FINAL

SITE INSPECTION REPORT
IOWA ARMY AMMUNITION PLANT
MIDDLETOWN, IOWA
MILITARY MUNITIONS RESPONSE PROGRAM

SEPTEMBER 2007

Prepared for:
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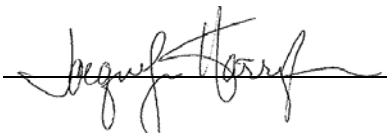
Contract Number: W912DR-06-C-0029
CLIN: 0002AA

Reviewed and Approved by:



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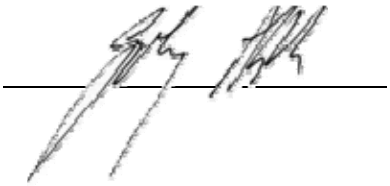

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SEPTEMBER 2007

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

LIST OF ACRONYMS

AEC	Atomic Energy Commission
AEDB-R	Army Environmental Database-Restoration
AET	Advanced Environmental Technology Inc.
amsl	Above mean sea level
Army	United States Army
BG	Burning Ground
bgs	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CS	Chlorobenzylmalononitrile
CSM	Conceptual Site Model
CTC	Cost to complete
CTT	Closed, transferring, and transferred
DERP	Defense Environmental Restoration Program
DMM	Discarded military munitions
DOD	Department of Defense
ECC	Environmental Chemical Corporation
EDA	Explosive Disposal Area
EM	Electromagnetic
EOD	Explosive ordnance disposal
FS	Feasibility Study
FUDS	Formerly Used Defense Sites
FUSRAP	Formerly Utilized Sites Remedial Action Program
GPO	Geophysical prove-out
HMX	High melting explosive / cyclotetramethylene-tetranitramine
HRR	Historical Records Review
IA	Iowa
IA ARNG	Iowa Army National Guard
IAAAP	Iowa Army Ammunition Plant
ICRMP	Integrated Cultural Resources Management Plan
INRMP	Integrated Natural Resources Management Plan

IOP	Iowa Ordnance Plant
IRP	Installation Restoration Program
LTM	Long Term Monitoring
MC	Munitions constituents
MEC	Munitions and explosives of concern
µg/L	microgram per liter
mg/kg	milligram per kilogram
mV	Millivolt
MMRP	Military Munitions Response Program
MRA	Munitions Response Area
MRS	Munitions Response Site
MRSPP	Munitions Response Site Prioritization Protocol
NFA	No further action
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
OU	Operable Unit
PA	Preliminary Assessment
PRG	Preliminary Remediation Goal
RCRA	Resource Conservation and Recovery Act
RDX	Royal demolition explosive / cyclotrimethylenetrinitramine
RI	Remedial Investigation
RUF	Request for Use of Facilities
SI	Site Inspection
SOP	Standard Operating Procedure
TNT	Trinitrotoluene
TPP	Technical Project Planning
USACE	United States Army Corps of Engineers
USAEC	United States Army Environmental Command
USEPA	United States Environmental Protection Agency
UXO	Unexploded ordnance
WP	Work Plan
°F	Degrees Fahrenheit

GLOSSARY OF TERMS

Closed Range – A military range that has been taken out of service as a range and that either has been put to new uses that are incompatible with range activities or is not considered by the military to be a potential range area. A closed range is still under the control of a Department of Defense (DOD) component.

Defense Site – All locations that were owned by, leased to, or otherwise possessed or used by the DOD. The term does not include any operational range, operating storage or manufacturing facility, or facility that is used or was permitted for the treatment or disposal of military munitions.

Discarded Military Munitions (DMM) – Military munitions that have been abandoned without proper disposal or removed from storage in a military magazine or other storage area for the purpose of disposal. The term does not include unexploded explosive ordnance, military munitions that are being held for future use or planned disposal, or military munitions that have been properly disposed of consistent with applicable environmental laws and regulations.

Explosive Ordnance Disposal (EOD) – The detection, identification, on-site evaluation, rendering safe, recovery, and final disposal of unexploded ordnance by a military response unit. It may also include explosive ordnance that has become hazardous by damage or deterioration.

Explosives Safety – A condition where operational capability and readiness, personnel, property, and the environment are protected from unacceptable effects of an ammunition or explosives mishap.

Formerly Used Defense Site (FUDS) – A DOD program that focuses on compliance and cleanup efforts at sites that were formerly used by the DOD. A FUDS property is eligible for the Military Munitions Response Program if the release occurred prior to October 17, 1986; the property was transferred from DOD control prior to October 17, 1986; and the property or project meets other FUDS eligibility criteria.

Military Munitions – All ammunition products and components produced for or used by the armed forces for national defense and security, including ammunition products or

components under the control of the DOD, the U.S. Coast Guard, the U.S. Department of Energy, and the National Guard. The term includes confined gaseous, liquid, and solid propellants, explosives, pyrotechnics, chemical and riot control agents, smokes and incendiaries, including bulk explosives and chemical warfare agents, chemical munitions, rockets, guided and ballistic missiles, bombs, warheads, mortar rounds, artillery ammunition, small arms ammunition, grenades, mines, torpedoes, depth charges, cluster munitions and dispensers, demolition charges, and devices and components of the above. The term does not include wholly inert items, improvised explosive devices, and nuclear weapons, nuclear devices, and nuclear components, other than non-nuclear components of nuclear devices that are managed under the nuclear weapons program of the Department of Energy after all required sanitation operations under the Atomic Energy Act of 1954 have been completed.

Munitions and Explosives of Concern (MEC) – This term, which distinguishes specific categories of military munitions that may pose unique explosives safety risks, means unexploded ordnance, DMM, or munitions constituents (e.g., Trinitrotoluene [TNT] or Cyclotrimethylenetrinitramine [RDX]) present in high enough concentrations to pose an explosive hazard.

Munitions Constituents (MC) – Any materials originating from unexploded ordnance, DMM, or other military munitions, including explosive and non-explosive materials, and emission, degradation, or breakdown elements of such ordnance or munitions.

Munitions Response Area (MRA) – Any area on a defense site that is known or suspected to contain UXO, DMM, or MC. Examples include former ranges and munitions burial areas. An MRA is comprised of one or more Munitions Response Sites (MRSs).

Munitions Response Site (MRS) – A discrete location within an MRA that is known to require a munitions response.

Operational Range – A range that is under the jurisdiction, custody, or control of the Secretary of Defense and that is used for range activities; or although not currently being used for range activities, that is still considered by the Secretary to be a range and has not been put to a new use that is incompatible with range activities. (10 U.S.C. 101(e)(3)(A) and (B)). Also includes "military range," "active range," and "inactive range" as those terms are defined in 40 CFR §266.201. (See reference (f)).

Other than Operational Range – Includes all property that is under jurisdiction, custody, or control of the Secretary of Defense that is not defined as an Operational Range Area.

Range – A designated land or water area set aside, managed, and used for range activities of the DOD. Ranges include firing lines and positions, maneuver areas, firing lanes, test pads, detonation pads, impact areas, electronic scoring sites, buffer zones with restricted access and exclusionary areas, and airspace areas designated for military use in accordance with regulations and procedures prescribed by the Administrator of the Federal Aviation Administration.

Transferred Range – A range that is no longer under military control and had been leased by the DOD, transferred, or returned from the DOD to another entity, including federal entities. This includes a military range that was used under the terms of an executive order, special-use permit or authorization, right-of-way, public land order, or other instrument issued by the federal land manager. Additionally, property that was previously used by the military as a range, but did not have a formal use agreement, also qualifies as a transferred range.

Transferring Range – A range that is proposed to be leased, transferred, or returned from the DOD to another entity, including federal entities. This includes a military range that was used under the terms of a withdrawal, executive order, special-use permit or authorization, right-of-way, public land order, or other instrument issued by the federal land manager or property owner. An active range will not be considered a transferring range until the transfer is imminent (generally defined as the transfer date is within 12 months and a receiving entity has been notified).

Unexploded Ordnance (UXO) – Military munitions that have been primed, fuzed, armed, or otherwise prepared for action; have been fired, dropped, launched, projected, or placed in such a manner as to constitute a hazard to operations, installations, personnel, or material; and remain unexploded either by malfunction, design, or any other cause.

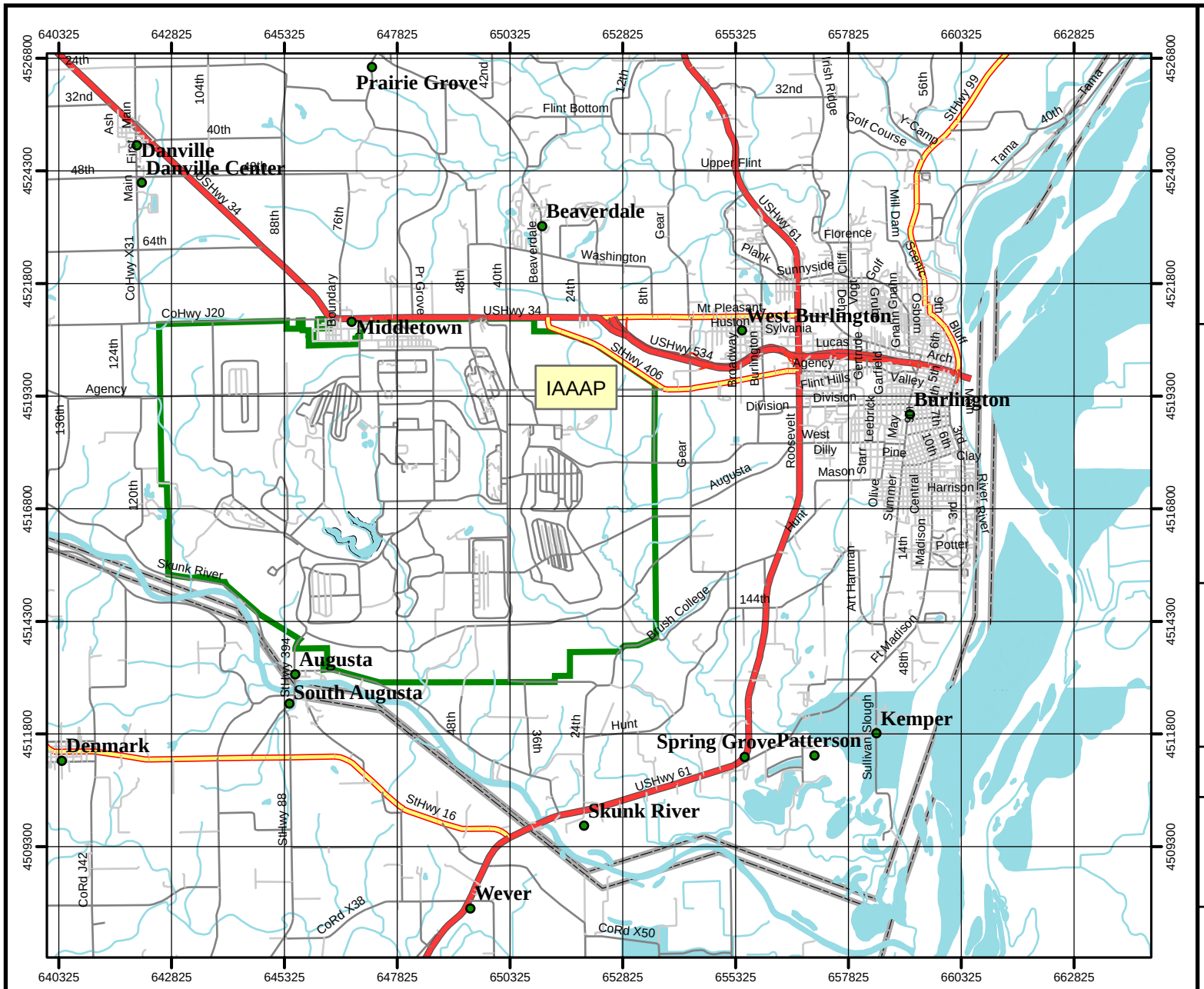
1. INTRODUCTION

The Department of Defense (DOD) established the Military Munitions Response Program (MMRP) under the Defense Environmental Restoration Program (DERP) to address DOD sites with unexploded ordnance (UXO), discarded military munitions (DMM), and munitions constituents (MC) located on current and former military installations. Sites that are not eligible for the MMRP include: sites that had releases after September 30, 2002, properties classified as operational military ranges, permitted disposal facilities, and operating munitions storage facilities. The United States (U.S.) Army's (Army) inventory of closed, transferring, and transferred (CTT) military ranges and defense sites where UXO, DMM, or MC has been identified are sites that are eligible for action under the MMRP.

This report presents the results of the Active Army MMRP Site Inspection (SI) conducted at Iowa Army Ammunition Plant (IAAAP), Iowa (IA) (**Figure 1-1**). The SI was conducted in support of the United States Army Corps of Engineers (USACE) and United States Army Environmental Command (USAEC) under Contract W912DR-06-0029. Overall coordination of the SI and contract management was provided by the USACE Omaha District. This SI is part of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) process and will complete the Preliminary Assessment (PA)/SI requirement for the Munitions Response Sites (MRSs) at IAAAP.

1.1. SITE OVERVIEW

The *Closed, Transferring, and Transferred Range/Site Inventory Report* (e^2M 2003) for IAAAP identified 4 ranges (or MRSs) and marked the completion of the PA phase of work under CERCLA. The Historical Records Review (HRR) (URS 2007) determined that the West Burn Pads MRS and North Burn Pads MRS are ineligible under the Active Army MMRP because the potential for munitions and explosives of concern (MEC) and MC in soil are unlikely due to soil remedial actions that were completed in 2000 and 1998, respectively. However, the West Burn Pads MRS will move directly to the Remedial Investigation (RI) phase based on the United States Environmental Protection Agency (USEPA) Dispute Resolution dated 20 December 2006. The HRR (URS 2007) identified four additional sites eligible for inclusion in the Active Army MMRP, resulting in seven MRSs carried forward to the SI phase of the Active Army MMRP. This report presents the findings



Site Location

Iowa Army Ammunition Plant

Installation Boundary

cities

Military Munitions Response Program
Site Inspection

IOWA ARMY AMMUNITION PLANT
U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
CONTRACTW912DR-06-C-0029

FIGURE 1-1

Installation Location Map

NOTE:
Location of the Iowa Army Ammunition Plant

Projection	**UTM, Zone 12**
Horizontal Datum	**NAD83**
Units	**Meters**
Scale	**1:129,253**
Photo Date	**2005**

0 2,500 5,000 Meters

N

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URS

Date: MAY 10, 2007

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of the SI performed at the following seven MRSs determined to be eligible for investigation under the Active Army MMRP:

- Central Test Area MRS (IAAP-001-R-01)
- Line 6 Ammo Production MRS (IAAP-002-R-01)
- West Burn Pads MRS (IAAP-003-R-01)
- Possible Demolition Site MRS (IAAP-004-R-01)
- West Burn Pads Area South of the Road MRS (IAAP-005-R-01)
- Maneuver Area MRS (IAAP-006-R-02)
- Incendiary Disposal Area MRS (AE IAAP-006-R-01)

1.2. PURPOSE/SCOPE

The primary goal of the SI is to collect information necessary to make one or more of the following decisions for each MRS: 1) determine whether a RI/Feasibility Study (FS) is required at the site; 2) determine whether an immediate response is needed; or 3) determine whether the site qualifies for no further action (NFA). The secondary goals of the SI are to collect the necessary information to help the Army improve Cost to Complete (CTC) estimates for the remediation of the MRSs and to prepare the Munitions Response Site Prioritization Protocol (MRSPP). In compliance with Title 32 of the Code of Federal Regulations (CFR) §179.5, the draft MRSPP score(s) for the MRSs included in this SI are considered interim pending stakeholder input.

Based on the USEPA Dispute Resolution dated 20 December 2006, it was determined that the Central Test Area MRS, Line 6 Ammo Production MRS, West Burn Pads MRS, Possible Demolition Site MRS, West Burn Pads Area South of the Road MRS, and Incendiary Disposal Area MRS will go directly to the RI phase. This resolution supersedes recommendations based on available information presented in this Active Army MMRP HRR and SI Report.

1.3. REPORT ORGANIZATION

This SI report has the following sections:

- Section 1 – Introduction

- Section 2 – Installation/Site Descriptions and History
- Section 3 – Site Inspection Tasks and Findings
- Section 4 – Conceptual Site Model (CSM)
- Section 5 – Draft MRSPP Results
- Section 6 – Summary and Conclusions
- Section 7 – References

The following supporting information and analyses are included in the appendices:

- Installation Restoration Program (IRP) Analytical Results (Appendix A)
- Draft MRSPP Ranking Summary and Worksheets (Appendix B)

2. INSTALLATION/SITE DESCRIPTIONS AND HISTORY

2.1. INSTALLATION DESCRIPTION

IAAAP (also referred to as the Iowa Ordnance Plant [IOP] prior to 1963) is located approximately 8 miles west of Burlington in Des Moines County, Iowa, and immediately south of Middletown, Iowa. IAAAP is located in the southeastern portion of the state, as illustrated in **Figure 1-1**. IAAAP occupies approximately 19,011 acres and is bordered by U.S. Highway 34 to the north, upland agricultural farms to the east and west, and the Skunk River Valley to the south.

There are approximately 1,453 acres of semi-improved grounds, including 700 acres of production facilities including buildings, load lines, and small arms ranges. There are approximately 17,332 acres of unimproved grounds within IAAAP: roads and railroads cover 528 acres; buildings and structures cover 70 acres; agricultural out leases total 7,500 acres; idle areas include 1,432 acres; forested areas cover 7,766 acres; and ponds, lakes, and streams cover 106 acres. (HES 2001)

Note: Based on real property records, IAAAP acreage is officially 19,011 acres. The Integrated Natural Resources Management Plan (INRMP) (HES 2001) provides an acreage breakdown for 18,785 acres. Although the INRMP acreage breakdown is not complete, the official (real property) acreage breakdown is expected to be similar to the acreage breakdown provided in the INRMP (HES 2001).

2.2. INSTALLATION HISTORY

Prior to the construction of IAAAP, the area was farmland containing seven cemeteries and two one-room schools. In November 1940, the area was acquired by the Office of the Quartermaster General as the site for the IOP (currently known as IAAAP). Construction began in January 1941 and was completed in February 1942. (USATHAMA 1980) The IOP was constructed on approximately 20,275 acres. The IOP's primary mission during World War II was to produce medium to large caliber shells, mortar rounds, anti-tank mines, antipersonnel mines, and bombs. The IOP also manufactured associated components for these munitions including primers, detonators, fuzes, and boosters. (e^2M 2003) Actual loading operations at IOP began on Line 1 in September 1941, on Line 2 in November 1941,

and on Line 3 in December 1941. Production was started on Line 3A in January 1943. Initial component production commenced in January 1942 when the first fuzes were assembled on Lines 4A and 5B. Ammunition renovation facilities were added in January 1944. All production was terminated on 14 August 1945. (USATHAMA 1980) Operations after 14 August 1945 consisted of completing work already in process and renovating rejected ammunition. These contract operations ceased in January 1946 when the U.S. Government then assumed the operation of long-term storage, surveillance, demilitarization, and reconditioning activities. In 1947, the Atomic Energy Commission (AEC) began operation at Line 1, which included the addition of many new facilities. Production of new ammunition resumed on 1 August 1949 as lines 2, 6, and 9 were activated during this period. (USATHAMA 1980)

Ammunition production at the IOP expanded significantly beginning in June 1950 at the onset of the Korean conflict. Both conventional and nuclear weapons were produced during the conflict (HES 2001). In 1951, the IOP reverted to a contract operation. Peak production was reached in July 1952; however, at the end of the Korean conflict, several lines and much of the equipment were placed in standby status. The lines in standby status were put back into operation in 1961 to support the Southeast Asia conflict (USATHAMA 1980). In 1963, the IOP was designated as the IAAAP (Mason & Hanger-Silas Mason Co. Inc. 1964).

Vietnam era production at the IAAAP included artillery rounds, grenade components, demolition blocks, antipersonnel mines, mortar rounds, and assorted components (HES 2001). In 1969, 4.45 hectares in the northwest corner of IAAAP were transferred to the Fifth Army to be used for a U.S. Army Reserve Center (USATHAMA 1980). IAAAP continued to produce a similar line through the 1970s (HES 2001). In 1973, the AEC announced that it was phasing out of IAAAP; the facilities of Line 1 were reverted back to Army control on 1 July 1975 (USATHAMA 1980). During the 1980s, buildings were upgraded, and modern production facilities and equipment were added. In the early 1990s, demilitarization of conventional ammunition became a primary mission of IAAAP (HES 2001).

Currently, IAAAP is a government-owned, contractor-operated facility consisting of 19,011 acres. The installation's current mission is to load, assemble and pack ammunition items including projectiles, mortar rounds, warheads, demolition charges, and munitions

components such as fuzes, primers, and boosters (e^2M 2003). Other activities at IAAAP include forestry, grazing, agriculture, and outdoor recreation including hunting and fishing (HES 2001).

2.3. MMRP SITE DESCRIPTIONS

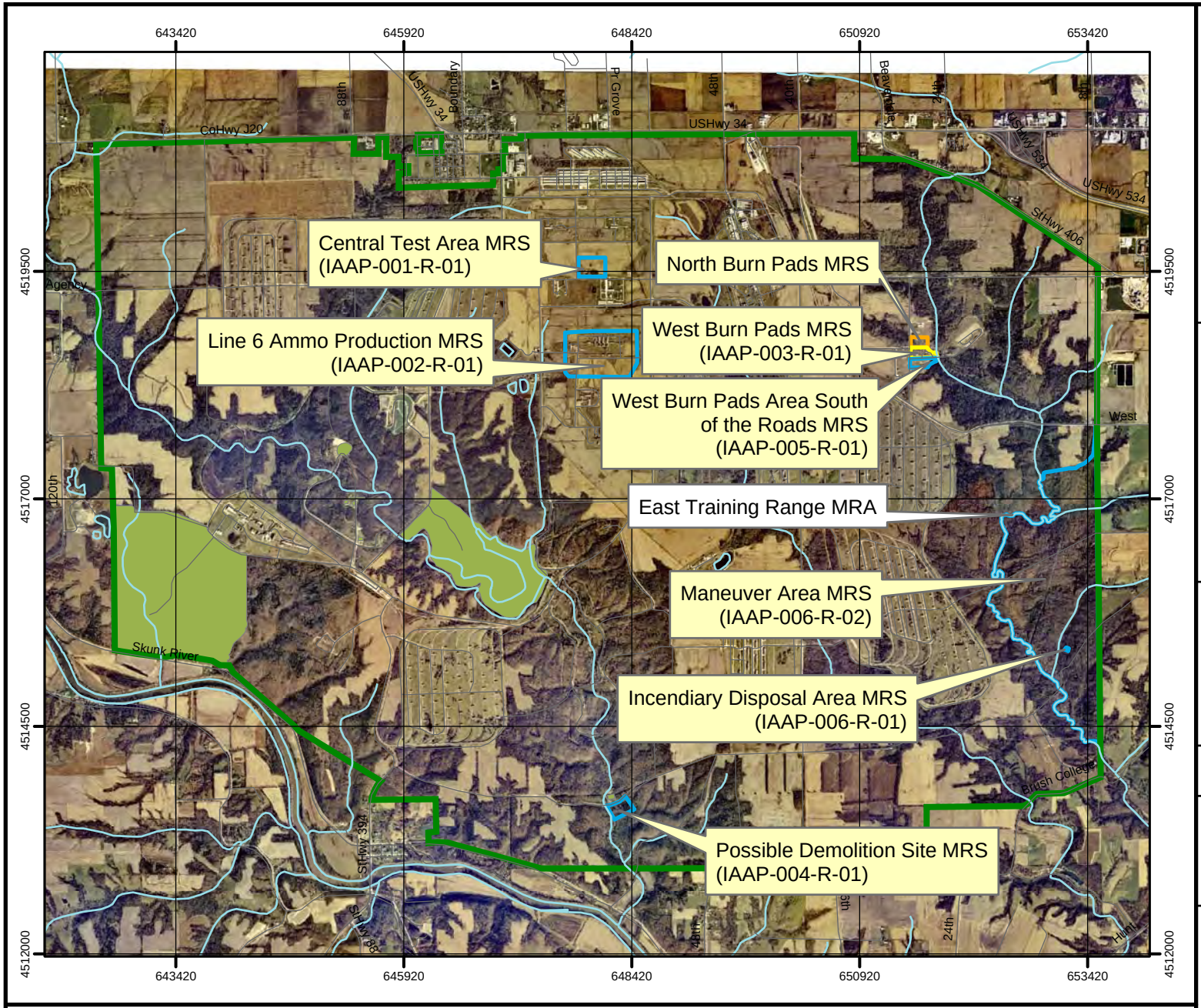
Six Active Army MMRP eligible sites were identified in the HRR (URS 2007). In addition, the West Burn Pads MRS is also included in the Active Army MMRP SI due to the USEPA Dispute Resolution dated 20 December 2006. The Army Environmental Database – Restoration (AEDB-R) and acreages of the MRSs are summarized in **Table 2-1**. A brief description of these sites is provided in **Sections 2.3.1** through **2.3.7**, and a more detailed description is presented in the HRR (URS 2007). **Figure 2-1** displays the locations of the sites as defined during the HRR (URS 2007).

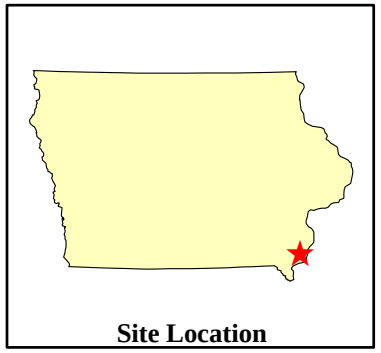
Table 2-1: Summary of Munitions Response Sites at IAAAP

Site Name	AEDB-R Number	HRR Acreage
Central Test Area	IAAP-001-R-01	15.16
Line 6 Ammo Production	IAAP-002-R-01	95.21
West Burn Pads	IAAP-003-R-01	6.98
Possible Demolition Site	IAAP-004-R-01	15
West Burn Pads Area South of the Road	IAAP-005-R-01	10.58
Maneuver Area	IAAP-006-R-02	508
Incendiary Disposal Area	IAAP-006-R-01	12

2.3.1 Central Test Area MRS (IAAP-001-R-01)

The Central Test Area MRS is located in the north-central portion of IAAAP within the Line 5 boundary, which is located near the center of IAAAP. The Central Test Area MRS was used from approximately 1943 through 1963 for research and development for the testing of hand grenades, mines, and adapter boosters under static firing test conditions. The Central Test Area MRS included Building 600-84, a test-fire pit, and a concrete base for the drop test fixture for exploding incendiary bombs (tripod). The MRS boundary, as presented in the HRR (URS 2007), is illustrated on **Figure 2-2**.





Iowa Army Ammunition Plant

- Operational Range Area
- Installation Boundary
- Eligible MRSs
- Ineligible MRSs
- Inelligble MRS, Carried forward to RI Phase per USEPA Dispute Resolution

Military Munitions Response Program Site Inspection

IOWA ARMY AMMUNITON PLANT
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OMAHA DISTRICT
CONTRACTW912DR-06-C-0029

FIGURE 2-1

MUNITIONS RESPONSE SITES

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Date: MAY 10, 2007

NOTE:
Location of the Iowa Army Ammunition Plant
Source : CTT 2003

Projection	**UTM, Zone 12**
Horizontal Datum	**NAD83**
Units	**Meters**
Scale	**1:63,877**
Photo Date	**2005**

0 500 1,000 Meters

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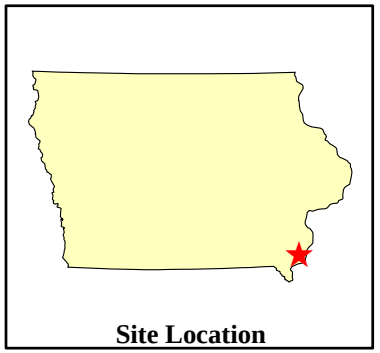

Legend

- CENTRAL TEST AREA HRR MRS SITE BOUNDARY
- OPERATIONAL AREA (NOT ELIGIBLE FOR MMRP)

Military Munitions Response Program Site Inspection

IOWA ARMY AMMUNITION PLANT
U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
CONTRACTW912DR-06-C-0029

FIGURE 2-2

CENTRAL TEST AREA MRS (IAAP-001-R-01) 1998 AERIAL

Source : 1998 Aerial

Projection	UTM, Zone 12
Horizontal Datum	NAD83
Units	Meters
Scale	1:4,000
Photo Date	1998

0 50 100 Meters

N

FPM group
URS

Date: MAY 10, 2007

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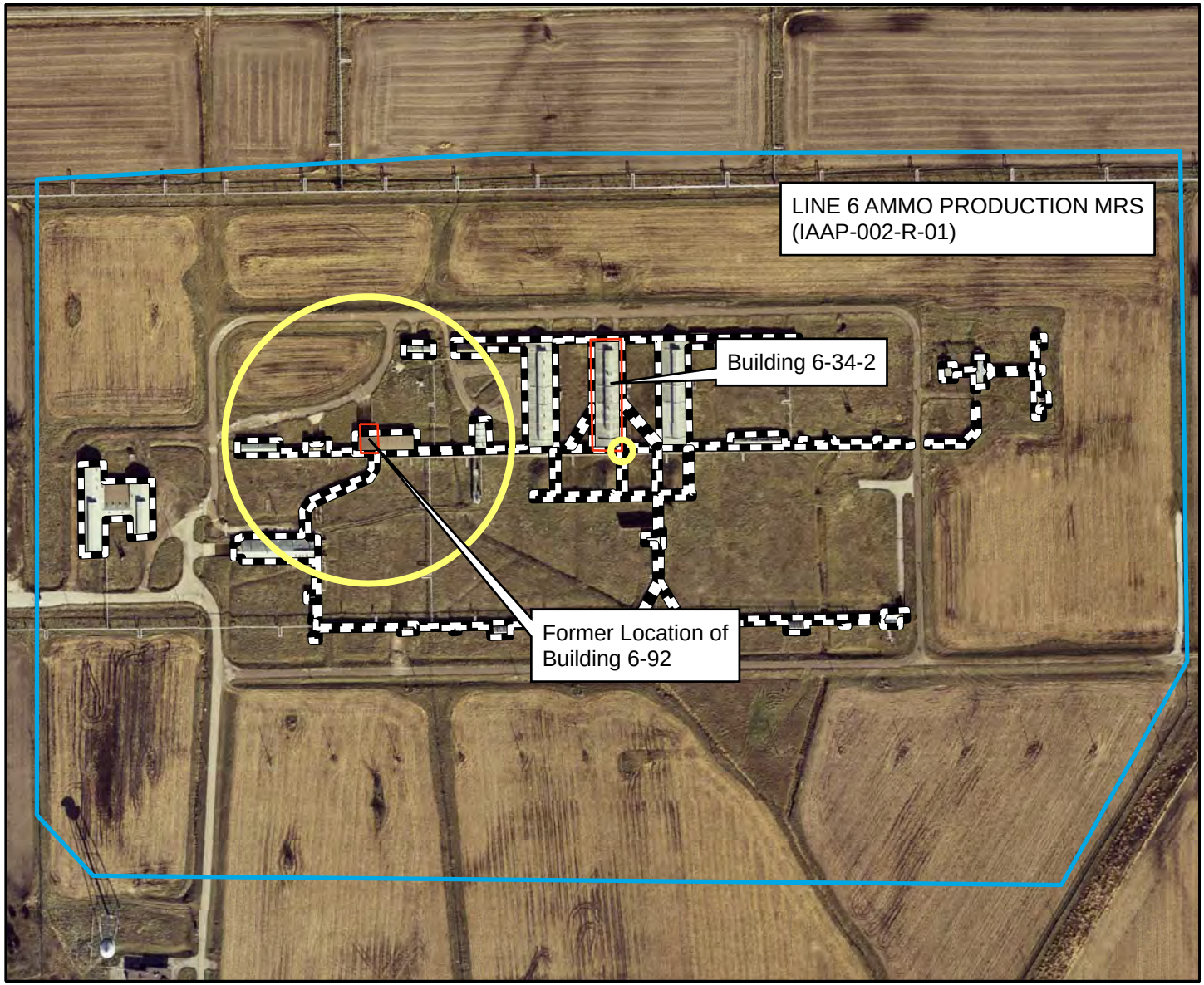
2.3.2 Line 6 Ammo Production MRS (IAAP-002-R-01)

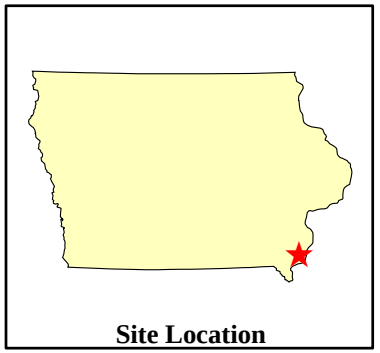
The Line 6 Ammo Production MRS consists of Building 6-34-2 and Building 6-92, which were impacted by separate explosions in 1968 and 1970, respectively, that resulted in the dispersion of MEC in surrounding areas. Both buildings were located within the Line 6 boundary, which is located near the center of IAAAP. Building 6-34-2 was primarily used for detonator loading. During early operations, the northern end was used to assemble detonators and the southern end to load black powder into a component known as a "candlestick." Building 6-92 was used to clean the explosives residue from newly completed components, such as detonators and relays. Components were mixed with hot sawdust (cleaning media) and placed into a "rumble machine." The sawdust was removed by vibration. The components were then placed in boxes and sent to the inspection and shipping building. (TN&A 2003) The MRS boundary, as presented in the HRR (URS 2007), is illustrated on **Figure 2-3**.

2.3.3 West Burn Pads MRS (IAAP-003-R-01)

The West Burn Pads MRS is located in the northeast corner of IAAAP and covers 6.98 acres. The West Burn Pads MRS encompasses four sub areas: the West Burn Pads, West Burn Pads Landfill, Burn Cages, and the Burn Cage Ash Disposal Landfill. This site was used from 1949 through 1982 for flashing of metals contaminated with explosives.

The West Burn Pads consisted of an area that is approximately 100 feet by 100 feet. Within this area were two earthen burn pads and four raised earthen berms. The pads were designated Pad 1-W and Pad 2-W. Both pads measured 15 feet by 50 feet. After 1982, metal parts were no longer flashed at the West Burn Pads, but salvageable metal parts that had been flashed off-site were stored at the West Burn Pads MRS pending sale to off-site vendors. In March 1997, the West Burn Pads MRS was cleared of all visible surface scrap metal. The Burn Cages consisted of three cages, each measuring 30 feet by 60 feet. The cages were used for incineration of inert and explosive contaminated packaging between 1949 and 1982. Metal parts flashing were also performed at the site. The Burn Cage Ash Disposal Landfill operated between 1949 and 1982. The site consisted of an old landfill that received residual ash generated from the burn cages. Combustion residue was periodically





Legend

- LINE 6 AMMO PRODUCTION HRR MRS SITE BOUNDARY
- RADIUS FOR EXPLOSIVE ITEMS RECOVERED AFTER EACH RESPECTIVE EXPLOSION (1968 AND 1970)
- CARETAKER STATUS (OPERATIONAL AREA, NOT ELIGIBLE FOR MMRP)
- BUILDING BOUNDARY

Military Munitions Response Program Site Inspection

IOWA ARMY AMMUNITION PLANT
U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
CONTRACTW912DR-06-C-0029

FIGURE 2-3

LINE 6 AMMO PRODUCTION MRS (IAAP-002-R-01) 1998 AERIAL

Projection	**UTM, Zone 12**
Horizontal Datum	**NAD83**
Units	**Meters**
Scale	**1:4,323**
Photo Date	**1998**

0 50 100 Meters

N

Source : 1998 Aerial

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Date: MAY 10, 2007

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pushed over the side and covered with soil. The Burn Cage Ash Disposal Landfill has been capped, contoured, and vegetated. The landfill toe is believed to be adjacent to the Unnamed Tributary and Spring Creek. The West Burn Pads Landfill was in operation between 1950 and 1975 and received residue from the burn pads and various types of solid waste, such as paper, construction debris, and metal cans from other Explosive Disposal Area (EDA) sites. The West Burn Pads Landfill has been capped, contoured, and vegetated. (ECC 2001)

The MRS boundary, as presented in the HRR (URS 2007), is illustrated on **Figure 2-4**.

2.3.4 Possible Demolition Site MRS (IAAP-004-R-01)

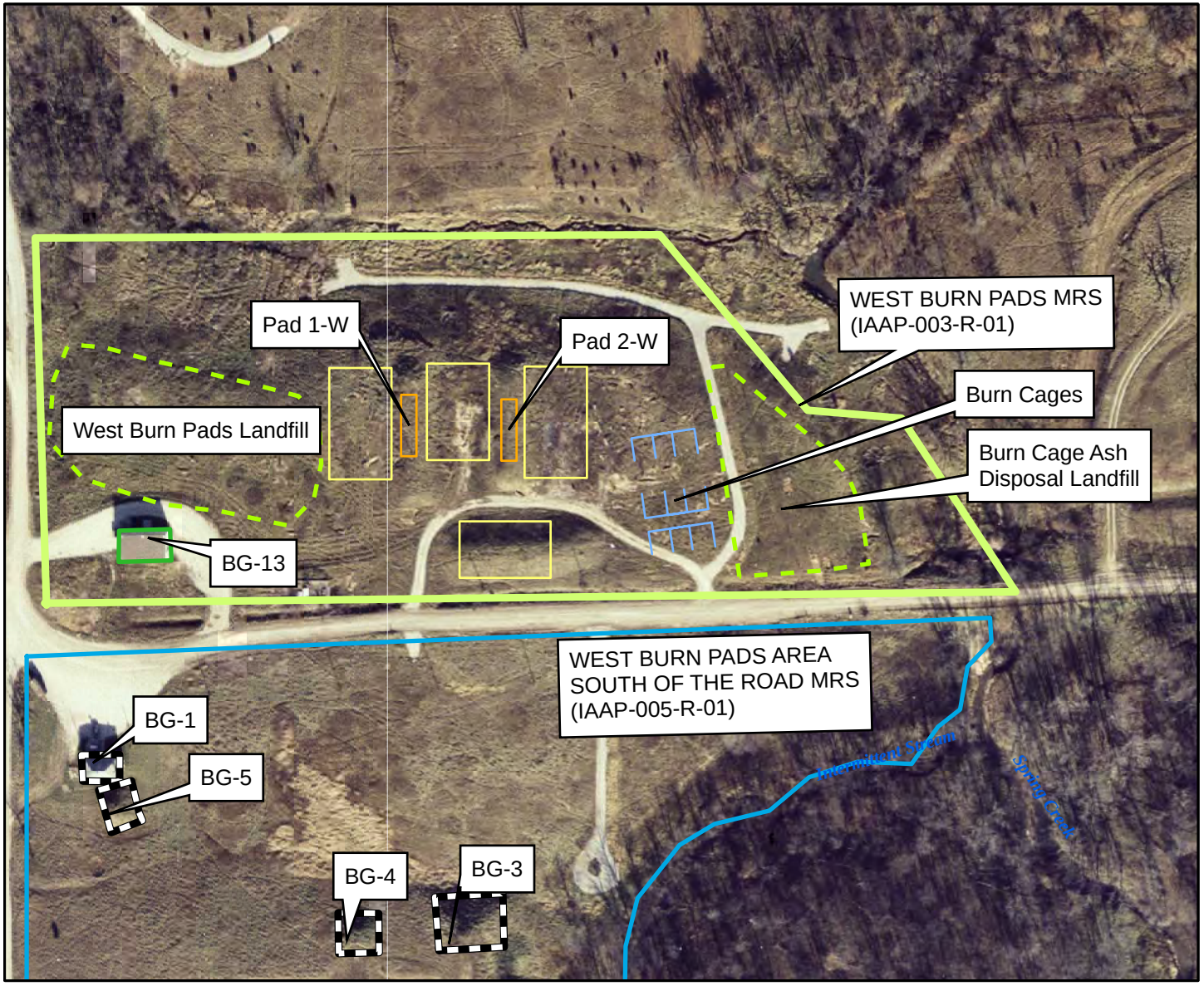
The Possible Demolition Site MRS was not identified as an Active Army MMRP site in the *Closed, Transferring, and Transferred Range/Site Inventory Report* (e^2M 2003). Based on the HRR (URS 2007) findings, the Possible Demolition Site MRS was located south of the Pistol Range and K Road, and east of Long Creek. This MRS was potentially used during the 1940s and early 1950s as a demolition area for ammunition items and for demilitarizing white phosphorous rounds.

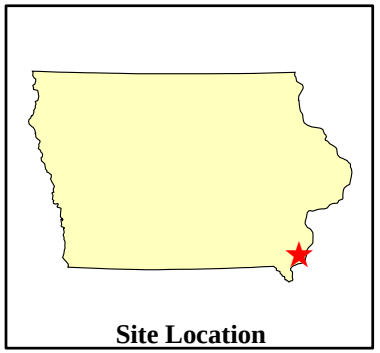
Drawings reviewed for the Possible Demolition Site included the 1945 Day and Zimmermann Inc. drawing titled 'Contm'd Areas Near East Boundary – South of Lower Augusta Rd. & East of YD. "E"', which identifies three contaminated areas at IAAAP including the Possible Demolition Site MRS. Based on the location obtained from the drawing, no ground scarring was observed in the aerial photographs reviewed for this area. However, ground scarring was observed in the 1957 aerial just to the east of the Possible Demolition Site location identified in the 1945 drawing.

The MRS boundary, as presented in the HRR (URS 2007), is illustrated on **Figure 2-5**. The MRS boundary will be refined or confirmed during the RI phase.

2.3.5 West Burn Pads Area South of the Road MRS (IAAP-005-R-01)

The West Burn Pads Area South of the Road MRS was not identified as an Active Army MMRP site in the *Closed, Transferring, and Transferred Range/Site Inventory Report* (e^2M 2003). Based on the HRR (URS 2007) findings, the West Burn Pads Area South of the Road MRS was located in the northeast corner of IAAAP, south of the West Burn Pads MRS (IAAP-003-R-01), and within the boundaries of the EDA. Historical research by USACE





Legend

- WEST BURN PADS AREA SOUTH OF THE ROAD HRR MRS SITE BOUNDARY
- WEST BURN PADS HRR MRS SITE BOUNDARY
- CARETAKER STATUS (OPERATIONAL AREA, NOT ELIGIBLE FOR MMRP)
- OPERATIONAL AREA (NOT ELIGIBLE FOR MMRP)
- Berm
- Burn Cages
- Landfill - Disposal Area
- Pads
- BG-X Burning Ground-(Building Number)

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FIGURE 2-4

WEST BURN PADS MRS (IAAP-003-R-01) 1998 AERIAL

FPM group
URS

Date: MAY 10, 2007

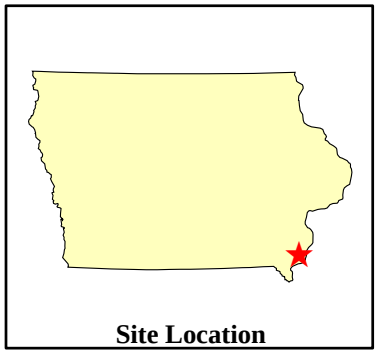
Source : 1998 Aerial

Projection	**UTM, Zone 12**
Horizontal Datum	**NAD83**
Units	**Meters**
Scale	**1:2,000**
Photo Date	**1998**

0 25 50 Meters

N

Z:\IowaAAP\IAAAP GIS\site inspection\figure 2-5.mxd



Legend

- POSSIBLE DEMOLITION SITE HRR MRS SITE BOUNDARY
- Possible Demolition Site Location Based on Day & Zimmermann 1945 Drawing

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FIGURE 2-5

POSSIBLE DEMOLITION SITE MRS (IAAP-004-R-01) 1998 AERIAL

Source : 1998 Aerial

Projection	**UTM, Zone 12**
Horizontal Datum	**NAD83**
Units	**Meters**
Scale	**1:3,000**
Photo Date	**1998**

0 25 50 Meters

N

FPM group
URS

Date: MAY 10, 2007

Z:\IowaAAP\IAAAP GIS\site inspection\figure 2-4.mxd

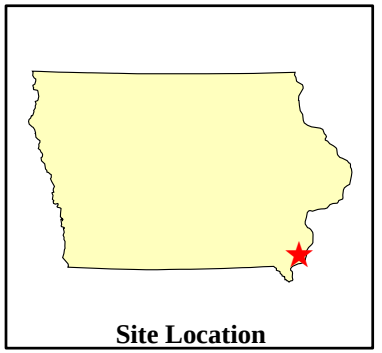
determined that the West Burn Pads Area South of the Road MRS might have been an extension of the West Burn Pads MRS (IAAP-003-R-01), which was used from 1949 through 1982 for flashing of metals contaminated with explosives, based on the following conclusions (USACE 2003):

- An igniter box was identified in this area, which indicated the possibility of a former burn pad in the vicinity.
- An underground viewing bunker with a periscope was observed behind American Ordnance's break room. The viewing bunker was aimed directly at the West Burn Pads Area South of the Road MRS.
- An area of disturbed ground with no vegetation and a red discoloration was observed. Based on previous USACE investigations at Line 5A and 5B, the red discoloration indicated a potential for high concentrations of either trinitrotoluene (TNT) or tetryl at this location.
- A potential sedimentation dam was constructed along Spring Creek extending approximately 200 to 300 yards that coincided with the natural terrain. The purpose of the sedimentation dam is not known.

During the HRR site visit, an American Ordnance personnel interview indicated that two trenches were present at the West Burn Pads Area South of the Road MRS and were used between the 1940s and 1950s for approximately one year (before the West Burn Pads [IAAP-003-R-01] was completed).

The West Burn Pads Area South of the Road MRS did not undergo any remedial actions during the Phase 3 Remedial Action for the West Burn Pads Area (USACE 2003). The MRS boundary, as presented in the HRR (URS 2007), is illustrated on **Figure 2-6**.

In July 2002, the West Burn Pads Area South of the Road MRS was designated by Congress into Formerly Utilized Sites Remedial Action Program (FUSRAP) as a site used by the former Atomic Energy Commission. FUSRAP was contracted to complete an RI to investigate potential radioactive, chemical, and explosives contamination at the West Burn Pads Area South of the Road MRS. The objectives of the RI are to determine if concentrations of chemical or radiological contaminants exceed screening levels for soil or



Legend

- WEST BURN PADS AREA SOUTH OF THE ROAD HRR MRS SITE BOUNDARY
- WEST BURN PADS CTT AND HRR MRS SITE BOUNDARY
- CARETAKER STATUS (OPERATIONAL AREA, NOT ELIGIBLE FOR MMRP)
- OPERATIONAL AREA (NOT ELIGIBLE FOR MMRP)
- Berm
- Burn Cages
- Landfill - Disposal Area
- Pads
- BG-X Burning Ground-(Building Number)

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FIGURE 2-6

WEST BURN PADS AREA SOUTH OF THE ROAD MRS (IAAP-005-R-01) 1998 AERIAL

FPM group
URS

Date: MAY 10, 2007

Source : 1998 Aerial

Projection	**UTM, Zone 12**
Horizontal Datum	**NAD83**
Units	**Meters**
Scale	**1:2,000**
Photo Date	**1998**

0 25 50 Meters

N

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sediment and determine if structures present contain radiological constituents that exceed screening criteria. (USACE 2007)

In August 2004, for the FUSRAP RI Work Plan (WP), FUSRAP completed a gamma walkover survey, building survey, and soil sampling. No radiological contamination was present at the West Burn Pads Area South of the Road MRS. Five surface soil samples were collected by FUSRAP and analyzed for metals (arsenic, barium, cadmium, chromium, lead and mercury), uranium-234, uranium-235, and uranium-238. No metal concentrations of this data group exceeded the current screening criteria (USEPA – Region 9 Preliminary Remediation Goals [PRGs] for an industrial setting). (USACE 2007)

Radiological soil sampling results from the August 2004 radiological surveys were used to perform a determination of impacted or non-impacted classification in accordance with Multi-Agency Radiation Survey and Site Investigation Manual guidance for the West Burn Pads Area South of the Road MRS. No residual radioactive contamination was identified in the surface soils, but the potential exists for radioactive contamination to have either migrated to the subsurface soil or to have been placed there during land-disturbing activities. FUSRAP is still in the process of completing the RI for IAAAP areas, including the West Burn Pads Area South of the Road MRS. (USACE 2007)

2.3.6 Maneuver Area MRS (IAAP-006-R-02)

The Maneuver Area MRS was not identified as an Active Army MMRP site in the *Closed, Transferring, and Transferred Range/Site Inventory Report* (e^2M 2003). Based on the HRR (URS 2007) findings, the Maneuver Area MRS is located along the east boundary of IAAAP within the East Training Range Munitions Response Area (MRA). The Iowa Army National Guard (IA ARNG) has been authorized to perform training exercises at the Maneuver Area MRS since at least 1969. Training exercises at a minimum have included dismounted movement, construction of bivouac sites, and night convoy operations. In addition, IA ARNG has historically been authorized to use ammunition blanks and pyrotechnics during training activities.

Based on the IAAAP Land Usage Standard Operating Procedure (SOP) and Request for Use of Facilities (RUF) 00-0611, dismounted troop training included navigation training, common task training, dismounted patrols and reconnaissance missions, and secure and

defend missions in bivouac areas. It also included collective training for tasks, such as emplacement and breaching of obstacles, inert minefield emplacement, inert demolition training, and simulated nuclear-biological-chemical training. Construction of bivouac sites at the Maneuver Area MRS included setting up field mess (kitchens), tactical operation centers, and sleep sites. Night convoy operations included personnel proficiency training with night vision devices, conducting reconnaissance patrols, and perimeter security operations. IA ARNG units permitted to train at IAAAP included the 224th Engineer Battalion, 185th Regional Training Institute, 19th Area Support Medical Battalion, 134th Medical Company, 109th Aviation Detachment, and 234th Signal Battalion.

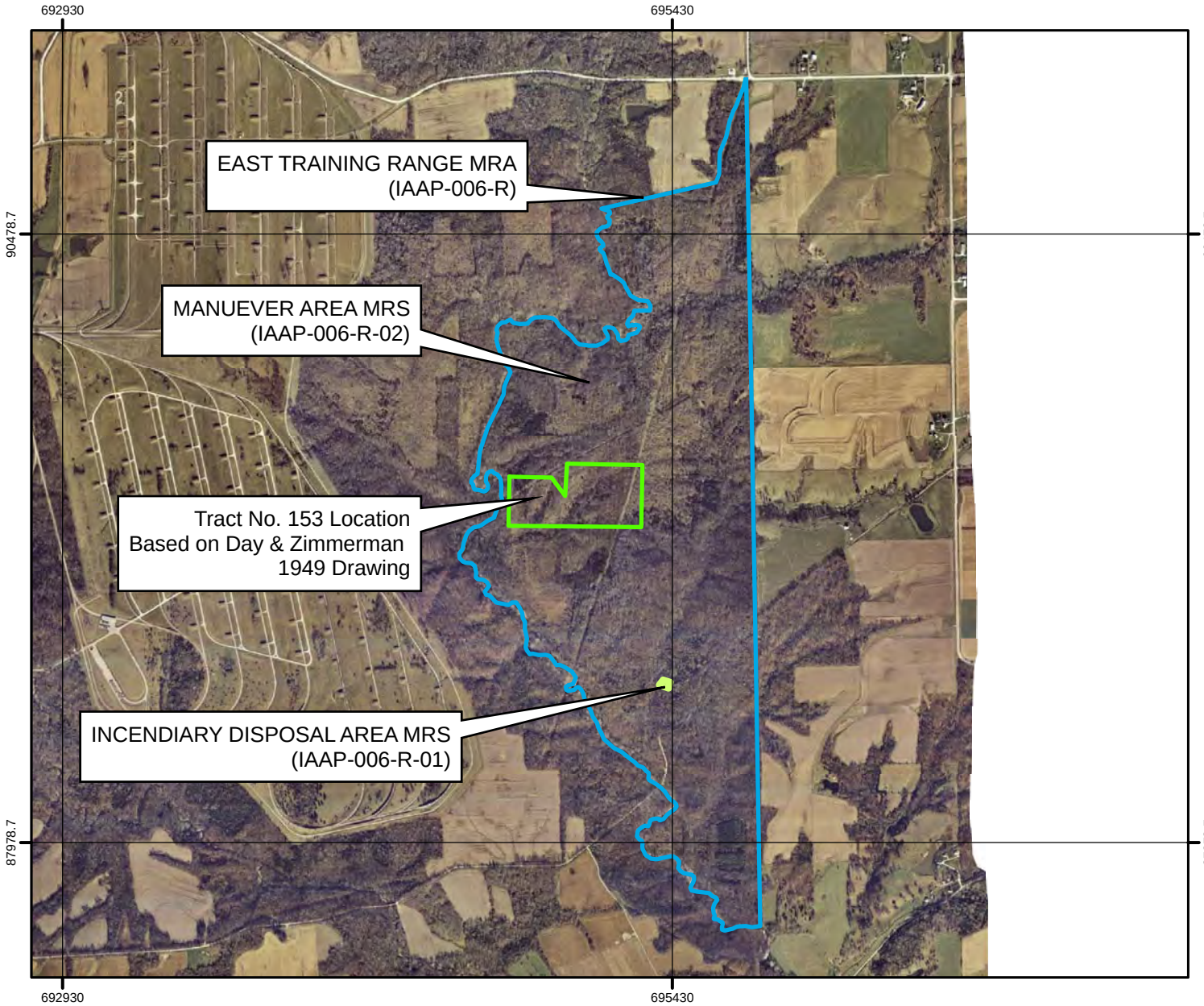
On 22 November 2006, the Department of the Army Management Office - Training Simulations granted the Request for Reclassification of the East Training Range MRA (referred to as the Land Navigation Range in the Department of Army Memorandum), which includes the Maneuver Area MRS and Incendiary Disposal Area MRS. This reclassification resulted in the East Training Range MRA status being changed from operational to closed. In addition, the memorandum stated that the East Training Range MRA training areas (Maneuver Area MRS) have not been used for live fire since 28 September 2001.

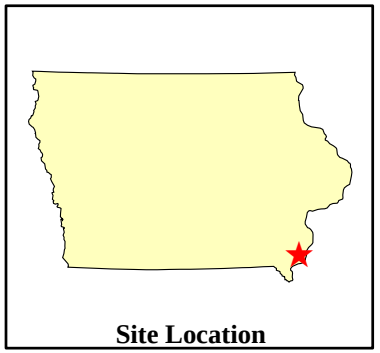
The MRS boundary, as presented in the HRR (URS 2007), is illustrated on **Figure 2-7**.

2.3.7 Incendiary Disposal Area MRS (IAAP-006-R-01)

The Incendiary Disposal Area MRS was not identified as an Active Army MMRP site in the *Closed, Transferring, and Transferred Range/Site Inventory Report* (e^2M 2003). Based on the HRR (URS 2007) findings, the Incendiary Disposal Area MRS is located north of K Road near the east boundary of IAAAP and within the East Training Range MRA. The Incendiary Disposal Area MRS may have been used as a high explosives demolition area and/or for burial of unknown materials.

Drawings reviewed for the Incendiary Disposal Area MRS included the 1945 Day and Zimmermann Inc. drawing titled 'Contm'd Areas Near East Boundary – South of Lower Augusta Rd. & East of YD. "E", which identifies the Incendiary Disposal Area MRS. In addition, the Mason & Hangar 1957 drawing (revised for use in the 1961 Land Management Plan dated 1 October 1961) titled 'General Layout' and the 1973 Mason and Hangar drawing





Legend

- MANEUVER AREA HRR MRS SITE BOUNDARY
- INCENDIARY DISPOSAL AREA HRR MRS SITE BOUNDARY
- TRACT NO. 153

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FIGURE 2-7

MANEUVER AREA MRS (IAAP-006-R-02) 1998 AERIAL

FPM group
URS

Date: MAY 10, 2007

Projection	UTM, Zone 12
Horizontal Datum	NAD83
Units	Meters
Scale	1:25,000
Photo Date	1998

0 250 500 Meters

N

Source : 1998 Aerial

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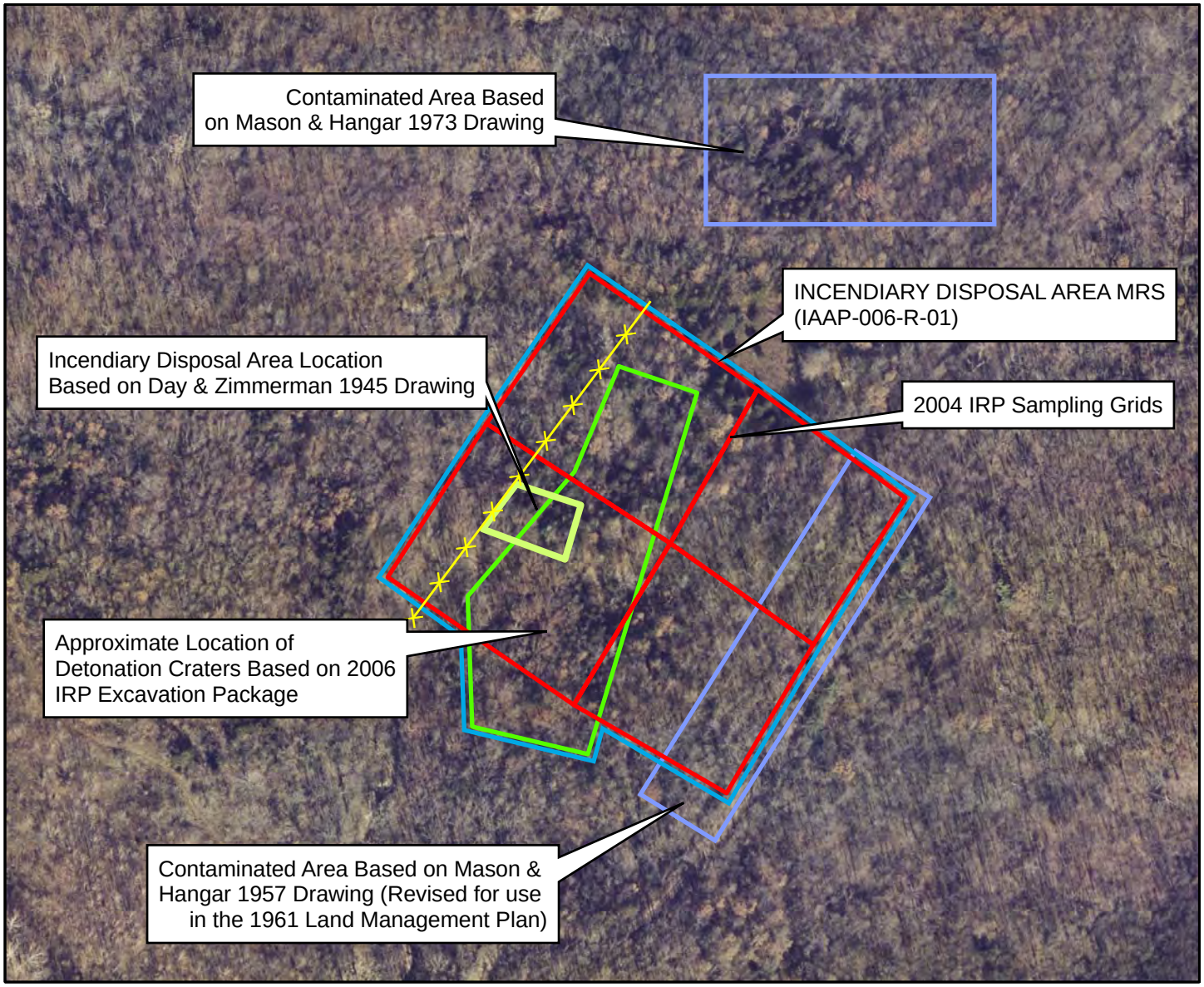
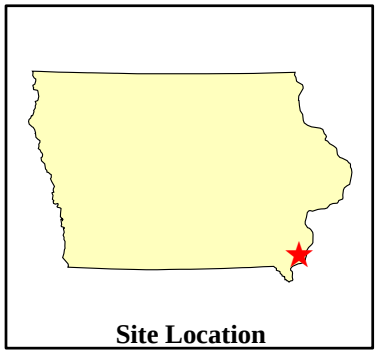
titled 'National Guard Land Usage Map' both identify contaminated areas within the boundary of the Incendiary Disposal Area MRS.

During the PA/SI (Jaycor 1994), the Incendiary Disposal Area MRS was believed to be small (approximately 40 feet by 60 feet) and surrounded by a barbed wire fence. However, during a site walkover in 2000 for the IRP, a cratered area was identified west of the Incendiary Disposal Area. The PA/SI boundary was expanded to approximately 10 acres to include the cratered areas identified during this site walkover, which was the basis for the 2004 IRP sampling grids. The Excavation Package prepared for the IRP in 2005 identified additional detonation craters beyond the previously established border of 10 acres. To incorporate the additional detonation craters represented on the Incendiary Disposal Area Excavation Package, the site boundary was increased, which resulted in a net addition of two acres to the Incendiary Disposal Area MRS acreage. The MRS boundary (including the cratered area), as presented in the HRR (URS 2007), is illustrated on **Figure 2-8**.





Legend

- INCENDIARY DISPOSAL AREA HRR MRS SITE BOUNDARY
- 1945 INCENDIARY DISPOSAL AREA LOCATION
- 2004 IRP SAMPLING GRID
- CONTAMINATED AREAS BASED ON THE MASON & HANGAR 1961 AND 1973 DRAWINGS
- APPROXIMATE LOCATION OF DETONATION CRATERS, IRP EXCAVATION PACKAGE 2006

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FIGURE 2-8

INCENDIARY DISPOSAL AREA MRS (IAAP-006-R-01) 1998 AERIAL

FPM group
URS

Date: MAY 10, 2007

Source :1998 Aerial

Projection	**UTM, Zone 12**
Horizontal Datum	**NAD83**
Units	**Meters**
Scale	**1:3,000**
Photo Date	**2005**

0 50 100 Meters

N

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3. SITE INSPECTION TASKS AND FINDINGS

3.1. OVERVIEW OF FIELD INVESTIGATIONS

Based on the USEPA Dispute Resolution dated 20 December 2006 and the HRR (URS 2007) findings, no sampling activities were completed during the MMRP SI phase. The Dispute Resolution requires that the following sites move directly to an RI: Central Test Area MRS, Line 6 Ammo Production MRS, West Burn Pads MRS, Possible Demolition Site MRS, West Burn Pads Area South of the Road MRS, and Incendiary Disposal Area MRS. Based on the HRR (URS 2007) findings, the West Burn Pads MRS was found to be ineligible for the Active Army MMRP; however, the West Burn Pads MRS will move directly to the RI phase based on the USEPA Dispute Resolution dated 20 December 2006. In addition to the sites addressed by the USEPA Dispute Resolution, the HRR (URS 2007) also identified the Maneuver Area MRS, which will move directly to the RI phase. The Technical Project Planning (TPP) Meetings 2 and 3 were not scheduled because all the sites identified in the HRR (URS 2007) are moving directly to the RI Phase. **Table 3-1** provides a summary of the decisions made to address MEC and **Table 3-2** provides a summary of the decisions made to address MC for the MRSs at IAAAP.

Table 3-1: Summary of MEC Decisions

MRS	MEC SI Activities	
	Activity	**Purpose**
Central Test Area (IAAP-001-R-01)	RI	USEPA Dispute Resolution dated 20 December 2006.
Line 6 Ammo Production (IAAP-002-R-01)	RI	USEPA Dispute Resolution dated 20 December 2006.
West Burn Pads (IAAP-003-R-01)	RI	USEPA Dispute Resolution dated 20 December 2006.
Possible Demolition Site (IAAP-004-R-01)	RI	USEPA Dispute Resolution dated 20 December 2006.
West Burn Pads Area South of the Road (IAAP-005-R-01)	RI	USEPA Dispute Resolution dated 20 December 2006.
Maneuver Area (IAAP-006-R-02)	RI	Site historical activities and use indicate that MEC may be present.
Incendiary Disposal Area (IAAP-006-R-01)	RI	USEPA Dispute Resolution dated 20 December 2006.

Table 3-2: Summary of MC Decisions

MRS	MC SI Activities	
	Activity	Purpose
Central Test Area (IAAP-001-R-01)	RI	USEPA Dispute Resolution dated 20 December 2006.
Line 6 Ammo Production (IAAP-002-R-01)	RI	USEPA Dispute Resolution dated 20 December 2006.
West Burn Pads (IAAP-003-R-01)	RI	USEPA Dispute Resolution dated 20 December 2006.
Possible Demolition Site (IAAP-004-R-01)	RI	USEPA Dispute Resolution dated 20 December 2006.
West Burn Pads Area South of the Road (IAAP-005-R-01)	RI	USEPA Dispute Resolution dated 20 December 2006.
Maneuver Area (IAAP-006-R-02)	RI	Site history indicates that MC is a potential concern.
Incendiary Disposal Area (IAAP-006-R-01)	RI	USEPA Dispute Resolution dated 20 December 2006.

3.2. CENTRAL TEST AREA MRS (IAAP-001-R-01)

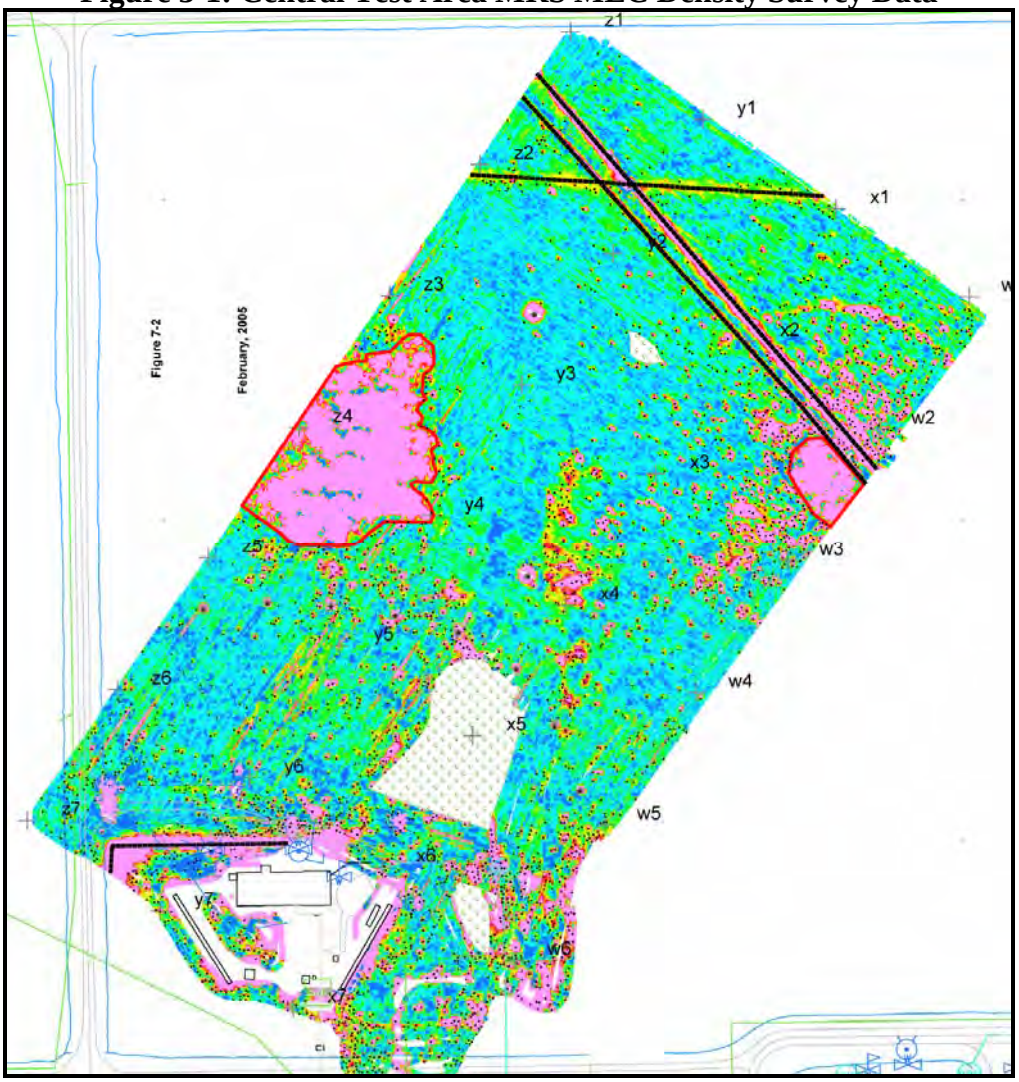
3.2.1 MEC Activities and Findings

Based on the USEPA Dispute Resolution dated 20 December 2006 and HRR (URS 2007) findings, it was determined that the Central Test Area MRS will move directly to the RI phase; therefore, no MEC investigative activities were completed during the MMRP SI.

The Central Test Area MRS included Building 600-84, a test-fire pit, and a concrete base for the drop test fixture for exploding incendiary bombs (tripod). Building 600-84 was constructed in 1941 as the Central Testing Laboratory, and many of the components tested inside the building were fuzes, primers, and detonators. The walled-in area south of Building 600-84 was used as a test site for grenades. Located northeast of Building 600-84 was the test fire pit, which was used to test-fire hand grenades, adaptor boosters, and mines. The test fire pit measured approximately 9 feet by 14 feet with wooden walls covered by steel plates, an earthen floor, and a concrete walkway. A concrete pedestal capped by a steel plate was anchored in the floor of the pit. Soil sloped up the walls to a height of approximately 5 feet. A chain link fence encircled the firing pit at a distance of approximately 215 feet out from the center of the pit. To the northwest of the test fire pit was a concrete pad that supported the tripod used to hold components for test detonation.

A geophysical survey of 16 acres within the Central Test Area was completed 14 September 2004 through 15 October 2004. A total of 2,835 anomalies were identified from the electromagnetic (EM) data collected at the Central Test Area MRS. The EM data collected within the Central Test Area MRS is shown on **Figure 3-1**. The figure depicts Channel 1 of the EM data in Iowa State Plane coordinates. The color range was selected so that blue and green colors represent background measurements (0 to 3 millivolt [mV]) and pink colors represent readings of greater than or equal to 7 mV. Based on the results of the geophysical prove-out (GPO), EM anomalies with magnitudes of 7 mV or higher were selected as target anomalies. (MKM 2005a)

Figure 3-1: Central Test Area MRS MEC Density Survey Data



(Source: MKM 2005a, Figure 7-2. EM 61 Data Grid)

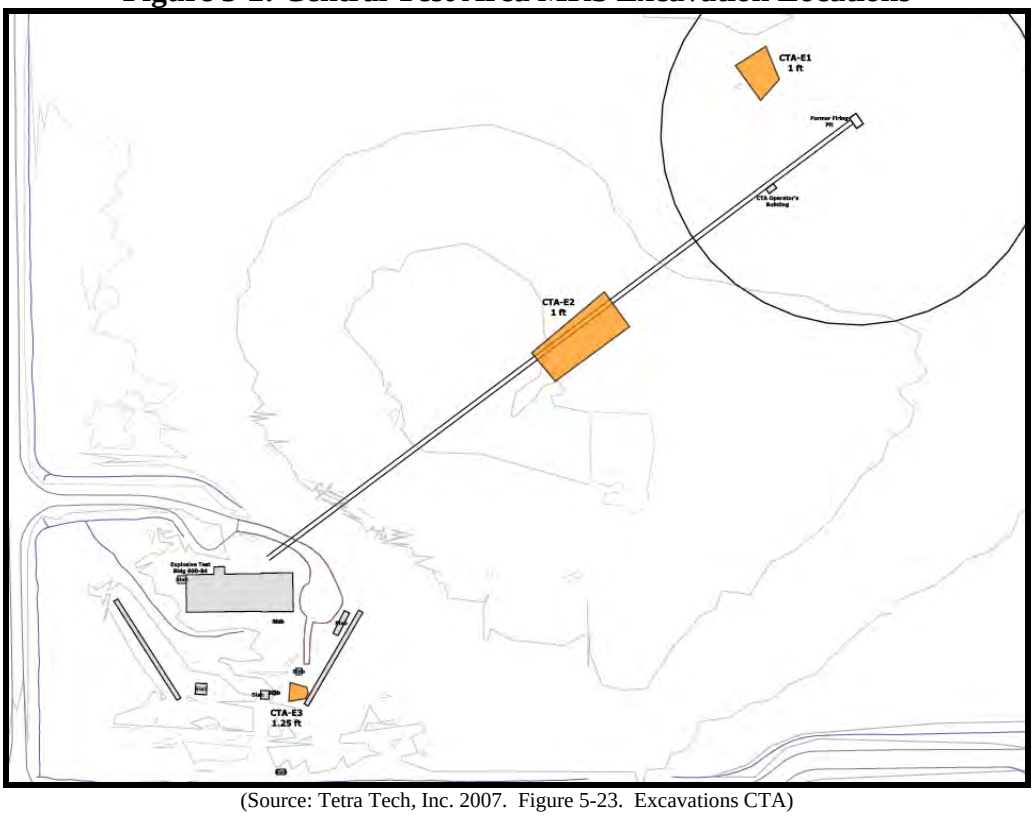
Although it is suspected that most of the anomalies are likely associated with metallic debris as opposed to MEC, given the past use of the area, it is possible that these anomalies are indicative of MEC or munitions debris.

3.2.2 MC Activities and Findings

Based on the USEPA Dispute Resolution dated 20 December 2006 and HRR (URS 2007) findings, it was determined that the Central Test Area MRS will move directly to the RI phase; therefore, no MC investigative activities were completed during the MMRP SI.

Based on the IRP's investigation, MC was confirmed in soil at this site. The nature and extent of MC contamination was delineated and a remedial action began in October 2006. The remedial action included the following activities: excavation of contaminated soil at locations that had analyte concentrations above their respective OU-1 remediation goal, backfill of excavations, confirmation sampling, and site restoration. The excavation activities were completed in November 2006 and consisted of excavations totaling approximately 239 cubic yards of soil. **Figure 3-2** shows the final excavation locations (shaded in orange) for the remedial action. Additional MC, above action levels, is not expected to be present at this site. Cumulative IRP sampling results from previous investigations conducted at the Central Test Area MRS are presented in **Appendix A**.

Figure 3-2: Central Test Area MRS Excavation Locations



(Source: Tetra Tech, Inc. 2007. Figure 5-23. Excavations CTA)

3.3. LINE 6 AMMO PRODUCTION MRS (IAAP-002-R-01)

3.3.1 MEC Activities and Findings

Based on the USEPA Dispute Resolution dated 20 December 2006 and HRR (URS 2007) findings, it was determined that the Line 6 Ammo Production MRS will move directly to the RI phase; therefore, no MEC investigative activities were completed during the MMRP SI.

The Line 6 Ammo Production MRS consists of Building 6-34-2 and Building 6-92, which were impacted by separate explosions in 1968 and 1970, respectively, that resulted in the dispersion of MEC in surrounding areas. Based on the HRR (URS 2007) findings, MEC was identified and addressed at Line 6 after the 1968 and 1970 explosions.

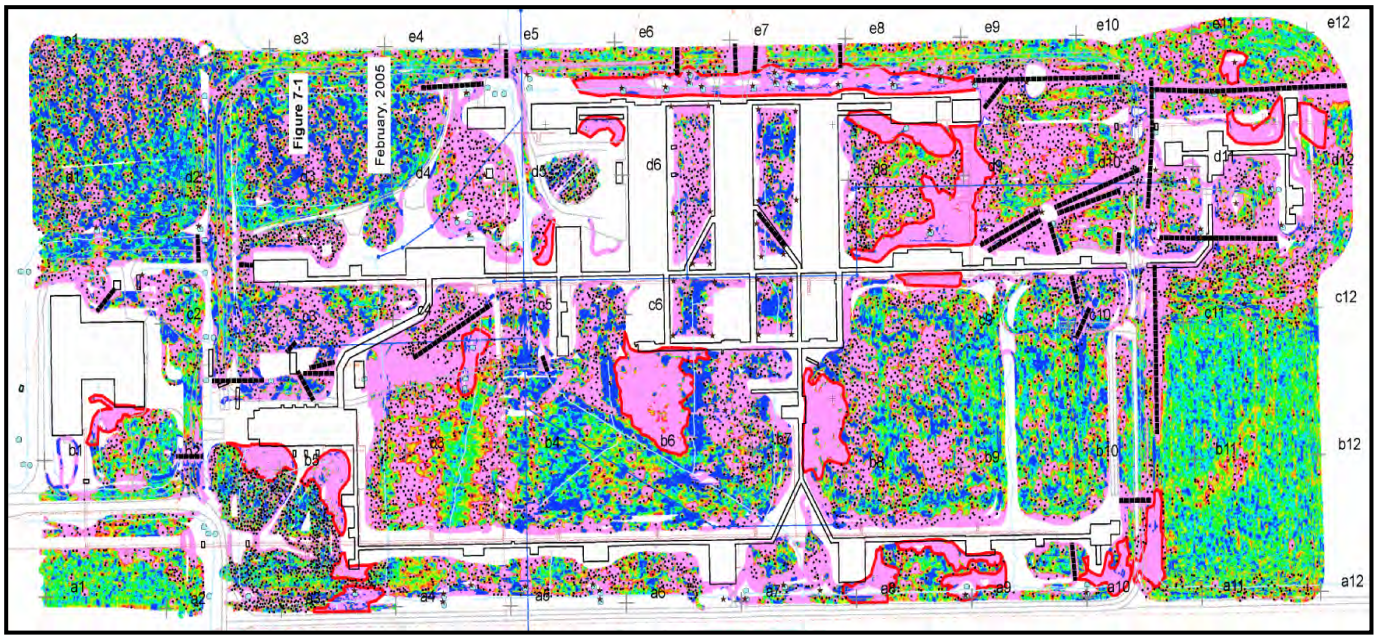
The explosion at Building 6-34-2 occurred in Bay L on 27 November 1968 at approximately 2356 hours. At the time of the explosion, the bay contained 334,949 detonators. Following the explosion, debris was collected. Approximately 590 unexploded detonators were found on the ground and in the debris east and south of Bay L. The maximum distance from the

explosion that unexploded detonators were found was approximately 25 feet. (Mason & Hanger-Silas Mason Co. Inc. [DA Form 285 Report No. 027] not dated)

The explosion at Building 6-92 occurred on 25 February 1970 at approximately 0540 hours. Following the explosion, debris was collected. Explosives items found after the explosion included fuze adaptors and base charge assemblies (loaded), grenade fuze (loaded), box of detonators, lid off a blasting cap box, plastic tub and lid, nitrocellulose base, and a lid from a propellant drum. The maximum distance from the explosion that explosives items were found was up to 324 feet. (Mason & Hanger-Silas Mason Co. Inc. [DA Form 285 Report No. 016] not dated)

A geophysical survey of 32 acres within Line 6 was completed 14 September 2004 through 15 October 2004. A total of 8,630 anomalies were identified from the EM data collected at Line 6. The EM data collected within the Line 6 Ammo Production MRS is shown on **Figure 3-3**. The figure depicts Channel 1 of the EM data in Iowa State Plane coordinates. The color range was selected so that blue and green colors represent background measurements (0 to 3 mV) and pink colors represent readings of greater than or equal to 7 mV. Based on the results of the GPO, EM anomalies with magnitudes of 7 mV or higher were selected as target anomalies. (MKM 2005a)

Figure 3-3: Line 6 Ammo Production MRS MEC Density Survey Data



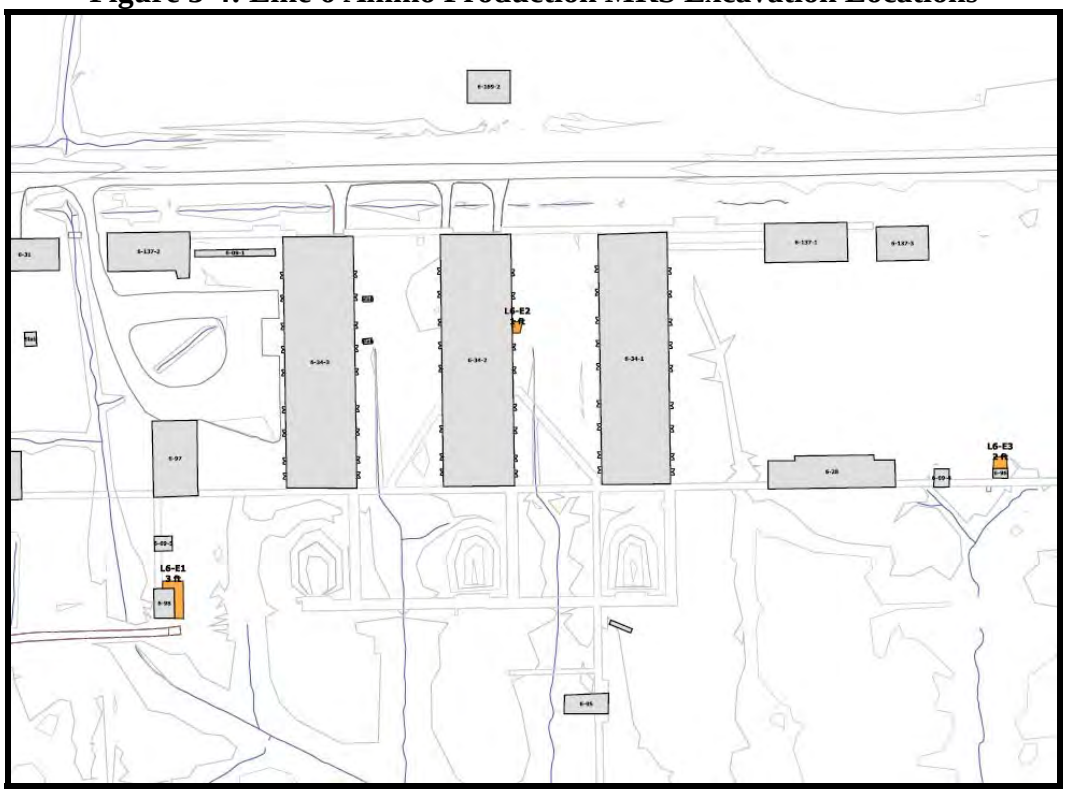
(Source: MKM 2005a. Figure 7-1. EM 61 Data Grid)

3.3.2 MC Activities and Findings

Based on the USEPA Dispute Resolution dated 20 December 2006 and HRR (URS 2007) findings, it was determined that the Line 6 Ammo Production MRS will move directly to the RI phase; therefore, no MC investigative activities were completed during the MMRP SI.

