I. GENERATOR (Generator complete all of Section I.)

10339?2

a. Generator Name: ~~MCIEAST-MCB CAMLEJ G&E/EMD/EGEB~~ MCB CAMLEJ EGEB

b. Address: ~~PSC Box 20005~~ Camp Lejeune, NC 28542

c. Phone No.: ~~910-451-9365 Charity Delaney~~

d. Generating Location: ~~MCIEAST-MCB CAMLEJ~~ MCBCAMLEJ

e. Address: Bldg 626 Piney Green Rd Camp Lejeune, NC 28542

f. Phone No.: 910-451-9365 Charity Delaney County. Onslow

If Owner of the generating facility differs from the generator, complete d, e, f:

g. Owner's Name:

h. Owner's Phone No.:

i. WI WASTE CODE: 21 | 0000124446 | 021-E5-15038

j. Description of Waste: Contaminated Soil w/ Batteries. Soil must be disposed in Subtitle D Landfill

Containers

k. Quantity 22.6 Units | No. | Type

45380	P	01	T

TYPE: DM - METAL DRUM; DP - PLASTIC DRUM; B - BAG; BA - 6 MIL. PLASTIC BAG or WRAP; T - TRUCK; O - OTHER

UNITS: P - POUNDS; Y - YARDS; M3 - CUBIC METERS; Y3 - CUBIC YARDS; O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CRF Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; **AND, if the waste is a treatment residue of a previously restricted hazardous waste** subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Generator Authorized Agent Name: Lynne Jones

Signature: Lynne Jones

Shipment Date: 04/14/15

Section II. TRANSPORTER (Generator complete a-d; Transporter I complete e-g; Transporter II complete h-n)

TRANSPORTER I

a. Name: EVO Corp

b. Address: 1703 Vargrave St, Winston-Salem, NC 27107

c. Driver Name/Title:

d. Phone No.: 336-725-5844 PRINT / TYPE: Tony Disher/Edith Basinger

e. Truck No.:

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials.

g. Driver Signature

Shipment Date

TRANSPORTER II

h. Name: South River

i. Address: Hauppauge NC

j. Driver Name/Title: Larry Tanner

k. Phone No.: 910 570 5906 PRINT / TYPE

l. Truck No.: 3080

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials.

n. Larry Tanner Driver Signature

Shipment Date: 04/14/15

Section III. DESTINATION (Generator complete a-d; Destination site complete e-f)

a. Site Name: SAMPSON COUNTY DISPOSAL

b. Physical Address: 7434 ROSEBORO HWY, ROSEBORO, NC 28382

c. Phone Number: 910-525-4132

d. Mailing Address: 7423 ROSEBORO HWY, ROSEBORO, NC

e. Discrepancy Indication Space:

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. Name of Authorized Agent

Signature

Receipt Date: 04/14/15

Section IV. CUSTOMER

a. Name: EVO Corp

b. Address: 1703 Vargrave St, Winston-Salem, NC 27107

c. Name/Title: Tony Disher/Edith Basinger/John Richardson

d. Phone Number: 336-725-5844

e. Mobile:

f. Customer Number: 21-0000124446

Section V. ASBESTOS (Generator complete a-d, f,g; Operator* complete e)

a. Operator's* Name:

b. Operator's* Phone No.:

c. Operator's* Address:

d. Special Handling Instructions and additional information:

OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.

e. Operator's Name & Title: Print / Type

Operator's* Signature

Date

f. Name and Address of Responsible Agency:

g. ☐ Friable; ☐ Non-friable; ☐ Both _____% friable _____% nonfriable

*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both.

0231-720B (1/04)

RETURN TO GENERATOR

WASTE INDUSTRIES

No. 1161502
15106

NON-HAZARDOUS SPECIAL WASTE & ASBESTOS MANIFEST

If waste is asbestos waste, complete Sections I, II, III, and IV. If waste is NOT asbestos waste, complete only Sections I, II, and III.

Section I. GENERATOR (Generator complete all of Section I.)

10 3 5 7 1 5

a. Generator Name: MCIEAST-MCBCANKEJ-I&E/EMD/EQB
b. Address: PSC Box 20005
Camp Lejeune, NC 28542
c. Phone No.: 910-451-9385 Charity Delaney

d. Generating Location: MCIEAST-MCBCANKEJ MCBCY MCLEJ
e. Address: Bldg 626 Piney Green Rd
Camp Lejeune, NC 28542
f. Phone No.: 910-451-9385 Charity Delaney
County: Onslow

If Owner of the generating facility differs from the generator, complete d, e, f:

g. Owner's Name:
h. Owner's Phone No.:

i. WI WASTE CODE: 21 | 0000124446 | U21-E5-15038 | Containers
j. Description of Waste: Contaminated Soil w/ Batteries
Soil must be disposed in Subtitle D Landfill
k. Quantity 23.17 | Units: P | No.: 01 | Type: T

46400	P	01	T

TYPE: DM - METAL DRUM; DP - PLASTIC DRUM; B - BAG; BA - 6 MIL. PLASTIC BAG or WRAP; T - TRUCK; O - OTHER

UNITS: P - POUNDS; Y - YARDS; M3 - CUBIC METERS; Y3 - CUBIC YARDS; O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CRF Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; **AND, if the waste is a treatment residue of a previously restricted hazardous waste** subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Eugene Jones — Generator Authorized Agent Name
Signature
04/14/15 — Shipment Date

Section II. TRANSPORTER (Generator complete a-d; Transporter I complete e-g; Transporter II complete h-n)

TRANSPORTER I

a. Name: EVO Corp
b. Address: 1703 Vargrave St, Winston-Salem, NC 27107
c. Driver Name/Title: Greg Hopkins (PRINT / TYPE)
d. Phone No.: 336-725-5844 e. Truck No.: 108371-3918
Tony Disher/Edith Basinger
f. Vehicle License No./State: MK 4489
Acknowledgement of Receipt of Materials.
g. Driver Signature — Shipment Date: 04/14/15

TRANSPORTER II

h. Name:
i. Address:
j. Driver Name/Title: (PRINT / TYPE)
k. Phone No.: l. Truck No.:
m. Vehicle License No./State:
Acknowledgement of Receipt of Materials.
n. Driver Signature — Shipment Date:

Section III. DESTINATION (Generator complete a-d; Destination site complete e-f)

a. Site Name: SAMPSON COUNTY DISPOSAL
b. Physical Address: 7434 ROSEBORO HWY, ROSEBORO, NC 28302
c. Phone Number: 910-525-4132
d. Mailing Address: 7423 ROSEBORO HWY, ROSEBORO, NC

e. Discrepancy Indication Space:
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. Name of Authorized Agent — Signature — Receipt Date: 4-14-15

Section IV. CUSTOMER

a. Name: EVO Corp
b. Address: 1703 Vargrave St, Winston-Salem, NC 27107
c. Name/Title: Tony Disher/Edith Basinger/John Richardson
d. Phone Number: 336-725-5844
e. Mobile:
f. Customer Number: 21-0000124446

Section V. ASBESTOS (Generator complete a-d, f,g; Operator* complete e)

a. Operator's* Name:
b. Operator's* Phone No.:
c. Operator's* Address:
d. Special Handling Instructions and additional information:

OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.

e. Operator's Name & Title: (Print / Type) — Operator's* Signature — Date

f. Name and Address of Responsible Agency:

g. ☐ Friable; ☐ Non-friable; ☐ Both _____% friable _____% nonfriable

*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both.

0231-720B (1/04)

RETURN TO GENERATOR

WASTE INDUSTRIES

No. 1161522 15107

NON-HAZARDOUS SPECIAL WASTE & ASBESTOS MANIFEST

If waste is asbestos waste, complete Sections I, II, III, and IV. If waste is NOT asbestos waste, complete only Sections I, II, and III.

Section I. GENERATOR (Generator complete all of Section I.)