Based on the IRP's investigation, MC was confirmed in soil at this site. The nature and extent of MC contamination was delineated and a remedial action began in October 2006. The remedial action included the following activities: excavation of contaminated soil at locations that had analyte concentrations above their respective OU-1 remediation goal, backfill of excavations, confirmation sampling, and site restoration. The excavation activities were completed in October 2006 and consisted of excavations totaling approximately 56 cubic yards of soil. **Figure 3-4** shows the final excavation locations (shaded in orange) for the remedial action. Additional MC, above action levels, is not expected to be present at this site. Cumulative IRP sampling results from previous investigations conducted at the Line 6 Ammo Production MRS are presented in **Appendix A**.

Figure 3-4: Line 6 Ammo Production MRS Excavation Locations



(Source: Tetra Tech, Inc. 2007. Figure 5-18. Excavations L6)

3.4. WEST BURN PADS MRS (IAAP-003-R-01)

3.4.1 MEC Activities and Findings

Based on the USEPA Dispute Resolution dated 20 December 2006, it was determined that the West Burn Pads MRS will go directly to the RI phase; therefore, no MEC investigative activities were completed during the MMRP SI.

The West Burn Pads MRS encompasses four sub areas: the West Burn Pads, West Burn Pads Landfill, Burn Cages, and the Burn Cage Ash Disposal Landfill. The West Burn Pads consisted of two earthen burn pads and four raised earthen berms. This site was used from 1949 through 1982 for flashing of metals contaminated with explosives. After 1982, metal parts were no longer flashed at the West Burn Pads, but salvageable metal parts that had been flashed off-site were stored at the West Burn Pads MRS pending sale to off-site vendors. In March 1997, the West Burn Pads MRS was cleared of all visible surface scrap metal. The Burn Cages consisted of three cages and were used for incineration of inert and explosive contaminated packaging between 1949 and 1982. Metal parts flashing were also performed at the site. The Burn Cage Ash Disposal Landfill operated between 1949 and 1982 and received residual ash generated from the burn cages. Combustion residue was periodically pushed over the side and covered with soil. The West Burn Pads Landfill was in operation between 1950 and 1975 and received residue from the burn pads and various types of solid waste, such as paper, construction debris, and metal cans from other EDA sites. (ECC 2001)

3.4.2 MC Activities and Findings

Based on the USEPA Dispute Resolution dated 20 December 2006, it was determined that the West Burn Pads MRS will go directly to the RI phase; therefore, no MC investigative activities were completed during the MMRP SI.

Excavation activities, completed under the IRP, for the West Burn Pads MRS occurred in 2000 and verification sampling was completed in 2001. Approximately 46,496 cubic yards of soil was excavated and removed from the West Burn Pads MRS. Confirmation samples were collected after the remedial action, which indicated non-detect to low concentrations of explosives and below remediation goal concentrations of barium. Per USACE direction, no further excavation was required for the West Burn Pads MRS. (ECC 2001)

Current Long-Term Monitoring (LTM) sampling activities, completed under the IRP, indicate that groundwater at the West Burn Pads MRS contains trichloroethene, freon, cyclotrimethylenetrinitramine (RDX), arsenic, manganese, and nickel concentrations above their respective screening levels of 5 micrograms per liter (µg/L), 59,000 µg/L, 2 µg/L, 10 µg/L, 300 µg/L, and 100 µg/L (Tetra Tech 2005b). A remedial alternative has not been selected to address groundwater, Operable Unit-3 (OU-3). Contaminated groundwater in OU-3 will be managed by the Army IRP.

3.5. POSSIBLE DEMOLITION SITE MRS (IAAP-004-R-01)

3.5.1 MEC Activities and Findings

Based on the USEPA Dispute Resolution dated 20 December 2006 and HRR (URS 2007) findings, it was determined that the Possible Demolition Site MRS will move directly to the RI phase; therefore, no MEC investigative activities were completed during the MMRP SI.

The 1945 Day and Zimmermann Inc. drawing titled, 'Contm'd Areas Near East Boundary – South of Lower Augusta Rd. & East of YD. "E,"' identifies three contaminated areas at IAAAP. The area depicted on the bottom left of the drawing (Contaminated Area South of Augusta Road, East of Long Creek) represents the Possible Demolition Site MRS. No ground scarring was observed in the aerial photographs reviewed for this area at the location identified in the drawing.

According to the Installation Assessment in 1980, two former demolition areas were located near the southern boundary along Augusta Road. An area east of the pistol range was used during the 1940s and 1950s; white phosphorous rounds were demilitarized there in the mid-1940s. (USATHAMA 1980)

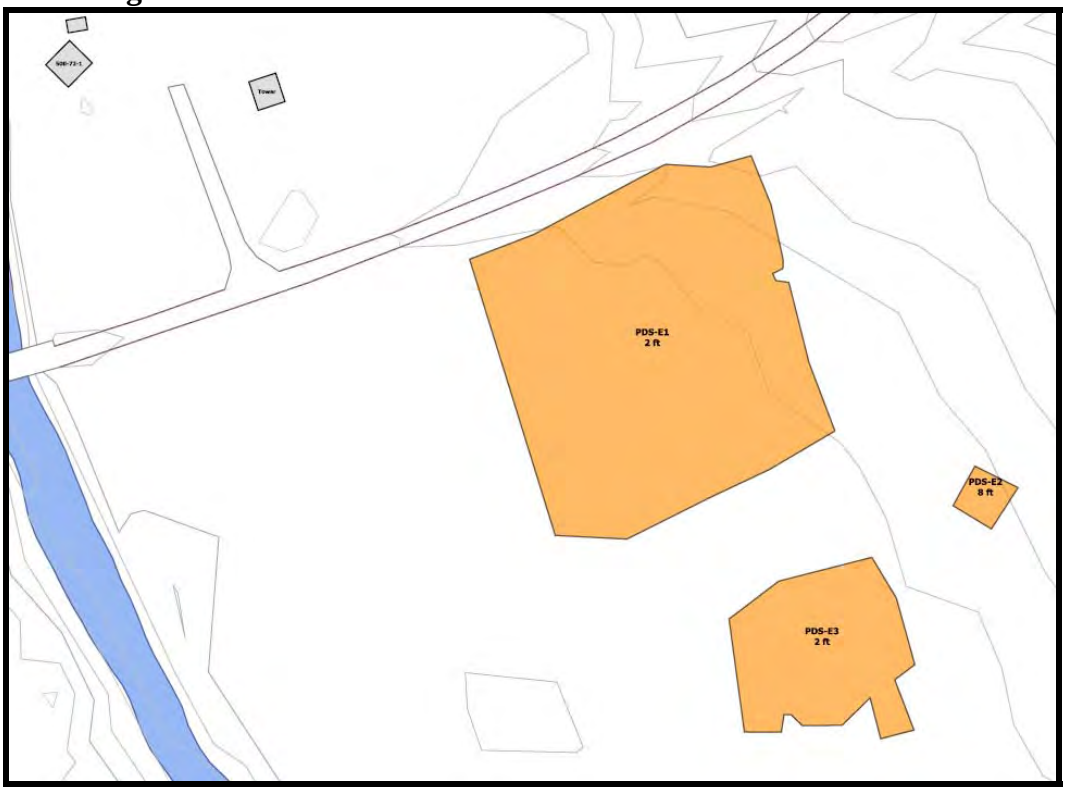
3.5.2 MC Activities and Findings

Based on the USEPA Dispute Resolution dated 20 December 2006 and HRR (URS 2007) findings, it was determined that the Possible Demolition Site MRS will move directly to the RI phase; therefore, no MC investigative activities were completed during the MMRP SI.

Based on the IRP's investigation, MC was confirmed in soil at this site. The nature and extent of MC contamination was delineated and a remedial action began in October 2006.

The remedial action included the following activities: excavation of contaminated soil at locations that had analyte concentrations above their respective OU-1 remediation goal, backfill of excavations, confirmation sampling, and site restoration. The excavation activities were completed in May 2007 and consisted of excavations totaling approximately 3,952 cubic yards of soil. **Figure 3-5** shows the final excavation locations (shaded in orange) for the remedial action. Additional MC, above action levels, is not expected to be present at this site. Cumulative IRP sampling results from previous investigations conducted at the Possible Demolition Site MRS are presented in **Appendix A**.

Figure 3-5: Possible Demolition Site MRS Excavation Locations



(Source: Tetra Tech, Inc. 2007. Figure 5-25. Excavations PDS)

3.6. WEST BURN PADS AREA SOUTH OF THE ROAD MRS (IAAP-005-R-01)

3.6.1 MEC Activities and Findings

Based on the USEPA Dispute Resolution dated 20 December 2006 and HRR (URS 2007) findings, it was determined that the West Burn Pads Area South of the Road MRS will move directly to the RI phase; therefore, no MEC investigative activities were completed during the MMRP SI.

During USACE field activities in 2001, UXO personnel identified reddish brown sump sludge. The sump sludge was sampled and laboratory results reported a TNT concentration of 750,000 milligrams/kilogram (mg/kg) and a RDX concentration of 53 mg/kg. During the 2006 HRR site visit, an additional piece of sump sludge, containing percent concentration levels of TNT (MEC), was identified on the surface. American Ordnance disposed of the sump sludge. Based on the HRR (URS 2007) findings, MEC is present.

3.6.2 MC Activities and Findings

Based on the USEPA Dispute Resolution dated 20 December 2006 and HRR (URS 2007) findings, it was determined that the West Burn Pads Area South of the Road MRS will move directly to the RI phase; therefore, no MC investigative activities were completed during the MMRP SI.

During USACE field activities for the IAAAP Focused Feasibility Soil Study Site, Phase 3 Remedial Action – West Burn Pads Area, several monitoring wells were installed within the West Burn Pads Area. In Fall 1999, one monitoring well, installed within the boundary of the West Burn Pads Area South of the Road MRS, (WBP-99-03) had an RDX concentration of 530 µg/L. During subsequent groundwater sampling events, the RDX concentration has increased. (USACE 2003) The current RDX concentration in the monitoring well is 1,200 µg/L.

USACE directed Environmental Chemical Corporation (ECC) to investigate the West Burn Pads Area South of the Road MRS and determine if further sampling and characterization was warranted. On 28 September 2001, ECC personnel collected samples from four different locations within the West Burn Pads Area South of the Road MRS. The soil samples were analyzed for explosives using field test kits. A sample taken at the surface of an area with no vegetation and reddish brown discoloration indicated a TNT concentration of 1,148 mg/kg. The sample collected in the same area at 3 feet below ground surface (bgs) had a TNT concentration of 116 mg/kg. A sample collected from the sedimentation dam at 1-foot bgs (encountered bedrock) had a TNT concentration of 0.8 mg/kg. Explosives contamination was not identified in the remaining samples. (USACE 2003)

On 8 November 2001 and 9 November 2001, a total of 24 trenches were dug in the West Burn Pads Area South of the Road MRS. Samples were collected from 18 of the trenches.

Three additional samples were also collected from the potential sedimentation dam and a surface sample was taken from a chunk of material identified by the UXO personnel as possible explosive residue. A total of 24 samples were taken and analyzed for explosives and Resource Conservation and Recovery Act (RCRA) metals. **Table 3-3** summarizes the field notes and results collected during the trenching project at the West Burn Pads Area South of the Road MRS. (USACE 2003)

During the August 2004 FUSRAP investigation, five surface soil samples were collected and analyzed for metals (arsenic, barium, cadmium, chromium, lead and mercury), uranium-234, uranium-235, and uranium-238. No metal concentrations of this data group exceeded the current screening criteria (USEPA – Region 9 PRGs for an industrial setting). (USACE 2007)

MC contamination in the soil and groundwater exists. The nature and extent of MC contamination has not been delineated and no remedial actions have been completed for MC contaminated soils. A remedial alternative has not been selected to address groundwater, OU-3. Contaminated groundwater in OU-3 will be managed by the Army IRP.

Table 3-3: West Burn Pads Area South of the Road MRS Trenching Field Notes

Trench Name	Length of Trench (Feet)	Number of Samples Collected	Excavation Criteria Exceedances	Disposition
Chunk	Not Applicable	1	TNT concentration of 750,000 mg/kg. RDX concentration of 53 mg/kg.	Trench 7**
Trench 1	52	2	TNT concentrations of 440 mg/kg and 73 mg/kg and RDX concentrations of 310 mg/kg and 2 mg/kg. Barium concentration of 32,000 mg/kg.	Trench 6*
Trench 2	69	2	TNT concentrations of 630 mg/kg and 59 mg/kg. RDX concentrations of 34 mg/kg and 12 mg/kg.	Trench 6*, RF
Trench 3	10	1	Barium concentration of 4,500 mg/kg.	NER
Trench 4	10	1	Did not exceed criteria	NER
Trench 5	21	1	Did not exceed criteria	NER
Trench 6	9	1	Did not exceed criteria	NER
Trench 7	9	1	Did not exceed criteria	NER
Trench 8	13	1	Did not exceed criteria	NER
Trench 9	17	1	RDX concentration of 5.4 mg/kg.	RF
Trench 10	8	1	Did not exceed criteria	NER
Trench 11	9	1	RDX concentration of 7.3 mg/kg.	RF
Trench 12	13	1	Lead concentration of 1,300 mg/kg.	NER
Trench 13	8	1	TNT concentration of 530 mg/kg. Lead concentration of 110 mg/kg.	Trench 6*
Trench 14	9	-	No samples collected	NER
Trench 15	9	-	No samples collected	NER
Trench 16	9	-	No samples collected	NER
Trench 17	12	1	Did not exceed criteria	NER
Trench 18	12	-	No samples collected	NER
Trench 19	29	1	Did not exceed criteria	NER
Trench 20	20	1	Barium concentration of 55,000 mg/kg.	RF
Trench 21	13	1	TNT concentration of 72 mg/kg and RDX concentration of 14 mg/kg. Barium concentration of 35,000 mg/kg.	RF
Trench 22	19	-	No samples collected	NER
Trench 23	20	-	No samples collected	NER
Trench 24	25	1	RDX concentration of 6.8 mg/kg.	RF

(Source: USACE 2003. Table 1. Explosives Data)

NER = No Excavation Required
RF = Random Fill
***Trench 6**, constructed in 1998 as a RCRA hazardous waste (Subtitle C) landfill in accordance with 40 CFR 264, Subpart N. Moderately contaminated soils excavated as part of the CERCLA remediation of the IAAAP will be placed in the 2.5-acre Trench 6 Landfill. Trench 6 is a lined unit with provisions for leachate collection and leak detection. The Trench 6 Landfill has been referred to in past documents as the "Soil Repository." (Tetra Tech 2006)
****Trench 7**, constructed in 1998 in accordance with 40 CFR 264.552, Subpart L. Trench 7 was designated a temporary waste pile or a Corrective Action Management Unit (CAMU) by the USEPA. Highly contaminated soils excavated as part of the CERCLA remediation of the IAAAP are placed in the 3.5-acre waste pile for treatment. Trench 7 is a lined unit with provisions for leachate collection and leak detection. (Tetra Tech 2006)

3.7. MANEUVER AREA MRS (IAAP-006-R-02)

3.7.1 MEC Activities and Findings

No activities were completed for MEC at the Maneuver Area MRS during the MMRP SI. Based on the findings of the HRR (URS 2007), IA ARNG has historically leased land within IAAAP since at least 1967 and has been authorized to use ammunition blanks and pyrotechnics ordnance during training activities. According to Sergeant First Class Anthony Brown, blanks and pyrotechnics were used on several occasions during field training exercises from 1984 through 1990. Items may have included 5.56 and 7.62 blanks, smoke, chlorobenzylmalononitrile (CS), and hand grenade simulators.

On 22 November 2006, the Department of the Army Management Office - Training Simulations granted the Request for Reclassification of the East Training Range MRA (referred to as the Land Navigation Range in the Department of Army Memorandum), which includes the Maneuver Area MRS and Incendiary Disposal Area MRS. This reclassification resulted in the East Training Range MRA status being changed from operational to closed. In addition, the memorandum stated that the East Training Range MRA training areas (Maneuver Area MRS) have not been used for live fire since 28 September 2001.

Since this area has never been investigated and the use of MEC during historical training activities was substantiated, the potential exists for MEC to be present at this site.

3.7.2 MC Activities and Findings

No activities were completed for MC at the Maneuver Area MRS during the MMRP SI. Based on the HRR (URS 2007), IA ARNG has historically leased land within IAAAP since at least 1967 and has been authorized to use ammunition blanks and pyrotechnics ordnance during training activities. According to Sergeant First Class Anthony Brown, blanks and pyrotechnics were used on several occasions during field training exercises from 1984 through 1990. Items may have included 5.56 and 7.62 blanks, smoke, CS, and hand grenade simulators.

Since this area has never been investigated and the use of MEC during historical training activities was substantiated, the potential exists for MC to be present at this site.

3.8. INCENDIARY DISPOSAL AREA MRS (IAAP-006-R-01)

3.8.1 MEC Activities and Findings

Based on the USEPA Dispute Resolution dated 20 December 2006 and HRR (URS 2007) findings, it was determined that the Incendiary Disposal Area MRS will move directly to the RI phase; therefore, no MEC investigative activities were completed during the MMRP SI.

In April 2007, during IRP remedial activities, DMM was found. The IRP contractor identified the DMM and notified IAAAP Army Environmental, which contacted the 763rd Ordnance Company (Explosive Ordnance Disposal [EOD]) located at Fort Leonard Wood, Missouri. EOD personnel inspected the DMM and identified 1 mine, AT, M1A1; 14 Fuses, Projectile, PD, Mark II; and 13 Projectile, Shrapnel, Cannon 75mm Mk1 shells. The munitions items were detonated in place by Fort Leonard Wood EOD. No further investigation (i.e., geophysical survey) for the presence of additional MEC items was completed following the detonation.

Fort Leonard Wood EOD returned to IAAAP in June 2007 to address any residual from the April 2007 detonation in place at the Incendiary Disposal Area MRS. Five additional 75mm rounds were identified (pusher plates intact, black powder expelling charge, no fuzes). The munitions were safely removed from the Incendiary Disposal Area MRS and were destroyed by detonation at the Demolition Area by Fort Leonard Wood EOD. Based on the recent findings, MEC is present at the Incendiary Disposal Area MRS.

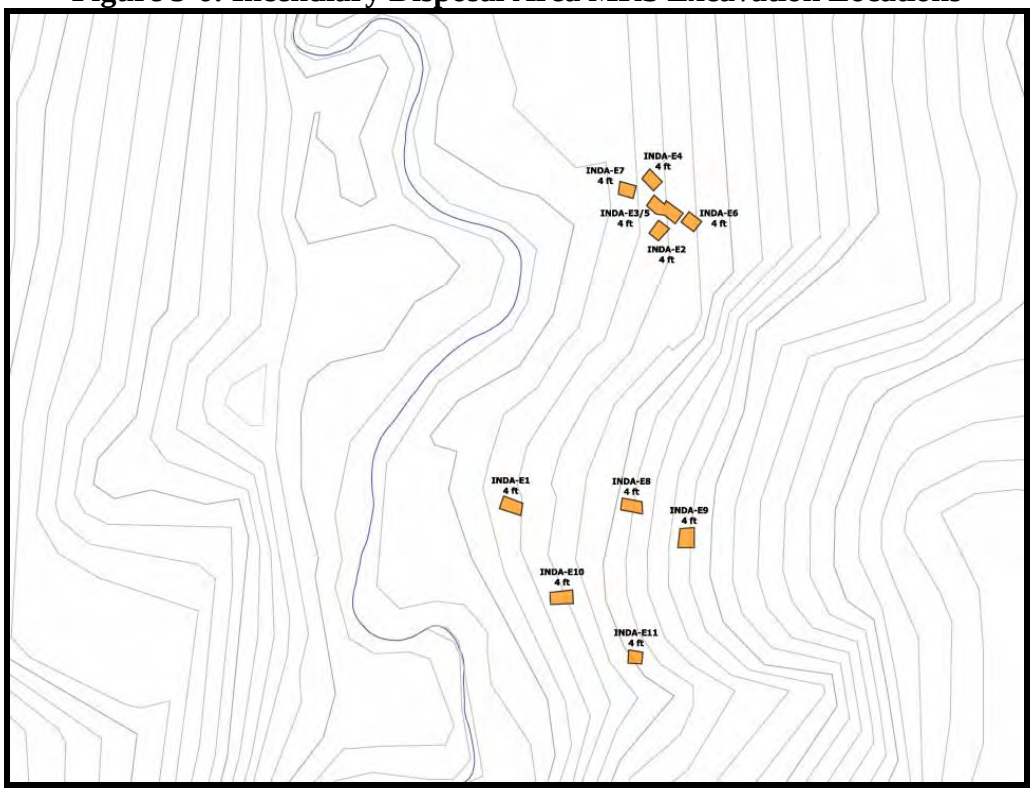
3.8.2 MC Activities and Findings

Based on the USEPA Dispute Resolution dated 20 December 2006 and HRR (URS 2007) findings, it was determined that the Incendiary Disposal Area MRS will move directly to the RI phase; therefore, no MC investigative activities were completed during the MMRP SI.

Based on the IRP's investigation, MC was confirmed in soil at this site. The nature and extent of MC contamination was delineated and a remedial action began in February 2007. The remedial action included the following activities: excavation of contaminated soil at locations that had analyte concentrations above their respective OU-1 remediation goal and confirmation sampling. The excavation activities were completed in March 2007 and consisted of excavations totaling approximately 239 cubic yards of soil. Backfill of

excavations and site restoration were not completed due to MEC findings during IRP activities. **Figure 3-6** shows the final excavation locations (shaded in orange) for the remedial action. Additional MC, above action levels, is not expected to be present at this site. Cumulative IRP sampling results from previous investigations conducted at the Incendiary Disposal Area MRS are presented in **Appendix A**.

Figure 3-6: Incendiary Disposal Area MRS Excavation Locations



(Source: Tetra Tech, Inc. 2007. Figure 5-24. Excavations InDA)

3.9. ANALYTICAL LABORATORY QUALITY ASSURANCE/QUALITY CONTROL

Based on the USEPA Dispute Resolution dated 20 December 2006, no sampling was conducted during this MMRP SI, instead the MRSs were advanced directly into the RI phase; therefore, no quality assurance (QA)/quality control (QC) was required.

4. CONCEPTUAL SITE MODEL

This section is separated into two parts. The first part provides a discussion of the physical characteristics (climate, geology, etc.) and land use components that are descriptive of IAAAP as a whole. The second part of the section presents the site-specific CSMs developed for each MRS, including MEC and MC occurrence and potential for exposure.

The CSM is a description of the site and its environment that is based on existing knowledge. The CSM describes sources of MEC and MC at the site; actual, potentially complete pathways or incomplete exposure pathways; current or proposed use of land; and receptors and interactions that link these. The CSM will be used to assist with planning, data interpretation, and communication.

4.1. GENERAL IAAAP PROFILE

4.1.1 Geography

IAAAP (**Figure 1-1**) is located approximately 8 miles west of Burlington, Iowa in Des Moines County, Iowa, and immediately south of Middletown, Iowa (HES 2001). IAAAP is bordered by U.S. Highway 34 to the north, upland agricultural farms to the east and west, and the Skunk River Valley to the south (URS 2002).

4.1.2 Land Use and Demographics

Based on figures from the 2000 U.S. Census, the population of Middletown, Iowa was 535 (*http://factfinder.census.gov*). The population density for Middletown, Iowa in 2000 was 36 persons per square mile. The population density for Des Moines County, Iowa in 2005 was 98 persons per square mile. Areas surrounding the installation have rural characteristics. The main industries for Middletown, Iowa includes manufacturing, retail trade, construction, and educational, health, and social services.

4.1.3 Physical Profile

4.1.3.1 Climate

According to the World Climate and National Oceanic and Atmospheric Administration websites, the climatology for Burlington, Iowa (latitude 40.5 north, longitude 91.1 west, and elevation 699 feet above mean sea level [amsl]) is as follows:

- The average total annual precipitation is 37.1 inches.
- The maximum temperature is 101 degrees Fahrenheit (^{o}F).
- The minimum temperature is -23 ^{o}F.
- The mean average snowfall is 29.6 inches.

Based on the IAAAP's location and amount of rainfall received annually, the climate is described as "humid continental long summer." This climate type brings moisture from the Gulf of Mexico, enables adequate rainfall, and ensures the needed temperatures for a long growing season. Southeastern Iowa is wetter and warmer than most of the state. Winters are mild with infrequent rain storms and ice storms. In addition, IAAAP is located in a moderate frequency tornado zone. (HES 2001)

4.1.3.2 Geology

IAAAP (**Figure 1-1**) is located in the Dissected Till Plain section of the Central Lowland Province of the Southern Iowa Drift Plain Region. IAAAP is reported to be underlain by a sequence of unconsolidated glacial deposits of Pleistocene age overlying sedimentary bedrock units. The glacial tills consist primarily of silty clay and clayey silt with thin sand seams and lenses and are assigned to the Kellersville Till Member (Illinoian Age) of the Glasford Formation of southeastern Iowa. The tills extend to depths in excess of 100 feet in portions of the north half of the IAAAP, but are thin or absent locally in deeper stream valleys in the south around Mathes Lake, and in the northeast. (URS 2002)

The bedrock underlying IAAAP consists of a sequence of limestones interbedded with varying thicknesses of shales and sandstones ranging in age from Cambrian to Mississippian. Harris and Parker (1964) report that the uppermost bedrock unit beneath the site is the Mississippian Osage Series of southeastern Iowa, composed predominantly of cherty limestones interbedded with minor amounts of shale. The Osage series is divided into three

members (from youngest to oldest): the Warsaw Formation, Keokuk Limestone, and Burlington Limestone. The Warsaw Formation consists primarily of blue-gray calcareous shales; fragmental, fossiliferous, dolomitic limestone; and calcarenites. (URS 2002)

4.1.3.3 Topography

IAAAP is located within the dissected Southern Iowa Till Plains section of the Central Lowland Province. Evidence of continental glaciation, consisting of gently undulating terrain, is exhibited in the northern area of the facility. The central portion of the IAAAP is characterized by rolling terrain dissected by a shallow drainage system, while the southern area of IAAAP contains drainageways with steep slopes down to the creek beds. The average creek width within the IAAAP varies from about 50 to 200 feet. The mean low elevation of the creek bottom at IAAAP, according to the United States Geological Survey, is approximately 530 feet amsl. The IAAAP is drained by three creeks; Long, Brush and Spring Creeks. Several small, unnamed creeks drain the southern and southwestern periphery of IAAAP. This drainage is intercepted by Skunk River. The topographic elevations within IAAAP range from 730 feet amsl in the north to 530 feet in the south. The range of elevations results in total relief of approximately 200 feet across IAAAP with a regional slope toward the south-southeast. (URS 2002)

4.1.3.4 Soil

Des Moines County soils are loess-covered glacial till that formed under prairie and forest vegetation. In the past, the native tall-grass prairie occurred on the nearly level and gently sloping soils in the uplands. These soils developed in loess. Steeper areas formed in glacial till and had native vegetation of trees. Trees also occurred along the alluvial bottomland associated with the Mississippi and Skunk Rivers. With the exception of developing soils associated with rivers and drainages, the soils on IAAAP belong to either the Mollisols or Alfisols soil orders. Mollisols are relatively fertile soils and are characterized by a soft surface character, a high base saturation (generally indicative of fertile soil), and a dark color due to the abundant humus. Alfisols are also relatively fertile soils with moderate to high base saturation. The U.S. Corn Belt occurs mainly on Alfisols and Mollisols and has one of the most intensive forms of agriculture. Agriculture plays a major role in Des Moines County with almost 56 percent of the county designated as prime farmland. Twenty-seven

soil series are mapped by the Natural Resources Conservation Service (NRCS) as occurring on the installation. Many of the series are present only in small areas on IAAAP. The series are described in detail by the NRCS and are summarized below (HES 2001):

- ***Ambraw Series:*** The Ambraw series consists of poorly drained and moderately permeable and moderately slowly permeable soils found on floodplains. These soils formed in loamy alluvium. The native vegetation was prairie grasses. The slope ranges from 0 to 2 percent.
- ***Belincia Series:*** The Belinda series consists of poorly drained, very slowly permeable soils found on upland ridgetops. These soils formed in loess. The native vegetation was mixed prairie grasses and deciduous trees. The slope ranges from 0 to 2 percent.
- ***Bolan Series:*** The Bolan series consists of well drained soils on stream terraces. These soils are moderately permeable in the upper part of the solum and rapidly permeable in the lower part. They formed in loamy and sandy alluvial sediments. The native vegetation was prairie grasses. The slope ranges from 0 to 5 percent.
- ***Clarinda Series:*** The Clarinda series consists of poorly drained, very slowly permeable soils. These soils are on short, convex side slopes and in coves at the upper end of drainage ways in the uplands. They formed in loess and the underlying clayey, weathered glacial till. The native vegetation was prairie grasses. The slope ranges from 5 to 9 percent.
- ***Clinton Series:*** The Clinton Series consists of moderately well-drained, moderately slowly permeable soils on the convex tops and upper sides of ridges in the uplands and on stream benches. These soils formed in loess. The native vegetation was deciduous trees and the slope ranges from 2 to 14 percent.
- ***Cola Series:*** The Cob Series consists of poorly drained and moderately permeable soils found on floodplains, alluvial fans, and along upland drainage ways. These soils are formed in silty alluvium. The native vegetation was prairie grasses. The slope ranges from 0 to 5 percent.
- ***Gara Series:*** The Gara Series consists of a moderately well-drained or well-drained, moderately slowly permeable soils located on convex ridgetops and side slopes dissected by drainage ways. These soils formed in glacial till. The native vegetation was mixed prairie grasses and deciduous trees. The slope ranges from 9 to 18 percent.
- ***Gara-Rinda Complex:*** The Gara-Rinda complex slopes range from 9 to 14 percent and are moderately eroded. These strong sloping soils occur on short, convex side slopes and in coves at the head of drainage ways in the uplands. The well-drained or moderately well-drained Gara soil is found on the lower slopes, and the poorly drained or somewhat poorly drained Rinda soil occurs on the upper slopes. These soils are subject to seasonally high water tables. The Gara soil is moderately slowly permeable and the Rinda soil is very slowly permeable. Surface runoff is rapid. Most areas are used for hay and pasture. Some are used for cultivated crops. These soils are poorly suited to corn, soybeans, and small grain. If cultivated crops are grown, further erosion is a severe hazard. A conservation tillage program would be required to maintain crop residue on

the surface and the practice of contour farming would be necessary to assist in the prevention of excess soil loss.

- ***Givin Series:*** The Givin series consists of somewhat poorly drained, moderately slowly prairie grasses. The slope ranges from 0 to 5 percent.
- ***Nordness-Rock Outcrop Complex:*** The Nordness-Rock outcrop complex occurred as areas of rock outcrop intermingled with areas of a shallow, well-drained Nordness soil. Generally located in convex side slopes and escarpments in uplands, most areas support native hardwoods or are used as permanent pastures.
- ***Orthents Series:*** This unnamed series consists of loamy soils found on nearly level to moderately steep areas that have been used as borrow sites for construction. The soils range from well drained to somewhat poorly drained, depending on the type of material that they are derived from and the condition of the restored borrow area.
- ***Otley Series:*** The Otley series consists of moderately well-drained and moderately permeable soils found on convex ridgetops and side slopes in the uplands that formed in loess. The native vegetation was prairie grasses. The slope ranges from 2 to 9 percent.
- ***Pershing Series:*** The Pershing Series consists of moderately well drained to somewhat poorly drained, slowly permeable soils located on convex ridgetops and side slopes in uplands. The soils formed in loess. The native vegetation was mixed prairie grasses and deciduous trees. The slope ranges from 2 to 9 percent.
- ***Rinda Series:*** The Rinda series consists of poorly drained or somewhat poorly drained, very slowly permeable soil located on short, convex to plane side slopes and in coves at the upper end of drainage ways in the uplands. These soils formed in clayey, weathered glacial till. The native vegetation was mixed prairie grasses and deciduous trees. The slope ranges from 5 to 14%.
- ***Sperry Series:*** The Sperry Series consists of very poorly drained or poorly drained, slowly permeable soils in slight depressions on broad upland divides. These soils formed in loess. The native vegetation was prairie grasses. The slope is 0 to 1 percent.
- ***Taintor Series:*** The Taintor series consists of poorly drained and moderately slowly permeable soils found on ridgetops in the uplands. These soils formed in loess. The native vegetation was prairie grasses. The slope is 0 to 1 percent.
- ***Tuskeego Series:*** The Tuskeego series consists of very poorly drained and slowly permeable soil found in nearly level to slightly depressional areas on bottomland and concave foot slopes. These soils formed in silty and clayey alluvial sediments. Native vegetation was mixed prairie grasses and deciduous trees. Slope ranges from 1 to 3 percent.
- ***Weller Series:*** The Weller Series consists of moderately well-drained, slowly permeable soils located on narrow tops and upper sides of ridges on upland divides. These soils formed in loess. The native vegetation was deciduous trees. The slope ranges from 2 to 9 percent.

4.1.3.5 Hydrogeology

In Des Moines County, Iowa, there are four principal aquifers: the surficial soils aquifer and bedrock aquifers of Mississippian, Devonian, and Cambro-Ordovician units. The shallow surficial soil aquifer at IAAAP occupies the upland till terrace and is predominantly clay-rich glacial tills that exhibit low hydraulic conductivities and yield only small quantities of groundwater to monitoring wells. Within the till units, there are reportedly some occurrences of buried-channel sand units that are not laterally continuous across the facility. Depth to groundwater in the shallow till is generally less than 10 to 15 feet. Shallow groundwater flow parallels surface topography. Low permeabilities in the matrix of the clay till limits lateral and vertical flow of groundwater. However, lateral and vertical flow may be less restricted (or more pronounced) in the tills that have well-developed fracture networks. Groundwater also discharges to the more deeply incised surface drainages (e.g., creeks) through seeps at the glacial till and bedrock outcrops. (URS 2002)

Information on hydrogeological conditions in the bedrock aquifers underlying the deeper till is sparse. Generally, groundwater in the limestones would be contained primarily within open bedding planes and/or joints. Therefore, the occurrence and orientation of these features would control groundwater flow, in part. It is common for much of the groundwater in these bedrock units to be found in the more fractured and weathered upper sequence just under the deeper till. Where this is the case, the deeper till aquifer and the uppermost Mississippian bedrock aquifer, defined in previous investigations as the uppermost 20 feet of bedrock underlying the till, may comprise a single hydraulic system. Facility-wide groundwater levels suggest that overall flow direction in the bedrock is to the south and east toward the Skunk and Mississippi Rivers, when not intercepted by incised surface drainages. (URS 2002)

Water in the Devonian aquifer is reported to be highly mineralized and objectionably hard wherever it has been encountered in the county. This Devonian aquifer contains high amounts of total dissolved solids, primarily sodium-potassium, chloride, and sulfate. The Cambro-Ordovician aquifer also yields water of poor quality. The water is noticeably hard and exceeds recommended standards for sulfate and dissolved solids. Water temperatures

are reported to be higher (averaging 72 ^{o}F) than other rock aquifer sources (55 to 60 ^{o}F). (URS 2002)

Groundwater at IAAAP is not used for production or for potable water. In 1993, the presence of explosives in off-site groundwater was confirmed after an initial round of private drinking water well sampling was completed. IAAAP contracted to connect private residences in the contaminated area to the public water supply. This remedial action completed in 1994, was designed to eliminate the future exposure to contaminated drinking water. In 2001, IAAAP provided connection to the public water supply for several homeowners who declined in 1994. (URS 2003)

4.1.3.6 Hydrology

IAAAP has five watersheds within its boundaries. Two watersheds, Long Creek and Brush Creek, are a subset of the third watershed, Skunk River. The Little Flint Creek Watershed is the fourth watershed and drains into Spring Creek. Spring Creek is the fifth watershed and drains directly into the Mississippi River. Brush Creek has the majority of installation areas within its boundaries. Spring Creek and Long Creek may be critical to the overall hydrogeology due to the thin overburden layer above the bedrock. (Jaycor 1996)

4.1.3.7 Vegetation

IAAAP is located within the Prairie Parkland (Temperate) Province. This extensive ecoregion is found from Canada to Oklahoma and is typified by gently rolling plains with steep bluffs bordering some of the valleys. Grasses were the dominant native vegetation; however, due to the favorable climate and soils, most of the tall grass prairies were cultivated and little native vegetation remains. The area in and around IAAAP is representative of current prairie conditions. Native grassland vegetation was dominated by big bluestem (*Andropogon gerardil*), little bluestem (*Schizachyrium scoparium*), switchgrass (*Panicum virgatum*), Indian grass (*Sorghastrum nutans*), with many species of wildflowers and legumes. Upland forest in this province is dominated by oak (*Quercus* spp.) and hickory (*Catya* spp.) and is part of the oak-hickory forest of the Eastern Broadleaf Forest. At the regional level, the ecoregion has been further classified for the purpose of water quality assessment and management. This further classification places IAAAP within the Southern

Iowa Rolling Loess Prairie Ecoregion as it transitions into the Central Irregular Plains Ecoregion. Mature landscapes in the region provide wintering habitat for passerines and raptors. There are uncommon nesting occurrences of the long-eared owl (*Aslo otus*), and dickcissells (*Spiza americana*) reach their greatest abundance in this plain. Many vascular plants found along the riparian areas of rivers and streams are species that migrated northward from the Ozark Plateau, such as sycamore (*Platanus occidentalis*). Bats are common in areas that are well dissected by streams and have mature riparian habitat. (HES 2001)

4.1.3.8 Beneficial Resources

IAAAP provides habitat for multiple species of mammals and birds, including white-tailed deer, wild turkey, eastern fox squirrel, eastern gray squirrel, eastern cottontail, northern bobwhite quail, ring-necked pheasant, American woodcock, American crow, coyote, beaver, badger, mink, muskrat, raccoon, skunk, opossum, weasel, groundhog, red fox, gray fox, mice, and bats. IAAAP has 42 widely-distributed ponds and lakes. Approximately 31 species of fish were identified on the installation. A variety of reptiles and amphibians are common on the installation. (HES 2001)

Archaeological sites have been identified on IAAAP. To date, 291 sites have been recorded, yielding 82 prehistoric, 164 historic, and 45 combination sites. The Integrated Cultural Resources Management Plan (ICRMP) reported that a total of 138 archaeological sites at IAAAP are on the National Register of Historic Places (NRHP), eligible for listing on the NRHP, or potentially eligible for listing on the NRHP. (HES 2001)

4.1.3.9 Ecological Profile

IAAAP has one of the Army's largest agricultural programs. The program includes row crops, hay, and cattle grazing. Agricultural leasing is a major commercial land use on IAAAP. The installation has 53 grazing, haying, and crop leases on 7,500 acres. There are 43 crop leases (one for hay production only) and 10 leases where grazing and/or haying can be conducted. All leases are for 5-year periods. Each lease has a management plan as required by the Farm Bill. The Farm Bill, officially the Federal Agricultural Improvement and Reform Act of 1996, is administered by the United States Department of Agriculture.

Leases on highly erodible lands also have conservation compliance plans. Technical provisions and conservation practices for all tracts will be coordinated with NRCS and established as part of the Tract Management Plan. (HES 2001)

Endangered, threatened, and other sensitive species are important components of the IAAAP ecosystem and the natural resources management program. The Indiana Bat (*Myotis sodalis*) is currently the only federally-listed threatened species known to occur on the installation. The Indiana Bat was found to at least forage on the installation in 1998. An Endangered Species Management Plan has been written for the Indiana Bat. The survey also identified two state-listed endangered bird species, one state-threatened fish species, one state-threatened snake, and six state-listed threatened vascular plants. The state-listed threatened faunal species include the orangethroat darter (*Etheostoma spectabile*), western worm snake (*Carphophis amoenus vermis*), and state-threatened floral species blue ash (*Fraxinus quadrangulata*), Virginia-snakeroot (*Aristolochia serpentaria*), a mint (*Mentha*), false hellebore (*Veratrum woodii*), slender ladies' tresses (*Spiranthes lacera*), and sharpwing monkey flower (*Mimulus alatus*). The installation is protecting these species during timber survey and timber harvest activities. (HES 2001) Cleanups to address ecological risks have not been completed at the MRSs.

Table 4-1: Threatened and Endangered Listed Animal Species Occurring on IAAAP

Common Name Scientific Name		Federal Status	State Status	Occurrence
Birds				
Bald Eagle	*Haliaeetus leucocephalus*	Threatened	Endangered	Migratory
Double-Crested Cormorant	*Phalacrocorax auritus*	NA	Endangered	Migratory
Reptile				
Western Worm Snake	*Carphophis amoenus*	NA	Threatened	1979
Fish				
Orangethroat Darter	*Etheostoma spectible*	NA	Threatened	1987 & 1997
Mammal				
Indiana Bat	*Myotis sodalist*	Endangered	Endangered	Summer Resident

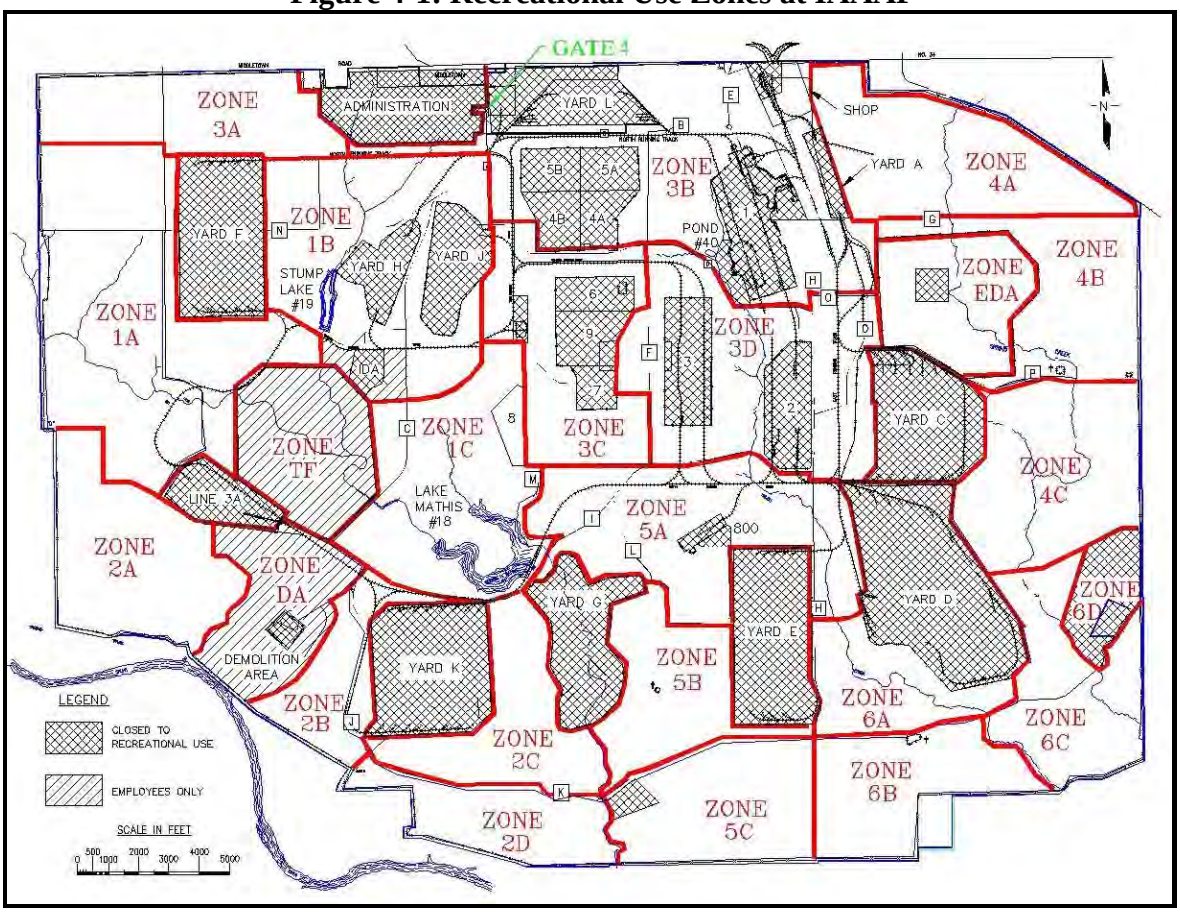
(Source: HES 2001)

4.1.4 Security

Access to IAAAP is limited through the use of manned checkpoints. The checkpoints limit access to the installation through controlled gate access and/or roadblocks on all roads leading into the installation. In addition, the installation is fenced. Access to the installation is restricted to Army personnel, authorized civilian personnel, contractors, and visitors. Security personnel routinely patrol the installation by vehicle. Most of the individual ranges within the installation are not fenced, but MEC warning signs have been posted per the USEPA Dispute Resolution dated 20 December 2006 and/or the Memorandum for IAAAP Employees, Visitors, Contractor and Tenants dated 19 March 2007.

Recreational activities including forestry, grazing, agriculture, and outdoor recreation including hunting and fishing are permitted within areas of IAAAP. **Figure 4-1** presents the recreational use zones within IAAAP. Based on the recreational use zones, no recreational activities are allowed within any of the MRSs boundaries.

Figure 4-1: Recreational Use Zones at IAAAP



4.2. CENTRAL TEST AREA MRS (IAAP-001-R-01)

4.2.1 Area and Layout

The Central Test Area MRS (**Figure 2-2**) is located near the central portion of IAAAP and is bounded to the north by Lines 5A and 5B, to the east by Line 3, to the south by Lines 4A and 4B, and to the west by Yard J. The Central Test Area MRS is oriented in an east-west direction.

4.2.2 Structures

The only structure located at the Central Test Area MRS is Building 600-84, which is currently occupied by Advanced Environmental Technology Inc (AET).

4.2.3 Utilities

Utilities including electric, water and sewer are present at the Central Test Area MRS.

4.2.4 Boundaries

The land surrounding the boundaries of the Central Test Area are described as follows:

- Western boundary: undeveloped
- Eastern boundary: undeveloped
- Northern boundary: Line 5A (caretaker status, operational)
- Southern boundary: Line 4A (operational)

4.2.5 Security

This site is fenced and access to this site is restricted (warning signs posted per USEPA Dispute Resolution) due to potential explosives hazards. Authorization from a supervisor or sponsor is required for employees, visitors, contractors, or tenants to access this site. Recreational activities are not permitted within the boundary of this MRS (**Figure 4-1**).

4.2.6 Physical and Ecological Profile

The physical profile of the Central Test Area MRS is similar to that presented in **Section 4.1.3**.

4.2.7 Land Use and Exposure Profile

4.2.7.1 Current Land Use/Activities

The Active Army MMRP is currently investigating this site. With exception of Building 600-84, the Central Test Area MRS is currently unused and undeveloped. Building 600-84 is currently leased and operated by AET. Building 600-84 is operational and therefore not eligible for the MMRP.

4.2.7.2 Current Human Receptors

Current human receptors include IAAAP personnel, contractors, visitors, and construction workers.

4.2.7.3 Potential Future Land Use

Currently there are no plans to further develop the Central Test Area MRS. Potential future land use is expected to be consistent with the current use.

4.2.7.4 Potential Future Receptors

Potential future human receptors would be limited to current receptors.

4.2.7.5 Ecological Receptors

The Indiana Bat (*Myotis sodalist*) has been known to roost and forage on IAAAP. This MRS contains suitable habitat for the Indiana Bat.

4.2.8 Munitions/Release Profile

Table 4-2 presents a summary of the potential munitions and primary release mechanisms for the Central Test Area MRS based on information obtained during the HRR.

Table 4-2: Summary of Potential Munition Types, Central Test Area MRS

AEDB-R Site	Potential Munitions		Primary Release Mechanism
Central Test Area MRS	Fuzes Boosters Grenades	Mines Delays	Static Firing Jumble Testing Jolt Testing

4.2.8.1 Maximum Probable Penetration Depth

The maximum probable penetration depth is not known for the Central Test Area MRS. It is anticipated that fragments from testing may be present in the soil surrounding the firing pit, the tripod, and possibly behind Building 600-84.

4.2.8.2 Associated Munitions Constituents

The nature and extent of MC contamination was delineated by the IRP, and a remedial action began in October 2006. The remedial action included the following activities: excavation of contaminated soil at locations that had analyte concentrations above their respective OU-1 remediation goal, backfill of excavations, confirmation sampling, and site restoration. The excavation activities were completed in November 2006 and consisted of excavations totaling approximately 239 cubic yards of soil. Based on this remedial action, MC concentrations above action levels are not expected to be present at the site.

4.2.8.3 Transport Mechanisms/ Migration Routes

The primary transport mechanisms and their viability and potential significance at the Central Test Area MRS include the following:

Erosion: The Central Test Area MRS is relatively flat with no observable drainage ditches, and the site is well vegetated. Although runoff may occur during periods of heavy precipitation, the potential for erosion that would transport and cause MC contaminated soil to migrate is considered limited.

***Soil Disturbance*:** Disturbance of soils may increase infiltration rates and dispersion of MC, making it more susceptible to migration due to infiltration. Additionally, MC exposed to the ground surface by soil disturbances may become more susceptible to transport via surface water run-off. MEC soil disturbances, such as construction activities, tilling for agriculture, landscaping or grading, frost heave, or animal burrows may bring MEC to the ground surface. Surface debris and the test stand have been removed. A soil remedial action for analyte concentrations above their respective OU-1 remediation goals was completed in October 2006 at the Central Test Area MRS.

Infiltration: Based on the soil types present at IAAAP (**Section 4.1.3**), the potential for MC contamination to migrate from surface soil to subsurface soil and to groundwater via infiltration exists.

4.2.9 Pathway Analysis

The pathway analysis identifies complete, potentially complete, or incomplete exposure pathways based on the source–receptor interactions at the MRS, for both current and future land use. An exposure pathway is the course MEC/MC takes from the source to the receptor. Each exposure pathway must include a source, a mechanism of release, a transport medium (air, surface, water, etc.), and exposure route (inhalation, ingestion, etc.) and a receptor.

Figure 4-2 presents a MEC pathway analysis for the Central Test Area. The primary exposure pathways for human receptors are handle/tread underfoot of surface MEC. Another potentially complete pathway would be contact with MEC during intrusive activities. The potential contact with MEC is a possibility due to the activities conducted at this site. Based on the remedial action completed in October 2006, MC is not expected to be present at the Central Test Area MRS and therefore is an incomplete pathway. **Figure 4-3** presents a MC pathway analysis for the Central Test Area MRS.

4.3. LINE 6 AMMO PRODUCTION MRS (IAAP-002-R-01)

4.3.1 Area and Layout

The Line 6 Ammo Production MRS (**Figure 2-3**) is located near the central portion of IAAAP. Line 6 is bounded to the north by Lines 4A and 4B, to the east by Line 3, to the south by Line 9, and to the west by the power plant and Yard J. The Line 6 Ammo Production MRS is oriented in an east-west direction.

4.3.2 Structures

Line 6 Ammo Production MRS contains structures that support loading, packing, and assembly of munitions; paved roads; and is fenced.

4.3.3 Utilities

Utilities including electric, water and sewer are present at Line 6.

Figure 4-2: MEC Exposure Pathway Analysis, Central Test Area MRS

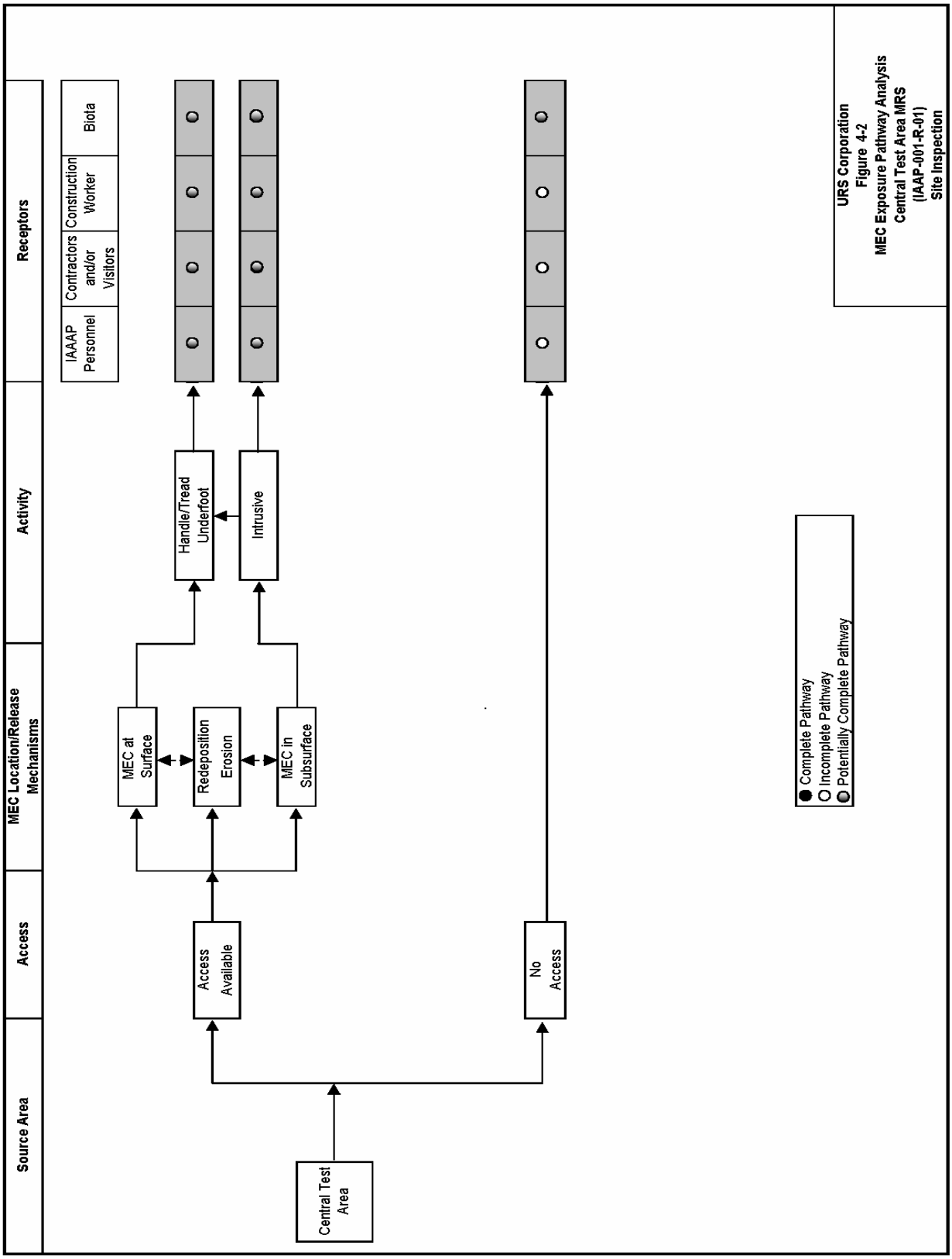
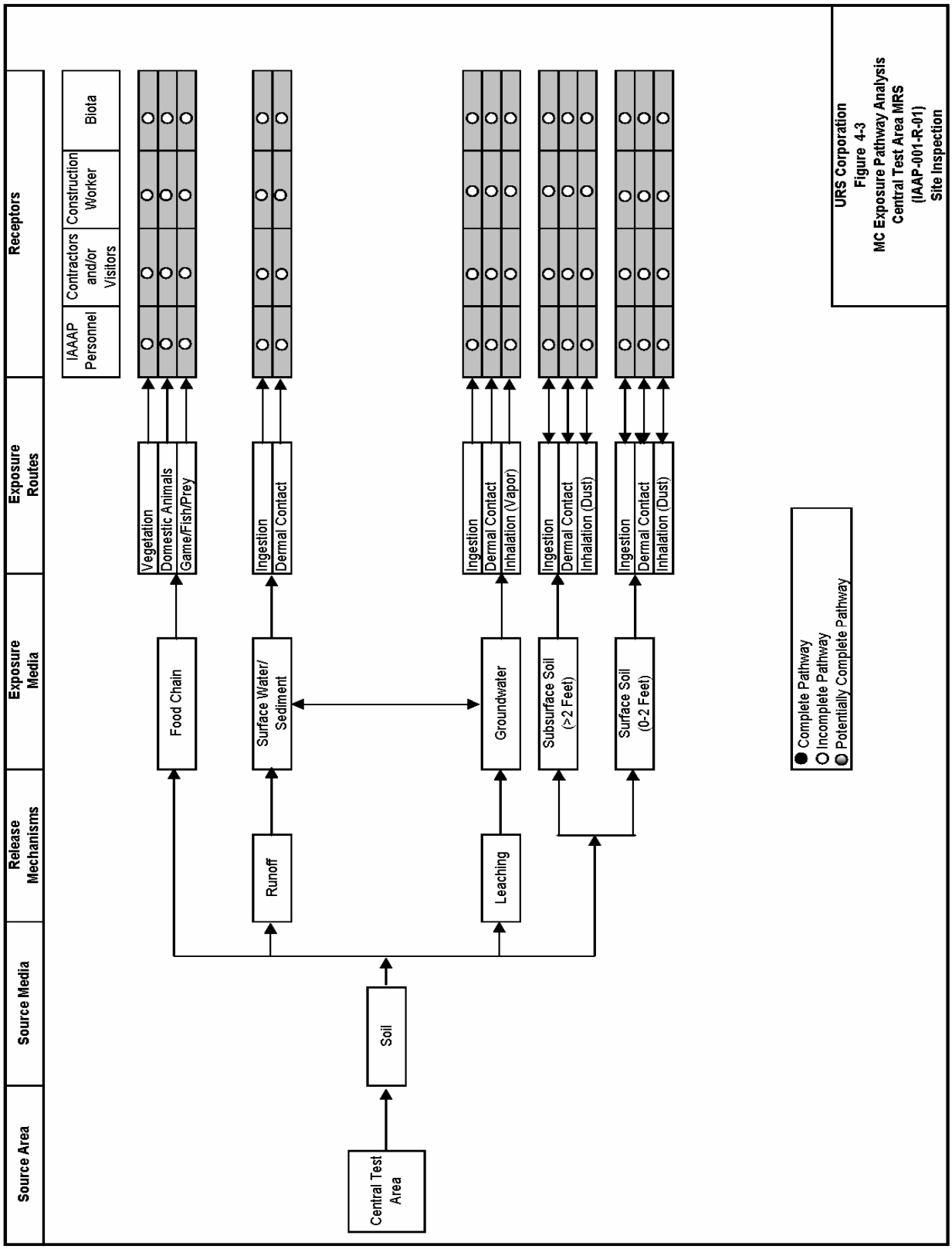


Figure 4-3: MC Exposure Pathway Analysis, Central Test Area MRS



4.3.4 Boundaries

The land surrounding the boundaries of Line 6 are described as follows:

- Western boundary: Power Plant and Yard J
- Eastern boundary: Line 3
- Northern boundary: Lines 4A and 4B (operational)
- Southern boundary: Line 9 (caretaker status, operational)

4.3.5 Security

This site is fenced and access to this site is restricted (warning signs posted per USEPA Dispute Resolution) due to potential explosives hazards. Authorization from a supervisor or sponsor is required for employees, visitors, contractors, or tenants to access this site. Recreational activities are not permitted within the boundary of this MRS (**Figure 4-1**).

4.3.6 Physical and Ecological Profile

The physical profile of the Line 6 Ammo Production MRS is similar to that presented in **Section 4.1.3** with the following site-specific details.

Line 6 encompasses 30 acres and measures approximately 800 by 1,600 feet, and slopes in a general south-southeasterly direction. The elevation ranges from 723 feet at the north end of the site to 698 feet at the south end of the site. Most of the area within the Line 6 perimeter fence is covered with native grassy vegetation. (Tetra Tech 2007)

A network of man-made drainage ways collects runoff from the northern portion of the site and flows south to several natural intermittent grassed waterways at the south end of the site. These grassed waterways converge into a drainage way leading to a tributary of Brush Creek. (Tetra Tech 2007)

Line 6 is underlain by loess and till soils. The loess forms the surface layer blanketing the till to depths ranging from 8 to 17 feet. The loess soil consists of a brown to gray, medium to stiff, silty clay with a trace of sand, grading upward to a dark brown, clayey, silty loam at the surface. The glacial till consists of a brown to gray, medium to hard (generally stiff to very stiff), sandy, silty clay with occasional sand seams interspersed. These units are generally separated by a distinct color change that usually associated with chemical weathering. The

actual depth of the till is unknown in this area, but it is estimated to be in excess of 50 feet. (Tetra Tech 2007)

4.3.7 Land Use and Exposure Profile

4.3.7.1 Current Land Use/Activities

The Active Army MMRP is currently investigating this site. Line 6 is in caretaker status. DOD defines caretaker status as a non-operating condition in which the installations, materiel, and facilities are in a care and limited preservation status. Only a minimum of personnel is required to safeguard against fire, theft, and damage from the elements. Ranges in caretaker status are considered operational. Buildings in caretaker status are considered operational by the Army and are not eligible for the MMRP. While the buildings are operational, the land surrounding the buildings is not.

4.3.7.2 Current Human Receptors

Current human receptors include IAAAP personnel, contractors, visitors, and construction workers.

4.3.7.3 Potential Future Land Use

Currently there are no plans to change the use of this area, and potential future land use is expected to be consistent with the current use.

4.3.7.4 Potential Future Receptors

Potential future human receptors would be limited to current receptors.

4.3.7.5 Ecological Receptors

This MRS contains no suitable habitat for ecologically sensitive species that have been identified at IAAAP.

4.3.8 Munitions/Release Profile

Table 4-3 presents a summary of the potential munitions and primary release mechanisms for the Line 6 Ammo Production MRS based on information obtained during the HRR.

Table 4-3: Summary of Potential Munition Types, Line 6 Ammo Production MRS

AEDB-R Site	Potential Munitions		Primary Release Mechanism
Line 6 Ammo Production MRS	Detonators Fuzes	Primers Delays	Explosion

4.3.8.1 MEC Density

A MEC Density Survey was completed at Line 6. A total of 8,630 anomalies were identified from the EM data. It is suspected that many anomalies may correspond to active power lines, above ground pipes, buried utilities, metal fence lines, and ditches.

4.3.8.2Associated Munitions Constituents

The nature and extent of MC contamination was delineated by the IRP, and a remedial action began in October 2006. The remedial action included the following activities: excavation of contaminated soil at locations that had analyte concentrations above their respective OU-1 remediation goal, backfill of excavations, confirmation sampling, and site restoration. The excavation activities were completed in October 2006 and consisted of excavations totaling approximately 56 cubic yards of soil. Based on this remedial action, MC concentrations above action levels are not expected to be present at the site.

4.3.8.3 Transport Mechanisms/ Migration Routes

The primary transport mechanisms and their viability and potential significance at Line 6 Ammo Production include the following:

Erosion: Line 6 Ammo Production MRS is relatively flat with drainage ditches that channel runoff and the site is well vegetated. During periods of heavy precipitation, runoff may occur, and the potential for erosion that would transport and cause MC contaminated soil to migrate is possible although limited due to the vegetated nature of most of the land.

Soil Disturbance: Disturbance of soils may increase infiltration rates and dispersion of MC, making it more susceptible to migration due to infiltration. Additionally, MC exposed to the ground surface by soil disturbances may become more susceptible to transport via surface water run-off. MEC soil disturbances, such as construction activities, tilling for agriculture, landscaping or grading, frost heave, or animal burrows may bring MEC to the ground surface. In September 2006, completed under the IRP, excavation of contaminated soil

began at sample locations that had analyte concentrations above their respective OU-1 remediation goals. The excavation activities were completed in October 2006.

Infiltration: Based on the soil types present at IAAAP (**Section 4.1.3**), the potential for MC contamination to migrate from surface soil to subsurface soil and to groundwater via infiltration exists.

4.3.9 Pathway Analysis

The pathway analysis identifies complete, potentially complete, or incomplete exposure pathways based on the source–receptor interactions at the MRS, for both current and future land use. An exposure pathway is the course MEC/MC takes from the source to the receptor. Each exposure pathway must include a source, a mechanism of release, a transport medium (air, surface, water, etc.), and exposure route (inhalation, ingestion, etc.) and a receptor.

Figure 4-4 presents a MEC pathway analysis for Line 6 Ammo Production MRS. The primary exposure pathways for human receptors are handle/tread underfoot of surface MEC. Another potentially complete pathway would be contact with MEC during intrusive activities. The potential contact with MEC is a possibility due to the explosion kick-out. Based on the remedial action completed in October 2006, MC is not expected to be present at the Line 6 Ammo Production MRS and therefore is an incomplete pathway. **Figure 4-5** presents a MC pathway analysis for Line 6 Ammo Production MRS.

4.4. WEST BURN PADS MRS (IAAP-003-R-01)

4.4.1 Area and Layout

The West Burn Pads MRS (**Figure 2-4**) consisted of the Burn Pads Landfill, West Burn Pads, Burn Cages, and the Burn Cage Ash Disposal Landfill. The West Burn Pads MRS was orientated in an east-west direction. An intermittent stream bounds the site to the north, Spring Creek bounds the east side, the north-south EDA access round bounds the west side, and the West Burn Pads Area South of the Road MRS bounds the south side.

Figure 4-4: MEC Exposure Pathway Analysis, Line 6 Ammo Production MRS

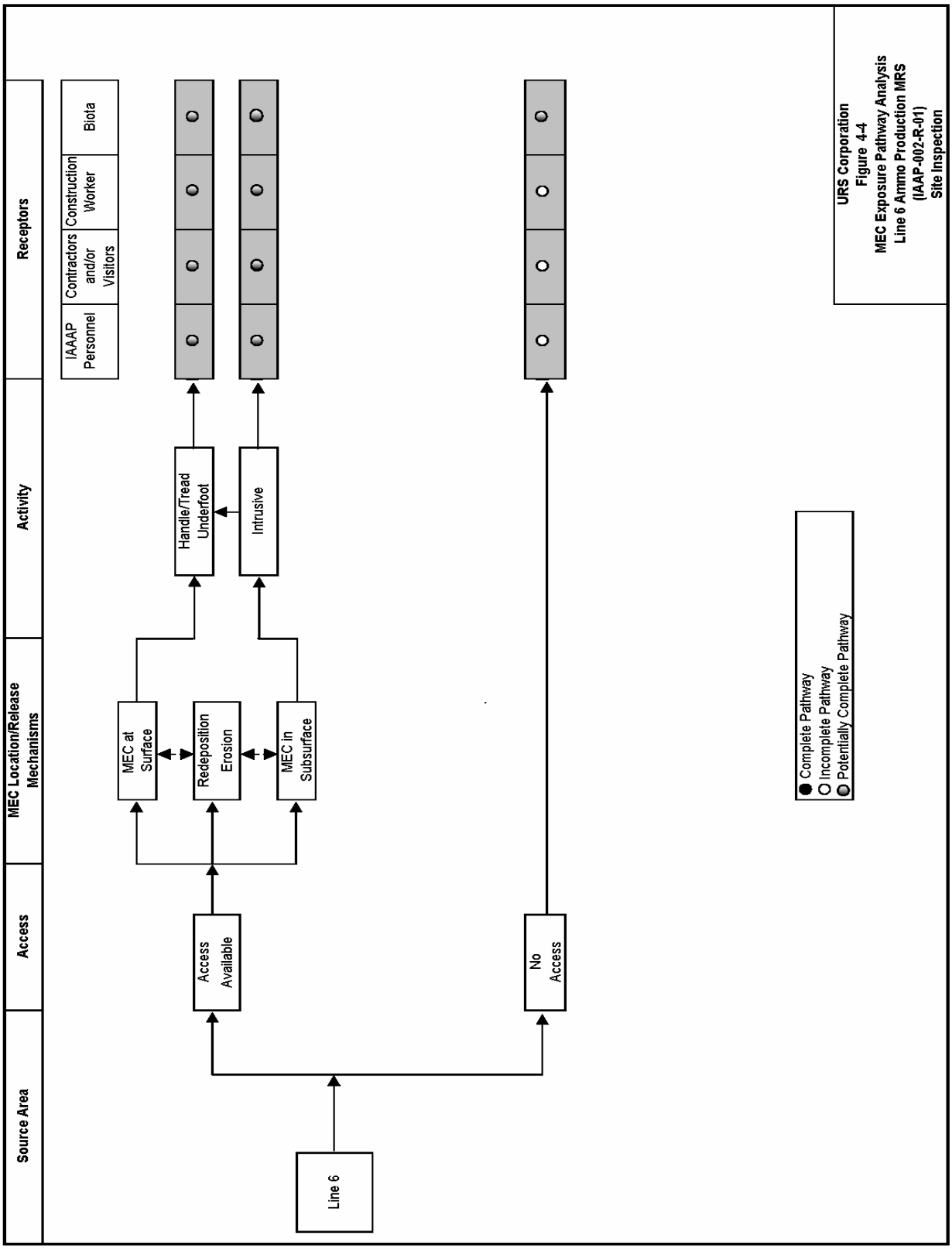
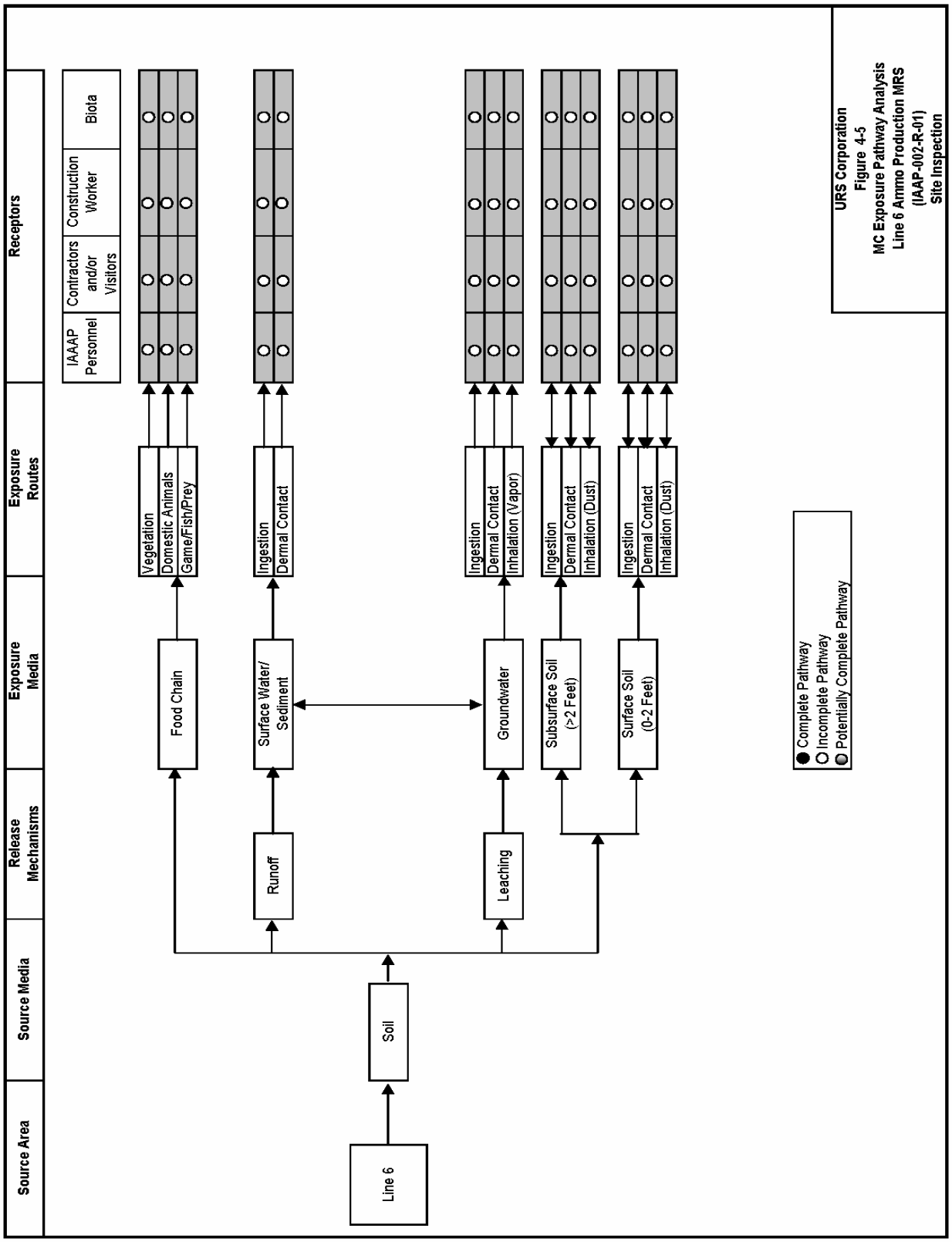


Figure 4-5: MC Exposure Pathway Analysis, Line 6 Ammo Production MRS



4.4.2 Structures

Structures present at the site include the truck wash building, Building Burning Ground (BG)-13 (Burning Ground Office Building), BG-5 (Observation Bunker) and Buildings BG-3 and BG-4 (Storage Bunkers).

4.4.3 Utilities

Utilities including electric, water, and sewer are present in the area.

4.4.4 Boundaries

The land surrounding the boundaries of the West Burn Pads MRS are described as follows:

- Western boundary: North-South EDA Access Road
- Eastern boundary: Spring Creek
- Northern boundary: Intermittent Stream
- Southern boundary: West Burn Pads Area South of the Road MRS

4.4.5 Security

The site has unrestricted access and is accessible to all authorized personnel and visitors that are allowed on the installation. Recreational activities are not permitted within the boundary of this MRS (**Figure 4-1**).

4.4.6 Physical and Ecological Profile

The physical profile of the West Burn Pads MRS is similar to that presented in **Section 4.1.3**.

4.4.7 Land Use and Exposure Profile

4.4.7.1 Current Land Use/Activities

The Active Army MMRP is currently investigating this site. The site is primarily unused with the exception of Building BG-13 (explosives contaminated equipment washing facility). Spent wash water is treated on site at the Water Treatment Facility.

4.4.7.2 Current Human Receptors

Current human receptors include IAAAP personnel, contractors, visitors, hunters, trespassers, and construction workers.

4.4.7.3 Potential Future Land Use

Currently there are no plans to redevelop the West Burn Pads MRS. Potential future land use is expected to be consistent with the current use.

4.4.7.4 Potential Future Receptors

Potential future human receptors would be limited to current receptors.

4.4.7.5 Ecological Receptors

The Indiana Bat has been known to roost and forage on IAAAP. This MRS contains suitable habitat for the Indiana Bat.

4.4.8 Munitions/Release Profile

Table 4-4 presents a summary of the potential munitions and primary release mechanisms for the West Burn Pad MRS based on information obtained during the HRR.

Table 4-4: Summary of Potential Munition Types, West Burn Pads MRS

AEDB-R Site	Potential Munitions	Primary Release Mechanism
West Burn Pads MRS	None (Remedial Action)	Open Burn

4.4.8.1 Associated Munitions Constituents

A complete soil remedial action was completed at the West Burn Pads MRS in 2000. Contaminated soil and debris was removed from the burn pads, burn cages, and landfills. Based on this information, additional MC is not expected to be present at the site in soil.

MC is present in groundwater at this site. Current LTM sampling activities, completed under the IRP, indicate that groundwater at the West Burn Pads MRS contains trichloroethene, freon, RDX, arsenic, manganese, and nickel concentrations above their respective screening levels of 5 µg/L, 59,000 µg/L, 2 µg/L, 10 µg/L, 300 µg/L, and 100 µg/L (Tetra Tech 2005b).

MC associated with groundwater at this site could potentially include TNT, RDX, Cyclotetramethylenetetranitramine (HMX), freon, aluminum, antimony, arsenic, copper, iron, lead, magnesium, and zinc.

4.4.8.2 Transport Mechanisms/ Migration Routes

The primary transport mechanisms and their viability and potential significance at the West Burn Pads MRS includes soil disturbance.

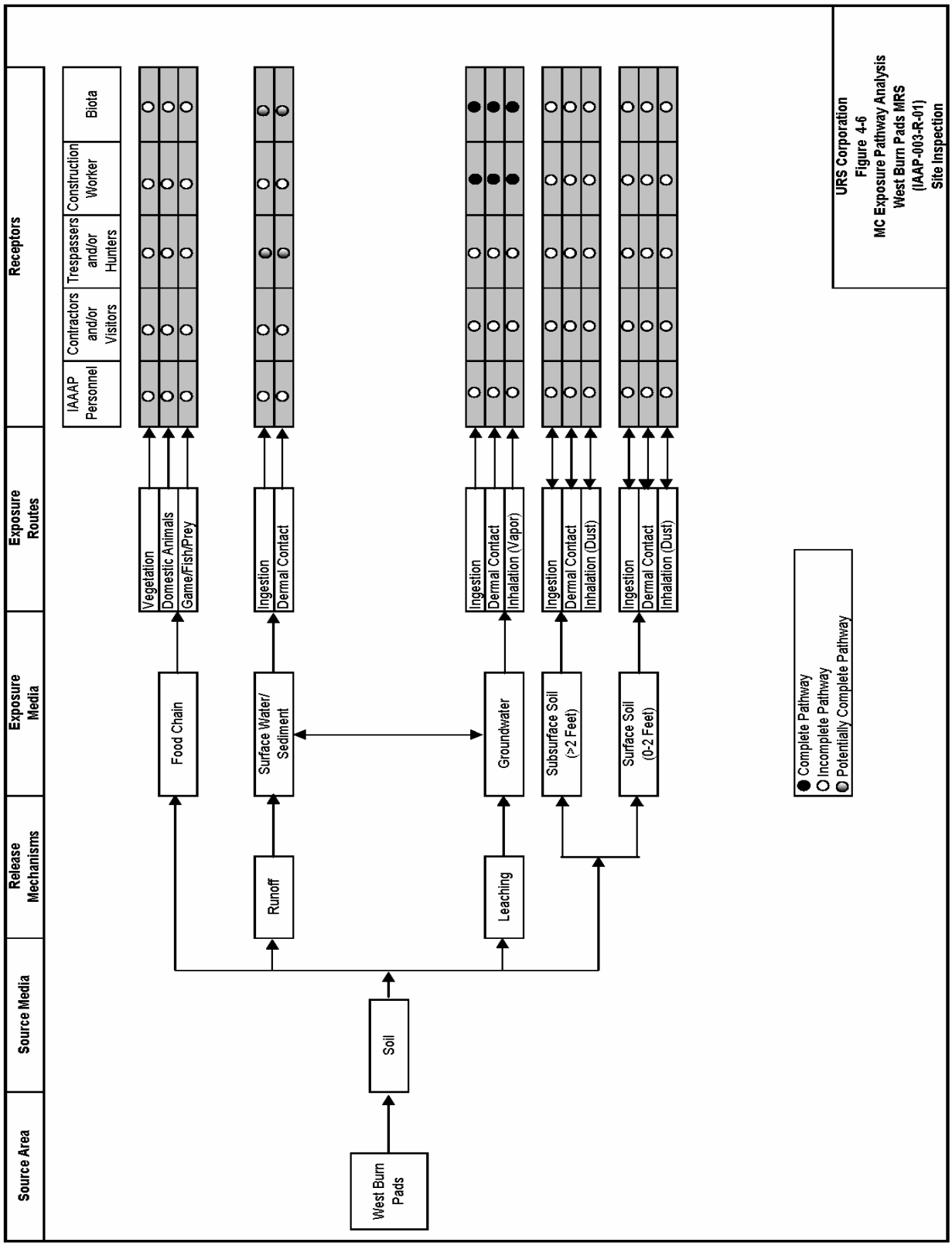
Soil Disturbance: Disturbance of soils may increase infiltration rates and dispersion of MC, making it more susceptible to migration due to infiltration. Additionally, MC exposed to the ground surface by soil disturbances may become more susceptible to transport via surface water run-off. MEC soil disturbances, such as construction activities, tilling for agriculture, landscaping or grading, frost heave, or animal burrows may bring MEC to the ground surface. A Soil Remedial Action was completed at the West Burn Pads MRS in 2000.

4.4.9 Pathway Analysis

The pathway analysis identifies complete, potentially complete, or incomplete exposure pathways based on the source–receptor interactions at the MRS, for both current and future land use. An exposure pathway is the course MEC/MC takes from the source to the receptor. Each exposure pathway must include a source, a mechanism of release, a transport medium (air, surface, water, etc.), and exposure route (inhalation, ingestion, etc.) and a receptor.

MEC is not likely to be present at the West Burn Pads MRS and an MEC pathway analysis was not performed. **Figure 4-6** presents a MC pathway analysis for West Burn Pads MRS. Crops are not grown, and domestic animals are not raised at the site. Biota are the only receptor expected to ingest vegetation at this site; however, MC impacted soil has been removed from the West Burn Pads MRS. All pathways for vegetation in the food chain are expected to be incomplete.

Figure 4-6: MC Exposure Pathway Analysis, West Burn Pads MRS



Potentially complete pathway for biota exists through the potential ingestion of prey that may have fed on contaminated vegetation at the site; however, MC impacted soil has been removed from the West Burn Pads MRS. The pathways between game/fish/prey and installation personnel, contractors, visitors, hunters, construction workers, and trespassers are expected to be incomplete. The pathways for ingestion and dermal contact between surface water and sediment are potentially complete for hunters, trespassers, and biota because there are surface water bodies near the site and that have come in contact with contaminated groundwater.

The groundwater pathway is complete for construction workers and surrounding biota because data from existing monitoring wells at West Burn Pads MRS indicate that the shallow groundwater has been impacted with MC.

The pathways for exposure routes for both surface and subsurface soil are expected to be incomplete for all receptors based on the soil remedial actions.

4.5. POSSIBLE DEMOLITION SITE MRS (IAAP-004-R-01)

4.5.1 Area and Layout

The Possible Demolition Site MRS (**Figure 2-5**) is located south of the Pistol Range and K Road, and east of Long Creek. No documentation was located that could support the site orientation; however, craters have been found further east of the site location depicted on the 1945 General Map. The 1963 aerial indicated a large depression (possible demolition area) further east of the site location depicted on the 1945 General Map.

4.5.2 Structures

There are no structures currently present at the Possible Demolition Site MRS.

4.5.3 Utilities

There are no utilities currently present at the Possible Demolition Site MRS.

4.5.4 Boundaries

The land surrounding the boundaries of the Possible Demolition Site MRS are described as follows:

- Western boundary: Long Creek
- Eastern boundary: Undeveloped Forested Area
- Northern boundary: Small Arms Range (operational)
- Southern boundary: Undeveloped Forested Area

4.5.5 Security

Access to this site is restricted (warning signs posted per USEPA Dispute Resolution) due to potential explosives hazards. Authorization from a supervisor or sponsor is required for employees, visitors, contractors, or tenants to access this site. Recreational activities are not permitted within the boundary of this MRS (**Figure 4-1**).

4.5.6 Physical and Ecological Profile

The physical profile of the Possible Demolition Site MRS is similar to that presented in **Section 4.1.3** with the following site-specific details.

The geology of the Possible Demolition Site MRS is generally characterized by unconsolidated deposits of glacial origin having clayey silt with sand (loess) overlaying glacial till. The glacial till is primarily Nebraskan and Kansan in age. There are also several tributaries of Long Creek that flow by the site that may receive surface water runoff from the site. The surface drainage of this area flows southwest toward Long Creek, which is 100 to 200 feet from the site's estimated western boundary. Long Creek enters the plant from off site at two locations: one from the northwest portion of the northern boundary, the other from midway along the installation's western boundary. These north and west branches merge, then flow into Mathes Lake, located approximately in the center of the plant. Surface water exits the southern end of the lake and continues to flow in a southeasterly direction, flowing by the Possible Demolition Site MRS and exiting the plant area along its southern boundary approximately 2500 feet downstream (Jaycor 1994).

4.5.7 Land Use and Exposure Profile

4.5.7.1 Current Land Use/Activities

The Active Army MMRP is currently investigating this site. The Possible Demolition Site MRS is currently unused and undeveloped.

4.5.7.2 Current Human Receptors

Current human receptors include IAAAP personnel, contractors, visitors, and hunters, trespassers, and construction workers.

4.5.7.3 Potential Future Land Use

Currently there are no plans to develop the Possible Demolition Site MRS. Potential future land use is expected to be consistent with the current use.

4.5.7.4 Potential Future Receptors

Potential future human receptors would be limited to current receptors.

4.5.7.5 Ecological Receptors

The Indiana Bat has been known to roost and forage on IAAAP. This MRS contains suitable habitat for the Indiana Bat.

4.5.8 Munitions/Release Profile

Table 4-5 presents a summary of the potential munitions and primary release mechanisms for the Possible Demolition Site MRS based on information obtained during the HRR.

Table 4-5: Summary of Potential Munition Types, Possible Demolition Site MRS

AEDB-R Site	Potential Munitions		Primary Release Mechanism
Possible Demolition Site MRS	Detonators Primers Boosters	Fuzes Delays	Dismantling Open Burn Open Detonation

4.5.8.1 Maximum Probable Penetration Depth

The maximum probable penetration depth is not known for the Possible Demolition Site MRS.

4.5.8.2 MEC Density

A specific MEC density is not known for the Possible Demolition Site MRS.

4.5.8.3 MEC Scrap and Fragments

Specific documentation was not discovered that identifies if scrap or fragment-producing munitions were demilitarized, buried, or burned.

4.5.8.4 Associated Munitions Constituents

The nature and extent of MC contamination was delineated by the IRP, and a remedial action began in October 2006. The remedial action included the following activities: excavation of contaminated soil at locations that had analyte concentrations above their respective OU-1 remediation goal, backfill of excavations, confirmation sampling, and site restoration. The excavation activities were completed in May 2007 and consisted of excavations totaling approximately 3,952 cubic yards of soil. Based on this remedial action, MC concentrations above action levels are not expected to be present at the site.

4.5.8.5 Transport Mechanisms/ Migration Routes

The primary transport mechanisms and their viability and potential significance at the Possible Demolition Site MRS include the following:

Erosion: This area is relatively flat, and was entirely vegetated with forested lands. Long Creek borders the western edge of the site. During periods of heavy precipitation, run-off may occur, and the potential for erosion that would transport and cause MC contaminated soil to migrate is possible although limited due to the vegetated nature of most of the land. Currently, some vegetation has been cleared to allow for investigative sampling and excavation of contaminated soil above OU-1 remediation goals.

Soil Disturbance: Disturbance of soils may increase infiltration rates and dispersion of MC, making it more susceptible to migration due to infiltration. Additionally, MC exposed to the ground surface by soil disturbances may become more susceptible to transport via surface water run-off. MEC soil disturbances, such as construction activities, tilling for agriculture, landscaping or grading, frost heave, or animal burrows may bring MEC to the ground surface. Soil excavation activities were completed at the Possible Demolition Site MRS in May 2007.

Infiltration: Based on the soil types present at IAAAP (**Section 4.1.3**), the potential for MC contamination to migrate from surface soil to subsurface soil and to groundwater via infiltration exists.

4.5.9 Pathway Analysis

The pathway analysis identifies complete, potentially complete, or incomplete exposure pathways based on the source–receptor interactions at the MRS, for both current and future land use. An exposure pathway is the course MEC/MC takes from the source to the receptor. Each exposure pathway must include a source, a mechanism of release, a transport medium (air, surface, water, etc.), and exposure route (inhalation, ingestion, etc.) and a receptor.

Figure 4-7 presents a MEC pathway analysis for the Possible Demolition Site MRS. The primary exposure pathways for human receptors are handle/tread underfoot of surface MEC. Another potentially complete pathway would be contact with MEC during intrusive activities. The potential contact with MEC is a possibility. Based on the remedial action completed in May 2007, MC is not expected to be present at the Possible Demolition Site MRS and therefore is an incomplete pathway. **Figure 4-8** presents a MC pathway analysis for the Possible Demolition Site MRS.

Figure 4-7: MEC Exposure Pathway Analysis, Possible Demolition Site MRS

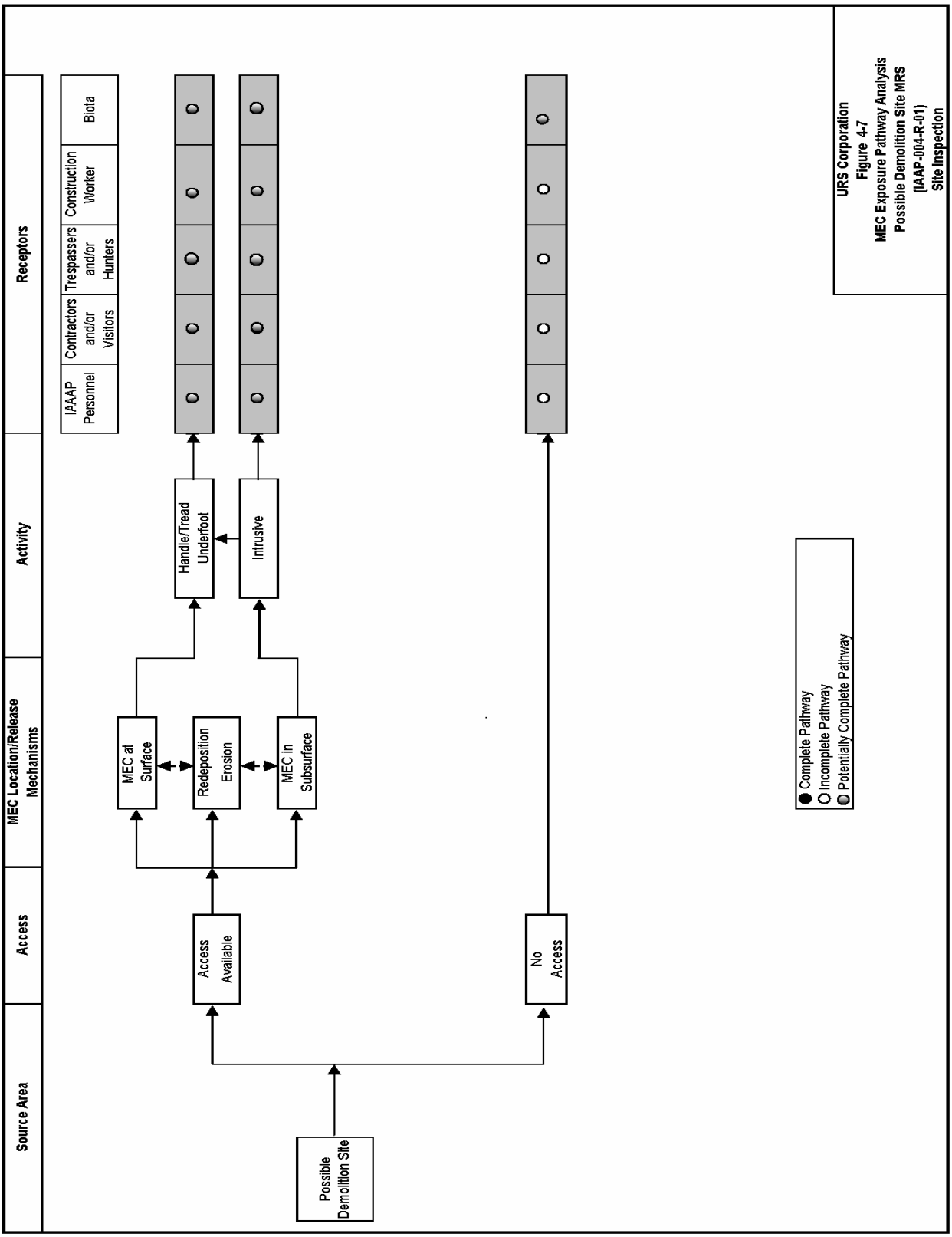
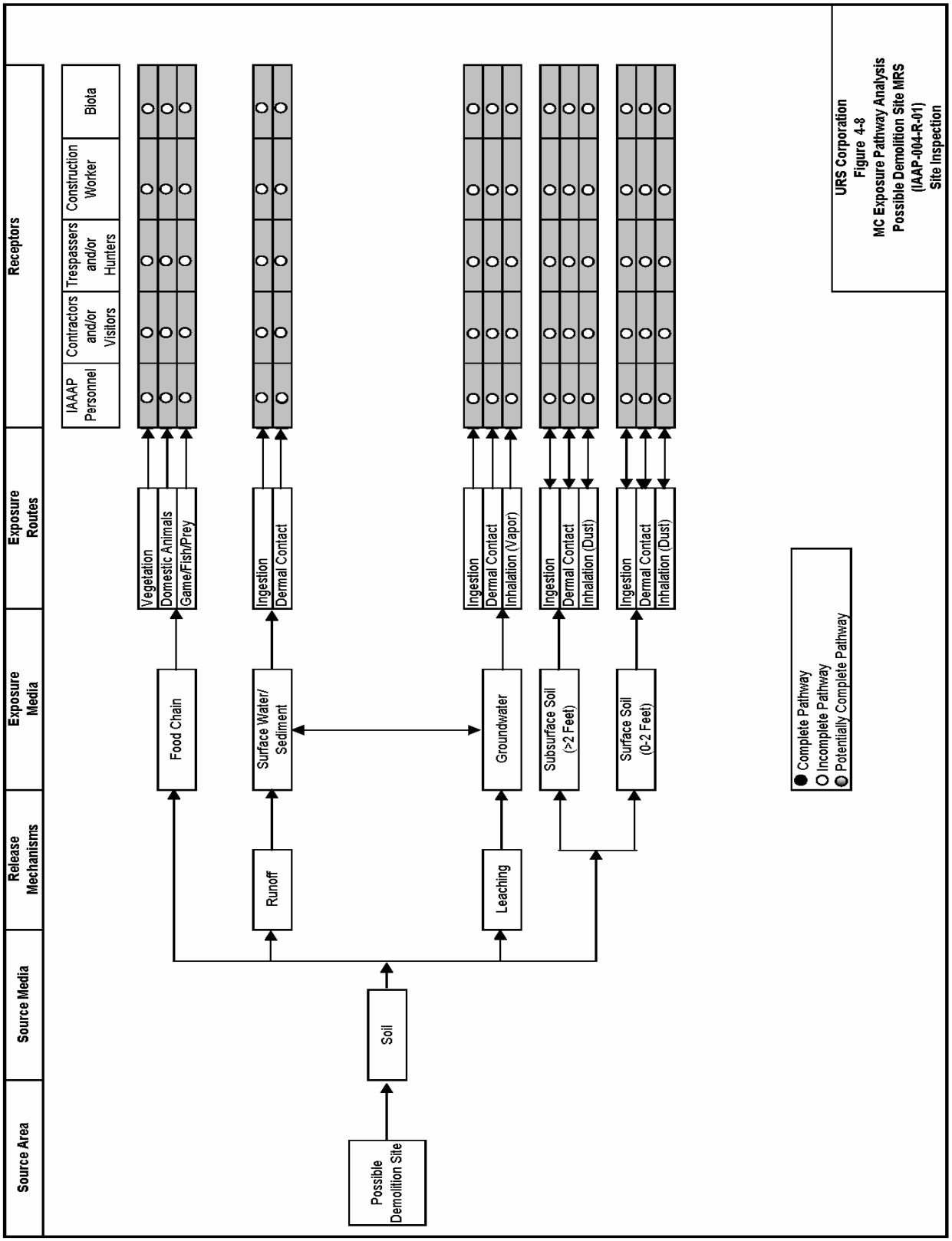


Figure 4-8: MC Exposure Pathway Analysis, Possible Demolition Site MRS



4.6. WEST BURN PADS AREA SOUTH OF THE ROAD MRS (IAAP-005-R-01)

4.6.1 Area and Layout

The West Burn Pads MRS (**Figure 2-6**) bounds the north side of the MRS, Spring Creek bounds the east side of the MRS, the fire training area bounds the west side, and storage bunkers and Spring Creek tributaries bound the south side of the MRS. Interviews indicate that the two burn pits in this area ran north to south behind BG-3.

4.6.2 Structures

Structures present at the site include the Building BG-1 (Burning Ground Office Building), BG-5 (Observation Bunker) and Buildings BG-3 and BG-4 (Storage Bunkers).

4.6.3 Utilities

Utilities including electric, water, and sewer are present in the area.

4.6.4 Boundaries

The land surrounding the boundaries of the West Burn Pads Area South of the Road MRS are described as follows:

- Western boundary: Fire Training Area
- Eastern boundary: Spring Creek
- Northern boundary: West Burn Pads MRS
- Southern boundary: Spring Creek Tributaries/Storage Bunkers (operational)

4.6.5 Security

Access to this site is restricted (warning signs posted per Memorandum for IAAAP Employees, Visitors, Contractor and Tenants dated 19 March 2007) due to potential explosives hazards. Authorization from a supervisor or sponsor is required for employees, visitors, contractors, or tenants to access this site. Recreational activities are not permitted within the boundary of this MRS (**Figure 4-1**).

4.6.6 Physical and Ecological Profile

The physical profile of the West Burn Pads Area South of the Road MRS is similar to that presented in **Section 4.1.3**.

4.6.7 Land Use and Exposure Profile

4.6.7.1 Current Land Use/Activities

The Active Army MMRP is currently investigating this site. The old burning grounds operations building and two bunker storage units at the site are unused and in caretaker status (operational).

4.6.7.2 Current Human Receptors

Current human receptors include IAAAP personnel, contractors, visitors, hunters, trespassers, and construction workers.

4.6.7.3 Potential Future Land Use

Currently there are no plans to develop the West Burn Pads Area South of the Road MRS. Potential future land use is expected to be consistent with the current use.

4.6.7.4 Potential Future Receptors

Potential future human receptors would be limited to current receptors.

4.6.7.5 Ecological Receptors

The Indiana Bat has been known to roost and forage on IAAAP. This MRS contains suitable habitat for the Indiana Bat.

4.6.8 Munitions/Release Profile

Table 4-6 presents a summary of the potential munitions and primary release mechanisms for the West Burn Pads Area South of the Road MRS based on information obtained during the HRR.

Table 4-6: Summary of Potential Munition Types, West Burn Pads Area South of the Road MRS

AEDB-R Site	Potential Munitions		Primary Release Mechanism
West Burn Pads Area South of the Road MRS	Detonators Primers Boosters	Fuzes Delays	Open Burn

4.6.8.1 MEC Density

A specific MEC density is not known for the West Burn Pads Area South of the Road MRS.

4.6.8.1 MEC Scrap and Fragments

Specific documentation was not discovered that identifies if scrap or fragment-producing munitions were burned.

4.6.8.3 Associated Munitions Constituents

MC associated with this site includes TNT, RDX, lead, and barium.

4.6.8.4 Transport Mechanisms/ Migration Routes

The primary transport mechanisms and their viability and potential significance at the West Burn Pads Area South of the Road MRS include the following:

Erosion: This area slopes downward and is well vegetated. Run-off flows towards Spring Creek and it's tributaries at the West Burn Pads Area South of the Road MRS. During periods of heavy precipitation, runoff may occur, and the potential for erosion that would transport and cause MC contaminated soil to migrate is possible although limited due to the vegetated nature of most of the land.

Soil Disturbance: Disturbance of soils may increase infiltration rates and dispersion of MC, making it more susceptible to migration due to infiltration. Additionally, MC exposed to the ground surface by soil disturbances may become more susceptible to transport via surface water run-off. MEC soil disturbances, such as construction activities, tilling for agriculture, landscaping or grading, frost heave, or animal burrows may bring MEC to the ground surface. The USACE trenching activities in 2001 disturbed the soil at the West Burn Pads Area South of the Road MRS.

Infiltration: Based on the soil types present at IAAAP (**Section 4.1.3**), the potential for MC to migrate from surface soil to subsurface soil and to groundwater via infiltration exists.

4.6.9 Pathway Analysis

The pathway analysis identifies complete, potentially complete, or incomplete exposure pathways based on the source–receptor interactions at the MRS, for both current and future land use. An exposure pathway is the course MEC/MC takes from the source to the receptor. Each exposure pathway must include a source, a mechanism of release, a transport medium (air, surface, water, etc.), and exposure route (inhalation, ingestion, etc.) and a receptor.

Figure 4-9 presents a MEC pathway analysis for the West Burn Pads Area South of the Road MRS. The primary exposure pathways for human receptors are handle/tread underfoot of surface MEC. Another potentially complete pathway would be contact with MEC during intrusive activities. The potential contact with MEC is a possibility.

Figure 4-10 presents a MC pathway analysis for West Burn Pads Area South of the Road MRS. Crops are not grown, and domestic animals are not raised at the site. Biota are the only receptor expected to ingest vegetation at this site. Biota has potentially complete pathways for contact with MC impacted vegetation. All other pathways for vegetation in the food chain are expected to be incomplete.

The pathways between game/fish/prey are potentially complete pathways for hunters and trespassers. Potentially complete pathway for biota exists through the potential ingestion of prey that may have fed on contaminated vegetation at the site.

The pathways for ingestion and dermal contact between surface water and sediment are potentially complete for hunters, trespassers, and biota because there are surface water bodies near the site and they may come in contact with surface water runoff. Potentially complete pathways for ingestion and dermal contact exist between surface water/sediment and biota because benthic biota may have extended contact with sediments that are impacted by MC.

The groundwater pathway is a potentially complete pathway for constructions workers and biota because data from existing monitoring wells at West Burn Pads Area South of the Road MRS indicate that the shallow groundwater has been impacted with MC.

Potentially complete pathways for all exposure routes for surface soil exist for all receptors, since access to and activities at this site are not restricted. The subsurface pathway would be potentially complete for biota because wildlife may nest or burrow at this site and the construction worker because of excavation activities.

Figure 4-9: MEC Exposure Pathway Analysis, West Burn Pads Area South of the Road MRS

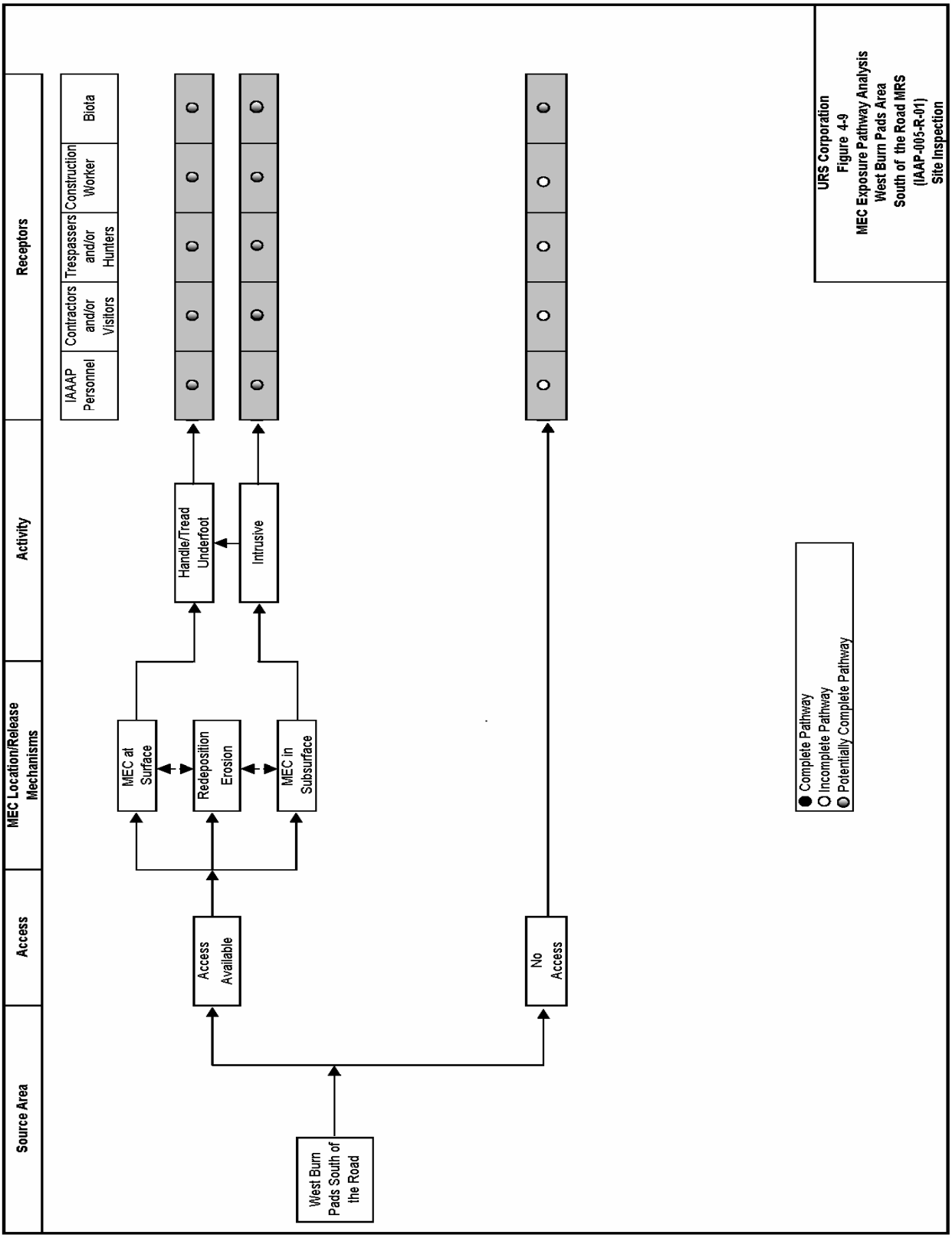
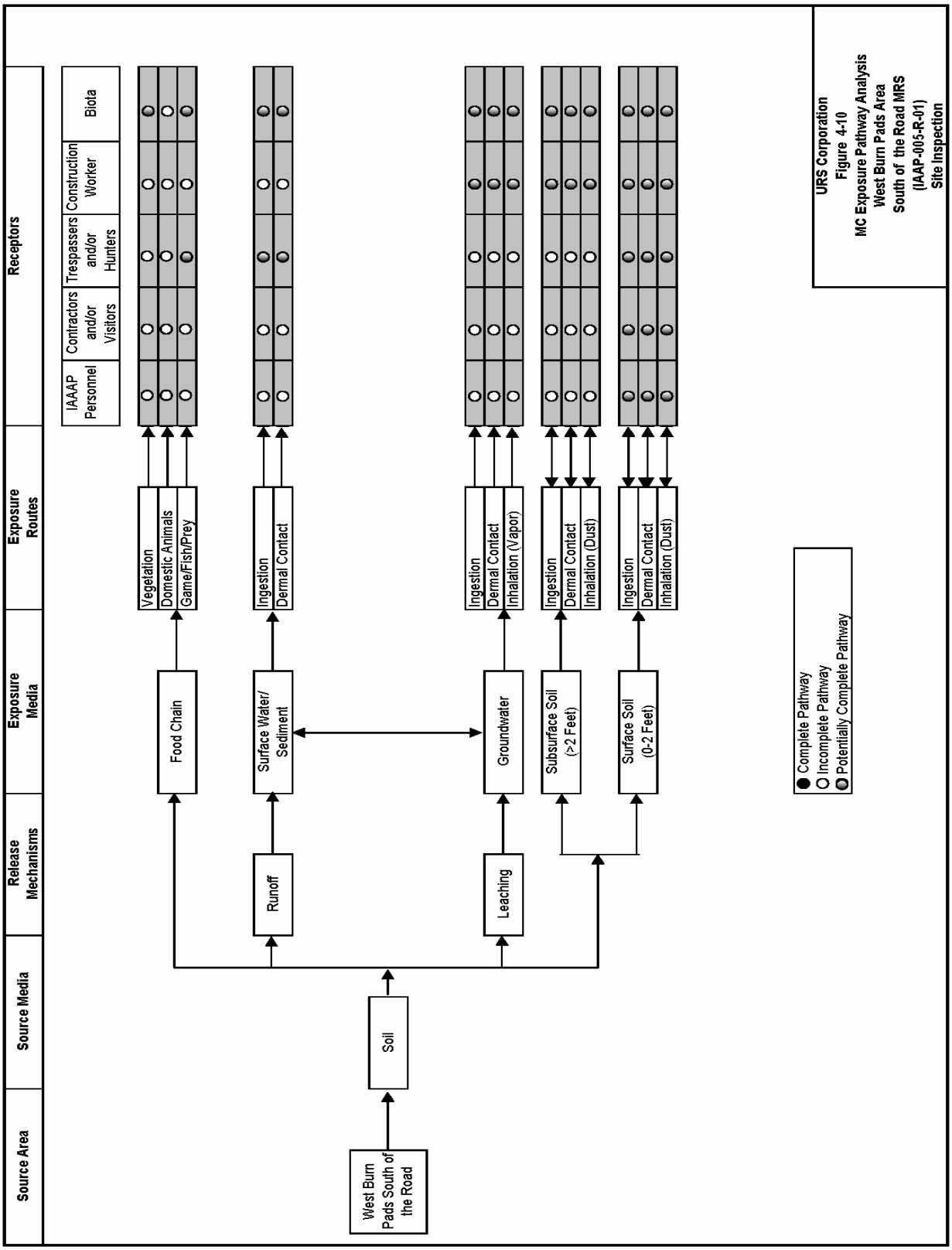


Figure 4-10: MC ExposurePathway Analysis, West Burn Pads Area South of the Road MRS



4.7. MANEUVER AREA MRS (IAAP-006-R-02)

4.7.1 Area and Layout

The Maneuver Area MRS (**Figure 2-7**) is within the boundary of the East Training Range MRA. P Road bounds the north side of the site, Spring Creek bounds the west side of the site, K Road bounds the south side of the site, and the Eastern IAAAP boundary bounds the east side.

4.7.2 Structures

There are no structures currently present at the Maneuver Area MRS.

4.7.3 Utilities

There are no utilities currently present at the Maneuver Area MRS.

4.7.4 Boundaries

The land surrounding the boundaries of the Maneuver Area MRS are described as follows:

- Western boundary: Spring Creek
- Eastern boundary: IAAAP Eastern Boundary
- Northern boundary: P Road
- Southern boundary: K Road

4.7.5 Security

The majority of this site has unrestricted access and is accessible to all authorized personnel and visitors that are allowed on the installation. However, K Road, within the Maneuver Area MRS, is restricted. The road is barricaded to prevent access to the Incendiary Disposal Area MRS. Recreational activities are not permitted within portions of this MRS (**Figure 4-1**).

4.7.6 Physical and Ecological Profile

The physical profile of the Maneuver Area MRS is similar to that presented in **Section 4.1.3**.

4.7.7 Land Use and Exposure Profile

4.7.7.1 Current Land Use/Activities

The Active Army MMRP is currently investigating this site. The Maneuver Area MRS is currently unused and undeveloped.

4.7.7.2 Current Human Receptors

Current human receptors include IAAAP personnel, contractors, visitors, hunters, trespassers, and construction workers.

4.7.7.3 Potential Future Land Use

Currently there are no plans to develop the Maneuver Area MRS. Potential future land use is expected to be consistent with the current use.

4.7.7.4 Potential Future Receptors

Potential future human receptors would be limited to current receptors.

4.7.7.5 Ecological Receptors

The Indiana Bat has been known to roost and forage on IAAAP. This MRS contains suitable habitat for the Indiana Bat.

4.7.8 Munitions/Release Profile

Table 4-7 presents a summary of the potential munitions and primary release mechanisms for the Maneuver Area MRS based on information obtained during the HRR.

Table 4-7: Summary of Potential Munition Types, Maneuver Area MRS

AEDB-R Site	Potential Munitions	Primary Release Mechanism
Maneuver Area MRS *	Pyrotechnics Small Arms CS	Training

4.7.8.1 Maximum Probable Penetration Depth

The maximum probable penetration depth is 0.5 foot for the Maneuver Area MRS.

4.7.8.2 MEC Density

A specific MEC density is not known for the Maneuver Area MRS.

4.7.8.3 Associated Munitions Constituents

MC associated with this site includes lead, perchlorates, and white phosphorus.

4.7.8.4 Transport Mechanisms/ Migration Routes

The primary transport mechanisms and their viability and potential significance at the Maneuver Area MRS includes the following:

Erosion: This area slopes downward to the west and is vegetated with forested lands. Run-off flows towards Spring Creek and its tributaries. During periods of heavy precipitation, run-off may occur, and the potential for erosion that would transport and cause MC contaminated soil to migrate is possible although limited due to the vegetated nature of most of the land.

Soil Disturbance: Disturbance of soils may increase infiltration rates and dispersion of MC, making it more susceptible to migration due to infiltration. Additionally, MC exposed to the ground surface by soil disturbances may become more susceptible to transport via surface water run-off. MEC soil disturbances, such as construction activities, tilling for agriculture, landscaping or grading, frost heave, or animal burrows may bring MEC to the ground surface. The soil at the Maneuver Area MRS has not been disturbed.

Infiltration: Based on the soil types present at IAAAP (**Section 4.1.3**), the potential for MC to migrate from surface soil to subsurface soil and to groundwater via infiltration exists.

4.7.9 Pathway Analysis

The pathway analysis identifies complete, potentially complete, or incomplete exposure pathways based on the source–receptor interactions at the MRS, for both current and future land use. An exposure pathway is the course MEC/MC takes from the source to the receptor. Each exposure pathway must include a source, a mechanism of release, a transport medium (air, surface, water, etc.), and exposure route (inhalation, ingestion, etc.) and a receptor.

Figure 4-11 presents a MEC pathway analysis for the Maneuver Area MRS. The primary exposure pathways for human receptors are handle/tread underfoot of surface MEC. Another potentially complete pathway would be contact with MEC during intrusive activities. The potential contact with MEC is a possibility.

Figure 4-11: MEC Exposure Pathway Analysis, Maneuver Area MRS

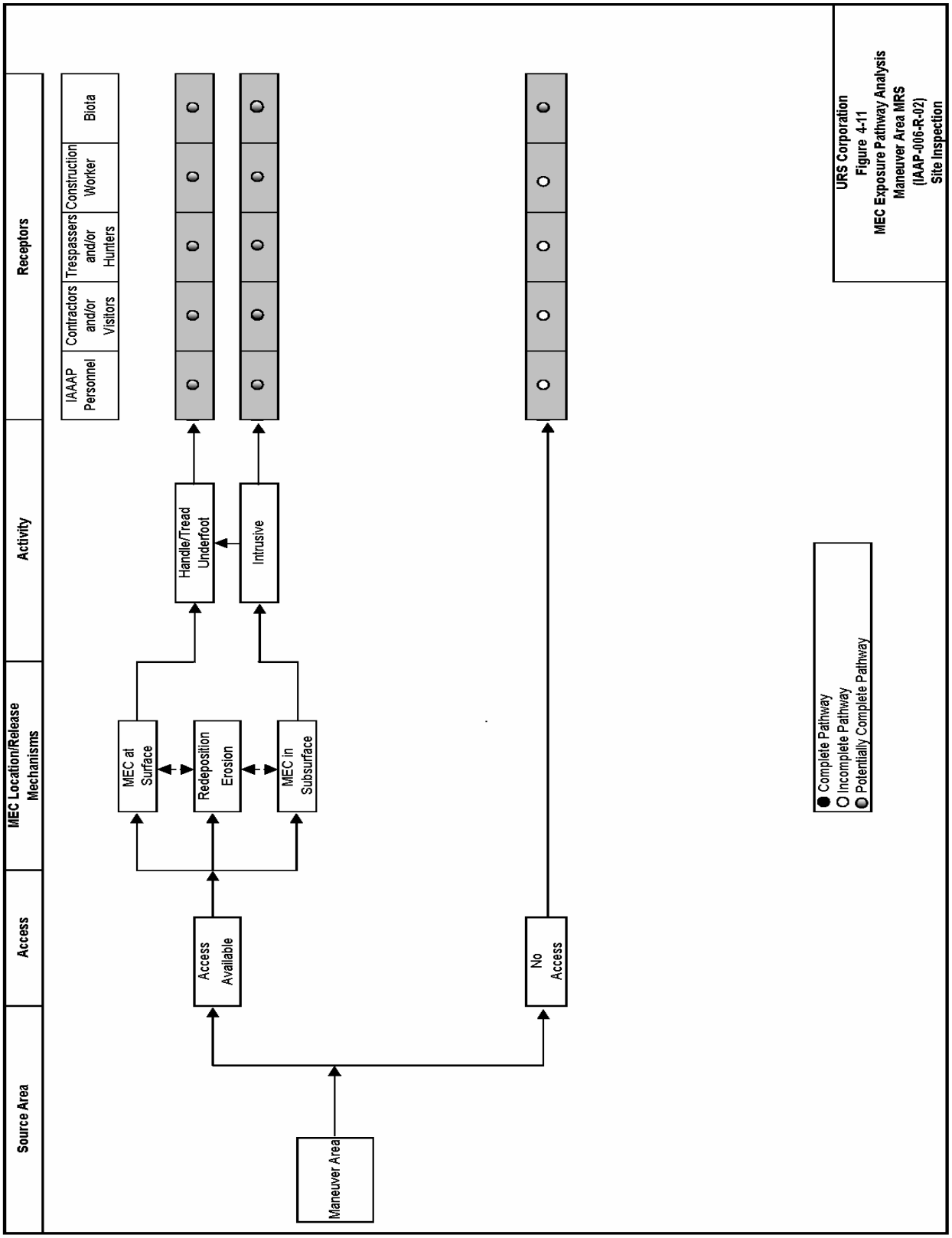


Figure 4-12 presents a MC pathway analysis for the Maneuver Area MRS. Crops are not grown, and domestic animals are not raised at the site. Biota are the only receptor expected to ingest vegetation at this site. Biota has potentially complete pathways for contact with MC impacted vegetation. All other pathways for vegetation in the food chain are expected to be incomplete.

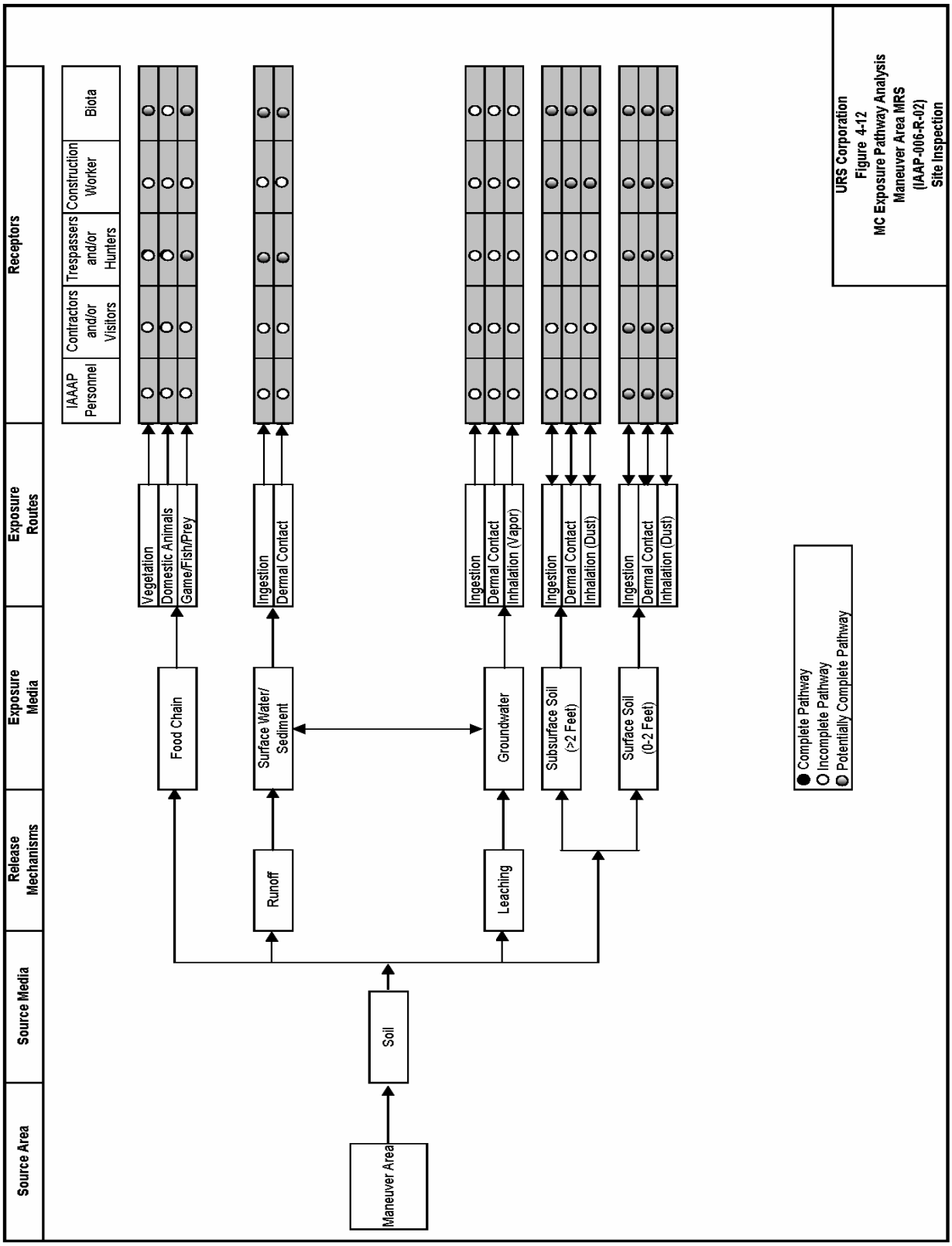
The pathways between game/fish/prey are potentially complete for hunters and trespassers. Potentially complete pathway for biota exists through the potential ingestion of prey that may have fed on contaminated vegetation at the site.

The pathways for ingestion and dermal contact between surface water and sediment are potentially complete for hunters and trespassers because there are surface water bodies near the site and they may come in contact with surface water run-off. Potentially complete pathways for ingestion and dermal contact exist between surface water/sediment and biota because benthic biota may have extended contact with sediments that are impacted by MC.

The groundwater pathway is incomplete because data from existing monitoring wells at the IAAAP boundary indicate that the shallow groundwater in this area has not been impacted with MC.

Potentially complete pathways for all exposure routes for surface soil exist for all receptors as the majority of this site has unrestricted access, with exception of K Road, which is restricted (barricaded road). The subsurface pathway would be potentially complete for biota because wildlife may nest or burrow at this site and the construction worker because of excavation activities.

Figure 4-12: MC Exposure Pathway Analysis, Maneuver Area MRS



4.8. INCENDIARY DISPOSAL AREA MRS (IAAP-006-R-01)

4.8.1 Area and Layout

The Incendiary Disposal Area MRS (**Figure 2-8**) is within the boundary of the East Training Range MRA and is bound to the east by K Road and to the west by Spring Creek. The Incendiary Disposal Area MRS is not bound to the north or south. No documentation was located that could support the site orientation; however, the Incendiary Disposal Area location was identified in the 1945 Day and Zimmermann Inc. drawing titled 'Contm'd Areas Near East Boundary – South of Lower Augusta Rd. & East of YD. "E."' Detonation craters have been identified in all directions from the 1945 location, but predominately to the north.

4.8.2 Structures

There are no structures currently present at the Incendiary Disposal Area MRS.

4.8.3 Utilities

There are no utilities currently present at the Incendiary Disposal Area MRS.

4.8.4 Boundaries

The land surrounding the boundaries of the Incendiary Disposal Area MRS are described as follows:

- Western boundary: Spring Creek
- Eastern boundary: K Road, then undeveloped forested area
- Northern boundary: undeveloped forested area
- Southern boundary: undeveloped forested area

4.8.5 Security

Access to this site is restricted (warning signs posted per USEPA Dispute Resolution) due to potential explosives hazards. Authorization from a supervisor or sponsor is required for employees, visitors, contractors, or tenants to access this site. Recreational activities are not permitted within the boundary of this MRS (**Figure 4-1**).

4.8.6 Physical and Ecological Profile

The physical profile of the Incendiary Disposal Area MRS is similar to that presented in **Section 4.1.3** with the following site-specific details.

The topography of the site slopes to the west towards a south flowing tributary of Spring Creek. Ground surface elevations range from 656 feet amsl at the eastern portion of the site near the road to 584 feet amsl at the tributary of Spring Creek. Groundwater is anticipated to flow to the west and south toward the Spring Creek tributary. Based on hydrogeological data obtained from previous groundwater studies performed at IAAAP, shallow groundwater is present at depths of approximately 10-15 feet below ground surface. The underlying geology of the area is characterized as unconsolidated deposits, described as a layer of silt with sand (loess) overlying glacial till.

4.8.7 Land Use and Exposure Profile

4.8.7.1 Current Land Use/Activities

The Active Army MMRP is currently investigating this site. The Incendiary Disposal Area MRS is currently unused and undeveloped.

4.8.7.2 Current Human Receptors

Current human receptors include IAAAP personnel, contractors, visitors, and hunters, trespassers, and construction workers.

4.8.7.3 Potential Future Land Use

Currently there are no plans to develop the Incendiary Disposal Area MRS. Potential future land use is expected to be consistent with the current use.

4.8.7.4 Potential Future Receptors

Potential future human receptors would be limited to current receptors.

4.8.7.5 Ecological Receptors

The Indiana Bat has been known to roost and forage on IAAAP. This MRS contains suitable habitat for the Indiana Bat.

4.8.8 Munitions/Release Profile

Table 4-8 presents a summary of the potential munitions and primary release mechanisms for the Incendiary Disposal Area MRS based on information obtained during the HRR.

Table 4-8: Summary of Potential Munition Types, Incendiary Disposal Area MRS

AEDB-R Site	Potential Munitions		Primary Release Mechanism
Incendiary Disposal Area MRS *	Incendiary Fuzes	Mines Large Caliber	Open Burn Open Detonation Burial

* Located within the East Training Range MRA

4.8.8.1 MEC Density

A specific MEC density is not known for the Incendiary Disposal Area MRS.

4.8.8.2 MEC Scrap and Fragments

In April 2007, during IRP remedial activities, DMM was found. The IRP contractor identified the DMM and notified IAAAP Army Environmental, which contacted the 763rd Ordnance Company (EOD) located at Fort Leonard Wood, Missouri. EOD personnel inspected the DMM and identified 1 mine, AT, M1A1; 14 Fuses, Projectile, PD, Mark II; and 13 Projectile, Shrapnel, Cannon 75mm Mk1 shells. The munitions items were detonated in place by Fort Leonard Wood EOD. No further investigation (i.e., geophysical survey) for the presence of additional MEC items was completed following the detonation.

Fort Leonard Wood EOD returned to IAAAP in June 2007 to address any residual from the April 2007 detonation in place at the Incendiary Disposal Area MRS. Five additional 75mm rounds were identified (pusher plates intact, black powder expelling charge, no fuzes). The munitions were safely removed from the Incendiary Disposal Area MRS and were destroyed by detonation at the Demolition Area by Fort Leonard Wood EOD. Based on the recent findings, MEC is present at the Incendiary Disposal Area MRS.

4.8.8.1 Associated Munitions Constituents

The nature and extent of MC contamination was delineated by the IRP, and a remedial action began in February 2007. The remedial action included the following activities: excavation of contaminated soil at locations that had analyte concentrations above their respective OU-1

remediation goal and confirmation sampling. The excavation activities were completed in March 2007 and consisted of excavations totaling approximately 239 cubic yards of soil. Backfill of excavations and site restoration were not completed due to MEC findings during IRP activities. Based on this remedial action, MC concentrations above action levels are not expected to be present at the site.

4.8.8.2 Transport Mechanisms/ Migration Routes

The primary transport mechanisms and their viability and potential significance at the Incendiary Disposal Area MRS include the following:

Erosion: This area slopes downward to the west and is vegetated with forested lands. Run-off flows towards Spring Creek and its tributaries at the Incendiary Disposal Area MRS. During periods of heavy precipitation, runoff may occur, and the potential for erosion that would transport and cause MC contaminated soil to migrate is possible although limited due to the vegetated nature of most of the land. Currently, some vegetation has been cleared to allow for investigative sampling and excavation of contaminated soil above OU-1 remediation goals.

Soil Disturbance: Disturbance of soils may increase infiltration rates and dispersion of MC, making it more susceptible to migration due to infiltration. Additionally, MC exposed to the ground surface by soil disturbances may become more susceptible to transport via surface water run-off. MEC soil disturbances, such as construction activities, tilling for agriculture, landscaping or grading, frost heave, or animal burrows may bring MEC to the ground surface. Soil excavation activities were completed at the Incendiary Disposal Area MRS in March 2007.

Infiltration: Based on the soil types present at IAAAP (**Section 4.1.3**), the potential for MC to migrate from surface soil to subsurface soil and to groundwater via infiltration exists.

4.8.9 Pathway Analysis

The pathway analysis identifies complete, potentially complete, or incomplete exposure pathways based on the source–receptor interactions at the MRS, for both current and future land use. An exposure pathway is the course MEC/MC takes from the source to the receptor.

Each exposure pathway must include a source, a mechanism of release, a transport medium (air, surface, water, etc.), and exposure route (inhalation, ingestion, etc.) and a receptor.

Figure 4-13 presents a MEC pathway analysis for the Incendiary Disposal Area MRS. The primary exposure pathways for human receptors are handle/tread underfoot of surface MEC. Another potentially complete pathway would be contact with MEC during intrusive activities. The potential contact with MEC is a possibility. Based on the remedial action completed in March 2007, MC is not expected to be present at the Incendiary Disposal Area MRS and therefore is an incomplete pathway. **Figure 4-14** presents a MC pathway analysis for the Incendiary Disposal Area MRS.

Figure 4-13: MEC Exposure Pathway Analysis, Incendiary Disposal Area MRS

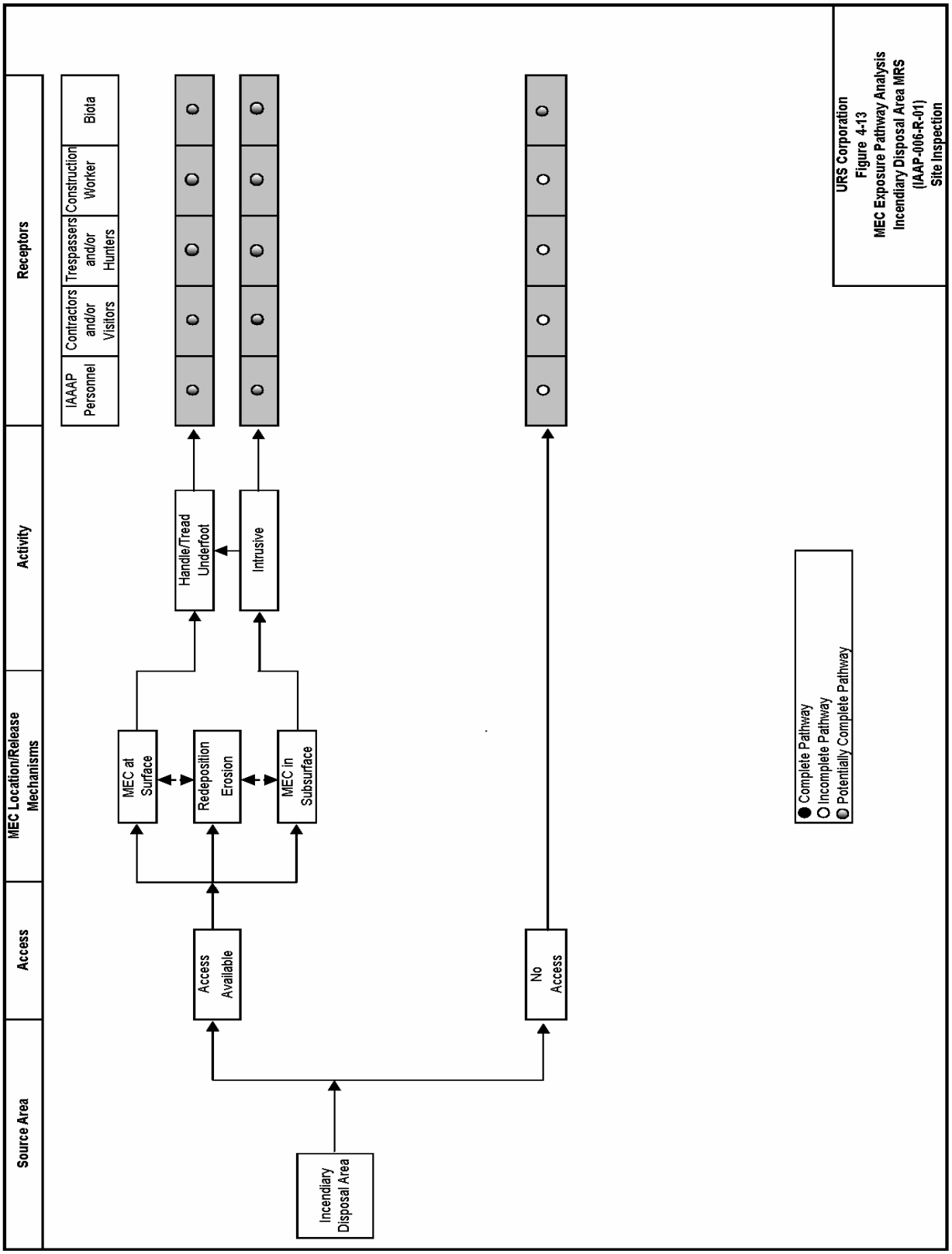
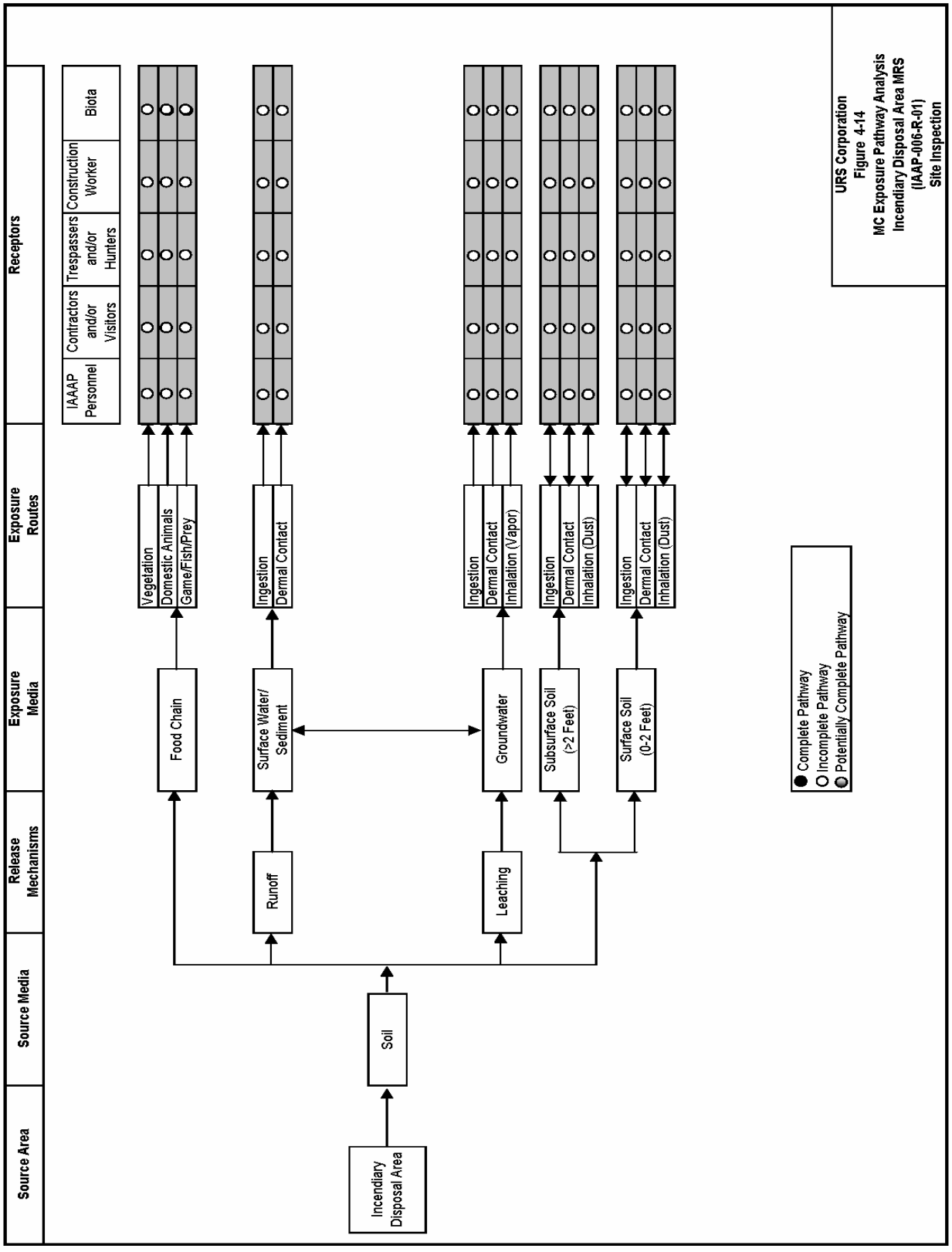


Figure 4-14: MC Exposure Pathway Analysis, Incendiary Disposal Area MRS



5. MUNITIONS RESPONSE SITE PRIORITIZATION PROTOCOL RESULTS

Draft MRSPP rankings were completed for each of the six MRSs based on information obtained during the HRR and previously completed investigations. In compliance with 32 CFR §179.5, the draft MRSPP score(s) for the MRSs are considered interim pending stakeholder input. All draft MRSPP worksheets are included as **Appendix B** (CD only), and **Table 5-1** provides a summary of the draft MRSPP properties.

Table 5-1: Summary of Draft MRSPP Priority Rankings

Site Name	AEDB-R Number	Draft Priority Ranking*
Central Test Area MRS	IAAP-001-R-01	5
Line 6 Ammo Production MRS	IAAP-002-R-01	4
West Burn Pads MRS	IAAP-003-R-01	7
Possible Demolition Site MRS	IAAP-004-R-01	5
West Burn Pads Area South of the Road MRS	IAAP-005-R-01	3
Maneuver Area MRS	IAAP-006-R-02	6
Incendiary Disposal Area MRS	IAAP-006-R-01	3

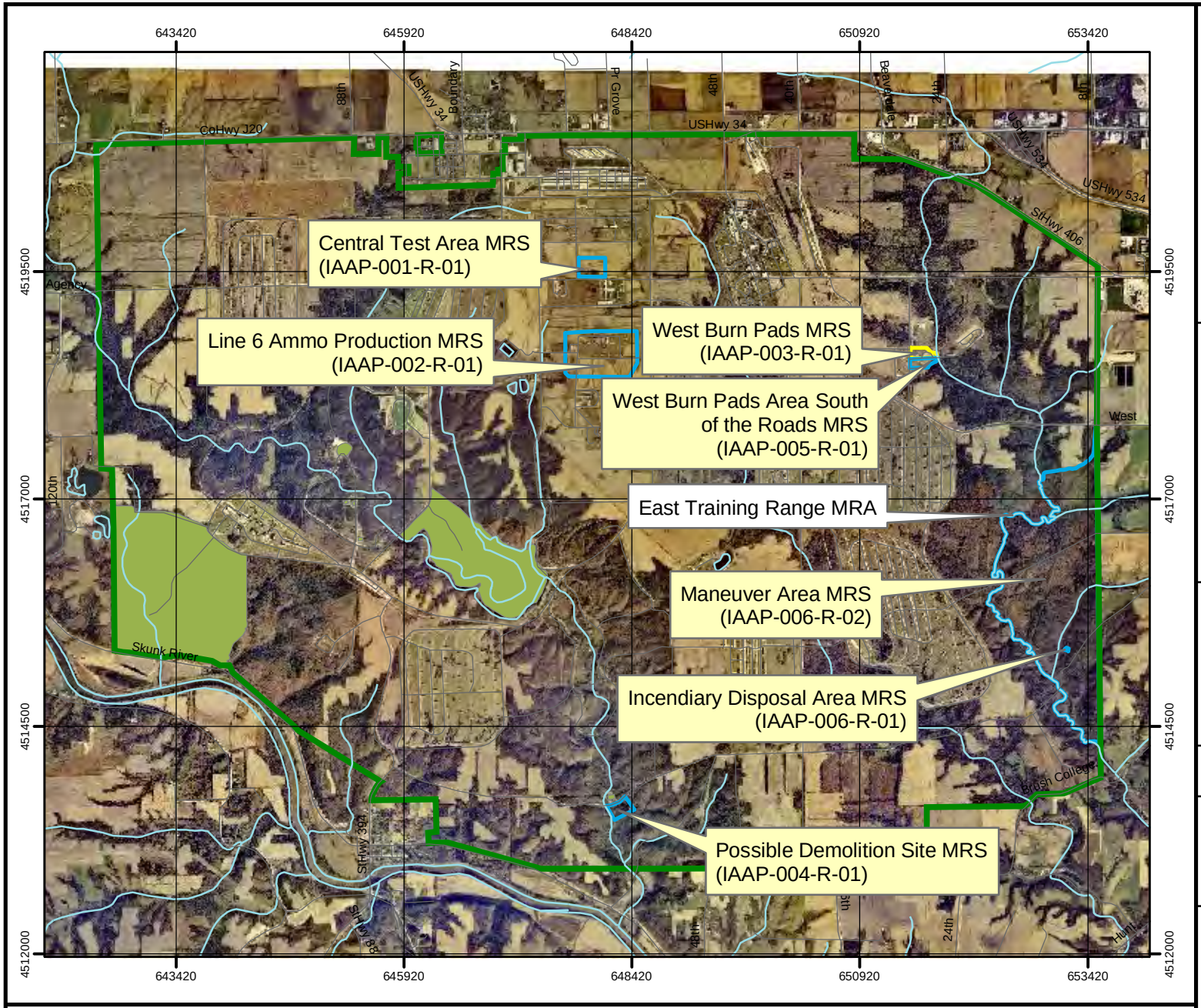
*An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority.

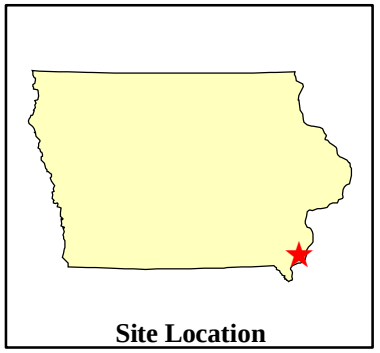
6. SUMMARY AND CONCLUSIONS

A summary of SI acreages and primary MEC and MC for each MRS is presented in **Table 6-1**. A summary of SI recommendations for each MRS is presented in **Table 6-2** and detailed below. **Figure 6-1** illustrates the locations of all the Active Army MMRP eligible MRSs at IAAAP and those sites determined to be ineligible.

Table 6-1: Summary of SI Findings

MRS (AEDB-R No.)	Acreage CTT/HRR/SI	Basis for Acreage Change	Primary MEC and MC	
			MEC	MC
Central Test Area MRS (IAAP-001-R-01)	15.16/15.16/15.16	No changes to acreage.	Boosters Fuzes Grenades Mines	None (Remedial Action)
Line 6 Ammo Production MRS (IAAP-002-R-01)	95.21/95.21/95.21	No changes to acreage.	Detonators Fuzes Primers Relays	None (Remedial Action)
West Burn Pads MRS (IAAP-003-R-01)	6.98/6.98/6.98	No changes to acreage.	None (Remedial Action)	None (Remedial Action)
Possible Demolition Site MRS (IAAP-004-R-01)	NA/15/15	MRS was identified as MMRP-eligible in the HRR. No changes to acreage.	Boosters Fuzes Delays Detonators Primers	None (Remedial Action)
West Burn Pads Area South of the Road MRS (IAAP-005-R-01)	NA/10.58/10.58	MRS was identified as MMRP-eligible in the HRR. No changes to acreage.	Boosters Delays Detonators Fuzes Primers	Barium Lead RDX TNT
Maneuver Area MRS (IAAP-006-R-02)	NA/508/508	MRS was identified as MMRP-eligible in the HRR. No changes to acreage.	CS Pyrotechnics Small Arms	Lead Perchlorates White phosphorus
Incendiary Disposal Area MRS (IAAP-006-R-01)	NA/12/12	MRS was identified as MMRP-eligible in the HRR. No changes to acreage.	Fuzes Large Caliber Incendiary Mines	None (Remedial Action)





Iowa Army Ammunition Plant

- Operational Range Area
- Installation Boundary
- Eligible MRSs
- Inelligble MRS, Carried forward to RI Phase per USEPA Dispute Resolution

Military Munitions Response Program Site Inspection

IOWA ARMY AMMUNITON PLANT
U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
CONTRACTW912DR-06-C-0029

FIGURE 6-1

MUNITIONS RESPONSE SITES

NOTE:
Location of the Iowa Army Ammunition Plant
Source : CTT 2003

Projection	**UTM, Zone 12**
Horizontal Datum	**NAD83**
Units	**Meters**
Scale	**1:63,877**
Photo Date	**2005**

0 500 1,000 Meters

N

FPM group
URS

Date: MAY 10, 2007

Z:\IowaA AP\IAAAP GIS\site inspection\figure 6-1.mxd

Table 6-2: Summary of SI Recommendations

MRS (AEDB-R No.)	Draft MRSPP Priority*	Recommendations		Basis for Recommendation	
		MEC	MC	MEC	MC
Central Test Area (IAAP-001-R-01)	5	RI	RI	USEPA Dispute Resolution dated 20 December 2006.	USEPA Dispute Resolution dated 20 December 2006.
Line 6 Ammo Production (IAAP-002-R-01)	4	RI	RI	USEPA Dispute Resolution dated 20 December 2006.	USEPA Dispute Resolution dated 20 December 2006.
West Burn Pads MRS (IAAP-003-R-01)	7	RI	RI	USEPA Dispute Resolution dated 20 December 2006.	USEPA Dispute Resolution dated 20 December 2006.
Possible Demolition Site (IAAP-004-R-01)	5	RI	RI	USEPA Dispute Resolution dated 20 December 2006.	USEPA Dispute Resolution dated 20 December 2006.
West Burn Pads Area South of the Road (IAAP-005-R-01)	3	RI	RI	USEPA Dispute Resolution dated 20 December 2006.	USEPA Dispute Resolution dated 20 December 2006.
Maneuver Area (IAAP-006-R-02)	6	RI	RI	Based on the findings of the HRR, the potential for MEC exists. MEC has not been addressed by previous investigations.	Based on the findings of the HRR, the potential for MC exists. MC has not been addressed by previous investigations.
Incendiary Disposal Area (IAAP-006-R-01)	3	RI	RI	USEPA Dispute Resolution dated 20 December 2006.	USEPA Dispute Resolution dated 20 December 2006.

*An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority.

6.1. CENTRAL TEST AREA MRS (IAAP-001-R-01)

The Central Test Area MRS was used from approximately 1943 through 1963 for research and development for the testing of hand grenades, mines, and adapter boosters under static firing test conditions. This area originally consisted of Building 600-84, a concrete base for the drop test fixture for exploding incendiary bombs (tripod), and a test-fire pit. Building 600-84 is still present and operational today (occupied by Advanced Environmental Technology Inc. and not eligible for the MMRP). The tripod and test-fire pit have been removed. Based on the findings of the SI, the size of this MRS was not altered from the HRR (URS 2007). Based on the USEPA Dispute Resolution dated 20 December 2006, the Central Test Area MRS will move directly to the RI phase for MEC and MC; therefore, no MEC or MC investigative activities were completed during the MMRP SI.

6.2. LINE 6 AMMO PRODUCTION MRS (IAAP-002-R-01)

The Line 6 Ammo Production MRS consists of Building 6-34-2 and Building 6-92, which were impacted by separate explosions in 1968 and 1970, respectively, that resulted in the dispersion of MEC in surrounding areas. Building 6-34-2 was primarily used for detonator loading. Building 6-92 was used to clean the explosives residue from newly completed components, such as detonators and relays. Based on the findings of the SI, the size of this MRS was not altered from the HRR (URS 2007). Based on the USEPA Dispute Resolution dated 20 December 2006, the Line 6 Ammo Production MRS will move directly to the RI phase for MEC and MC; therefore, no MEC or MC investigative activities were completed during the MMRP SI.

6.3. WEST BURN PADS MRS (IAAP-003-R-01)

The West Burn Pads MRS encompasses four sub areas: the West Burn Pads, West Burn Pads Landfill, Burn Cages, and the Burn Cage Ash Disposal Landfill. Based on the findings of the SI, the size of this MRS was not altered from the HRR (URS 2007). Based on the HRR (URS 2007) findings, the West Burn Pads MRS was found to be ineligible for the Active Army MMRP. However, based on the USEPA Dispute Resolution dated 20 December 2006, the West Burn Pads MRS will move directly to the RI phase for MEC and MC.

6.4. POSSIBLE DEMOLITION SITE MRS (IAAP-004-R-01)

The Possible Demolition Site MRS was potentially used during the 1940s and early 1950s as a demolition area for ammunition items and for demilitarizing white phosphorous rounds. This area has never been developed. Based on the findings of the SI, the size of this MRS was not altered from the HRR (URS 2007). Based on the USEPA Dispute Resolution dated 20 December 2006, the Possible Demolition Site MRS will move directly to the RI phase for MEC and MC; therefore, no MEC or MC investigative activities were completed during the MMRP SI.

6.5. WEST BURN PADS AREA SOUTH OF THE ROAD MRS (IAAP-005-R-01)

The West Burn Pads Area South of the Road MRS may have been an extension of the West Burn Pads MRS, which was used from 1949 through 1982 for flashing of metals contaminated with explosives. In addition, interviews indicate trenching and disposal

activities may have been conducted in this area. Structures present at the site are in caretaker status (operational, not eligible for the MMRP) and include the burning ground office building, observation bunker and two storage bunkers. Based on the findings of the SI, the size of this MRS was not altered from the HRR (URS 2007). Based on the USEPA Dispute Resolution dated 20 December 2006, the West Burn Pads Area South of the Road MRS will move directly to the RI phase for MEC and MC; therefore, no MEC or MC investigative activities were completed during the MMRP SI.

6.6. MANEUVER AREA MRS (IAAP-006-R-02)

The Maneuver Area MRS was used by the IA ARNG since at least 1969. IA ARNG training exercises at a minimum have included dismounted movement, construction of bivouac sites, and night convoy operations. In addition, IA ARNG has historically been authorized to use ammunition blanks and pyrotechnics during training activities. This area has never been developed. Based on the findings of the SI, the size of this MRS was not altered from the HRR (URS 2007). Based on the HRR (URS 2007) findings, the potential exists for MEC or MC to be present. No MEC or MC investigations have been completed for this MRS. This MRS is recommended to advance to the RI phase for MEC and MC investigations.

6.7. INCENDIARY DISPOSAL AREA MRS (IAAP-006-R-01)

The Incendiary Disposal Area MRS may have been used as a high EDA. Use of this area for burial of unknown materials was substantiated in April 2007 when MEC were discovered and disposed of by Fort Leonard Wood EOD personnel. This area has never been developed. Based on the findings of the SI, the size of this MRS was not altered from the HRR (URS 2007). Based on the USEPA Dispute Resolution dated 20 December 2006, the Incendiary Disposal Area MRS will move directly to the RI phase for MEC and MC; therefore, no MEC or MC investigative activities were completed during the MMRP SI.

7. REFERENCES

American Ordnance LLC (AO). 2000. Environmental Baseline Survey, East Training Range.

Earth Tech, Inc. (Earth Tech). 2002. Integrated Cultural Resource Management Plan For Iowa Army Ammunition Plant (IAAAP), Iowa. May.

Engineering-Environmental Management, Inc. (e^2M). 2003. Final Closed, Transferring, and Transferred Range/Site Inventory Report, Iowa Army Ammunition Plant, Iowa. October.

Environmental Chemical Corporation. (ECC). 2000. Iowa Army Ammunition Plant Focused Feasibility Study Sites Remedial Action – Phase I Middletown, Iowa. October.

ECC. 2001. Final Closed, Draft-Final Excavation Report Iowa Army Ammunition Plant Focused Feasibility Soil Study Sites, Phase 3 Remedial Action – West Burn Pads Area Middletown, Iowa. November.

Horn Environmental Services Inc (HES). 2001. Integrated Natural Resources Management Plan, Iowa Army Ammunition Plant Middletown, Iowa. March.

Interstate Technology and Regulatory Council (ITRC). 2003. Munitions Response Historical records Review, Technical/Regulatory Guidelines. November.

Jaycor. 1994. Preliminary Assessment for the 43 Iowa Army Ammunition Plant Sites. October.

Jaycor. 1996. Revised Draft Final Remedial Investigation/Risk Assessment Report for Iowa Army Ammunition Plant. May.

Mason & Hanger-Silas Mason Co. Inc. 1964. Semi-annual Historical Summary, 01 July–31 December 1963. 13 February.

Mason & Hanger-Silas Mason Co. Inc. DA Form 285 Report No. 027 Narrative and Corrective Action.

Mason & Hanger-Silas Mason Co. Inc. DA Form 285 Report No. 016 Narrative and Corrective Action.

MKM Engineers, Inc. (MKM). 2005a Draft Final MEC Density Survey Report for Line 6 and Central Test Area, Iowa Army Ammunition Plant. May.

MKM. 2005b. Draft Final Report for the Soil Data Collection at The Incendiary Disposal Area, Fly Ash Waste Pile, Possible Demolition Site, Line 3A Pond, Explosive Waste Incinerator and Construction Debris Landfill. May.

Tetra Tech Inc. (Tetra Tech). 2005a. Remedial Design/Remedial Action Work Plan and Sampling and Analysis Plan Addendum Soils Operable Unit 1. May.

Tetra Tech. 2005b. 2004 – 2005 Groundwater Sampling Report Iowa Army Ammunition Plan Middletown, Iowa. December.

Tetra Tech. 2006. Draft Final Supplemental Remedial Investigation Operable Unit 4. August.

Tetra Tech. 2007. Draft Remedial Action Report for Operable Unit 1 (OU-1) Soils. July.

TN & Associates, Inc. (TN&A). 2003. Historical Site Assessments for Line 6, Line 800, Central Test Area & Deactivation Furnace Iowa Army Ammunition Plant Middletown, Iowa. September.

United States Army Corps of Engineers (USACE). 1994. Archive Search Report Iowa Army Ammunition Plant (Buffer/Protective Areas). June.

USACE. 2003. Sampling and Analysis Field Notes Focused FS Soils Removal West Burn Pads Landfill – South Extension Fire Training Pit Iowa Army Ammunition Plant Middletown, Iowa. January. (Not Published)

USACE. 2007. Remedial Investigation Work Plan for Line 1, Firing Sites Area, Yards C, G, and L, Warehouse 3-01 and the West Burn Pads Area South of the Road. February.

United States Army Environmental Center (USAEC). 2005. Installation Action Plan Iowa Army Ammunition Plant.

United States Army Toxic and Hazardous Materials Agency (USATHAMA). 1980. Installation Assessment of Iowa Army Ammunition Plant Report No. 127.

URS Group, Inc. (URS). 2002 Draft Final Facility-Wide Work Plan, Iowa Army Ammunition Plant, Middletown, Iowa. February.

URS. 2003. Draft Final Off-Site Groundwater Remedial Investigation, IAAAP, Iowa. April.

URS. 2007. Stakeholder Draft Historical Records Review, IAAAP, Iowa. April.