1033997

a. Generator Name: MCIEAST-~~MCBCANKEJ~~-I&E/EMD/EQB- ~~MCB BCAMES~~ ECIS TM

b. Address: PSC Box 20005

Camp Lejeune, NC 28542

c. Phone No.: 910-451-9385 Charity Delaney

d. Generating Location: MCIEAST-MCBCANKEJ MCBCAMCLEJ

e. Address: Bldg 626 Piney Green Rd

Camp Lejeune, NC 28542

f. Phone No.: 910-451-9385 Charity Delaney

County: Onslow

If Owner of the generating facility differs from the generator, complete d, e, f:

g. Owner's Name:

h. Owner's Phone No.:

i. WI WASTE CODE 21 000124446 021-E5-15038 Containers

j. Description of Waste: Contaminated Soil w/ Batteries

Soil must be disposed in Subtitle D Landfill

k. Quantity 21.7 Units No. Type

49680	P	01	T

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
B - BAG
BA - 6 MIL. PLASTIC BAG or WRAP
T - TRUCK
O - OTHER

UNITS
P - POUNDS
Y - YARDS
M3 - CUBIC METERS
Y3 - CUBIC YARDS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CRF Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; **AND, if the waste is a treatment residue of a previously restricted hazardous waste** subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

K Wayne Sapp — Generator Authorized Agent Name

Signature

04/14/15 — Shipment Date

Section II. TRANSPORTER (Generator complete a-d; Transporter I complete e-g; Transporter II complete h-n)

TRANSPORTER I

a. Name: ~~EVO Corp~~ Thurmond trucking

b. Address: 1703 Vargrave St, Winston-Salem, NC 27107

c. Driver Name/Title: T.E. O'Loane

d. Phone No.: ~~336-725-5844~~ Tony Disher/Edith Basinger

PRINT / TYPE

e. Truck No.: KTT-2

f. Vehicle License No./State: ZB 9607B NC

Acknowledgement of Receipt of Materials.

g. T. E. O'Loane — Driver Signature

04/14/15 — Shipment Date

TRANSPORTER II

h. Name:

i. Address:

j. Driver Name/Title:

PRINT / TYPE

k. Phone No.:

l. Truck No.:

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials.

n. Driver Signature

Shipment Date

Section III. DESTINATION (Generator complete a-d; Destination site complete e-f)

a. Site Name: SAMPSON COUNTY DISPOSAL

b. Physical Address: 7434 ROSEBORO HWY, ROSEBORO, NC 28382

c. Phone Number: 910-525-4132

d. Mailing Address: 7423 ROSEBORO HWY, ROSEBORO, NC

e. Discrepancy Indication Space:

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. Name of Authorized Agent — Signature — 4/14/15 Receipt Date

Section IV. CUSTOMER

a. Name: EVO Corp

b. Address: 1703 Vargrave St, Winston-Salem, NC 27107

c. Name/Title: Tony Disher/Edith Basinger/John Richardson

d. Phone Number: 336-725-5844

e. Mobile:

f. Customer Number: 21-000124446

Section V. ASBESTOS (Generator complete a-d, f,g; Operator* complete e)

a. Operator's* Name:

b. Operator's* Phone No.:

c. Operator's* Address:

d. Special Handling Instructions and additional information:

OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.

e. Operator's Name & Title: — Print / Type — Operator's* Signature — Date

f. Name and Address of Responsible Agency:

g. ☐ Friable; ☐ Non-friable; ☐ Both _____% friable _____% nonfriable

*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both.

0231-720B (1/04)

RETURN TO GENERATOR

WASTE INDUSTRIES

No. 1161501 15105

NON-HAZARDOUS SPECIAL WASTE & ASBESTOS MANIFEST

If waste is asbestos waste, complete Sections I, II, III, and IV. If waste is NOT asbestos waste, complete only Sections I, II, and III.

Section I. GENERATOR (Generator complete all of Section I.)

1033983

a. Generator Name: MCIEAST-~~MCBCANKEJ~~-I&E/EMD/EQB MCIEAST-MCBCAMLEJ

b. Address: PSC Box 20005 Camp Lejeune, NC 28542

c. Phone No.: 910-451-9385 Charity Delaney

d. Generating Location: MCIEAST-~~MCBCANKEJ~~ MCBCAMLEJ

e. Address: Bldg 626 Piney Green Rd Camp Lejeune, NC 28542

f. Phone No.: 910-451-9385 Charity Delaney

County: Onslow

If Owner of the generating facility differs from the generator, complete d, e, f:

g. Owner's Name:

h. Owner's Phone No.:

i. WI WASTE CODE 21 | 000124446 | 021-E5-15038 | Containers

j. Description of Waste: Contaminated Soil w/ Batteries

Soil must be disposed in Subtitle D Landfill

k. Quantity 24,680 | Units | No. | Type

4	9	5	0	0	P	0	1	T

TYPE: DM - METAL DRUM; DP - PLASTIC DRUM; B - BAG; BA - 6 MIL. PLASTIC BAG or WRAP; T - TRUCK; O - OTHER

UNITS: P - POUNDS; Y - YARDS; M3 - CUBIC METERS; Y3 - CUBIC YARDS; O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CRF Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; **AND, if the waste is a treatment residue of a previously restricted hazardous waste** subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

EUGENE JOHN — Generator Authorized Agent Name

Signature

04/14/15 — Shipment Date

Section II. TRANSPORTER (Generator complete a-d; Transporter I complete e-g; Transporter II complete h-n)

TRANSPORTER I

a. Name: EVO Corp

b. Address: 1703 Vargrave St, Winston-Salem, NC 27107

c. Driver Name/Title:

d. Phone No.: 336-725-5844 e. Truck No.: 0704

PRINT / TYPE: Tony Disher/Edith Basinger

f. Vehicle License No./State:

Acknowledgement of Receipt of Materials.

g. Driver Signature — 04/14/15 Shipment Date

TRANSPORTER II

h. Name:

i. Address:

j. Driver Name/Title:

PRINT / TYPE

k. Phone No.: l. Truck No.:

m. Vehicle License No./State:

Acknowledgement of Receipt of Materials.

n. Driver Signature — Shipment Date

Section III. DESTINATION (Generator complete a-d; Destination site complete e-f)

a. Site Name: SAMPSON COUNTY DISPOSAL

b. Physical Address: 7434 ROSEBORO HWY, ROSEBORO, NC 28382

c. Phone Number: 910-525-4132

d. Mailing Address: 7423 ROSEBORO HWY, ROSEBORO, NC

e. Discrepancy Indication Space:

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. Name of Authorized Agent — Signature — 4-14-15 Receipt Date

Section IV. CUSTOMER

a. Name: EVO Corp

b. Address: 1703 Vargrave St, Winston-Salem, NC 27107

c. Name/Title: Tony Disher/Edith Basinger/John Richardson

d. Phone Number: 336-725-5844

e. Mobile:

f. Customer Number: 21-000124446

Section V. ASBESTOS (Generator complete a-d, f,g; Operator* complete e)

a. Operator's* Name:

b. Operator's* Phone No.:

c. Operator's* Address:

d. Special Handling Instructions and additional information:

OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.

e. Operator's Name & Title: — Print / Type — Operator's* Signature — Date

f. Name and Address of Responsible Agency:

g. ☐ Friable; ☐ Non-friable; ☐ Both _____% friable _____% nonfriable

*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both.

0231-720B (1/04)

RETURN TO GENERATOR

WASTE INDUSTRIES

No. 1161503
15108

NON-HAZARDOUS SPECIAL WASTE & ASBESTOS MANIFEST

If waste is asbestos waste, complete Sections I, II, III, and IV. If waste is NOT asbestos waste, complete only Sections I, II, and III.

Section I. GENERATOR (Generator complete all of Section I.)

a. Generator Name: MCIEAST-MCBCANKEJ-I&E/EMD/EQB
b. Address: PSC Box 20005 Camp Lejeune, NC 28542
c. Phone No.: 910-451-9385 Charity Delaney

d. Generating Location: MCIEAST-MCBCANKEJ MCBCAMLEJ
e. Address: Bldg 626 Piney Green Rd Camp Lejeune, NC 28542
f. Phone No.: 910-451-9385 Charity Delaney
County: Onslow

If Owner of the generating facility differs from the generator, complete d, e, f:

g. Owner's Name:
h. Owner's Phone No.:

i. WI WASTE CODE: 21 | 000124446 | 021-E5-15038
j. Description of Waste: Contaminated Soil w/ Batteries
Soil must be disposed in Subtitle D Landfill

k. Quantity 47320 Units: T Containers No.: 01 Type: T

TYPE	
DM	- METAL DRUM
DP	- PLASTIC DRUM
B	- BAG
BA	- 6 MIL. PLASTIC BAG or WRAP
T	- TRUCK
O	- OTHER

UNITS	
P	- POUNDS
Y	- YARDS
M3	- CUBIC METERS
Y3	- CUBIC YARDS
O	- OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CRF Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; **AND, if the waste is a treatment residue of a previously restricted hazardous waste** subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Generator Authorized Agent Name | Signature | Shipment Date: 04/15/15

Section II. TRANSPORTER (Generator complete a-d; Transporter I complete e-g; Transporter II complete h-n)

TRANSPORTER I

a. Name: EVO Corp
b. Address: 1703 Vargrave St, Winston-Salem, NC 27107
c. Driver Name/Title: Robert Steed Driver (PRINT / TYPE)
d. Phone No.: 336-725-5844
e. Truck No.: Tony Disher/Edith Basinger
f. Vehicle License No./State:
Acknowledgement of Receipt of Materials.
g. Driver Signature | Shipment Date: 04/15/15

TRANSPORTER II

h. Name:
i. Address:
j. Driver Name/Title: (PRINT / TYPE)
k. Phone No.: | l. Truck No.:
m. Vehicle License No./State:
Acknowledgement of Receipt of Materials.
n. Driver Signature | Shipment Date

Section III. DESTINATION (Generator complete a-d; Destination site complete e-f)

a. Site Name: SAMPSON COUNTY DISPOSAL
b. Physical Address: 7434 ROSEBORO HWY, ROSEBORO, NC 28382
c. Phone Number: 910-525-4132
d. Mailing Address: 7423 ROSEBORO HWY, ROSEBORO, NC

e. Discrepancy Indication Space:
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.
f. Name of Authorized Agent | Signature | Receipt Date: 04/15/15

Section IV. CUSTOMER

a. Name: EVO Corp
b. Address: 1703 Vargrave St, Winston-Salem, NC 27107
c. Name/Title: Tony Disher/Edith Basinger/John Richardson
d. Phone Number: 336-725-5844
e. Mobile:
f. Customer Number: 21-000124446

Section V. ASBESTOS (Generator complete a-d, f,g; Operator* complete e)

a. Operator's* Name:
b. Operator's* Phone No.:
c. Operator's* Address:
d. Special Handling Instructions and additional information:

OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.

e. Operator's Name & Title: (Print / Type) | Operator's* Signature | Date

f. Name and Address of Responsible Agency:

g. ☐ Friable; ☐ Non-friable; ☐ Both _____% friable _____% nonfriable

*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both.

0231-720B (1/04)

RETURN TO GENERATOR

WASTE INDUSTRIES

No. 1161504
15110

NON-HAZARDOUS SPECIAL WASTE & ASBESTOS MANIFEST

If waste is asbestos waste, complete Sections I, II, III, and IV. If waste is NOT asbestos waste, complete only Sections I, II, and III.

Section I. GENERATOR (Generator complete all of Section I.)

10 54280

a. Generator Name: MCIEAST-MCBCANKEJ-I&E/EMD/EQB
PSC Box 20005 EQB
b. Address: Camp Lejeune, NC 28542
c. Phone No.: 910-451-9385 Charity Delaney

d. Generating Location: MCIEAST-MCBCANKEJ MCBCAMLEJ
e. Address: Bldg 626 Piney Green Rd
Camp Lejeune, NC 28542
f. Phone No.: 910-451-9385 Charity Delaney
County: Onslow

If Owner of the generating facility differs from the generator, complete d, e, f:

g. Owner's Name:
h. Owner's Phone No.:

i. WI WASTE CODE 21 000124446
j. Description of Waste: Contaminated Soil w/ Batteries
Soil must be disposed in Subtitle D Landfill

021-E5-15038
k. Quantity 3.288 Units T Containers No. 1564 Type P01

3	1	1	2	D

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
B - BAG
BA - 6 MIL. PLASTIC BAG or WRAP
T - TRUCK
O - OTHER

UNITS
P - POUNDS
Y - YARDS
M3 - CUBIC METERS
Y3 - CUBIC YARDS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CRF Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; **AND, if the waste is a treatment residue of a previously restricted hazardous waste** subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

EUGENE JONES — Generator Authorized Agent Name
Signature
04/15/15 — Shipment Date

Section II. TRANSPORTER (Generator complete a-d; Transporter I complete e-g; Transporter II complete h-n)

TRANSPORTER I

a. Name: EVO Corp
b. Address: 1703 Vargrave St, Winston-Salem, NC 27107
c. Driver Name/Title: Robert Steed
d. Phone No.: 336-725-5844 PRINT / TYPE e. Truck No.: P-188-6014
Tony Disher/Edith Basinger
f. Vehicle License No./State:
Acknowledgement of Receipt of Materials.
g. Driver Signature — Shipment Date: 04/15/15

TRANSPORTER II

h. Name:
i. Address:
j. Driver Name/Title:
k. Phone No.: PRINT / TYPE l. Truck No.:
m. Vehicle License No./State:
Acknowledgement of Receipt of Materials.
n. Driver Signature — Shipment Date:

Section III. DESTINATION (Generator complete a-d; Destination site complete e-f)

a. Site Name: SAMPSON COUNTY DISPOSAL
b. Physical Address: 7434 ROSEBORO HWY, ROSEBORO, NC 28382
c. Phone Number: 910-525-4132
d. Mailing Address: 7423 ROSEBORO HWY, ROSEBORO, NC

e. Discrepancy Indication Space:
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. Name of Authorized Agent — Signature — Receipt Date: 04/15/15

Section IV. CUSTOMER

a. Name: EVO Corp
b. Address: 1703 Vargrave St, Winston-Salem, NC 27107
c. Name/Title: Tony Disher/Edith Basinger/John Richardson
d. Phone Number: 336-725-5844
e. Mobile:
f. Customer Number: 21-000124446

Section V. ASBESTOS (Generator complete a-d, f,g; Operator* complete e)

a. Operator's* Name:
b. Operator's* Phone No.:
c. Operator's* Address:
d. Special Handling Instructions and additional information:

OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.

e. Operator's Name & Title: Print / Type — Operator's* Signature — Date

f. Name and Address of Responsible Agency:

g. ☐ Friable; ☐ Non-friable; ☐ Both _____% friable _____% nonfriable

*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both.

0231-720B (1/04)

RETURN TO GENERATOR

WASTE INDUSTRIES

No. 1161527
15095

NON-HAZARDOUS SPECIAL WASTE & ASBESTOS MANIFEST

If waste is asbestos waste, complete Sections I, II, III, and IV. If waste is NOT asbestos waste, complete only Sections I, II, and III.

Section I. GENERATOR (Generator complete all of Section I.)

10533666

a. Generator Name: MCIEAST-MCBCANKEJ-I&E/EMD/EQB
b. Address: PSC Box 20005
Camp Lejeune, NC 28542
c. Phone No.: 910-451-9385 Charity Delaney

d. Generating Location: MCIEAST-MCBCANKEJ MCB MAIN 3
e. Address: Bldg 626 Piney Green Rd
Camp Lejeune, NC 28542
f. Phone No.: 910-451-9385 Charity Delaney
County: Onslow

If Owner of the generating facility differs from the generator, complete d, e, f:

g. Owner's Name:
h. Owner's Phone No.:

i. WI WASTE CODE: 21 | 000124446 | 021-E5-15038 | Containers
j. Description of Waste: Contaminated Soil w/ Batteries
Soil must be disposed in Subtitle D Landfill
k. Quantity 23,080 Units: P | No.: 01 | Type: T

TYPE: DM - METAL DRUM; DP - PLASTIC DRUM; B - BAG; BA - 6 MIL. PLASTIC BAG or WRAP; T - TRUCK; O - OTHER

UNITS: P - POUNDS; Y - YARDS; M3 - CUBIC METERS; Y3 - CUBIC YARDS; O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CRF Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; **AND, If the waste is a treatment residue of a previously restricted hazardous waste** subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Eugene Jones — Generator Authorized Agent Name
Signature
04/3/15 — Shipment Date

Section II. TRANSPORTER (Generator complete a-d; Transporter I complete e-g; Transporter II complete h-n)

TRANSPORTER I

a. Name: EVO Corp
b. Address: 1703 Vargrave St, Winston-Salem, NC 27107
c. Driver Name/Title: Mike Hunt
d. Phone No.: 336-725-5844 PRINT / TYPE e. Truck No.: 1704
Tony Disher/Edith Basinger
f. Vehicle License No./State: HF 11967
Acknowledgement of Receipt of Materials.
g. Driver Signature — 04/31/15 Shipment Date

TRANSPORTER II

h. Name:
i. Address:
j. Driver Name/Title:
k. Phone No.: PRINT / TYPE l. Truck No.:
m. Vehicle License No./State:
Acknowledgement of Receipt of Materials.
n. Driver Signature — Shipment Date

Section III. DESTINATION (Generator complete a-d; Destination site complete e-f)

a. Site Name: SAMPSON COUNTY DISPOSAL
b. Physical Address: 7434 ROSEBORO HWY, ROSEBORO, NC 28302
c. Phone Number: 910-525-4132
d. Mailing Address: 7423 ROSEBORO HWY, ROSEBORO, NC

e. Discrepancy Indication Space:
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.
f. Name of Authorized Agent — Signature — 4-13-15 Receipt Date

Section IV. CUSTOMER

a. Name: EVO Corp
b. Address: 1703 Vargrave St, Winston-Salem, NC 27107
c. Name/Title: Tony Disher/Edith Basinger/John Richardson
d. Phone Number: 336-725-5844
e. Mobile:
f. Customer Number: 21-000124446

Section V. ASBESTOS (Generator complete a-d, f,g; Operator* complete e)

a. Operator's* Name:
b. Operator's* Phone No.:
c. Operator's* Address:
d. Special Handling Instructions and additional information:

OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.

e. Operator's Name & Title: Print / Type — Operator's* Signature — Date

f. Name and Address of Responsible Agency:

g. ☐ Friable; ☐ Non-friable; ☐ Both _____% friable _____% nonfriable

*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both.

0231-720B (1/04)

RETURN TO GENERATOR

WASTE INDUSTRIES

No. 1161525
15097

NON-HAZARDOUS SPECIAL WASTE & ASBESTOS MANIFEST

If waste is asbestos waste, complete Sections I, II, III, and IV. If waste is NOT asbestos waste, complete only Sections I, II, and III.

Section I. GENERATOR (Generator complete all of Section I.)