Appendix A

Installation Restoration Program (IRP) Analytical Results

Central Test Area MRS

APPENDIX A
Central Test Area IRP Soil Sampling Results
Iowa Army Ammunition Plant

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
Explosive Test Bldg 600-84	CTA-001-ES	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
Explosive Test Bldg 600-84	CTA-001-ES	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
Explosive Test Bldg 600-84	CTA-001-ES	0 - 1	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
Explosive Test Bldg 600-84	CTA-001-ES	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
Explosive Test Bldg 600-84	CTA-001-ES	0 - 1	2,6-Dinitrotoluene	0.1	mg/kg	ND	620	NO	Human Health	
Explosive Test Bldg 600-84	CTA-001-ES	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
Explosive Test Bldg 600-84	CTA-001-ES	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
Explosive Test Bldg 600-84	CTA-001-ES	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
Explosive Test Bldg 600-84	CTA-001-ES	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
Explosive Test Bldg 600-84	CTA-001-ES	0 - 1	Nitrobenzene	0.05	mg/kg		100	NO	Human Health	
Explosive Test Bldg 600-84	CTA-001-ES	0 - 1	Nitroglycerine	6.2	mg/kg	ND	120	NO	Human Health	
Explosive Test Bldg 600-84	CTA-001-ES	0 - 1	Nitroguanidine	0.1	mg/kg	ND	62000	NO	Human Health	
Explosive Test Bldg 600-84	CTA-001-ES	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
Explosive Test Bldg 600-84	CTA-001-ES	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
Explosive Test Bldg 600-84	CTA-002-ES	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
Explosive Test Bldg 600-84	CTA-002-ES	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
Explosive Test Bldg 600-84	CTA-002-ES	0 - 1	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
Explosive Test Bldg 600-84	CTA-002-ES	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
Explosive Test Bldg 600-84	CTA-002-ES	0 - 1	2,6-Dinitrotoluene	0.1	mg/kg	ND	620	NO	Human Health	
Explosive Test Bldg 600-84	CTA-002-ES	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
Explosive Test Bldg 600-84	CTA-002-ES	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
Explosive Test Bldg 600-84	CTA-002-ES	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
Explosive Test Bldg 600-84	CTA-002-ES	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
Explosive Test Bldg 600-84	CTA-002-ES	0 - 1	Nitrobenzene	0.03	mg/kg		100	NO	Human Health	
Explosive Test Bldg 600-84	CTA-002-ES	0 - 1	Nitroglycerine	6.3	mg/kg	ND	120	NO	Human Health	
Explosive Test Bldg 600-84	CTA-002-ES	0 - 1	Nitroguanidine	0.1	mg/kg	ND	62000	NO	Human Health	
Explosive Test Bldg 600-84	CTA-002-ES	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
Explosive Test Bldg 600-84	CTA-002-ES	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
Explosive Test Bldg 600-84	CTA-003-ES	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
Explosive Test Bldg 600-84	CTA-003-ES	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
Explosive Test Bldg 600-84	CTA-003-ES	0 - 1	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
Explosive Test Bldg 600-84	CTA-003-ES	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
Explosive Test Bldg 600-84	CTA-003-ES	0 - 1	2,6-Dinitrotoluene	0.1	mg/kg	ND	620	NO	Human Health	
Explosive Test Bldg 600-84	CTA-003-ES	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
Explosive Test Bldg 600-84	CTA-003-ES	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
Explosive Test Bldg 600-84	CTA-003-ES	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
Explosive Test Bldg 600-84	CTA-003-ES	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
Explosive Test Bldg 600-84	CTA-003-ES	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
Explosive Test Bldg 600-84	CTA-003-ES	0 - 1	Nitroglycerine	6.5	mg/kg	ND	120	NO	Human Health	
Explosive Test Bldg 600-84	CTA-003-ES	0 - 1	Nitroguanidine	0.1	mg/kg	ND	62000	NO	Human Health	
Explosive Test Bldg 600-84	CTA-003-ES	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
Explosive Test Bldg 600-84	CTA-003-ES	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
Explosive Test Bldg 600-84	CTA-004-ES	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
Explosive Test Bldg 600-84	CTA-004-ES	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
Explosive Test Bldg 600-84	CTA-004-ES	0 - 1	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
Explosive Test Bldg 600-84	CTA-004-ES	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
Explosive Test Bldg 600-84	CTA-004-ES	0 - 1	2,6-Dinitrotoluene	0.1	mg/kg	ND	620	NO	Human Health	
Explosive Test Bldg 600-84	CTA-004-ES	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
Explosive Test Bldg 600-84	CTA-004-ES	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
Explosive Test Bldg 600-84	CTA-004-ES	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
Explosive Test Bldg 600-84	CTA-004-ES	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
Explosive Test Bldg 600-84	CTA-004-ES	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
Explosive Test Bldg 600-84	CTA-004-ES	0 - 1	Nitroglycerine	6.3	mg/kg	ND	120	NO	Human Health	
Explosive Test Bldg 600-84	CTA-004-ES	0 - 1	Nitroguanidine	0.1	mg/kg	ND	62000	NO	Human Health	
Explosive Test Bldg 600-84	CTA-004-ES	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
Explosive Test Bldg 600-84	CTA-004-ES	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
Explosive Test Bldg 600-84	CTA-005-ES	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
Explosive Test Bldg 600-84	CTA-005-ES	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
Explosive Test Bldg 600-84	CTA-005-ES	0 - 1	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
Explosive Test Bldg 600-84	CTA-005-ES	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
Explosive Test Bldg 600-84	CTA-005-ES	0 - 1	2,6-Dinitrotoluene	0.1	mg/kg	ND	620	NO	Human Health	
Explosive Test Bldg 600-84	CTA-005-ES	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
Explosive Test Bldg 600-84	CTA-005-ES	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	

APPENDIX A
Central Test Area IRP Soil Sampling Results
Iowa Army Ammunition Plant

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
Explosive Test Bldg 600-84	CTA-005-ES	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
Explosive Test Bldg 600-84	CTA-005-ES	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
Explosive Test Bldg 600-84	CTA-005-ES	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
Explosive Test Bldg 600-84	CTA-005-ES	0 - 1	Nitroglycerine	5.9	mg/kg	ND	120	NO	Human Health	
Explosive Test Bldg 600-84	CTA-005-ES	0 - 1	Nitroguanidine	0.1	mg/kg	ND	62000	NO	Human Health	
Explosive Test Bldg 600-84	CTA-005-ES	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
Explosive Test Bldg 600-84	CTA-005-ES	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-006-ES	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-006-ES	0 - 1	1,3-Dinitrobenzene	0.03	mg/kg		62	NO	Human Health	
Former Firing Pit	CTA-006-ES	0 - 1	2,4,6-Trinitrotoluene	110	mg/kg		47.6	YES	Human Health	
Former Firing Pit	CTA-006-ES	0 - 1	2,4-Dinitrotoluene	1.2	mg/kg		8.7	NO	Human Health	
Former Firing Pit	CTA-006-ES	0 - 1	2,6-Dinitrotoluene	3.8	mg/kg		620	NO	Human Health	
Former Firing Pit	CTA-006-ES	0 - 1	2-Nitrotoluene	2	mg/kg		2.2	NO	Human Health	
Former Firing Pit	CTA-006-ES	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-006-ES	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-006-ES	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-006-ES	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-006-ES	0 - 1	Nitroglycerine	6.5	mg/kg	ND	120	NO	Human Health	
Former Firing Pit	CTA-006-ES	0 - 1	Nitroguanidine	0.1	mg/kg	ND	62000	NO	Human Health	
Former Firing Pit	CTA-006-ES	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-006-ES	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-007-ES	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-007-ES	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-007-ES	0 - 1	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-007-ES	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-007-ES	0 - 1	2,6-Dinitrotoluene	0.1	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-007-ES	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-007-ES	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-007-ES	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-007-ES	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-007-ES	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-007-ES	0 - 1	Nitroglycerine	5.8	mg/kg	ND	120	NO	Human Health	
Former Firing Pit	CTA-007-ES	0 - 1	Nitroguanidine	0.1	mg/kg	ND	62000	NO	Human Health	
Former Firing Pit	CTA-007-ES	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-007-ES	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-008-ES	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-008-ES	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-008-ES	0 - 1	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-008-ES	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-008-ES	0 - 1	2,6-Dinitrotoluene	0.1	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-008-ES	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-008-ES	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-008-ES	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-008-ES	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-008-ES	0 - 1	Nitrobenzene	1.7	mg/kg		100	NO	Human Health	
Former Firing Pit	CTA-008-ES	0 - 1	Nitroglycerine	5.9	mg/kg	ND	120	NO	Human Health	
Former Firing Pit	CTA-008-ES	0 - 1	Nitroguanidine	0.1	mg/kg	ND	62000	NO	Human Health	
Former Firing Pit	CTA-008-ES	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-008-ES	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-009-ES	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-009-ES	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-009-ES	0 - 1	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-009-ES	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-009-ES	0 - 1	2,6-Dinitrotoluene	0.1	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-009-ES	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-009-ES	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-009-ES	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-009-ES	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-009-ES	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-009-ES	0 - 1	Nitroglycerine	6.3	mg/kg	ND	120	NO	Human Health	
Former Firing Pit	CTA-009-ES	0 - 1	Nitroguanidine	0.1	mg/kg	ND	62000	NO	Human Health	
Former Firing Pit	CTA-009-ES	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-009-ES	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	

APPENDIX A
Central Test Area IRP Soil Sampling Results
Iowa Army Ammunition Plant

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
Former Firing Pit	CTA-010-ES	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-010-ES	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-010-ES	0 - 1	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-010-ES	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-010-ES	0 - 1	2,6-Dinitrotoluene	0.1	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-010-ES	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-010-ES	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-010-ES	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-010-ES	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-010-ES	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-010-ES	0 - 1	Nitroglycerine	6.2	mg/kg	ND	120	NO	Human Health	
Former Firing Pit	CTA-010-ES	0 - 1	Nitroguanidine	0.1	mg/kg	ND	62000	NO	Human Health	
Former Firing Pit	CTA-010-ES	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-010-ES	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	0 - 1	1,3,5-Trinitrobenzene	0.24	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	0 - 1	1,3-Dinitrobenzene	0.24	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	0 - 1	2,4,6-Trinitrotoluene	0.665	mg/kg		47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	0 - 1	2,4-Dinitrotoluene	0.24	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	0 - 1	2,6-Dinitrotoluene	0.24	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	0 - 1	2-Nitrotoluene	0.24	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	0 - 1	3-Nitrotoluene	0.24	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	0 - 1	4-Nitrotoluene	0.24	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	0 - 1	Aluminum	10100	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	0 - 1	Antimony	0.3	mg/kg	ND	816	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	0 - 1	Arsenic	3.7	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	0 - 1	Barium	209	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	0 - 1	Beryllium	0.54	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	0 - 1	Cadmium	0.19	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	0 - 1	Chromium	12.1	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	0 - 1	Cobalt	2.9	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	0 - 1	Copper	15.2	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	0 - 1	HMX	0.24	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	0 - 1	Iron	10800	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	0 - 1	Lead	15.5	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	0 - 1	Manganese	253	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	0 - 1	Mercury	0.032	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	0 - 1	Nickel	11.8	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	0 - 1	Nitrobenzene	0.24	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	0 - 1	RDX	0.24	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	0 - 1	Selenium	2.8	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	0 - 1	Silver	0.11	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	0 - 1	Tetryl	0.24	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	0 - 1	Thallium	2.2	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	0 - 1	Vanadium	20.4	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	0 - 1	Zinc	48.3	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	1 - 2	1,3,5-Trinitrobenzene	0.25	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	1 - 2	1,3-Dinitrobenzene	0.25	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	1 - 2	2,4,6-Trinitrotoluene	0.103	mg/kg		47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	1 - 2	2,4-Dinitrotoluene	0.25	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	1 - 2	2,6-Dinitrotoluene	0.25	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	1 - 2	2-Nitrotoluene	0.25	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	1 - 2	3-Nitrotoluene	0.25	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	1 - 2	4-Nitrotoluene	0.25	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	1 - 2	Aluminum	9550	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	1 - 2	Antimony	0.31	mg/kg	ND	816	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	1 - 2	Arsenic	3.3	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	1 - 2	Barium	190	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	1 - 2	Beryllium	0.56	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	1 - 2	Cadmium	0.034	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	1 - 2	Chromium	11.1	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	1 - 2	Cobalt	2.9	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	1 - 2	Copper	13.5	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	1 - 2	HMX	0.25	mg/kg	ND	51000	NO	Human Health	

APPENDIX A
Central Test Area IRP Soil Sampling Results
Iowa Army Ammunition Plant

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
Former Firing Pit	CTA-TTSB-001	1 - 2	Iron	10600	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	1 - 2	Lead	10.2	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	1 - 2	Manganese	253	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	1 - 2	Mercury	0.038	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	1 - 2	Nickel	9.1	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	1 - 2	Nitrobenzene	0.25	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	1 - 2	RDX	0.25	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	1 - 2	Selenium	2.9	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	1 - 2	Silver	0.079	mg/kg	ND	5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	1 - 2	Tetryl	0.25	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	1 - 2	Thallium	2.2	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	1 - 2	Vanadium	19.5	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-001	1 - 2	Zinc	40.2	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	1,3,5-Trinitrobenzene	0.24	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	1,3,5-Trinitrobenzene	0.25	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	1,3-Dinitrobenzene	0.24	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	1,3-Dinitrobenzene	0.25	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	2,4,6-Trinitrotoluene	0.506	mg/kg		47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	2,4,6-Trinitrotoluene	0.491	mg/kg		47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	2,4-Dinitrotoluene	0.25	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	2,4-Dinitrotoluene	0.24	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	2,6-Dinitrotoluene	0.24	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	2,6-Dinitrotoluene	0.25	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	2-Nitrotoluene	0.25	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	2-Nitrotoluene	0.24	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	3-Nitrotoluene	0.24	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	3-Nitrotoluene	0.25	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	4-Nitrotoluene	0.25	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	4-Nitrotoluene	0.24	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	Aluminum	11300	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	Aluminum	10400	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	Antimony	0.3	mg/kg	ND	816	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	Antimony	0.38	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	Arsenic	3.5	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	Arsenic	3.6	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	Barium	227	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	Barium	209	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	Beryllium	0.6	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	Beryllium	0.63	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	Cadmium	0.036	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	Cadmium	0.11	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	Chromium	12.7	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	Chromium	11.7	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	Cobalt	3.1	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	Cobalt	2.6	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	Copper	15.9	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	Copper	14.8	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	HMX	0.24	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	Iron	11600	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	Iron	10700	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	Lead	16.2	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	Lead	16.4	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	Manganese	242	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	Manganese	236	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	Mercury	0.032	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	Mercury	0.04	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	Nickel	11.4	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	Nickel	11.4	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	Nitrobenzene	0.24	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	Nitrobenzene	0.25	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	RDX	0.25	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	RDX	0.24	mg/kg	ND	1.3	NO	Human Health	

APPENDIX A
Central Test Area IRP Soil Sampling Results
Iowa Army Ammunition Plant

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
Former Firing Pit	CTA-TTSB-002	0 - 1	Selenium	3.1	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	Selenium	2.9	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	Silver	0.083	mg/kg	ND	5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	Silver	0.087	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	Tetryl	0.24	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	Tetryl	0.25	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	Thallium	2.2	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	Thallium	2.3	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	Vanadium	20.6	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	Vanadium	19.5	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	Zinc	47.6	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	0 - 1	Zinc	46.2	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	1 - 2	1,3,5-Trinitrobenzene	0.24	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	1 - 2	1,3-Dinitrobenzene	0.24	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	1 - 2	2,4,6-Trinitrotoluene	0.24	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	1 - 2	2,4-Dinitrotoluene	0.24	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	1 - 2	2,6-Dinitrotoluene	0.24	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	1 - 2	2-Nitrotoluene	0.24	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	1 - 2	3-Nitrotoluene	0.24	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	1 - 2	4-Nitrotoluene	0.24	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	1 - 2	Aluminum	11400	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	1 - 2	Antimony	0.31	mg/kg	ND	816	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	1 - 2	Arsenic	2.3	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	1 - 2	Barium	230	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	1 - 2	Beryllium	0.69	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	1 - 2	Cadmium	0.034	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	1 - 2	Chromium	12	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	1 - 2	Cobalt	2.1	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	1 - 2	Copper	14.1	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	1 - 2	HMX	0.24	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	1 - 2	Iron	11100	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	1 - 2	Lead	7.7	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	1 - 2	Manganese	90	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	1 - 2	Mercury	0.041	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	1 - 2	Nickel	10.2	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	1 - 2	Nitrobenzene	0.24	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	1 - 2	RDX	0.24	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	1 - 2	Selenium	2.9	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	1 - 2	Silver	0.08	mg/kg	ND	5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	1 - 2	Tetryl	0.24	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	1 - 2	Thallium	2.2	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	1 - 2	Vanadium	16.2	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-002	1 - 2	Zinc	39	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	0 - 1	1,3,5-Trinitrobenzene	0.25	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	0 - 1	1,3-Dinitrobenzene	0.25	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	0 - 1	2,4,6-Trinitrotoluene	0.263	mg/kg		47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	0 - 1	2,4-Dinitrotoluene	0.25	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	0 - 1	2,6-Dinitrotoluene	0.25	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	0 - 1	2-Nitrotoluene	0.25	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	0 - 1	3-Nitrotoluene	0.25	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	0 - 1	4-Nitrotoluene	0.25	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	0 - 1	Aluminum	9040	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	0 - 1	Antimony	0.85	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	0 - 1	Arsenic	3.9	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	0 - 1	Barium	179	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	0 - 1	Beryllium	0.49	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	0 - 1	Cadmium	0.044	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	0 - 1	Chromium	10.2	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	0 - 1	Cobalt	3	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	0 - 1	Copper	12.3	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	0 - 1	Iron	10500	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	0 - 1	Lead	12.2	mg/kg		1000	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
Former Firing Pit	CTA-TTSB-003	0 - 1	Manganese	277	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	0 - 1	Mercury	0.045	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	0 - 1	Nickel	8.9	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	0 - 1	Nitrobenzene	0.25	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	0 - 1	RDX	0.25	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	0 - 1	Selenium	2.7	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	0 - 1	Silver	0.078	mg/kg	ND	5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	0 - 1	Tetryl	0.25	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	0 - 1	Thallium	2.2	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	0 - 1	Vanadium	19.8	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	0 - 1	Zinc	35.9	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	1 - 2	1,3,5-Trinitrobenzene	0.24	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	1 - 2	1,3-Dinitrobenzene	0.24	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	1 - 2	2,4,6-Trinitrotoluene	0.24	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	1 - 2	2,4-Dinitrotoluene	0.24	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	1 - 2	2,6-Dinitrotoluene	0.24	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	1 - 2	2-Nitrotoluene	0.24	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	1 - 2	3-Nitrotoluene	0.24	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	1 - 2	4-Nitrotoluene	0.24	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	1 - 2	Aluminum	11200	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	1 - 2	Antimony	0.38	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	1 - 2	Arsenic	1.8	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	1 - 2	Barium	206	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	1 - 2	Beryllium	0.62	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	1 - 2	Cadmium	0.035	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	1 - 2	Chromium	11.2	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	1 - 2	Cobalt	1.5	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	1 - 2	Copper	13.7	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	1 - 2	HMX	0.24	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	1 - 2	Iron	11200	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	1 - 2	Lead	4.3	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	1 - 2	Manganese	54.8	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	1 - 2	Mercury	0.036	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	1 - 2	Nickel	9.4	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	1 - 2	Nitrobenzene	0.24	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	1 - 2	RDX	0.24	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	1 - 2	Selenium	3.1	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	1 - 2	Silver	0.082	mg/kg	ND	5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	1 - 2	Tetryl	0.24	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	1 - 2	Thallium	2.3	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	1 - 2	Vanadium	11.4	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-003	1 - 2	Zinc	32.9	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	0 - 1	1,3,5-Trinitrobenzene	0.25	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	0 - 1	1,3-Dinitrobenzene	0.25	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	0 - 1	2,4,6-Trinitrotoluene	13	mg/kg		47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	0 - 1	2,4-Dinitrotoluene	0.25	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	0 - 1	2,6-Dinitrotoluene	0.25	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	0 - 1	2-Nitrotoluene	0.25	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	0 - 1	3-Nitrotoluene	0.25	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	0 - 1	4-Nitrotoluene	0.25	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	0 - 1	Aluminum	10500	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	0 - 1	Antimony	0.65	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	0 - 1	Arsenic	4.2	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	0 - 1	Barium	232	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	0 - 1	Beryllium	0.8	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	0 - 1	Cadmium	0.033	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	0 - 1	Chromium	12.2	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	0 - 1	Cobalt	2.8	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	0 - 1	Copper	15.8	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	0 - 1	Iron	11600	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	0 - 1	Lead	12	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	0 - 1	Manganese	235	mg/kg		19000	NO	Human Health	

APPENDIX A
Central Test Area IRP Soil Sampling Results
Iowa Army Ammunition Plant

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
Former Firing Pit	CTA-TTSB-004	0 - 1	Mercury	0.035	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	0 - 1	Nickel	10.6	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	0 - 1	Nitrobenzene	0.25	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	0 - 1	RDX	0.25	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	0 - 1	Selenium	2.9	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	0 - 1	Silver	0.078	mg/kg	ND	5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	0 - 1	Tetryl	0.25	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	0 - 1	Thallium	2.2	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	0 - 1	Vanadium	21.5	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	0 - 1	Zinc	43	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	1 - 2	1,3,5-Trinitrobenzene	0.25	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	1 - 2	1,3-Dinitrobenzene	0.25	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	1 - 2	2,4,6-Trinitrotoluene	0.681	mg/kg		47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	1 - 2	2,4-Dinitrotoluene	0.25	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	1 - 2	2,6-Dinitrotoluene	0.25	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	1 - 2	2-Nitrotoluene	0.25	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	1 - 2	3-Nitrotoluene	0.25	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	1 - 2	4-Nitrotoluene	0.25	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	1 - 2	Aluminum	13600	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	1 - 2	Antimony	0.57	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	1 - 2	Arsenic	3	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	1 - 2	Barium	259	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	1 - 2	Beryllium	0.86	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	1 - 2	Cadmium	0.034	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	1 - 2	Chromium	14.8	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	1 - 2	Cobalt	2.2	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	1 - 2	Copper	16.6	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	1 - 2	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	1 - 2	Iron	14700	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	1 - 2	Lead	6.8	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	1 - 2	Manganese	99.5	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	1 - 2	Mercury	0.034	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	1 - 2	Nickel	11.3	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	1 - 2	Nitrobenzene	0.25	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	1 - 2	RDX	0.25	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	1 - 2	Selenium	2.9	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	1 - 2	Silver	0.1	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	1 - 2	Tetryl	0.25	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	1 - 2	Thallium	2.2	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	1 - 2	Vanadium	20.9	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-004	1 - 2	Zinc	44.5	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	0 - 1	1,3,5-Trinitrobenzene	0.24	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	0 - 1	1,3-Dinitrobenzene	0.24	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	0 - 1	2,4,6-Trinitrotoluene	0.312	mg/kg		47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	0 - 1	2,4-Dinitrotoluene	0.24	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	0 - 1	2,6-Dinitrotoluene	0.24	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	0 - 1	2-Nitrotoluene	0.24	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	0 - 1	3-Nitrotoluene	0.24	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	0 - 1	4-Nitrotoluene	0.24	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	0 - 1	Aluminum	12100	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	0 - 1	Antimony	0.34	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	0 - 1	Arsenic	3.8	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	0 - 1	Barium	228	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	0 - 1	Beryllium	0.84	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	0 - 1	Cadmium	0.037	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	0 - 1	Chromium	13.9	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	0 - 1	Cobalt	3.5	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	0 - 1	Copper	16.1	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	0 - 1	HMX	0.24	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	0 - 1	Iron	13300	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	0 - 1	Lead	11.2	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	0 - 1	Manganese	248	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	0 - 1	Mercury	0.043	mg/kg		310	NO	Human Health	

APPENDIX A
Central Test Area IRP Soil Sampling Results
Iowa Army Ammunition Plant

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
Former Firing Pit	CTA-TTSB-005	0 - 1	Nickel	11.5	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	0 - 1	Nitrobenzene	0.24	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	0 - 1	RDX	0.24	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	0 - 1	Selenium	2.9	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	0 - 1	Silver	0.087	mg/kg	ND	5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	0 - 1	Tetryl	0.24	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	0 - 1	Thallium	2.4	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	0 - 1	Vanadium	24	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	0 - 1	Zinc	47.5	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	1 - 2	1,3,5-Trinitrobenzene	0.25	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	1 - 2	1,3-Dinitrobenzene	0.25	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	1 - 2	2,4,6-Trinitrotoluene	0.25	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	1 - 2	2,4-Dinitrotoluene	0.25	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	1 - 2	2,6-Dinitrotoluene	0.25	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	1 - 2	2-Nitrotoluene	0.25	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	1 - 2	3-Nitrotoluene	0.25	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	1 - 2	4-Nitrotoluene	0.25	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	1 - 2	Aluminum	12400	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	1 - 2	Antimony	0.63	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	1 - 2	Arsenic	3.2	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	1 - 2	Barium	355	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	1 - 2	Beryllium	1.1	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	1 - 2	Cadmium	0.036	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	1 - 2	Chromium	13.4	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	1 - 2	Cobalt	11.1	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	1 - 2	Copper	17.5	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	1 - 2	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	1 - 2	Iron	16200	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	1 - 2	Lead	21.9	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	1 - 2	Manganese	436	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	1 - 2	Mercury	0.044	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	1 - 2	Nickel	21.9	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	1 - 2	Nitrobenzene	0.25	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	1 - 2	RDX	0.25	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	1 - 2	Selenium	2.9	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	1 - 2	Silver	0.085	mg/kg	ND	5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	1 - 2	Tetryl	0.25	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	1 - 2	Thallium	2.4	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	1 - 2	Vanadium	21.5	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-005	1 - 2	Zinc	40.8	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	0 - 1	1,3,5-Trinitrobenzene	0.303	mg/kg		102	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	0 - 1	1,3-Dinitrobenzene	0.23	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	0 - 1	2,4,6-Trinitrotoluene	2.17	mg/kg		47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	0 - 1	2,4-Dinitrotoluene	0.183	mg/kg		8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	0 - 1	2,6-Dinitrotoluene	0.23	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	0 - 1	2-Nitrotoluene	0.23	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	0 - 1	3-Nitrotoluene	0.23	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	0 - 1	4-Nitrotoluene	0.23	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	0 - 1	Aluminum	10100	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	0 - 1	Antimony	0.31	mg/kg	ND	816	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	0 - 1	Arsenic	3.3	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	0 - 1	Barium	216	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	0 - 1	Beryllium	0.77	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	0 - 1	Cadmium	0.034	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	0 - 1	Chromium	11.4	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	0 - 1	Cobalt	2.9	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	0 - 1	Copper	18.9	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	0 - 1	HMX	0.23	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	0 - 1	Iron	11100	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	0 - 1	Lead	12.3	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	0 - 1	Manganese	217	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	0 - 1	Mercury	0.033	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	0 - 1	Nickel	9.8	mg/kg		20000	NO	Human Health	

APPENDIX A
Central Test Area IRP Soil Sampling Results
Iowa Army Ammunition Plant

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
Former Firing Pit	CTA-TTSB-006	0 - 1	Nitrobenzene	0.23	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	0 - 1	RDX	0.23	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	0 - 1	Selenium	2.4	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	0 - 1	Silver	0.079	mg/kg	ND	5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	0 - 1	Tetryl	0.23	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	0 - 1	Thallium	2.2	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	0 - 1	Vanadium	21.2	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	0 - 1	Zinc	42.8	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	1 - 2	1,3,5-Trinitrobenzene	0.25	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	1 - 2	1,3-Dinitrobenzene	0.25	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	1 - 2	2,4,6-Trinitrotoluene	0.25	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	1 - 2	2,4-Dinitrotoluene	0.25	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	1 - 2	2,6-Dinitrotoluene	0.25	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	1 - 2	2-Nitrotoluene	0.25	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	1 - 2	3-Nitrotoluene	0.25	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	1 - 2	4-Nitrotoluene	0.25	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	1 - 2	Aluminum	12800	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	1 - 2	Antimony	0.31	mg/kg	ND	816	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	1 - 2	Arsenic	3.7	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	1 - 2	Barium	348	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	1 - 2	Beryllium	0.95	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	1 - 2	Cadmium	0.034	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	1 - 2	Chromium	13.6	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	1 - 2	Cobalt	17.3	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	1 - 2	Copper	18.7	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	1 - 2	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	1 - 2	Iron	15200	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	1 - 2	Lead	17.2	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	1 - 2	Manganese	759	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	1 - 2	Mercury	0.039	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	1 - 2	Nickel	16	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	1 - 2	Nitrobenzene	0.25	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	1 - 2	RDX	0.25	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	1 - 2	Selenium	2.3	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	1 - 2	Silver	0.11	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	1 - 2	Tetryl	0.25	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	1 - 2	Thallium	0.45	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	1 - 2	Vanadium	25.4	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-006	1 - 2	Zinc	43.3	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	0 - 1	1,3,5-Trinitrobenzene	0.25	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	0 - 1	1,3-Dinitrobenzene	0.25	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	0 - 1	2,4,6-Trinitrotoluene	0.202	mg/kg		47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	0 - 1	2,4-Dinitrotoluene	0.25	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	0 - 1	2,6-Dinitrotoluene	0.25	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	0 - 1	2-Nitrotoluene	0.25	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	0 - 1	3-Nitrotoluene	0.25	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	0 - 1	4-Nitrotoluene	0.25	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	0 - 1	Aluminum	11200	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	0 - 1	Antimony	0.32	mg/kg	ND	816	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	0 - 1	Arsenic	2.2	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	0 - 1	Barium	229	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	0 - 1	Beryllium	0.83	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	0 - 1	Cadmium	0.035	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	0 - 1	Chromium	12.8	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	0 - 1	Cobalt	2.4	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	0 - 1	Copper	15.1	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	0 - 1	Iron	11700	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	0 - 1	Lead	8	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	0 - 1	Manganese	94.1	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	0 - 1	Mercury	0.038	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	0 - 1	Nickel	10.4	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	0 - 1	Nitrobenzene	0.25	mg/kg	ND	100	NO	Human Health	

APPENDIX A
Central Test Area IRP Soil Sampling Results
Iowa Army Ammunition Plant

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
Former Firing Pit	CTA-TTSB-007	0 - 1	RDX	0.25	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	0 - 1	Selenium	2	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	0 - 1	Silver	0.082	mg/kg	ND	5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	0 - 1	Tetryl	0.25	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	0 - 1	Thallium	2.3	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	0 - 1	Vanadium	18.8	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	0 - 1	Zinc	39.7	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	1 - 2	1,3,5-Trinitrobenzene	0.24	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	1 - 2	1,3-Dinitrobenzene	0.24	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	1 - 2	2,4,6-Trinitrotoluene	0.24	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	1 - 2	2,4-Dinitrotoluene	0.24	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	1 - 2	2,6-Dinitrotoluene	0.24	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	1 - 2	2-Nitrotoluene	0.24	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	1 - 2	3-Nitrotoluene	0.24	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	1 - 2	4-Nitrotoluene	0.24	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	1 - 2	Aluminum	13300	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	1 - 2	Antimony	0.61	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	1 - 2	Arsenic	3.1	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	1 - 2	Barium	249	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	1 - 2	Beryllium	0.91	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	1 - 2	Cadmium	0.72	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	1 - 2	Chromium	14.6	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	1 - 2	Cobalt	2.9	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	1 - 2	Copper	15.4	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	1 - 2	HMX	0.24	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	1 - 2	Iron	14500	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	1 - 2	Lead	6.7	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	1 - 2	Manganese	123	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	1 - 2	Mercury	0.039	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	1 - 2	Nickel	12.3	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	1 - 2	Nitrobenzene	0.24	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	1 - 2	RDX	0.24	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	1 - 2	Selenium	3	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	1 - 2	Silver	0.083	mg/kg	ND	5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	1 - 2	Tetryl	0.24	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	1 - 2	Thallium	2.3	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	1 - 2	Vanadium	21.5	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-007	1 - 2	Zinc	43.7	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	0 - 1	1,3,5-Trinitrobenzene	0.24	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	0 - 1	1,3-Dinitrobenzene	0.24	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	0 - 1	2,4,6-Trinitrotoluene	0.24	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	0 - 1	2,4-Dinitrotoluene	0.24	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	0 - 1	2,6-Dinitrotoluene	0.24	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	0 - 1	2-Nitrotoluene	0.24	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	0 - 1	3-Nitrotoluene	0.24	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	0 - 1	4-Nitrotoluene	0.24	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	0 - 1	Aluminum	8850	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	0 - 1	Antimony	0.38	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	0 - 1	Arsenic	4.5	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	0 - 1	Barium	205	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	0 - 1	Beryllium	0.73	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	0 - 1	Cadmium	0.035	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	0 - 1	Chromium	10.9	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	0 - 1	Cobalt	3.7	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	0 - 1	Copper	12.1	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	0 - 1	HMX	0.24	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	0 - 1	Iron	11500	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	0 - 1	Lead	12.2	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	0 - 1	Manganese	494	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	0 - 1	Mercury	0.031	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	0 - 1	Nickel	10.7	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	0 - 1	Nitrobenzene	0.24	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	0 - 1	RDX	0.24	mg/kg	ND	1.3	NO	Human Health	

APPENDIX A
Central Test Area IRP Soil Sampling Results
Iowa Army Ammunition Plant

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
Former Firing Pit	CTA-TTSB-008	0 - 1	Selenium	2.3	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	0 - 1	Silver	0.083	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	0 - 1	Tetryl	0.24	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	0 - 1	Thallium	2.2	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	0 - 1	Vanadium	22.2	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	0 - 1	Zinc	46	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	1 - 2	1,3,5-Trinitrobenzene	0.24	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	1 - 2	1,3-Dinitrobenzene	0.24	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	1 - 2	2,4,6-Trinitrotoluene	0.24	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	1 - 2	2,4-Dinitrotoluene	0.24	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	1 - 2	2,6-Dinitrotoluene	0.24	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	1 - 2	2-Nitrotoluene	0.24	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	1 - 2	3-Nitrotoluene	0.24	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	1 - 2	4-Nitrotoluene	0.24	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	1 - 2	Aluminum	10700	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	1 - 2	Antimony	0.6	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	1 - 2	Arsenic	3.8	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	1 - 2	Barium	280	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	1 - 2	Beryllium	0.95	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	1 - 2	Cadmium	0.7	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	1 - 2	Chromium	11.9	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	1 - 2	Cobalt	8.5	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	1 - 2	Copper	12.7	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	1 - 2	HMX	0.24	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	1 - 2	Iron	14700	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	1 - 2	Lead	12.2	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	1 - 2	Manganese	642	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	1 - 2	Mercury	0.035	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	1 - 2	Nickel	12.6	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	1 - 2	Nitrobenzene	0.24	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	1 - 2	RDX	0.24	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	1 - 2	Selenium	3	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	1 - 2	Silver	0.081	mg/kg	ND	5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	1 - 2	Tetryl	0.24	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	1 - 2	Thallium	2.2	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	1 - 2	Vanadium	22.6	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-008	1 - 2	Zinc	38.2	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	0 - 1	1,3,5-Trinitrobenzene	0.24	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	0 - 1	1,3-Dinitrobenzene	0.24	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	0 - 1	2,4,6-Trinitrotoluene	0.24	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	0 - 1	2,4-Dinitrotoluene	0.24	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	0 - 1	2,6-Dinitrotoluene	0.24	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	0 - 1	2-Nitrotoluene	0.24	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	0 - 1	3-Nitrotoluene	0.24	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	0 - 1	4-Nitrotoluene	0.24	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	0 - 1	Aluminum	13100	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	0 - 1	Antimony	0.44	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	0 - 1	Arsenic	4	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	0 - 1	Barium	223	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	0 - 1	Beryllium	0.89	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	0 - 1	Cadmium	0.037	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	0 - 1	Chromium	15.7	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	0 - 1	Cobalt	3.3	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	0 - 1	Copper	14.9	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	0 - 1	HMX	0.24	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	0 - 1	Iron	15200	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	0 - 1	Lead	11.5	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	0 - 1	Manganese	197	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	0 - 1	Mercury	0.043	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	0 - 1	Nickel	12.1	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	0 - 1	Nitrobenzene	0.24	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	0 - 1	RDX	0.24	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	0 - 1	Selenium	3.4	mg/kg		5100	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
Former Firing Pit	CTA-TTSB-009	0 - 1	Silver	0.086	mg/kg	ND	5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	0 - 1	Tetryl	0.24	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	0 - 1	Thallium	2.4	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	0 - 1	Vanadium	27.5	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	0 - 1	Zinc	51.1	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	1 - 2	1,3,5-Trinitrobenzene	0.24	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	1 - 2	1,3-Dinitrobenzene	0.24	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	1 - 2	2,4,6-Trinitrotoluene	0.24	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	1 - 2	2,4-Dinitrotoluene	0.24	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	1 - 2	2,6-Dinitrotoluene	0.24	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	1 - 2	2-Nitrotoluene	0.24	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	1 - 2	3-Nitrotoluene	0.24	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	1 - 2	4-Nitrotoluene	0.24	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	1 - 2	Aluminum	14800	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	1 - 2	Antimony	0.53	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	1 - 2	Arsenic	3.5	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	1 - 2	Barium	239	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	1 - 2	Beryllium	0.98	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	1 - 2	Cadmium	0.9	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	1 - 2	Chromium	17.1	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	1 - 2	Cobalt	2.7	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	1 - 2	Copper	15.2	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	1 - 2	HMX	0.24	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	1 - 2	Iron	17500	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	1 - 2	Lead	7.4	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	1 - 2	Manganese	93.6	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	1 - 2	Mercury	0.043	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	1 - 2	Nickel	13.1	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	1 - 2	Nitrobenzene	0.24	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	1 - 2	RDX	0.24	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	1 - 2	Selenium	3.6	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	1 - 2	Silver	0.084	mg/kg	ND	5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	1 - 2	Tetryl	0.24	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	1 - 2	Thallium	2.4	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	1 - 2	Vanadium	28.1	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-009	1 - 2	Zinc	52.2	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	0 - 1	1,3,5-Trinitrobenzene	0.24	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	0 - 1	1,3-Dinitrobenzene	0.24	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	0 - 1	2,4,6-Trinitrotoluene	0.24	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	0 - 1	2,4-Dinitrotoluene	0.24	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	0 - 1	2,6-Dinitrotoluene	0.24	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	0 - 1	2-Nitrotoluene	0.24	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	0 - 1	3-Nitrotoluene	0.24	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	0 - 1	4-Nitrotoluene	0.24	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	0 - 1	Aluminum	12700	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	0 - 1	Antimony	1.3	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	0 - 1	Arsenic	6.7	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	0 - 1	Barium	238	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	0 - 1	Beryllium	0.88	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	0 - 1	Cadmium	0.72	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	0 - 1	Chromium	17.8	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	0 - 1	Cobalt	7.5	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	0 - 1	Copper	18.8	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	0 - 1	HMX	0.24	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	0 - 1	Iron	22100	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	0 - 1	Lead	10.3	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	0 - 1	Manganese	419	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	0 - 1	Mercury	0.043	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	0 - 1	Nickel	21.9	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	0 - 1	Nitrobenzene	0.24	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	0 - 1	RDX	0.24	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	0 - 1	Selenium	4.7	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	0 - 1	Silver	0.084	mg/kg	ND	5100	NO	Human Health	

APPENDIX A
Central Test Area IRP Soil Sampling Results
Iowa Army Ammunition Plant

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
Former Firing Pit	CTA-TTSB-010	0 - 1	Tetryl	0.24	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	0 - 1	Thallium	4.7	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	0 - 1	Vanadium	31.8	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	0 - 1	Zinc	57	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	1 - 2	1,3,5-Trinitrobenzene	0.25	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	1 - 2	1,3-Dinitrobenzene	0.25	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	1 - 2	2,4,6-Trinitrotoluene	0.25	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	1 - 2	2,4-Dinitrotoluene	0.25	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	1 - 2	2,6-Dinitrotoluene	0.25	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	1 - 2	2-Nitrotoluene	0.25	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	1 - 2	3-Nitrotoluene	0.25	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	1 - 2	4-Nitrotoluene	0.25	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	1 - 2	Aluminum	8610	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	1 - 2	Antimony	0.52	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	1 - 2	Arsenic	5.9	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	1 - 2	Barium	192	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	1 - 2	Beryllium	0.67	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	1 - 2	Cadmium	0.036	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	1 - 2	Chromium	14.7	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	1 - 2	Cobalt	11.9	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	1 - 2	Copper	14.3	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	1 - 2	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	1 - 2	Iron	15000	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	1 - 2	Lead	9.2	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	1 - 2	Manganese	945	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	1 - 2	Mercury	0.02	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	1 - 2	Nickel	30.3	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	1 - 2	Nitrobenzene	0.25	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	1 - 2	RDX	0.25	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	1 - 2	Selenium	1.9	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	1 - 2	Silver	0.083	mg/kg	ND	5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	1 - 2	Tetryl	0.25	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	1 - 2	Thallium	2.4	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	1 - 2	Vanadium	24.9	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	1 - 2	Zinc	42.1	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	1,3,5-Trinitrobenzene	0.23	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	1,3,5-Trinitrobenzene	0.24	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	1,3-Dinitrobenzene	0.24	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	1,3-Dinitrobenzene	0.23	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	2,4,6-Trinitrotoluene	0.23	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	2,4,6-Trinitrotoluene	0.24	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	2,4-Dinitrotoluene	0.23	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	2,4-Dinitrotoluene	0.24	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	2,6-Dinitrotoluene	0.24	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	2,6-Dinitrotoluene	0.23	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	2-Nitrotoluene	0.24	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	2-Nitrotoluene	0.23	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	3-Nitrotoluene	0.23	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	3-Nitrotoluene	0.24	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	4-Nitrotoluene	0.24	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	4-Nitrotoluene	0.23	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	Aluminum	14700	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	Aluminum	13800	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	Antimony	0.57	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	Antimony	0.6	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	Arsenic	3.2	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	Arsenic	4.6	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	Barium	268	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	Barium	308	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	Beryllium	0.96	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	Beryllium	0.99	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	Cadmium	0.64	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	Cadmium	0.7	mg/kg	ND	1000	NO	Human Health	

APPENDIX A
Central Test Area IRP Soil Sampling Results
Iowa Army Ammunition Plant

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
Former Firing Pit	CTA-TTSB-010	2 - 4	Chromium	17.3	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	Chromium	15.6	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	Cobalt	10.4	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	Cobalt	5.9	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	Copper	17.4	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	Copper	16.5	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	HMX	0.24	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	HMX	0.23	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	Iron	16300	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	Iron	19100	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	Lead	12.4	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	Lead	16.4	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	Manganese	567	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	Manganese	406	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	Mercury	0.054	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	Mercury	0.039	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	Nickel	16.2	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	Nickel	14.1	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	Nitrobenzene	0.23	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	Nitrobenzene	0.24	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	RDX	0.24	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	RDX	0.23	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	Selenium	3.7	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	Selenium	3.4	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	Silver	0.099	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	Silver	0.12	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	Tetryl	0.24	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	Tetryl	0.23	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	Thallium	2.1	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	Thallium	4.6	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	Vanadium	35	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	Vanadium	30.2	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	Zinc	52.3	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	2 - 4	Zinc	51.1	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	4 - 6	1,3,5-Trinitrobenzene	0.24	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	4 - 6	1,3-Dinitrobenzene	0.24	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	4 - 6	2,4,6-Trinitrotoluene	0.24	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	4 - 6	2,4-Dinitrotoluene	0.24	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	4 - 6	2,6-Dinitrotoluene	0.24	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	4 - 6	2-Nitrotoluene	0.24	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	4 - 6	3-Nitrotoluene	0.24	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	4 - 6	4-Nitrotoluene	0.24	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	4 - 6	Aluminum	12900	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	4 - 6	Antimony	1.7	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	4 - 6	Arsenic	5.4	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	4 - 6	Barium	187	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	4 - 6	Beryllium	1	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	4 - 6	Cadmium	0.85	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	4 - 6	Chromium	16.7	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	4 - 6	Cobalt	2.7	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	4 - 6	Copper	18.5	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	4 - 6	HMX	0.24	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	4 - 6	Iron	25600	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	4 - 6	Lead	12.9	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	4 - 6	Manganese	106	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	4 - 6	Mercury	0.055	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	4 - 6	Nickel	15	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	4 - 6	Nitrobenzene	0.24	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	4 - 6	RDX	0.24	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	4 - 6	Selenium	5.1	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	4 - 6	Silver	0.087	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	4 - 6	Tetryl	0.24	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	4 - 6	Thallium	4.4	mg/kg	ND	143	NO	Human Health	

APPENDIX A
Central Test Area IRP Soil Sampling Results
Iowa Army Ammunition Plant

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
Former Firing Pit	CTA-TTSB-010	4 - 6	Vanadium	33.4	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-010	4 - 6	Zinc	53.1	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	0 - 1	1,3,5-Trinitrobenzene	0.23	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	0 - 1	1,3-Dinitrobenzene	0.23	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	0 - 1	2,4,6-Trinitrotoluene	0.1	mg/kg		47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	0 - 1	2,4-Dinitrotoluene	0.23	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	0 - 1	2,6-Dinitrotoluene	0.23	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	0 - 1	2-Nitrotoluene	0.23	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	0 - 1	3-Nitrotoluene	0.23	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	0 - 1	4-Nitrotoluene	0.23	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	0 - 1	Aluminum	9090	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	0 - 1	Antimony	0.38	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	0 - 1	Arsenic	4.7	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	0 - 1	Barium	205	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	0 - 1	Beryllium	0.75	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	0 - 1	Cadmium	0.036	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	0 - 1	Chromium	10.7	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	0 - 1	Cobalt	6	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	0 - 1	Copper	11.5	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	0 - 1	HMX	0.23	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	0 - 1	Iron	12100	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	0 - 1	Lead	17.4	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	0 - 1	Manganese	543	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	0 - 1	Mercury	0.041	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	0 - 1	Nickel	10.2	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	0 - 1	Nitrobenzene	0.23	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	0 - 1	RDX	0.23	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	0 - 1	Selenium	2.6	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	0 - 1	Silver	0.083	mg/kg	ND	5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	0 - 1	Tetryl	0.495	mg/kg		6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	0 - 1	Thallium	0.46	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	0 - 1	Vanadium	23.9	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	0 - 1	Zinc	39.5	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	1 - 2	1,3,5-Trinitrobenzene	0.24	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	1 - 2	1,3-Dinitrobenzene	0.24	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	1 - 2	2,4,6-Trinitrotoluene	0.24	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	1 - 2	2,4-Dinitrotoluene	0.24	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	1 - 2	2,6-Dinitrotoluene	0.24	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	1 - 2	2-Nitrotoluene	0.24	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	1 - 2	3-Nitrotoluene	0.24	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	1 - 2	4-Nitrotoluene	0.24	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	1 - 2	Aluminum	12900	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	1 - 2	Antimony	0.82	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	1 - 2	Arsenic	4.4	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	1 - 2	Barium	259	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	1 - 2	Beryllium	0.87	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	1 - 2	Cadmium	0.7	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	1 - 2	Chromium	13.7	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	1 - 2	Cobalt	6.5	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	1 - 2	Copper	13.2	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	1 - 2	HMX	0.24	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	1 - 2	Iron	16400	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	1 - 2	Lead	8.3	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	1 - 2	Manganese	824	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	1 - 2	Mercury	0.041	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	1 - 2	Nickel	13.8	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	1 - 2	Nitrobenzene	0.24	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	1 - 2	RDX	0.24	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	1 - 2	Selenium	3.2	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	1 - 2	Silver	0.098	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	1 - 2	Tetryl	0.24	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	1 - 2	Thallium	0.46	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-011	1 - 2	Vanadium	22.5	mg/kg		1000	NO	Human Health	

APPENDIX A
Central Test Area IRP Soil Sampling Results
Iowa Army Ammunition Plant

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
Former Firing Pit	CTA-TTSB-011	1 - 2	Zinc	40.8	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	0 - 1	1,3,5-Trinitrobenzene	0.23	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	0 - 1	1,3-Dinitrobenzene	0.23	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	0 - 1	2,4,6-Trinitrotoluene	0.23	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	0 - 1	2,4-Dinitrotoluene	0.23	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	0 - 1	2,6-Dinitrotoluene	0.23	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	0 - 1	2-Nitrotoluene	0.23	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	0 - 1	3-Nitrotoluene	0.23	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	0 - 1	4-Nitrotoluene	0.23	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	0 - 1	Aluminum	9100	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	0 - 1	Antimony	0.32	mg/kg	ND	816	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	0 - 1	Arsenic	4.6	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	0 - 1	Barium	197	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	0 - 1	Beryllium	0.81	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	0 - 1	Cadmium	0.036	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	0 - 1	Chromium	10.9	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	0 - 1	Cobalt	3.2	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	0 - 1	Copper	13.4	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	0 - 1	HMX	0.23	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	0 - 1	Iron	10400	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	0 - 1	Lead	15.3	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	0 - 1	Manganese	311	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	0 - 1	Mercury	0.04	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	0 - 1	Nickel	9.3	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	0 - 1	Nitrobenzene	0.23	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	0 - 1	RDX	0.23	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	0 - 1	Selenium	2.4	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	0 - 1	Silver	0.092	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	0 - 1	Tetryl	0.23	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	0 - 1	Thallium	2.3	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	0 - 1	Vanadium	20.3	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	0 - 1	Zinc	43.2	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	1 - 2	1,3,5-Trinitrobenzene	0.24	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	1 - 2	1,3-Dinitrobenzene	0.24	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	1 - 2	2,4,6-Trinitrotoluene	2.23	mg/kg		47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	1 - 2	2,4-Dinitrotoluene	0.24	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	1 - 2	2,6-Dinitrotoluene	0.24	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	1 - 2	2-Nitrotoluene	0.24	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	1 - 2	3-Nitrotoluene	0.24	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	1 - 2	4-Nitrotoluene	0.24	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	1 - 2	Aluminum	11900	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	1 - 2	Antimony	0.39	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	1 - 2	Arsenic	2.9	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	1 - 2	Barium	238	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	1 - 2	Beryllium	0.86	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	1 - 2	Cadmium	0.034	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	1 - 2	Chromium	13.1	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	1 - 2	Cobalt	3.6	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	1 - 2	Copper	13.7	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	1 - 2	HMX	0.24	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	1 - 2	Iron	12500	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	1 - 2	Lead	7.8	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	1 - 2	Manganese	210	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	1 - 2	Mercury	0.045	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	1 - 2	Nickel	11.8	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	1 - 2	Nitrobenzene	0.24	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	1 - 2	RDX	0.24	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	1 - 2	Selenium	2.4	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	1 - 2	Silver	0.089	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	1 - 2	Tetryl	0.24	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	1 - 2	Thallium	2.2	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	1 - 2	Vanadium	19.2	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-012	1 - 2	Zinc	39.3	mg/kg		100000	NO	Human Health	

APPENDIX A
Central Test Area IRP Soil Sampling Results
Iowa Army Ammunition Plant

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
Former Firing Pit	CTA-TTSB-013	0 - 1	1,3,5-Trinitrobenzene	0.25	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	0 - 1	1,3-Dinitrobenzene	0.25	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	0 - 1	2,4,6-Trinitrotoluene	0.25	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	0 - 1	2,4-Dinitrotoluene	0.25	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	0 - 1	2,6-Dinitrotoluene	0.25	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	0 - 1	2-Nitrotoluene	0.25	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	0 - 1	3-Nitrotoluene	0.25	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	0 - 1	4-Nitrotoluene	0.25	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	0 - 1	Aluminum	9780	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	0 - 1	Antimony	0.47	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	0 - 1	Arsenic	3.3	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	0 - 1	Barium	204	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	0 - 1	Beryllium	0.79	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	0 - 1	Cadmium	0.035	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	0 - 1	Chromium	11.4	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	0 - 1	Cobalt	2.9	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	0 - 1	Copper	14.7	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	0 - 1	Iron	10400	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	0 - 1	Lead	15.6	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	0 - 1	Manganese	272	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	0 - 1	Mercury	0.043	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	0 - 1	Nickel	10.3	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	0 - 1	Nitrobenzene	0.25	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	0 - 1	RDX	0.25	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	0 - 1	Selenium	1.8	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	0 - 1	Silver	0.092	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	0 - 1	Tetryl	0.25	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	0 - 1	Thallium	0.46	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	0 - 1	Vanadium	21.3	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	0 - 1	Zinc	46.2	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	1 - 2	1,3,5-Trinitrobenzene	0.24	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	1 - 2	1,3-Dinitrobenzene	0.24	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	1 - 2	2,4,6-Trinitrotoluene	0.24	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	1 - 2	2,4-Dinitrotoluene	0.24	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	1 - 2	2,6-Dinitrotoluene	0.24	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	1 - 2	2-Nitrotoluene	0.24	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	1 - 2	3-Nitrotoluene	0.24	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	1 - 2	4-Nitrotoluene	0.24	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	1 - 2	Aluminum	11100	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	1 - 2	Antimony	0.38	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	1 - 2	Arsenic	3.1	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	1 - 2	Barium	230	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	1 - 2	Beryllium	0.93	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	1 - 2	Cadmium	0.035	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	1 - 2	Chromium	12.5	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	1 - 2	Cobalt	2.6	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	1 - 2	Copper	16.1	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	1 - 2	HMX	0.24	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	1 - 2	Iron	10900	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	1 - 2	Lead	10.9	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	1 - 2	Manganese	163	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	1 - 2	Mercury	0.049	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	1 - 2	Nickel	10.9	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	1 - 2	Nitrobenzene	0.24	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	1 - 2	RDX	0.24	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	1 - 2	Selenium	1.9	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	1 - 2	Silver	0.092	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	1 - 2	Tetryl	0.24	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	1 - 2	Thallium	2.3	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	1 - 2	Vanadium	21.2	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-013	1 - 2	Zinc	43	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	0 - 1	1,3,5-Trinitrobenzene	0.24	mg/kg	ND	102	NO	Human Health	

APPENDIX A
Central Test Area IRP Soil Sampling Results
Iowa Army Ammunition Plant

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
Former Firing Pit	CTA-TTSB-014	0 - 1	1,3-Dinitrobenzene	0.24	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	0 - 1	2,4,6-Trinitrotoluene	0.24	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	0 - 1	2,4-Dinitrotoluene	0.24	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	0 - 1	2,6-Dinitrotoluene	0.24	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	0 - 1	2-Nitrotoluene	0.24	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	0 - 1	3-Nitrotoluene	0.24	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	0 - 1	4-Nitrotoluene	0.24	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	0 - 1	Aluminum	10000	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	0 - 1	Antimony	0.34	mg/kg	ND	816	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	0 - 1	Arsenic	7.5	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	0 - 1	Barium	233	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	0 - 1	Beryllium	0.79	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	0 - 1	Cadmium	0.038	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	0 - 1	Chromium	11.3	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	0 - 1	Cobalt	3.8	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	0 - 1	Copper	14.4	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	0 - 1	HMX	0.24	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	0 - 1	Iron	11300	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	0 - 1	Lead	14.1	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	0 - 1	Manganese	339	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	0 - 1	Mercury	0.043	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	0 - 1	Nickel	10.4	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	0 - 1	Nitrobenzene	0.24	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	0 - 1	RDX	0.24	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	0 - 1	Selenium	1.5	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	0 - 1	Silver	0.088	mg/kg	ND	5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	0 - 1	Tetryl	0.24	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	0 - 1	Thallium	2.4	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	0 - 1	Vanadium	22.9	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	0 - 1	Zinc	42.1	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	1 - 2	1,3,5-Trinitrobenzene	0.23	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	1 - 2	1,3-Dinitrobenzene	0.23	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	1 - 2	2,4,6-Trinitrotoluene	0.23	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	1 - 2	2,4-Dinitrotoluene	0.23	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	1 - 2	2,6-Dinitrotoluene	0.23	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	1 - 2	2-Nitrotoluene	0.23	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	1 - 2	3-Nitrotoluene	0.23	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	1 - 2	4-Nitrotoluene	0.23	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	1 - 2	Aluminum	11900	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	1 - 2	Antimony	0.55	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	1 - 2	Arsenic	3.5	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	1 - 2	Barium	253	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	1 - 2	Beryllium	0.94	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	1 - 2	Cadmium	0.036	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	1 - 2	Chromium	12.5	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	1 - 2	Cobalt	2.4	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	1 - 2	Copper	15.1	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	1 - 2	HMX	0.23	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	1 - 2	Iron	12700	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	1 - 2	Lead	7.6	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	1 - 2	Manganese	101	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	1 - 2	Mercury	0.044	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	1 - 2	Nickel	9.6	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	1 - 2	Nitrobenzene	0.23	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	1 - 2	RDX	0.23	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	1 - 2	Selenium	2.3	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	1 - 2	Silver	0.13	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	1 - 2	Tetryl	0.23	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	1 - 2	Thallium	2.3	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	1 - 2	Vanadium	19.3	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-014	1 - 2	Zinc	37.7	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	0 - 1	1,3,5-Trinitrobenzene	0.23	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	0 - 1	1,3-Dinitrobenzene	0.23	mg/kg	ND	62	NO	Human Health	

APPENDIX A
Central Test Area IRP Soil Sampling Results
Iowa Army Ammunition Plant

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
Former Firing Pit	CTA-TTSB-015	0 - 1	2,4,6-Trinitrotoluene	0.23	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	0 - 1	2,4-Dinitrotoluene	0.23	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	0 - 1	2,6-Dinitrotoluene	0.23	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	0 - 1	2-Nitrotoluene	0.23	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	0 - 1	3-Nitrotoluene	0.23	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	0 - 1	4-Nitrotoluene	0.23	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	0 - 1	Aluminum	11300	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	0 - 1	Antimony	0.6	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	0 - 1	Arsenic	6.2	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	0 - 1	Barium	201	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	0 - 1	Beryllium	0.82	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	0 - 1	Cadmium	0.7	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	0 - 1	Chromium	13.4	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	0 - 1	Cobalt	10.5	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	0 - 1	Copper	16.2	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	0 - 1	HMX	0.23	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	0 - 1	Iron	17100	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	0 - 1	Lead	13.3	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	0 - 1	Manganese	999	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	0 - 1	Mercury	0.047	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	0 - 1	Nickel	20.1	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	0 - 1	Nitrobenzene	0.23	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	0 - 1	RDX	0.23	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	0 - 1	Selenium	3.1	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	0 - 1	Silver	0.08	mg/kg	ND	5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	0 - 1	Tetryl	0.23	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	0 - 1	Thallium	2.2	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	0 - 1	Vanadium	25.5	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	0 - 1	Zinc	46.7	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	1 - 2	1,3,5-Trinitrobenzene	0.24	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	1 - 2	1,3-Dinitrobenzene	0.24	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	1 - 2	2,4,6-Trinitrotoluene	0.24	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	1 - 2	2,4-Dinitrotoluene	0.24	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	1 - 2	2,6-Dinitrotoluene	0.24	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	1 - 2	2-Nitrotoluene	0.24	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	1 - 2	3-Nitrotoluene	0.24	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	1 - 2	4-Nitrotoluene	0.24	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	1 - 2	Aluminum	12600	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	1 - 2	Antimony	0.86	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	1 - 2	Arsenic	7.9	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	1 - 2	Barium	232	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	1 - 2	Beryllium	0.92	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	1 - 2	Cadmium	0.7	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	1 - 2	Chromium	14.7	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	1 - 2	Cobalt	16.2	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	1 - 2	Copper	18.4	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	1 - 2	HMX	0.24	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	1 - 2	Iron	19400	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	1 - 2	Lead	17.9	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	1 - 2	Manganese	1380	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	1 - 2	Mercury	0.051	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	1 - 2	Nickel	25.9	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	1 - 2	Nitrobenzene	0.24	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	1 - 2	RDX	0.24	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	1 - 2	Selenium	3.9	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	1 - 2	Silver	0.08	mg/kg	ND	5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	1 - 2	Tetryl	0.24	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	1 - 2	Thallium	2.2	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	1 - 2	Vanadium	29.2	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-015	1 - 2	Zinc	53.8	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	0 - 1	1,3,5-Trinitrobenzene	0.22	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	0 - 1	1,3-Dinitrobenzene	0.22	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	0 - 1	2,4,6-Trinitrotoluene	0.22	mg/kg	ND	47.6	NO	Human Health	

APPENDIX A
Central Test Area IRP Soil Sampling Results
Iowa Army Ammunition Plant

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
Former Firing Pit	CTA-TTSB-016	0 - 1	2,4-Dinitrotoluene	0.22	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	0 - 1	2,6-Dinitrotoluene	0.22	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	0 - 1	2-Nitrotoluene	0.22	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	0 - 1	3-Nitrotoluene	0.22	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	0 - 1	4-Nitrotoluene	0.22	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	0 - 1	Aluminum	10500	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	0 - 1	Antimony	0.42	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	0 - 1	Arsenic	4.4	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	0 - 1	Barium	249	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	0 - 1	Beryllium	0.67	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	0 - 1	Cadmium	0.041	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	0 - 1	Chromium	11.4	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	0 - 1	Cobalt	11.5	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	0 - 1	Copper	10.8	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	0 - 1	HMX	0.22	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	0 - 1	Iron	12900	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	0 - 1	Lead	14	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	0 - 1	Manganese	908	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	0 - 1	Mercury	0.049	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	0 - 1	Nickel	12.9	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	0 - 1	Nitrobenzene	0.22	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	0 - 1	RDX	0.22	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	0 - 1	Selenium	3.1	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	0 - 1	Silver	0.095	mg/kg	ND	5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	0 - 1	Tetryl	0.22	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	0 - 1	Thallium	0.53	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	0 - 1	Vanadium	24.5	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	0 - 1	Zinc	38.2	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	1 - 2	1,3,5-Trinitrobenzene	0.23	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	1 - 2	1,3-Dinitrobenzene	0.23	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	1 - 2	2,4,6-Trinitrotoluene	0.23	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	1 - 2	2,4-Dinitrotoluene	0.23	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	1 - 2	2,6-Dinitrotoluene	0.23	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	1 - 2	2-Nitrotoluene	0.23	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	1 - 2	3-Nitrotoluene	0.23	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	1 - 2	4-Nitrotoluene	0.23	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	1 - 2	Aluminum	13200	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	1 - 2	Antimony	0.65	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	1 - 2	Arsenic	3.9	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	1 - 2	Barium	243	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	1 - 2	Beryllium	0.74	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	1 - 2	Cadmium	0.7	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	1 - 2	Chromium	13.5	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	1 - 2	Cobalt	7.6	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	1 - 2	Copper	12.8	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	1 - 2	HMX	0.23	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	1 - 2	Iron	15100	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	1 - 2	Lead	11	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	1 - 2	Manganese	404	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	1 - 2	Mercury	0.053	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	1 - 2	Nickel	13.8	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	1 - 2	Nitrobenzene	0.23	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	1 - 2	RDX	0.23	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	1 - 2	Selenium	4	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	1 - 2	Silver	0.081	mg/kg	ND	5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	1 - 2	Tetryl	0.23	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	1 - 2	Thallium	1.8	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	1 - 2	Vanadium	22.3	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-016	1 - 2	Zinc	39.5	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	0 - 1	1,3,5-Trinitrobenzene	0.24	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	0 - 1	1,3-Dinitrobenzene	0.24	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	0 - 1	2,4,6-Trinitrotoluene	0.24	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	0 - 1	2,4-Dinitrotoluene	0.24	mg/kg	ND	8.7	NO	Human Health	

APPENDIX A
Central Test Area IRP Soil Sampling Results
Iowa Army Ammunition Plant

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
Former Firing Pit	CTA-TTSB-017	0 - 1	2,6-Dinitrotoluene	0.24	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	0 - 1	2-Nitrotoluene	0.24	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	0 - 1	3-Nitrotoluene	0.24	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	0 - 1	4-Nitrotoluene	0.24	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	0 - 1	Aluminum	10800	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	0 - 1	Antimony	0.43	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	0 - 1	Arsenic	4.9	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	0 - 1	Barium	202	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	0 - 1	Beryllium	0.46	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	0 - 1	Cadmium	0.047	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	0 - 1	Chromium	12.3	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	0 - 1	Cobalt	4.1	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	0 - 1	Copper	12	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	0 - 1	HMX	0.24	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	0 - 1	Iron	13300	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	0 - 1	Lead	12.4	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	0 - 1	Manganese	326	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	0 - 1	Mercury	0.045	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	0 - 1	Nickel	10.2	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	0 - 1	Nitrobenzene	0.24	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	0 - 1	RDX	0.24	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	0 - 1	Selenium	4.1	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	0 - 1	Silver	0.11	mg/kg	ND	5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	0 - 1	Tetryl	0.24	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	0 - 1	Thallium	3	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	0 - 1	Vanadium	25.5	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	0 - 1	Zinc	37.2	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	1 - 2	1,3,5-Trinitrobenzene	0.23	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	1 - 2	1,3-Dinitrobenzene	0.23	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	1 - 2	2,4,6-Trinitrotoluene	0.23	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	1 - 2	2,4-Dinitrotoluene	0.23	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	1 - 2	2,6-Dinitrotoluene	0.23	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	1 - 2	2-Nitrotoluene	0.23	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	1 - 2	3-Nitrotoluene	0.23	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	1 - 2	4-Nitrotoluene	0.23	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	1 - 2	Aluminum	16000	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	1 - 2	Antimony	1.3	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	1 - 2	Arsenic	6.2	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	1 - 2	Barium	229	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	1 - 2	Beryllium	0.53	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	1 - 2	Cadmium	0.04	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	1 - 2	Chromium	17.1	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	1 - 2	Cobalt	4.9	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	1 - 2	Copper	14.5	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	1 - 2	HMX	0.23	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	1 - 2	Iron	19700	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	1 - 2	Lead	12	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	1 - 2	Manganese	275	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	1 - 2	Mercury	0.041	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	1 - 2	Nickel	13.5	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	1 - 2	Nitrobenzene	0.23	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	1 - 2	RDX	0.23	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	1 - 2	Selenium	5.7	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	1 - 2	Silver	0.093	mg/kg	ND	5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	1 - 2	Tetryl	0.23	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	1 - 2	Thallium	5.2	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	1 - 2	Vanadium	32.5	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-017	1 - 2	Zinc	43.5	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	0 - 1	1,3,5-Trinitrobenzene	0.25	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	0 - 1	1,3-Dinitrobenzene	0.25	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	0 - 1	2,4,6-Trinitrotoluene	0.25	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	0 - 1	2,4-Dinitrotoluene	0.25	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	0 - 1	2,6-Dinitrotoluene	0.25	mg/kg	ND	620	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
Former Firing Pit	CTA-TTSB-018	0 - 1	2-Nitrotoluene	0.25	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	0 - 1	3-Nitrotoluene	0.25	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	0 - 1	4-Nitrotoluene	0.25	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	0 - 1	Aluminum	14300	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	0 - 1	Antimony	1	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	0 - 1	Arsenic	6	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	0 - 1	Barium	213	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	0 - 1	Beryllium	0.86	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	0 - 1	Cadmium	0.7	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	0 - 1	Chromium	16	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	0 - 1	Cobalt	17	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	0 - 1	Copper	13.6	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	0 - 1	Iron	18600	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	0 - 1	Lead	16.3	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	0 - 1	Manganese	1010	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	0 - 1	Mercury	0.04	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	0 - 1	Nickel	15.8	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	0 - 1	Nitrobenzene	0.25	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	0 - 1	RDX	0.25	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	0 - 1	Selenium	4.6	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	0 - 1	Silver	0.088	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	0 - 1	Tetryl	0.25	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	0 - 1	Thallium	2.2	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	0 - 1	Vanadium	35.5	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	0 - 1	Zinc	44.5	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	1 - 2	1,3,5-Trinitrobenzene	0.24	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	1 - 2	1,3-Dinitrobenzene	0.24	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	1 - 2	2,4,6-Trinitrotoluene	0.24	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	1 - 2	2,4-Dinitrotoluene	0.24	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	1 - 2	2,6-Dinitrotoluene	0.24	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	1 - 2	2-Nitrotoluene	0.24	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	1 - 2	3-Nitrotoluene	0.24	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	1 - 2	4-Nitrotoluene	0.24	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	1 - 2	Aluminum	18700	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	1 - 2	Antimony	1.2	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	1 - 2	Arsenic	8.1	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	1 - 2	Barium	233	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	1 - 2	Beryllium	0.97	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	1 - 2	Cadmium	1.4	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	1 - 2	Chromium	20.6	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	1 - 2	Cobalt	14.9	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	1 - 2	Copper	19.6	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	1 - 2	HMX	0.24	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	1 - 2	Iron	25800	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	1 - 2	Lead	15.5	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	1 - 2	Manganese	1190	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	1 - 2	Mercury	0.046	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	1 - 2	Nickel	28.6	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	1 - 2	Nitrobenzene	0.24	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	1 - 2	RDX	0.24	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	1 - 2	Selenium	5.8	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	1 - 2	Silver	0.084	mg/kg	ND	5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	1 - 2	Tetryl	0.24	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	1 - 2	Thallium	2.4	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	1 - 2	Vanadium	39.5	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-018	1 - 2	Zinc	208	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	0 - 1	1,3,5-Trinitrobenzene	0.24	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	0 - 1	1,3-Dinitrobenzene	0.24	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	0 - 1	2,4,6-Trinitrotoluene	0.24	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	0 - 1	2,4-Dinitrotoluene	0.24	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	0 - 1	2,6-Dinitrotoluene	0.24	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	0 - 1	2-Nitrotoluene	0.24	mg/kg	ND	2.2	NO	Human Health	

APPENDIX A
Central Test Area IRP Soil Sampling Results
Iowa Army Ammunition Plant

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
Former Firing Pit	CTA-TTSB-019	0 - 1	3-Nitrotoluene	0.24	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	0 - 1	4-Nitrotoluene	0.24	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	0 - 1	Aluminum	12600	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	0 - 1	Antimony	0.67	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	0 - 1	Arsenic	5.7	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	0 - 1	Barium	195	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	0 - 1	Beryllium	0.75	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	0 - 1	Cadmium	0.7	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	0 - 1	Chromium	15.3	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	0 - 1	Cobalt	9.9	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	0 - 1	Copper	14.5	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	0 - 1	HMX	0.24	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	0 - 1	Iron	16400	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	0 - 1	Lead	13.3	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	0 - 1	Manganese	821	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	0 - 1	Mercury	0.041	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	0 - 1	Nickel	15.8	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	0 - 1	Nitrobenzene	0.24	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	0 - 1	RDX	0.24	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	0 - 1	Selenium	3.6	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	0 - 1	Silver	0.081	mg/kg	ND	5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	0 - 1	Tetryl	0.24	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	0 - 1	Thallium	4.5	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	0 - 1	Vanadium	31.7	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	0 - 1	Zinc	56.1	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	1 - 2	1,3,5-Trinitrobenzene	0.23	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	1 - 2	1,3-Dinitrobenzene	0.23	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	1 - 2	2,4,6-Trinitrotoluene	0.23	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	1 - 2	2,4-Dinitrotoluene	0.23	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	1 - 2	2,6-Dinitrotoluene	0.23	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	1 - 2	2-Nitrotoluene	0.23	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	1 - 2	3-Nitrotoluene	0.23	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	1 - 2	4-Nitrotoluene	0.23	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	1 - 2	Aluminum	16200	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	1 - 2	Antimony	0.93	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	1 - 2	Arsenic	7.6	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	1 - 2	Barium	201	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	1 - 2	Beryllium	0.81	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	1 - 2	Cadmium	1.4	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	1 - 2	Chromium	19.1	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	1 - 2	Cobalt	10.5	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	1 - 2	Copper	17.2	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	1 - 2	HMX	0.23	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	1 - 2	Iron	21100	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	1 - 2	Lead	12.1	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	1 - 2	Manganese	710	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	1 - 2	Mercury	0.054	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	1 - 2	Nickel	17.8	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	1 - 2	Nitrobenzene	0.23	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	1 - 2	RDX	0.23	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	1 - 2	Selenium	3.9	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	1 - 2	Silver	0.079	mg/kg	ND	5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	1 - 2	Tetryl	0.23	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	1 - 2	Thallium	4.4	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	1 - 2	Vanadium	38.4	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-019	1 - 2	Zinc	52.9	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	1 - 2	1,3,5-Trinitrobenzene	0.23	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	1 - 2	1,3-Dinitrobenzene	0.23	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	1 - 2	2,4,6-Trinitrotoluene	0.23	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	1 - 2	2,4-Dinitrotoluene	0.23	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	1 - 2	2,6-Dinitrotoluene	0.23	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	1 - 2	2-Nitrotoluene	0.23	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	1 - 2	3-Nitrotoluene	0.23	mg/kg	ND	1000	NO	Human Health	

APPENDIX A
Central Test Area IRP Soil Sampling Results
Iowa Army Ammunition Plant

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
Former Firing Pit	CTA-TTSB-020	1 - 2	4-Nitrotoluene	0.23	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	1 - 2	Aluminum	16000	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	1 - 2	Antimony	0.91	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	1 - 2	Arsenic	7.2	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	1 - 2	Barium	291	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	1 - 2	Beryllium	1	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	1 - 2	Cadmium	0.7	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	1 - 2	Chromium	18.7	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	1 - 2	Cobalt	3.5	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	1 - 2	Copper	18.8	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	1 - 2	HMX	0.23	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	1 - 2	Iron	20900	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	1 - 2	Lead	13.9	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	1 - 2	Manganese	134	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	1 - 2	Mercury	0.059	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	1 - 2	Nickel	15.2	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	1 - 2	Nitrobenzene	0.23	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	1 - 2	RDX	0.23	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	1 - 2	Selenium	4.9	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	1 - 2	Silver	0.097	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	1 - 2	Tetryl	0.23	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	1 - 2	Thallium	4.5	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	1 - 2	Vanadium	35.1	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	1 - 2	Zinc	52.9	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	2 - 4	1,3,5-Trinitrobenzene	0.24	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	2 - 4	1,3-Dinitrobenzene	0.24	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	2 - 4	2,4,6-Trinitrotoluene	0.24	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	2 - 4	2,4-Dinitrotoluene	0.24	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	2 - 4	2,6-Dinitrotoluene	0.24	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	2 - 4	2-Nitrotoluene	0.24	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	2 - 4	3-Nitrotoluene	0.24	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	2 - 4	4-Nitrotoluene	0.24	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	2 - 4	Aluminum	9670	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	2 - 4	Antimony	0.57	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	2 - 4	Arsenic	6	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	2 - 4	Barium	214	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	2 - 4	Beryllium	0.75	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	2 - 4	Cadmium	5.3	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	2 - 4	Chromium	12.8	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	2 - 4	Cobalt	9.7	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	2 - 4	Copper	25.3	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	2 - 4	HMX	0.24	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	2 - 4	Iron	14500	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	2 - 4	Lead	273	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	2 - 4	Manganese	1020	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	2 - 4	Mercury	0.046	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	2 - 4	Nickel	12.7	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	2 - 4	Nitrobenzene	0.24	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	2 - 4	RDX	0.24	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	2 - 4	Selenium	3	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	2 - 4	Silver	0.1	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	2 - 4	Tetryl	0.24	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	2 - 4	Thallium	4.6	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	2 - 4	Vanadium	29.5	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	2 - 4	Zinc	73.6	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	4 - 6	1,3,5-Trinitrobenzene	0.24	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	4 - 6	1,3-Dinitrobenzene	0.24	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	4 - 6	2,4,6-Trinitrotoluene	0.24	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	4 - 6	2,4-Dinitrotoluene	0.24	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	4 - 6	2,6-Dinitrotoluene	0.24	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	4 - 6	2-Nitrotoluene	0.24	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	4 - 6	3-Nitrotoluene	0.24	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	4 - 6	4-Nitrotoluene	0.24	mg/kg	ND	30	NO	Human Health	

APPENDIX A
Central Test Area IRPSoil Sampling Results
Iowa Army Ammunition Plant

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
Former Firing Pit	CTA-TTSB-020	4 - 6	Aluminum	14300	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	4 - 6	Antimony	0.38	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	4 - 6	Arsenic	3.1	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	4 - 6	Barium	315	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	4 - 6	Beryllium	0.96	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	4 - 6	Cadmium	0.66	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	4 - 6	Chromium	16.6	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	4 - 6	Cobalt	2.3	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	4 - 6	Copper	14.5	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	4 - 6	HMX	0.24	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	4 - 6	Iron	17000	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	4 - 6	Lead	9.2	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	4 - 6	Manganese	63.2	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	4 - 6	Mercury	0.041	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	4 - 6	Nickel	10.2	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	4 - 6	Nitrobenzene	0.24	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	4 - 6	RDX	0.24	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	4 - 6	Selenium	3.2	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	4 - 6	Silver	0.087	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	4 - 6	Tetryl	0.24	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	4 - 6	Thallium	4.3	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	4 - 6	Vanadium	29.9	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-020	4 - 6	Zinc	51.9	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	0 - 1	1,3,5-Trinitrobenzene	0.25	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	0 - 1	1,3-Dinitrobenzene	0.25	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	0 - 1	2,4,6-Trinitrotoluene	0.25	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	0 - 1	2,4-Dinitrotoluene	0.25	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	0 - 1	2,6-Dinitrotoluene	0.25	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	0 - 1	2-Nitrotoluene	0.25	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	0 - 1	3-Nitrotoluene	0.25	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	0 - 1	4-Nitrotoluene	0.25	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	0 - 1	Aluminum	12800	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	0 - 1	Antimony	0.95	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	0 - 1	Arsenic	10.8	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	0 - 1	Barium	203	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	0 - 1	Beryllium	0.82	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	0 - 1	Cadmium	0.7	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	0 - 1	Chromium	15.4	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	0 - 1	Cobalt	9.3	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	0 - 1	Copper	14.3	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	0 - 1	Iron	16800	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	0 - 1	Lead	13.2	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	0 - 1	Manganese	728	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	0 - 1	Mercury	0.036	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	0 - 1	Nickel	12.9	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	0 - 1	Nitrobenzene	0.25	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	0 - 1	RDX	0.25	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	0 - 1	Selenium	3.6	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	0 - 1	Silver	0.079	mg/kg	ND	5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	0 - 1	Tetryl	0.25	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	0 - 1	Thallium	2.2	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	0 - 1	Vanadium	32.7	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	0 - 1	Zinc	204	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	1 - 2	1,3,5-Trinitrobenzene	0.24	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	1 - 2	1,3-Dinitrobenzene	0.24	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	1 - 2	2,4,6-Trinitrotoluene	0.24	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	1 - 2	2,4-Dinitrotoluene	0.24	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	1 - 2	2,6-Dinitrotoluene	0.24	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	1 - 2	2-Nitrotoluene	0.24	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	1 - 2	3-Nitrotoluene	0.24	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	1 - 2	4-Nitrotoluene	0.24	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	1 - 2	Aluminum	17400	mg/kg		100000	NO	Human Health	

APPENDIX A
Central Test Area IRP Soil Sampling Results
Iowa Army Ammunition Plant

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
Former Firing Pit	CTA-TTSB-021	1 - 2	Antimony	1.1	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	1 - 2	Arsenic	8.4	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	1 - 2	Barium	234	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	1 - 2	Beryllium	1	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	1 - 2	Cadmium	1.4	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	1 - 2	Chromium	19.9	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	1 - 2	Cobalt	9.1	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	1 - 2	Copper	19.9	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	1 - 2	HMX	0.24	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	1 - 2	Iron	22300	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	1 - 2	Lead	11	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	1 - 2	Manganese	801	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	1 - 2	Mercury	0.046	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	1 - 2	Nickel	24	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	1 - 2	Nitrobenzene	0.24	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	1 - 2	RDX	0.24	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	1 - 2	Selenium	4.8	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	1 - 2	Silver	0.082	mg/kg	ND	5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	1 - 2	Tetryl	0.24	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	1 - 2	Thallium	2.3	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	1 - 2	Vanadium	37.1	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-021	1 - 2	Zinc	61.9	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	0 - 1	1,3,5-Trinitrobenzene	0.24	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	0 - 1	1,3-Dinitrobenzene	0.24	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	0 - 1	2,4,6-Trinitrotoluene	0.24	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	0 - 1	2,4-Dinitrotoluene	0.24	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	0 - 1	2,6-Dinitrotoluene	0.24	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	0 - 1	2-Nitrotoluene	0.24	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	0 - 1	3-Nitrotoluene	0.24	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	0 - 1	4-Nitrotoluene	0.24	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	0 - 1	Aluminum	9600	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	0 - 1	Antimony	0.95	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	0 - 1	Arsenic	54.5	mg/kg		30	YES	Human Health	
Former Firing Pit	CTA-TTSB-022	0 - 1	Barium	217	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	0 - 1	Beryllium	0.57	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	0 - 1	Cadmium	0.032	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	0 - 1	Chromium	12.4	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	0 - 1	Cobalt	6.8	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	0 - 1	Copper	10.9	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	0 - 1	HMX	0.24	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	0 - 1	Iron	15100	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	0 - 1	Lead	18	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	0 - 1	Manganese	1010	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	0 - 1	Mercury	0.023	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	0 - 1	Nickel	12.2	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	0 - 1	Nitrobenzene	0.24	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	0 - 1	RDX	0.24	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	0 - 1	Selenium	2.2	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	0 - 1	Silver	0.074	mg/kg	ND	5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	0 - 1	Tetryl	0.24	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	0 - 1	Thallium	2	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	0 - 1	Vanadium	28.9	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	0 - 1	Zinc	45.7	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	1 - 2	1,3,5-Trinitrobenzene	0.24	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	1 - 2	1,3-Dinitrobenzene	0.24	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	1 - 2	2,4,6-Trinitrotoluene	0.24	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	1 - 2	2,4-Dinitrotoluene	0.24	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	1 - 2	2,6-Dinitrotoluene	0.24	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	1 - 2	2-Nitrotoluene	0.24	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	1 - 2	3-Nitrotoluene	0.24	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	1 - 2	4-Nitrotoluene	0.24	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	1 - 2	Aluminum	11400	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	1 - 2	Antimony	0.73	mg/kg		816	NO	Human Health	

APPENDIX A
Central Test Area IRP Soil Sampling Results
Iowa Army Ammunition Plant

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
Former Firing Pit	CTA-TTSB-022	1 - 2	Arsenic	10.8	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	1 - 2	Barium	176	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	1 - 2	Beryllium	0.65	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	1 - 2	Cadmium	0.82	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	1 - 2	Chromium	14.3	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	1 - 2	Cobalt	4.5	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	1 - 2	Copper	11.5	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	1 - 2	HMX	0.24	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	1 - 2	Iron	15700	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	1 - 2	Lead	9.7	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	1 - 2	Manganese	421	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	1 - 2	Mercury	0.035	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	1 - 2	Nickel	10.1	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	1 - 2	Nitrobenzene	0.24	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	1 - 2	RDX	0.24	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	1 - 2	Selenium	3	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	1 - 2	Silver	0.078	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	1 - 2	Tetryl	0.24	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	1 - 2	Thallium	2.2	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	1 - 2	Vanadium	30.4	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-022	1 - 2	Zinc	37.8	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	0 - 1	1,3,5-Trinitrobenzene	0.25	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	0 - 1	1,3-Dinitrobenzene	0.25	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	0 - 1	2,4,6-Trinitrotoluene	0.25	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	0 - 1	2,4-Dinitrotoluene	0.25	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	0 - 1	2,6-Dinitrotoluene	0.25	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	0 - 1	2-Nitrotoluene	0.25	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	0 - 1	3-Nitrotoluene	0.25	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	0 - 1	4-Nitrotoluene	0.25	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	0 - 1	Aluminum	12700	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	0 - 1	Antimony	0.43	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	0 - 1	Arsenic	6.2	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	0 - 1	Barium	215	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	0 - 1	Beryllium	0.83	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	0 - 1	Cadmium	0.7	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	0 - 1	Chromium	15.1	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	0 - 1	Cobalt	6	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	0 - 1	Copper	12.8	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	0 - 1	Iron	16600	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	0 - 1	Lead	10.7	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	0 - 1	Manganese	684	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	0 - 1	Mercury	0.043	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	0 - 1	Nickel	13.8	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	0 - 1	Nitrobenzene	0.25	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	0 - 1	RDX	0.25	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	0 - 1	Selenium	4	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	0 - 1	Silver	0.081	mg/kg	ND	5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	0 - 1	Tetryl	0.25	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	0 - 1	Thallium	4.5	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	0 - 1	Vanadium	33.9	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	0 - 1	Zinc	43.1	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	1,3,5-Trinitrobenzene	0.24	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	1,3,5-Trinitrobenzene	0.25	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	1,3-Dinitrobenzene	0.24	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	1,3-Dinitrobenzene	0.25	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	2,4,6-Trinitrotoluene	0.25	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	2,4,6-Trinitrotoluene	0.24	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	2,4-Dinitrotoluene	0.25	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	2,4-Dinitrotoluene	0.24	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	2,6-Dinitrotoluene	0.24	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	2,6-Dinitrotoluene	0.25	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	2-Nitrotoluene	0.24	mg/kg	ND	2.2	NO	Human Health	

APPENDIX A
Central Test Area IRP Soil Sampling Results
Iowa Army Ammunition Plant

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
Former Firing Pit	CTA-TTSB-023	1 - 2	2-Nitrotoluene	0.25	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	3-Nitrotoluene	0.24	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	3-Nitrotoluene	0.25	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	4-Nitrotoluene	0.24	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	4-Nitrotoluene	0.25	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	Aluminum	14400	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	Aluminum	15900	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	Antimony	1.2	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	Antimony	0.73	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	Arsenic	8.9	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	Arsenic	7.6	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	Barium	246	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	Barium	228	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	Beryllium	0.99	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	Beryllium	0.95	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	Cadmium	0.85	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	Cadmium	0.85	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	Chromium	16.9	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	Chromium	17.5	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	Cobalt	20.1	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	Cobalt	29.3	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	Copper	13.9	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	Copper	15	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	HMX	0.24	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	Iron	20100	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	Iron	22400	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	Lead	19.5	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	Lead	22.5	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	Manganese	1950	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	Manganese	1340	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	Mercury	0.034	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	Mercury	0.034	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	Nickel	15.8	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	Nickel	23.5	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	Nitrobenzene	0.25	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	Nitrobenzene	0.24	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	RDX	0.25	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	RDX	0.24	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	Selenium	4.6	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	Selenium	5.3	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	Silver	0.1	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	Silver	0.11	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	Tetryl	0.25	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	Tetryl	0.24	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	Thallium	2.2	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	Thallium	2.2	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	Vanadium	38.2	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	Vanadium	41.3	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	Zinc	46.2	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-023	1 - 2	Zinc	45.7	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	0 - 1	1,3,5-Trinitrobenzene	0.23	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	0 - 1	1,3-Dinitrobenzene	0.23	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	0 - 1	2,4,6-Trinitrotoluene	0.116	mg/kg		47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	0 - 1	2,4-Dinitrotoluene	0.23	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	0 - 1	2,6-Dinitrotoluene	0.23	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	0 - 1	2-Nitrotoluene	0.23	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	0 - 1	3-Nitrotoluene	0.23	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	0 - 1	4-Nitrotoluene	0.23	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	0 - 1	Aluminum	10200	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	0 - 1	Antimony	0.33	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	0 - 1	Arsenic	7.1	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	0 - 1	Barium	231	mg/kg		67000	NO	Human Health	

APPENDIX A
Central Test Area IRP Soil Sampling Results
Iowa Army Ammunition Plant

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
Former Firing Pit	CTA-TTSB-024	0 - 1	Beryllium	0.53	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	0 - 1	Cadmium	0.74	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	0 - 1	Chromium	12.5	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	0 - 1	Cobalt	9.2	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	0 - 1	Copper	11.4	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	0 - 1	HMX	0.23	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	0 - 1	Iron	16800	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	0 - 1	Lead	16.8	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	0 - 1	Manganese	998	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	0 - 1	Mercury	0.12	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	0 - 1	Nickel	12	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	0 - 1	Nitrobenzene	0.23	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	0 - 1	RDX	0.23	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	0 - 1	Selenium	4.4	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	0 - 1	Silver	0.086	mg/kg	ND	5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	0 - 1	Tetryl	0.23	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	0 - 1	Thallium	2.4	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	0 - 1	Vanadium	30.4	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	0 - 1	Zinc	37.5	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	1 - 2	1,3,5-Trinitrobenzene	0.23	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	1 - 2	1,3-Dinitrobenzene	0.23	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	1 - 2	2,4,6-Trinitrotoluene	0.23	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	1 - 2	2,4-Dinitrotoluene	0.23	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	1 - 2	2,6-Dinitrotoluene	0.23	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	1 - 2	2-Nitrotoluene	0.23	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	1 - 2	3-Nitrotoluene	0.23	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	1 - 2	4-Nitrotoluene	0.23	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	1 - 2	Aluminum	14500	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	1 - 2	Antimony	0.5	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	1 - 2	Arsenic	7.1	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	1 - 2	Barium	193	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	1 - 2	Beryllium	0.62	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	1 - 2	Cadmium	1.1	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	1 - 2	Chromium	15.9	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	1 - 2	Cobalt	5.1	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	1 - 2	Copper	12.8	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	1 - 2	HMX	0.23	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	1 - 2	Iron	21300	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	1 - 2	Lead	9.3	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	1 - 2	Manganese	416	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	1 - 2	Mercury	0.099	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	1 - 2	Nickel	13.6	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	1 - 2	Nitrobenzene	0.23	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	1 - 2	RDX	0.23	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	1 - 2	Selenium	5.4	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	1 - 2	Silver	0.1	mg/kg	ND	5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	1 - 2	Tetryl	0.23	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	1 - 2	Thallium	2.3	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	1 - 2	Vanadium	30.1	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-024	1 - 2	Zinc	42.2	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	0 - 1	1,3,5-Trinitrobenzene	0.24	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	0 - 1	1,3-Dinitrobenzene	0.24	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	0 - 1	2,4,6-Trinitrotoluene	0.24	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	0 - 1	2,4-Dinitrotoluene	0.24	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	0 - 1	2,6-Dinitrotoluene	0.24	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	0 - 1	2-Nitrotoluene	0.24	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	0 - 1	3-Nitrotoluene	0.24	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	0 - 1	4-Nitrotoluene	0.24	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	0 - 1	Aluminum	13000	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	0 - 1	Antimony	0.59	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	0 - 1	Arsenic	4.1	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	0 - 1	Barium	215	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	0 - 1	Beryllium	0.87	mg/kg		5	NO	Human Health	

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Central Test Area IRP Soil Sampling Results
Iowa Army Ammunition Plant

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
Former Firing Pit	CTA-TTSB-025	0 - 1	Cadmium	0.033	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	0 - 1	Chromium	15.1	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	0 - 1	Cobalt	3.8	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	0 - 1	Copper	14.3	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	0 - 1	HMX	0.24	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	0 - 1	Iron	14500	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	0 - 1	Lead	12	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	0 - 1	Manganese	361	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	0 - 1	Mercury	0.043	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	0 - 1	Nickel	12.3	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	0 - 1	Nitrobenzene	0.24	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	0 - 1	RDX	0.24	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	0 - 1	Selenium	3	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	0 - 1	Silver	0.12	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	0 - 1	Tetryl	0.24	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	0 - 1	Thallium	2.1	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	0 - 1	Vanadium	28.2	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	0 - 1	Zinc	49.4	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	1 - 2	1,3,5-Trinitrobenzene	0.24	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	1 - 2	1,3-Dinitrobenzene	0.24	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	1 - 2	2,4,6-Trinitrotoluene	0.24	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	1 - 2	2,4-Dinitrotoluene	0.24	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	1 - 2	2,6-Dinitrotoluene	0.24	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	1 - 2	2-Nitrotoluene	0.24	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	1 - 2	3-Nitrotoluene	0.24	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	1 - 2	4-Nitrotoluene	0.24	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	1 - 2	Aluminum	15700	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	1 - 2	Antimony	0.61	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	1 - 2	Arsenic	4.2	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	1 - 2	Barium	239	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	1 - 2	Beryllium	0.96	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	1 - 2	Cadmium	0.7	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	1 - 2	Chromium	17.5	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	1 - 2	Cobalt	4.2	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	1 - 2	Copper	15.4	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	1 - 2	HMX	0.24	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	1 - 2	Iron	17000	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	1 - 2	Lead	8.5	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	1 - 2	Manganese	246	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	1 - 2	Mercury	0.032	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	1 - 2	Nickel	12.7	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	1 - 2	Nitrobenzene	0.24	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	1 - 2	RDX	0.24	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	1 - 2	Selenium	4	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	1 - 2	Silver	0.092	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	1 - 2	Tetryl	0.24	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	1 - 2	Thallium	2.3	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	1 - 2	Vanadium	33.5	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-025	1 - 2	Zinc	46.2	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	0 - 1	1,3,5-Trinitrobenzene	0.22	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	0 - 1	1,3-Dinitrobenzene	0.22	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	0 - 1	2,4,6-Trinitrotoluene	0.22	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	0 - 1	2,4-Dinitrotoluene	0.22	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	0 - 1	2,6-Dinitrotoluene	0.22	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	0 - 1	2-Nitrotoluene	0.22	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	0 - 1	3-Nitrotoluene	0.22	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	0 - 1	4-Nitrotoluene	0.22	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	0 - 1	Aluminum	12800	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	0 - 1	Antimony	0.29	mg/kg	ND	816	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	0 - 1	Arsenic	4.4	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	0 - 1	Barium	229	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	0 - 1	Beryllium	0.86	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	0 - 1	Cadmium	0.64	mg/kg	ND	1000	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
Former Firing Pit	CTA-TTSB-027	0 - 1	Chromium	14.5	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	0 - 1	Cobalt	4	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	0 - 1	Copper	13.5	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	0 - 1	HMX	0.22	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	0 - 1	Iron	14500	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	0 - 1	Lead	10.7	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	0 - 1	Manganese	369	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	0 - 1	Mercury	0.033	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	0 - 1	Nickel	12.1	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	0 - 1	Nitrobenzene	0.22	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	0 - 1	RDX	0.22	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	0 - 1	Selenium	3.2	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	0 - 1	Silver	0.079	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	0 - 1	Tetryl	0.22	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	0 - 1	Thallium	0.42	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	0 - 1	Vanadium	27.5	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	0 - 1	Zinc	47.4	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	1 - 2	1,3,5-Trinitrobenzene	0.25	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	1 - 2	1,3-Dinitrobenzene	0.25	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	1 - 2	2,4,6-Trinitrotoluene	0.25	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	1 - 2	2,4-Dinitrotoluene	0.25	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	1 - 2	2,6-Dinitrotoluene	0.25	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	1 - 2	2-Nitrotoluene	0.25	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	1 - 2	3-Nitrotoluene	0.25	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	1 - 2	4-Nitrotoluene	0.25	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	1 - 2	Aluminum	16900	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	1 - 2	Antimony	0.87	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	1 - 2	Arsenic	5.2	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	1 - 2	Barium	254	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	1 - 2	Beryllium	0.96	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	1 - 2	Cadmium	0.88	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	1 - 2	Chromium	19	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	1 - 2	Cobalt	5.7	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	1 - 2	Copper	14.6	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	1 - 2	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	1 - 2	Iron	19000	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	1 - 2	Lead	9.1	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	1 - 2	Manganese	364	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	1 - 2	Mercury	0.043	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	1 - 2	Nickel	13	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	1 - 2	Nitrobenzene	0.25	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	1 - 2	RDX	0.25	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	1 - 2	Selenium	4.1	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	1 - 2	Silver	0.097	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	1 - 2	Tetryl	0.25	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	1 - 2	Thallium	2.3	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	1 - 2	Vanadium	34.4	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-027	1 - 2	Zinc	55.9	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	0 - 1	1,3,5-Trinitrobenzene	0.22	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	0 - 1	1,3-Dinitrobenzene	0.22	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	0 - 1	2,4,6-Trinitrotoluene	0.22	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	0 - 1	2,4-Dinitrotoluene	0.22	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	0 - 1	2,6-Dinitrotoluene	0.22	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	0 - 1	2-Nitrotoluene	0.22	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	0 - 1	3-Nitrotoluene	0.22	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	0 - 1	4-Nitrotoluene	0.22	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	0 - 1	Aluminum	12600	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	0 - 1	Antimony	0.62	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	0 - 1	Arsenic	5.1	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	0 - 1	Barium	220	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	0 - 1	Beryllium	0.89	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	0 - 1	Cadmium	0.74	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	0 - 1	Chromium	15.3	mg/kg		10000	NO	Human Health	

APPENDIX A
Central Test Area IRP Soil Sampling Results
Iowa Army Ammunition Plant

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
Former Firing Pit	CTA-TTSB-028	0 - 1	Cobalt	4	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	0 - 1	Copper	16.3	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	0 - 1	HMX	0.22	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	0 - 1	Iron	15800	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	0 - 1	Lead	37.7	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	0 - 1	Manganese	384	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	0 - 1	Mercury	0.038	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	0 - 1	Nickel	13.1	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	0 - 1	Nitrobenzene	0.22	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	0 - 1	RDX	0.22	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	0 - 1	Selenium	3.1	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	0 - 1	Silver	0.087	mg/kg	ND	5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	0 - 1	Tetryl	0.215	mg/kg		6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	0 - 1	Thallium	2.4	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	0 - 1	Vanadium	30.5	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	0 - 1	Zinc	67	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	1 - 2	1,3,5-Trinitrobenzene	0.22	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	1 - 2	1,3-Dinitrobenzene	0.22	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	1 - 2	2,4,6-Trinitrotoluene	0.22	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	1 - 2	2,4-Dinitrotoluene	0.22	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	1 - 2	2,6-Dinitrotoluene	0.22	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	1 - 2	2-Nitrotoluene	0.22	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	1 - 2	3-Nitrotoluene	0.22	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	1 - 2	4-Nitrotoluene	0.22	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	1 - 2	Aluminum	17900	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	1 - 2	Antimony	0.74	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	1 - 2	Arsenic	6	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	1 - 2	Barium	274	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	1 - 2	Beryllium	1.1	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	1 - 2	Cadmium	0.9	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	1 - 2	Chromium	20	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	1 - 2	Cobalt	3.8	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	1 - 2	Copper	16.6	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	1 - 2	HMX	0.22	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	1 - 2	Iron	21800	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	1 - 2	Lead	15.1	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	1 - 2	Manganese	286	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	1 - 2	Mercury	0.045	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	1 - 2	Nickel	14.7	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	1 - 2	Nitrobenzene	0.22	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	1 - 2	RDX	0.22	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	1 - 2	Selenium	4.6	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	1 - 2	Silver	0.096	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	1 - 2	Tetryl	0.22	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	1 - 2	Thallium	2.3	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	1 - 2	Vanadium	38.9	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-028	1 - 2	Zinc	59.4	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	0 - 1	1,3,5-Trinitrobenzene	0.23	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	0 - 1	1,3-Dinitrobenzene	0.23	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	0 - 1	2,4,6-Trinitrotoluene	0.23	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	0 - 1	2,4-Dinitrotoluene	0.23	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	0 - 1	2,6-Dinitrotoluene	0.23	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	0 - 1	2-Nitrotoluene	0.23	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	0 - 1	3-Nitrotoluene	0.23	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	0 - 1	4-Nitrotoluene	0.23	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	0 - 1	Aluminum	15700	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	0 - 1	Antimony	0.73	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	0 - 1	Arsenic	5.2	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	0 - 1	Barium	231	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	0 - 1	Beryllium	0.93	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	0 - 1	Cadmium	0.7	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	0 - 1	Chromium	17.5	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	0 - 1	Cobalt	5.2	mg/kg		1900	NO	Human Health	

APPENDIX A
Central Test Area IRP Soil Sampling Results
Iowa Army Ammunition Plant

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
Former Firing Pit	CTA-TTSB-029	0 - 1	Copper	13.9	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	0 - 1	HMX	0.23	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	0 - 1	Iron	17800	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	0 - 1	Lead	11.3	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	0 - 1	Manganese	396	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	0 - 1	Mercury	0.048	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	0 - 1	Nickel	12.7	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	0 - 1	Nitrobenzene	0.23	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	0 - 1	RDX	0.23	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	0 - 1	Selenium	4	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	0 - 1	Silver	0.081	mg/kg	ND	5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	0 - 1	Tetryl	0.23	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	0 - 1	Thallium	4.5	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	0 - 1	Vanadium	33.5	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	0 - 1	Zinc	51.2	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	1 - 2	1,3,5-Trinitrobenzene	0.23	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	1 - 2	1,3-Dinitrobenzene	0.23	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	1 - 2	2,4,6-Trinitrotoluene	0.23	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	1 - 2	2,4-Dinitrotoluene	0.23	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	1 - 2	2,6-Dinitrotoluene	0.23	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	1 - 2	2-Nitrotoluene	0.23	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	1 - 2	3-Nitrotoluene	0.23	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	1 - 2	4-Nitrotoluene	0.23	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	1 - 2	Aluminum	16900	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	1 - 2	Antimony	0.94	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	1 - 2	Arsenic	6.8	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	1 - 2	Barium	230	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	1 - 2	Beryllium	0.96	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	1 - 2	Cadmium	0.88	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	1 - 2	Chromium	19.1	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	1 - 2	Cobalt	5.8	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	1 - 2	Copper	15.6	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	1 - 2	HMX	0.23	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	1 - 2	Iron	21500	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	1 - 2	Lead	12.2	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	1 - 2	Manganese	399	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	1 - 2	Mercury	0.04	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	1 - 2	Nickel	13.9	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	1 - 2	Nitrobenzene	0.23	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	1 - 2	RDX	0.23	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	1 - 2	Selenium	5.4	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	1 - 2	Silver	0.081	mg/kg	ND	5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	1 - 2	Tetryl	0.23	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	1 - 2	Thallium	2.2	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	1 - 2	Vanadium	36.8	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-029	1 - 2	Zinc	49.6	mg/kg		100000	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	0 - 1	1,3,5-Trinitrobenzene	0.23	mg/kg	ND	102	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	0 - 1	1,3-Dinitrobenzene	0.23	mg/kg	ND	62	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	0 - 1	2,4,6-Trinitrotoluene	0.23	mg/kg	ND	47.6	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	0 - 1	2,4-Dinitrotoluene	0.23	mg/kg	ND	8.7	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	0 - 1	2,6-Dinitrotoluene	0.23	mg/kg	ND	620	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	0 - 1	2-Nitrotoluene	0.23	mg/kg	ND	2.2	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	0 - 1	3-Nitrotoluene	0.23	mg/kg	ND	1000	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	0 - 1	4-Nitrotoluene	0.23	mg/kg	ND	30	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	0 - 1	Aluminum	11500	mg/kg		100000	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	0 - 1	Antimony	0.59	mg/kg		816	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	0 - 1	Arsenic	5.4	mg/kg		30	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	0 - 1	Barium	246	mg/kg		67000	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	0 - 1	Beryllium	0.89	mg/kg		5	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	0 - 1	Cadmium	0.72	mg/kg	ND	1000	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	0 - 1	Chromium	14.2	mg/kg		10000	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	0 - 1	Cobalt	7.6	mg/kg		1900	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	0 - 1	Copper	12.8	mg/kg		41000	NO	Human Health	

APPENDIX A
Central Test Area IRP Soil Sampling Results
Iowa Army Ammunition Plant

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
Explosive Test Bldg 600-84	CTA-TTSB-031	0 - 1	HMX	0.23	mg/kg	ND	51000	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	0 - 1	Iron	15300	mg/kg		100000	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	0 - 1	Lead	24.2	mg/kg		1000	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	0 - 1	Manganese	950	mg/kg		19000	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	0 - 1	Mercury	0.042	mg/kg		310	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	0 - 1	Nickel	13.2	mg/kg		20000	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	0 - 1	Nitrobenzene	0.23	mg/kg	ND	100	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	0 - 1	RDX	0.23	mg/kg	ND	1.3	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	0 - 1	Selenium	3.4	mg/kg		5100	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	0 - 1	Silver	0.11	mg/kg		5100	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	0 - 1	Tetryl	0.23	mg/kg	ND	6200	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	0 - 1	Thallium	2.3	mg/kg	ND	143	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	0 - 1	Vanadium	32	mg/kg		1000	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	0 - 1	Zinc	57.7	mg/kg		100000	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	1 - 2	1,3,5-Trinitrobenzene	0.23	mg/kg	ND	102	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	1 - 2	1,3-Dinitrobenzene	0.23	mg/kg	ND	62	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	1 - 2	2,4,6-Trinitrotoluene	0.23	mg/kg	ND	47.6	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	1 - 2	2,4-Dinitrotoluene	0.23	mg/kg	ND	8.7	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	1 - 2	2,6-Dinitrotoluene	0.23	mg/kg	ND	620	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	1 - 2	2-Nitrotoluene	0.23	mg/kg	ND	2.2	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	1 - 2	3-Nitrotoluene	0.23	mg/kg	ND	1000	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	1 - 2	4-Nitrotoluene	0.23	mg/kg	ND	30	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	1 - 2	Aluminum	10600	mg/kg		100000	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	1 - 2	Antimony	0.71	mg/kg		816	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	1 - 2	Arsenic	7.1	mg/kg		30	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	1 - 2	Barium	223	mg/kg		67000	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	1 - 2	Beryllium	0.86	mg/kg		5	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	1 - 2	Cadmium	0.72	mg/kg	ND	1000	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	1 - 2	Chromium	13.8	mg/kg		10000	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	1 - 2	Cobalt	5.7	mg/kg		1900	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	1 - 2	Copper	12.5	mg/kg		41000	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	1 - 2	HMX	0.23	mg/kg	ND	51000	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	1 - 2	Iron	16100	mg/kg		100000	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	1 - 2	Lead	16	mg/kg		1000	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	1 - 2	Manganese	628	mg/kg		19000	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	1 - 2	Mercury	0.038	mg/kg		310	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	1 - 2	Nickel	12.9	mg/kg		20000	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	1 - 2	Nitrobenzene	0.23	mg/kg	ND	100	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	1 - 2	RDX	0.23	mg/kg	ND	1.3	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	1 - 2	Selenium	3.9	mg/kg		5100	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	1 - 2	Silver	0.084	mg/kg	ND	5100	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	1 - 2	Tetryl	0.23	mg/kg	ND	6200	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	1 - 2	Thallium	2.4	mg/kg	ND	143	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	1 - 2	Vanadium	33.4	mg/kg		1000	NO	Human Health	
Explosive Test Bldg 600-84	CTA-TTSB-031	1 - 2	Zinc	43.5	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	0 - 1	1,3,5-Trinitrobenzene	0.24	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	0 - 1	1,3-Dinitrobenzene	0.24	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	0 - 1	2,4,6-Trinitrotoluene	0.24	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	0 - 1	2,4-Dinitrotoluene	0.24	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	0 - 1	2,6-Dinitrotoluene	0.24	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	0 - 1	2-Nitrotoluene	0.24	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	0 - 1	3-Nitrotoluene	0.24	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	0 - 1	4-Nitrotoluene	0.24	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	0 - 1	Aluminum	11300	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	0 - 1	Antimony	0.62	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	0 - 1	Arsenic	6.6	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	0 - 1	Barium	275	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	0 - 1	Beryllium	0.94	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	0 - 1	Cadmium	0.66	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	0 - 1	Chromium	13.9	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	0 - 1	Cobalt	10	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	0 - 1	Copper	25.1	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	0 - 1	HMX	0.24	mg/kg	ND	51000	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
Former Firing Pit	CTA-TTSB-032	0 - 1	Iron	17900	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	0 - 1	Lead	94.6	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	0 - 1	Manganese	1080	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	0 - 1	Mercury	0.075	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	0 - 1	Nickel	14.7	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	0 - 1	Nitrobenzene	0.24	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	0 - 1	RDX	0.24	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	0 - 1	Selenium	3.5	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	0 - 1	Silver	0.15	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	0 - 1	Tetryl	0.24	mg/kg	ND	6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	0 - 1	Thallium	2.2	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	0 - 1	Vanadium	33.2	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	0 - 1	Zinc	103	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	1 - 2	1,3,5-Trinitrobenzene	0.23	mg/kg	ND	102	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	1 - 2	1,3-Dinitrobenzene	0.23	mg/kg	ND	62	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	1 - 2	2,4,6-Trinitrotoluene	0.23	mg/kg	ND	47.6	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	1 - 2	2,4-Dinitrotoluene	0.23	mg/kg	ND	8.7	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	1 - 2	2,6-Dinitrotoluene	0.23	mg/kg	ND	620	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	1 - 2	2-Nitrotoluene	0.23	mg/kg	ND	2.2	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	1 - 2	3-Nitrotoluene	0.23	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	1 - 2	4-Nitrotoluene	0.23	mg/kg	ND	30	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	1 - 2	Aluminum	12200	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	1 - 2	Antimony	1.1	mg/kg		816	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	1 - 2	Arsenic	5	mg/kg		30	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	1 - 2	Barium	196	mg/kg		67000	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	1 - 2	Beryllium	0.88	mg/kg		5	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	1 - 2	Cadmium	0.88	mg/kg	ND	1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	1 - 2	Chromium	14.2	mg/kg		10000	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	1 - 2	Cobalt	6.1	mg/kg		1900	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	1 - 2	Copper	13.3	mg/kg		41000	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	1 - 2	HMX	0.23	mg/kg	ND	51000	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	1 - 2	Iron	16600	mg/kg		100000	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	1 - 2	Lead	16.3	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	1 - 2	Manganese	472	mg/kg		19000	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	1 - 2	Mercury	0.031	mg/kg		310	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	1 - 2	Nickel	12.5	mg/kg		20000	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	1 - 2	Nitrobenzene	0.23	mg/kg	ND	100	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	1 - 2	RDX	0.23	mg/kg	ND	1.3	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	1 - 2	Selenium	4	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	1 - 2	Silver	0.085	mg/kg		5100	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	1 - 2	Tetryl	0.344	mg/kg		6200	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	1 - 2	Thallium	4.5	mg/kg	ND	143	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	1 - 2	Vanadium	30.1	mg/kg		1000	NO	Human Health	
Former Firing Pit	CTA-TTSB-032	1 - 2	Zinc	47.4	mg/kg		100000	NO	Human Health	
Explosive Test Bldg 600-84	R06SA605	3	1,3,5-Trinitrobenzene	0.48	mg/kg	ND	102	NO	Human Health	
Explosive Test Bldg 600-84	R06SA605	3	1,3-Dinitrobenzene	0.49	mg/kg	ND	62	NO	Human Health	
Explosive Test Bldg 600-84	R06SA605	3	2,4,6-Trinitrotoluene	0.45	mg/kg	ND	47.6	NO	Human Health	
Explosive Test Bldg 600-84	R06SA605	3	2,4-Dinitrotoluene	0.42	mg/kg	ND	8.7	NO	Human Health	
Explosive Test Bldg 600-84	R06SA605	3	2,6-Dinitrotoluene	0.52	mg/kg	ND	620	NO	Human Health	
Explosive Test Bldg 600-84	R06SA605	3	Aluminum	6890	mg/kg		100000	NO	Human Health	
Explosive Test Bldg 600-84	R06SA605	3	Antimony	7.14	mg/kg	ND	816	NO	Human Health	
Explosive Test Bldg 600-84	R06SA605	3	Arsenic	5.31	mg/kg		30	NO	Human Health	
Explosive Test Bldg 600-84	R06SA605	3	Barium	208	mg/kg		67000	NO	Human Health	
Explosive Test Bldg 600-84	R06SA605	3	Beryllium	1	mg/kg		5	NO	Human Health	
Explosive Test Bldg 600-84	R06SA605	3	Cadmium	9.09	mg/kg		1000	NO	Human Health	
Explosive Test Bldg 600-84	R06SA605	3	Chromium	11.2	mg/kg		10000	NO	Human Health	
Explosive Test Bldg 600-84	R06SA605	3	Cobalt	4.92	mg/kg		1900	NO	Human Health	
Explosive Test Bldg 600-84	R06SA605	3	Copper	16.3	mg/kg		41000	NO	Human Health	
Explosive Test Bldg 600-84	R06SA605	3	HMX	0.66	mg/kg	ND	51000	NO	Human Health	
Explosive Test Bldg 600-84	R06SA605	3	Iron	12200	mg/kg		100000	NO	Human Health	
Explosive Test Bldg 600-84	R06SA605	3	Lead	12.6	mg/kg		1000	NO	Human Health	
Explosive Test Bldg 600-84	R06SA605	3	Manganese	540	mg/kg		19000	NO	Human Health	
Explosive Test Bldg 600-84	R06SA605	3	Mercury	0.05	mg/kg	ND	310	NO	Human Health	

APPENDIX A
Central Test Area IRP Soil Sampling Results
Iowa Army Ammunition Plant

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
Explosive Test Bldg 600-84	R06SA605	3	Nickel	12	mg/kg		20000	NO	Human Health	
Explosive Test Bldg 600-84	R06SA605	3	Nitrobenzene	2.41	mg/kg	ND	100	NO	Human Health	
Explosive Test Bldg 600-84	R06SA605	3	RDX	0.58	mg/kg	ND	1.3	NO	Human Health	
Explosive Test Bldg 600-84	R06SA605	3	Selenium	0.25	mg/kg	ND	5100	NO	Human Health	
Explosive Test Bldg 600-84	R06SA605	3	Silver	0.58	mg/kg	ND	5100	NO	Human Health	
Explosive Test Bldg 600-84	R06SA605	3	Tetryl	0.73	mg/kg	ND	6200	NO	Human Health	
Explosive Test Bldg 600-84	R06SA605	3	Thallium	0.5	mg/kg	ND	143	NO	Human Health	
Explosive Test Bldg 600-84	R06SA605	3	Vanadium	24.7	mg/kg		1000	NO	Human Health	
Explosive Test Bldg 600-84	R06SA605	3	Zinc	73.7	mg/kg		100000	NO	Human Health	
Explosive Test Bldg 600-84	R06SA606	3	1,3,5-Trinitrobenzene	0.48	mg/kg	ND	102	NO	Human Health	
Explosive Test Bldg 600-84	R06SA606	3	1,3-Dinitrobenzene	0.49	mg/kg	ND	62	NO	Human Health	
Explosive Test Bldg 600-84	R06SA606	3	2,4,6-Trinitrotoluene	0.45	mg/kg	ND	47.6	NO	Human Health	
Explosive Test Bldg 600-84	R06SA606	3	2,4-Dinitrotoluene	0.42	mg/kg	ND	8.7	NO	Human Health	
Explosive Test Bldg 600-84	R06SA606	3	2,6-Dinitrotoluene	0.52	mg/kg	ND	620	NO	Human Health	
Explosive Test Bldg 600-84	R06SA606	3	Aluminum	10800	mg/kg		100000	NO	Human Health	
Explosive Test Bldg 600-84	R06SA606	3	Antimony	7.14	mg/kg	ND	816	NO	Human Health	
Explosive Test Bldg 600-84	R06SA606	3	Arsenic	5.82	mg/kg		30	NO	Human Health	
Explosive Test Bldg 600-84	R06SA606	3	Barium	369	mg/kg		67000	NO	Human Health	
Explosive Test Bldg 600-84	R06SA606	3	Beryllium	1.18	mg/kg		5	NO	Human Health	
Explosive Test Bldg 600-84	R06SA606	3	Cadmium	1.21	mg/kg		1000	NO	Human Health	
Explosive Test Bldg 600-84	R06SA606	3	Chromium	15.8	mg/kg		10000	NO	Human Health	
Explosive Test Bldg 600-84	R06SA606	3	Cobalt	19.4	mg/kg		1900	NO	Human Health	
Explosive Test Bldg 600-84	R06SA606	3	Copper	28.3	mg/kg		41000	NO	Human Health	
Explosive Test Bldg 600-84	R06SA606	3	HMX	0.66	mg/kg	ND	51000	NO	Human Health	
Explosive Test Bldg 600-84	R06SA606	3	Iron	34900	mg/kg		100000	NO	Human Health	
Explosive Test Bldg 600-84	R06SA606	3	Lead	5.8	mg/kg		1000	NO	Human Health	
Explosive Test Bldg 600-84	R06SA606	3	Manganese	2440	mg/kg		19000	NO	Human Health	
Explosive Test Bldg 600-84	R06SA606	3	Mercury	0.05	mg/kg	ND	310	NO	Human Health	
Explosive Test Bldg 600-84	R06SA606	3	Nickel	63.6	mg/kg		20000	NO	Human Health	
Explosive Test Bldg 600-84	R06SA606	3	Nitrobenzene	2.41	mg/kg	ND	100	NO	Human Health	
Explosive Test Bldg 600-84	R06SA606	3	RDX	0.58	mg/kg	ND	1.3	NO	Human Health	
Explosive Test Bldg 600-84	R06SA606	3	Selenium	0.25	mg/kg	ND	5100	NO	Human Health	
Explosive Test Bldg 600-84	R06SA606	3	Silver	0.58	mg/kg	ND	5100	NO	Human Health	
Explosive Test Bldg 600-84	R06SA606	3	Tetryl	0.73	mg/kg	ND	6200	NO	Human Health	
Explosive Test Bldg 600-84	R06SA606	3	Thallium	0.5	mg/kg	ND	143	NO	Human Health	
Explosive Test Bldg 600-84	R06SA606	3	Vanadium	35	mg/kg		1000	NO	Human Health	
Explosive Test Bldg 600-84	R06SA606	3	Zinc	68.2	mg/kg		100000	NO	Human Health	
Explosive Test Bldg 600-84	R06SA607	3	1,3,5-Trinitrobenzene	0.48	mg/kg	ND	102	NO	Human Health	
Explosive Test Bldg 600-84	R06SA607	3	1,3-Dinitrobenzene	0.49	mg/kg	ND	62	NO	Human Health	
Explosive Test Bldg 600-84	R06SA607	3	2,4,6-Trinitrotoluene	0.45	mg/kg	ND	47.6	NO	Human Health	
Explosive Test Bldg 600-84	R06SA607	3	2,4-Dinitrotoluene	0.42	mg/kg	ND	8.7	NO	Human Health	
Explosive Test Bldg 600-84	R06SA607	3	2,6-Dinitrotoluene	0.52	mg/kg	ND	620	NO	Human Health	
Explosive Test Bldg 600-84	R06SA607	3	Aluminum	20000	mg/kg		100000	NO	Human Health	
Explosive Test Bldg 600-84	R06SA607	3	Antimony	7.14	mg/kg	ND	816	NO	Human Health	
Explosive Test Bldg 600-84	R06SA607	3	Arsenic	5.67	mg/kg		30	NO	Human Health	
Explosive Test Bldg 600-84	R06SA607	3	Barium	314	mg/kg		67000	NO	Human Health	
Explosive Test Bldg 600-84	R06SA607	3	Beryllium	0.73	mg/kg		5	NO	Human Health	
Explosive Test Bldg 600-84	R06SA607	3	Cadmium	0.7	mg/kg	ND	1000	NO	Human Health	
Explosive Test Bldg 600-84	R06SA607	3	Chromium	25.1	mg/kg		10000	NO	Human Health	
Explosive Test Bldg 600-84	R06SA607	3	Cobalt	14.2	mg/kg		1900	NO	Human Health	
Explosive Test Bldg 600-84	R06SA607	3	Copper	18.8	mg/kg		41000	NO	Human Health	
Explosive Test Bldg 600-84	R06SA607	3	HMX	0.66	mg/kg	ND	51000	NO	Human Health	
Explosive Test Bldg 600-84	R06SA607	3	Iron	26300	mg/kg		100000	NO	Human Health	
Explosive Test Bldg 600-84	R06SA607	3	Lead	15	mg/kg		1000	NO	Human Health	
Explosive Test Bldg 600-84	R06SA607	3	Manganese	933	mg/kg		19000	NO	Human Health	
Explosive Test Bldg 600-84	R06SA607	3	Mercury	0.05	mg/kg	ND	310	NO	Human Health	
Explosive Test Bldg 600-84	R06SA607	3	Nickel	29.3	mg/kg		20000	NO	Human Health	
Explosive Test Bldg 600-84	R06SA607	3	Nitrobenzene	2.41	mg/kg	ND	100	NO	Human Health	
Explosive Test Bldg 600-84	R06SA607	3	RDX	0.58	mg/kg	ND	1.3	NO	Human Health	
Explosive Test Bldg 600-84	R06SA607	3	Selenium	0.25	mg/kg	ND	5100	NO	Human Health	
Explosive Test Bldg 600-84	R06SA607	3	Silver	0.58	mg/kg	ND	5100	NO	Human Health	
Explosive Test Bldg 600-84	R06SA607	3	Tetryl	0.73	mg/kg	ND	6200	NO	Human Health	
Explosive Test Bldg 600-84	R06SA607	3	Thallium	0.5	mg/kg	ND	143	NO	Human Health	

APPENDIX A
Central Test Area IRP Soil Sampling Results
Iowa Army Ammunition Plant

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
Explosive Test Bldg 600-84	R06SA607	3	Vanadium	47.2	mg/kg		1000	NO	Human Health	
Explosive Test Bldg 600-84	R06SA607	3	Zinc	82.8	mg/kg		100000	NO	Human Health	
Explosive Test Bldg 600-84	R06SA608	3	1,3,5-Trinitrobenzene	0.48	mg/kg	ND	102	NO	Human Health	
Explosive Test Bldg 600-84	R06SA608	3	1,3-Dinitrobenzene	0.49	mg/kg	ND	62	NO	Human Health	
Explosive Test Bldg 600-84	R06SA608	3	2,4,6-Trinitrotoluene	0.45	mg/kg	ND	47.6	NO	Human Health	
Explosive Test Bldg 600-84	R06SA608	3	2,4-Dinitrotoluene	0.42	mg/kg	ND	8.7	NO	Human Health	
Explosive Test Bldg 600-84	R06SA608	3	2,6-Dinitrotoluene	0.52	mg/kg	ND	620	NO	Human Health	
Explosive Test Bldg 600-84	R06SA608	3	Aluminum	12600	mg/kg		100000	NO	Human Health	
Explosive Test Bldg 600-84	R06SA608	3	Antimony	7.14	mg/kg	ND	816	NO	Human Health	
Explosive Test Bldg 600-84	R06SA608	3	Arsenic	6.15	mg/kg		30	NO	Human Health	
Explosive Test Bldg 600-84	R06SA608	3	Barium	262	mg/kg		67000	NO	Human Health	
Explosive Test Bldg 600-84	R06SA608	3	Beryllium	0.83	mg/kg		5	NO	Human Health	
Explosive Test Bldg 600-84	R06SA608	3	Cadmium	0.7	mg/kg	ND	1000	NO	Human Health	
Explosive Test Bldg 600-84	R06SA608	3	Chromium	20.4	mg/kg		10000	NO	Human Health	
Explosive Test Bldg 600-84	R06SA608	3	Cobalt	17.2	mg/kg		1900	NO	Human Health	
Explosive Test Bldg 600-84	R06SA608	3	Copper	26.9	mg/kg		41000	NO	Human Health	
Explosive Test Bldg 600-84	R06SA608	3	HMX	0.66	mg/kg	ND	51000	NO	Human Health	
Explosive Test Bldg 600-84	R06SA608	3	Iron	24900	mg/kg		100000	NO	Human Health	
Explosive Test Bldg 600-84	R06SA608	3	Lead	22	mg/kg		1000	NO	Human Health	
Explosive Test Bldg 600-84	R06SA608	3	Manganese	856	mg/kg		19000	NO	Human Health	
Explosive Test Bldg 600-84	R06SA608	3	Mercury	0.05	mg/kg	ND	310	NO	Human Health	
Explosive Test Bldg 600-84	R06SA608	3	Nickel	35.9	mg/kg		20000	NO	Human Health	
Explosive Test Bldg 600-84	R06SA608	3	Nitrobenzene	2.41	mg/kg	ND	100	NO	Human Health	
Explosive Test Bldg 600-84	R06SA608	3	RDX	0.58	mg/kg	ND	1.3	NO	Human Health	
Explosive Test Bldg 600-84	R06SA608	3	Selenium	0.25	mg/kg	ND	5100	NO	Human Health	
Explosive Test Bldg 600-84	R06SA608	3	Silver	0.58	mg/kg	ND	5100	NO	Human Health	
Explosive Test Bldg 600-84	R06SA608	3	Tetryl	0.73	mg/kg	ND	6200	NO	Human Health	
Explosive Test Bldg 600-84	R06SA608	3	Thallium	0.5	mg/kg	ND	143	NO	Human Health	
Explosive Test Bldg 600-84	R06SA608	3	Vanadium	47.8	mg/kg		1000	NO	Human Health	
Explosive Test Bldg 600-84	R06SA608	3	Zinc	72.3	mg/kg		100000	NO	Human Health	
Explosive Test Bldg 600-84	R06SS605	0.5	1,3,5-Trinitrobenzene	0.48	mg/kg	ND	102	NO	Human Health	
Explosive Test Bldg 600-84	R06SS605	0.5	1,3-Dinitrobenzene	0.49	mg/kg	ND	62	NO	Human Health	
Explosive Test Bldg 600-84	R06SS605	0.5	2,4,6-Trinitrotoluene	0.45	mg/kg	ND	47.6	NO	Human Health	
Explosive Test Bldg 600-84	R06SS605	0.5	2,4-Dinitrotoluene	0.42	mg/kg	ND	8.7	NO	Human Health	
Explosive Test Bldg 600-84	R06SS605	0.5	2,6-Dinitrotoluene	0.52	mg/kg	ND	620	NO	Human Health	
Explosive Test Bldg 600-84	R06SS605	0.5	Aluminum	80000	mg/kg		100000	NO	Human Health	
Explosive Test Bldg 600-84	R06SS605	0.5	Antimony	7.14	mg/kg	ND	816	NO	Human Health	
Explosive Test Bldg 600-84	R06SS605	0.5	Arsenic	2.44	mg/kg		30	NO	Human Health	
Explosive Test Bldg 600-84	R06SS605	0.5	Barium	39.1	mg/kg		67000	NO	Human Health	
Explosive Test Bldg 600-84	R06SS605	0.5	Beryllium	3.4	mg/kg		5	NO	Human Health	
Explosive Test Bldg 600-84	R06SS605	0.5	Cadmium	1100	mg/kg		1000	YES	Human Health	
Explosive Test Bldg 600-84	R06SS605	0.5	Chromium	152	mg/kg		10000	NO	Human Health	
Explosive Test Bldg 600-84	R06SS605	0.5	Cobalt	15	mg/kg		1900	NO	Human Health	
Explosive Test Bldg 600-84	R06SS605	0.5	Copper	3200	mg/kg		41000	NO	Human Health	
Explosive Test Bldg 600-84	R06SS605	0.5	HMX	0.66	mg/kg	ND	51000	NO	Human Health	
Explosive Test Bldg 600-84	R06SS605	0.5	Iron	220000	mg/kg		100000	YES	Human Health	
Explosive Test Bldg 600-84	R06SS605	0.5	Lead	190	mg/kg		1000	NO	Human Health	
Explosive Test Bldg 600-84	R06SS605	0.5	Manganese	2300	mg/kg		19000	NO	Human Health	
Explosive Test Bldg 600-84	R06SS605	0.5	Mercury	0.05	mg/kg	ND	310	NO	Human Health	
Explosive Test Bldg 600-84	R06SS605	0.5	Nickel	99.8	mg/kg		20000	NO	Human Health	
Explosive Test Bldg 600-84	R06SS605	0.5	Nitrobenzene	2.41	mg/kg	ND	100	NO	Human Health	
Explosive Test Bldg 600-84	R06SS605	0.5	RDX	0.58	mg/kg	ND	1.3	NO	Human Health	
Explosive Test Bldg 600-84	R06SS605	0.5	Selenium	0.25	mg/kg	ND	5100	NO	Human Health	
Explosive Test Bldg 600-84	R06SS605	0.5	Silver	1.43	mg/kg		5100	NO	Human Health	
Explosive Test Bldg 600-84	R06SS605	0.5	Tetryl	0.73	mg/kg	ND	6200	NO	Human Health	
Explosive Test Bldg 600-84	R06SS605	0.5	Thallium	0.5	mg/kg	ND	143	NO	Human Health	
Explosive Test Bldg 600-84	R06SS605	0.5	Vanadium	24	mg/kg		1000	NO	Human Health	
Explosive Test Bldg 600-84	R06SS605	0.5	Zinc	3500	mg/kg		100000	NO	Human Health	
Explosive Test Bldg 600-84	R06SS606	0.5	1,3,5-Trinitrobenzene	0.48	mg/kg	ND	102	NO	Human Health	
Explosive Test Bldg 600-84	R06SS606	0.5	1,3-Dinitrobenzene	0.49	mg/kg	ND	62	NO	Human Health	
Explosive Test Bldg 600-84	R06SS606	0.5	2,4,6-Trinitrotoluene	0.45	mg/kg	ND	47.6	NO	Human Health	
Explosive Test Bldg 600-84	R06SS606	0.5	2,4-Dinitrotoluene	0.42	mg/kg	ND	8.7	NO	Human Health	
Explosive Test Bldg 600-84	R06SS606	0.5	2,6-Dinitrotoluene	0.52	mg/kg	ND	620	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
Explosive Test Bldg 600-84	R06SS606	0.5	Aluminum	5750	mg/kg		100000	NO	Human Health	
Explosive Test Bldg 600-84	R06SS606	0.5	Antimony	7.14	mg/kg	ND	816	NO	Human Health	
Explosive Test Bldg 600-84	R06SS606	0.5	Arsenic	4.98	mg/kg		30	NO	Human Health	
Explosive Test Bldg 600-84	R06SS606	0.5	Barium	210	mg/kg		67000	NO	Human Health	
Explosive Test Bldg 600-84	R06SS606	0.5	Beryllium	0.92	mg/kg		5	NO	Human Health	
Explosive Test Bldg 600-84	R06SS606	0.5	Cadmium	2.96	mg/kg		1000	NO	Human Health	
Explosive Test Bldg 600-84	R06SS606	0.5	Chromium	9.81	mg/kg		10000	NO	Human Health	
Explosive Test Bldg 600-84	R06SS606	0.5	Cobalt	5.8	mg/kg		1900	NO	Human Health	
Explosive Test Bldg 600-84	R06SS606	0.5	Copper	12.6	mg/kg		41000	NO	Human Health	
Explosive Test Bldg 600-84	R06SS606	0.5	HMX	0.66	mg/kg	ND	51000	NO	Human Health	
Explosive Test Bldg 600-84	R06SS606	0.5	Iron	8650	mg/kg		100000	NO	Human Health	
Explosive Test Bldg 600-84	R06SS606	0.5	Lead	23.8	mg/kg		1000	NO	Human Health	
Explosive Test Bldg 600-84	R06SS606	0.5	Manganese	596	mg/kg		19000	NO	Human Health	
Explosive Test Bldg 600-84	R06SS606	0.5	Mercury	0.05	mg/kg	ND	310	NO	Human Health	
Explosive Test Bldg 600-84	R06SS606	0.5	Nickel	11.1	mg/kg		20000	NO	Human Health	
Explosive Test Bldg 600-84	R06SS606	0.5	Nitrobenzene	2.41	mg/kg	ND	100	NO	Human Health	
Explosive Test Bldg 600-84	R06SS606	0.5	RDX	0.58	mg/kg	ND	1.3	NO	Human Health	
Explosive Test Bldg 600-84	R06SS606	0.5	Selenium	0.25	mg/kg	ND	5100	NO	Human Health	
Explosive Test Bldg 600-84	R06SS606	0.5	Silver	0.58	mg/kg	ND	5100	NO	Human Health	
Explosive Test Bldg 600-84	R06SS606	0.5	Tetryl	0.73	mg/kg	ND	6200	NO	Human Health	
Explosive Test Bldg 600-84	R06SS606	0.5	Thallium	0.5	mg/kg	ND	143	NO	Human Health	
Explosive Test Bldg 600-84	R06SS606	0.5	Vanadium	22.9	mg/kg		1000	NO	Human Health	
Explosive Test Bldg 600-84	R06SS606	0.5	Zinc	165	mg/kg		100000	NO	Human Health	
Explosive Test Bldg 600-84	R06SS607	0.5	1,3,5-Trinitrobenzene	0.48	mg/kg	ND	102	NO	Human Health	
Explosive Test Bldg 600-84	R06SS607	0.5	1,3-Dinitrobenzene	0.49	mg/kg	ND	62	NO	Human Health	
Explosive Test Bldg 600-84	R06SS607	0.5	2,4,6-Trinitrotoluene	0.57	mg/kg		47.6	NO	Human Health	
Explosive Test Bldg 600-84	R06SS607	0.5	2,4-Dinitrotoluene	0.42	mg/kg	ND	8.7	NO	Human Health	
Explosive Test Bldg 600-84	R06SS607	0.5	2,6-Dinitrotoluene	0.52	mg/kg	ND	620	NO	Human Health	
Explosive Test Bldg 600-84	R06SS607	0.5	Aluminum	4070	mg/kg		100000	NO	Human Health	
Explosive Test Bldg 600-84	R06SS607	0.5	Antimony	7.14	mg/kg	ND	816	NO	Human Health	
Explosive Test Bldg 600-84	R06SS607	0.5	Arsenic	2.25	mg/kg		30	NO	Human Health	
Explosive Test Bldg 600-84	R06SS607	0.5	Barium	78	mg/kg		67000	NO	Human Health	
Explosive Test Bldg 600-84	R06SS607	0.5	Beryllium	0.79	mg/kg		5	NO	Human Health	
Explosive Test Bldg 600-84	R06SS607	0.5	Cadmium	4.5	mg/kg		1000	NO	Human Health	
Explosive Test Bldg 600-84	R06SS607	0.5	Chromium	7.7	mg/kg		10000	NO	Human Health	
Explosive Test Bldg 600-84	R06SS607	0.5	Cobalt	3.74	mg/kg		1900	NO	Human Health	
Explosive Test Bldg 600-84	R06SS607	0.5	Copper	8.9	mg/kg		41000	NO	Human Health	
Explosive Test Bldg 600-84	R06SS607	0.5	HMX	0.66	mg/kg	ND	51000	NO	Human Health	
Explosive Test Bldg 600-84	R06SS607	0.5	Iron	6530	mg/kg		100000	NO	Human Health	
Explosive Test Bldg 600-84	R06SS607	0.5	Lead	20	mg/kg		1000	NO	Human Health	
Explosive Test Bldg 600-84	R06SS607	0.5	Manganese	713	mg/kg		19000	NO	Human Health	
Explosive Test Bldg 600-84	R06SS607	0.5	Mercury	0.05	mg/kg	ND	310	NO	Human Health	
Explosive Test Bldg 600-84	R06SS607	0.5	Nickel	11.9	mg/kg		20000	NO	Human Health	
Explosive Test Bldg 600-84	R06SS607	0.5	Nitrobenzene	2.41	mg/kg	ND	100	NO	Human Health	
Explosive Test Bldg 600-84	R06SS607	0.5	RDX	0.58	mg/kg	ND	1.3	NO	Human Health	
Explosive Test Bldg 600-84	R06SS607	0.5	Selenium	0.25	mg/kg	ND	5100	NO	Human Health	
Explosive Test Bldg 600-84	R06SS607	0.5	Silver	0.58	mg/kg	ND	5100	NO	Human Health	
Explosive Test Bldg 600-84	R06SS607	0.5	Tetryl	0.73	mg/kg	ND	6200	NO	Human Health	
Explosive Test Bldg 600-84	R06SS607	0.5	Thallium	0.5	mg/kg	ND	143	NO	Human Health	
Explosive Test Bldg 600-84	R06SS607	0.5	Vanadium	12	mg/kg		1000	NO	Human Health	
Explosive Test Bldg 600-84	R06SS607	0.5	Zinc	242	mg/kg		100000	NO	Human Health	
Explosive Test Bldg 600-84	R06SS608	0.5	1,3,5-Trinitrobenzene	0.48	mg/kg	ND	102	NO	Human Health	
Explosive Test Bldg 600-84	R06SS608	0.5	1,3-Dinitrobenzene	0.49	mg/kg	ND	62	NO	Human Health	
Explosive Test Bldg 600-84	R06SS608	0.5	2,4,6-Trinitrotoluene	0.45	mg/kg	ND	47.6	NO	Human Health	
Explosive Test Bldg 600-84	R06SS608	0.5	2,4-Dinitrotoluene	0.42	mg/kg	ND	8.7	NO	Human Health	
Explosive Test Bldg 600-84	R06SS608	0.5	2,6-Dinitrotoluene	0.52	mg/kg	ND	620	NO	Human Health	
Explosive Test Bldg 600-84	R06SS608	0.5	Aluminum	18900	mg/kg		100000	NO	Human Health	
Explosive Test Bldg 600-84	R06SS608	0.5	Antimony	7.14	mg/kg	ND	816	NO	Human Health	
Explosive Test Bldg 600-84	R06SS608	0.5	Arsenic	6.84	mg/kg		30	NO	Human Health	
Explosive Test Bldg 600-84	R06SS608	0.5	Barium	275	mg/kg		67000	NO	Human Health	
Explosive Test Bldg 600-84	R06SS608	0.5	Beryllium	0.74	mg/kg		5	NO	Human Health	
Explosive Test Bldg 600-84	R06SS608	0.5	Cadmium	0.7	mg/kg	ND	1000	NO	Human Health	
Explosive Test Bldg 600-84	R06SS608	0.5	Chromium	23.4	mg/kg		10000	NO	Human Health	

APPENDIX A
Central Test Area IRP Soil Sampling Results
Iowa Army Ammunition Plant

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
Explosive Test Bldg 600-84	R06SS608	0.5	Cobalt	3.64	mg/kg		1900	NO	Human Health	
Explosive Test Bldg 600-84	R06SS608	0.5	Copper	19.3	mg/kg		41000	NO	Human Health	
Explosive Test Bldg 600-84	R06SS608	0.5	HMX	0.66	mg/kg	ND	51000	NO	Human Health	
Explosive Test Bldg 600-84	R06SS608	0.5	Iron	21700	mg/kg		100000	NO	Human Health	
Explosive Test Bldg 600-84	R06SS608	0.5	Lead	15	mg/kg		1000	NO	Human Health	
Explosive Test Bldg 600-84	R06SS608	0.5	Manganese	216	mg/kg		19000	NO	Human Health	
Explosive Test Bldg 600-84	R06SS608	0.5	Mercury	0.05	mg/kg	ND	310	NO	Human Health	
Explosive Test Bldg 600-84	R06SS608	0.5	Nickel	16.8	mg/kg		20000	NO	Human Health	
Explosive Test Bldg 600-84	R06SS608	0.5	Nitrobenzene	2.41	mg/kg	ND	100	NO	Human Health	
Explosive Test Bldg 600-84	R06SS608	0.5	RDX	0.58	mg/kg	ND	1.3	NO	Human Health	
Explosive Test Bldg 600-84	R06SS608	0.5	Selenium	0.25	mg/kg	ND	5100	NO	Human Health	
Explosive Test Bldg 600-84	R06SS608	0.5	Silver	0.58	mg/kg	ND	5100	NO	Human Health	
Explosive Test Bldg 600-84	R06SS608	0.5	Tetryl	0.73	mg/kg	ND	6200	NO	Human Health	
Explosive Test Bldg 600-84	R06SS608	0.5	Thallium	0.5	mg/kg	ND	143	NO	Human Health	
Explosive Test Bldg 600-84	R06SS608	0.5	Vanadium	38.4	mg/kg		1000	NO	Human Health	
Explosive Test Bldg 600-84	R06SS608	0.5	Zinc	96.2	mg/kg		100000	NO	Human Health	
Explosive Test Bldg 600-84	S-1-CTA	0 - 0.5	1,3,5-Trinitrobenzene	0.5	mg/kg	ND	102	NO	Human Health	
Explosive Test Bldg 600-84	S-1-CTA	0 - 0.5	1,3-Dinitrobenzene	0.5	mg/kg	ND	62	NO	Human Health	
Explosive Test Bldg 600-84	S-1-CTA	0 - 0.5	2,4,6-Trinitrotoluene	0.5	mg/kg	ND	47.6	NO	Human Health	
Explosive Test Bldg 600-84	S-1-CTA	0 - 0.5	2,4-Dinitrotoluene	0.5	mg/kg	ND	8.7	NO	Human Health	
Explosive Test Bldg 600-84	S-1-CTA	0 - 0.5	2,6-Dinitrotoluene	0.5	mg/kg	ND	620	NO	Human Health	
Explosive Test Bldg 600-84	S-1-CTA	0 - 0.5	2-Nitrotoluene	0.5	mg/kg	ND	2.2	NO	Human Health	
Explosive Test Bldg 600-84	S-1-CTA	0 - 0.5	3-Nitrotoluene	0.5	mg/kg	ND	1000	NO	Human Health	
Explosive Test Bldg 600-84	S-1-CTA	0 - 0.5	4-Nitrotoluene	0.5	mg/kg	ND	30	NO	Human Health	
Explosive Test Bldg 600-84	S-1-CTA	0 - 0.5	Arsenic	8.66	mg/kg		30	NO	Human Health	
Explosive Test Bldg 600-84	S-1-CTA	0 - 0.5	Barium	193	mg/kg		67000	NO	Human Health	
Explosive Test Bldg 600-84	S-1-CTA	0 - 0.5	Cadmium	4.92	mg/kg		1000	NO	Human Health	
Explosive Test Bldg 600-84	S-1-CTA	0 - 0.5	Chromium	17.1	mg/kg		10000	NO	Human Health	
Explosive Test Bldg 600-84	S-1-CTA	0 - 0.5	HMX	0.5	mg/kg	ND	51000	NO	Human Health	
Explosive Test Bldg 600-84	S-1-CTA	0 - 0.5	Lead	53.7	mg/kg		1000	NO	Human Health	
Explosive Test Bldg 600-84	S-1-CTA	0 - 0.5	Mercury	0.1	mg/kg	ND	310	NO	Human Health	
Explosive Test Bldg 600-84	S-1-CTA	0 - 0.5	Nitrobenzene	0.5	mg/kg	ND	100	NO	Human Health	
Explosive Test Bldg 600-84	S-1-CTA	0 - 0.5	RDX	0.5	mg/kg	ND	1.3	NO	Human Health	
Explosive Test Bldg 600-84	S-1-CTA	0 - 0.5	Selenium	1.38	mg/kg		5100	NO	Human Health	
Explosive Test Bldg 600-84	S-1-CTA	0 - 0.5	Silver	0.98	mg/kg	ND	5100	NO	Human Health	
Explosive Test Bldg 600-84	S-1-CTA	0 - 0.5	Tetryl	0.5	mg/kg	ND	6200	NO	Human Health	
Explosive Test Bldg 600-84	S-2-CTA	0 - 0.5	1,3,5-Trinitrobenzene	0.49	mg/kg	ND	102	NO	Human Health	
Explosive Test Bldg 600-84	S-2-CTA	0 - 0.5	1,3-Dinitrobenzene	0.49	mg/kg	ND	62	NO	Human Health	
Explosive Test Bldg 600-84	S-2-CTA	0 - 0.5	2,4,6-Trinitrotoluene	0.49	mg/kg	ND	47.6	NO	Human Health	
Explosive Test Bldg 600-84	S-2-CTA	0 - 0.5	2,4-Dinitrotoluene	0.49	mg/kg	ND	8.7	NO	Human Health	
Explosive Test Bldg 600-84	S-2-CTA	0 - 0.5	2,6-Dinitrotoluene	0.49	mg/kg	ND	620	NO	Human Health	
Explosive Test Bldg 600-84	S-2-CTA	0 - 0.5	2-Nitrotoluene	0.49	mg/kg	ND	2.2	NO	Human Health	
Explosive Test Bldg 600-84	S-2-CTA	0 - 0.5	3-Nitrotoluene	0.49	mg/kg	ND	1000	NO	Human Health	
Explosive Test Bldg 600-84	S-2-CTA	0 - 0.5	4-Nitrotoluene	0.49	mg/kg	ND	30	NO	Human Health	
Explosive Test Bldg 600-84	S-2-CTA	0 - 0.5	Arsenic	8.74	mg/kg		30	NO	Human Health	
Explosive Test Bldg 600-84	S-2-CTA	0 - 0.5	Barium	98.8	mg/kg		67000	NO	Human Health	
Explosive Test Bldg 600-84	S-2-CTA	0 - 0.5	Cadmium	7.38	mg/kg		1000	NO	Human Health	
Explosive Test Bldg 600-84	S-2-CTA	0 - 0.5	Chromium	12.4	mg/kg		10000	NO	Human Health	
Explosive Test Bldg 600-84	S-2-CTA	0 - 0.5	HMX	0.49	mg/kg	ND	51000	NO	Human Health	
Explosive Test Bldg 600-84	S-2-CTA	0 - 0.5	Lead	26.6	mg/kg		1000	NO	Human Health	
Explosive Test Bldg 600-84	S-2-CTA	0 - 0.5	Mercury	0.1	mg/kg	ND	310	NO	Human Health	
Explosive Test Bldg 600-84	S-2-CTA	0 - 0.5	Nitrobenzene	0.49	mg/kg	ND	100	NO	Human Health	
Explosive Test Bldg 600-84	S-2-CTA	0 - 0.5	RDX	0.49	mg/kg	ND	1.3	NO	Human Health	
Explosive Test Bldg 600-84	S-2-CTA	0 - 0.5	Selenium	0.97	mg/kg	ND	5100	NO	Human Health	
Explosive Test Bldg 600-84	S-2-CTA	0 - 0.5	Silver	0.97	mg/kg	ND	5100	NO	Human Health	
Explosive Test Bldg 600-84	S-2-CTA	0 - 0.5	Tetryl	0.49	mg/kg	ND	6200	NO	Human Health	
Explosive Test Bldg 600-84	S-3-CTA	0 - 0.5	1,3,5-Trinitrobenzene	0.49	mg/kg	ND	102	NO	Human Health	
Explosive Test Bldg 600-84	S-3-CTA	0 - 0.5	1,3-Dinitrobenzene	0.49	mg/kg	ND	62	NO	Human Health	
Explosive Test Bldg 600-84	S-3-CTA	0 - 0.5	2,4,6-Trinitrotoluene	0.49	mg/kg	ND	47.6	NO	Human Health	
Explosive Test Bldg 600-84	S-3-CTA	0 - 0.5	2,4-Dinitrotoluene	0.49	mg/kg	ND	8.7	NO	Human Health	
Explosive Test Bldg 600-84	S-3-CTA	0 - 0.5	2,6-Dinitrotoluene	0.49	mg/kg	ND	620	NO	Human Health	
Explosive Test Bldg 600-84	S-3-CTA	0 - 0.5	2-Nitrotoluene	0.49	mg/kg	ND	2.2	NO	Human Health	
Explosive Test Bldg 600-84	S-3-CTA	0 - 0.5	3-Nitrotoluene	0.49	mg/kg	ND	1000	NO	Human Health	

APPENDIX A
Central Test Area IRP Soil Sampling Results
Iowa Army Ammunition Plant

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
Explosive Test Bldg 600-84	S-3-CTA	0 - 0.5	4-Nitrotoluene	0.49	mg/kg	ND	30	NO	Human Health	
Explosive Test Bldg 600-84	S-3-CTA	0 - 0.5	Arsenic	4.25	mg/kg		30	NO	Human Health	
Explosive Test Bldg 600-84	S-3-CTA	0 - 0.5	Barium	204	mg/kg		67000	NO	Human Health	
Explosive Test Bldg 600-84	S-3-CTA	0 - 0.5	Cadmium	1.01	mg/kg	ND	1000	NO	Human Health	
Explosive Test Bldg 600-84	S-3-CTA	0 - 0.5	Chromium	14.2	mg/kg		10000	NO	Human Health	
Explosive Test Bldg 600-84	S-3-CTA	0 - 0.5	HMX	0.49	mg/kg	ND	51000	NO	Human Health	
Explosive Test Bldg 600-84	S-3-CTA	0 - 0.5	Lead	1.01	mg/kg	ND	1000	NO	Human Health	
Explosive Test Bldg 600-84	S-3-CTA	0 - 0.5	Mercury	0.1	mg/kg	ND	310	NO	Human Health	
Explosive Test Bldg 600-84	S-3-CTA	0 - 0.5	Nitrobenzene	0.49	mg/kg	ND	100	NO	Human Health	
Explosive Test Bldg 600-84	S-3-CTA	0 - 0.5	RDX	0.49	mg/kg	ND	1.3	NO	Human Health	
Explosive Test Bldg 600-84	S-3-CTA	0 - 0.5	Selenium	1.01	mg/kg	ND	5100	NO	Human Health	
Explosive Test Bldg 600-84	S-3-CTA	0 - 0.5	Silver	1.01	mg/kg	ND	5100	NO	Human Health	
Explosive Test Bldg 600-84	S-3-CTA	0 - 0.5	Tetryl	0.49	mg/kg	ND	6200	NO	Human Health	
Explosive Test Bldg 600-84	S-4-CTA	0 - 0.5	1,3,5-Trinitrobenzene	0.49	mg/kg	ND	102	NO	Human Health	
Explosive Test Bldg 600-84	S-4-CTA	0 - 0.5	1,3-Dinitrobenzene	0.49	mg/kg	ND	62	NO	Human Health	
Explosive Test Bldg 600-84	S-4-CTA	0 - 0.5	2,4,6-Trinitrotoluene	0.49	mg/kg	ND	47.6	NO	Human Health	
Explosive Test Bldg 600-84	S-4-CTA	0 - 0.5	2,4-Dinitrotoluene	0.49	mg/kg	ND	8.7	NO	Human Health	
Explosive Test Bldg 600-84	S-4-CTA	0 - 0.5	2,6-Dinitrotoluene	0.49	mg/kg	ND	620	NO	Human Health	
Explosive Test Bldg 600-84	S-4-CTA	0 - 0.5	2-Nitrotoluene	0.49	mg/kg	ND	2.2	NO	Human Health	
Explosive Test Bldg 600-84	S-4-CTA	0 - 0.5	3-Nitrotoluene	0.49	mg/kg	ND	1000	NO	Human Health	
Explosive Test Bldg 600-84	S-4-CTA	0 - 0.5	4-Nitrotoluene	0.49	mg/kg	ND	30	NO	Human Health	
Explosive Test Bldg 600-84	S-4-CTA	0 - 0.5	Arsenic	3.76	mg/kg		30	NO	Human Health	
Explosive Test Bldg 600-84	S-4-CTA	0 - 0.5	Barium	184	mg/kg		67000	NO	Human Health	
Explosive Test Bldg 600-84	S-4-CTA	0 - 0.5	Cadmium	0.99	mg/kg	ND	1000	NO	Human Health	
Explosive Test Bldg 600-84	S-4-CTA	0 - 0.5	Chromium	11.9	mg/kg		10000	NO	Human Health	
Explosive Test Bldg 600-84	S-4-CTA	0 - 0.5	HMX	0.49	mg/kg	ND	51000	NO	Human Health	
Explosive Test Bldg 600-84	S-4-CTA	0 - 0.5	Lead	15.6	mg/kg		1000	NO	Human Health	
Explosive Test Bldg 600-84	S-4-CTA	0 - 0.5	Mercury	0.1	mg/kg	ND	310	NO	Human Health	
Explosive Test Bldg 600-84	S-4-CTA	0 - 0.5	Nitrobenzene	0.49	mg/kg	ND	100	NO	Human Health	
Explosive Test Bldg 600-84	S-4-CTA	0 - 0.5	RDX	0.49	mg/kg	ND	1.3	NO	Human Health	
Explosive Test Bldg 600-84	S-4-CTA	0 - 0.5	Selenium	0.99	mg/kg	ND	5100	NO	Human Health	
Explosive Test Bldg 600-84	S-4-CTA	0 - 0.5	Silver	0.99	mg/kg	ND	5100	NO	Human Health	
Explosive Test Bldg 600-84	S-4-CTA	0 - 0.5	Tetryl	0.49	mg/kg	ND	6200	NO	Human Health	
Explosive Test Bldg 600-84	S-5-CTA	0 - 0.5	1,3,5-Trinitrobenzene	0.49	mg/kg	ND	102	NO	Human Health	
Explosive Test Bldg 600-84	S-5-CTA	0 - 0.5	1,3,5-Trinitrobenzene	0.49	mg/kg	ND	102	NO	Human Health	
Explosive Test Bldg 600-84	S-5-CTA	0 - 0.5	1,3-Dinitrobenzene	0.49	mg/kg	ND	62	NO	Human Health	
Explosive Test Bldg 600-84	S-5-CTA	0 - 0.5	1,3-Dinitrobenzene	0.49	mg/kg	ND	62	NO	Human Health	
Explosive Test Bldg 600-84	S-5-CTA	0 - 0.5	2,4,6-Trinitrotoluene	0.49	mg/kg	ND	47.6	NO	Human Health	
Explosive Test Bldg 600-84	S-5-CTA	0 - 0.5	2,4,6-Trinitrotoluene	0.49	mg/kg	ND	47.6	NO	Human Health	
Explosive Test Bldg 600-84	S-5-CTA	0 - 0.5	2,4-Dinitrotoluene	0.49	mg/kg	ND	8.7	NO	Human Health	
Explosive Test Bldg 600-84	S-5-CTA	0 - 0.5	2,4-Dinitrotoluene	0.49	mg/kg	ND	8.7	NO	Human Health	
Explosive Test Bldg 600-84	S-5-CTA	0 - 0.5	2,6-Dinitrotoluene	0.49	mg/kg	ND	620	NO	Human Health	
Explosive Test Bldg 600-84	S-5-CTA	0 - 0.5	2,6-Dinitrotoluene	0.49	mg/kg	ND	620	NO	Human Health	
Explosive Test Bldg 600-84	S-5-CTA	0 - 0.5	2-Nitrotoluene	0.49	mg/kg	ND	2.2	NO	Human Health	
Explosive Test Bldg 600-84	S-5-CTA	0 - 0.5	2-Nitrotoluene	0.49	mg/kg	ND	2.2	NO	Human Health	
Explosive Test Bldg 600-84	S-5-CTA	0 - 0.5	3-Nitrotoluene	0.49	mg/kg	ND	1000	NO	Human Health	
Explosive Test Bldg 600-84	S-5-CTA	0 - 0.5	3-Nitrotoluene	0.49	mg/kg	ND	1000	NO	Human Health	
Explosive Test Bldg 600-84	S-5-CTA	0 - 0.5	4-Nitrotoluene	0.49	mg/kg	ND	30	NO	Human Health	
Explosive Test Bldg 600-84	S-5-CTA	0 - 0.5	4-Nitrotoluene	0.49	mg/kg	ND	30	NO	Human Health	
Explosive Test Bldg 600-84	S-5-CTA	0 - 0.5	Arsenic	5.84	mg/kg		30	NO	Human Health	
Explosive Test Bldg 600-84	S-5-CTA	0 - 0.5	Arsenic	4.8	mg/kg		30	NO	Human Health	
Explosive Test Bldg 600-84	S-5-CTA	0 - 0.5	Barium	224	mg/kg		67000	NO	Human Health	
Explosive Test Bldg 600-84	S-5-CTA	0 - 0.5	Barium	192	mg/kg		67000	NO	Human Health	
Explosive Test Bldg 600-84	S-5-CTA	0 - 0.5	Cadmium	0.97	mg/kg	ND	1000	NO	Human Health	
Explosive Test Bldg 600-84	S-5-CTA	0 - 0.5	Cadmium	0.96	mg/kg	ND	1000	NO	Human Health	
Explosive Test Bldg 600-84	S-5-CTA	0 - 0.5	Chromium	11.7	mg/kg		10000	NO	Human Health	
Explosive Test Bldg 600-84	S-5-CTA	0 - 0.5	Chromium	15.4	mg/kg		10000	NO	Human Health	
Explosive Test Bldg 600-84	S-5-CTA	0 - 0.5	HMX	0.49	mg/kg	ND	51000	NO	Human Health	
Explosive Test Bldg 600-84	S-5-CTA	0 - 0.5	HMX	0.49	mg/kg	ND	51000	NO	Human Health	
Explosive Test Bldg 600-84	S-5-CTA	0 - 0.5	Lead	15.9	mg/kg		1000	NO	Human Health	
Explosive Test Bldg 600-84	S-5-CTA	0 - 0.5	Lead	18.1	mg/kg		1000	NO	Human Health	
Explosive Test Bldg 600-84	S-5-CTA	0 - 0.5	Mercury	0.1	mg/kg	ND	310	NO	Human Health	
Explosive Test Bldg 600-84	S-5-CTA	0 - 0.5	Mercury	0.1	mg/kg	ND	310	NO	Human Health	

APPENDIX A
Central Test Area IRP Soil Sampling Results
Iowa Army Ammunition Plant

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
Explosive Test Bldg 600-84	S-5-CTA	0 - 0.5	Nitrobenzene	0.49	mg/kg	ND	100	NO	Human Health	
Explosive Test Bldg 600-84	S-5-CTA	0 - 0.5	Nitrobenzene	0.49	mg/kg	ND	100	NO	Human Health	
Explosive Test Bldg 600-84	S-5-CTA	0 - 0.5	RDX	0.49	mg/kg	ND	1.3	NO	Human Health	
Explosive Test Bldg 600-84	S-5-CTA	0 - 0.5	RDX	0.49	mg/kg	ND	1.3	NO	Human Health	
Explosive Test Bldg 600-84	S-5-CTA	0 - 0.5	Selenium	1.36	mg/kg		5100	NO	Human Health	
Explosive Test Bldg 600-84	S-5-CTA	0 - 0.5	Selenium	0.96	mg/kg		5100	NO	Human Health	
Explosive Test Bldg 600-84	S-5-CTA	0 - 0.5	Silver	0.96	mg/kg	ND	5100	NO	Human Health	
Explosive Test Bldg 600-84	S-5-CTA	0 - 0.5	Silver	0.97	mg/kg	ND	5100	NO	Human Health	
Explosive Test Bldg 600-84	S-5-CTA	0 - 0.5	Tetryl	0.49	mg/kg	ND	6200	NO	Human Health	
Explosive Test Bldg 600-84	S-5-CTA	0 - 0.5	Tetryl	0.49	mg/kg	ND	6200	NO	Human Health	

Line 6 Ammo Production MRS

APPENDIX A
Line 6 Ammo Production MRS Soil Sampling Results
Iowa Army Ammunition Plant

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-88	07SA0301	1	1,3,5-Trinitrobenzene	2.09	mg/kg	ND	102	NO	Human Health	
6-88	07SA0301	1	1,3-Dinitrobenzene	0.59	mg/kg	ND	62	NO	Human Health	
6-88	07SA0301	1	2,4,6-Trinitrotoluene	1.92	mg/kg	ND	47.6	NO	Human Health	
6-88	07SA0301	1	2,4-Dinitrotoluene	0.42	mg/kg	ND	8.7	NO	Human Health	
6-88	07SA0301	1	2,6-Dinitrotoluene	0.4	mg/kg	ND	620	NO	Human Health	
6-88	07SA0301	1	Antimony	19.6	mg/kg	ND	816	NO	Human Health	
6-88	07SA0301	1	Arsenic	7.78	mg/kg		30	NO	Human Health	
6-88	07SA0301	1	Barium	202	mg/kg		67000	NO	Human Health	
6-88	07SA0301	1	Beryllium	0.87	mg/kg		5	NO	Human Health	
6-88	07SA0301	1	Cadmium	1.2	mg/kg	ND	1000	NO	Human Health	
6-88	07SA0301	1	Chromium	27	mg/kg		10000	NO	Human Health	
6-88	07SA0301	1	Copper	14.4	mg/kg		41000	NO	Human Health	
6-88	07SA0301	1	HMX	1.27	mg/kg	ND	51000	NO	Human Health	
6-88	07SA0301	1	Lead	20	mg/kg		1000	NO	Human Health	
6-88	07SA0301	1	Mercury	0.07	mg/kg		310	NO	Human Health	
6-88	07SA0301	1	Nickel	19.4	mg/kg		20000	NO	Human Health	
6-88	07SA0301	1	Nitrobenzene	0.42	mg/kg	ND	100	NO	Human Health	
6-88	07SA0301	1	RDX	0.98	mg/kg	ND	1.3	NO	Human Health	
6-88	07SA0301	1	Selenium	0.44	mg/kg	ND	5100	NO	Human Health	
6-88	07SA0301	1	Silver	137	mg/kg		5100	NO	Human Health	
6-88	07SA0301	1	Tetryl	0.25	mg/kg	ND	6200	NO	Human Health	
6-88	07SA0301	1	Thallium	34.3	mg/kg	ND	143	NO	Human Health	
6-88	07SA0301	1	Zinc	53	mg/kg		100000	NO	Human Health	
6-89	07SA0401	1	1,3,5-Trinitrobenzene	2.09	mg/kg	ND	102	NO	Human Health	
6-89	07SA0401	1	1,3-Dinitrobenzene	0.59	mg/kg	ND	62	NO	Human Health	
6-89	07SA0401	1	2,4,6-Trinitrotoluene	1.92	mg/kg	ND	47.6	NO	Human Health	
6-89	07SA0401	1	2,4-Dinitrotoluene	0.42	mg/kg	ND	8.7	NO	Human Health	
6-89	07SA0401	1	2,6-Dinitrotoluene	0.4	mg/kg	ND	620	NO	Human Health	
6-89	07SA0401	1	Antimony	19.6	mg/kg	ND	816	NO	Human Health	
6-89	07SA0401	1	Arsenic	6.5	mg/kg		30	NO	Human Health	
6-89	07SA0401	1	Barium	207	mg/kg		67000	NO	Human Health	
6-89	07SA0401	1	Beryllium	0.84	mg/kg		5	NO	Human Health	
6-89	07SA0401	1	Cadmium	1.2	mg/kg	ND	1000	NO	Human Health	
6-89	07SA0401	1	Chromium	23.9	mg/kg		10000	NO	Human Health	
6-89	07SA0401	1	Copper	18.6	mg/kg		41000	NO	Human Health	
6-89	07SA0401	1	HMX	1.27	mg/kg	ND	51000	NO	Human Health	
6-89	07SA0401	1	Lead	93	mg/kg		1000	NO	Human Health	
6-89	07SA0401	1	Mercury	0.13	mg/kg		310	NO	Human Health	
6-89	07SA0401	1	Nickel	26	mg/kg		20000	NO	Human Health	
6-89	07SA0401	1	Nitrobenzene	0.42	mg/kg	ND	100	NO	Human Health	
6-89	07SA0401	1	RDX	0.98	mg/kg	ND	1.3	NO	Human Health	
6-89	07SA0401	1	Selenium	0.44	mg/kg	ND	5100	NO	Human Health	
6-89	07SA0401	1	Silver	0.8	mg/kg	ND	5100	NO	Human Health	
6-89	07SA0401	1	Tetryl	0.25	mg/kg	ND	6200	NO	Human Health	
6-89	07SA0401	1	Thallium	34.3	mg/kg	ND	143	NO	Human Health	
6-89	07SA0401	1	Zinc	60.8	mg/kg		100000	NO	Human Health	
6-91	07SA0501	0.5	1,3,5-Trinitrobenzene	2.09	mg/kg	ND	102	NO	Human Health	
6-91	07SA0501	0.5	1,3-Dinitrobenzene	0.59	mg/kg	ND	62	NO	Human Health	
6-91	07SA0501	0.5	2,4,6-Trinitrotoluene	1.92	mg/kg	ND	47.6	NO	Human Health	
6-91	07SA0501	0.5	2,4-Dinitrotoluene	0.42	mg/kg	ND	8.7	NO	Human Health	
6-91	07SA0501	0.5	2,6-Dinitrotoluene	0.4	mg/kg	ND	620	NO	Human Health	
6-91	07SA0501	0.5	Antimony	19.6	mg/kg	ND	816	NO	Human Health	
6-91	07SA0501	0.5	Arsenic	5.2	mg/kg		30	NO	Human Health	
6-91	07SA0501	0.5	Barium	245	mg/kg		67000	NO	Human Health	
6-91	07SA0501	0.5	Beryllium	1.04	mg/kg		5	NO	Human Health	
6-91	07SA0501	0.5	Cadmium	1.2	mg/kg	ND	1000	NO	Human Health	
6-91	07SA0501	0.5	Chromium	28.4	mg/kg		10000	NO	Human Health	
6-91	07SA0501	0.5	Copper	16.3	mg/kg		41000	NO	Human Health	
6-91	07SA0501	0.5	HMX	1.27	mg/kg	ND	51000	NO	Human Health	
6-91	07SA0501	0.5	Lead	47	mg/kg		1000	NO	Human Health	
6-91	07SA0501	0.5	Mercury	9.2	mg/kg		310	NO	Human Health	
6-91	07SA0501	0.5	Nickel	14.5	mg/kg		20000	NO	Human Health	

APPENDIX A
Line 6 Ammo Production MRS Soil Sampling Results
Iowa Army Ammunition Plant

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-91	07SA0501	0.5	Nitrobenzene	0.42	mg/kg	ND	100	NO	Human Health	
6-91	07SA0501	0.5	RDX	0.98	mg/kg	ND	1.3	NO	Human Health	
6-91	07SA0501	0.5	Selenium	0.44	mg/kg	ND	5100	NO	Human Health	
6-91	07SA0501	0.5	Silver	0.8	mg/kg	ND	5100	NO	Human Health	
6-91	07SA0501	0.5	Tetryl	0.25	mg/kg	ND	6200	NO	Human Health	
6-91	07SA0501	0.5	Thallium	34.3	mg/kg	ND	143	NO	Human Health	
6-91	07SA0501	0.5	Zinc	71.8	mg/kg		100000	NO	Human Health	
6-18-1	07SA0601	0.5	1,3,5-Trinitrobenzene	2.09	mg/kg	ND	102	NO	Human Health	
6-18-1	07SA0601	0.5	1,3-Dinitrobenzene	0.59	mg/kg	ND	62	NO	Human Health	
6-18-1	07SA0601	0.5	2,4,6-Trinitrotoluene	1.92	mg/kg	ND	47.6	NO	Human Health	
6-18-1	07SA0601	0.5	2,4-Dinitrotoluene	0.42	mg/kg	ND	8.7	NO	Human Health	
6-18-1	07SA0601	0.5	2,6-Dinitrotoluene	0.4	mg/kg	ND	620	NO	Human Health	
6-18-1	07SA0601	0.5	Antimony	19.6	mg/kg	ND	816	NO	Human Health	
6-18-1	07SA0601	0.5	Arsenic	4.26	mg/kg		30	NO	Human Health	
6-18-1	07SA0601	0.5	Barium	244	mg/kg		67000	NO	Human Health	
6-18-1	07SA0601	0.5	Beryllium	0.99	mg/kg		5	NO	Human Health	
6-18-1	07SA0601	0.5	Cadmium	1.2	mg/kg	ND	1000	NO	Human Health	
6-18-1	07SA0601	0.5	Chromium	28.7	mg/kg		10000	NO	Human Health	
6-18-1	07SA0601	0.5	Copper	41	mg/kg		41000	NO	Human Health	
6-18-1	07SA0601	0.5	HMX	1.27	mg/kg	ND	51000	NO	Human Health	
6-18-1	07SA0601	0.5	Lead	16	mg/kg		1000	NO	Human Health	
6-18-1	07SA0601	0.5	Mercury	0.24	mg/kg		310	NO	Human Health	
6-18-1	07SA0601	0.5	Nickel	17.7	mg/kg		20000	NO	Human Health	
6-18-1	07SA0601	0.5	Nitrobenzene	0.42	mg/kg	ND	100	NO	Human Health	
6-18-1	07SA0601	0.5	RDX	0.98	mg/kg	ND	1.3	NO	Human Health	
6-18-1	07SA0601	0.5	Selenium	0.44	mg/kg	ND	5100	NO	Human Health	
6-18-1	07SA0601	0.5	Silver	0.8	mg/kg	ND	5100	NO	Human Health	
6-18-1	07SA0601	0.5	Tetryl	0.25	mg/kg	ND	6200	NO	Human Health	
6-18-1	07SA0601	0.5	Thallium	34.3	mg/kg	ND	143	NO	Human Health	
6-18-1	07SA0601	0.5	Zinc	124	mg/kg		100000	NO	Human Health	
6-25	07SA0701	0.5	1,3,5-Trinitrobenzene	2.09	mg/kg	ND	102	NO	Human Health	
6-25	07SA0701	0.5	1,3-Dinitrobenzene	0.59	mg/kg	ND	62	NO	Human Health	
6-25	07SA0701	0.5	2,4,6-Trinitrotoluene	1.92	mg/kg	ND	47.6	NO	Human Health	
6-25	07SA0701	0.5	2,4-Dinitrotoluene	0.42	mg/kg	ND	8.7	NO	Human Health	
6-25	07SA0701	0.5	2,6-Dinitrotoluene	0.4	mg/kg	ND	620	NO	Human Health	
6-25	07SA0701	0.5	Antimony	19.6	mg/kg	ND	816	NO	Human Health	
6-25	07SA0701	0.5	Arsenic	4.23	mg/kg		30	NO	Human Health	
6-25	07SA0701	0.5	Barium	146	mg/kg		67000	NO	Human Health	
6-25	07SA0701	0.5	Beryllium	2.91	mg/kg		5	NO	Human Health	
6-25	07SA0701	0.5	Cadmium	1.2	mg/kg	ND	1000	NO	Human Health	
6-25	07SA0701	0.5	Chromium	30.2	mg/kg		10000	NO	Human Health	
6-25	07SA0701	0.5	Copper	120	mg/kg		41000	NO	Human Health	
6-25	07SA0701	0.5	HMX	1.27	mg/kg	ND	51000	NO	Human Health	
6-25	07SA0701	0.5	Lead	820	mg/kg		1000	NO	Human Health	
6-25	07SA0701	0.5	Mercury	0.08	mg/kg		310	NO	Human Health	
6-25	07SA0701	0.5	Nickel	7.7	mg/kg		20000	NO	Human Health	
6-25	07SA0701	0.5	Nitrobenzene	0.42	mg/kg	ND	100	NO	Human Health	
6-25	07SA0701	0.5	RDX	0.98	mg/kg	ND	1.3	NO	Human Health	
6-25	07SA0701	0.5	Selenium	0.44	mg/kg	ND	5100	NO	Human Health	
6-25	07SA0701	0.5	Silver	0.8	mg/kg	ND	5100	NO	Human Health	
6-25	07SA0701	0.5	Tetryl	0.25	mg/kg	ND	6200	NO	Human Health	
6-25	07SA0701	0.5	Thallium	34.3	mg/kg	ND	143	NO	Human Health	
6-25	07SA0701	0.5	Zinc	50.1	mg/kg		100000	NO	Human Health	
6-19	07SA0801	1	1,3,5-Trinitrobenzene	2.09	mg/kg	ND	102	NO	Human Health	
6-19	07SA0801	1	1,3-Dinitrobenzene	0.59	mg/kg	ND	62	NO	Human Health	
6-19	07SA0801	1	2,4,6-Trinitrotoluene	1.92	mg/kg	ND	47.6	NO	Human Health	
6-19	07SA0801	1	2,4-Dinitrotoluene	0.42	mg/kg	ND	8.7	NO	Human Health	
6-19	07SA0801	1	2,6-Dinitrotoluene	0.4	mg/kg	ND	620	NO	Human Health	
6-19	07SA0801	1	Antimony	19.6	mg/kg	ND	816	NO	Human Health	
6-19	07SA0801	1	Arsenic	4.21	mg/kg		30	NO	Human Health	
6-19	07SA0801	1	Barium	216	mg/kg		67000	NO	Human Health	
6-19	07SA0801	1	Beryllium	1.03	mg/kg		5	NO	Human Health	

APPENDIX A
Line 6 Ammo Production MRS Soil Sampling Results
Iowa Army Ammunition Plant