1033652

a. Generator Name: MCIEAST-~~MCBCANKEJ-I&E/EMD/EQB~~
b. Address: PSC Box 20005
Camp Lejeune, NC 28542
c. Phone No.: 910-451-9385 Charity Delaney

d. Generating Location: MCIEAST-MCBCANKEJ MCBHMES
e. Address: Bldg 626 Piney Green Rd
Camp Lejeune, NC 28542
f. Phone No.: 910-451-9385 Charity Delaney
County: Onslow

If Owner of the generating facility differs from the generator, complete d, e, f:

g. Owner's Name:
h. Owner's Phone No.:

i. WI WASTE CODE: 21 | 000124446 | 021-E5-15038 | Containers
j. Description of Waste: Contaminated Soil w/ Batteries
Soil must be disposed in Subtitle D Landfill
k. Quantity 23,02 Units | No. | Type
4 6 1 0 0 | P | 0 1 | | T

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
B - BAG
BA - 6 MIL. PLASTIC BAG or WRAP
T - TRUCK
O - OTHER

UNITS
P - POUNDS
Y - YARDS
M3 - CUBIC METERS
Y3 - CUBIC YARDS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CRF Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; **AND, if the waste is a treatment residue of a previously restricted hazardous waste** subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Generator Authorized Agent Name | Signature | Shipment Date: 04/13/15

Section II. TRANSPORTER (Generator complete a-d; Transporter I complete e-g; Transporter II complete h-n)

TRANSPORTER I

a. Name: EVO Corp
b. Address: 1703 Vargrave St, Winston-Salem, NC 27107
c. Driver Name/Title: Greg KARDASHOV (PRINT / TYPE)
d. Phone No.: 336-725-5844
e. Truck No.: 08371-3967
Tony Disher/Edith Basinger
f. Vehicle License No./State: MK 2599
Acknowledgement of Receipt of Materials.
g. Driver Signature | Shipment Date: 04/13/15

TRANSPORTER II

h. Name:
i. Address:
j. Driver Name/Title: (PRINT / TYPE)
k. Phone No.: | l. Truck No.:
m. Vehicle License No./State:
Acknowledgement of Receipt of Materials.
n. Driver Signature | Shipment Date

Section III. DESTINATION (Generator complete a-d; Destination site complete e-f)

a. Site Name: SAMPSON COUNTY DISPOSAL
b. Physical Address: 7434 ROSEBORO HWY, ROSEBORO, NC 28302
c. Phone Number: 910-525-4132
d. Mailing Address: 7423 ROSEBORO HWY, ROSEBORO, NC

e. Discrepancy Indication Space:
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. Name of Authorized Agent | Signature | Receipt Date: 4/15/15

Section IV. CUSTOMER

a. Name: EVO Corp
b. Address: 1703 Vargrave St, Winston-Salem, NC 27107
c. Name/Title: Tony Disher/Edith Basinger/John Richardson
d. Phone Number: 336-725-5844
e. Mobile:
f. Customer Number: 21-000124446

Section V. ASBESTOS (Generator complete a-d, f,g; Operator* complete e)

a. Operator's* Name:
b. Operator's* Phone No.:
c. Operator's* Address:
d. Special Handling Instructions and additional information:

OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.

e. Operator's Name & Title: (Print / Type) | Operator's* Signature | Date

f. Name and Address of Responsible Agency:

g. ☐ Friable; ☐ Non-friable; ☐ Both _____% friable _____% nonfriable

*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both.

0231-720B (1/04)

RETURN TO GENERATOR

WASTE INDUSTRIES

No. 1161528 15094

NON-HAZARDOUS SPECIAL WASTE & ASBESTOS MANIFEST

If waste is asbestos waste, complete Sections I, II, III, and IV. If waste is NOT asbestos waste, complete only Sections I, II, and III.

Section I. GENERATOR (Generator complete all of Section I.)

1033641

a. Generator Name: MCIEAST-MCBCANKEJ-I&E/EMD/EQB
b. Address: PSC Box 20005 Camp Lejeune, NC 28542
c. Phone No.: 910-451-9385 Charity Delaney

d. Generating Location: MCIEAST-MCBCANKEJ
e. Address: Bldg 626 Piney Green Rd Camp Lejeune, NC 28542
f. Phone No.: 910-451-9385 Charity Delaney
County: Onslow

If Owner of the generating facility differs from the generator, complete d, e, f:

g. Owner's Name:
h. Owner's Phone No.:

i. WI WASTE CODE: 21 | 000124446 | 021-E5-15038 | Containers
j. Description of Waste: Contaminated Soil w/ Batteries
Soil must be disposed in Subtitle D Landfill
k. Quantity: 43040 | Units: P | No.: 01 | Type: T

TYPE: DM - METAL DRUM; DP - PLASTIC DRUM; B - BAG; BA - 6 MIL. PLASTIC BAG or WRAP; T - TRUCK; O - OTHER

UNITS: P - POUNDS; Y - YARDS; M3 - CUBIC METERS; Y3 - CUBIC YARDS; O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CRF Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; **AND, if the waste is a treatment residue of a previously restricted hazardous waste** subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Generator Authorized Agent Name | Signature | Shipment Date: 04/15/15

Section II. TRANSPORTER (Generator complete a-d; Transporter I complete e-g; Transporter II complete h-n)

TRANSPORTER I

a. Name: EVO Corp
b. Address: 1703 Vargrave St, Winston-Salem, NC 27107
c. Driver Name/Title:
d. Phone No.: 336-725-5844 (PRINT / TYPE) e. Truck No.: Tony Disher/Edith Basinger
f. Vehicle License No./State:
Acknowledgement of Receipt of Materials.
g. Driver Signature | Shipment Date

TRANSPORTER II

h. Name: South River
i. Address: Autryville NC
j. Driver Name/Title: Larry Tanner
k. Phone No.: 910 770 3906 (PRINT / TYPE) l. Truck No.: 3040
m. Vehicle License No./State:
Acknowledgement of Receipt of Materials.
n. Driver Signature | Shipment Date: 04/13/15

Section III. DESTINATION (Generator complete a-d; Destination site complete e-f)

a. Site Name: SAMPSON COUNTY DISPOSAL
b. Physical Address: 7434 ROSEBORO HWY, ROSEBORO, NC 28382
c. Phone Number: 910-525-4132
d. Mailing Address: 7423 ROSEBORO HWY, ROSEBORO, NC
e. Discrepancy Indication Space:
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.
f. Name of Authorized Agent | Signature | Receipt Date: 4/13/15

Section IV. CUSTOMER

a. Name: EVO Corp
b. Address: 1703 Vargrave St, Winston-Salem, NC 27107
c. Name/Title: Tony Disher/Edith Basinger/John Richardson
d. Phone Number: 336-725-5844
e. Mobile:
f. Customer Number: 21-000124446

Section V. ASBESTOS (Generator complete a-d, f,g; Operator* complete e)

a. Operator's* Name:
b. Operator's* Phone No.:
c. Operator's* Address:
d. Special Handling Instructions and additional information:

OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.

e. Operator's Name & Title: (Print / Type) | Operator's* Signature | Date

f. Name and Address of Responsible Agency:

g. ☐ Friable; ☐ Non-friable; ☐ Both _____% friable _____% nonfriable

*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both.

0231-720B (1/04)

RETURN TO GENERATOR

WASTE INDUSTRIES

No. 1161529 / 15093

NON-HAZARDOUS SPECIAL WASTE & ASBESTOS MANIFEST

If waste is asbestos waste, complete Sections I, II, III, and IV. If waste is NOT asbestos waste, complete only Sections I, II, and III.

Section I. GENERATOR (Generator complete all of Section I.)

10733638

a. Generator Name: MCIEAST-MCBCANKEJ-I&E/EMD/EQB
b. Address: PSC Box 20005
Camp Lejeune, NC 28542
c. Phone No.: 910-451-9385 Charity Delaney

d. Generating Location: MCIEAST-MCBCANKEJ
e. Address: Bldg 626 Piney Green Rd
Camp Lejeune, NC 28542
f. Phone No.: 910-451-9385 Charity Delaney
County: Onslow

If Owner of the generating facility differs from the generator, complete d, e, f:

g. Owner's Name:
h. Owner's Phone No.:

i. WI WASTE CODE: 21 | 000124446 | 021-E5-15038 | Containers
j. Description of Waste: Contaminated Soil w/ Batteries
Soil must be disposed in Subtitle D Landfill
k. Quantity 20.49 | Units | No. | Type: 4 1 0 0 | P | 0 1 | T

TYPE: DM - METAL DRUM; DP - PLASTIC DRUM; B - BAG; BA - 6 MIL. PLASTIC BAG or WRAP; T - TRUCK; O - OTHER

UNITS: P - POUNDS; Y - YARDS; M3 - CUBIC METERS; Y3 - CUBIC YARDS; O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CRF Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; **AND, if the waste is a treatment residue of a previously restricted hazardous waste** subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Generator Authorized Agent Name: K. Whitehorns | Signature | Shipment Date: 04/13/15

Section II. TRANSPORTER (Generator complete a-d; Transporter I complete e-g; Transporter II complete h-n)

TRANSPORTER I

a. Name: EVO Corp
b. Address: 1703 Vargrave St, Winston-Salem, NC 27107
c. Driver Name/Title: T.E. O'Loane KT-3 (PRINT / TYPE)
d. Phone No.: 336-725-5844 | e. Truck No.: KTT-2
Tony Disher/Edith Basinger
f. Vehicle License No./State:
Acknowledgement of Receipt of Materials.
g. T.E. O'Loane (Driver Signature) | Shipment Date: 04/13/15

TRANSPORTER II

h. Name:
i. Address:
j. Driver Name/Title: (PRINT / TYPE)
k. Phone No.: | l. Truck No.:
m. Vehicle License No./State:
Acknowledgement of Receipt of Materials.
n. Driver Signature | Shipment Date

Section III. DESTINATION (Generator complete a-d; Destination site complete e-f)

a. Site Name: SAMPSON COUNTY DISPOSAL
b. Physical Address: 7434 ROSEBORO HWY, ROSEBORO, NC 28382
c. Phone Number: 910-525-4132
d. Mailing Address: 7423 ROSEBORO HWY, ROSEBORO, NC

e. Discrepancy Indication Space:
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. Name of Authorized Agent | Signature | Receipt Date: 4-13-15

Section IV. CUSTOMER

a. Name: EVO Corp
b. Address: 1703 Vargrave St, Winston-Salem, NC 27107
c. Name/Title: Tony Disher/Edith Basinger/John Richardson
d. Phone Number: 336-725-5844
e. Mobile:
f. Customer Number: 21-000124446

Section V. ASBESTOS (Generator complete a-d, f,g; Operator* complete e)

a. Operator's* Name:
b. Operator's* Phone No.:
c. Operator's* Address:
d. Special Handling Instructions and additional information:

OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.

e. Operator's Name & Title: (Print / Type) | Operator's* Signature | Date

f. Name and Address of Responsible Agency:

g. ☐ Friable; ☐ Non-friable; ☐ Both _____% friable _____% nonfriable

*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both.

0231-720B (1/04)

RETURN TO GENERATOR

Sampson County Disposal
7434 Roseboro Highway
Roseboro, NC 28382
<(910) 525-4132

Ticket: 21001033638
Date: 4/13/2015
Time: 14:47:44 - 15:14:35

		Scale	
Gross:	70240 lb	In	Scale 1
Tare:	29260 lb	Out	Scale 3
Net:	40980 lb		

Truck: KTT2-3971
Customer: 000124446/EVO CORPORATION

Profile: 021-E5-15038/Contaminated Soil w/Batter

Generator: 021-15038/MCI East-MCBCANKEJ I&I
Grid: 2/MSW to MSW
Comment: 1161529

Origin	Materials & Services	Quantity	Unit
021NC133/Onslow County	100% of 021PRW3/Profiled Waste - C-	20.49	ton

Driver: T. E. Gibbons

Deputy Weighmaster: _____
Teresa Smith

Sampson County Disposal
7434 Roseboro Highway
Roseboro, NC 28382
<(910) 525-4132

Ticket: 21001033641
Date: 4/13/2015
Time: 14:53:46 - 15:20:27

		Scale	
Gross:	75840 lb	In	Scale 1
Tare:	32400 lb	Out	Scale 3
Net:	43440 lb		

Truck: 07740-1199
Customer: 000124446/EVO CORPORATION
License: 205-301

Profile: 021-E5-15038/Contaminated Soil w/Batter

Generator: 021-15038/MCI East-MCBCANKEJ I&I
Grid: 2/MSW to MSW
Comment: 1161531

Origin	Materials & Services	Quantity	Unit
021NC133/Onslow County	100% of 021PRW3/Profiled Waste - C-	21.72	ton

Driver: 04/13/2015 16:26

Deputy Weighmaster: Teresa Smith

Sampson County Disposal
7434 Roseboro Highway
Roseboro, NC 28382
<(910) 525-4132

Ticket: 21001033645
Date: 4/13/2015
Time: 15:01:13 - 15:35:49

		Scale	
Gross:	74540 lb	In	Scale 1
Tare:	31540 lb	Out	Scale 3
Net:	43000 lb		

Truck: 10976-1831
Customer: 000124446/EVO CORPORATION

Profile: 021-E5-15038/Contaminated Soil w/Batter

Generator: 021-15038/MCI East-MCBCANKEJ I&I
Grid: 2/MSW to MSW
Comment: 1161528

Origin	Materials & Services	Quantity	Unit
021NC133/Onslow County	100% of 021PRW3/Profiled Waste - C-	21.50	ton

Driver: _____

Deputy Weighmaster: _____
Teresa Smith

Sampson County Disposal
7434 Roseboro Highway
Roseboro, NC 28382
<(910) 525-4132

Ticket: 21001033652
Date: 4/13/2015
Time: 15:17:08 - 15:49:07

		Scale	
Gross:	79120 lb	In	Scale 2
Tare:	33080 lb	Out	Scale 3
Net:	46040 lb		

Truck: 08371-3969
Customer: 000124446/EVO CORPORATION License: MAC410-64

Profile: 021-E5-15038/Contaminated Soil w/Batter

Generator: 021-15038/MCI East-MCBCANKEJ I&I
Grid: 2/MSW to MSW
Comment: 1161525

Origin	Materials & Services	Quantity	Unit
021NC133/Onslow County	100% of 021PRW3/Profiled Waste - C-	23.02	ton

Driver: 04/13/2015 15:49

Deputy Weighmaster: Teresa Smith

Sampson County Disposal
7434 Roseboro Highway
Roseboro, NC 28382
<(910) 525-4132

Ticket: 21001033666
Date: 4/13/2015
Time: 15:24:08 - 16:16:29

			Scale
Gross:	77180 lb	In	Scale 1
Tare:	31060 lb	Out	Scale 3
Net:	46120 lb		

Truck: 11467-569T
Customer: 000124446/EVO CORPORATION

Profile: 021-E5-15038/Contaminated Soil w/Batte

Generator: 021-15038/MCI East-MCBCANKEJ I&I
Grid: 2/MSW to MSW
Comment: 1161527

Origin	Materials & Services	Quantity	Unit
021NC133/Onslow County	100% of 021PRW3/Profiled Waste - C-	23.06	ton

Driver: 04/13/2015 16:1

Deputy Weighmaster: _____
Teresa Smith

Sampson County Disposal
7434 Roseboro Highway
Roseboro, NC 28382
<(910) 525-4132

Ticket: 21001033667
Date: 4/13/2015
Time: 15:29:07 - 16:18:15

		Scale	
Gross:	73420 lb	In	Scale 1
Tare:	33060 lb	Out	Scale 3
Net:	40360 lb		

Truck: P-188-6014
Customer: 000124446/EVO CORPORATION

Profile: 021-E5-15038/Contaminated Soil w/Batter

Generator: 021-15038/MCI East-MCBCANKEJ I&I
Grid: 2/MSW to MSW
Comment: 1161526

Origin	Materials & Services	Quantity	Unit
021NC133/Onslow County	100% of 021PRW3/Profiled Waste - C-	20.18	ton

Driver: R Steed 04/13/2015 16:18

Deputy Weighmaster: _____
Teresa Smith

Sampson County Disposal
7434 Roseboro Highway
Roseboro, NC 28382
<(910) 525-4132

Ticket: 21001033828
Date: 4/14/2015
Time: 10:47:08 - 10:47:25

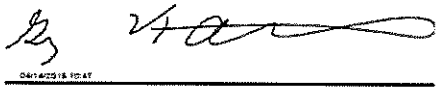
		Scale	
Gross:	80540 lb	In	Scale 1
Tare:	33080 lb		P.T.
Net:	47460 lb		

Truck: 08371-3969
Customer: 000124446/EVO CORPORATION
License: MAC410-64

Profile: 021-E5-15038/Contaminated Soil w/Batte

Generator: 021-15038/MCI East-MCBCANKEJ I&I
Grid: 2/MSW to MSW
Comment: 1161499

Origin	Materials & Services	Quantity	Unit
021NC133/Onslow County	100% of 021PRW3/Profiled Waste - C-	23.73	ton

Driver: 

Deputy Weighmaster: _____
Mary Woody

Sampson County Disposal
7434 Roseboro Highway
Roseboro, NC 28382
<(910) 525-4132

Ticket: 21001033843
Date: 4/14/2015
Time: 10:39:34 - 11:07:31

		Scale	
Gross:	72520 lb	In	Scale 1
Tare:	32700 lb	Out	Scale 3
Net:	39820 lb		

Truck: 07440-1199
Customer: 000124446/EVO CORPORATION

Profile: 021-E5-15038/Contaminated Soil w/Batter

Generator: 021-15038/MCI East-MCBCANKEJ I&I
Grid: 2/MSW to MSW
Comment: 1161496

Origin	Materials & Services	Quantity	Unit
021NC133/Onslow County	100% of 021PRW3/Profiled Waste - C-	19.91	ton

Driver: _____

Deputy Weighmaster: _____
Mary Woody

Sampson County Disposal
7434 Roseboro Highway
Roseboro, NC 28382
<(910) 525-4132

Ticket: 21001033849
Date: 4/14/2015
Time: 10:42:49 - 11:16:17

		Scale	
Gross:	73120 lb	In	Scale 1
Tare:	31060 lb	Out	Scale 3
Net:	42060 lb		

Truck: 11467-0569
Customer: 000124446/EVO CORPORATION

Profile: 021-E5-15038/Contaminated Soil w/Batter

Generator: 021-15038/MCI East-MCBCANKEJ I&I
Grid: 2/MSW to MSW
Comment: 1161497

Origin	Materials & Services	Quantity	Unit
021NC133/Onslow County	100% of 021PRW3/Profiled Waste - C-	21.03	ton