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-19	07SA0801	1	Cadmium	1.2	mg/kg	ND	1000	NO	Human Health	
6-19	07SA0801	1	Chromium	31.4	mg/kg		10000	NO	Human Health	
6-19	07SA0801	1	Copper	29.8	mg/kg		41000	NO	Human Health	
6-19	07SA0801	1	HMX	1.27	mg/kg	ND	51000	NO	Human Health	
6-19	07SA0801	1	Lead	39	mg/kg		1000	NO	Human Health	
6-19	07SA0801	1	Mercury	0.78	mg/kg		310	NO	Human Health	
6-19	07SA0801	1	Nickel	20.3	mg/kg		20000	NO	Human Health	
6-19	07SA0801	1	Nitrobenzene	0.42	mg/kg	ND	100	NO	Human Health	
6-19	07SA0801	1	RDX	0.98	mg/kg	ND	1.3	NO	Human Health	
6-19	07SA0801	1	Selenium	0.44	mg/kg	ND	5100	NO	Human Health	
6-19	07SA0801	1	Silver	0.8	mg/kg	ND	5100	NO	Human Health	
6-19	07SA0801	1	Tetryl	0.25	mg/kg	ND	6200	NO	Human Health	
6-19	07SA0801	1	Thallium	34.3	mg/kg	ND	143	NO	Human Health	
6-19	07SA0801	1	Zinc	157	mg/kg		100000	NO	Human Health	
6-98	07SA0901	1	1,3,5-Trinitrobenzene	2.09	mg/kg	ND	102	NO	Human Health	
6-98	07SA0901	1	1,3-Dinitrobenzene	0.59	mg/kg	ND	62	NO	Human Health	
6-98	07SA0901	1	2,4,6-Trinitrotoluene	1.92	mg/kg	ND	47.6	NO	Human Health	
6-98	07SA0901	1	2,4-Dinitrotoluene	0.42	mg/kg	ND	8.7	NO	Human Health	
6-98	07SA0901	1	2,6-Dinitrotoluene	0.4	mg/kg	ND	620	NO	Human Health	
6-98	07SA0901	1	Antimony	19.6	mg/kg	ND	816	NO	Human Health	
6-98	07SA0901	1	Arsenic	6.08	mg/kg		30	NO	Human Health	
6-98	07SA0901	1	Barium	252	mg/kg		67000	NO	Human Health	
6-98	07SA0901	1	Beryllium	0.93	mg/kg		5	NO	Human Health	
6-98	07SA0901	1	Cadmium	1.2	mg/kg	ND	1000	NO	Human Health	
6-98	07SA0901	1	Chromium	39	mg/kg		10000	NO	Human Health	
6-98	07SA0901	1	Copper	98.3	mg/kg		41000	NO	Human Health	
6-98	07SA0901	1	HMX	1.27	mg/kg	ND	51000	NO	Human Health	
6-98	07SA0901	1	Lead	230	mg/kg		1000	NO	Human Health	
6-98	07SA0901	1	Mercury	130	mg/kg		310	NO	Human Health	
6-98	07SA0901	1	Nickel	25	mg/kg		20000	NO	Human Health	
6-98	07SA0901	1	Nitrobenzene	0.42	mg/kg	ND	100	NO	Human Health	
6-98	07SA0901	1	RDX	0.98	mg/kg	ND	1.3	NO	Human Health	
6-98	07SA0901	1	Selenium	0.44	mg/kg	ND	5100	NO	Human Health	
6-98	07SA0901	1	Silver	0.8	mg/kg	ND	5100	NO	Human Health	
6-98	07SA0901	1	Tetryl	0.25	mg/kg	ND	6200	NO	Human Health	
6-98	07SA0901	1	Thallium	34.3	mg/kg	ND	143	NO	Human Health	
6-98	07SA0901	1	Zinc	397	mg/kg		100000	NO	Human Health	
6-68	07SA1001	1	1,3,5-Trinitrobenzene	2.09	mg/kg	ND	102	NO	Human Health	
6-68	07SA1001	1	1,3-Dinitrobenzene	0.59	mg/kg	ND	62	NO	Human Health	
6-68	07SA1001	1	2,4,6-Trinitrotoluene	1.92	mg/kg	ND	47.6	NO	Human Health	
6-68	07SA1001	1	2,4-Dinitrotoluene	0.42	mg/kg	ND	8.7	NO	Human Health	
6-68	07SA1001	1	2,6-Dinitrotoluene	0.4	mg/kg	ND	620	NO	Human Health	
6-68	07SA1001	1	Antimony	19.6	mg/kg	ND	816	NO	Human Health	
6-68	07SA1001	1	Arsenic	7.51	mg/kg		30	NO	Human Health	
6-68	07SA1001	1	Barium	208	mg/kg		67000	NO	Human Health	
6-68	07SA1001	1	Beryllium	0.94	mg/kg		5	NO	Human Health	
6-68	07SA1001	1	Cadmium	1.2	mg/kg	ND	1000	NO	Human Health	
6-68	07SA1001	1	Chromium	32.4	mg/kg		10000	NO	Human Health	
6-68	07SA1001	1	Copper	20.3	mg/kg		41000	NO	Human Health	
6-68	07SA1001	1	HMX	1.27	mg/kg	ND	51000	NO	Human Health	
6-68	07SA1001	1	Lead	13	mg/kg		1000	NO	Human Health	
6-68	07SA1001	1	Mercury	0.05	mg/kg	ND	310	NO	Human Health	
6-68	07SA1001	1	Nickel	17	mg/kg		20000	NO	Human Health	
6-68	07SA1001	1	Nitrobenzene	0.42	mg/kg	ND	100	NO	Human Health	
6-68	07SA1001	1	RDX	0.98	mg/kg	ND	1.3	NO	Human Health	
6-68	07SA1001	1	Selenium	0.44	mg/kg	ND	5100	NO	Human Health	
6-68	07SA1001	1	Silver	0.8	mg/kg	ND	5100	NO	Human Health	
6-68	07SA1001	1	Tetryl	0.25	mg/kg	ND	6200	NO	Human Health	
6-68	07SA1001	1	Thallium	34.3	mg/kg	ND	143	NO	Human Health	
6-68	07SA1001	1	Zinc	66.1	mg/kg		100000	NO	Human Health	
6-96	07SA1101	1	1,3,5-Trinitrobenzene	2.09	mg/kg	ND	102	NO	Human Health	
6-96	07SA1101	1	1,3-Dinitrobenzene	0.59	mg/kg	ND	62	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-96	07SA1101	1	2,4,6-Trinitrotoluene	1.92	mg/kg	ND	47.6	NO	Human Health	
6-96	07SA1101	1	2,4-Dinitrotoluene	0.42	mg/kg	ND	8.7	NO	Human Health	
6-96	07SA1101	1	2,6-Dinitrotoluene	0.4	mg/kg	ND	620	NO	Human Health	
6-96	07SA1101	1	Antimony	19.6	mg/kg	ND	816	NO	Human Health	
6-96	07SA1101	1	Arsenic	2.5	mg/kg	ND	30	NO	Human Health	
6-96	07SA1101	1	Barium	283	mg/kg		67000	NO	Human Health	
6-96	07SA1101	1	Beryllium	0.9	mg/kg		5	NO	Human Health	
6-96	07SA1101	1	Cadmium	1.2	mg/kg	ND	1000	NO	Human Health	
6-96	07SA1101	1	Chromium	30.6	mg/kg		10000	NO	Human Health	
6-96	07SA1101	1	Copper	19.7	mg/kg		41000	NO	Human Health	
6-96	07SA1101	1	HMX	1.27	mg/kg	ND	51000	NO	Human Health	
6-96	07SA1101	1	Lead	140	mg/kg		1000	NO	Human Health	
6-96	07SA1101	1	Mercury	0.08	mg/kg		310	NO	Human Health	
6-96	07SA1101	1	Nickel	14.6	mg/kg		20000	NO	Human Health	
6-96	07SA1101	1	Nitrobenzene	0.42	mg/kg	ND	100	NO	Human Health	
6-96	07SA1101	1	RDX	0.98	mg/kg	ND	1.3	NO	Human Health	
6-96	07SA1101	1	Selenium	0.44	mg/kg	ND	5100	NO	Human Health	
6-96	07SA1101	1	Silver	0.8	mg/kg	ND	5100	NO	Human Health	
6-96	07SA1101	1	Tetryl	0.25	mg/kg	ND	6200	NO	Human Health	
6-96	07SA1101	1	Thallium	34.3	mg/kg	ND	143	NO	Human Health	
6-96	07SA1101	1	Zinc	71	mg/kg		100000	NO	Human Health	
6-49	07SA1201	1	1,3,5-Trinitrobenzene	2.09	mg/kg	ND	102	NO	Human Health	
6-49	07SA1201	1	1,3-Dinitrobenzene	0.59	mg/kg	ND	62	NO	Human Health	
6-49	07SA1201	1	2,4,6-Trinitrotoluene	1.92	mg/kg	ND	47.6	NO	Human Health	
6-49	07SA1201	1	2,4-Dinitrotoluene	0.42	mg/kg	ND	8.7	NO	Human Health	
6-49	07SA1201	1	2,6-Dinitrotoluene	0.4	mg/kg	ND	620	NO	Human Health	
6-49	07SA1201	1	Antimony	19.6	mg/kg	ND	816	NO	Human Health	
6-49	07SA1201	1	Arsenic	3.29	mg/kg		30	NO	Human Health	
6-49	07SA1201	1	Barium	272	mg/kg		67000	NO	Human Health	
6-49	07SA1201	1	Beryllium	1.06	mg/kg		5	NO	Human Health	
6-49	07SA1201	1	Cadmium	1.2	mg/kg	ND	1000	NO	Human Health	
6-49	07SA1201	1	Chromium	29.4	mg/kg		10000	NO	Human Health	
6-49	07SA1201	1	Copper	17.2	mg/kg		41000	NO	Human Health	
6-49	07SA1201	1	HMX	0.76	mg/kg		51000	NO	Human Health	
6-49	07SA1201	1	Lead	28	mg/kg		1000	NO	Human Health	
6-49	07SA1201	1	Mercury	0.07	mg/kg		310	NO	Human Health	
6-49	07SA1201	1	Nickel	15.8	mg/kg		20000	NO	Human Health	
6-49	07SA1201	1	Nitrobenzene	0.42	mg/kg	ND	100	NO	Human Health	
6-49	07SA1201	1	RDX	0.98	mg/kg	ND	1.3	NO	Human Health	
6-49	07SA1201	1	Selenium	0.65	mg/kg		5100	NO	Human Health	
6-49	07SA1201	1	Silver	0.8	mg/kg	ND	5100	NO	Human Health	
6-49	07SA1201	1	Tetryl	0.25	mg/kg	ND	6200	NO	Human Health	
6-49	07SA1201	1	Thallium	34.3	mg/kg	ND	143	NO	Human Health	
6-49	07SA1201	1	Zinc	77.1	mg/kg		100000	NO	Human Health	
600-85	L6-001-ES	0	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
600-85	L6-001-ES	0	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
600-85	L6-001-ES	0	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
600-85	L6-001-ES	0	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
600-85	L6-001-ES	0	2,6-Dinitrotoluene	0.1	mg/kg	ND	620	NO	Human Health	
600-85	L6-001-ES	0	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
600-85	L6-001-ES	0	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
600-85	L6-001-ES	0	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
600-85	L6-001-ES	0	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
600-85	L6-001-ES	0	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
600-85	L6-001-ES	0	Nitroglycerine	6.6	mg/kg	ND	120	NO	Human Health	
600-85	L6-001-ES	0	Nitroguanidine	0.13	mg/kg	ND	62000	NO	Human Health	
600-85	L6-001-ES	0	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
600-85	L6-001-ES	0	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-206	L6-002-ES	0	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
6-206	L6-002-ES	0	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
6-206	L6-002-ES	0	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
6-206	L6-002-ES	0	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	

APPENDIX A
Line 6 Ammo Production MRS Soil Sampling Results
Iowa Army Ammunition Plant

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-206	L6-002-ES	0	2,6-Dinitrotoluene	0.1	mg/kg	ND	620	NO	Human Health	
6-206	L6-002-ES	0	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-206	L6-002-ES	0	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-206	L6-002-ES	0	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-206	L6-002-ES	0	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-206	L6-002-ES	0	Nitrobenzene	0.11	mg/kg		100	NO	Human Health	
6-206	L6-002-ES	0	Nitroglycerine	6.5	mg/kg	ND	120	NO	Human Health	
6-206	L6-002-ES	0	Nitroguanidine	0.13	mg/kg	ND	62000	NO	Human Health	
6-206	L6-002-ES	0	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-206	L6-002-ES	0	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-76	L6-003-ES	0	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
6-76	L6-003-ES	0	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
6-76	L6-003-ES	0	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
6-76	L6-003-ES	0	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
6-76	L6-003-ES	0	2,6-Dinitrotoluene	0.1	mg/kg	ND	620	NO	Human Health	
6-76	L6-003-ES	0	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-76	L6-003-ES	0	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-76	L6-003-ES	0	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-76	L6-003-ES	0	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-76	L6-003-ES	0	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
6-76	L6-003-ES	0	Nitroglycerine	6.2	mg/kg	ND	120	NO	Human Health	
6-76	L6-003-ES	0	Nitroguanidine	0.13	mg/kg	ND	62000	NO	Human Health	
6-76	L6-003-ES	0	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-76	L6-003-ES	0	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-31	L6-004-ES	0	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
6-31	L6-004-ES	0	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
6-31	L6-004-ES	0	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
6-31	L6-004-ES	0	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
6-31	L6-004-ES	0	2,6-Dinitrotoluene	0.1	mg/kg	ND	620	NO	Human Health	
6-31	L6-004-ES	0	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-31	L6-004-ES	0	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-31	L6-004-ES	0	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-31	L6-004-ES	0	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-31	L6-004-ES	0	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
6-31	L6-004-ES	0	Nitroglycerine	6.5	mg/kg	ND	120	NO	Human Health	
6-31	L6-004-ES	0	Nitroguanidine	0.13	mg/kg	ND	62000	NO	Human Health	
6-31	L6-004-ES	0	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-31	L6-004-ES	0	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-137-2	L6-005-ES	0	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
6-137-2	L6-005-ES	0	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
6-137-2	L6-005-ES	0	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
6-137-2	L6-005-ES	0	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
6-137-2	L6-005-ES	0	2,6-Dinitrotoluene	0.1	mg/kg	ND	620	NO	Human Health	
6-137-2	L6-005-ES	0	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-137-2	L6-005-ES	0	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-137-2	L6-005-ES	0	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-137-2	L6-005-ES	0	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-137-2	L6-005-ES	0	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
6-137-2	L6-005-ES	0	Nitroglycerine	6.8	mg/kg	ND	120	NO	Human Health	
6-137-2	L6-005-ES	0	Nitroguanidine	0.1	mg/kg	ND	62000	NO	Human Health	
6-137-2	L6-005-ES	0	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-137-2	L6-005-ES	0	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-97	L6-006-ES	0	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
6-97	L6-006-ES	0	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
6-97	L6-006-ES	0	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
6-97	L6-006-ES	0	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
6-97	L6-006-ES	0	2,6-Dinitrotoluene	0.1	mg/kg	ND	620	NO	Human Health	
6-97	L6-006-ES	0	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-97	L6-006-ES	0	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-97	L6-006-ES	0	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-97	L6-006-ES	0	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-97	L6-006-ES	0	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-97	L6-006-ES	0	Nitroglycerine	6.7	mg/kg	ND	120	NO	Human Health	
6-97	L6-006-ES	0	Nitroguanidine	0.13	mg/kg	ND	62000	NO	Human Health	
6-97	L6-006-ES	0	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-97	L6-006-ES	0	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-34-1	L6-007-ES	0	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
6-34-1	L6-007-ES	0	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
6-34-1	L6-007-ES	0	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
6-34-1	L6-007-ES	0	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
6-34-1	L6-007-ES	0	2,6-Dinitrotoluene	0.1	mg/kg	ND	620	NO	Human Health	
6-34-1	L6-007-ES	0	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-34-1	L6-007-ES	0	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-34-1	L6-007-ES	0	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-34-1	L6-007-ES	0	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-34-1	L6-007-ES	0	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
6-34-1	L6-007-ES	0	Nitroglycerine	6.2	mg/kg	ND	120	NO	Human Health	
6-34-1	L6-007-ES	0	Nitroguanidine	0.13	mg/kg	ND	62000	NO	Human Health	
6-34-1	L6-007-ES	0	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-34-1	L6-007-ES	0	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-33	L6-008-ES	0	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
6-33	L6-008-ES	0	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
6-33	L6-008-ES	0	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
6-33	L6-008-ES	0	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
6-33	L6-008-ES	0	2,6-Dinitrotoluene	0.1	mg/kg	ND	620	NO	Human Health	
6-33	L6-008-ES	0	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-33	L6-008-ES	0	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-33	L6-008-ES	0	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-33	L6-008-ES	0	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-33	L6-008-ES	0	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
6-33	L6-008-ES	0	Nitroglycerine	6	mg/kg	ND	120	NO	Human Health	
6-33	L6-008-ES	0	Nitroguanidine	0.13	mg/kg	ND	62000	NO	Human Health	
6-33	L6-008-ES	0	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-33	L6-008-ES	0	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-69-6	L6-009-ES	0	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
6-69-6	L6-009-ES	0	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
6-69-6	L6-009-ES	0	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
6-69-6	L6-009-ES	0	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
6-69-6	L6-009-ES	0	2,6-Dinitrotoluene	0.1	mg/kg	ND	620	NO	Human Health	
6-69-6	L6-009-ES	0	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-69-6	L6-009-ES	0	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-69-6	L6-009-ES	0	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-69-6	L6-009-ES	0	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-69-6	L6-009-ES	0	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
6-69-6	L6-009-ES	0	Nitroglycerine	7.4	mg/kg	ND	120	NO	Human Health	
6-69-6	L6-009-ES	0	Nitroguanidine	0.13	mg/kg	ND	62000	NO	Human Health	
6-69-6	L6-009-ES	0	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-69-6	L6-009-ES	0	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-25	L6-010-ES	0	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
6-25	L6-010-ES	0	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
6-25	L6-010-ES	0	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
6-25	L6-010-ES	0	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
6-25	L6-010-ES	0	2,6-Dinitrotoluene	0.1	mg/kg	ND	620	NO	Human Health	
6-25	L6-010-ES	0	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-25	L6-010-ES	0	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-25	L6-010-ES	0	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-25	L6-010-ES	0	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-25	L6-010-ES	0	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
6-25	L6-010-ES	0	Nitroglycerine	6	mg/kg	ND	120	NO	Human Health	
6-25	L6-010-ES	0	Nitroguanidine	0.13	mg/kg	ND	62000	NO	Human Health	
6-25	L6-010-ES	0	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-25	L6-010-ES	0	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-34-1	L6-011-ES	0	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
6-34-1	L6-011-ES	0	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	

APPENDIX A
Line 6 Ammo Production MRS Soil Sampling Results
Iowa Army Ammunition Plant