Driver: 04/14/2015 11:16

Deputy Weighmaster: _____
Mary Woody

Sampson County Disposal
7434 Roseboro Highway
Roseboro, NC 28382
<(910) 525-4132

Ticket: 21001033853
Date: 4/14/2015
Time: 10:46:09 - 11:23:43

		Scale	
Gross:	79200 lb	In	Scale 2
Tare:	29400 lb	Out	Scale 3
Net:	49800 lb		

Truck: KTT2-3971
Customer: 000124446/EVO CORPORATION

Profile: 021-E5-15038/Contaminated Soil w/Batte

Generator: 021-15038/MCI East-MCBCANKEJ I&I
Grid: 2/MSW to MSW
Comment: 1161498

Origin	Materials & Services	Quantity	Unit
021NC133/Onslow County	100% of 021PRW3/Profiled Waste - C-	24.90	ton

Driver: T. Ward 04/14/2015 11:23

Deputy Weighmaster: _____
Mary Woody

Sampson County Disposal
7434 Roseboro Highway
Roseboro, NC 28382
<(910) 525-4132

Ticket: 21001033855
Date: 4/14/2015
Time: 11:26:32 - 11:27:09

		Scale	
Gross:	78140 lb	In	Manual Wt M
Tare:	31540 lb		P.T.
Net:	46600 lb		

Truck: 10976-1831
Customer: 000124446/EVO CORPORATION

Profile: 021-E5-15038/Contaminated Soil w/Batter

Generator: 021-15038/MCI East-MCBCANKEJ I&I
Grid: 2/MSW to MSW
Comment: 1161524

Origin	Materials & Services	Quantity	Unit
021NC133/Onslow County	100% of 021PRW3/Profiled Waste - C-	23.30	ton

Driver: 
04/14/2015 11:28

Deputy Weighmaster: _____
Mary Woody

Sampson County Disposal
7434 Roseboro Highway
Roseboro, NC 28382
<(910) 525-4132

Ticket: 21001033932
Date: 4/14/2015
Time: 13:28:28 - 14:20:40

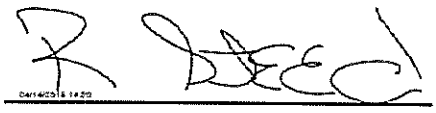
		Scale	
Gross:	77180 lb	In	Scale 1
Tare:	33040 lb	Out	Scale 3
Net:	44140 lb		

Truck: P-188-6014
Customer: 000124446/EVO CORPORATION

Profile: 021-E5-15038/Contaminated Soil w/Batter

Generator: 021-15038/MCI East-MCBCANKEJ I&I
Grid: 2/MSW to MSW
Comment: 1161500

Origin	Materials & Services	Quantity	Unit
021NC133/Onslow County	100% of 021PRW3/Profiled Waste - C-	22.07	ton

Driver: 

Deputy Weighmaster: _____
Teresa Smith

Sampson County Disposal
7434 Roseboro Highway
Roseboro, NC 28382
<(910) 525-4132

Ticket: 21001033972
Date: 4/14/2015
Time: 16:10:02 - 16:10:36

		Scale	
Gross:	76860 lb	In	Scale 1
Tare:	31540 lb		P.T.
Net:	45320 lb		

Truck: 10976-1831
Customer: 000124446/EVO CORPORATION

Profile: 021-E5-15038/Contaminated Soil w/Batter

Generator: 021-15038/MCI East-MCBCANKEJ I&I
Grid: 2/MSW to MSW
Comment: 1161523

Origin	Materials & Services	Quantity	Unit
021NC133/Onslow County	100% of 021PRW3/Profiled Waste - C-	22.66	ton

Driver: _____

Deputy Weighmaster: _____
Teresa Smith

Sampson County Disposal
7434 Roseboro Highway
Roseboro, NC 28382
<(910) 525-4132

Ticket: 21001033973
Date: 4/14/2015
Time: 16:11:32 - 16:12:00

		Scale	
Gross:	79420 lb	In	Scale 2
Tare:	33080 lb		P.T.
Net:	46340 lb		

Truck: 08371-3969
Customer: 000124446/EVO CORPORATION
License: MAC410-64

Profile: 021-E5-15038/Contaminated Soil w/Batter

Generator: 021-15038/MCI East-MCBCANKEJ I&I
Grid: 2/MSW to MSW
Comment: 1161502

Origin	Materials & Services	Quantity	Unit
021NC133/Onslow County	100% of 021PRW3/Profiled Waste - C-	23.17	ton

Driver:

Deputy Weighmaster:

Teresa Smith

Sampson County Disposal
7434 Roseboro Highway
Roseboro, NC 28382
<(910) 525-4132

Ticket: 21001033977
Date: 4/14/2015
Time: 15:50:16 - 16:18:20

		Scale	
Gross:	78820 lb	In	Scale 2
Tare:	29420 lb	Out	Scale 3
Net:	49400 lb		

Truck: KTT2-3971
Customer: 000124446/EVO CORPORATION

Profile: 021-E5-15038/Contaminated Soil w/Batte

Generator: 021-15038/MCI East-MCBCANKEJ I&I
Grid: 2/MSW to MSW
Comment: 1161522

Origin	Materials & Services	Quantity	Unit
021NC133/Onslow County	100% of 021PRW3/Profiled Waste - C-	24.70	ton

Driver: T. Oliver

Deputy Weighmaster: _____
Teresa Smith

Sampson County Disposal
7434 Roseboro Highway
Roseboro, NC 28382
<(910) 525-4132

Ticket: 21001033983
Date: 4/14/2015
Time: 15:53:41 - 16:27:26

			Scale
Gross:	80580 lb	In	Scale 1
Tare:	30820 lb	Out	Scale 3
Net:	49760 lb		

Truck: 11467-0569
Customer: 000124446/EVO CORPORATION

Profile: 021-E5-15038/Contaminated Soil w/Batte

Generator: 021-15038/MCI East-MCBCANKEJ I&I
Grid: 2/MSW to MSW
Comment: 1161501

Origin	Materials & Services	Quantity	Unit
021NC133/Onslow County	100% of 021PRW3/Profiled Waste - C-	24.88	ton

Driver: 04/14/2015 16:27

Deputy Weighmaster:

Teresa Smith

Sampson County Disposal
7434 Roseboro Highway
Roseboro, NC 28382
<(910) 525-4132

Ticket: 21001034143
Date: 4/15/2015
Time: 10:16:38 - 10:44:04

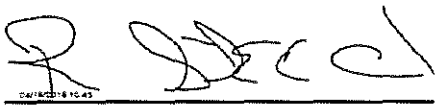
		Scale	
Gross:	80480 lb	In	Scale 1
Tare:	33180 lb	Out	Scale 3
Net:	47300 lb		

Truck: P-188-6014
Customer: 000124446/EVO CORPORATION

Profile: 021-E5-15038/Contaminated Soil w/Batte

Generator: 021-15038/MCI East-MCBCANKEJ I&I
Grid: 2/MSW to MSW
Comment: 1161503

Origin	Materials & Services	Quantity	Unit
021NC133/Onslow County	100% of 021PRW3/Profiled Waste - C-	23.65	ton

Driver: 

Deputy Weighmaster: _____
Mary Woody

Sampson County Disposal
7434 Roseboro Highway
Roseboro, NC 28382
<(910) 525-4132

Ticket: 21001034280
Date: 4/15/2015
Time: 15:10:55 - 15:48:26

		Scale	
Gross:	64160 lb	In	Scale 2
Tare:	32880 lb	Out	Scale 3
Net:	31280 lb		

Truck: P188-6014
Customer: 000124446/EVO CORPORATION

Profile: 021-E5-15038/Contaminated Soil w/Batter

Generator: 021-15038/MCI East-MCBCANKEJ I&I
Grid: 2/MSW to MSW
Comment: 1161504

Origin	Materials & Services	Quantity	Unit
021NC133/Onslow County	100% of 021PRW3/Profiled Waste - C-	15.64	ton

Driver: 

Deputy Weighmaster: _____
Teresa Smith

Appendix J
Risk Screening Tables

Table J-1
Occurrence, Distribution, and Selection of COPCs
Site UXO-22 Expanded SI Report
Camp Lejeune, North Carolina