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-34-1	L6-011-ES	0	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
6-34-1	L6-011-ES	0	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
6-34-1	L6-011-ES	0	2,6-Dinitrotoluene	0.1	mg/kg	ND	620	NO	Human Health	
6-34-1	L6-011-ES	0	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-34-1	L6-011-ES	0	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-34-1	L6-011-ES	0	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-34-1	L6-011-ES	0	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-34-1	L6-011-ES	0	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
6-34-1	L6-011-ES	0	Nitroglycerine	6.5	mg/kg	ND	120	NO	Human Health	
6-34-1	L6-011-ES	0	Nitroguanidine	0.13	mg/kg	ND	62000	NO	Human Health	
6-34-1	L6-011-ES	0	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-34-1	L6-011-ES	0	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-69-4	L6-012-ES	0	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
6-69-4	L6-012-ES	0	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
6-69-4	L6-012-ES	0	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
6-69-4	L6-012-ES	0	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
6-69-4	L6-012-ES	0	2,6-Dinitrotoluene	0.1	mg/kg	ND	620	NO	Human Health	
6-69-4	L6-012-ES	0	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-69-4	L6-012-ES	0	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-69-4	L6-012-ES	0	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-69-4	L6-012-ES	0	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-69-4	L6-012-ES	0	Nitrobenzene	0.1	mg/kg		100	NO	Human Health	
6-69-4	L6-012-ES	0	Nitroglycerine	6.4	mg/kg	ND	120	NO	Human Health	
6-69-4	L6-012-ES	0	Nitroguanidine	0.13	mg/kg	ND	62000	NO	Human Health	
6-69-4	L6-012-ES	0	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-69-4	L6-012-ES	0	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-95	L6-013-ES	0	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
6-95	L6-013-ES	0	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
6-95	L6-013-ES	0	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
6-95	L6-013-ES	0	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
6-95	L6-013-ES	0	2,6-Dinitrotoluene	0.1	mg/kg	ND	620	NO	Human Health	
6-95	L6-013-ES	0	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-95	L6-013-ES	0	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-95	L6-013-ES	0	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-95	L6-013-ES	0	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-95	L6-013-ES	0	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
6-95	L6-013-ES	0	Nitroglycerine	6.1	mg/kg	ND	120	NO	Human Health	
6-95	L6-013-ES	0	Nitroguanidine	0.13	mg/kg	ND	62000	NO	Human Health	
6-95	L6-013-ES	0	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-95	L6-013-ES	0	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-68	L6-014-ES	0	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
6-68	L6-014-ES	0	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
6-68	L6-014-ES	0	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
6-68	L6-014-ES	0	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
6-68	L6-014-ES	0	2,6-Dinitrotoluene	0.1	mg/kg	ND	620	NO	Human Health	
6-68	L6-014-ES	0	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-68	L6-014-ES	0	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-68	L6-014-ES	0	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-68	L6-014-ES	0	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-68	L6-014-ES	0	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
6-68	L6-014-ES	0	Nitroglycerine	5.8	mg/kg	ND	120	NO	Human Health	
6-68	L6-014-ES	0	Nitroguanidine	0.13	mg/kg	ND	62000	NO	Human Health	
6-68	L6-014-ES	0	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-68	L6-014-ES	0	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-87	L6-015-ES	0	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
6-87	L6-015-ES	0	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
6-87	L6-015-ES	0	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
6-87	L6-015-ES	0	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
6-87	L6-015-ES	0	2,6-Dinitrotoluene	0.1	mg/kg	ND	620	NO	Human Health	
6-87	L6-015-ES	0	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-87	L6-015-ES	0	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-87	L6-015-ES	0	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-87	L6-015-ES	0	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-87	L6-015-ES	0	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
6-87	L6-015-ES	0	Nitroglycerine	6.9	mg/kg	ND	120	NO	Human Health	
6-87	L6-015-ES	0	Nitroguanidine	0.13	mg/kg	ND	62000	NO	Human Health	
6-87	L6-015-ES	0	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-87	L6-015-ES	0	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-88	L6-016-ES	0	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
6-88	L6-016-ES	0	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
6-88	L6-016-ES	0	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
6-88	L6-016-ES	0	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
6-88	L6-016-ES	0	2,6-Dinitrotoluene	0.1	mg/kg	ND	620	NO	Human Health	
6-88	L6-016-ES	0	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-88	L6-016-ES	0	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-88	L6-016-ES	0	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-88	L6-016-ES	0	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-88	L6-016-ES	0	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
6-88	L6-016-ES	0	Nitroglycerine	5.3	mg/kg	ND	120	NO	Human Health	
6-88	L6-016-ES	0	Nitroguanidine	0.13	mg/kg	ND	62000	NO	Human Health	
6-88	L6-016-ES	0	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-88	L6-016-ES	0	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-49	L6-017-ES	0	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
6-49	L6-017-ES	0	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
6-49	L6-017-ES	0	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
6-49	L6-017-ES	0	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
6-49	L6-017-ES	0	2,6-Dinitrotoluene	0.1	mg/kg	ND	620	NO	Human Health	
6-49	L6-017-ES	0	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-49	L6-017-ES	0	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-49	L6-017-ES	0	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-49	L6-017-ES	0	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-49	L6-017-ES	0	Nitrobenzene	0.1	mg/kg		100	NO	Human Health	
6-49	L6-017-ES	0	Nitroglycerine	6.6	mg/kg	ND	120	NO	Human Health	
6-49	L6-017-ES	0	Nitroguanidine	0.13	mg/kg	ND	62000	NO	Human Health	
6-49	L6-017-ES	0	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-49	L6-017-ES	0	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-19	L6-018-ES	0	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
6-19	L6-018-ES	0	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
6-19	L6-018-ES	0	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
6-19	L6-018-ES	0	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
6-19	L6-018-ES	0	2,6-Dinitrotoluene	0.1	mg/kg	ND	620	NO	Human Health	
6-19	L6-018-ES	0	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-19	L6-018-ES	0	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-19	L6-018-ES	0	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-19	L6-018-ES	0	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-19	L6-018-ES	0	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
6-19	L6-018-ES	0	Nitroglycerine	6.6	mg/kg	ND	120	NO	Human Health	
6-19	L6-018-ES	0	Nitroguanidine	0.13	mg/kg	ND	62000	NO	Human Health	
6-19	L6-018-ES	0	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-19	L6-018-ES	0	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-90	L6-019-ES	0	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
6-90	L6-019-ES	0	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
6-90	L6-019-ES	0	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
6-90	L6-019-ES	0	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
6-90	L6-019-ES	0	2,6-Dinitrotoluene	0.1	mg/kg	ND	620	NO	Human Health	
6-90	L6-019-ES	0	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-90	L6-019-ES	0	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-90	L6-019-ES	0	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-90	L6-019-ES	0	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-90	L6-019-ES	0	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
6-90	L6-019-ES	0	Nitroglycerine	6.5	mg/kg	ND	120	NO	Human Health	
6-90	L6-019-ES	0	Nitroguanidine	0.13	mg/kg	ND	62000	NO	Human Health	
6-90	L6-019-ES	0	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-90	L6-019-ES	0	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-34-3	L6-020-ES	0	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
6-34-3	L6-020-ES	0	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
6-34-3	L6-020-ES	0	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
6-34-3	L6-020-ES	0	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
6-34-3	L6-020-ES	0	2,6-Dinitrotoluene	0.1	mg/kg	ND	620	NO	Human Health	
6-34-3	L6-020-ES	0	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-34-3	L6-020-ES	0	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-34-3	L6-020-ES	0	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-34-3	L6-020-ES	0	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-34-3	L6-020-ES	0	Nitrobenzene	0.07	mg/kg		100	NO	Human Health	
6-34-3	L6-020-ES	0	Nitroglycerine	6.5	mg/kg	ND	120	NO	Human Health	
6-34-3	L6-020-ES	0	Nitroguanidine	0.13	mg/kg	ND	62000	NO	Human Health	
6-34-3	L6-020-ES	0	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-34-3	L6-020-ES	0	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-34-1	L6-SS-002	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-34-1	L6-SS-002	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-34-1	L6-SS-002	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-34-1	L6-SS-002	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-34-1	L6-SS-002	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-34-1	L6-SS-002	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-34-1	L6-SS-002	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-34-1	L6-SS-002	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-34-1	L6-SS-002	0 - 1	Antimony	0.71	mg/kg		816	NO	Human Health	
6-34-1	L6-SS-002	0 - 1	Arsenic	11.2	mg/kg		30	NO	Human Health	
6-34-1	L6-SS-002	0 - 1	Beryllium	0.91	mg/kg		5	NO	Human Health	
6-34-1	L6-SS-002	0 - 1	Boron	13.6	mg/kg		100000	NO	Human Health	
6-34-1	L6-SS-002	0 - 1	Cadmium	0.4	mg/kg		1000	NO	Human Health	
6-34-1	L6-SS-002	0 - 1	Chromium	31.9	mg/kg		10000	NO	Human Health	
6-34-1	L6-SS-002	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-34-1	L6-SS-002	0 - 1	Lead	28.8	mg/kg		1000	NO	Human Health	
6-34-1	L6-SS-002	0 - 1	Mercury	0.22	mg/kg		310	NO	Human Health	
6-34-1	L6-SS-002	0 - 1	Nickel	37.7	mg/kg		20000	NO	Human Health	
6-34-1	L6-SS-002	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-34-1	L6-SS-002	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-34-1	L6-SS-002	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-34-1	L6-SS-002	0 - 1	Thallium	9.4	mg/kg	ND	143	NO	Human Health	
6-11	L6-SS-003	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-11	L6-SS-003	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-11	L6-SS-003	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-11	L6-SS-003	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-11	L6-SS-003	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-11	L6-SS-003	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-11	L6-SS-003	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-11	L6-SS-003	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-11	L6-SS-003	0 - 1	Antimony	1.5	mg/kg		816	NO	Human Health	
6-11	L6-SS-003	0 - 1	Arsenic	8.4	mg/kg		30	NO	Human Health	
6-11	L6-SS-003	0 - 1	Beryllium	0.87	mg/kg		5	NO	Human Health	
6-11	L6-SS-003	0 - 1	Boron	13.1	mg/kg		100000	NO	Human Health	
6-11	L6-SS-003	0 - 1	Cadmium	0.91	mg/kg	ND	1000	NO	Human Health	
6-11	L6-SS-003	0 - 1	Chromium	31.8	mg/kg		10000	NO	Human Health	
6-11	L6-SS-003	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-11	L6-SS-003	0 - 1	Lead	97	mg/kg		1000	NO	Human Health	
6-11	L6-SS-003	0 - 1	Mercury	2	mg/kg		310	NO	Human Health	
6-11	L6-SS-003	0 - 1	Nickel	38.4	mg/kg		20000	NO	Human Health	
6-11	L6-SS-003	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-11	L6-SS-003	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-11	L6-SS-003	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-11	L6-SS-003	0 - 1	Thallium	9.1	mg/kg	ND	143	NO	Human Health	
6-34-2	L6-SS-006	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-34-2	L6-SS-006	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-34-2	L6-SS-006	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-34-2	L6-SS-006	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-34-2	L6-SS-006	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-34-2	L6-SS-006	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-34-2	L6-SS-006	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-34-2	L6-SS-006	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-34-2	L6-SS-006	0 - 1	Antimony	1.5	mg/kg		816	NO	Human Health	
6-34-2	L6-SS-006	0 - 1	Arsenic	12.9	mg/kg		30	NO	Human Health	
6-34-2	L6-SS-006	0 - 1	Beryllium	1.2	mg/kg		5	NO	Human Health	
6-34-2	L6-SS-006	0 - 1	Boron	11.1	mg/kg		100000	NO	Human Health	
6-34-2	L6-SS-006	0 - 1	Cadmium	0.22	mg/kg		1000	NO	Human Health	
6-34-2	L6-SS-006	0 - 1	Chromium	33.2	mg/kg		10000	NO	Human Health	
6-34-2	L6-SS-006	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-34-2	L6-SS-006	0 - 1	Lead	39	mg/kg		1000	NO	Human Health	
6-34-2	L6-SS-006	0 - 1	Mercury	0.38	mg/kg		310	NO	Human Health	
6-34-2	L6-SS-006	0 - 1	Nickel	25.8	mg/kg		20000	NO	Human Health	
6-34-2	L6-SS-006	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-34-2	L6-SS-006	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-34-2	L6-SS-006	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-34-2	L6-SS-006	0 - 1	Thallium	9.1	mg/kg	ND	143	NO	Human Health	
6-34-3	L6-SS-008	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-34-3	L6-SS-008	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-34-3	L6-SS-008	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-34-3	L6-SS-008	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-34-3	L6-SS-008	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-34-3	L6-SS-008	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-34-3	L6-SS-008	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-34-3	L6-SS-008	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-34-3	L6-SS-008	0 - 1	Antimony	1.3	mg/kg		816	NO	Human Health	
6-34-3	L6-SS-008	0 - 1	Arsenic	9.2	mg/kg		30	NO	Human Health	
6-34-3	L6-SS-008	0 - 1	Beryllium	1.1	mg/kg		5	NO	Human Health	
6-34-3	L6-SS-008	0 - 1	Boron	17.4	mg/kg		100000	NO	Human Health	
6-34-3	L6-SS-008	0 - 1	Cadmium	1.8	mg/kg		1000	NO	Human Health	
6-34-3	L6-SS-008	0 - 1	Chromium	47.3	mg/kg		10000	NO	Human Health	
6-34-3	L6-SS-008	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-34-3	L6-SS-008	0 - 1	Lead	33.3	mg/kg		1000	NO	Human Health	
6-34-3	L6-SS-008	0 - 1	Mercury	0.15	mg/kg		310	NO	Human Health	
6-34-3	L6-SS-008	0 - 1	Nickel	49.7	mg/kg		20000	NO	Human Health	
6-34-3	L6-SS-008	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-34-3	L6-SS-008	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-34-3	L6-SS-008	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-34-3	L6-SS-008	0 - 1	Thallium	48.2	mg/kg	ND	143	NO	Human Health	
6-34-3	L6-SS-008	1 - 2	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	0.004	mg/kg	ND	5600	NO	Human Health	
6-34-3	L6-SS-009	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-34-3	L6-SS-009	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-34-3	L6-SS-009	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-34-3	L6-SS-009	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-34-3	L6-SS-009	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-34-3	L6-SS-009	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-34-3	L6-SS-009	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-34-3	L6-SS-009	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-34-3	L6-SS-009	0 - 1	Antimony	0.97	mg/kg		816	NO	Human Health	
6-34-3	L6-SS-009	0 - 1	Arsenic	6.4	mg/kg		30	NO	Human Health	
6-34-3	L6-SS-009	0 - 1	Beryllium	0.97	mg/kg		5	NO	Human Health	
6-34-3	L6-SS-009	0 - 1	Boron	14.5	mg/kg		100000	NO	Human Health	
6-34-3	L6-SS-009	0 - 1	Cadmium	0.56	mg/kg		1000	NO	Human Health	
6-34-3	L6-SS-009	0 - 1	Chromium	98.1	mg/kg		10000	NO	Human Health	
6-34-3	L6-SS-009	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-34-3	L6-SS-009	0 - 1	Lead	240	mg/kg		1000	NO	Human Health	
6-34-3	L6-SS-009	0 - 1	Mercury	0.93	mg/kg		310	NO	Human Health	
6-34-3	L6-SS-009	0 - 1	Nickel	22	mg/kg		20000	NO	Human Health	
6-34-3	L6-SS-009	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-34-3	L6-SS-009	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-34-3	L6-SS-009	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-34-3	L6-SS-009	0 - 1	Thallium	8.9	mg/kg	ND	143	NO	Human Health	
6-34-3	L6-SS-009	1 - 2	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	0.003	mg/kg	ND	5600	NO	Human Health	
6-94	L6-SS-013	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-94	L6-SS-013	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-94	L6-SS-013	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-94	L6-SS-013	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-94	L6-SS-013	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-94	L6-SS-013	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-94	L6-SS-013	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-94	L6-SS-013	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-94	L6-SS-013	0 - 1	Antimony	2.9	mg/kg		816	NO	Human Health	
6-94	L6-SS-013	0 - 1	Arsenic	6.9	mg/kg		30	NO	Human Health	
6-94	L6-SS-013	0 - 1	Beryllium	0.49	mg/kg		5	NO	Human Health	
6-94	L6-SS-013	0 - 1	Boron	17.2	mg/kg		100000	NO	Human Health	
6-94	L6-SS-013	0 - 1	Cadmium	2.2	mg/kg		1000	NO	Human Health	
6-94	L6-SS-013	0 - 1	Chromium	31.9	mg/kg		10000	NO	Human Health	
6-94	L6-SS-013	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-94	L6-SS-013	0 - 1	Lead	377	mg/kg		1000	NO	Human Health	
6-94	L6-SS-013	0 - 1	Mercury	50.7	mg/kg		310	NO	Human Health	
6-94	L6-SS-013	0 - 1	Nickel	23.9	mg/kg		20000	NO	Human Health	
6-94	L6-SS-013	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-94	L6-SS-013	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-94	L6-SS-013	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-94	L6-SS-013	0 - 1	Thallium	8.7	mg/kg	ND	143	NO	Human Health	
6-95	L6-SS-014	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-95	L6-SS-014	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-95	L6-SS-014	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-95	L6-SS-014	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-95	L6-SS-014	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-95	L6-SS-014	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-95	L6-SS-014	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-95	L6-SS-014	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-95	L6-SS-014	0 - 1	Antimony	0.97	mg/kg		816	NO	Human Health	
6-95	L6-SS-014	0 - 1	Arsenic	4.5	mg/kg		30	NO	Human Health	
6-95	L6-SS-014	0 - 1	Beryllium	0.63	mg/kg		5	NO	Human Health	
6-95	L6-SS-014	0 - 1	Boron	8.6	mg/kg		100000	NO	Human Health	
6-95	L6-SS-014	0 - 1	Cadmium	1	mg/kg	ND	1000	NO	Human Health	
6-95	L6-SS-014	0 - 1	Chromium	25.1	mg/kg		10000	NO	Human Health	
6-95	L6-SS-014	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-95	L6-SS-014	0 - 1	Lead	23.5	mg/kg		1000	NO	Human Health	
6-95	L6-SS-014	0 - 1	Mercury	0.11	mg/kg		310	NO	Human Health	
6-95	L6-SS-014	0 - 1	Nickel	18.2	mg/kg		20000	NO	Human Health	
6-95	L6-SS-014	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-95	L6-SS-014	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-95	L6-SS-014	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-95	L6-SS-014	0 - 1	Thallium	10.4	mg/kg	ND	143	NO	Human Health	
6-95	L6-SS-014	1 - 2	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-95	L6-SS-014	1 - 2	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-95	L6-SS-014	1 - 2	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-95	L6-SS-014	1 - 2	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-95	L6-SS-014	1 - 2	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-95	L6-SS-014	1 - 2	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-95	L6-SS-014	1 - 2	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-95	L6-SS-014	1 - 2	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-95	L6-SS-014	1 - 2	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-95	L6-SS-014	1 - 2	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-95	L6-SS-014	1 - 2	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-95	L6-SS-014	1 - 2	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-169-1	L6-SS-016	0 - 1	Total PCBs	0.023	mg/kg	ND	10	NO	Human Health	
6-169-1	L6-SS-016	0 - 1	Total PCBs	0.021	mg/kg	ND	10	NO	Human Health	
6-169-1	L6-SS-016	1 - 2	Total PCBs	0.02	mg/kg	ND	10	NO	Human Health	
6-169-2	L6-SS-017	0 - 1	Total PCBs	0.021	mg/kg	ND	10	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-206	L6-SS-018	0 - 1	1,1,1-Trichloroethane	0.004	mg/kg	ND	1200	NO	Human Health	
6-206	L6-SS-018	0 - 1	1,1,2,2-Tetrachloroethane	0.004	mg/kg	ND	0.93	NO	Human Health	
6-206	L6-SS-018	0 - 1	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	0.004	mg/kg	ND	5600	NO	Human Health	
6-206	L6-SS-018	0 - 1	1,1,2-Trichloroethane	0.004	mg/kg	ND	1.6	NO	Human Health	
6-206	L6-SS-018	0 - 1	1,1-Dichloroethane	0.004	mg/kg	ND	1700	NO	Human Health	
6-206	L6-SS-018	0 - 1	1,1-Dichloroethene	0.004	mg/kg	ND	410	NO	Human Health	
6-206	L6-SS-018	0 - 1	1,2-Dichloroethane	0.004	mg/kg	ND	0.6	NO	Human Health	
6-206	L6-SS-018	0 - 1	1,2-Dichloropropane	0.004	mg/kg	ND	0.74	NO	Human Health	
6-206	L6-SS-018	0 - 1	2-Butanone / Methyl Ethyl Ketone	0.013	mg/kg	ND	110000	NO	Human Health	
6-206	L6-SS-018	0 - 1	4-Methyl-2-Pentanone / Methyl Isobutyl Ketone	0.013	mg/kg	ND	47000	NO	Human Health	
6-206	L6-SS-018	0 - 1	Acetone	0.013	mg/kg	ND	54000	NO	Human Health	
6-206	L6-SS-018	0 - 1	Antimony	0.9	mg/kg		816	NO	Human Health	
6-206	L6-SS-018	0 - 1	Arsenic	6	mg/kg		30	NO	Human Health	
6-206	L6-SS-018	0 - 1	Benzene	0.004	mg/kg	ND	1.4	NO	Human Health	
6-206	L6-SS-018	0 - 1	Beryllium	0.91	mg/kg		5	NO	Human Health	
6-206	L6-SS-018	0 - 1	Boron	17	mg/kg		100000	NO	Human Health	
6-206	L6-SS-018	0 - 1	Bromodichloromethane	0.004	mg/kg	ND	1.8	NO	Human Health	
6-206	L6-SS-018	0 - 1	Bromoform	0.004	mg/kg	ND	220	NO	Human Health	
6-206	L6-SS-018	0 - 1	Bromomethane	0.004	mg/kg	ND	13	NO	Human Health	
6-206	L6-SS-018	0 - 1	Cadmium	0.68	mg/kg		1000	NO	Human Health	
6-206	L6-SS-018	0 - 1	Carbon disulfide	0.004	mg/kg	ND	720	NO	Human Health	
6-206	L6-SS-018	0 - 1	Carbon tetrachloride	0.004	mg/kg	ND	0.55	NO	Human Health	
6-206	L6-SS-018	0 - 1	Chlorobenzene	0.004	mg/kg	ND	530	NO	Human Health	
6-206	L6-SS-018	0 - 1	Chloroethane	0.004	mg/kg	ND	6.5	NO	Human Health	
6-206	L6-SS-018	0 - 1	Chloroform	0.004	mg/kg	ND	0.47	NO	Human Health	
6-206	L6-SS-018	0 - 1	Chloromethane	0.004	mg/kg	ND	160	NO	Human Health	
6-206	L6-SS-018	0 - 1	Chromium	36.2	mg/kg		10000	NO	Human Health	
6-206	L6-SS-018	0 - 1	cis-1,2-Dichloroethene	0.004	mg/kg	ND	150	NO	Human Health	
6-206	L6-SS-018	0 - 1	Dibromochloromethane / Chlorodibromomethane	0.004	mg/kg	ND	2.6	NO	Human Health	
6-206	L6-SS-018	0 - 1	Dichlorodifluoromethane	0.004	mg/kg	ND	310	NO	Human Health	
6-206	L6-SS-018	0 - 1	Ethylbenzene	0.004	mg/kg	ND	400	NO	Human Health	
6-206	L6-SS-018	0 - 1	Lead	21	mg/kg		1000	NO	Human Health	
6-206	L6-SS-018	0 - 1	Mercury	0.072	mg/kg		310	NO	Human Health	
6-206	L6-SS-018	0 - 1	Methylene bromide / Dibromomethane	0.004	mg/kg	ND	230	NO	Human Health	
6-206	L6-SS-018	0 - 1	Methylene chloride	0.007	mg/kg		21	NO	Human Health	
6-206	L6-SS-018	0 - 1	Nickel	24	mg/kg		20000	NO	Human Health	
6-206	L6-SS-018	0 - 1	Styrene	0.004	mg/kg	ND	1700	NO	Human Health	
6-206	L6-SS-018	0 - 1	Tetrachloroethene	0.004	mg/kg	ND	1.3	NO	Human Health	
6-206	L6-SS-018	0 - 1	Thallium	2.3	mg/kg	ND	143	NO	Human Health	
6-206	L6-SS-018	0 - 1	Toluene	0.005	mg/kg		520	NO	Human Health	
6-206	L6-SS-018	0 - 1	Total Xylenes	0.006	mg/kg	ND	420	NO	Human Health	
6-206	L6-SS-018	0 - 1	trans-1,2-Dichloroethene	0.004	mg/kg	ND	230	NO	Human Health	
6-206	L6-SS-018	0 - 1	Trichloroethene	0.004	mg/kg	ND	0.11	NO	Human Health	
6-206	L6-SS-018	0 - 1	Trichlorofluoromethane	0.004	mg/kg	ND	2000	NO	Human Health	
6-206	L6-SS-018	0 - 1	Vinyl chloride	0.004	mg/kg	ND	0.75	NO	Human Health	
600-85	L6-SS-019	0 - 1	1,1,1-Trichloroethane	0.004	mg/kg	ND	1200	NO	Human Health	
600-85	L6-SS-019	0 - 1	1,1,2,2-Tetrachloroethane	0.004	mg/kg	ND	0.93	NO	Human Health	
600-85	L6-SS-019	0 - 1	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	0.004	mg/kg	ND	5600	NO	Human Health	
600-85	L6-SS-019	0 - 1	1,1,2-Trichloroethane	0.004	mg/kg	ND	1.6	NO	Human Health	
600-85	L6-SS-019	0 - 1	1,1-Dichloroethane	0.004	mg/kg	ND	1700	NO	Human Health	
600-85	L6-SS-019	0 - 1	1,1-Dichloroethene	0.004	mg/kg	ND	410	NO	Human Health	
600-85	L6-SS-019	0 - 1	1,2-Dichloroethane	0.004	mg/kg	ND	0.6	NO	Human Health	
600-85	L6-SS-019	0 - 1	1,2-Dichloropropane	0.004	mg/kg	ND	0.74	NO	Human Health	
600-85	L6-SS-019	0 - 1	2-Butanone / Methyl Ethyl Ketone	0.014	mg/kg	ND	110000	NO	Human Health	
600-85	L6-SS-019	0 - 1	4-Methyl-2-Pentanone / Methyl Isobutyl Ketone	0.014	mg/kg	ND	47000	NO	Human Health	
600-85	L6-SS-019	0 - 1	Acetone	0.014	mg/kg	ND	54000	NO	Human Health	
600-85	L6-SS-019	0 - 1	Antimony	0.79	mg/kg		816	NO	Human Health	
600-85	L6-SS-019	0 - 1	Arsenic	8	mg/kg		30	NO	Human Health	
600-85	L6-SS-019	0 - 1	Benzene	0.004	mg/kg	ND	1.4	NO	Human Health	
600-85	L6-SS-019	0 - 1	Beryllium	0.88	mg/kg		5	NO	Human Health	
600-85	L6-SS-019	0 - 1	Boron	13.3	mg/kg		100000	NO	Human Health	
600-85	L6-SS-019	0 - 1	Bromodichloromethane	0.004	mg/kg	ND	1.8	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
600-85	L6-SS-019	0 - 1	Bromoform	0.004	mg/kg	ND	220	NO	Human Health	
600-85	L6-SS-019	0 - 1	Bromomethane	0.004	mg/kg	ND	13	NO	Human Health	
600-85	L6-SS-019	0 - 1	Cadmium	0.55	mg/kg		1000	NO	Human Health	
600-85	L6-SS-019	0 - 1	Carbon disulfide	0.004	mg/kg	ND	720	NO	Human Health	
600-85	L6-SS-019	0 - 1	Carbon tetrachloride	0.004	mg/kg	ND	0.55	NO	Human Health	
600-85	L6-SS-019	0 - 1	Chlorobenzene	0.004	mg/kg	ND	530	NO	Human Health	
600-85	L6-SS-019	0 - 1	Chloroethane	0.004	mg/kg	ND	6.5	NO	Human Health	
600-85	L6-SS-019	0 - 1	Chloroform	0.004	mg/kg	ND	0.47	NO	Human Health	
600-85	L6-SS-019	0 - 1	Chloromethane	0.004	mg/kg	ND	160	NO	Human Health	
600-85	L6-SS-019	0 - 1	Chromium	33.3	mg/kg		10000	NO	Human Health	
600-85	L6-SS-019	0 - 1	cis-1,2-Dichloroethene	0.004	mg/kg	ND	150	NO	Human Health	
600-85	L6-SS-019	0 - 1	Dibromochloromethane / Chlorodibromomethane	0.004	mg/kg	ND	2.6	NO	Human Health	
600-85	L6-SS-019	0 - 1	Dichlorodifluoromethane	0.004	mg/kg	ND	310	NO	Human Health	
600-85	L6-SS-019	0 - 1	Ethylbenzene	0.004	mg/kg	ND	400	NO	Human Health	
600-85	L6-SS-019	0 - 1	Lead	21.2	mg/kg		1000	NO	Human Health	
600-85	L6-SS-019	0 - 1	Mercury	0.057	mg/kg		310	NO	Human Health	
600-85	L6-SS-019	0 - 1	Methylene bromide / Dibromomethane	0.004	mg/kg	ND	230	NO	Human Health	
600-85	L6-SS-019	0 - 1	Methylene chloride	0.004	mg/kg	ND	21	NO	Human Health	
600-85	L6-SS-019	0 - 1	Nickel	25.1	mg/kg		20000	NO	Human Health	
600-85	L6-SS-019	0 - 1	Styrene	0.004	mg/kg	ND	1700	NO	Human Health	
600-85	L6-SS-019	0 - 1	Tetrachloroethene	0.004	mg/kg	ND	1.3	NO	Human Health	
600-85	L6-SS-019	0 - 1	Thallium	2.1	mg/kg	ND	143	NO	Human Health	
600-85	L6-SS-019	0 - 1	Toluene	0.004	mg/kg	ND	520	NO	Human Health	
600-85	L6-SS-019	0 - 1	Total Xylenes	0.006	mg/kg	ND	420	NO	Human Health	
600-85	L6-SS-019	0 - 1	trans-1,2-Dichloroethene	0.004	mg/kg	ND	230	NO	Human Health	
600-85	L6-SS-019	0 - 1	Trichloroethene	0.004	mg/kg	ND	0.11	NO	Human Health	
600-85	L6-SS-019	0 - 1	Trichlorofluoromethane	0.004	mg/kg	ND	2000	NO	Human Health	
600-85	L6-SS-019	0 - 1	Vinyl chloride	0.004	mg/kg	ND	0.75	NO	Human Health	
600-85	L6-SS-020	0 - 1	1,1,1-Trichloroethane	0.01	mg/kg		1200	NO	Human Health	
600-85	L6-SS-020	0 - 1	1,1,2,2-Tetrachloroethane	0.005	mg/kg	ND	0.93	NO	Human Health	
600-85	L6-SS-020	0 - 1	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	0.005	mg/kg	ND	5600	NO	Human Health	
600-85	L6-SS-020	0 - 1	1,1,2-Trichloroethane	0.005	mg/kg	ND	1.6	NO	Human Health	
600-85	L6-SS-020	0 - 1	1,1-Dichloroethane	0.005	mg/kg	ND	1700	NO	Human Health	
600-85	L6-SS-020	0 - 1	1,1-Dichloroethene	0.005	mg/kg	ND	410	NO	Human Health	
600-85	L6-SS-020	0 - 1	1,2-Dichloroethane	0.005	mg/kg	ND	0.6	NO	Human Health	
600-85	L6-SS-020	0 - 1	1,2-Dichloropropane	0.005	mg/kg	ND	0.74	NO	Human Health	
600-85	L6-SS-020	0 - 1	2-Butanone / Methyl Ethyl Ketone	0.016	mg/kg	ND	110000	NO	Human Health	
600-85	L6-SS-020	0 - 1	4-Methyl-2-Pentanone / Methyl Isobutyl Ketone	0.016	mg/kg	ND	47000	NO	Human Health	
600-85	L6-SS-020	0 - 1	Acetone	0.016	mg/kg	ND	54000	NO	Human Health	
600-85	L6-SS-020	0 - 1	Antimony	0.72	mg/kg		816	NO	Human Health	
600-85	L6-SS-020	0 - 1	Arsenic	7.8	mg/kg		30	NO	Human Health	
600-85	L6-SS-020	0 - 1	Benzene	0.005	mg/kg	ND	1.4	NO	Human Health	
600-85	L6-SS-020	0 - 1	Beryllium	0.85	mg/kg		5	NO	Human Health	
600-85	L6-SS-020	0 - 1	Boron	9.8	mg/kg		100000	NO	Human Health	
600-85	L6-SS-020	0 - 1	Bromodichloromethane	0.005	mg/kg	ND	1.8	NO	Human Health	
600-85	L6-SS-020	0 - 1	Bromoform	0.005	mg/kg	ND	220	NO	Human Health	
600-85	L6-SS-020	0 - 1	Bromomethane	0.005	mg/kg	ND	13	NO	Human Health	
600-85	L6-SS-020	0 - 1	Cadmium	0.4	mg/kg		1000	NO	Human Health	
600-85	L6-SS-020	0 - 1	Carbon disulfide	0.005	mg/kg	ND	720	NO	Human Health	
600-85	L6-SS-020	0 - 1	Carbon tetrachloride	0.005	mg/kg	ND	0.55	NO	Human Health	
600-85	L6-SS-020	0 - 1	Chlorobenzene	0.005	mg/kg	ND	530	NO	Human Health	
600-85	L6-SS-020	0 - 1	Chloroethane	0.005	mg/kg	ND	6.5	NO	Human Health	
600-85	L6-SS-020	0 - 1	Chloroform	0.005	mg/kg	ND	0.47	NO	Human Health	
600-85	L6-SS-020	0 - 1	Chloromethane	0.005	mg/kg	ND	160	NO	Human Health	
600-85	L6-SS-020	0 - 1	Chromium	36.4	mg/kg		10000	NO	Human Health	
600-85	L6-SS-020	0 - 1	cis-1,2-Dichloroethene	0.005	mg/kg	ND	150	NO	Human Health	
600-85	L6-SS-020	0 - 1	Dibromochloromethane / Chlorodibromomethane	0.005	mg/kg	ND	2.6	NO	Human Health	
600-85	L6-SS-020	0 - 1	Dichlorodifluoromethane	0.005	mg/kg	ND	310	NO	Human Health	
600-85	L6-SS-020	0 - 1	Ethylbenzene	0.005	mg/kg	ND	400	NO	Human Health	
600-85	L6-SS-020	0 - 1	Lead	46.2	mg/kg		1000	NO	Human Health	
600-85	L6-SS-020	0 - 1	Mercury	0.039	mg/kg		310	NO	Human Health	
600-85	L6-SS-020	0 - 1	Methylene bromide / Dibromomethane	0.005	mg/kg	ND	230	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
600-85	L6-SS-020	0 - 1	Methylene chloride	0.005	mg/kg	ND	21	NO	Human Health	
600-85	L6-SS-020	0 - 1	Nickel	15.1	mg/kg		20000	NO	Human Health	
600-85	L6-SS-020	0 - 1	Styrene	0.005	mg/kg	ND	1700	NO	Human Health	
600-85	L6-SS-020	0 - 1	Tetrachloroethene	0.005	mg/kg	ND	1.3	NO	Human Health	
600-85	L6-SS-020	0 - 1	Thallium	2.1	mg/kg	ND	143	NO	Human Health	
600-85	L6-SS-020	0 - 1	Toluene	0.002	mg/kg		520	NO	Human Health	
600-85	L6-SS-020	0 - 1	Total Xylenes	0.0075	mg/kg	ND	420	NO	Human Health	
600-85	L6-SS-020	0 - 1	trans-1,2-Dichloroethene	0.005	mg/kg	ND	230	NO	Human Health	
600-85	L6-SS-020	0 - 1	Trichloroethene	0.005	mg/kg	ND	0.11	NO	Human Health	
600-85	L6-SS-020	0 - 1	Trichlorofluoromethane	0.005	mg/kg	ND	2000	NO	Human Health	
600-85	L6-SS-020	0 - 1	Vinyl chloride	0.005	mg/kg	ND	0.75	NO	Human Health	
600-85	L6-SS-021	0 - 1	1,1,1-Trichloroethane	0.004	mg/kg	ND	1200	NO	Human Health	
600-85	L6-SS-021	0 - 1	1,1,2,2-Tetrachloroethane	0.004	mg/kg	ND	0.93	NO	Human Health	
600-85	L6-SS-021	0 - 1	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	0.004	mg/kg	ND	5600	NO	Human Health	
600-85	L6-SS-021	0 - 1	1,1,2-Trichloroethane	0.004	mg/kg	ND	1.6	NO	Human Health	
600-85	L6-SS-021	0 - 1	1,1-Dichloroethane	0.004	mg/kg	ND	1700	NO	Human Health	
600-85	L6-SS-021	0 - 1	1,1-Dichloroethene	0.004	mg/kg	ND	410	NO	Human Health	
600-85	L6-SS-021	0 - 1	1,2-Dichloroethane	0.004	mg/kg	ND	0.6	NO	Human Health	
600-85	L6-SS-021	0 - 1	1,2-Dichloropropane	0.004	mg/kg	ND	0.74	NO	Human Health	
600-85	L6-SS-021	0 - 1	2-Butanone / Methyl Ethyl Ketone	0.012	mg/kg	ND	110000	NO	Human Health	
600-85	L6-SS-021	0 - 1	4-Methyl-2-Pentanone / Methyl Isobutyl Ketone	0.012	mg/kg	ND	47000	NO	Human Health	
600-85	L6-SS-021	0 - 1	Acetone	0.012	mg/kg	ND	54000	NO	Human Health	
600-85	L6-SS-021	0 - 1	Antimony	1.1	mg/kg		816	NO	Human Health	
600-85	L6-SS-021	0 - 1	Arsenic	8.2	mg/kg		30	NO	Human Health	
600-85	L6-SS-021	0 - 1	Benzene	0.004	mg/kg	ND	1.4	NO	Human Health	
600-85	L6-SS-021	0 - 1	Beryllium	0.84	mg/kg		5	NO	Human Health	
600-85	L6-SS-021	0 - 1	Boron	13	mg/kg		100000	NO	Human Health	
600-85	L6-SS-021	0 - 1	Bromodichloromethane	0.004	mg/kg	ND	1.8	NO	Human Health	
600-85	L6-SS-021	0 - 1	Bromoform	0.004	mg/kg	ND	220	NO	Human Health	
600-85	L6-SS-021	0 - 1	Bromomethane	0.004	mg/kg	ND	13	NO	Human Health	
600-85	L6-SS-021	0 - 1	Cadmium	1	mg/kg	ND	1000	NO	Human Health	
600-85	L6-SS-021	0 - 1	Carbon disulfide	0.004	mg/kg	ND	720	NO	Human Health	
600-85	L6-SS-021	0 - 1	Carbon tetrachloride	0.004	mg/kg	ND	0.55	NO	Human Health	
600-85	L6-SS-021	0 - 1	Chlorobenzene	0.004	mg/kg	ND	530	NO	Human Health	
600-85	L6-SS-021	0 - 1	Chloroethane	0.004	mg/kg	ND	6.5	NO	Human Health	
600-85	L6-SS-021	0 - 1	Chloroform	0.004	mg/kg	ND	0.47	NO	Human Health	
600-85	L6-SS-021	0 - 1	Chloromethane	0.004	mg/kg	ND	160	NO	Human Health	
600-85	L6-SS-021	0 - 1	Chromium	44.1	mg/kg		10000	NO	Human Health	
600-85	L6-SS-021	0 - 1	cis-1,2-Dichloroethene	0.004	mg/kg	ND	150	NO	Human Health	
600-85	L6-SS-021	0 - 1	Dibromochloromethane / Chlorodibromomethane	0.004	mg/kg	ND	2.6	NO	Human Health	
600-85	L6-SS-021	0 - 1	Dichlorodifluoromethane	0.004	mg/kg	ND	310	NO	Human Health	
600-85	L6-SS-021	0 - 1	Ethylbenzene	0.004	mg/kg	ND	400	NO	Human Health	
600-85	L6-SS-021	0 - 1	Lead	30.8	mg/kg		1000	NO	Human Health	
600-85	L6-SS-021	0 - 1	Mercury	0.1	mg/kg		310	NO	Human Health	
600-85	L6-SS-021	0 - 1	Methylene bromide / Dibromomethane	0.004	mg/kg	ND	230	NO	Human Health	
600-85	L6-SS-021	0 - 1	Methylene chloride	0.004	mg/kg	ND	21	NO	Human Health	
600-85	L6-SS-021	0 - 1	Nickel	22.7	mg/kg		20000	NO	Human Health	
600-85	L6-SS-021	0 - 1	Styrene	0.004	mg/kg	ND	1700	NO	Human Health	
600-85	L6-SS-021	0 - 1	Tetrachloroethene	0.004	mg/kg	ND	1.3	NO	Human Health	
600-85	L6-SS-021	0 - 1	Thallium	2	mg/kg	ND	143	NO	Human Health	
600-85	L6-SS-021	0 - 1	Toluene	0.004	mg/kg	ND	520	NO	Human Health	
600-85	L6-SS-021	0 - 1	Total Xylenes	0.0055	mg/kg	ND	420	NO	Human Health	
600-85	L6-SS-021	0 - 1	trans-1,2-Dichloroethene	0.004	mg/kg	ND	230	NO	Human Health	
600-85	L6-SS-021	0 - 1	Trichloroethene	0.004	mg/kg	ND	0.11	NO	Human Health	
600-85	L6-SS-021	0 - 1	Trichlorofluoromethane	0.004	mg/kg	ND	2000	NO	Human Health	
600-85	L6-SS-021	0 - 1	Vinyl chloride	0.004	mg/kg	ND	0.75	NO	Human Health	
600-85	L6-SS-022	0 - 1	Total PCBs	0.021	mg/kg	ND	10	NO	Human Health	
600-85	L6-SS-022	0 - 1	Total PCBs	0.021	mg/kg	ND	10	NO	Human Health	
600-85	L6-SS-023	0 - 1	1,1,1-Trichloroethane	0.004	mg/kg	ND	1200	NO	Human Health	
600-85	L6-SS-023	0 - 1	1,1,2,2-Tetrachloroethane	0.004	mg/kg	ND	0.93	NO	Human Health	
600-85	L6-SS-023	0 - 1	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	0.004	mg/kg	ND	5600	NO	Human Health	
600-85	L6-SS-023	0 - 1	1,1,2-Trichloroethane	0.004	mg/kg	ND	1.6	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
600-85	L6-SS-023	0 - 1	1,1-Dichloroethane	0.004	mg/kg	ND	1700	NO	Human Health	
600-85	L6-SS-023	0 - 1	1,1-Dichloroethene	0.004	mg/kg	ND	410	NO	Human Health	
600-85	L6-SS-023	0 - 1	1,2-Dichloroethane	0.004	mg/kg	ND	0.6	NO	Human Health	
600-85	L6-SS-023	0 - 1	1,2-Dichloropropane	0.004	mg/kg	ND	0.74	NO	Human Health	
600-85	L6-SS-023	0 - 1	2-Butanone / Methyl Ethyl Ketone	0.015	mg/kg	ND	110000	NO	Human Health	
600-85	L6-SS-023	0 - 1	4-Methyl-2-Pentanone / Methyl Isobutyl Ketone	0.015	mg/kg	ND	47000	NO	Human Health	
600-85	L6-SS-023	0 - 1	Acetone	0.015	mg/kg	ND	54000	NO	Human Health	
600-85	L6-SS-023	0 - 1	Antimony	2	mg/kg		816	NO	Human Health	
600-85	L6-SS-023	0 - 1	Arsenic	11.9	mg/kg		30	NO	Human Health	
600-85	L6-SS-023	0 - 1	Benzene	0.004	mg/kg	ND	1.4	NO	Human Health	
600-85	L6-SS-023	0 - 1	Beryllium	0.9	mg/kg		5	NO	Human Health	
600-85	L6-SS-023	0 - 1	Boron	13.2	mg/kg		100000	NO	Human Health	
600-85	L6-SS-023	0 - 1	Bromodichloromethane	0.004	mg/kg	ND	1.8	NO	Human Health	
600-85	L6-SS-023	0 - 1	Bromoform	0.004	mg/kg	ND	220	NO	Human Health	
600-85	L6-SS-023	0 - 1	Bromomethane	0.004	mg/kg	ND	13	NO	Human Health	
600-85	L6-SS-023	0 - 1	Cadmium	0.46	mg/kg		1000	NO	Human Health	
600-85	L6-SS-023	0 - 1	Carbon disulfide	0.004	mg/kg	ND	720	NO	Human Health	
600-85	L6-SS-023	0 - 1	Carbon tetrachloride	0.004	mg/kg	ND	0.55	NO	Human Health	
600-85	L6-SS-023	0 - 1	Chlorobenzene	0.004	mg/kg	ND	530	NO	Human Health	
600-85	L6-SS-023	0 - 1	Chloroethane	0.004	mg/kg	ND	6.5	NO	Human Health	
600-85	L6-SS-023	0 - 1	Chloroform	0.004	mg/kg	ND	0.47	NO	Human Health	
600-85	L6-SS-023	0 - 1	Chloromethane	0.004	mg/kg	ND	160	NO	Human Health	
600-85	L6-SS-023	0 - 1	Chromium	34.9	mg/kg		10000	NO	Human Health	
600-85	L6-SS-023	0 - 1	cis-1,2-Dichloroethene	0.004	mg/kg	ND	150	NO	Human Health	
600-85	L6-SS-023	0 - 1	Dibromochloromethane / Chlorodibromomethane	0.004	mg/kg	ND	2.6	NO	Human Health	
600-85	L6-SS-023	0 - 1	Dichlorodifluoromethane	0.007	mg/kg		310	NO	Human Health	
600-85	L6-SS-023	0 - 1	Ethylbenzene	0.004	mg/kg	ND	400	NO	Human Health	
600-85	L6-SS-023	0 - 1	Lead	34.9	mg/kg		1000	NO	Human Health	
600-85	L6-SS-023	0 - 1	Mercury	0.04	mg/kg		310	NO	Human Health	
600-85	L6-SS-023	0 - 1	Methylene bromide / Dibromomethane	0.004	mg/kg	ND	230	NO	Human Health	
600-85	L6-SS-023	0 - 1	Methylene chloride	0.004	mg/kg	ND	21	NO	Human Health	
600-85	L6-SS-023	0 - 1	Nickel	26.7	mg/kg		20000	NO	Human Health	
600-85	L6-SS-023	0 - 1	Styrene	0.004	mg/kg	ND	1700	NO	Human Health	
600-85	L6-SS-023	0 - 1	Tetrachloroethene	0.004	mg/kg	ND	1.3	NO	Human Health	
600-85	L6-SS-023	0 - 1	Thallium	63.3	mg/kg	ND	143	NO	Human Health	
600-85	L6-SS-023	0 - 1	Toluene	0.004	mg/kg	ND	520	NO	Human Health	
600-85	L6-SS-023	0 - 1	Total Xylenes	0.0065	mg/kg	ND	420	NO	Human Health	
600-85	L6-SS-023	0 - 1	trans-1,2-Dichloroethene	0.004	mg/kg	ND	230	NO	Human Health	
600-85	L6-SS-023	0 - 1	Trichloroethene	0.004	mg/kg	ND	0.11	NO	Human Health	
600-85	L6-SS-023	0 - 1	Trichlorofluoromethane	0.004	mg/kg	ND	2000	NO	Human Health	
600-85	L6-SS-023	0 - 1	Vinyl chloride	0.004	mg/kg	ND	0.75	NO	Human Health	
600-85	L6-SS-024	0 - 1	1,1,1-Trichloroethane	0.004	mg/kg	ND	1200	NO	Human Health	
600-85	L6-SS-024	0 - 1	1,1,2,2-Tetrachloroethane	0.004	mg/kg	ND	0.93	NO	Human Health	
600-85	L6-SS-024	0 - 1	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	0.004	mg/kg	ND	5600	NO	Human Health	
600-85	L6-SS-024	0 - 1	1,1,2-Trichloroethane	0.004	mg/kg	ND	1.6	NO	Human Health	
600-85	L6-SS-024	0 - 1	1,1-Dichloroethane	0.004	mg/kg	ND	1700	NO	Human Health	
600-85	L6-SS-024	0 - 1	1,1-Dichloroethene	0.004	mg/kg	ND	410	NO	Human Health	
600-85	L6-SS-024	0 - 1	1,2-Dichloroethane	0.004	mg/kg	ND	0.6	NO	Human Health	
600-85	L6-SS-024	0 - 1	1,2-Dichloropropane	0.004	mg/kg	ND	0.74	NO	Human Health	
600-85	L6-SS-024	0 - 1	2-Butanone / Methyl Ethyl Ketone	0.012	mg/kg	ND	110000	NO	Human Health	
600-85	L6-SS-024	0 - 1	4-Methyl-2-Pentanone / Methyl Isobutyl Ketone	0.012	mg/kg	ND	47000	NO	Human Health	
600-85	L6-SS-024	0 - 1	Acetone	0.012	mg/kg	ND	54000	NO	Human Health	
600-85	L6-SS-024	0 - 1	Antimony	2	mg/kg		816	NO	Human Health	
600-85	L6-SS-024	0 - 1	Arsenic	5.8	mg/kg		30	NO	Human Health	
600-85	L6-SS-024	0 - 1	Benzene	0.004	mg/kg	ND	1.4	NO	Human Health	
600-85	L6-SS-024	0 - 1	Beryllium	0.48	mg/kg		5	NO	Human Health	
600-85	L6-SS-024	0 - 1	Boron	11.9	mg/kg		100000	NO	Human Health	
600-85	L6-SS-024	0 - 1	Bromodichloromethane	0.004	mg/kg	ND	1.8	NO	Human Health	
600-85	L6-SS-024	0 - 1	Bromoform	0.004	mg/kg	ND	220	NO	Human Health	
600-85	L6-SS-024	0 - 1	Bromomethane	0.004	mg/kg	ND	13	NO	Human Health	
600-85	L6-SS-024	0 - 1	Cadmium	2.2	mg/kg		1000	NO	Human Health	
600-85	L6-SS-024	0 - 1	Carbon disulfide	0.004	mg/kg	ND	720	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
600-85	L6-SS-024	0 - 1	Carbon tetrachloride	0.004	mg/kg	ND	0.55	NO	Human Health	
600-85	L6-SS-024	0 - 1	Chlorobenzene	0.004	mg/kg	ND	530	NO	Human Health	
600-85	L6-SS-024	0 - 1	Chloroethane	0.004	mg/kg	ND	6.5	NO	Human Health	
600-85	L6-SS-024	0 - 1	Chloroform	0.004	mg/kg	ND	0.47	NO	Human Health	
600-85	L6-SS-024	0 - 1	Chloromethane	0.004	mg/kg	ND	160	NO	Human Health	
600-85	L6-SS-024	0 - 1	Chromium	39.3	mg/kg		10000	NO	Human Health	
600-85	L6-SS-024	0 - 1	cis-1,2-Dichloroethene	0.004	mg/kg	ND	150	NO	Human Health	
600-85	L6-SS-024	0 - 1	Dibromochloromethane / Chlorodibromomethane	0.004	mg/kg	ND	2.6	NO	Human Health	
600-85	L6-SS-024	0 - 1	Dichlorodifluoromethane	0.004	mg/kg	ND	310	NO	Human Health	
600-85	L6-SS-024	0 - 1	Ethylbenzene	0.004	mg/kg	ND	400	NO	Human Health	
600-85	L6-SS-024	0 - 1	Lead	243	mg/kg		1000	NO	Human Health	
600-85	L6-SS-024	0 - 1	Mercury	0.11	mg/kg		310	NO	Human Health	
600-85	L6-SS-024	0 - 1	Methylene bromide / Dibromomethane	0.004	mg/kg	ND	230	NO	Human Health	
600-85	L6-SS-024	0 - 1	Methylene chloride	0.002	mg/kg		21	NO	Human Health	
600-85	L6-SS-024	0 - 1	Nickel	25.9	mg/kg		20000	NO	Human Health	
600-85	L6-SS-024	0 - 1	Styrene	0.004	mg/kg	ND	1700	NO	Human Health	
600-85	L6-SS-024	0 - 1	Tetrachloroethene	0.004	mg/kg	ND	1.3	NO	Human Health	
600-85	L6-SS-024	0 - 1	Thallium	2.2	mg/kg	ND	143	NO	Human Health	
600-85	L6-SS-024	0 - 1	Toluene	0.007	mg/kg		520	NO	Human Health	
600-85	L6-SS-024	0 - 1	Total Xylenes	0.0055	mg/kg	ND	420	NO	Human Health	
600-85	L6-SS-024	0 - 1	trans-1,2-Dichloroethene	0.004	mg/kg	ND	230	NO	Human Health	
600-85	L6-SS-024	0 - 1	Trichloroethene	0.004	mg/kg	ND	0.11	NO	Human Health	
600-85	L6-SS-024	0 - 1	Trichlorofluoromethane	0.004	mg/kg	ND	2000	NO	Human Health	
600-85	L6-SS-024	0 - 1	Vinyl chloride	0.004	mg/kg	ND	0.75	NO	Human Health	
6-49	L6-SS-025	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-49	L6-SS-025	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-49	L6-SS-025	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-49	L6-SS-025	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-49	L6-SS-025	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-49	L6-SS-025	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-49	L6-SS-025	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-49	L6-SS-025	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-49	L6-SS-025	0 - 1	Antimony	0.65	mg/kg		816	NO	Human Health	
6-49	L6-SS-025	0 - 1	Arsenic	11.4	mg/kg		30	NO	Human Health	
6-49	L6-SS-025	0 - 1	Beryllium	1	mg/kg		5	NO	Human Health	
6-49	L6-SS-025	0 - 1	Boron	15.9	mg/kg		100000	NO	Human Health	
6-49	L6-SS-025	0 - 1	Cadmium	0.99	mg/kg		1000	NO	Human Health	
6-49	L6-SS-025	0 - 1	Chromium	34.1	mg/kg		10000	NO	Human Health	
6-49	L6-SS-025	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-49	L6-SS-025	0 - 1	Lead	45	mg/kg		1000	NO	Human Health	
6-49	L6-SS-025	0 - 1	Mercury	0.13	mg/kg		310	NO	Human Health	
6-49	L6-SS-025	0 - 1	Nickel	35.6	mg/kg		20000	NO	Human Health	
6-49	L6-SS-025	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-49	L6-SS-025	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-49	L6-SS-025	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-49	L6-SS-025	0 - 1	Thallium	2.1	mg/kg	ND	143	NO	Human Health	
6-49	L6-SS-025	1 - 2	1,1,1-Trichloroethane	0.004	mg/kg	ND	1200	NO	Human Health	
6-49	L6-SS-025	1 - 2	1,1,2,2-Tetrachloroethane	0.004	mg/kg	ND	0.93	NO	Human Health	
6-49	L6-SS-025	1 - 2	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	0.004	mg/kg	ND	5600	NO	Human Health	
6-49	L6-SS-025	1 - 2	1,1,2-Trichloroethane	0.004	mg/kg	ND	1.6	NO	Human Health	
6-49	L6-SS-025	1 - 2	1,1-Dichloroethane	0.004	mg/kg	ND	1700	NO	Human Health	
6-49	L6-SS-025	1 - 2	1,1-Dichloroethene	0.004	mg/kg	ND	410	NO	Human Health	
6-49	L6-SS-025	1 - 2	1,2-Dichloroethane	0.004	mg/kg	ND	0.6	NO	Human Health	
6-49	L6-SS-025	1 - 2	1,2-Dichloropropane	0.004	mg/kg	ND	0.74	NO	Human Health	
6-49	L6-SS-025	1 - 2	2-Butanone / Methyl Ethyl Ketone	0.012	mg/kg	ND	110000	NO	Human Health	
6-49	L6-SS-025	1 - 2	4-Methyl-2-Pentanone / Methyl Isobutyl Ketone	0.012	mg/kg	ND	47000	NO	Human Health	
6-49	L6-SS-025	1 - 2	Acetone	0.012	mg/kg	ND	54000	NO	Human Health	
6-49	L6-SS-025	1 - 2	Benzene	0.004	mg/kg	ND	1.4	NO	Human Health	
6-49	L6-SS-025	1 - 2	Bromodichloromethane	0.004	mg/kg	ND	1.8	NO	Human Health	
6-49	L6-SS-025	1 - 2	Bromoform	0.004	mg/kg	ND	220	NO	Human Health	
6-49	L6-SS-025	1 - 2	Bromomethane	0.004	mg/kg	ND	13	NO	Human Health	
6-49	L6-SS-025	1 - 2	Carbon disulfide	0.004	mg/kg	ND	720	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-49	L6-SS-025	1 - 2	Carbon tetrachloride	0.004	mg/kg	ND	0.55	NO	Human Health	
6-49	L6-SS-025	1 - 2	Chlorobenzene	0.004	mg/kg	ND	530	NO	Human Health	
6-49	L6-SS-025	1 - 2	Chloroethane	0.004	mg/kg	ND	6.5	NO	Human Health	
6-49	L6-SS-025	1 - 2	Chloroform	0.004	mg/kg	ND	0.47	NO	Human Health	
6-49	L6-SS-025	1 - 2	Chloromethane	0.004	mg/kg	ND	160	NO	Human Health	
6-49	L6-SS-025	1 - 2	cis-1,2-Dichloroethene	0.003	mg/kg		150	NO	Human Health	
6-49	L6-SS-025	1 - 2	Dibromochloromethane / Chlorodibromomethane	0.004	mg/kg	ND	2.6	NO	Human Health	
6-49	L6-SS-025	1 - 2	Dichlorodifluoromethane	0.004	mg/kg	ND	310	NO	Human Health	
6-49	L6-SS-025	1 - 2	Ethylbenzene	0.004	mg/kg	ND	400	NO	Human Health	
6-49	L6-SS-025	1 - 2	Methylene bromide / Dibromomethane	0.004	mg/kg	ND	230	NO	Human Health	
6-49	L6-SS-025	1 - 2	Methylene chloride	0.004	mg/kg	ND	21	NO	Human Health	
6-49	L6-SS-025	1 - 2	Styrene	0.004	mg/kg	ND	1700	NO	Human Health	
6-49	L6-SS-025	1 - 2	Tetrachloroethene	0.004	mg/kg	ND	1.3	NO	Human Health	
6-49	L6-SS-025	1 - 2	Toluene	0.003	mg/kg		520	NO	Human Health	
6-49	L6-SS-025	1 - 2	Total Xylenes	0.0055	mg/kg	ND	420	NO	Human Health	
6-49	L6-SS-025	1 - 2	trans-1,2-Dichloroethene	0.004	mg/kg	ND	230	NO	Human Health	
6-49	L6-SS-025	1 - 2	Trichloroethene	0.004	mg/kg	ND	0.11	NO	Human Health	
6-49	L6-SS-025	1 - 2	Trichlorofluoromethane	0.004	mg/kg	ND	2000	NO	Human Health	
6-49	L6-SS-025	1 - 2	Vinyl chloride	0.004	mg/kg	ND	0.75	NO	Human Health	
6-49	L6-SS-026	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-49	L6-SS-026	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-49	L6-SS-026	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-49	L6-SS-026	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-49	L6-SS-026	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-49	L6-SS-026	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-49	L6-SS-026	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-49	L6-SS-026	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-49	L6-SS-026	0 - 1	Antimony	0.91	mg/kg		816	NO	Human Health	
6-49	L6-SS-026	0 - 1	Arsenic	8.1	mg/kg		30	NO	Human Health	
6-49	L6-SS-026	0 - 1	Beryllium	1	mg/kg		5	NO	Human Health	
6-49	L6-SS-026	0 - 1	Boron	14.7	mg/kg		100000	NO	Human Health	
6-49	L6-SS-026	0 - 1	Cadmium	1.3	mg/kg		1000	NO	Human Health	
6-49	L6-SS-026	0 - 1	Chromium	35.2	mg/kg		10000	NO	Human Health	
6-49	L6-SS-026	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-49	L6-SS-026	0 - 1	Lead	52.7	mg/kg		1000	NO	Human Health	
6-49	L6-SS-026	0 - 1	Mercury	0.07	mg/kg		310	NO	Human Health	
6-49	L6-SS-026	0 - 1	Nickel	22.1	mg/kg		20000	NO	Human Health	
6-49	L6-SS-026	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-49	L6-SS-026	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-49	L6-SS-026	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-49	L6-SS-026	0 - 1	Thallium	2.1	mg/kg	ND	143	NO	Human Health	
6-49	L6-SS-026	1 - 2	1,1,1-Trichloroethane	0.004	mg/kg	ND	1200	NO	Human Health	
6-49	L6-SS-026	1 - 2	1,1,2,2-Tetrachloroethane	0.004	mg/kg	ND	0.93	NO	Human Health	
6-49	L6-SS-026	1 - 2	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	0.004	mg/kg	ND	5600	NO	Human Health	
6-49	L6-SS-026	1 - 2	1,1,2-Trichloroethane	0.004	mg/kg	ND	1.6	NO	Human Health	
6-49	L6-SS-026	1 - 2	1,1-Dichloroethane	0.004	mg/kg	ND	1700	NO	Human Health	
6-49	L6-SS-026	1 - 2	1,1-Dichloroethene	0.004	mg/kg	ND	410	NO	Human Health	
6-49	L6-SS-026	1 - 2	1,2-Dichloroethane	0.004	mg/kg	ND	0.6	NO	Human Health	
6-49	L6-SS-026	1 - 2	1,2-Dichloropropane	0.004	mg/kg	ND	0.74	NO	Human Health	
6-49	L6-SS-026	1 - 2	2-Butanone / Methyl Ethyl Ketone	0.013	mg/kg	ND	110000	NO	Human Health	
6-49	L6-SS-026	1 - 2	4-Methyl-2-Pentanone / Methyl Isobutyl Ketone	0.013	mg/kg	ND	47000	NO	Human Health	
6-49	L6-SS-026	1 - 2	Acetone	0.013	mg/kg	ND	54000	NO	Human Health	
6-49	L6-SS-026	1 - 2	Benzene	0.004	mg/kg	ND	1.4	NO	Human Health	
6-49	L6-SS-026	1 - 2	Bromodichloromethane	0.004	mg/kg	ND	1.8	NO	Human Health	
6-49	L6-SS-026	1 - 2	Bromoform	0.004	mg/kg	ND	220	NO	Human Health	
6-49	L6-SS-026	1 - 2	Bromomethane	0.004	mg/kg	ND	13	NO	Human Health	
6-49	L6-SS-026	1 - 2	Carbon disulfide	0.004	mg/kg	ND	720	NO	Human Health	
6-49	L6-SS-026	1 - 2	Carbon tetrachloride	0.004	mg/kg	ND	0.55	NO	Human Health	
6-49	L6-SS-026	1 - 2	Chlorobenzene	0.004	mg/kg	ND	530	NO	Human Health	
6-49	L6-SS-026	1 - 2	Chloroethane	0.004	mg/kg	ND	6.5	NO	Human Health	
6-49	L6-SS-026	1 - 2	Chloroform	0.004	mg/kg	ND	0.47	NO	Human Health	
6-49	L6-SS-026	1 - 2	Chloromethane	0.004	mg/kg	ND	160	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-49	L6-SS-026	1 - 2	cis-1,2-Dichloroethene	0.004	mg/kg	ND	150	NO	Human Health	
6-49	L6-SS-026	1 - 2	Dibromochloromethane / Chlorodibromomethane	0.004	mg/kg	ND	2.6	NO	Human Health	
6-49	L6-SS-026	1 - 2	Dichlorodifluoromethane	0.004	mg/kg	ND	310	NO	Human Health	
6-49	L6-SS-026	1 - 2	Ethylbenzene	0.004	mg/kg	ND	400	NO	Human Health	
6-49	L6-SS-026	1 - 2	Methylene bromide / Dibromomethane	0.004	mg/kg	ND	230	NO	Human Health	
6-49	L6-SS-026	1 - 2	Methylene chloride	0.004	mg/kg	ND	21	NO	Human Health	
6-49	L6-SS-026	1 - 2	Styrene	0.004	mg/kg	ND	1700	NO	Human Health	
6-49	L6-SS-026	1 - 2	Tetrachloroethene	0.004	mg/kg	ND	1.3	NO	Human Health	
6-49	L6-SS-026	1 - 2	Toluene	0.003	mg/kg		520	NO	Human Health	
6-49	L6-SS-026	1 - 2	Total Xylenes	0.006	mg/kg	ND	420	NO	Human Health	
6-49	L6-SS-026	1 - 2	trans-1,2-Dichloroethene	0.004	mg/kg	ND	230	NO	Human Health	
6-49	L6-SS-026	1 - 2	Trichloroethene	0.004	mg/kg	ND	0.11	NO	Human Health	
6-49	L6-SS-026	1 - 2	Trichlorofluoromethane	0.004	mg/kg	ND	2000	NO	Human Health	
6-49	L6-SS-026	1 - 2	Vinyl chloride	0.004	mg/kg	ND	0.75	NO	Human Health	
6-49	L6-SS-027	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-49	L6-SS-027	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-49	L6-SS-027	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-49	L6-SS-027	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-49	L6-SS-027	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-49	L6-SS-027	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-49	L6-SS-027	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-49	L6-SS-027	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-49	L6-SS-027	0 - 1	Antimony	1.1	mg/kg		816	NO	Human Health	
6-49	L6-SS-027	0 - 1	Arsenic	7.5	mg/kg		30	NO	Human Health	
6-49	L6-SS-027	0 - 1	Beryllium	0.93	mg/kg		5	NO	Human Health	
6-49	L6-SS-027	0 - 1	Boron	13.7	mg/kg		100000	NO	Human Health	
6-49	L6-SS-027	0 - 1	Cadmium	3.2	mg/kg		1000	NO	Human Health	
6-49	L6-SS-027	0 - 1	Chromium	32.7	mg/kg		10000	NO	Human Health	
6-49	L6-SS-027	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-49	L6-SS-027	0 - 1	Lead	69.2	mg/kg		1000	NO	Human Health	
6-49	L6-SS-027	0 - 1	Mercury	0.046	mg/kg		310	NO	Human Health	
6-49	L6-SS-027	0 - 1	Nickel	25.5	mg/kg		20000	NO	Human Health	
6-49	L6-SS-027	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-49	L6-SS-027	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-49	L6-SS-027	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-49	L6-SS-027	0 - 1	Thallium	1.9	mg/kg	ND	143	NO	Human Health	
6-49	L6-SS-027	1 - 2	1,1,1-Trichloroethane	0.004	mg/kg	ND	1200	NO	Human Health	
6-49	L6-SS-027	1 - 2	1,1,2,2-Tetrachloroethane	0.004	mg/kg	ND	0.93	NO	Human Health	
6-49	L6-SS-027	1 - 2	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	0.004	mg/kg	ND	5600	NO	Human Health	
6-49	L6-SS-027	1 - 2	1,1,2-Trichloroethane	0.004	mg/kg	ND	1.6	NO	Human Health	
6-49	L6-SS-027	1 - 2	1,1-Dichloroethane	0.004	mg/kg	ND	1700	NO	Human Health	
6-49	L6-SS-027	1 - 2	1,1-Dichloroethene	0.004	mg/kg	ND	410	NO	Human Health	
6-49	L6-SS-027	1 - 2	1,2-Dichloroethane	0.004	mg/kg	ND	0.6	NO	Human Health	
6-49	L6-SS-027	1 - 2	1,2-Dichloropropane	0.004	mg/kg	ND	0.74	NO	Human Health	
6-49	L6-SS-027	1 - 2	2-Butanone / Methyl Ethyl Ketone	0.012	mg/kg	ND	110000	NO	Human Health	
6-49	L6-SS-027	1 - 2	4-Methyl-2-Pentanone / Methyl Isobutyl Ketone	0.012	mg/kg	ND	47000	NO	Human Health	
6-49	L6-SS-027	1 - 2	Acetone	0.012	mg/kg	ND	54000	NO	Human Health	
6-49	L6-SS-027	1 - 2	Benzene	0.004	mg/kg	ND	1.4	NO	Human Health	
6-49	L6-SS-027	1 - 2	Bromodichloromethane	0.004	mg/kg	ND	1.8	NO	Human Health	
6-49	L6-SS-027	1 - 2	Bromoform	0.004	mg/kg	ND	220	NO	Human Health	
6-49	L6-SS-027	1 - 2	Bromomethane	0.004	mg/kg	ND	13	NO	Human Health	
6-49	L6-SS-027	1 - 2	Carbon disulfide	0.004	mg/kg	ND	720	NO	Human Health	
6-49	L6-SS-027	1 - 2	Carbon tetrachloride	0.004	mg/kg	ND	0.55	NO	Human Health	
6-49	L6-SS-027	1 - 2	Chlorobenzene	0.004	mg/kg	ND	530	NO	Human Health	
6-49	L6-SS-027	1 - 2	Chloroethane	0.004	mg/kg	ND	6.5	NO	Human Health	
6-49	L6-SS-027	1 - 2	Chloroform	0.004	mg/kg	ND	0.47	NO	Human Health	
6-49	L6-SS-027	1 - 2	Chloromethane	0.004	mg/kg	ND	160	NO	Human Health	
6-49	L6-SS-027	1 - 2	cis-1,2-Dichloroethene	0.004	mg/kg	ND	150	NO	Human Health	
6-49	L6-SS-027	1 - 2	Dibromochloromethane / Chlorodibromomethane	0.004	mg/kg	ND	2.6	NO	Human Health	
6-49	L6-SS-027	1 - 2	Dichlorodifluoromethane	0.004	mg/kg	ND	310	NO	Human Health	
6-49	L6-SS-027	1 - 2	Ethylbenzene	0.004	mg/kg	ND	400	NO	Human Health	
6-49	L6-SS-027	1 - 2	Methylene bromide / Dibromomethane	0.004	mg/kg	ND	230	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-49	L6-SS-027	1 - 2	Methylene chloride	0.004	mg/kg	ND	21	NO	Human Health	
6-49	L6-SS-027	1 - 2	Styrene	0.004	mg/kg	ND	1700	NO	Human Health	
6-49	L6-SS-027	1 - 2	Tetrachloroethene	0.004	mg/kg	ND	1.3	NO	Human Health	
6-49	L6-SS-027	1 - 2	Toluene	0.004	mg/kg	ND	520	NO	Human Health	
6-49	L6-SS-027	1 - 2	Total Xylenes	0.0055	mg/kg	ND	420	NO	Human Health	
6-49	L6-SS-027	1 - 2	trans-1,2-Dichloroethene	0.004	mg/kg	ND	230	NO	Human Health	
6-49	L6-SS-027	1 - 2	Trichloroethene	0.004	mg/kg	ND	0.11	NO	Human Health	
6-49	L6-SS-027	1 - 2	Trichlorofluoromethane	0.004	mg/kg	ND	2000	NO	Human Health	
6-49	L6-SS-027	1 - 2	Vinyl chloride	0.004	mg/kg	ND	0.75	NO	Human Health	
6-49	L6-SS-028	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-49	L6-SS-028	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-49	L6-SS-028	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-49	L6-SS-028	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-49	L6-SS-028	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-49	L6-SS-028	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-49	L6-SS-028	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-49	L6-SS-028	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-49	L6-SS-028	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-49	L6-SS-028	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-49	L6-SS-028	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-49	L6-SS-028	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-49	L6-SS-028	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-49	L6-SS-028	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-49	L6-SS-028	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-49	L6-SS-028	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-49	L6-SS-028	0 - 1	Antimony	0.95	mg/kg		816	NO	Human Health	
6-49	L6-SS-028	0 - 1	Antimony	1.1	mg/kg		816	NO	Human Health	
6-49	L6-SS-028	0 - 1	Arsenic	6	mg/kg		30	NO	Human Health	
6-49	L6-SS-028	0 - 1	Arsenic	6.9	mg/kg		30	NO	Human Health	
6-49	L6-SS-028	0 - 1	Beryllium	0.95	mg/kg		5	NO	Human Health	
6-49	L6-SS-028	0 - 1	Beryllium	0.94	mg/kg		5	NO	Human Health	
6-49	L6-SS-028	0 - 1	Boron	13.9	mg/kg		100000	NO	Human Health	
6-49	L6-SS-028	0 - 1	Boron	13.9	mg/kg		100000	NO	Human Health	
6-49	L6-SS-028	0 - 1	Cadmium	0.09	mg/kg		1000	NO	Human Health	
6-49	L6-SS-028	0 - 1	Cadmium	0.61	mg/kg		1000	NO	Human Health	
6-49	L6-SS-028	0 - 1	Chromium	31.1	mg/kg		10000	NO	Human Health	
6-49	L6-SS-028	0 - 1	Chromium	34.6	mg/kg		10000	NO	Human Health	
6-49	L6-SS-028	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-49	L6-SS-028	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-49	L6-SS-028	0 - 1	Lead	57.4	mg/kg		1000	NO	Human Health	
6-49	L6-SS-028	0 - 1	Lead	52.1	mg/kg		1000	NO	Human Health	
6-49	L6-SS-028	0 - 1	Mercury	0.059	mg/kg		310	NO	Human Health	
6-49	L6-SS-028	0 - 1	Mercury	0.033	mg/kg		310	NO	Human Health	
6-49	L6-SS-028	0 - 1	Nickel	19.6	mg/kg		20000	NO	Human Health	
6-49	L6-SS-028	0 - 1	Nickel	21.9	mg/kg		20000	NO	Human Health	
6-49	L6-SS-028	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-49	L6-SS-028	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-49	L6-SS-028	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-49	L6-SS-028	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-49	L6-SS-028	0 - 1	Tetryl	94	mg/kg		6200	NO	Human Health	
6-49	L6-SS-028	0 - 1	Tetryl	15	mg/kg		6200	NO	Human Health	
6-49	L6-SS-028	0 - 1	Thallium	2	mg/kg	ND	143	NO	Human Health	
6-49	L6-SS-028	0 - 1	Thallium	2.1	mg/kg	ND	143	NO	Human Health	
6-49	L6-SS-028	1 - 2	1,1,1-Trichloroethane	0.004	mg/kg	ND	1200	NO	Human Health	
6-49	L6-SS-028	1 - 2	1,1,2,2-Tetrachloroethane	0.004	mg/kg	ND	0.93	NO	Human Health	
6-49	L6-SS-028	1 - 2	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	0.004	mg/kg	ND	5600	NO	Human Health	
6-49	L6-SS-028	1 - 2	1,1,2-Trichloroethane	0.004	mg/kg	ND	1.6	NO	Human Health	
6-49	L6-SS-028	1 - 2	1,1-Dichloroethane	0.004	mg/kg	ND	1700	NO	Human Health	
6-49	L6-SS-028	1 - 2	1,1-Dichloroethene	0.004	mg/kg	ND	410	NO	Human Health	
6-49	L6-SS-028	1 - 2	1,2-Dichloroethane	0.004	mg/kg	ND	0.6	NO	Human Health	
6-49	L6-SS-028	1 - 2	1,2-Dichloropropane	0.004	mg/kg	ND	0.74	NO	Human Health	
6-49	L6-SS-028	1 - 2	2-Butanone / Methyl Ethyl Ketone	0.014	mg/kg	ND	110000	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-49	L6-SS-028	1 - 2	4-Methyl-2-Pentanone / Methyl Isobutyl Ketone	0.014	mg/kg	ND	47000	NO	Human Health	
6-49	L6-SS-028	1 - 2	Acetone	0.014	mg/kg	ND	54000	NO	Human Health	
6-49	L6-SS-028	1 - 2	Benzene	0.004	mg/kg	ND	1.4	NO	Human Health	
6-49	L6-SS-028	1 - 2	Bromodichloromethane	0.004	mg/kg	ND	1.8	NO	Human Health	
6-49	L6-SS-028	1 - 2	Bromoform	0.004	mg/kg	ND	220	NO	Human Health	
6-49	L6-SS-028	1 - 2	Bromomethane	0.004	mg/kg	ND	13	NO	Human Health	
6-49	L6-SS-028	1 - 2	Carbon disulfide	0.004	mg/kg	ND	720	NO	Human Health	
6-49	L6-SS-028	1 - 2	Carbon tetrachloride	0.004	mg/kg	ND	0.55	NO	Human Health	
6-49	L6-SS-028	1 - 2	Chlorobenzene	0.004	mg/kg	ND	530	NO	Human Health	
6-49	L6-SS-028	1 - 2	Chloroethane	0.004	mg/kg	ND	6.5	NO	Human Health	
6-49	L6-SS-028	1 - 2	Chloroform	0.004	mg/kg	ND	0.47	NO	Human Health	
6-49	L6-SS-028	1 - 2	Chloromethane	0.004	mg/kg	ND	160	NO	Human Health	
6-49	L6-SS-028	1 - 2	cis-1,2-Dichloroethene	0.004	mg/kg	ND	150	NO	Human Health	
6-49	L6-SS-028	1 - 2	Dibromochloromethane / Chlorodibromomethane	0.004	mg/kg	ND	2.6	NO	Human Health	
6-49	L6-SS-028	1 - 2	Dichlorodifluoromethane	0.004	mg/kg	ND	310	NO	Human Health	
6-49	L6-SS-028	1 - 2	Ethylbenzene	0.004	mg/kg	ND	400	NO	Human Health	
6-49	L6-SS-028	1 - 2	Methylene bromide / Dibromomethane	0.004	mg/kg	ND	230	NO	Human Health	
6-49	L6-SS-028	1 - 2	Methylene chloride	0.004	mg/kg	ND	21	NO	Human Health	
6-49	L6-SS-028	1 - 2	Styrene	0.004	mg/kg	ND	1700	NO	Human Health	
6-49	L6-SS-028	1 - 2	Tetrachloroethene	0.004	mg/kg	ND	1.3	NO	Human Health	
6-49	L6-SS-028	1 - 2	Toluene	0.004	mg/kg		520	NO	Human Health	
6-49	L6-SS-028	1 - 2	Total Xylenes	0.006	mg/kg	ND	420	NO	Human Health	
6-49	L6-SS-028	1 - 2	trans-1,2-Dichloroethene	0.004	mg/kg	ND	230	NO	Human Health	
6-49	L6-SS-028	1 - 2	Trichloroethene	0.004	mg/kg	ND	0.11	NO	Human Health	
6-49	L6-SS-028	1 - 2	Trichlorofluoromethane	0.004	mg/kg	ND	2000	NO	Human Health	
6-49	L6-SS-028	1 - 2	Vinyl chloride	0.004	mg/kg	ND	0.75	NO	Human Health	
6-49	L6-SS-029	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-49	L6-SS-029	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-49	L6-SS-029	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-49	L6-SS-029	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-49	L6-SS-029	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-49	L6-SS-029	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-49	L6-SS-029	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-49	L6-SS-029	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-49	L6-SS-029	0 - 1	Antimony	1.5	mg/kg		816	NO	Human Health	
6-49	L6-SS-029	0 - 1	Arsenic	6.3	mg/kg		30	NO	Human Health	
6-49	L6-SS-029	0 - 1	Beryllium	0.64	mg/kg		5	NO	Human Health	
6-49	L6-SS-029	0 - 1	Boron	26	mg/kg		100000	NO	Human Health	
6-49	L6-SS-029	0 - 1	Cadmium	2.5	mg/kg		1000	NO	Human Health	
6-49	L6-SS-029	0 - 1	Chromium	38.4	mg/kg		10000	NO	Human Health	
6-49	L6-SS-029	0 - 1	HMX	16	mg/kg		51000	NO	Human Health	
6-49	L6-SS-029	0 - 1	Lead	253	mg/kg		1000	NO	Human Health	
6-49	L6-SS-029	0 - 1	Mercury	0.15	mg/kg		310	NO	Human Health	
6-49	L6-SS-029	0 - 1	Nickel	17.2	mg/kg		20000	NO	Human Health	
6-49	L6-SS-029	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-49	L6-SS-029	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-49	L6-SS-029	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-49	L6-SS-029	0 - 1	Thallium	2	mg/kg	ND	143	NO	Human Health	
6-49	L6-SS-029	1 - 2	1,1,1-Trichloroethane	0.003	mg/kg	ND	1200	NO	Human Health	
6-49	L6-SS-029	1 - 2	1,1,2,2-Tetrachloroethane	0.003	mg/kg	ND	0.93	NO	Human Health	
6-49	L6-SS-029	1 - 2	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	0.003	mg/kg	ND	5600	NO	Human Health	
6-49	L6-SS-029	1 - 2	1,1,2-Trichloroethane	0.003	mg/kg	ND	1.6	NO	Human Health	
6-49	L6-SS-029	1 - 2	1,1-Dichloroethane	0.003	mg/kg	ND	1700	NO	Human Health	
6-49	L6-SS-029	1 - 2	1,1-Dichloroethene	0.003	mg/kg	ND	410	NO	Human Health	
6-49	L6-SS-029	1 - 2	1,2-Dichloroethane	0.003	mg/kg	ND	0.6	NO	Human Health	
6-49	L6-SS-029	1 - 2	1,2-Dichloropropane	0.003	mg/kg	ND	0.74	NO	Human Health	
6-49	L6-SS-029	1 - 2	2-Butanone / Methyl Ethyl Ketone	0.009	mg/kg	ND	110000	NO	Human Health	
6-49	L6-SS-029	1 - 2	4-Methyl-2-Pentanone / Methyl Isobutyl Ketone	0.009	mg/kg	ND	47000	NO	Human Health	
6-49	L6-SS-029	1 - 2	Acetone	0.009	mg/kg	ND	54000	NO	Human Health	
6-49	L6-SS-029	1 - 2	Benzene	0.003	mg/kg	ND	1.4	NO	Human Health	
6-49	L6-SS-029	1 - 2	Bromodichloromethane	0.003	mg/kg	ND	1.8	NO	Human Health	
6-49	L6-SS-029	1 - 2	Bromoform	0.003	mg/kg	ND	220	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-49	L6-SS-029	1 - 2	Bromomethane	0.003	mg/kg	ND	13	NO	Human Health	
6-49	L6-SS-029	1 - 2	Carbon disulfide	0.003	mg/kg	ND	720	NO	Human Health	
6-49	L6-SS-029	1 - 2	Carbon tetrachloride	0.003	mg/kg	ND	0.55	NO	Human Health	
6-49	L6-SS-029	1 - 2	Chlorobenzene	0.003	mg/kg	ND	530	NO	Human Health	
6-49	L6-SS-029	1 - 2	Chloroethane	0.003	mg/kg	ND	6.5	NO	Human Health	
6-49	L6-SS-029	1 - 2	Chloroform	0.003	mg/kg	ND	0.47	NO	Human Health	
6-49	L6-SS-029	1 - 2	Chloromethane	0.003	mg/kg	ND	160	NO	Human Health	
6-49	L6-SS-029	1 - 2	cis-1,2-Dichloroethene	0.003	mg/kg	ND	150	NO	Human Health	
6-49	L6-SS-029	1 - 2	Dibromochloromethane / Chlorodibromomethane	0.003	mg/kg	ND	2.6	NO	Human Health	
6-49	L6-SS-029	1 - 2	Dichlorodifluoromethane	0.003	mg/kg	ND	310	NO	Human Health	
6-49	L6-SS-029	1 - 2	Ethylbenzene	0.003	mg/kg	ND	400	NO	Human Health	
6-49	L6-SS-029	1 - 2	Methylene bromide / Dibromomethane	0.003	mg/kg	ND	230	NO	Human Health	
6-49	L6-SS-029	1 - 2	Methylene chloride	0.003	mg/kg	ND	21	NO	Human Health	
6-49	L6-SS-029	1 - 2	Styrene	0.003	mg/kg	ND	1700	NO	Human Health	
6-49	L6-SS-029	1 - 2	Tetrachloroethene	0.003	mg/kg	ND	1.3	NO	Human Health	
6-49	L6-SS-029	1 - 2	Toluene	0.001	mg/kg		520	NO	Human Health	
6-49	L6-SS-029	1 - 2	Total Xylenes	0.004	mg/kg	ND	420	NO	Human Health	
6-49	L6-SS-029	1 - 2	trans-1,2-Dichloroethene	0.003	mg/kg	ND	230	NO	Human Health	
6-49	L6-SS-029	1 - 2	Trichloroethene	0.003	mg/kg	ND	0.11	NO	Human Health	
6-49	L6-SS-029	1 - 2	Trichlorofluoromethane	0.003	mg/kg	ND	2000	NO	Human Health	
6-49	L6-SS-029	1 - 2	Vinyl chloride	0.003	mg/kg	ND	0.75	NO	Human Health	
6-49	L6-SS-030	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-49	L6-SS-030	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-49	L6-SS-030	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-49	L6-SS-030	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-49	L6-SS-030	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-49	L6-SS-030	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-49	L6-SS-030	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-49	L6-SS-030	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-49	L6-SS-030	0 - 1	Antimony	1.8	mg/kg		816	NO	Human Health	
6-49	L6-SS-030	0 - 1	Arsenic	9	mg/kg		30	NO	Human Health	
6-49	L6-SS-030	0 - 1	Beryllium	0.86	mg/kg		5	NO	Human Health	
6-49	L6-SS-030	0 - 1	Boron	11.4	mg/kg		100000	NO	Human Health	
6-49	L6-SS-030	0 - 1	Cadmium	0.95	mg/kg	ND	1000	NO	Human Health	
6-49	L6-SS-030	0 - 1	Chromium	31.9	mg/kg		10000	NO	Human Health	
6-49	L6-SS-030	0 - 1	HMX	0.49	mg/kg		51000	NO	Human Health	
6-49	L6-SS-030	0 - 1	Lead	51	mg/kg		1000	NO	Human Health	
6-49	L6-SS-030	0 - 1	Mercury	0.091	mg/kg		310	NO	Human Health	
6-49	L6-SS-030	0 - 1	Nickel	22.5	mg/kg		20000	NO	Human Health	
6-49	L6-SS-030	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-49	L6-SS-030	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-49	L6-SS-030	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-49	L6-SS-030	0 - 1	Thallium	1.9	mg/kg	ND	143	NO	Human Health	
6-49	L6-SS-030	1 - 2	1,1,1-Trichloroethane	0.004	mg/kg	ND	1200	NO	Human Health	
6-49	L6-SS-030	1 - 2	1,1,2,2-Tetrachloroethane	0.004	mg/kg	ND	0.93	NO	Human Health	
6-49	L6-SS-030	1 - 2	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	0.004	mg/kg	ND	5600	NO	Human Health	
6-49	L6-SS-030	1 - 2	1,1,2-Trichloroethane	0.004	mg/kg	ND	1.6	NO	Human Health	
6-49	L6-SS-030	1 - 2	1,1-Dichloroethane	0.004	mg/kg	ND	1700	NO	Human Health	
6-49	L6-SS-030	1 - 2	1,1-Dichloroethene	0.004	mg/kg	ND	410	NO	Human Health	
6-49	L6-SS-030	1 - 2	1,2-Dichloroethane	0.004	mg/kg	ND	0.6	NO	Human Health	
6-49	L6-SS-030	1 - 2	1,2-Dichloropropane	0.004	mg/kg	ND	0.74	NO	Human Health	
6-49	L6-SS-030	1 - 2	2-Butanone / Methyl Ethyl Ketone	0.013	mg/kg	ND	110000	NO	Human Health	
6-49	L6-SS-030	1 - 2	4-Methyl-2-Pentanone / Methyl Isobutyl Ketone	0.013	mg/kg	ND	47000	NO	Human Health	
6-49	L6-SS-030	1 - 2	Acetone	0.013	mg/kg	ND	54000	NO	Human Health	
6-49	L6-SS-030	1 - 2	Benzene	0.004	mg/kg	ND	1.4	NO	Human Health	
6-49	L6-SS-030	1 - 2	Bromodichloromethane	0.004	mg/kg	ND	1.8	NO	Human Health	
6-49	L6-SS-030	1 - 2	Bromoform	0.004	mg/kg	ND	220	NO	Human Health	
6-49	L6-SS-030	1 - 2	Bromomethane	0.004	mg/kg	ND	13	NO	Human Health	
6-49	L6-SS-030	1 - 2	Carbon disulfide	0.004	mg/kg	ND	720	NO	Human Health	
6-49	L6-SS-030	1 - 2	Carbon tetrachloride	0.004	mg/kg	ND	0.55	NO	Human Health	
6-49	L6-SS-030	1 - 2	Chlorobenzene	0.004	mg/kg	ND	530	NO	Human Health	
6-49	L6-SS-030	1 - 2	Chloroethane	0.004	mg/kg	ND	6.5	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-49	L6-SS-030	1 - 2	Chloroform	0.004	mg/kg	ND	0.47	NO	Human Health	
6-49	L6-SS-030	1 - 2	Chloromethane	0.004	mg/kg	ND	160	NO	Human Health	
6-49	L6-SS-030	1 - 2	cis-1,2-Dichloroethene	0.004	mg/kg	ND	150	NO	Human Health	
6-49	L6-SS-030	1 - 2	Dibromochloromethane / Chlorodibromomethane	0.004	mg/kg	ND	2.6	NO	Human Health	
6-49	L6-SS-030	1 - 2	Dichlorodifluoromethane	0.004	mg/kg	ND	310	NO	Human Health	
6-49	L6-SS-030	1 - 2	Ethylbenzene	0.004	mg/kg	ND	400	NO	Human Health	
6-49	L6-SS-030	1 - 2	Methylene bromide / Dibromomethane	0.004	mg/kg	ND	230	NO	Human Health	
6-49	L6-SS-030	1 - 2	Methylene chloride	0.004	mg/kg	ND	21	NO	Human Health	
6-49	L6-SS-030	1 - 2	Styrene	0.004	mg/kg	ND	1700	NO	Human Health	
6-49	L6-SS-030	1 - 2	Tetrachloroethene	0.004	mg/kg	ND	1.3	NO	Human Health	
6-49	L6-SS-030	1 - 2	Toluene	0.002	mg/kg		520	NO	Human Health	
6-49	L6-SS-030	1 - 2	Total Xylenes	0.006	mg/kg	ND	420	NO	Human Health	
6-49	L6-SS-030	1 - 2	trans-1,2-Dichloroethene	0.004	mg/kg	ND	230	NO	Human Health	
6-49	L6-SS-030	1 - 2	Trichloroethene	0.004	mg/kg	ND	0.11	NO	Human Health	
6-49	L6-SS-030	1 - 2	Trichlorofluoromethane	0.004	mg/kg	ND	2000	NO	Human Health	
6-49	L6-SS-030	1 - 2	Vinyl chloride	0.004	mg/kg	ND	0.75	NO	Human Health	
6-49	L6-SS-031	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-49	L6-SS-031	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-49	L6-SS-031	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-49	L6-SS-031	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-49	L6-SS-031	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-49	L6-SS-031	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-49	L6-SS-031	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-49	L6-SS-031	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-49	L6-SS-031	0 - 1	Antimony	1	mg/kg		816	NO	Human Health	
6-49	L6-SS-031	0 - 1	Arsenic	6.8	mg/kg		30	NO	Human Health	
6-49	L6-SS-031	0 - 1	Beryllium	0.79	mg/kg		5	NO	Human Health	
6-49	L6-SS-031	0 - 1	Boron	12.3	mg/kg		100000	NO	Human Health	
6-49	L6-SS-031	0 - 1	Cadmium	0.32	mg/kg		1000	NO	Human Health	
6-49	L6-SS-031	0 - 1	Chromium	31.3	mg/kg		10000	NO	Human Health	
6-49	L6-SS-031	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-49	L6-SS-031	0 - 1	Lead	76.8	mg/kg		1000	NO	Human Health	
6-49	L6-SS-031	0 - 1	Mercury	0.09	mg/kg		310	NO	Human Health	
6-49	L6-SS-031	0 - 1	Nickel	25	mg/kg		20000	NO	Human Health	
6-49	L6-SS-031	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-49	L6-SS-031	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-49	L6-SS-031	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-49	L6-SS-031	0 - 1	Thallium	10.2	mg/kg	ND	143	NO	Human Health	
6-49	L6-SS-031	1 - 2	1,1,1-Trichloroethane	0.005	mg/kg	ND	1200	NO	Human Health	
6-49	L6-SS-031	1 - 2	1,1,2,2-Tetrachloroethane	0.005	mg/kg	ND	0.93	NO	Human Health	
6-49	L6-SS-031	1 - 2	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	0.005	mg/kg	ND	5600	NO	Human Health	
6-49	L6-SS-031	1 - 2	1,1,2-Trichloroethane	0.005	mg/kg	ND	1.6	NO	Human Health	
6-49	L6-SS-031	1 - 2	1,1-Dichloroethane	0.005	mg/kg	ND	1700	NO	Human Health	
6-49	L6-SS-031	1 - 2	1,1-Dichloroethene	0.005	mg/kg	ND	410	NO	Human Health	
6-49	L6-SS-031	1 - 2	1,2-Dichloroethane	0.005	mg/kg	ND	0.6	NO	Human Health	
6-49	L6-SS-031	1 - 2	1,2-Dichloropropane	0.005	mg/kg	ND	0.74	NO	Human Health	
6-49	L6-SS-031	1 - 2	2-Butanone / Methyl Ethyl Ketone	0.016	mg/kg	ND	110000	NO	Human Health	
6-49	L6-SS-031	1 - 2	4-Methyl-2-Pentanone / Methyl Isobutyl Ketone	0.016	mg/kg	ND	47000	NO	Human Health	
6-49	L6-SS-031	1 - 2	Acetone	0.025	mg/kg		54000	NO	Human Health	
6-49	L6-SS-031	1 - 2	Benzene	0.005	mg/kg	ND	1.4	NO	Human Health	
6-49	L6-SS-031	1 - 2	Bromodichloromethane	0.005	mg/kg	ND	1.8	NO	Human Health	
6-49	L6-SS-031	1 - 2	Bromoform	0.005	mg/kg	ND	220	NO	Human Health	
6-49	L6-SS-031	1 - 2	Bromomethane	0.005	mg/kg	ND	13	NO	Human Health	
6-49	L6-SS-031	1 - 2	Carbon disulfide	0.005	mg/kg	ND	720	NO	Human Health	
6-49	L6-SS-031	1 - 2	Carbon tetrachloride	0.005	mg/kg	ND	0.55	NO	Human Health	
6-49	L6-SS-031	1 - 2	Chlorobenzene	0.005	mg/kg	ND	530	NO	Human Health	
6-49	L6-SS-031	1 - 2	Chloroethane	0.005	mg/kg	ND	6.5	NO	Human Health	
6-49	L6-SS-031	1 - 2	Chloroform	0.005	mg/kg	ND	0.47	NO	Human Health	
6-49	L6-SS-031	1 - 2	Chloromethane	0.005	mg/kg	ND	160	NO	Human Health	
6-49	L6-SS-031	1 - 2	cis-1,2-Dichloroethene	0.005	mg/kg	ND	150	NO	Human Health	
6-49	L6-SS-031	1 - 2	Dibromochloromethane / Chlorodibromomethane	0.005	mg/kg	ND	2.6	NO	Human Health	
6-49	L6-SS-031	1 - 2	Dichlorodifluoromethane	0.005	mg/kg	ND	310	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-49	L6-SS-031	1 - 2	Ethylbenzene	0.005	mg/kg	ND	400	NO	Human Health	
6-49	L6-SS-031	1 - 2	Methylene bromide / Dibromomethane	0.005	mg/kg	ND	230	NO	Human Health	
6-49	L6-SS-031	1 - 2	Methylene chloride	0.011	mg/kg		21	NO	Human Health	
6-49	L6-SS-031	1 - 2	Styrene	0.005	mg/kg	ND	1700	NO	Human Health	
6-49	L6-SS-031	1 - 2	Tetrachloroethene	0.005	mg/kg	ND	1.3	NO	Human Health	
6-49	L6-SS-031	1 - 2	Toluene	0.005	mg/kg	ND	520	NO	Human Health	
6-49	L6-SS-031	1 - 2	Total Xylenes	0.0075	mg/kg	ND	420	NO	Human Health	
6-49	L6-SS-031	1 - 2	trans-1,2-Dichloroethene	0.005	mg/kg	ND	230	NO	Human Health	
6-49	L6-SS-031	1 - 2	Trichloroethene	0.005	mg/kg	ND	0.11	NO	Human Health	
6-49	L6-SS-031	1 - 2	Trichlorofluoromethane	0.005	mg/kg	ND	2000	NO	Human Health	
6-49	L6-SS-031	1 - 2	Vinyl chloride	0.005	mg/kg	ND	0.75	NO	Human Health	
6-49	L6-SS-032	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-49	L6-SS-032	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-49	L6-SS-032	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-49	L6-SS-032	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-49	L6-SS-032	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-49	L6-SS-032	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-49	L6-SS-032	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-49	L6-SS-032	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-49	L6-SS-032	0 - 1	Aluminum	24900	mg/kg		100000	NO	Human Health	
6-49	L6-SS-032	0 - 1	Antimony	1.1	mg/kg		816	NO	Human Health	
6-49	L6-SS-032	0 - 1	Arsenic	6	mg/kg		30	NO	Human Health	
6-49	L6-SS-032	0 - 1	Barium	257	mg/kg		67000	NO	Human Health	
6-49	L6-SS-032	0 - 1	Beryllium	0.88	mg/kg		5	NO	Human Health	
6-49	L6-SS-032	0 - 1	Cadmium	1.1	mg/kg	ND	1000	NO	Human Health	
6-49	L6-SS-032	0 - 1	Chromium	32	mg/kg		10000	NO	Human Health	
6-49	L6-SS-032	0 - 1	Cobalt	6.3	mg/kg		1900	NO	Human Health	
6-49	L6-SS-032	0 - 1	Copper	21.1	mg/kg		41000	NO	Human Health	
6-49	L6-SS-032	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-49	L6-SS-032	0 - 1	Iron	20900	mg/kg		100000	NO	Human Health	
6-49	L6-SS-032	0 - 1	Lead	57.1	mg/kg		1000	NO	Human Health	
6-49	L6-SS-032	0 - 1	Manganese	420	mg/kg		19000	NO	Human Health	
6-49	L6-SS-032	0 - 1	Mercury	0.085	mg/kg		310	NO	Human Health	
6-49	L6-SS-032	0 - 1	Nickel	18.2	mg/kg		20000	NO	Human Health	
6-49	L6-SS-032	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-49	L6-SS-032	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-49	L6-SS-032	0 - 1	Selenium	0.82	mg/kg		5100	NO	Human Health	
6-49	L6-SS-032	0 - 1	Silver	1.1	mg/kg	ND	5100	NO	Human Health	
6-49	L6-SS-032	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-49	L6-SS-032	0 - 1	Thallium	10.6	mg/kg	ND	143	NO	Human Health	
6-49	L6-SS-032	0 - 1	Vanadium	58.8	mg/kg		1000	NO	Human Health	
6-49	L6-SS-032	0 - 1	Zinc	123	mg/kg		100000	NO	Human Health	
6-49	L6-SS-032	1 - 2	1,1,1-Trichloroethane	0.004	mg/kg	ND	1200	NO	Human Health	
6-49	L6-SS-032	1 - 2	1,1,2,2-Tetrachloroethane	0.004	mg/kg	ND	0.93	NO	Human Health	
6-49	L6-SS-032	1 - 2	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	0.004	mg/kg	ND	5600	NO	Human Health	
6-49	L6-SS-032	1 - 2	1,1,2-Trichloroethane	0.004	mg/kg	ND	1.6	NO	Human Health	
6-49	L6-SS-032	1 - 2	1,1-Dichloroethane	0.004	mg/kg	ND	1700	NO	Human Health	
6-49	L6-SS-032	1 - 2	1,1-Dichloroethene	0.004	mg/kg	ND	410	NO	Human Health	
6-49	L6-SS-032	1 - 2	1,2-Dichloroethane	0.004	mg/kg	ND	0.6	NO	Human Health	
6-49	L6-SS-032	1 - 2	1,2-Dichloropropane	0.004	mg/kg	ND	0.74	NO	Human Health	
6-49	L6-SS-032	1 - 2	2-Butanone / Methyl Ethyl Ketone	0.012	mg/kg	ND	110000	NO	Human Health	
6-49	L6-SS-032	1 - 2	4-Methyl-2-Pentanone / Methyl Isobutyl Ketone	0.012	mg/kg	ND	47000	NO	Human Health	
6-49	L6-SS-032	1 - 2	Acetone	0.012	mg/kg	ND	54000	NO	Human Health	
6-49	L6-SS-032	1 - 2	Benzene	0.004	mg/kg	ND	1.4	NO	Human Health	
6-49	L6-SS-032	1 - 2	Bromodichloromethane	0.004	mg/kg	ND	1.8	NO	Human Health	
6-49	L6-SS-032	1 - 2	Bromoform	0.004	mg/kg	ND	220	NO	Human Health	
6-49	L6-SS-032	1 - 2	Bromomethane	0.004	mg/kg	ND	13	NO	Human Health	
6-49	L6-SS-032	1 - 2	Carbon disulfide	0.004	mg/kg	ND	720	NO	Human Health	
6-49	L6-SS-032	1 - 2	Carbon tetrachloride	0.004	mg/kg	ND	0.55	NO	Human Health	
6-49	L6-SS-032	1 - 2	Chlorobenzene	0.004	mg/kg	ND	530	NO	Human Health	
6-49	L6-SS-032	1 - 2	Chloroethane	0.004	mg/kg	ND	6.5	NO	Human Health	
6-49	L6-SS-032	1 - 2	Chloroform	0.004	mg/kg	ND	0.47	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-49	L6-SS-032	1 - 2	Chloromethane	0.004	mg/kg	ND	160	NO	Human Health	
6-49	L6-SS-032	1 - 2	cis-1,2-Dichloroethene	0.004	mg/kg	ND	150	NO	Human Health	
6-49	L6-SS-032	1 - 2	Dibromochloromethane / Chlorodibromomethane	0.004	mg/kg	ND	2.6	NO	Human Health	
6-49	L6-SS-032	1 - 2	Dichlorodifluoromethane	0.004	mg/kg	ND	310	NO	Human Health	
6-49	L6-SS-032	1 - 2	Ethylbenzene	0.004	mg/kg	ND	400	NO	Human Health	
6-49	L6-SS-032	1 - 2	Methylene bromide / Dibromomethane	0.004	mg/kg	ND	230	NO	Human Health	
6-49	L6-SS-032	1 - 2	Methylene chloride	0.004	mg/kg	ND	21	NO	Human Health	
6-49	L6-SS-032	1 - 2	Styrene	0.004	mg/kg	ND	1700	NO	Human Health	
6-49	L6-SS-032	1 - 2	Tetrachloroethene	0.004	mg/kg	ND	1.3	NO	Human Health	
6-49	L6-SS-032	1 - 2	Toluene	0.004	mg/kg		520	NO	Human Health	
6-49	L6-SS-032	1 - 2	Total Xylenes	0.0055	mg/kg	ND	420	NO	Human Health	
6-49	L6-SS-032	1 - 2	trans-1,2-Dichloroethene	0.004	mg/kg	ND	230	NO	Human Health	
6-49	L6-SS-032	1 - 2	Trichloroethene	0.004	mg/kg	ND	0.11	NO	Human Health	
6-49	L6-SS-032	1 - 2	Trichlorofluoromethane	0.004	mg/kg	ND	2000	NO	Human Health	
6-49	L6-SS-032	1 - 2	Vinyl chloride	0.004	mg/kg	ND	0.75	NO	Human Health	
6-90	L6-SS-033	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-90	L6-SS-033	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-90	L6-SS-033	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-90	L6-SS-033	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-90	L6-SS-033	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-90	L6-SS-033	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-90	L6-SS-033	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-90	L6-SS-033	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-90	L6-SS-033	0 - 1	Antimony	0.47	mg/kg		816	NO	Human Health	
6-90	L6-SS-033	0 - 1	Arsenic	7.6	mg/kg		30	NO	Human Health	
6-90	L6-SS-033	0 - 1	Beryllium	0.86	mg/kg		5	NO	Human Health	
6-90	L6-SS-033	0 - 1	Boron	12.7	mg/kg		100000	NO	Human Health	
6-90	L6-SS-033	0 - 1	Cadmium	0.97	mg/kg	ND	1000	NO	Human Health	
6-90	L6-SS-033	0 - 1	Chromium	32.3	mg/kg		10000	NO	Human Health	
6-90	L6-SS-033	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-90	L6-SS-033	0 - 1	Lead	17.9	mg/kg		1000	NO	Human Health	
6-90	L6-SS-033	0 - 1	Mercury	0.052	mg/kg		310	NO	Human Health	
6-90	L6-SS-033	0 - 1	Nickel	25.9	mg/kg		20000	NO	Human Health	
6-90	L6-SS-033	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-90	L6-SS-033	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-90	L6-SS-033	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-90	L6-SS-033	0 - 1	Thallium	9.7	mg/kg	ND	143	NO	Human Health	
6-90	L6-SS-034	1 - 2	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-90	L6-SS-034	1 - 2	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-90	L6-SS-034	1 - 2	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-90	L6-SS-034	1 - 2	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-90	L6-SS-034	1 - 2	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-90	L6-SS-034	1 - 2	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-90	L6-SS-034	1 - 2	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-90	L6-SS-034	1 - 2	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-90	L6-SS-034	1 - 2	Antimony	0.74	mg/kg		816	NO	Human Health	
6-90	L6-SS-034	1 - 2	Arsenic	8.7	mg/kg		30	NO	Human Health	
6-90	L6-SS-034	1 - 2	Beryllium	0.94	mg/kg		5	NO	Human Health	
6-90	L6-SS-034	1 - 2	Boron	10.2	mg/kg		100000	NO	Human Health	
6-90	L6-SS-034	1 - 2	Cadmium	0.93	mg/kg	ND	1000	NO	Human Health	
6-90	L6-SS-034	1 - 2	Chromium	32.9	mg/kg		10000	NO	Human Health	
6-90	L6-SS-034	1 - 2	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-90	L6-SS-034	1 - 2	Lead	102	mg/kg		1000	NO	Human Health	
6-90	L6-SS-034	1 - 2	Mercury	0.48	mg/kg		310	NO	Human Health	
6-90	L6-SS-034	1 - 2	Nickel	21.8	mg/kg		20000	NO	Human Health	
6-90	L6-SS-034	1 - 2	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-90	L6-SS-034	1 - 2	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-90	L6-SS-034	1 - 2	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-90	L6-SS-034	1 - 2	Thallium	9.3	mg/kg	ND	143	NO	Human Health	
6-90	L6-SS-034	4 - 6	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-90	L6-SS-034	4 - 6	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-90	L6-SS-034	4 - 6	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-90	L6-SS-034	4 - 6	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-90	L6-SS-034	4 - 6	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-90	L6-SS-034	4 - 6	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-90	L6-SS-034	4 - 6	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-90	L6-SS-034	4 - 6	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-90	L6-SS-034	4 - 6	Antimony	1.1	mg/kg		816	NO	Human Health	
6-90	L6-SS-034	4 - 6	Arsenic	7.7	mg/kg		30	NO	Human Health	
6-90	L6-SS-034	4 - 6	Beryllium	0.93	mg/kg		5	NO	Human Health	
6-90	L6-SS-034	4 - 6	Boron	11.4	mg/kg		100000	NO	Human Health	
6-90	L6-SS-034	4 - 6	Cadmium	1.1	mg/kg	ND	1000	NO	Human Health	
6-90	L6-SS-034	4 - 6	Chromium	32.6	mg/kg		10000	NO	Human Health	
6-90	L6-SS-034	4 - 6	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-90	L6-SS-034	4 - 6	Lead	34	mg/kg		1000	NO	Human Health	
6-90	L6-SS-034	4 - 6	Mercury	1.1	mg/kg		310	NO	Human Health	
6-90	L6-SS-034	4 - 6	Nickel	19.1	mg/kg		20000	NO	Human Health	
6-90	L6-SS-034	4 - 6	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-90	L6-SS-034	4 - 6	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-90	L6-SS-034	4 - 6	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-90	L6-SS-034	4 - 6	Thallium	11	mg/kg	ND	143	NO	Human Health	
6-89	L6-SS-035	0 - 1	Total PCBs	0.021	mg/kg	ND	10	NO	Human Health	
6-88	L6-SS-036	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-88	L6-SS-036	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-88	L6-SS-036	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-88	L6-SS-036	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-88	L6-SS-036	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-88	L6-SS-036	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-88	L6-SS-036	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-88	L6-SS-036	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-88	L6-SS-036	0 - 1	Antimony	3.6	mg/kg		816	NO	Human Health	
6-88	L6-SS-036	0 - 1	Arsenic	4	mg/kg		30	NO	Human Health	
6-88	L6-SS-036	0 - 1	Beryllium	1.2	mg/kg		5	NO	Human Health	
6-88	L6-SS-036	0 - 1	Boron	14.3	mg/kg		100000	NO	Human Health	
6-88	L6-SS-036	0 - 1	Cadmium	1.2	mg/kg	ND	1000	NO	Human Health	
6-88	L6-SS-036	0 - 1	Chromium	46	mg/kg		10000	NO	Human Health	
6-88	L6-SS-036	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-88	L6-SS-036	0 - 1	Lead	367	mg/kg		1000	NO	Human Health	
6-88	L6-SS-036	0 - 1	Mercury	0.18	mg/kg		310	NO	Human Health	
6-88	L6-SS-036	0 - 1	Nickel	21.2	mg/kg		20000	NO	Human Health	
6-88	L6-SS-036	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-88	L6-SS-036	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-88	L6-SS-036	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-88	L6-SS-036	0 - 1	Thallium	11.5	mg/kg	ND	143	NO	Human Health	
6-87	L6-SS-037	1 - 2	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-87	L6-SS-037	1 - 2	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-87	L6-SS-037	1 - 2	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-87	L6-SS-037	1 - 2	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-87	L6-SS-037	1 - 2	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-87	L6-SS-037	1 - 2	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-87	L6-SS-037	1 - 2	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-87	L6-SS-037	1 - 2	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-87	L6-SS-037	1 - 2	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-87	L6-SS-037	1 - 2	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-87	L6-SS-037	1 - 2	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-87	L6-SS-037	1 - 2	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-87	L6-SS-037	1 - 2	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-87	L6-SS-037	1 - 2	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-87	L6-SS-037	1 - 2	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-87	L6-SS-037	1 - 2	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-87	L6-SS-037	1 - 2	Antimony	1.4	mg/kg		816	NO	Human Health	
6-87	L6-SS-037	1 - 2	Arsenic	10.7	mg/kg		30	NO	Human Health	
6-87	L6-SS-037	1 - 2	Beryllium	0.99	mg/kg		5	NO	Human Health	
6-87	L6-SS-037	1 - 2	Boron	11.5	mg/kg		100000	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-87	L6-SS-037	1 - 2	Cadmium	0.98	mg/kg	ND	1000	NO	Human Health	
6-87	L6-SS-037	1 - 2	Chromium	32.1	mg/kg		10000	NO	Human Health	
6-87	L6-SS-037	1 - 2	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-87	L6-SS-037	1 - 2	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-87	L6-SS-037	1 - 2	Lead	42.5	mg/kg		1000	NO	Human Health	
6-87	L6-SS-037	1 - 2	Mercury	0.067	mg/kg		310	NO	Human Health	
6-87	L6-SS-037	1 - 2	Nickel	25.3	mg/kg		20000	NO	Human Health	
6-87	L6-SS-037	1 - 2	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-87	L6-SS-037	1 - 2	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-87	L6-SS-037	1 - 2	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-87	L6-SS-037	1 - 2	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-87	L6-SS-037	1 - 2	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-87	L6-SS-037	1 - 2	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-87	L6-SS-037	1 - 2	Thallium	2	mg/kg	ND	143	NO	Human Health	
6-87	L6-SS-037	2 - 4	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-87	L6-SS-037	2 - 4	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-87	L6-SS-037	2 - 4	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-87	L6-SS-037	2 - 4	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-87	L6-SS-037	2 - 4	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-87	L6-SS-037	2 - 4	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-87	L6-SS-037	2 - 4	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-87	L6-SS-037	2 - 4	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-87	L6-SS-037	2 - 4	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-87	L6-SS-037	2 - 4	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-87	L6-SS-037	2 - 4	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-87	L6-SS-037	2 - 4	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-87	L6-SS-037	2 - 4	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-87	L6-SS-037	2 - 4	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-87	L6-SS-037	2 - 4	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-87	L6-SS-037	2 - 4	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-87	L6-SS-037	2 - 4	Antimony	0.94	mg/kg		816	NO	Human Health	
6-87	L6-SS-037	2 - 4	Arsenic	10.2	mg/kg		30	NO	Human Health	
6-87	L6-SS-037	2 - 4	Beryllium	0.81	mg/kg		5	NO	Human Health	
6-87	L6-SS-037	2 - 4	Boron	24.5	mg/kg		100000	NO	Human Health	
6-87	L6-SS-037	2 - 4	Cadmium	0.12	mg/kg		1000	NO	Human Health	
6-87	L6-SS-037	2 - 4	Chromium	37.8	mg/kg		10000	NO	Human Health	
6-87	L6-SS-037	2 - 4	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-87	L6-SS-037	2 - 4	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-87	L6-SS-037	2 - 4	Lead	21.2	mg/kg		1000	NO	Human Health	
6-87	L6-SS-037	2 - 4	Mercury	0.051	mg/kg		310	NO	Human Health	
6-87	L6-SS-037	2 - 4	Nickel	27.1	mg/kg		20000	NO	Human Health	
6-87	L6-SS-037	2 - 4	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-87	L6-SS-037	2 - 4	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-87	L6-SS-037	2 - 4	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-87	L6-SS-037	2 - 4	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-87	L6-SS-037	2 - 4	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-87	L6-SS-037	2 - 4	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-87	L6-SS-037	2 - 4	Thallium	9.6	mg/kg	ND	143	NO	Human Health	
6-87	L6-SS-037	4 - 6	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-87	L6-SS-037	4 - 6	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-87	L6-SS-037	4 - 6	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-87	L6-SS-037	4 - 6	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-87	L6-SS-037	4 - 6	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-87	L6-SS-037	4 - 6	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-87	L6-SS-037	4 - 6	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-87	L6-SS-037	4 - 6	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-87	L6-SS-037	4 - 6	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-87	L6-SS-037	4 - 6	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-87	L6-SS-037	4 - 6	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-87	L6-SS-037	4 - 6	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-87	L6-SS-037	4 - 6	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-87	L6-SS-037	4 - 6	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-87	L6-SS-037	4 - 6	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-87	L6-SS-037	4 - 6	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-87	L6-SS-037	4 - 6	Antimony	0.83	mg/kg		816	NO	Human Health	
6-87	L6-SS-037	4 - 6	Arsenic	8.8	mg/kg		30	NO	Human Health	
6-87	L6-SS-037	4 - 6	Beryllium	0.95	mg/kg		5	NO	Human Health	
6-87	L6-SS-037	4 - 6	Boron	11.7	mg/kg		100000	NO	Human Health	
6-87	L6-SS-037	4 - 6	Cadmium	0.99	mg/kg	ND	1000	NO	Human Health	
6-87	L6-SS-037	4 - 6	Chromium	30.8	mg/kg		10000	NO	Human Health	
6-87	L6-SS-037	4 - 6	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-87	L6-SS-037	4 - 6	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-87	L6-SS-037	4 - 6	Lead	15.6	mg/kg		1000	NO	Human Health	
6-87	L6-SS-037	4 - 6	Mercury	0.042	mg/kg		310	NO	Human Health	
6-87	L6-SS-037	4 - 6	Nickel	24.3	mg/kg		20000	NO	Human Health	
6-87	L6-SS-037	4 - 6	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-87	L6-SS-037	4 - 6	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-87	L6-SS-037	4 - 6	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-87	L6-SS-037	4 - 6	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-87	L6-SS-037	4 - 6	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-87	L6-SS-037	4 - 6	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-87	L6-SS-037	4 - 6	Thallium	2	mg/kg	ND	143	NO	Human Health	
6-87	L6-SS-037	6 - 8	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-87	L6-SS-037	6 - 8	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-87	L6-SS-037	6 - 8	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-87	L6-SS-037	6 - 8	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-87	L6-SS-037	6 - 8	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-87	L6-SS-037	6 - 8	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-87	L6-SS-037	6 - 8	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-87	L6-SS-037	6 - 8	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-87	L6-SS-037	6 - 8	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-87	L6-SS-037	6 - 8	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-87	L6-SS-037	6 - 8	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-87	L6-SS-037	6 - 8	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-87	L6-SS-037	6 - 8	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-87	L6-SS-037	6 - 8	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-87	L6-SS-037	6 - 8	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-87	L6-SS-037	6 - 8	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-87	L6-SS-037	6 - 8	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-87	L6-SS-037	6 - 8	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-87	L6-SS-037	6 - 8	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-87	L6-SS-037	6 - 8	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-87	L6-SS-037	6 - 8	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-87	L6-SS-037	6 - 8	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-87	L6-SS-037	6 - 8	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-87	L6-SS-037	6 - 8	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-87	L6-SS-037	6 - 8	Antimony	0.75	mg/kg		816	NO	Human Health	
6-87	L6-SS-037	6 - 8	Arsenic	7	mg/kg		30	NO	Human Health	
6-87	L6-SS-037	6 - 8	Beryllium	0.91	mg/kg		5	NO	Human Health	
6-87	L6-SS-037	6 - 8	Boron	13.3	mg/kg		100000	NO	Human Health	
6-87	L6-SS-037	6 - 8	Cadmium	1	mg/kg	ND	1000	NO	Human Health	
6-87	L6-SS-037	6 - 8	Chromium	30.7	mg/kg		10000	NO	Human Health	
6-87	L6-SS-037	6 - 8	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-87	L6-SS-037	6 - 8	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-87	L6-SS-037	6 - 8	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-87	L6-SS-037	6 - 8	Lead	9.6	mg/kg		1000	NO	Human Health	
6-87	L6-SS-037	6 - 8	Mercury	0.083	mg/kg		310	NO	Human Health	
6-87	L6-SS-037	6 - 8	Nickel	19.9	mg/kg		20000	NO	Human Health	
6-87	L6-SS-037	6 - 8	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-87	L6-SS-037	6 - 8	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-87	L6-SS-037	6 - 8	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-87	L6-SS-037	6 - 8	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-87	L6-SS-037	6 - 8	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-87	L6-SS-037	6 - 8	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-87	L6-SS-037	6 - 8	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-87	L6-SS-037	6 - 8	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-87	L6-SS-037	6 - 8	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-87	L6-SS-037	6 - 8	Thallium	2	mg/kg	ND	143	NO	Human Health	
6-87	L6-SS-037	8 - 10	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-87	L6-SS-037	8 - 10	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-87	L6-SS-037	8 - 10	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-87	L6-SS-037	8 - 10	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-87	L6-SS-037	8 - 10	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-87	L6-SS-037	8 - 10	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-87	L6-SS-037	8 - 10	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-87	L6-SS-037	8 - 10	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-87	L6-SS-037	8 - 10	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-87	L6-SS-037	8 - 10	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-87	L6-SS-037	8 - 10	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-87	L6-SS-037	8 - 10	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-87	L6-SS-037	8 - 10	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-87	L6-SS-037	8 - 10	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-87	L6-SS-037	8 - 10	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-87	L6-SS-037	8 - 10	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-87	L6-SS-037	8 - 10	Antimony	0.37	mg/kg		816	NO	Human Health	
6-87	L6-SS-037	8 - 10	Arsenic	7.3	mg/kg		30	NO	Human Health	
6-87	L6-SS-037	8 - 10	Beryllium	0.99	mg/kg		5	NO	Human Health	
6-87	L6-SS-037	8 - 10	Boron	8.7	mg/kg		100000	NO	Human Health	
6-87	L6-SS-037	8 - 10	Cadmium	1	mg/kg	ND	1000	NO	Human Health	
6-87	L6-SS-037	8 - 10	Chromium	38.3	mg/kg		10000	NO	Human Health	
6-87	L6-SS-037	8 - 10	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-87	L6-SS-037	8 - 10	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-87	L6-SS-037	8 - 10	Lead	13.1	mg/kg		1000	NO	Human Health	
6-87	L6-SS-037	8 - 10	Mercury	0.044	mg/kg		310	NO	Human Health	
6-87	L6-SS-037	8 - 10	Nickel	18.1	mg/kg		20000	NO	Human Health	
6-87	L6-SS-037	8 - 10	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-87	L6-SS-037	8 - 10	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-87	L6-SS-037	8 - 10	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-87	L6-SS-037	8 - 10	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-87	L6-SS-037	8 - 10	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-87	L6-SS-037	8 - 10	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-87	L6-SS-037	8 - 10	Thallium	1.2	mg/kg		143	NO	Human Health	
6-87	L6-SS-038	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-87	L6-SS-038	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-87	L6-SS-038	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-87	L6-SS-038	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-87	L6-SS-038	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-87	L6-SS-038	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-87	L6-SS-038	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-87	L6-SS-038	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-87	L6-SS-038	0 - 1	Antimony	0.97	mg/kg		816	NO	Human Health	
6-87	L6-SS-038	0 - 1	Arsenic	10.7	mg/kg		30	NO	Human Health	
6-87	L6-SS-038	0 - 1	Beryllium	1.1	mg/kg		5	NO	Human Health	
6-87	L6-SS-038	0 - 1	Boron	24.3	mg/kg		100000	NO	Human Health	
6-87	L6-SS-038	0 - 1	Cadmium	1.1	mg/kg	ND	1000	NO	Human Health	
6-87	L6-SS-038	0 - 1	Chromium	38.7	mg/kg		10000	NO	Human Health	
6-87	L6-SS-038	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-87	L6-SS-038	0 - 1	Lead	27.3	mg/kg		1000	NO	Human Health	
6-87	L6-SS-038	0 - 1	Mercury	0.082	mg/kg		310	NO	Human Health	
6-87	L6-SS-038	0 - 1	Nickel	27.7	mg/kg		20000	NO	Human Health	
6-87	L6-SS-038	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-87	L6-SS-038	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-87	L6-SS-038	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-87	L6-SS-038	0 - 1	Thallium	2.2	mg/kg	ND	143	NO	Human Health	
6-11	L6-SS-039	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-11	L6-SS-039	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-11	L6-SS-039	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-11	L6-SS-039	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-11	L6-SS-039	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-11	L6-SS-039	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-11	L6-SS-039	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-11	L6-SS-039	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-11	L6-SS-039	0 - 1	Antimony	1.2	mg/kg		816	NO	Human Health	
6-11	L6-SS-039	0 - 1	Arsenic	4.3	mg/kg		30	NO	Human Health	
6-11	L6-SS-039	0 - 1	Beryllium	0.99	mg/kg		5	NO	Human Health	
6-11	L6-SS-039	0 - 1	Boron	10.4	mg/kg		100000	NO	Human Health	
6-11	L6-SS-039	0 - 1	Cadmium	1.1	mg/kg	ND	1000	NO	Human Health	
6-11	L6-SS-039	0 - 1	Chromium	31.5	mg/kg		10000	NO	Human Health	
6-11	L6-SS-039	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-11	L6-SS-039	0 - 1	Lead	20.7	mg/kg		1000	NO	Human Health	
6-11	L6-SS-039	0 - 1	Mercury	0.2	mg/kg		310	NO	Human Health	
6-11	L6-SS-039	0 - 1	Nickel	15.6	mg/kg		20000	NO	Human Health	
6-11	L6-SS-039	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-11	L6-SS-039	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-11	L6-SS-039	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-11	L6-SS-039	0 - 1	Thallium	2.3	mg/kg	ND	143	NO	Human Health	
6-25	L6-SS-040	0 - 1	Total PCBs	0.033	mg/kg		10	NO	Human Health	
6-28	L6-SS-042	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-28	L6-SS-042	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-28	L6-SS-042	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-28	L6-SS-042	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-28	L6-SS-042	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-28	L6-SS-042	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-28	L6-SS-042	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-28	L6-SS-042	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-28	L6-SS-042	0 - 1	Antimony	1.7	mg/kg		816	NO	Human Health	
6-28	L6-SS-042	0 - 1	Arsenic	8.2	mg/kg		30	NO	Human Health	
6-28	L6-SS-042	0 - 1	Beryllium	1.1	mg/kg		5	NO	Human Health	
6-28	L6-SS-042	0 - 1	Boron	17.4	mg/kg		100000	NO	Human Health	
6-28	L6-SS-042	0 - 1	Cadmium	0.86	mg/kg		1000	NO	Human Health	
6-28	L6-SS-042	0 - 1	Chromium	38.5	mg/kg		10000	NO	Human Health	
6-28	L6-SS-042	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-28	L6-SS-042	0 - 1	Lead	451	mg/kg		1000	NO	Human Health	
6-28	L6-SS-042	0 - 1	Mercury	0.45	mg/kg		310	NO	Human Health	
6-28	L6-SS-042	0 - 1	Nickel	30	mg/kg		20000	NO	Human Health	
6-28	L6-SS-042	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-28	L6-SS-042	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-28	L6-SS-042	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-28	L6-SS-042	0 - 1	Thallium	11.7	mg/kg	ND	143	NO	Human Health	
6-28	L6-SS-043	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-28	L6-SS-043	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-28	L6-SS-043	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-28	L6-SS-043	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-28	L6-SS-043	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-28	L6-SS-043	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-28	L6-SS-043	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-28	L6-SS-043	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-28	L6-SS-043	0 - 1	Antimony	1	mg/kg		816	NO	Human Health	
6-28	L6-SS-043	0 - 1	Arsenic	6.1	mg/kg		30	NO	Human Health	
6-28	L6-SS-043	0 - 1	Beryllium	0.89	mg/kg		5	NO	Human Health	
6-28	L6-SS-043	0 - 1	Boron	17.3	mg/kg		100000	NO	Human Health	
6-28	L6-SS-043	0 - 1	Cadmium	0.87	mg/kg		1000	NO	Human Health	
6-28	L6-SS-043	0 - 1	Chromium	31.7	mg/kg		10000	NO	Human Health	
6-28	L6-SS-043	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-28	L6-SS-043	0 - 1	Lead	80.5	mg/kg		1000	NO	Human Health	
6-28	L6-SS-043	0 - 1	Mercury	0.95	mg/kg		310	NO	Human Health	
6-28	L6-SS-043	0 - 1	Nickel	16.4	mg/kg		20000	NO	Human Health	
6-28	L6-SS-043	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-28	L6-SS-043	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-28	L6-SS-043	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-28	L6-SS-043	0 - 1	Thallium	9	mg/kg	ND	143	NO	Human Health	
6-28	L6-SS-044	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-28	L6-SS-044	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-28	L6-SS-044	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-28	L6-SS-044	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-28	L6-SS-044	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-28	L6-SS-044	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-28	L6-SS-044	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-28	L6-SS-044	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-28	L6-SS-044	0 - 1	Antimony	1.2	mg/kg		816	NO	Human Health	
6-28	L6-SS-044	0 - 1	Arsenic	7.5	mg/kg		30	NO	Human Health	
6-28	L6-SS-044	0 - 1	Beryllium	1.1	mg/kg		5	NO	Human Health	
6-28	L6-SS-044	0 - 1	Boron	12.9	mg/kg		100000	NO	Human Health	
6-28	L6-SS-044	0 - 1	Cadmium	0.49	mg/kg		1000	NO	Human Health	
6-28	L6-SS-044	0 - 1	Chromium	34.2	mg/kg		10000	NO	Human Health	
6-28	L6-SS-044	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-28	L6-SS-044	0 - 1	Lead	44.3	mg/kg		1000	NO	Human Health	
6-28	L6-SS-044	0 - 1	Mercury	0.38	mg/kg		310	NO	Human Health	
6-28	L6-SS-044	0 - 1	Nickel	20.2	mg/kg		20000	NO	Human Health	
6-28	L6-SS-044	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-28	L6-SS-044	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-28	L6-SS-044	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-28	L6-SS-044	0 - 1	Thallium	11.2	mg/kg	ND	143	NO	Human Health	
6-34-1	L6-SS-045	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-34-1	L6-SS-045	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-34-1	L6-SS-045	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-34-1	L6-SS-045	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-34-1	L6-SS-045	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-34-1	L6-SS-045	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-34-1	L6-SS-045	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-34-1	L6-SS-045	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-34-1	L6-SS-045	0 - 1	Antimony	1.1	mg/kg		816	NO	Human Health	
6-34-1	L6-SS-045	0 - 1	Arsenic	7.6	mg/kg		30	NO	Human Health	
6-34-1	L6-SS-045	0 - 1	Beryllium	0.94	mg/kg		5	NO	Human Health	
6-34-1	L6-SS-045	0 - 1	Boron	12.5	mg/kg		100000	NO	Human Health	
6-34-1	L6-SS-045	0 - 1	Cadmium	1.1	mg/kg	ND	1000	NO	Human Health	
6-34-1	L6-SS-045	0 - 1	Chromium	33	mg/kg		10000	NO	Human Health	
6-34-1	L6-SS-045	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-34-1	L6-SS-045	0 - 1	Lead	41.3	mg/kg		1000	NO	Human Health	
6-34-1	L6-SS-045	0 - 1	Mercury	0.42	mg/kg		310	NO	Human Health	
6-34-1	L6-SS-045	0 - 1	Nickel	17.6	mg/kg		20000	NO	Human Health	
6-34-1	L6-SS-045	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-34-1	L6-SS-045	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-34-1	L6-SS-045	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-34-1	L6-SS-045	0 - 1	Thallium	2.1	mg/kg	ND	143	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-34-1	L6-SS-046	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	Aluminum	25200	mg/kg		100000	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	Antimony	1.5	mg/kg		816	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	Antimony	0.57	mg/kg		816	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	Arsenic	7.6	mg/kg		30	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	Arsenic	9.4	mg/kg		30	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	Barium	284	mg/kg		67000	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	Beryllium	0.92	mg/kg		5	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	Beryllium	1	mg/kg		5	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	Boron	12.1	mg/kg		100000	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	Cadmium	10.3	mg/kg	ND	1000	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	Cadmium	1.1	mg/kg	ND	1000	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	Chromium	32.2	mg/kg		10000	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	Chromium	34.2	mg/kg		10000	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	Cobalt	8.4	mg/kg		1900	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	Copper	20.8	mg/kg		41000	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	Iron	23300	mg/kg		100000	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	Lead	35	mg/kg		1000	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	Lead	24.7	mg/kg		1000	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	Manganese	596	mg/kg		19000	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	Mercury	1.7	mg/kg		310	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	Mercury	2	mg/kg		310	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	Nickel	18.1	mg/kg		20000	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	Nickel	20.5	mg/kg		20000	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	Selenium	10.3	mg/kg	ND	5100	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	Silver	1	mg/kg	ND	5100	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	Thallium	20.6	mg/kg	ND	143	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	Thallium	2.2	mg/kg	ND	143	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	Vanadium	64.6	mg/kg		1000	NO	Human Health	
6-34-1	L6-SS-046	0 - 1	Zinc	82.4	mg/kg		100000	NO	Human Health	
6-34-1	L6-SS-047	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-34-1	L6-SS-047	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-34-1	L6-SS-047	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-34-1	L6-SS-047	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-34-1	L6-SS-047	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-34-1	L6-SS-047	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-34-1	L6-SS-047	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-34-1	L6-SS-047	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-34-1	L6-SS-047	0 - 1	Antimony	1.7	mg/kg		816	NO	Human Health	
6-34-1	L6-SS-047	0 - 1	Arsenic	8.7	mg/kg		30	NO	Human Health	
6-34-1	L6-SS-047	0 - 1	Beryllium	1.1	mg/kg		5	NO	Human Health	
6-34-1	L6-SS-047	0 - 1	Boron	19.2	mg/kg		100000	NO	Human Health	
6-34-1	L6-SS-047	0 - 1	Cadmium	1.2	mg/kg	ND	1000	NO	Human Health	
6-34-1	L6-SS-047	0 - 1	Chromium	36.2	mg/kg		10000	NO	Human Health	
6-34-1	L6-SS-047	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-34-1	L6-SS-047	0 - 1	Lead	40.7	mg/kg		1000	NO	Human Health	
6-34-1	L6-SS-047	0 - 1	Mercury	5.1	mg/kg		310	NO	Human Health	
6-34-1	L6-SS-047	0 - 1	Nickel	22.3	mg/kg		20000	NO	Human Health	
6-34-1	L6-SS-047	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-34-1	L6-SS-047	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-34-1	L6-SS-047	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-34-1	L6-SS-047	0 - 1	Thallium	2.4	mg/kg	ND	143	NO	Human Health	
6-34-1	L6-SS-048	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-34-1	L6-SS-048	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-34-1	L6-SS-048	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-34-1	L6-SS-048	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-34-1	L6-SS-048	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-34-1	L6-SS-048	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-34-1	L6-SS-048	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-34-1	L6-SS-048	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-34-1	L6-SS-048	0 - 1	Antimony	1.6	mg/kg		816	NO	Human Health	
6-34-1	L6-SS-048	0 - 1	Arsenic	10.3	mg/kg		30	NO	Human Health	
6-34-1	L6-SS-048	0 - 1	Beryllium	1.1	mg/kg		5	NO	Human Health	
6-34-1	L6-SS-048	0 - 1	Boron	23	mg/kg		100000	NO	Human Health	
6-34-1	L6-SS-048	0 - 1	Cadmium	0.52	mg/kg		1000	NO	Human Health	
6-34-1	L6-SS-048	0 - 1	Chromium	51	mg/kg		10000	NO	Human Health	
6-34-1	L6-SS-048	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-34-1	L6-SS-048	0 - 1	Lead	81.3	mg/kg		1000	NO	Human Health	
6-34-1	L6-SS-048	0 - 1	Mercury	13.4	mg/kg		310	NO	Human Health	
6-34-1	L6-SS-048	0 - 1	Nickel	27.6	mg/kg		20000	NO	Human Health	
6-34-1	L6-SS-048	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-34-1	L6-SS-048	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-34-1	L6-SS-048	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-34-1	L6-SS-048	0 - 1	Thallium	10.8	mg/kg	ND	143	NO	Human Health	
6-34-1	L6-SS-049	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-34-1	L6-SS-049	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-34-1	L6-SS-049	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-34-1	L6-SS-049	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-34-1	L6-SS-049	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-34-1	L6-SS-049	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-34-1	L6-SS-049	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-34-1	L6-SS-049	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-34-1	L6-SS-049	0 - 1	Antimony	3.3	mg/kg		816	NO	Human Health	
6-34-1	L6-SS-049	0 - 1	Arsenic	13.2	mg/kg		30	NO	Human Health	
6-34-1	L6-SS-049	0 - 1	Beryllium	1.1	mg/kg		5	NO	Human Health	
6-34-1	L6-SS-049	0 - 1	Boron	14.4	mg/kg		100000	NO	Human Health	
6-34-1	L6-SS-049	0 - 1	Cadmium	2.8	mg/kg		1000	NO	Human Health	
6-34-1	L6-SS-049	0 - 1	Chromium	55.8	mg/kg		10000	NO	Human Health	
6-34-1	L6-SS-049	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-34-1	L6-SS-049	0 - 1	Lead	392	mg/kg		1000	NO	Human Health	
6-34-1	L6-SS-049	0 - 1	Mercury	109	mg/kg		310	NO	Human Health	
6-34-1	L6-SS-049	0 - 1	Nickel	85.6	mg/kg		20000	NO	Human Health	
6-34-1	L6-SS-049	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-34-1	L6-SS-049	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-34-1	L6-SS-049	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-34-1	L6-SS-049	0 - 1	Thallium	2.2	mg/kg	ND	143	NO	Human Health	
6-34-2	L6-SS-050	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-34-2	L6-SS-050	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-34-2	L6-SS-050	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-34-2	L6-SS-050	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-34-2	L6-SS-050	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-34-2	L6-SS-050	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-34-2	L6-SS-050	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-34-2	L6-SS-050	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-34-2	L6-SS-050	0 - 1	Antimony	1.8	mg/kg		816	NO	Human Health	
6-34-2	L6-SS-050	0 - 1	Arsenic	8.1	mg/kg		30	NO	Human Health	
6-34-2	L6-SS-050	0 - 1	Beryllium	0.97	mg/kg		5	NO	Human Health	
6-34-2	L6-SS-050	0 - 1	Boron	13.8	mg/kg		100000	NO	Human Health	
6-34-2	L6-SS-050	0 - 1	Cadmium	0.46	mg/kg		1000	NO	Human Health	
6-34-2	L6-SS-050	0 - 1	Chromium	45.2	mg/kg		10000	NO	Human Health	
6-34-2	L6-SS-050	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-34-2	L6-SS-050	0 - 1	Lead	144	mg/kg		1000	NO	Human Health	
6-34-2	L6-SS-050	0 - 1	Mercury	0.32	mg/kg		310	NO	Human Health	
6-34-2	L6-SS-050	0 - 1	Nickel	35.8	mg/kg		20000	NO	Human Health	
6-34-2	L6-SS-050	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-34-2	L6-SS-050	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	

APPENDIX A
Line 6 Ammo Production MRS Soil Sampling Results
Iowa Army Ammunition Plant