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Soil

Exposure Point	CAS Number	Chemical	Minimum [1] Concentration Qualifier	Maximum [1] Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration [2] Used for Screening	Background [3] Value	Screening [4] Toxicity Value		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for [5] Contaminant Deletion or Selection
Soil	7429-90-5	Aluminum	1.3E+03	1.1E+04	MG/KG	MR22-SB108-24-26-15A	20/20	1.7E+01 - 6.1E+01	1.1E+04	2.7E+04	7.7E+03	N	N/A		NO	BBK
	7440-36-0	Antimony	1.2E-01 J	8.8E-01	MG/KG	MR22-SB122-12-14-15A	9/20	5.7E-02 - 2.0E-01	8.8E-01	1.8E+00	3.1E+00	N	9.0E-01	NCSSL	NO	BSL
	7440-38-2	**Arsenic**	**2.5E+00 J**	**3.7E+01 J**	**MG/KG**	**MR22-SB115-18-20-15A**	**6/20**	**2.8E-01 - 1.0E+00**	**3.7E+01**	**1.5E+01**	**6.7E-01**	**C**	**5.8E+00**	**NCSSL**	**YES**	**ASL**
	7440-39-3	**Barium**	**3.4E+00**	**1.7E+03**	**MG/KG**	**MR22-SB115-18-20-15A**	**20/20**	**2.8E-01 - 1.0E+00**	**1.7E+03**	**5.3E+01**	**1.5E+03**	**N**	**5.8E+02**	**NCSSL**	**YES**	**ASL**
	7440-41-7	Beryllium	8.9E-03 J	2.7E+00	MG/KG	MR22-SB115-18-20-15A	20/20	5.7E-02 - 2.0E-01	2.7E+00	N/A	1.6E+01	N	6.3E+01	NCSSL	NO	BSL
	7440-43-9	Cadmium	2.8E-02 J	1.7E+00	MG/KG	MR22-SB121-24-26-15A	18/20	5.7E-02 - 2.0E-01	1.7E+00	1.3E+00	7.0E+00	N	3.0E+00	NCSSL	NO	BSL
	7440-70-2	Calcium	1.0E+02	7.0E+03	MG/KG	MR22-SB121-24-26-15A	13/20	5.7E+00 - 2.0E+01	7.0E+03	7.2E+02	N/A		N/A		NO	NUT
	18540-29-9	Chromium (hexavalent	8.5E-01	4.8E+00	MG/KG	MR22-SB108-24-26-15A	11/20	4.2E-01 - 8.4E-01	4.8E+00	6.2E+00	3.0E-01	C	3.8E+00	NCSSL	NO	BBK
	7440-47-3	Chromium	2.1E+00	1.4E+01	MG/KG	MR22-SB115-18-20-15A	18/20	2.8E-01 - 1.0E+00	1.4E+01	3.3E+01	1.2E+04	N	3.6E+05	NCSSL	NO	BSL
	7440-48-4	**Cobalt**	**4.2E-02 J**	**7.4E+00**	**MG/KG**	**MR22-SB115-18-20-15A**	**20/20**	**5.7E-02 - 2.0E-01**	**7.4E+00**	**1.0E+00**	**2.3E+00**	**N**	**9.0E-01**	**NCSSL**	**YES**	**ASL**
	7440-50-8	Copper	2.5E-01 J	5.8E+01	MG/KG	MR22-SB105-48-50-15A, MR22-SB121-24-26-15A	20/20	1.4E+00 - 5.1E+00	5.8E+01	6.6E+00	3.1E+02	N	7.0E+02	NCSSL	NO	BSL
	7439-89-6	Iron	1.7E+02	1.8E+04	MG/KG	MR22-SB115-18-20-15A	20/20	5.7E+00 - 2.0E+01	1.8E+04	3.4E+04	5.5E+03	N	1.5E+02	NCSSL	NO	BBK
	7439-92-1	Lead	1.6E+00 J	1.5E+02 J	MG/KG	MR22-SB114-18-20-15A	20/20	2.8E-01 - 1.0E+00	1.5E+02	1.4E+01	4.0E+02	N	2.7E+02	NCSSL	NO	BSL
	7439-95-4	Magnesium	5.2E+01	5.3E+02	MG/KG	MR22-SB115-18-20-15A	20/20	5.7E+00 - 2.0E+01	5.3E+02	7.3E+02	N/A		N/A		NO	NUT
	7439-96-5	**Manganese**	**3.6E+00**	**7.9E+02**	**MG/KG**	**MR22-SB121-24-26-15A**	**20/20**	**2.8E-01 - 1.0E+00**	**7.9E+02**	**1.7E+01**	**1.8E+02**	**N**	**6.5E+01**	**NCSSL**	**YES**	**ASL**
	7439-97-6	Mercury	9.8E-03 J	1.2E+00 J	MG/KG	MR22-SB107-48-50-15A, MR22-SB114-18-20-15A	16/20	2.8E-02 - 7.0E-02	1.2E+00	1.5E-01	2.3E+00	N	1.0E+00	NCSSL	NO	BSL
	7440-02-0	Nickel	8.1E-01	1.7E+01	MG/KG	MR22-SB115-18-20-15A	16/20	1.1E-01 - 4.1E-01	1.7E+01	8.9E+00	1.5E+02	N	1.3E+02	NCSSL	NO	BSL
	7440-09-7	Potassium	3.5E+01 J	1.4E+03	MG/KG	MR22-SB115-18-20-15A	20/20	5.7E+01 - 2.0E+02	1.4E+03	1.0E+03	N/A		N/A		NO	NUT
	7782-49-2	Selenium	4.2E-02 J	7.9E+00	MG/KG	MR22-SB115-18-20-15A	17/20	2.8E-01 - 1.0E+00	7.9E+00	9.5E-01	3.9E+01	N	2.1E+00	NCSSL	NO	BSL
	7440-22-4	Silver	6.4E-03 J	1.3E-01	MG/KG	MR22-SB105-48-50-15A	16/20	5.7E-02 - 2.0E-01	1.3E-01	N/A	3.9E+01	N	3.4E+00	NCSSL	NO	BSL
	7440-23-5	Sodium	9.1E+01	9.1E+01	MG/KG	MR22-SB122-12-14-15A	1/20	5.7E+01 - 2.0E+02	9.1E+01	8.1E+01	N/A		N/A		NO	NUT
	7440-28-0	**Thallium**	**1.4E-02 J**	**6.2E-01**	**MG/KG**	**MR22-SB115-18-20-15A**	**19/20**	**5.7E-02 - 2.0E-01**	**6.2E-01**	**N/A**	**7.8E-02**	**N**	**2.8E-01**	**NCSSL**	**YES**	**ASL**
	7440-62-2	Vanadium	1.2E+00	3.9E+01	MG/KG	MR22-SB115-18-20-15A	20/20	5.7E-01 - 2.0E+00	3.9E+01	7.6E+01	3.9E+01	N	6.0E+00	NCSSL	NO	BSL
	7440-66-6	Zinc	3.3E+00 J	2.2E+03	MG/KG	MR22-SB121-24-26-15A	19/20	1.1E+00 - 7.1E+00	2.2E+03	1.7E+01	2.3E+03	N	1.2E+03	NCSSL	NO	BSL

Notes:

[1] Minimum/Maximum detected concentrations.

[2] Maximum concentration is used for screening.

[3] Background values are the background threshold values (BTVs) for subsurface soil data in developed areas (combined soil types).
Background values are from Final Expanded Soil Background Study Report, Marine Corps Base Camp Lejeune, Jacksonville, North Carolina, CH2M HILL, August 2011.

[4] Oak Ridge National Laboratory (ORNL). January, 2015. Regional Screening Levels for Chemical Contaminants at Superfund Sites.
Residential Soil RSL. RSLs based on hazard quotient of 0.1 or carcinogenic risk of 10^{-6}.
RSL value (and NCSSL) for chromium(III) used as total for chromium since soil samples also analyzed for chromium (hexavalent).
The soil value of 400 mg/kg for lead is from the Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities, USEPA, July 14, 1994.
RSL value for mercury chloride (and other mercury salts) used as surrogate for mercury.

[5] Rationale Codes

Selection Reason: Above Screening Levels (ASL)
Deletion Reason: Essential Nutrient (NUT)
Below Screening Level (BSL)
Below Background Value (BBK)

COPC = Chemical of Potential Concern
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/ To Be Considered
J = Estimated Value
C = Carcinogenic
N = Noncarcinogenic
NCSSL = North Carolina Preliminary Soil Remediation Goal, Protection of Groundwater, March 2015
MG/KG = Milligram per kilogram
RSL = Regional Screening Level

Prepared by: R. Warren/WDC (5/22/2015)
checked by: M. White/ATL (5/26/2015)

Table J-2

Risk Ratio Screening, Maximum Detected Concentration

Site UXO-22 Expanded SI Report

Camp Lejeune, North Carolina

Analyte	Detection Frequency	Maximum Detected Concentration (Qualifier) (MG/KG)	Sample Location of Maximum Detected Concentration	Carcinogenic Residential Soil RSL (MG/KG)	Acceptable Risk Level	Corresponding Cancer Risk[a]	Non-carcinogenic Residential Soil RSL (MG/KG)	Acceptable Hazard Level	Corresponding Hazard Index[b]	Target Organ
Arsenic	**6 / 20**	**3.7E+01 J**	**MR22-SB115-18-20-15A**	**6.7E-01**	**1E-06**	**5E-05**	**3.4E+01**	**1**	**1**	**Skin, Blood**
Barium	20 / 20	1.7E+03	MR22-SB115-18-20-15A	N/A			1.5E+04	1	0.1	Kidney
Cobalt	20 / 20	7.4E+00	MR22-SB115-18-20-15A	4.2E+02	1E-06	2E-08	2.3E+01	1	0.3	Thyroid
Manganese	20 / 20	7.9E+02	MR22-SB121-24-26-15A	N/A			1.8E+03	1	0.4	Central Nervous System
Thallium	**19 / 20**	**6.2E-01**	**MR22-SB115-18-20-15A**	**N/A**			**7.8E-01**	**1**	**0.8**	**Hair**
Cumulative Corresponding Hazard Index[c]									**3**	
Cumulative Corresponding Cancer Risk[d]						**5E-05**				

Total Skin HI =	**1**
Total Blood HI =	**1**
Total Kidney HI =	0.1
Total Thyroid HI =	0.3
Total Central Nervous System HI =	0.4
Total Hair HI =	**0.8**

Notes:

[a] Corresponding Cancer Risk equals maximum detected concentration divided by the RSL divided by the acceptable risk level.

[b] Corresponding Hazard Index equals maximum detected concentration divided by the RSL divided by the acceptable risk level.

[c] Cumulative Corresponding Hazard Index equals sum of Corresponding Hazard Indices for each constituent.

[d] Cumulative Corresponding Cancer Risk equals sum of Corresponding Cancer Risks for each constituent.

Constituent selected as COPC if it contributes to an overall Hazard Index by target organ greater than 0.5 or Cumulative Corresponding Cancer Risk greater than 5E-05, otherwise, constituent not selected as COPC.

Constituents selected as COPCs are indicated by shading.

COPC = Constituent of Potential Concern
HI = Hazard Index
MG/KG = Milligrams per kilogram
N/A = Not available/not applicable
RSL = Regional Screening Level

Table J-3

Risk Ratio Screening, 95% UCL Concentration

Site UXO-22 Expanded SI Report

Camp Lejeune, North Carolina

Analyte	Detection Frequency	95% UCL	95% UCL Rationale	Carcinogenic Residential Soil RSL (MG/KG)	Acceptable Risk Level	Corresponding Cancer Risk[a]	Non-carcinogenic Residential Soil RSL (MG/KG)	Acceptable Hazard Level	Corresponding Hazard Index[b]	Target Organ
Arsenic	6 / 20	6.3E+00 1	95% KM (BCA) UCL	6.7E-01	1E-06	9E-06	3.4E+01	1	0.2	Skin, Blood
Thallium	19 / 20	2.1E-01 1	95% KM (Chebyshev) UCL	N/A			7.8E-01	1	0.3	Hair
Cumulative Corresponding Hazard Index[c]									**0.5**	
Cumulative Corresponding Cancer Risk[d]						**9E-06**				

Total Skin HI =	0.2
Total Blood HI =	0.2
Total Hair HI =	0.3

Notes:

[a] Corresponding Cancer Risk equals maximum detected concentration divided by the RSL divided by the acceptable risk level.

[b] Corresponding Hazard Index equals maximum detected concentration divided by the RSL divided by the acceptable risk level.

[c] Cumulative Corresponding Hazard Index equals sum of Corresponding Hazard Indices for each constituent.

[d] Cumulative Corresponding Cancer Risk equals sum of Corresponding Cancer Risks for each constituent.

Constituent selected as COPC if it contributes to an overall Hazard Index by target organ greater than 0.5 or Cumulative Corresponding Cancer Risk greater than 5E-05, otherwise, constituent not selected as COPC.

Constituents selected as COPCs are indicated by shading.

COPC = Constituent of Potential Concern
HI = Hazard Index
MG/KG = Milligrams per kilogram
N/A = Not available/not applicable
RSL = Regional Screening Level

ProUCL, Version 5.0.00 used to determine distribution of data and calculate 95% UCL, following recommendations in users guide (USEPA. September 2013. Prepared by Lockheed Martin Environmental Services).

Upper Confidence Limit (UCL) Rationale:
(1) Shapiro-Wilk W Test/Lilliefors test indicates data are log-normally distributed.

Table J-4

Ecological Risk Screening-Test Pit

Site UXO-22 Expanded SI Report

Camp Lejeune, North Carolina

-	Range of Non-Detect Values	Frequency of Detection	Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value	Frequency of Exceedance[1]	Maximum Hazard Quotient	Arithmetic Mean	Mean Hazard Quotient	95% UCL (Norm)	Geometric Mean	Background Threshold Value[2]	Retain?	Rationale
Inorganics (MG/KG)														
Aluminum	-- - --	20 / 20	11,000	MR22-SB108-24-26-15A	50.0	20 / 20	220	4,979	99.6	5,992	4,267	26,000	No	Consistent with background
Antimony	0.041 - 0.097	9 / 20	0.88	MR22-SB122-12-14-15A	0.27	6 / 20	3.25	0.21	0.78	0.31	0.086	1.79	No	Consistent with background
Arsenic	0.32 - 1.42	6 / 20	36.5	MR22-SB115-18-20-15A	18.0	1 / 20	2.03	2.95	0.16	6.06	0.71	14.70	No	Low magnitude of exceedance
Barium	-- - --	20 / 20	1,700	MR22-SB115-18-20-15A	330	1 / 20	5.15	113	0.34	258	18.7	53.2	No	See text for discussion.
Beryllium	-- - --	20 / 20	2.70	MR22-SB115-18-20-15A	21.0	0 / 20	0.13	0.24	0.012	0.48	0.078	--	No	HQ less than one
Cadmium	0.017 - 0.018	18 / 20	1.70	MR22-SB121-24-26-15A	32.0	0 / 20	0.05	0.34	0.01	0.51	0.15	1.30	No	HQ less than one
Calcium [3]	14.0 - 83.0	13 / 20	7,010	MR22-SB121-24-26-15A	NSV	-- / --	NSV	1,088	NSV	1,906	217	720	No	Macronutrient
Chromium (hexavalent)	0.21 - 0.42	11 / 20	4.83	MR22-SB108-24-26-15A	NSV	-- / --	NSV	1.33	NSV	1.88	0.60	6.15	No	Consistent with background
Chromium	1.25 - 1.90	18 / 20	14.2	MR22-SB115-18-20-15A	26.0	0 / 20	0.55	6.56	0.25	7.92	5.25	32.70	No	HQ less than one
Cobalt	-- - --	20 / 20	7.44	MR22-SB115-18-20-15A	13.0	0 / 20	0.57	0.86	0.066	1.50	0.39	1.00	No	HQ less than one
Copper	-- - --	20 / 20	58.4	MR22-SB105-48-50-15A	70.0	0 / 20	0.83	15.8	0.23	23.9	5.56	6.61	No	HQ less than one
Iron	-- - --	20 / 20	17,800	MR22-SB115-18-20-15A	200	19 / 20	89.0	3,968	19.8	5,497	2,581	33,600	No	Consistent with background
Lead	-- - --	20 / 20	153	MR22-SB114-18-20-15A	120.0	1 / 20	1.3	30.2	0.25	45.5	14.6	14.4	No	Low magnitude of exceedance
Magnesium [3]	-- - --	20 / 20	526	MR22-SB115-18-20-15A	NSV	-- / --	NSV	231	NSV	287	187	732	No	Macronutrient
Manganese	-- - --	20 / 20	793	MR22-SB121-24-26-15A	220	1 / 20	3.60	71.9	0.33	140	21.3	16.9	No	See text for discussion.
Mercury	0.015 - 0.017	16 / 20	1.20	MR22-SB107-48-50-15A	0.10	9 / 20	12.0	0.28	2.76	0.43	0.075	0.148	Yes	HQ greater than one, maximum value above background
Nickel	0.28 - 0.56	16 / 20	16.5	MR22-SB115-18-20-15A	38.0	0 / 20	0.43	2.61	0.069	4.10	1.31	8.86	No	HQ less than one
Potassium [3]	-- - --	20 / 20	1,380	MR22-SB115-18-20-15A	NSV	-- / --	NSV	272	NSV	382	196	1020	No	Macronutrient
Selenium	0.25 - 0.30	17 / 20	7.93	MR22-SB115-18-20-15A	0.52	4 / 20	15.3	0.65	1.25	1.33	0.19	0.948	No	See text for discussion.
Silver	0.033 - 0.036	16 / 20	0.13	MR22-SB105-48-50-15A	4.20	0 / 20	0.031	0.030	0.0071	0.043	0.020	--	No	HQ less than one
Sodium [3]	35.0 - 238	1 / 20	91.3	MR22-SB122-12-14-15A	NSV	-- / --	NSV	31.1	NSV	41.1	26.2	81.1	No	Macronutrient
Thallium	0.034 - 0.034	19 / 20	0.62	MR22-SB115-18-20-15A	1.00	0 / 20	0.62	0.077	0.077	0.13	0.045	--	No	HQ less than one
Vanadium	-- - --	20 / 20	38.8	MR22-SB115-18-20-15A	7.80	11 / 20	4.97	9.61	1.23	12.7	7.40	76.1	No	Consistent with background
Zinc	0.85 - 0.85	19 / 20	2,240	MR22-SB121-24-26-15A	120.0	7 / 20	18.7	203	1.69	392	52.8	16.6	Yes	HQ greater than one, maximum value above background

Notes:
1 - Count of detected samples exceeding or equaling Screening Value
2 - Developed, combined subsurface soil background values
3 - Macronutrient - Not considered to be a COPC
HQ - Hazard Quotient
NSV - No Screening Value
MG/KG - Milligrams per kilogram