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-34-2	L6-SS-050	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-34-2	L6-SS-050	0 - 1	Thallium	2.1	mg/kg	ND	143	NO	Human Health	
6-34-2	L6-SS-051	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-34-2	L6-SS-051	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-34-2	L6-SS-051	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-34-2	L6-SS-051	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-34-2	L6-SS-051	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-34-2	L6-SS-051	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-34-2	L6-SS-051	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-34-2	L6-SS-051	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-34-2	L6-SS-051	0 - 1	Antimony	3.1	mg/kg		816	NO	Human Health	
6-34-2	L6-SS-051	0 - 1	Arsenic	10.8	mg/kg		30	NO	Human Health	
6-34-2	L6-SS-051	0 - 1	Beryllium	0.77	mg/kg		5	NO	Human Health	
6-34-2	L6-SS-051	0 - 1	Boron	13.1	mg/kg		100000	NO	Human Health	
6-34-2	L6-SS-051	0 - 1	Cadmium	2	mg/kg		1000	NO	Human Health	
6-34-2	L6-SS-051	0 - 1	Chromium	30.2	mg/kg		10000	NO	Human Health	
6-34-2	L6-SS-051	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-34-2	L6-SS-051	0 - 1	Lead	278	mg/kg		1000	NO	Human Health	
6-34-2	L6-SS-051	0 - 1	Mercury	3.4	mg/kg		310	NO	Human Health	
6-34-2	L6-SS-051	0 - 1	Nickel	29.9	mg/kg		20000	NO	Human Health	
6-34-2	L6-SS-051	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-34-2	L6-SS-051	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-34-2	L6-SS-051	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-34-2	L6-SS-051	0 - 1	Thallium	2.1	mg/kg	ND	143	NO	Human Health	
6-34-2	L6-SS-052	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-34-2	L6-SS-052	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-34-2	L6-SS-052	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-34-2	L6-SS-052	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-34-2	L6-SS-052	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-34-2	L6-SS-052	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-34-2	L6-SS-052	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-34-2	L6-SS-052	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-34-2	L6-SS-052	0 - 1	Antimony	4.6	mg/kg		816	NO	Human Health	
6-34-2	L6-SS-052	0 - 1	Arsenic	7.7	mg/kg		30	NO	Human Health	
6-34-2	L6-SS-052	0 - 1	Beryllium	1	mg/kg		5	NO	Human Health	
6-34-2	L6-SS-052	0 - 1	Boron	22.8	mg/kg		100000	NO	Human Health	
6-34-2	L6-SS-052	0 - 1	Cadmium	0.29	mg/kg		1000	NO	Human Health	
6-34-2	L6-SS-052	0 - 1	Chromium	29.6	mg/kg		10000	NO	Human Health	
6-34-2	L6-SS-052	0 - 1	HMX	0.56	mg/kg		51000	NO	Human Health	
6-34-2	L6-SS-052	0 - 1	Lead	289	mg/kg		1000	NO	Human Health	
6-34-2	L6-SS-052	0 - 1	Mercury	0.37	mg/kg		310	NO	Human Health	
6-34-2	L6-SS-052	0 - 1	Nickel	25.5	mg/kg		20000	NO	Human Health	
6-34-2	L6-SS-052	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-34-2	L6-SS-052	0 - 1	RDX	2.2	mg/kg		1.3	YES	Human Health	
6-34-2	L6-SS-052	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-34-2	L6-SS-052	0 - 1	Thallium	2.1	mg/kg	ND	143	NO	Human Health	
6-34-2	L6-SS-053	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-34-2	L6-SS-053	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-34-2	L6-SS-053	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-34-2	L6-SS-053	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-34-2	L6-SS-053	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-34-2	L6-SS-053	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-34-2	L6-SS-053	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-34-2	L6-SS-053	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-34-2	L6-SS-053	0 - 1	Antimony	2.3	mg/kg		816	NO	Human Health	
6-34-2	L6-SS-053	0 - 1	Arsenic	8	mg/kg		30	NO	Human Health	
6-34-2	L6-SS-053	0 - 1	Beryllium	0.96	mg/kg		5	NO	Human Health	
6-34-2	L6-SS-053	0 - 1	Boron	13.9	mg/kg		100000	NO	Human Health	
6-34-2	L6-SS-053	0 - 1	Cadmium	0.33	mg/kg		1000	NO	Human Health	
6-34-2	L6-SS-053	0 - 1	Chromium	36.8	mg/kg		10000	NO	Human Health	
6-34-2	L6-SS-053	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-34-2	L6-SS-053	0 - 1	Lead	125	mg/kg		1000	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-34-2	L6-SS-053	0 - 1	Mercury	0.21	mg/kg		310	NO	Human Health	
6-34-2	L6-SS-053	0 - 1	Nickel	25.9	mg/kg		20000	NO	Human Health	
6-34-2	L6-SS-053	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-34-2	L6-SS-053	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-34-2	L6-SS-053	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-34-2	L6-SS-053	0 - 1	Thallium	2.2	mg/kg	ND	143	NO	Human Health	
6-34-2	L6-SS-054	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-34-2	L6-SS-054	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-34-2	L6-SS-054	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-34-2	L6-SS-054	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-34-2	L6-SS-054	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-34-2	L6-SS-054	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-34-2	L6-SS-054	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-34-2	L6-SS-054	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-34-2	L6-SS-054	0 - 1	Antimony	1.5	mg/kg		816	NO	Human Health	
6-34-2	L6-SS-054	0 - 1	Arsenic	7.3	mg/kg		30	NO	Human Health	
6-34-2	L6-SS-054	0 - 1	Beryllium	1	mg/kg		5	NO	Human Health	
6-34-2	L6-SS-054	0 - 1	Boron	19.3	mg/kg		100000	NO	Human Health	
6-34-2	L6-SS-054	0 - 1	Cadmium	0.42	mg/kg		1000	NO	Human Health	
6-34-2	L6-SS-054	0 - 1	Chromium	39.8	mg/kg		10000	NO	Human Health	
6-34-2	L6-SS-054	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-34-2	L6-SS-054	0 - 1	Lead	72.3	mg/kg		1000	NO	Human Health	
6-34-2	L6-SS-054	0 - 1	Mercury	0.12	mg/kg		310	NO	Human Health	
6-34-2	L6-SS-054	0 - 1	Nickel	25.1	mg/kg		20000	NO	Human Health	
6-34-2	L6-SS-054	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-34-2	L6-SS-054	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-34-2	L6-SS-054	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-34-2	L6-SS-054	0 - 1	Thallium	2.1	mg/kg	ND	143	NO	Human Health	
6-34-2	L6-SS-055	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-34-2	L6-SS-055	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-34-2	L6-SS-055	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-34-2	L6-SS-055	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-34-2	L6-SS-055	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-34-2	L6-SS-055	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-34-2	L6-SS-055	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-34-2	L6-SS-055	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-34-2	L6-SS-055	0 - 1	Antimony	2.5	mg/kg		816	NO	Human Health	
6-34-2	L6-SS-055	0 - 1	Arsenic	7.8	mg/kg		30	NO	Human Health	
6-34-2	L6-SS-055	0 - 1	Beryllium	1	mg/kg		5	NO	Human Health	
6-34-2	L6-SS-055	0 - 1	Boron	12.6	mg/kg		100000	NO	Human Health	
6-34-2	L6-SS-055	0 - 1	Cadmium	0.74	mg/kg		1000	NO	Human Health	
6-34-2	L6-SS-055	0 - 1	Chromium	40.8	mg/kg		10000	NO	Human Health	
6-34-2	L6-SS-055	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-34-2	L6-SS-055	0 - 1	Lead	348	mg/kg		1000	NO	Human Health	
6-34-2	L6-SS-055	0 - 1	Mercury	0.22	mg/kg		310	NO	Human Health	
6-34-2	L6-SS-055	0 - 1	Nickel	20.1	mg/kg		20000	NO	Human Health	
6-34-2	L6-SS-055	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-34-2	L6-SS-055	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-34-2	L6-SS-055	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-34-2	L6-SS-055	0 - 1	Thallium	2.4	mg/kg	ND	143	NO	Human Health	
6-34-2	L6-SS-056	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-34-2	L6-SS-056	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-34-2	L6-SS-056	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-34-2	L6-SS-056	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-34-2	L6-SS-056	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-34-2	L6-SS-056	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-34-2	L6-SS-056	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-34-2	L6-SS-056	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-34-2	L6-SS-056	0 - 1	Antimony	1.3	mg/kg		816	NO	Human Health	
6-34-2	L6-SS-056	0 - 1	Arsenic	10.4	mg/kg		30	NO	Human Health	
6-34-2	L6-SS-056	0 - 1	Beryllium	0.99	mg/kg		5	NO	Human Health	
6-34-2	L6-SS-056	0 - 1	Boron	14.4	mg/kg		100000	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-34-2	L6-SS-056	0 - 1	Cadmium	0.21	mg/kg		1000	NO	Human Health	
6-34-2	L6-SS-056	0 - 1	Chromium	37.4	mg/kg		10000	NO	Human Health	
6-34-2	L6-SS-056	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-34-2	L6-SS-056	0 - 1	Lead	75.9	mg/kg		1000	NO	Human Health	
6-34-2	L6-SS-056	0 - 1	Mercury	0.21	mg/kg		310	NO	Human Health	
6-34-2	L6-SS-056	0 - 1	Nickel	24.4	mg/kg		20000	NO	Human Health	
6-34-2	L6-SS-056	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-34-2	L6-SS-056	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-34-2	L6-SS-056	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-34-2	L6-SS-056	0 - 1	Thallium	2.2	mg/kg	ND	143	NO	Human Health	
6-34-1	L6-SS-057	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-34-1	L6-SS-057	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-34-1	L6-SS-057	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-34-1	L6-SS-057	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-34-1	L6-SS-057	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-34-1	L6-SS-057	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-34-1	L6-SS-057	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-34-1	L6-SS-057	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-34-1	L6-SS-057	0 - 1	Antimony	0.47	mg/kg		816	NO	Human Health	
6-34-1	L6-SS-057	0 - 1	Arsenic	6.2	mg/kg		30	NO	Human Health	
6-34-1	L6-SS-057	0 - 1	Beryllium	0.93	mg/kg		5	NO	Human Health	
6-34-1	L6-SS-057	0 - 1	Boron	15.3	mg/kg		100000	NO	Human Health	
6-34-1	L6-SS-057	0 - 1	Cadmium	0.23	mg/kg		1000	NO	Human Health	
6-34-1	L6-SS-057	0 - 1	Chromium	32.3	mg/kg		10000	NO	Human Health	
6-34-1	L6-SS-057	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-34-1	L6-SS-057	0 - 1	Lead	49.4	mg/kg		1000	NO	Human Health	
6-34-1	L6-SS-057	0 - 1	Mercury	0.64	mg/kg		310	NO	Human Health	
6-34-1	L6-SS-057	0 - 1	Nickel	17	mg/kg		20000	NO	Human Health	
6-34-1	L6-SS-057	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-34-1	L6-SS-057	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-34-1	L6-SS-057	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-34-1	L6-SS-057	0 - 1	Thallium	9.7	mg/kg	ND	143	NO	Human Health	
6-34-1	L6-SS-058	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-34-1	L6-SS-058	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-34-1	L6-SS-058	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-34-1	L6-SS-058	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-34-1	L6-SS-058	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-34-1	L6-SS-058	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-34-1	L6-SS-058	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-34-1	L6-SS-058	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-34-1	L6-SS-058	0 - 1	Antimony	1.2	mg/kg		816	NO	Human Health	
6-34-1	L6-SS-058	0 - 1	Arsenic	6.6	mg/kg		30	NO	Human Health	
6-34-1	L6-SS-058	0 - 1	Beryllium	0.93	mg/kg		5	NO	Human Health	
6-34-1	L6-SS-058	0 - 1	Boron	81.5	mg/kg		100000	NO	Human Health	
6-34-1	L6-SS-058	0 - 1	Cadmium	0.67	mg/kg		1000	NO	Human Health	
6-34-1	L6-SS-058	0 - 1	Chromium	32.2	mg/kg		10000	NO	Human Health	
6-34-1	L6-SS-058	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-34-1	L6-SS-058	0 - 1	Lead	57.5	mg/kg		1000	NO	Human Health	
6-34-1	L6-SS-058	0 - 1	Mercury	48.3	mg/kg		310	NO	Human Health	
6-34-1	L6-SS-058	0 - 1	Nickel	19.4	mg/kg		20000	NO	Human Health	
6-34-1	L6-SS-058	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-34-1	L6-SS-058	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-34-1	L6-SS-058	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-34-1	L6-SS-058	0 - 1	Thallium	10	mg/kg	ND	143	NO	Human Health	
6-34-2	L6-SS-059	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-34-2	L6-SS-059	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-34-2	L6-SS-059	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-34-2	L6-SS-059	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-34-2	L6-SS-059	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-34-2	L6-SS-059	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-34-2	L6-SS-059	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-34-2	L6-SS-059	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-34-2	L6-SS-059	0 - 1	Antimony	1.6	mg/kg		816	NO	Human Health	
6-34-2	L6-SS-059	0 - 1	Arsenic	5.1	mg/kg		30	NO	Human Health	
6-34-2	L6-SS-059	0 - 1	Beryllium	0.84	mg/kg		5	NO	Human Health	
6-34-2	L6-SS-059	0 - 1	Boron	12.4	mg/kg		100000	NO	Human Health	
6-34-2	L6-SS-059	0 - 1	Cadmium	0.13	mg/kg		1000	NO	Human Health	
6-34-2	L6-SS-059	0 - 1	Chromium	32.8	mg/kg		10000	NO	Human Health	
6-34-2	L6-SS-059	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-34-2	L6-SS-059	0 - 1	Lead	89.3	mg/kg		1000	NO	Human Health	
6-34-2	L6-SS-059	0 - 1	Mercury	0.56	mg/kg		310	NO	Human Health	
6-34-2	L6-SS-059	0 - 1	Nickel	22.5	mg/kg		20000	NO	Human Health	
6-34-2	L6-SS-059	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-34-2	L6-SS-059	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-34-2	L6-SS-059	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-34-2	L6-SS-059	0 - 1	Thallium	2.2	mg/kg	ND	143	NO	Human Health	
6-34-3	L6-SS-060	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-34-3	L6-SS-060	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-34-3	L6-SS-060	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-34-3	L6-SS-060	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-34-3	L6-SS-060	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-34-3	L6-SS-060	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-34-3	L6-SS-060	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-34-3	L6-SS-060	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-34-3	L6-SS-060	0 - 1	Antimony	1.2	mg/kg		816	NO	Human Health	
6-34-3	L6-SS-060	0 - 1	Arsenic	6.4	mg/kg		30	NO	Human Health	
6-34-3	L6-SS-060	0 - 1	Beryllium	0.67	mg/kg		5	NO	Human Health	
6-34-3	L6-SS-060	0 - 1	Boron	18	mg/kg		100000	NO	Human Health	
6-34-3	L6-SS-060	0 - 1	Cadmium	1.2	mg/kg		1000	NO	Human Health	
6-34-3	L6-SS-060	0 - 1	Chromium	29.8	mg/kg		10000	NO	Human Health	
6-34-3	L6-SS-060	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-34-3	L6-SS-060	0 - 1	Lead	173	mg/kg		1000	NO	Human Health	
6-34-3	L6-SS-060	0 - 1	Mercury	1.9	mg/kg		310	NO	Human Health	
6-34-3	L6-SS-060	0 - 1	Nickel	19	mg/kg		20000	NO	Human Health	
6-34-3	L6-SS-060	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-34-3	L6-SS-060	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-34-3	L6-SS-060	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-34-3	L6-SS-060	0 - 1	Thallium	10.5	mg/kg	ND	143	NO	Human Health	
6-34-3	L6-SS-061	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-34-3	L6-SS-061	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-34-3	L6-SS-061	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-34-3	L6-SS-061	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-34-3	L6-SS-061	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-34-3	L6-SS-061	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-34-3	L6-SS-061	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-34-3	L6-SS-061	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-34-3	L6-SS-061	0 - 1	Antimony	6.9	mg/kg		816	NO	Human Health	
6-34-3	L6-SS-061	0 - 1	Arsenic	1.3	mg/kg		30	NO	Human Health	
6-34-3	L6-SS-061	0 - 1	Beryllium	1	mg/kg		5	NO	Human Health	
6-34-3	L6-SS-061	0 - 1	Boron	12.4	mg/kg		100000	NO	Human Health	
6-34-3	L6-SS-061	0 - 1	Cadmium	0.12	mg/kg		1000	NO	Human Health	
6-34-3	L6-SS-061	0 - 1	Chromium	1060	mg/kg		10000	NO	Human Health	
6-34-3	L6-SS-061	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-34-3	L6-SS-061	0 - 1	Lead	20.4	mg/kg		1000	NO	Human Health	
6-34-3	L6-SS-061	0 - 1	Mercury	0.075	mg/kg		310	NO	Human Health	
6-34-3	L6-SS-061	0 - 1	Nickel	379	mg/kg		20000	NO	Human Health	
6-34-3	L6-SS-061	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-34-3	L6-SS-061	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-34-3	L6-SS-061	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-34-3	L6-SS-061	0 - 1	Thallium	1.4	mg/kg		143	NO	Human Health	
6-34-3	L6-SS-062	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-34-3	L6-SS-062	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-34-3	L6-SS-062	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-34-3	L6-SS-062	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-34-3	L6-SS-062	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-34-3	L6-SS-062	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-34-3	L6-SS-062	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-34-3	L6-SS-062	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-34-3	L6-SS-062	0 - 1	Antimony	1.8	mg/kg		816	NO	Human Health	
6-34-3	L6-SS-062	0 - 1	Arsenic	4.3	mg/kg		30	NO	Human Health	
6-34-3	L6-SS-062	0 - 1	Beryllium	0.86	mg/kg		5	NO	Human Health	
6-34-3	L6-SS-062	0 - 1	Boron	10.6	mg/kg		100000	NO	Human Health	
6-34-3	L6-SS-062	0 - 1	Cadmium	0.83	mg/kg		1000	NO	Human Health	
6-34-3	L6-SS-062	0 - 1	Chromium	46.2	mg/kg		10000	NO	Human Health	
6-34-3	L6-SS-062	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-34-3	L6-SS-062	0 - 1	Lead	100	mg/kg		1000	NO	Human Health	
6-34-3	L6-SS-062	0 - 1	Mercury	1.7	mg/kg		310	NO	Human Health	
6-34-3	L6-SS-062	0 - 1	Nickel	41.9	mg/kg		20000	NO	Human Health	
6-34-3	L6-SS-062	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-34-3	L6-SS-062	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-34-3	L6-SS-062	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-34-3	L6-SS-062	0 - 1	Thallium	9.7	mg/kg	ND	143	NO	Human Health	
6-34-3	L6-SS-063	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-34-3	L6-SS-063	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-34-3	L6-SS-063	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-34-3	L6-SS-063	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-34-3	L6-SS-063	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-34-3	L6-SS-063	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-34-3	L6-SS-063	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-34-3	L6-SS-063	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-34-3	L6-SS-063	0 - 1	Antimony	9.7	mg/kg		816	NO	Human Health	
6-34-3	L6-SS-063	0 - 1	Arsenic	9	mg/kg	ND	30	NO	Human Health	
6-34-3	L6-SS-063	0 - 1	Beryllium	0.92	mg/kg		5	NO	Human Health	
6-34-3	L6-SS-063	0 - 1	Boron	9.6	mg/kg		100000	NO	Human Health	
6-34-3	L6-SS-063	0 - 1	Cadmium	0.9	mg/kg	ND	1000	NO	Human Health	
6-34-3	L6-SS-063	0 - 1	Chromium	1450	mg/kg		10000	NO	Human Health	
6-34-3	L6-SS-063	0 - 1	HMX	680	mg/kg		51000	NO	Human Health	
6-34-3	L6-SS-063	0 - 1	Lead	15.1	mg/kg		1000	NO	Human Health	
6-34-3	L6-SS-063	0 - 1	Mercury	0.12	mg/kg		310	NO	Human Health	
6-34-3	L6-SS-063	0 - 1	Nickel	977	mg/kg		20000	NO	Human Health	
6-34-3	L6-SS-063	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-34-3	L6-SS-063	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-34-3	L6-SS-063	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-34-3	L6-SS-063	0 - 1	Thallium	8.7	mg/kg		143	NO	Human Health	
6-34-3	L6-SS-064	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-34-3	L6-SS-064	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-34-3	L6-SS-064	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-34-3	L6-SS-064	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-34-3	L6-SS-064	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-34-3	L6-SS-064	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-34-3	L6-SS-064	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-34-3	L6-SS-064	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-34-3	L6-SS-064	0 - 1	Antimony	4.9	mg/kg		816	NO	Human Health	
6-34-3	L6-SS-064	0 - 1	Arsenic	6.9	mg/kg		30	NO	Human Health	
6-34-3	L6-SS-064	0 - 1	Beryllium	0.75	mg/kg		5	NO	Human Health	
6-34-3	L6-SS-064	0 - 1	Boron	12.6	mg/kg		100000	NO	Human Health	
6-34-3	L6-SS-064	0 - 1	Cadmium	0.24	mg/kg		1000	NO	Human Health	
6-34-3	L6-SS-064	0 - 1	Chromium	51.7	mg/kg		10000	NO	Human Health	
6-34-3	L6-SS-064	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-34-3	L6-SS-064	0 - 1	Lead	304	mg/kg		1000	NO	Human Health	
6-34-3	L6-SS-064	0 - 1	Mercury	0.77	mg/kg		310	NO	Human Health	
6-34-3	L6-SS-064	0 - 1	Nickel	44.4	mg/kg		20000	NO	Human Health	
6-34-3	L6-SS-064	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-34-3	L6-SS-064	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-34-3	L6-SS-064	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-34-3	L6-SS-064	0 - 1	Thallium	2.3	mg/kg		143	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-34-2	L6-SS-065	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-34-2	L6-SS-065	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-34-2	L6-SS-065	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-34-2	L6-SS-065	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-34-2	L6-SS-065	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-34-2	L6-SS-065	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-34-2	L6-SS-065	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-34-2	L6-SS-065	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-34-2	L6-SS-065	0 - 1	Antimony	1.5	mg/kg		816	NO	Human Health	
6-34-2	L6-SS-065	0 - 1	Arsenic	6.6	mg/kg		30	NO	Human Health	
6-34-2	L6-SS-065	0 - 1	Beryllium	0.82	mg/kg		5	NO	Human Health	
6-34-2	L6-SS-065	0 - 1	Boron	21.6	mg/kg		100000	NO	Human Health	
6-34-2	L6-SS-065	0 - 1	Cadmium	0.81	mg/kg		1000	NO	Human Health	
6-34-2	L6-SS-065	0 - 1	Chromium	35.7	mg/kg		10000	NO	Human Health	
6-34-2	L6-SS-065	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-34-2	L6-SS-065	0 - 1	Lead	112	mg/kg		1000	NO	Human Health	
6-34-2	L6-SS-065	0 - 1	Mercury	0.19	mg/kg		310	NO	Human Health	
6-34-2	L6-SS-065	0 - 1	Nickel	20.7	mg/kg		20000	NO	Human Health	
6-34-2	L6-SS-065	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-34-2	L6-SS-065	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-34-2	L6-SS-065	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-34-2	L6-SS-065	0 - 1	Thallium	10.4	mg/kg	ND	143	NO	Human Health	
6-34-2	L6-SS-066	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-34-2	L6-SS-066	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-34-2	L6-SS-066	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-34-2	L6-SS-066	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-34-2	L6-SS-066	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-34-2	L6-SS-066	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-34-2	L6-SS-066	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-34-2	L6-SS-066	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-34-2	L6-SS-066	0 - 1	Antimony	1.3	mg/kg		816	NO	Human Health	
6-34-2	L6-SS-066	0 - 1	Arsenic	5.7	mg/kg		30	NO	Human Health	
6-34-2	L6-SS-066	0 - 1	Beryllium	0.71	mg/kg		5	NO	Human Health	
6-34-2	L6-SS-066	0 - 1	Boron	14.5	mg/kg		100000	NO	Human Health	
6-34-2	L6-SS-066	0 - 1	Cadmium	0.64	mg/kg		1000	NO	Human Health	
6-34-2	L6-SS-066	0 - 1	Chromium	29.6	mg/kg		10000	NO	Human Health	
6-34-2	L6-SS-066	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-34-2	L6-SS-066	0 - 1	Lead	72.9	mg/kg		1000	NO	Human Health	
6-34-2	L6-SS-066	0 - 1	Mercury	0.29	mg/kg		310	NO	Human Health	
6-34-2	L6-SS-066	0 - 1	Nickel	20.5	mg/kg		20000	NO	Human Health	
6-34-2	L6-SS-066	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-34-2	L6-SS-066	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-34-2	L6-SS-066	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-34-2	L6-SS-066	0 - 1	Thallium	9.7	mg/kg	ND	143	NO	Human Health	
6-34-2	L6-SS-067	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-34-2	L6-SS-067	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-34-2	L6-SS-067	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-34-2	L6-SS-067	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-34-2	L6-SS-067	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-34-2	L6-SS-067	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-34-2	L6-SS-067	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-34-2	L6-SS-067	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-34-2	L6-SS-067	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-34-2	L6-SS-067	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-34-2	L6-SS-067	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-34-2	L6-SS-067	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-34-2	L6-SS-067	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-34-2	L6-SS-067	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-34-2	L6-SS-067	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-34-2	L6-SS-067	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-34-2	L6-SS-067	0 - 1	Antimony	1.4	mg/kg		816	NO	Human Health	
6-34-2	L6-SS-067	0 - 1	Antimony	1.6	mg/kg		816	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-34-2	L6-SS-067	0 - 1	Arsenic	6.1	mg/kg		30	NO	Human Health	
6-34-2	L6-SS-067	0 - 1	Arsenic	7.5	mg/kg		30	NO	Human Health	
6-34-2	L6-SS-067	0 - 1	Beryllium	0.96	mg/kg		5	NO	Human Health	
6-34-2	L6-SS-067	0 - 1	Beryllium	0.92	mg/kg		5	NO	Human Health	
6-34-2	L6-SS-067	0 - 1	Boron	14.7	mg/kg		100000	NO	Human Health	
6-34-2	L6-SS-067	0 - 1	Boron	153	mg/kg		100000	NO	Human Health	
6-34-2	L6-SS-067	0 - 1	Cadmium	2.4	mg/kg		1000	NO	Human Health	
6-34-2	L6-SS-067	0 - 1	Cadmium	1.9	mg/kg		1000	NO	Human Health	
6-34-2	L6-SS-067	0 - 1	Chromium	36.8	mg/kg		10000	NO	Human Health	
6-34-2	L6-SS-067	0 - 1	Chromium	43.1	mg/kg		10000	NO	Human Health	
6-34-2	L6-SS-067	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-34-2	L6-SS-067	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-34-2	L6-SS-067	0 - 1	Lead	72.6	mg/kg		1000	NO	Human Health	
6-34-2	L6-SS-067	0 - 1	Lead	93	mg/kg		1000	NO	Human Health	
6-34-2	L6-SS-067	0 - 1	Mercury	0.29	mg/kg		310	NO	Human Health	
6-34-2	L6-SS-067	0 - 1	Mercury	0.34	mg/kg		310	NO	Human Health	
6-34-2	L6-SS-067	0 - 1	Nickel	22.6	mg/kg		20000	NO	Human Health	
6-34-2	L6-SS-067	0 - 1	Nickel	28	mg/kg		20000	NO	Human Health	
6-34-2	L6-SS-067	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-34-2	L6-SS-067	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-34-2	L6-SS-067	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-34-2	L6-SS-067	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-34-2	L6-SS-067	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-34-2	L6-SS-067	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-34-2	L6-SS-067	0 - 1	Thallium	11.7	mg/kg	ND	143	NO	Human Health	
6-34-2	L6-SS-067	0 - 1	Thallium	9.6	mg/kg	ND	143	NO	Human Health	
6-34-2	L6-SS-068	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-34-2	L6-SS-068	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-34-2	L6-SS-068	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-34-2	L6-SS-068	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-34-2	L6-SS-068	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-34-2	L6-SS-068	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-34-2	L6-SS-068	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-34-2	L6-SS-068	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-34-2	L6-SS-068	0 - 1	Antimony	1.7	mg/kg		816	NO	Human Health	
6-34-2	L6-SS-068	0 - 1	Arsenic	6.2	mg/kg		30	NO	Human Health	
6-34-2	L6-SS-068	0 - 1	Beryllium	0.91	mg/kg		5	NO	Human Health	
6-34-2	L6-SS-068	0 - 1	Boron	14.3	mg/kg		100000	NO	Human Health	
6-34-2	L6-SS-068	0 - 1	Cadmium	1.7	mg/kg		1000	NO	Human Health	
6-34-2	L6-SS-068	0 - 1	Chromium	49.5	mg/kg		10000	NO	Human Health	
6-34-2	L6-SS-068	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-34-2	L6-SS-068	0 - 1	Lead	120	mg/kg		1000	NO	Human Health	
6-34-2	L6-SS-068	0 - 1	Mercury	0.17	mg/kg		310	NO	Human Health	
6-34-2	L6-SS-068	0 - 1	Nickel	27.2	mg/kg		20000	NO	Human Health	
6-34-2	L6-SS-068	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-34-2	L6-SS-068	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-34-2	L6-SS-068	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-34-2	L6-SS-068	0 - 1	Thallium	9.7	mg/kg	ND	143	NO	Human Health	
6-34-3	L6-SS-069	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-34-3	L6-SS-069	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-34-3	L6-SS-069	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-34-3	L6-SS-069	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-34-3	L6-SS-069	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-34-3	L6-SS-069	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-34-3	L6-SS-069	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-34-3	L6-SS-069	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-34-3	L6-SS-069	0 - 1	Antimony	1	mg/kg		816	NO	Human Health	
6-34-3	L6-SS-069	0 - 1	Arsenic	5.7	mg/kg		30	NO	Human Health	
6-34-3	L6-SS-069	0 - 1	Beryllium	0.93	mg/kg		5	NO	Human Health	
6-34-3	L6-SS-069	0 - 1	Boron	9.7	mg/kg		100000	NO	Human Health	
6-34-3	L6-SS-069	0 - 1	Cadmium	1.2	mg/kg		1000	NO	Human Health	
6-34-3	L6-SS-069	0 - 1	Chromium	33.4	mg/kg		10000	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-34-3	L6-SS-069	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-34-3	L6-SS-069	0 - 1	Lead	43.3	mg/kg		1000	NO	Human Health	
6-34-3	L6-SS-069	0 - 1	Mercury	0.055	mg/kg		310	NO	Human Health	
6-34-3	L6-SS-069	0 - 1	Nickel	19.2	mg/kg		20000	NO	Human Health	
6-34-3	L6-SS-069	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-34-3	L6-SS-069	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-34-3	L6-SS-069	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-34-3	L6-SS-069	0 - 1	Thallium	9.4	mg/kg	ND	143	NO	Human Health	
6-34-3	L6-SS-070	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-34-3	L6-SS-070	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-34-3	L6-SS-070	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-34-3	L6-SS-070	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-34-3	L6-SS-070	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-34-3	L6-SS-070	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-34-3	L6-SS-070	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-34-3	L6-SS-070	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-34-3	L6-SS-070	0 - 1	Antimony	1.2	mg/kg		816	NO	Human Health	
6-34-3	L6-SS-070	0 - 1	Arsenic	4.7	mg/kg		30	NO	Human Health	
6-34-3	L6-SS-070	0 - 1	Beryllium	0.64	mg/kg		5	NO	Human Health	
6-34-3	L6-SS-070	0 - 1	Boron	16.6	mg/kg		100000	NO	Human Health	
6-34-3	L6-SS-070	0 - 1	Cadmium	0.64	mg/kg		1000	NO	Human Health	
6-34-3	L6-SS-070	0 - 1	Chromium	25.9	mg/kg		10000	NO	Human Health	
6-34-3	L6-SS-070	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-34-3	L6-SS-070	0 - 1	Lead	26.1	mg/kg		1000	NO	Human Health	
6-34-3	L6-SS-070	0 - 1	Mercury	0.28	mg/kg		310	NO	Human Health	
6-34-3	L6-SS-070	0 - 1	Nickel	15.8	mg/kg		20000	NO	Human Health	
6-34-3	L6-SS-070	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-34-3	L6-SS-070	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-34-3	L6-SS-070	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-34-3	L6-SS-070	0 - 1	Thallium	9.2	mg/kg	ND	143	NO	Human Health	
6-34-3	L6-SS-071	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-34-3	L6-SS-071	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-34-3	L6-SS-071	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-34-3	L6-SS-071	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-34-3	L6-SS-071	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-34-3	L6-SS-071	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-34-3	L6-SS-071	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-34-3	L6-SS-071	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-34-3	L6-SS-071	0 - 1	Antimony	1.2	mg/kg		816	NO	Human Health	
6-34-3	L6-SS-071	0 - 1	Arsenic	5.7	mg/kg		30	NO	Human Health	
6-34-3	L6-SS-071	0 - 1	Beryllium	0.92	mg/kg		5	NO	Human Health	
6-34-3	L6-SS-071	0 - 1	Boron	10.4	mg/kg		100000	NO	Human Health	
6-34-3	L6-SS-071	0 - 1	Cadmium	0.58	mg/kg		1000	NO	Human Health	
6-34-3	L6-SS-071	0 - 1	Chromium	35.9	mg/kg		10000	NO	Human Health	
6-34-3	L6-SS-071	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-34-3	L6-SS-071	0 - 1	Lead	57.1	mg/kg		1000	NO	Human Health	
6-34-3	L6-SS-071	0 - 1	Mercury	0.64	mg/kg		310	NO	Human Health	
6-34-3	L6-SS-071	0 - 1	Nickel	21.5	mg/kg		20000	NO	Human Health	
6-34-3	L6-SS-071	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-34-3	L6-SS-071	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-34-3	L6-SS-071	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-34-3	L6-SS-071	0 - 1	Thallium	8.5	mg/kg	ND	143	NO	Human Health	
6-97	L6-SS-072	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-97	L6-SS-072	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-97	L6-SS-072	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-97	L6-SS-072	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-97	L6-SS-072	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-97	L6-SS-072	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-97	L6-SS-072	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-97	L6-SS-072	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-97	L6-SS-072	0 - 1	Antimony	5.7	mg/kg		816	NO	Human Health	
6-97	L6-SS-072	0 - 1	Arsenic	6.6	mg/kg		30	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-97	L6-SS-072	0 - 1	Beryllium	0.86	mg/kg		5	NO	Human Health	
6-97	L6-SS-072	0 - 1	Boron	10.6	mg/kg		100000	NO	Human Health	
6-97	L6-SS-072	0 - 1	Cadmium	0.66	mg/kg		1000	NO	Human Health	
6-97	L6-SS-072	0 - 1	Chromium	76.4	mg/kg		10000	NO	Human Health	
6-97	L6-SS-072	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-97	L6-SS-072	0 - 1	Lead	163	mg/kg		1000	NO	Human Health	
6-97	L6-SS-072	0 - 1	Mercury	0.89	mg/kg		310	NO	Human Health	
6-97	L6-SS-072	0 - 1	Nickel	75.5	mg/kg		20000	NO	Human Health	
6-97	L6-SS-072	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-97	L6-SS-072	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-97	L6-SS-072	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-97	L6-SS-072	0 - 1	Thallium	9.9	mg/kg	ND	143	NO	Human Health	
6-97	L6-SS-073	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-97	L6-SS-073	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-97	L6-SS-073	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-97	L6-SS-073	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-97	L6-SS-073	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-97	L6-SS-073	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-97	L6-SS-073	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-97	L6-SS-073	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-97	L6-SS-073	0 - 1	Antimony	19	mg/kg		816	NO	Human Health	
6-97	L6-SS-073	0 - 1	Arsenic	8.4	mg/kg		30	NO	Human Health	
6-97	L6-SS-073	0 - 1	Beryllium	0.96	mg/kg		5	NO	Human Health	
6-97	L6-SS-073	0 - 1	Boron	12.4	mg/kg		100000	NO	Human Health	
6-97	L6-SS-073	0 - 1	Cadmium	0.62	mg/kg		1000	NO	Human Health	
6-97	L6-SS-073	0 - 1	Chromium	63.4	mg/kg		10000	NO	Human Health	
6-97	L6-SS-073	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-97	L6-SS-073	0 - 1	Lead	155	mg/kg		1000	NO	Human Health	
6-97	L6-SS-073	0 - 1	Mercury	2.3	mg/kg		310	NO	Human Health	
6-97	L6-SS-073	0 - 1	Nickel	54.8	mg/kg		20000	NO	Human Health	
6-97	L6-SS-073	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-97	L6-SS-073	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-97	L6-SS-073	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-97	L6-SS-073	0 - 1	Thallium	8.4	mg/kg	ND	143	NO	Human Health	
6-97	L6-SS-074	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-97	L6-SS-074	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-97	L6-SS-074	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-97	L6-SS-074	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-97	L6-SS-074	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-97	L6-SS-074	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-97	L6-SS-074	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-97	L6-SS-074	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-97	L6-SS-074	0 - 1	Antimony	4.7	mg/kg		816	NO	Human Health	
6-97	L6-SS-074	0 - 1	Arsenic	9.2	mg/kg		30	NO	Human Health	
6-97	L6-SS-074	0 - 1	Beryllium	0.93	mg/kg		5	NO	Human Health	
6-97	L6-SS-074	0 - 1	Boron	10.8	mg/kg		100000	NO	Human Health	
6-97	L6-SS-074	0 - 1	Cadmium	0.63	mg/kg		1000	NO	Human Health	
6-97	L6-SS-074	0 - 1	Chromium	49.4	mg/kg		10000	NO	Human Health	
6-97	L6-SS-074	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-97	L6-SS-074	0 - 1	Lead	131	mg/kg		1000	NO	Human Health	
6-97	L6-SS-074	0 - 1	Mercury	0.39	mg/kg		310	NO	Human Health	
6-97	L6-SS-074	0 - 1	Nickel	43.6	mg/kg		20000	NO	Human Health	
6-97	L6-SS-074	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-97	L6-SS-074	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-97	L6-SS-074	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-97	L6-SS-074	0 - 1	Thallium	8.3	mg/kg	ND	143	NO	Human Health	
6-92	L6-SS-075	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-92	L6-SS-075	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-92	L6-SS-075	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-92	L6-SS-075	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-92	L6-SS-075	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-92	L6-SS-075	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-92	L6-SS-075	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-92	L6-SS-075	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-92	L6-SS-075	0 - 1	Antimony	1.5	mg/kg		816	NO	Human Health	
6-92	L6-SS-075	0 - 1	Arsenic	16.7	mg/kg		30	NO	Human Health	
6-92	L6-SS-075	0 - 1	Beryllium	1.3	mg/kg		5	NO	Human Health	
6-92	L6-SS-075	0 - 1	Boron	10.4	mg/kg		100000	NO	Human Health	
6-92	L6-SS-075	0 - 1	Cadmium	0.86	mg/kg	ND	1000	NO	Human Health	
6-92	L6-SS-075	0 - 1	Chromium	33.4	mg/kg		10000	NO	Human Health	
6-92	L6-SS-075	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-92	L6-SS-075	0 - 1	Lead	29.9	mg/kg		1000	NO	Human Health	
6-92	L6-SS-075	0 - 1	Mercury	0.33	mg/kg		310	NO	Human Health	
6-92	L6-SS-075	0 - 1	Nickel	32.8	mg/kg		20000	NO	Human Health	
6-92	L6-SS-075	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-92	L6-SS-075	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-92	L6-SS-075	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-92	L6-SS-075	0 - 1	Thallium	8.6	mg/kg	ND	143	NO	Human Health	
6-92	L6-SS-076	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-92	L6-SS-076	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-92	L6-SS-076	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-92	L6-SS-076	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-92	L6-SS-076	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-92	L6-SS-076	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-92	L6-SS-076	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-92	L6-SS-076	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-92	L6-SS-076	0 - 1	Antimony	0.81	mg/kg		816	NO	Human Health	
6-92	L6-SS-076	0 - 1	Arsenic	10.6	mg/kg		30	NO	Human Health	
6-92	L6-SS-076	0 - 1	Beryllium	0.99	mg/kg		5	NO	Human Health	
6-92	L6-SS-076	0 - 1	Boron	10.4	mg/kg		100000	NO	Human Health	
6-92	L6-SS-076	0 - 1	Cadmium	0.93	mg/kg	ND	1000	NO	Human Health	
6-92	L6-SS-076	0 - 1	Chromium	35.4	mg/kg		10000	NO	Human Health	
6-92	L6-SS-076	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-92	L6-SS-076	0 - 1	Lead	21.5	mg/kg		1000	NO	Human Health	
6-92	L6-SS-076	0 - 1	Mercury	0.077	mg/kg		310	NO	Human Health	
6-92	L6-SS-076	0 - 1	Nickel	22.6	mg/kg		20000	NO	Human Health	
6-92	L6-SS-076	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-92	L6-SS-076	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-92	L6-SS-076	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-92	L6-SS-076	0 - 1	Thallium	9.3	mg/kg	ND	143	NO	Human Health	
6-92	L6-SS-077	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-92	L6-SS-077	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-92	L6-SS-077	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-92	L6-SS-077	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-92	L6-SS-077	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-92	L6-SS-077	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-92	L6-SS-077	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-92	L6-SS-077	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-92	L6-SS-077	0 - 1	Antimony	1.3	mg/kg		816	NO	Human Health	
6-92	L6-SS-077	0 - 1	Arsenic	9.9	mg/kg		30	NO	Human Health	
6-92	L6-SS-077	0 - 1	Beryllium	0.91	mg/kg		5	NO	Human Health	
6-92	L6-SS-077	0 - 1	Boron	11.1	mg/kg		100000	NO	Human Health	
6-92	L6-SS-077	0 - 1	Cadmium	0.13	mg/kg		1000	NO	Human Health	
6-92	L6-SS-077	0 - 1	Chromium	32.7	mg/kg		10000	NO	Human Health	
6-92	L6-SS-077	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-92	L6-SS-077	0 - 1	Lead	32.8	mg/kg		1000	NO	Human Health	
6-92	L6-SS-077	0 - 1	Mercury	0.07	mg/kg		310	NO	Human Health	
6-92	L6-SS-077	0 - 1	Nickel	28.9	mg/kg		20000	NO	Human Health	
6-92	L6-SS-077	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-92	L6-SS-077	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-92	L6-SS-077	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-92	L6-SS-077	0 - 1	Thallium	8.7	mg/kg	ND	143	NO	Human Health	
6-92	L6-SS-078	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-92	L6-SS-078	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-92	L6-SS-078	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-92	L6-SS-078	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-92	L6-SS-078	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-92	L6-SS-078	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-92	L6-SS-078	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-92	L6-SS-078	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-92	L6-SS-078	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-92	L6-SS-078	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-92	L6-SS-078	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-92	L6-SS-078	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-92	L6-SS-078	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-92	L6-SS-078	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-92	L6-SS-078	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-92	L6-SS-078	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-92	L6-SS-078	0 - 1	Antimony	1.2	mg/kg		816	NO	Human Health	
6-92	L6-SS-078	0 - 1	Antimony	0.86	mg/kg		816	NO	Human Health	
6-92	L6-SS-078	0 - 1	Arsenic	6.6	mg/kg		30	NO	Human Health	
6-92	L6-SS-078	0 - 1	Arsenic	6.5	mg/kg		30	NO	Human Health	
6-92	L6-SS-078	0 - 1	Beryllium	0.79	mg/kg		5	NO	Human Health	
6-92	L6-SS-078	0 - 1	Beryllium	0.86	mg/kg		5	NO	Human Health	
6-92	L6-SS-078	0 - 1	Boron	8.4	mg/kg		100000	NO	Human Health	
6-92	L6-SS-078	0 - 1	Boron	10.5	mg/kg		100000	NO	Human Health	
6-92	L6-SS-078	0 - 1	Cadmium	0.17	mg/kg		1000	NO	Human Health	
6-92	L6-SS-078	0 - 1	Cadmium	0.44	mg/kg		1000	NO	Human Health	
6-92	L6-SS-078	0 - 1	Chromium	30.3	mg/kg		10000	NO	Human Health	
6-92	L6-SS-078	0 - 1	Chromium	51.9	mg/kg		10000	NO	Human Health	
6-92	L6-SS-078	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-92	L6-SS-078	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-92	L6-SS-078	0 - 1	Lead	27.1	mg/kg		1000	NO	Human Health	
6-92	L6-SS-078	0 - 1	Lead	26.7	mg/kg		1000	NO	Human Health	
6-92	L6-SS-078	0 - 1	Mercury	0.045	mg/kg		310	NO	Human Health	
6-92	L6-SS-078	0 - 1	Mercury	0.05	mg/kg		310	NO	Human Health	
6-92	L6-SS-078	0 - 1	Nickel	32	mg/kg		20000	NO	Human Health	
6-92	L6-SS-078	0 - 1	Nickel	21.7	mg/kg		20000	NO	Human Health	
6-92	L6-SS-078	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-92	L6-SS-078	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-92	L6-SS-078	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-92	L6-SS-078	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-92	L6-SS-078	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-92	L6-SS-078	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-92	L6-SS-078	0 - 1	Thallium	9.8	mg/kg	ND	143	NO	Human Health	
6-92	L6-SS-078	0 - 1	Thallium	8.3	mg/kg	ND	143	NO	Human Health	
6-137-2	L6-SS-079	0 - 1	Total PCBs	0.021	mg/kg	ND	10	NO	Human Health	
6-31	L6-SS-080	0 - 1	Total PCBs	0.93	mg/kg		10	NO	Human Health	
6-82-4	L6-SS-081	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-82-4	L6-SS-081	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-82-4	L6-SS-081	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-82-4	L6-SS-081	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-82-4	L6-SS-081	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-82-4	L6-SS-081	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-82-4	L6-SS-081	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-82-4	L6-SS-081	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-82-4	L6-SS-081	0 - 1	Antimony	0.91	mg/kg		816	NO	Human Health	
6-82-4	L6-SS-081	0 - 1	Arsenic	5.4	mg/kg		30	NO	Human Health	
6-82-4	L6-SS-081	0 - 1	Beryllium	0.97	mg/kg		5	NO	Human Health	
6-82-4	L6-SS-081	0 - 1	Boron	26.1	mg/kg		100000	NO	Human Health	
6-82-4	L6-SS-081	0 - 1	Cadmium	0.36	mg/kg		1000	NO	Human Health	
6-82-4	L6-SS-081	0 - 1	Chromium	33	mg/kg		10000	NO	Human Health	
6-82-4	L6-SS-081	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-82-4	L6-SS-081	0 - 1	Lead	19.9	mg/kg		1000	NO	Human Health	
6-82-4	L6-SS-081	0 - 1	Mercury	0.034	mg/kg		310	NO	Human Health	
6-82-4	L6-SS-081	0 - 1	Nickel	18.1	mg/kg		20000	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-82-4	L6-SS-081	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-82-4	L6-SS-081	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-82-4	L6-SS-081	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-82-4	L6-SS-081	0 - 1	Thallium	2.3	mg/kg	ND	143	NO	Human Health	
6-82-4	L6-SS-081	1 - 2	1,1,1-Trichloroethane	0.004	mg/kg	ND	1200	NO	Human Health	
6-82-4	L6-SS-081	1 - 2	1,1,2,2-Tetrachloroethane	0.004	mg/kg	ND	0.93	NO	Human Health	
6-82-4	L6-SS-081	1 - 2	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	0.004	mg/kg	ND	5600	NO	Human Health	
6-82-4	L6-SS-081	1 - 2	1,1,2-Trichloroethane	0.004	mg/kg	ND	1.6	NO	Human Health	
6-82-4	L6-SS-081	1 - 2	1,1-Dichloroethane	0.004	mg/kg	ND	1700	NO	Human Health	
6-82-4	L6-SS-081	1 - 2	1,1-Dichloroethene	0.004	mg/kg	ND	410	NO	Human Health	
6-82-4	L6-SS-081	1 - 2	1,2-Dichloroethane	0.004	mg/kg	ND	0.6	NO	Human Health	
6-82-4	L6-SS-081	1 - 2	1,2-Dichloropropane	0.004	mg/kg	ND	0.74	NO	Human Health	
6-82-4	L6-SS-081	1 - 2	2-Butanone / Methyl Ethyl Ketone	0.014	mg/kg	ND	110000	NO	Human Health	
6-82-4	L6-SS-081	1 - 2	4-Methyl-2-Pentanone / Methyl Isobutyl Ketone	0.014	mg/kg	ND	47000	NO	Human Health	
6-82-4	L6-SS-081	1 - 2	Acetone	0.014	mg/kg	ND	54000	NO	Human Health	
6-82-4	L6-SS-081	1 - 2	Benzene	0.004	mg/kg	ND	1.4	NO	Human Health	
6-82-4	L6-SS-081	1 - 2	Bromodichloromethane	0.004	mg/kg	ND	1.8	NO	Human Health	
6-82-4	L6-SS-081	1 - 2	Bromoform	0.004	mg/kg	ND	220	NO	Human Health	
6-82-4	L6-SS-081	1 - 2	Bromomethane	0.004	mg/kg	ND	13	NO	Human Health	
6-82-4	L6-SS-081	1 - 2	Carbon disulfide	0.004	mg/kg	ND	720	NO	Human Health	
6-82-4	L6-SS-081	1 - 2	Carbon tetrachloride	0.004	mg/kg	ND	0.55	NO	Human Health	
6-82-4	L6-SS-081	1 - 2	Chlorobenzene	0.004	mg/kg	ND	530	NO	Human Health	
6-82-4	L6-SS-081	1 - 2	Chloroethane	0.004	mg/kg	ND	6.5	NO	Human Health	
6-82-4	L6-SS-081	1 - 2	Chloroform	0.004	mg/kg	ND	0.47	NO	Human Health	
6-82-4	L6-SS-081	1 - 2	Chloromethane	0.004	mg/kg	ND	160	NO	Human Health	
6-82-4	L6-SS-081	1 - 2	cis-1,2-Dichloroethene	0.004	mg/kg	ND	150	NO	Human Health	
6-82-4	L6-SS-081	1 - 2	Dibromochloromethane / Chlorodibromomethane	0.004	mg/kg	ND	2.6	NO	Human Health	
6-82-4	L6-SS-081	1 - 2	Dichlorodifluoromethane	0.004	mg/kg	ND	310	NO	Human Health	
6-82-4	L6-SS-081	1 - 2	Ethylbenzene	0.004	mg/kg	ND	400	NO	Human Health	
6-82-4	L6-SS-081	1 - 2	Methylene bromide / Dibromomethane	0.004	mg/kg	ND	230	NO	Human Health	
6-82-4	L6-SS-081	1 - 2	Methylene chloride	0.004	mg/kg	ND	21	NO	Human Health	
6-82-4	L6-SS-081	1 - 2	Styrene	0.004	mg/kg	ND	1700	NO	Human Health	
6-82-4	L6-SS-081	1 - 2	Tetrachloroethene	0.004	mg/kg	ND	1.3	NO	Human Health	
6-82-4	L6-SS-081	1 - 2	Toluene	0.004	mg/kg	ND	520	NO	Human Health	
6-82-4	L6-SS-081	1 - 2	Total Xylenes	0.006	mg/kg	ND	420	NO	Human Health	
6-82-4	L6-SS-081	1 - 2	trans-1,2-Dichloroethene	0.004	mg/kg	ND	230	NO	Human Health	
6-82-4	L6-SS-081	1 - 2	Trichloroethene	0.004	mg/kg	ND	0.11	NO	Human Health	
6-82-4	L6-SS-081	1 - 2	Trichlorofluoromethane	0.004	mg/kg	ND	2000	NO	Human Health	
6-82-4	L6-SS-081	1 - 2	Vinyl chloride	0.004	mg/kg	ND	0.75	NO	Human Health	
6-49	L6-SS-082	1 - 2	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	0.003	mg/kg	ND	5600	NO	Human Health	
6-49	L6-SS-082	4 - 6	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	0.0036	mg/kg	ND	5600	NO	Human Health	
6-49	L6-SS-083	1 - 2	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	0.002	mg/kg	ND	5600	NO	Human Health	
6-49	L6-SS-083	4 - 6	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	0.004	mg/kg	ND	5600	NO	Human Health	
6-206	L6-SS-084	2 - 4	1,1,1-Trichloroethane	0.002	mg/kg	ND	1200	NO	Human Health	
6-206	L6-SS-084	2 - 4	1,1,2,2-Tetrachloroethane	0.002	mg/kg	ND	0.93	NO	Human Health	
6-206	L6-SS-084	2 - 4	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	0.002	mg/kg	ND	5600	NO	Human Health	
6-206	L6-SS-084	2 - 4	1,1,2-Trichloroethane	0.002	mg/kg	ND	1.6	NO	Human Health	
6-206	L6-SS-084	2 - 4	1,1-Dichloroethane	0.002	mg/kg	ND	1700	NO	Human Health	
6-206	L6-SS-084	2 - 4	1,1-Dichloroethene	0.002	mg/kg	ND	410	NO	Human Health	
6-206	L6-SS-084	2 - 4	1,2-Dichloroethane	0.002	mg/kg	ND	0.6	NO	Human Health	
6-206	L6-SS-084	2 - 4	1,2-Dichloropropane	0.002	mg/kg	ND	0.74	NO	Human Health	
6-206	L6-SS-084	2 - 4	2-Butanone / Methyl Ethyl Ketone	0.007	mg/kg	ND	110000	NO	Human Health	
6-206	L6-SS-084	2 - 4	4-Methyl-2-Pentanone / Methyl Isobutyl Ketone	0.007	mg/kg	ND	47000	NO	Human Health	
6-206	L6-SS-084	2 - 4	Acetone	0.007	mg/kg	ND	54000	NO	Human Health	
6-206	L6-SS-084	2 - 4	Aluminum	30100	mg/kg		100000	NO	Human Health	
6-206	L6-SS-084	2 - 4	Antimony	1.5	mg/kg		816	NO	Human Health	
6-206	L6-SS-084	2 - 4	Antimony	1.2	mg/kg		816	NO	Human Health	
6-206	L6-SS-084	2 - 4	Arsenic	11.7	mg/kg		30	NO	Human Health	
6-206	L6-SS-084	2 - 4	Arsenic	25	mg/kg		30	NO	Human Health	
6-206	L6-SS-084	2 - 4	Barium	365	mg/kg		67000	NO	Human Health	
6-206	L6-SS-084	2 - 4	Benzene	0.002	mg/kg	ND	1.4	NO	Human Health	
6-206	L6-SS-084	2 - 4	Beryllium	1.3	mg/kg		5	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-206	L6-SS-084	2 - 4	Beryllium	1	mg/kg		5	NO	Human Health	
6-206	L6-SS-084	2 - 4	Boron	15.7	mg/kg		100000	NO	Human Health	
6-206	L6-SS-084	2 - 4	Bromodichloromethane	0.002	mg/kg	ND	1.8	NO	Human Health	
6-206	L6-SS-084	2 - 4	Bromoform	0.002	mg/kg	ND	220	NO	Human Health	
6-206	L6-SS-084	2 - 4	Bromomethane	0.002	mg/kg	ND	13	NO	Human Health	
6-206	L6-SS-084	2 - 4	Cadmium	1	mg/kg	ND	1000	NO	Human Health	
6-206	L6-SS-084	2 - 4	Cadmium	9.7	mg/kg	ND	1000	NO	Human Health	
6-206	L6-SS-084	2 - 4	Carbon disulfide	0.002	mg/kg	ND	720	NO	Human Health	
6-206	L6-SS-084	2 - 4	Carbon tetrachloride	0.002	mg/kg	ND	0.55	NO	Human Health	
6-206	L6-SS-084	2 - 4	Chlorobenzene	0.002	mg/kg	ND	530	NO	Human Health	
6-206	L6-SS-084	2 - 4	Chloroethane	0.002	mg/kg	ND	6.5	NO	Human Health	
6-206	L6-SS-084	2 - 4	Chloroform	0.002	mg/kg	ND	0.47	NO	Human Health	
6-206	L6-SS-084	2 - 4	Chloromethane	0.002	mg/kg	ND	160	NO	Human Health	
6-206	L6-SS-084	2 - 4	Chromium	38.7	mg/kg		10000	NO	Human Health	
6-206	L6-SS-084	2 - 4	Chromium	36.8	mg/kg		10000	NO	Human Health	
6-206	L6-SS-084	2 - 4	cis-1,2-Dichloroethene	0.002	mg/kg	ND	150	NO	Human Health	
6-206	L6-SS-084	2 - 4	Cobalt	12.8	mg/kg		1900	NO	Human Health	
6-206	L6-SS-084	2 - 4	Copper	34.7	mg/kg		41000	NO	Human Health	
6-206	L6-SS-084	2 - 4	Dibromochloromethane / Chlorodibromomethane	0.002	mg/kg	ND	2.6	NO	Human Health	
6-206	L6-SS-084	2 - 4	Dichlorodifluoromethane	0.002	mg/kg	ND	310	NO	Human Health	
6-206	L6-SS-084	2 - 4	Ethylbenzene	0.002	mg/kg	ND	400	NO	Human Health	
6-206	L6-SS-084	2 - 4	Iron	42300	mg/kg		100000	NO	Human Health	
6-206	L6-SS-084	2 - 4	Lead	19	mg/kg		1000	NO	Human Health	
6-206	L6-SS-084	2 - 4	Lead	10.8	mg/kg		1000	NO	Human Health	
6-206	L6-SS-084	2 - 4	Manganese	893	mg/kg		19000	NO	Human Health	
6-206	L6-SS-084	2 - 4	Mercury	0.043	mg/kg		310	NO	Human Health	
6-206	L6-SS-084	2 - 4	Mercury	0.051	mg/kg		310	NO	Human Health	
6-206	L6-SS-084	2 - 4	Methylene bromide / Dibromomethane	0.002	mg/kg	ND	230	NO	Human Health	
6-206	L6-SS-084	2 - 4	Methylene chloride	0.002	mg/kg	ND	21	NO	Human Health	
6-206	L6-SS-084	2 - 4	Nickel	30.3	mg/kg		20000	NO	Human Health	
6-206	L6-SS-084	2 - 4	Nickel	45.1	mg/kg		20000	NO	Human Health	
6-206	L6-SS-084	2 - 4	Selenium	4.8	mg/kg		5100	NO	Human Health	
6-206	L6-SS-084	2 - 4	Silver	0.97	mg/kg	ND	5100	NO	Human Health	
6-206	L6-SS-084	2 - 4	Styrene	0.002	mg/kg	ND	1700	NO	Human Health	
6-206	L6-SS-084	2 - 4	Tetrachloroethene	0.002	mg/kg	ND	1.3	NO	Human Health	
6-206	L6-SS-084	2 - 4	Thallium	10.4	mg/kg	ND	143	NO	Human Health	
6-206	L6-SS-084	2 - 4	Thallium	19.4	mg/kg	ND	143	NO	Human Health	
6-206	L6-SS-084	2 - 4	Toluene	0.002	mg/kg	ND	520	NO	Human Health	
6-206	L6-SS-084	2 - 4	Total Xylenes	0.003	mg/kg	ND	420	NO	Human Health	
6-206	L6-SS-084	2 - 4	trans-1,2-Dichloroethene	0.002	mg/kg	ND	230	NO	Human Health	
6-206	L6-SS-084	2 - 4	Trichloroethene	0.002	mg/kg	ND	0.11	NO	Human Health	
6-206	L6-SS-084	2 - 4	Trichlorofluoromethane	0.002	mg/kg	ND	2000	NO	Human Health	
6-206	L6-SS-084	2 - 4	Vanadium	86.2	mg/kg		1000	NO	Human Health	
6-206	L6-SS-084	2 - 4	Vinyl chloride	0.002	mg/kg	ND	0.75	NO	Human Health	
6-206	L6-SS-084	2 - 4	Zinc	91.9	mg/kg		100000	NO	Human Health	
6-206	L6-SS-084	6 - 8	1,1,1-Trichloroethane	0.002	mg/kg	ND	1200	NO	Human Health	
6-206	L6-SS-084	6 - 8	1,1,2,2-Tetrachloroethane	0.002	mg/kg	ND	0.93	NO	Human Health	
6-206	L6-SS-084	6 - 8	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	0.004	mg/kg		5600	NO	Human Health	
6-206	L6-SS-084	6 - 8	1,1,2-Trichloroethane	0.002	mg/kg	ND	1.6	NO	Human Health	
6-206	L6-SS-084	6 - 8	1,1-Dichloroethane	0.002	mg/kg	ND	1700	NO	Human Health	
6-206	L6-SS-084	6 - 8	1,1-Dichloroethene	0.002	mg/kg	ND	410	NO	Human Health	
6-206	L6-SS-084	6 - 8	1,2-Dichloroethane	0.002	mg/kg	ND	0.6	NO	Human Health	
6-206	L6-SS-084	6 - 8	1,2-Dichloropropane	0.002	mg/kg	ND	0.74	NO	Human Health	
6-206	L6-SS-084	6 - 8	2-Butanone / Methyl Ethyl Ketone	0.006	mg/kg	ND	110000	NO	Human Health	
6-206	L6-SS-084	6 - 8	4-Methyl-2-Pentanone / Methyl Isobutyl Ketone	0.006	mg/kg	ND	47000	NO	Human Health	
6-206	L6-SS-084	6 - 8	Acetone	0.009	mg/kg		54000	NO	Human Health	
6-206	L6-SS-084	6 - 8	Antimony	6	mg/kg	ND	816	NO	Human Health	
6-206	L6-SS-084	6 - 8	Antimony	0.66	mg/kg		816	NO	Human Health	
6-206	L6-SS-084	6 - 8	Arsenic	6.2	mg/kg		30	NO	Human Health	
6-206	L6-SS-084	6 - 8	Arsenic	5.9	mg/kg		30	NO	Human Health	
6-206	L6-SS-084	6 - 8	Benzene	0.002	mg/kg	ND	1.4	NO	Human Health	
6-206	L6-SS-084	6 - 8	Beryllium	0.92	mg/kg		5	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-206	L6-SS-084	6 - 8	Beryllium	0.9	mg/kg		5	NO	Human Health	
6-206	L6-SS-084	6 - 8	Boron	16.2	mg/kg		100000	NO	Human Health	
6-206	L6-SS-084	6 - 8	Boron	13.3	mg/kg		100000	NO	Human Health	
6-206	L6-SS-084	6 - 8	Bromodichloromethane	0.002	mg/kg	ND	1.8	NO	Human Health	
6-206	L6-SS-084	6 - 8	Bromoform	0.002	mg/kg	ND	220	NO	Human Health	
6-206	L6-SS-084	6 - 8	Bromomethane	0.002	mg/kg	ND	13	NO	Human Health	
6-206	L6-SS-084	6 - 8	Cadmium	1	mg/kg	ND	1000	NO	Human Health	
6-206	L6-SS-084	6 - 8	Cadmium	1	mg/kg	ND	1000	NO	Human Health	
6-206	L6-SS-084	6 - 8	Carbon disulfide	0.002	mg/kg	ND	720	NO	Human Health	
6-206	L6-SS-084	6 - 8	Carbon tetrachloride	0.002	mg/kg	ND	0.55	NO	Human Health	
6-206	L6-SS-084	6 - 8	Chlorobenzene	0.002	mg/kg	ND	530	NO	Human Health	
6-206	L6-SS-084	6 - 8	Chloroethane	0.002	mg/kg	ND	6.5	NO	Human Health	
6-206	L6-SS-084	6 - 8	Chloroform	0.002	mg/kg	ND	0.47	NO	Human Health	
6-206	L6-SS-084	6 - 8	Chloromethane	0.002	mg/kg	ND	160	NO	Human Health	
6-206	L6-SS-084	6 - 8	Chromium	30.5	mg/kg		10000	NO	Human Health	
6-206	L6-SS-084	6 - 8	Chromium	30.8	mg/kg		10000	NO	Human Health	
6-206	L6-SS-084	6 - 8	cis-1,2-Dichloroethene	0.002	mg/kg	ND	150	NO	Human Health	
6-206	L6-SS-084	6 - 8	Dibromochloromethane / Chlorodibromomethane	0.002	mg/kg	ND	2.6	NO	Human Health	
6-206	L6-SS-084	6 - 8	Dichlorodifluoromethane	0.002	mg/kg	ND	310	NO	Human Health	
6-206	L6-SS-084	6 - 8	Ethylbenzene	0.002	mg/kg	ND	400	NO	Human Health	
6-206	L6-SS-084	6 - 8	Lead	11.2	mg/kg		1000	NO	Human Health	
6-206	L6-SS-084	6 - 8	Lead	11.2	mg/kg		1000	NO	Human Health	
6-206	L6-SS-084	6 - 8	Mercury	0.025	mg/kg	ND	310	NO	Human Health	
6-206	L6-SS-084	6 - 8	Mercury	0.013	mg/kg		310	NO	Human Health	
6-206	L6-SS-084	6 - 8	Methylene bromide / Dibromomethane	0.002	mg/kg	ND	230	NO	Human Health	
6-206	L6-SS-084	6 - 8	Methylene chloride	0.002	mg/kg	ND	21	NO	Human Health	
6-206	L6-SS-084	6 - 8	Nickel	21.1	mg/kg		20000	NO	Human Health	
6-206	L6-SS-084	6 - 8	Nickel	21.5	mg/kg		20000	NO	Human Health	
6-206	L6-SS-084	6 - 8	Styrene	0.002	mg/kg	ND	1700	NO	Human Health	
6-206	L6-SS-084	6 - 8	Tetrachloroethene	0.002	mg/kg	ND	1.3	NO	Human Health	
6-206	L6-SS-084	6 - 8	Thallium	2	mg/kg	ND	143	NO	Human Health	
6-206	L6-SS-084	6 - 8	Thallium	2	mg/kg	ND	143	NO	Human Health	
6-206	L6-SS-084	6 - 8	Toluene	0.002	mg/kg	ND	520	NO	Human Health	
6-206	L6-SS-084	6 - 8	Total Xylenes	0.003	mg/kg	ND	420	NO	Human Health	
6-206	L6-SS-084	6 - 8	trans-1,2-Dichloroethene	0.002	mg/kg	ND	230	NO	Human Health	
6-206	L6-SS-084	6 - 8	Trichloroethene	0.002	mg/kg	ND	0.11	NO	Human Health	
6-206	L6-SS-084	6 - 8	Trichlorofluoromethane	0.002	mg/kg	ND	2000	NO	Human Health	
6-206	L6-SS-084	6 - 8	Vinyl chloride	0.002	mg/kg	ND	0.75	NO	Human Health	
6-34-2	L6-SS-085	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-34-2	L6-SS-085	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-34-2	L6-SS-085	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-34-2	L6-SS-085	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-34-2	L6-SS-085	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-34-2	L6-SS-085	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-34-2	L6-SS-085	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-34-2	L6-SS-085	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-34-2	L6-SS-085	0 - 1	Antimony	1.3	mg/kg		816	NO	Human Health	
6-34-2	L6-SS-085	0 - 1	Arsenic	5.9	mg/kg		30	NO	Human Health	
6-34-2	L6-SS-085	0 - 1	Beryllium	1.2	mg/kg		5	NO	Human Health	
6-34-2	L6-SS-085	0 - 1	Boron	12	mg/kg		100000	NO	Human Health	
6-34-2	L6-SS-085	0 - 1	Cadmium	1.2	mg/kg	ND	1000	NO	Human Health	
6-34-2	L6-SS-085	0 - 1	Chromium	43.7	mg/kg		10000	NO	Human Health	
6-34-2	L6-SS-085	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-34-2	L6-SS-085	0 - 1	Lead	21.9	mg/kg		1000	NO	Human Health	
6-34-2	L6-SS-085	0 - 1	Mercury	0.2	mg/kg		310	NO	Human Health	
6-34-2	L6-SS-085	0 - 1	Nickel	24.8	mg/kg		20000	NO	Human Health	
6-34-2	L6-SS-085	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-34-2	L6-SS-085	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-34-2	L6-SS-085	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-34-2	L6-SS-085	0 - 1	Thallium	11.5	mg/kg	ND	143	NO	Human Health	
6-34-1	L6-SS-086	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-34-1	L6-SS-086	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-34-1	L6-SS-086	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-34-1	L6-SS-086	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-34-1	L6-SS-086	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-34-1	L6-SS-086	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-34-1	L6-SS-086	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-34-1	L6-SS-086	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-34-1	L6-SS-086	0 - 1	Antimony	3.2	mg/kg		816	NO	Human Health	
6-34-1	L6-SS-086	0 - 1	Arsenic	7.5	mg/kg		30	NO	Human Health	
6-34-1	L6-SS-086	0 - 1	Beryllium	0.89	mg/kg		5	NO	Human Health	
6-34-1	L6-SS-086	0 - 1	Boron	30	mg/kg		100000	NO	Human Health	
6-34-1	L6-SS-086	0 - 1	Cadmium	3.8	mg/kg		1000	NO	Human Health	
6-34-1	L6-SS-086	0 - 1	Chromium	48.9	mg/kg		10000	NO	Human Health	
6-34-1	L6-SS-086	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-34-1	L6-SS-086	0 - 1	Lead	427	mg/kg		1000	NO	Human Health	
6-34-1	L6-SS-086	0 - 1	Mercury	42.3	mg/kg		310	NO	Human Health	
6-34-1	L6-SS-086	0 - 1	Nickel	31.8	mg/kg		20000	NO	Human Health	
6-34-1	L6-SS-086	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-34-1	L6-SS-086	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-34-1	L6-SS-086	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-34-1	L6-SS-086	0 - 1	Thallium	11.6	mg/kg	ND	143	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	Aluminum	25900	mg/kg		100000	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	Antimony	1.1	mg/kg		816	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	Antimony	0.63	mg/kg		816	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	Arsenic	8.9	mg/kg		30	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	Arsenic	7.4	mg/kg		30	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	Barium	370	mg/kg		67000	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	Beryllium	0.93	mg/kg		5	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	Beryllium	1	mg/kg		5	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	Boron	14.8	mg/kg		100000	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	Cadmium	10.5	mg/kg	ND	1000	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	Cadmium	0.98	mg/kg	ND	1000	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	Chromium	33.9	mg/kg		10000	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	Chromium	34.8	mg/kg		10000	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	Cobalt	21.5	mg/kg		1900	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	Copper	26.6	mg/kg		41000	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	Iron	25400	mg/kg		100000	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	Lead	27.7	mg/kg		1000	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	Lead	60.9	mg/kg		1000	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	Manganese	1910	mg/kg		19000	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	Mercury	0.09	mg/kg		310	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	Mercury	0.1	mg/kg		310	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	Nickel	23.8	mg/kg		20000	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	Nickel	38.1	mg/kg		20000	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-34-2	L6-SS-087	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	Selenium	2.4	mg/kg		5100	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	Silver	1.1	mg/kg	ND	5100	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	Thallium	21.1	mg/kg	ND	143	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	Thallium	9.8	mg/kg	ND	143	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	Vanadium	67	mg/kg		1000	NO	Human Health	
6-34-2	L6-SS-087	0 - 1	Zinc	83	mg/kg		100000	NO	Human Health	
6-94	L6-SS-088	1 - 2	Antimony	0.94	mg/kg		816	NO	Human Health	
6-94	L6-SS-088	1 - 2	Arsenic	10.7	mg/kg		30	NO	Human Health	
6-94	L6-SS-088	1 - 2	Beryllium	0.85	mg/kg		5	NO	Human Health	
6-94	L6-SS-088	1 - 2	Boron	9	mg/kg		100000	NO	Human Health	
6-94	L6-SS-088	1 - 2	Cadmium	0.94	mg/kg	ND	1000	NO	Human Health	
6-94	L6-SS-088	1 - 2	Chromium	32.4	mg/kg		10000	NO	Human Health	
6-94	L6-SS-088	1 - 2	Lead	227	mg/kg		1000	NO	Human Health	
6-94	L6-SS-088	1 - 2	Mercury	1.4	mg/kg		310	NO	Human Health	
6-94	L6-SS-088	1 - 2	Nickel	20	mg/kg		20000	NO	Human Health	
6-94	L6-SS-088	1 - 2	Thallium	9.4	mg/kg	ND	143	NO	Human Health	
6-94	L6-SS-088	2 - 4	Antimony	8.8	mg/kg		816	NO	Human Health	
6-94	L6-SS-088	2 - 4	Arsenic	10.8	mg/kg		30	NO	Human Health	
6-94	L6-SS-088	2 - 4	Beryllium	1.2	mg/kg		5	NO	Human Health	
6-94	L6-SS-088	2 - 4	Boron	9.2	mg/kg		100000	NO	Human Health	
6-94	L6-SS-088	2 - 4	Cadmium	2	mg/kg		1000	NO	Human Health	
6-94	L6-SS-088	2 - 4	Chromium	36.5	mg/kg		10000	NO	Human Health	
6-94	L6-SS-088	2 - 4	Lead	200	mg/kg		1000	NO	Human Health	
6-94	L6-SS-088	2 - 4	Mercury	0.5	mg/kg		310	NO	Human Health	
6-94	L6-SS-088	2 - 4	Nickel	82.4	mg/kg		20000	NO	Human Health	
6-94	L6-SS-088	2 - 4	Thallium	9.8	mg/kg	ND	143	NO	Human Health	
6-94	L6-SS-089	0 - 1	Antimony	1.2	mg/kg		816	NO	Human Health	
6-94	L6-SS-089	0 - 1	Arsenic	10.3	mg/kg		30	NO	Human Health	
6-94	L6-SS-089	0 - 1	Beryllium	0.91	mg/kg		5	NO	Human Health	
6-94	L6-SS-089	0 - 1	Boron	10.5	mg/kg		100000	NO	Human Health	
6-94	L6-SS-089	0 - 1	Cadmium	0.9	mg/kg	ND	1000	NO	Human Health	
6-94	L6-SS-089	0 - 1	Chromium	28.4	mg/kg		10000	NO	Human Health	
6-94	L6-SS-089	0 - 1	Lead	118	mg/kg		1000	NO	Human Health	
6-94	L6-SS-089	0 - 1	Mercury	0.47	mg/kg		310	NO	Human Health	
6-94	L6-SS-089	0 - 1	Nickel	22.3	mg/kg		20000	NO	Human Health	
6-94	L6-SS-089	0 - 1	Thallium	9	mg/kg	ND	143	NO	Human Health	
6-94	L6-SS-090	0 - 1	Antimony	1.2	mg/kg		816	NO	Human Health	
6-94	L6-SS-090	0 - 1	Arsenic	9.1	mg/kg		30	NO	Human Health	
6-94	L6-SS-090	0 - 1	Beryllium	0.81	mg/kg		5	NO	Human Health	
6-94	L6-SS-090	0 - 1	Boron	9.4	mg/kg		100000	NO	Human Health	
6-94	L6-SS-090	0 - 1	Cadmium	0.09	mg/kg		1000	NO	Human Health	
6-94	L6-SS-090	0 - 1	Chromium	29.8	mg/kg		10000	NO	Human Health	
6-94	L6-SS-090	0 - 1	Lead	205	mg/kg		1000	NO	Human Health	
6-94	L6-SS-090	0 - 1	Mercury	2	mg/kg		310	NO	Human Health	
6-94	L6-SS-090	0 - 1	Nickel	21.2	mg/kg		20000	NO	Human Health	
6-94	L6-SS-090	0 - 1	Thallium	9.6	mg/kg	ND	143	NO	Human Health	
6-34-1	L6-SS-092	1 - 2	Antimony	1.2	mg/kg		816	NO	Human Health	
6-34-1	L6-SS-092	1 - 2	Arsenic	10.4	mg/kg		30	NO	Human Health	
6-34-1	L6-SS-092	1 - 2	Beryllium	1.1	mg/kg		5	NO	Human Health	
6-34-1	L6-SS-092	1 - 2	Boron	14	mg/kg		100000	NO	Human Health	
6-34-1	L6-SS-092	1 - 2	Cadmium	1	mg/kg	ND	1000	NO	Human Health	
6-34-1	L6-SS-092	1 - 2	Chromium	41.6	mg/kg		10000	NO	Human Health	
6-34-1	L6-SS-092	1 - 2	Lead	34.9	mg/kg		1000	NO	Human Health	
6-34-1	L6-SS-092	1 - 2	Mercury	1.8	mg/kg		310	NO	Human Health	
6-34-1	L6-SS-092	1 - 2	Nickel	27.1	mg/kg		20000	NO	Human Health	
6-34-1	L6-SS-092	1 - 2	Thallium	10.3	mg/kg	ND	143	NO	Human Health	
6-34-1	L6-SS-092	2 - 4	Antimony	1.5	mg/kg		816	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-34-1	L6-SS-092	2 - 4	Arsenic	11.2	mg/kg		30	NO	Human Health	
6-34-1	L6-SS-092	2 - 4	Beryllium	1.2	mg/kg		5	NO	Human Health	
6-34-1	L6-SS-092	2 - 4	Boron	12.8	mg/kg		100000	NO	Human Health	
6-34-1	L6-SS-092	2 - 4	Cadmium	0.77	mg/kg		1000	NO	Human Health	
6-34-1	L6-SS-092	2 - 4	Chromium	36.6	mg/kg		10000	NO	Human Health	
6-34-1	L6-SS-092	2 - 4	Lead	15.2	mg/kg		1000	NO	Human Health	
6-34-1	L6-SS-092	2 - 4	Mercury	0.18	mg/kg		310	NO	Human Health	
6-34-1	L6-SS-092	2 - 4	Nickel	78.7	mg/kg		20000	NO	Human Health	
6-34-1	L6-SS-092	2 - 4	Thallium	9.6	mg/kg	ND	143	NO	Human Health	
6-34-1	L6-SS-093	0 - 1	Antimony	0.75	mg/kg		816	NO	Human Health	
6-34-1	L6-SS-093	0 - 1	Arsenic	7.2	mg/kg		30	NO	Human Health	
6-34-1	L6-SS-093	0 - 1	Beryllium	0.87	mg/kg		5	NO	Human Health	
6-34-1	L6-SS-093	0 - 1	Boron	10.5	mg/kg		100000	NO	Human Health	
6-34-1	L6-SS-093	0 - 1	Cadmium	0.87	mg/kg	ND	1000	NO	Human Health	
6-34-1	L6-SS-093	0 - 1	Chromium	32.1	mg/kg		10000	NO	Human Health	
6-34-1	L6-SS-093	0 - 1	Lead	23.6	mg/kg		1000	NO	Human Health	
6-34-1	L6-SS-093	0 - 1	Mercury	1.4	mg/kg		310	NO	Human Health	
6-34-1	L6-SS-093	0 - 1	Nickel	16.2	mg/kg		20000	NO	Human Health	
6-34-1	L6-SS-093	0 - 1	Thallium	8.7	mg/kg	ND	143	NO	Human Health	
6-34-1	L6-SS-093	1 - 2	Antimony	0.94	mg/kg		816	NO	Human Health	
6-34-1	L6-SS-093	1 - 2	Arsenic	9.1	mg/kg		30	NO	Human Health	
6-34-1	L6-SS-093	1 - 2	Beryllium	0.98	mg/kg		5	NO	Human Health	
6-34-1	L6-SS-093	1 - 2	Boron	11.2	mg/kg		100000	NO	Human Health	
6-34-1	L6-SS-093	1 - 2	Cadmium	0.95	mg/kg	ND	1000	NO	Human Health	
6-34-1	L6-SS-093	1 - 2	Chromium	36.2	mg/kg		10000	NO	Human Health	
6-34-1	L6-SS-093	1 - 2	Lead	18	mg/kg		1000	NO	Human Health	
6-34-1	L6-SS-093	1 - 2	Mercury	1.2	mg/kg		310	NO	Human Health	
6-34-1	L6-SS-093	1 - 2	Nickel	19.5	mg/kg		20000	NO	Human Health	
6-34-1	L6-SS-093	1 - 2	Thallium	9.5	mg/kg	ND	143	NO	Human Health	
6-49	L6-SS-200	0 - 1	Total PCBs	0.019	mg/kg	ND	10	NO	Human Health	
6-206	L6-SS-201	0 - 1	1,1,1-Trichloroethane	0.002	mg/kg		1200	NO	Human Health	
6-206	L6-SS-201	0 - 1	1,1,2,2-Tetrachloroethane	0.004	mg/kg	ND	0.93	NO	Human Health	
6-206	L6-SS-201	0 - 1	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	0.004	mg/kg	ND	5600	NO	Human Health	
6-206	L6-SS-201	0 - 1	1,1,2-Trichloroethane	0.004	mg/kg	ND	1.6	NO	Human Health	
6-206	L6-SS-201	0 - 1	1,1-Dichloroethane	0.004	mg/kg	ND	1700	NO	Human Health	
6-206	L6-SS-201	0 - 1	1,1-Dichloroethene	0.004	mg/kg	ND	410	NO	Human Health	
6-206	L6-SS-201	0 - 1	1,2-Dichloroethane	0.004	mg/kg	ND	0.6	NO	Human Health	
6-206	L6-SS-201	0 - 1	1,2-Dichloropropane	0.004	mg/kg	ND	0.74	NO	Human Health	
6-206	L6-SS-201	0 - 1	2-Butanone / Methyl Ethyl Ketone	0.013	mg/kg	ND	110000	NO	Human Health	
6-206	L6-SS-201	0 - 1	4-Methyl-2-Pentanone / Methyl Isobutyl Ketone	0.013	mg/kg	ND	47000	NO	Human Health	
6-206	L6-SS-201	0 - 1	Acetone	0.013	mg/kg	ND	54000	NO	Human Health	
6-206	L6-SS-201	0 - 1	Antimony	0.81	mg/kg		816	NO	Human Health	
6-206	L6-SS-201	0 - 1	Arsenic	6.8	mg/kg		30	NO	Human Health	
6-206	L6-SS-201	0 - 1	Benzene	0.004	mg/kg	ND	1.4	NO	Human Health	
6-206	L6-SS-201	0 - 1	Beryllium	0.9	mg/kg		5	NO	Human Health	
6-206	L6-SS-201	0 - 1	Boron	25.5	mg/kg		100000	NO	Human Health	
6-206	L6-SS-201	0 - 1	Bromodichloromethane	0.004	mg/kg	ND	1.8	NO	Human Health	
6-206	L6-SS-201	0 - 1	Bromoform	0.004	mg/kg	ND	220	NO	Human Health	
6-206	L6-SS-201	0 - 1	Bromomethane	0.004	mg/kg	ND	13	NO	Human Health	
6-206	L6-SS-201	0 - 1	Cadmium	0.61	mg/kg		1000	NO	Human Health	
6-206	L6-SS-201	0 - 1	Carbon disulfide	0.004	mg/kg	ND	720	NO	Human Health	
6-206	L6-SS-201	0 - 1	Carbon tetrachloride	0.004	mg/kg	ND	0.55	NO	Human Health	
6-206	L6-SS-201	0 - 1	Chlorobenzene	0.004	mg/kg	ND	530	NO	Human Health	
6-206	L6-SS-201	0 - 1	Chloroethane	0.004	mg/kg	ND	6.5	NO	Human Health	
6-206	L6-SS-201	0 - 1	Chloroform	0.004	mg/kg	ND	0.47	NO	Human Health	
6-206	L6-SS-201	0 - 1	Chloromethane	0.004	mg/kg	ND	160	NO	Human Health	
6-206	L6-SS-201	0 - 1	Chromium	27.1	mg/kg		10000	NO	Human Health	
6-206	L6-SS-201	0 - 1	cis-1,2-Dichloroethene	0.004	mg/kg	ND	150	NO	Human Health	
6-206	L6-SS-201	0 - 1	Dibromochloromethane / Chlorodibromomethane	0.004	mg/kg	ND	2.6	NO	Human Health	
6-206	L6-SS-201	0 - 1	Dichlorodifluoromethane	0.004	mg/kg	ND	310	NO	Human Health	
6-206	L6-SS-201	0 - 1	Ethylbenzene	0.004	mg/kg	ND	400	NO	Human Health	
6-206	L6-SS-201	0 - 1	Lead	20.7	mg/kg		1000	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-206	L6-SS-201	0 - 1	Mercury	0.041	mg/kg		310	NO	Human Health	
6-206	L6-SS-201	0 - 1	Methylene bromide / Dibromomethane	0.004	mg/kg	ND	230	NO	Human Health	
6-206	L6-SS-201	0 - 1	Methylene chloride	0.002	mg/kg		21	NO	Human Health	
6-206	L6-SS-201	0 - 1	Nickel	19.5	mg/kg		20000	NO	Human Health	
6-206	L6-SS-201	0 - 1	Styrene	0.004	mg/kg	ND	1700	NO	Human Health	
6-206	L6-SS-201	0 - 1	Tetrachloroethene	0.004	mg/kg	ND	1.3	NO	Human Health	
6-206	L6-SS-201	0 - 1	Thallium	2	mg/kg	ND	143	NO	Human Health	
6-206	L6-SS-201	0 - 1	Toluene	0.002	mg/kg		520	NO	Human Health	
6-206	L6-SS-201	0 - 1	Total Xylenes	0.006	mg/kg	ND	420	NO	Human Health	
6-206	L6-SS-201	0 - 1	trans-1,2-Dichloroethene	0.004	mg/kg	ND	230	NO	Human Health	
6-206	L6-SS-201	0 - 1	Trichloroethene	0.004	mg/kg	ND	0.11	NO	Human Health	
6-206	L6-SS-201	0 - 1	Trichlorofluoromethane	0.004	mg/kg	ND	2000	NO	Human Health	
6-206	L6-SS-201	0 - 1	Vinyl chloride	0.004	mg/kg	ND	0.75	NO	Human Health	
6-34-1	L6-SS-202	0 - 1	Mercury	10.1	mg/kg		310	NO	Human Health	
6-34-1	L6-SS-202	1 - 2	Mercury	0.29	mg/kg		310	NO	Human Health	
6-34-1	L6-SS-203	0 - 1	Mercury	18	mg/kg		310	NO	Human Health	
6-34-1	L6-SS-204	0 - 1	Mercury	0.36	mg/kg		310	NO	Human Health	
6-34-1	L6-SS-205	1 - 2	Mercury	3.7	mg/kg		310	NO	Human Health	
6-34-1	L6-SS-206	0 - 1	Mercury	15.2	mg/kg		310	NO	Human Health	
6-34-1	L6-SS-207	0 - 1	Mercury	9.1	mg/kg		310	NO	Human Health	
6-34-1	L6-SS-208	0 - 1	Mercury	3.8	mg/kg		310	NO	Human Health	
6-34-1	L6-SS-209	1 - 2	Mercury	1.4	mg/kg		310	NO	Human Health	
6-34-1	L6-SS-209	1 - 2	Mercury	1.6	mg/kg		310	NO	Human Health	
6-34-1	L6-SS-210	0 - 1	Mercury	2.1	mg/kg		310	NO	Human Health	
6-34-1	L6-SS-211	0 - 1	Mercury	3.8	mg/kg		310	NO	Human Health	
6-34-1	L6-SS-212	0 - 1	Mercury	37.6	mg/kg		310	NO	Human Health	
6-34-1	L6-SS-213	0 - 1	Mercury	4.4	mg/kg		310	NO	Human Health	
6-34-1	L6-SS-214	0 - 1	Mercury	5.3	mg/kg		310	NO	Human Health	
6-34-1	L6-SS-215	0 - 1	Mercury	28.3	mg/kg		310	NO	Human Health	
6-34-1	L6-SS-216	0 - 1	Mercury	9.5	mg/kg		310	NO	Human Health	
6-34-1	L6-SS-217	0 - 1	Mercury	13.1	mg/kg		310	NO	Human Health	
6-34-1	L6-SS-218	0 - 1	Mercury	0.94	mg/kg		310	NO	Human Health	
6-34-1	L6-SS-219	0 - 1	Mercury	0.81	mg/kg		310	NO	Human Health	
6-34-1	L6-SS-220	0 - 1	Mercury	4.3	mg/kg		310	NO	Human Health	
6-34-1	L6-SS-221	0 - 1	Mercury	15.6	mg/kg		310	NO	Human Health	
6-34-1	L6-SS-222	0 - 1	Mercury	18.7	mg/kg		310	NO	Human Health	
6-34-1	L6-SS-223	0 - 1	Mercury	0.43	mg/kg		310	NO	Human Health	
6-34-2	L6-SS-224	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-34-2	L6-SS-224	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-34-2	L6-SS-224	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-34-2	L6-SS-224	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-34-2	L6-SS-224	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-34-2	L6-SS-224	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-34-2	L6-SS-224	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-34-2	L6-SS-224	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-34-2	L6-SS-224	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-34-2	L6-SS-224	0 - 1	Mercury	0.69	mg/kg		310	NO	Human Health	
6-34-2	L6-SS-224	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-34-2	L6-SS-224	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-34-2	L6-SS-224	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-34-2	L6-SS-225	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-34-2	L6-SS-225	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-34-2	L6-SS-225	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-34-2	L6-SS-225	0 - 1	2,4-Dinitrotoluene	0.2	mg/kg	ND	8.7	NO	Human Health	
6-34-2	L6-SS-225	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-34-2	L6-SS-225	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-34-2	L6-SS-225	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
6-34-2	L6-SS-225	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-34-2	L6-SS-225	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-34-2	L6-SS-225	0 - 1	Mercury	2.2	mg/kg		310	NO	Human Health	
6-34-2	L6-SS-225	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-34-2	L6-SS-225	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-34-2	L6-SS-225	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-34-2	L6-SS-226	0 - 1	1,3,5-Trinitrobenzene	0.2	mg/kg	ND	102	NO	Human Health	
6-34-2	L6-SS-226	0 - 1	1,3-Dinitrobenzene	0.2	mg/kg	ND	62	NO	Human Health	
6-34-2	L6-SS-226	0 - 1	2,4,6-Trinitrotoluene	0.2	mg/kg	ND	47.6	NO	Human Health	
6-34-2	L6-SS-226	0 - 1	2,4-Dinitrotoluene	1.4	mg/kg		8.7	NO	Human Health	
6-34-2	L6-SS-226	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
6-34-2	L6-SS-226	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
6-34-2	L6-SS-226	0 - 1	3-Nitrotoluene	0.19	mg/kg		1000	NO	Human Health	
6-34-2	L6-SS-226	0 - 1	4-Nitrotoluene	0.2	mg/kg	ND	30	NO	Human Health	
6-34-2	L6-SS-226	0 - 1	HMX	0.2	mg/kg	ND	51000	NO	Human Health	
6-34-2	L6-SS-226	0 - 1	Mercury	0.5	mg/kg		310	NO	Human Health	
6-34-2	L6-SS-226	0 - 1	Nitrobenzene	0.2	mg/kg	ND	100	NO	Human Health	
6-34-2	L6-SS-226	0 - 1	RDX	0.2	mg/kg	ND	1.3	NO	Human Health	
6-34-2	L6-SS-226	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
6-34-2	L6-SS-227	0 - 1	Mercury	0.34	mg/kg		310	NO	Human Health	
6-34-2	L6-SS-228	0 - 1	Mercury	0.08	mg/kg		310	NO	Human Health	
6-34-2	L6-SS-229	0 - 1	Mercury	0.03	mg/kg		310	NO	Human Health	
6-34-2	L6-SS-230	0 - 1	Mercury	0.045	mg/kg		310	NO	Human Health	
6-34-2	L6-SS-231	0 - 1	Mercury	0.041	mg/kg		310	NO	Human Health	
6-34-2	L6-SS-232	0 - 1	Mercury	0.027	mg/kg		310	NO	Human Health	
6-34-3	L6-SS-233	0 - 1	Mercury	0.63	mg/kg		310	NO	Human Health	
6-34-3	L6-SS-234	0 - 1	Mercury	10.3	mg/kg		310	NO	Human Health	
6-34-3	L6-SS-235	0 - 1	Mercury	68.8	mg/kg		310	NO	Human Health	
6-34-3	L6-SS-236	0 - 1	Mercury	11.7	mg/kg		310	NO	Human Health	
6-34-3	L6-SS-237	0 - 1	Mercury	4.3	mg/kg		310	NO	Human Health	
6-34-3	L6-SS-238	0 - 1	Mercury	6.2	mg/kg		310	NO	Human Health	
6-34-3	L6-SS-239	0 - 1	Mercury	5	mg/kg		310	NO	Human Health	
6-34-3	L6-SS-239	0 - 1	Mercury	6.4	mg/kg		310	NO	Human Health	
6-34-3	L6-SS-240	0 - 1	Mercury	1.5	mg/kg		310	NO	Human Health	
6-34-3	L6-SS-241	0 - 1	Mercury	0.46	mg/kg		310	NO	Human Health	
6-34-3	L6-SS-242	0 - 1	Mercury	5.9	mg/kg		310	NO	Human Health	
6-34-3	L6-SS-243	0 - 1	Mercury	0.81	mg/kg		310	NO	Human Health	
6-34-3	L6-SS-243	0 - 1	Mercury	0.69	mg/kg		310	NO	Human Health	
6-34-3	L6-SS-244	0 - 1	Mercury	0.06	mg/kg		310	NO	Human Health	
6-34-3	L6-SS-245	0 - 1	Mercury	0.71	mg/kg		310	NO	Human Health	
6-34-1	L6-SS-246	0 - 1	Mercury	10.1	mg/kg		310	NO	Human Health	
6-35	R07-0004	0.5	Antimony	2.53	mg/kg		816	NO	Human Health	
6-35	R07-0004	0.5	Arsenic	0.08	mg/kg	ND	30	NO	Human Health	
6-35	R07-0004	0.5	Barium	245.52	mg/kg		67000	NO	Human Health	
6-35	R07-0004	0.5	Cadmium	1.58	mg/kg		1000	NO	Human Health	
6-35	R07-0004	0.5	Chromium	23.12	mg/kg		10000	NO	Human Health	
6-35	R07-0004	0.5	Copper	38.24	mg/kg		41000	NO	Human Health	
6-35	R07-0004	0.5	Lead	82.21	mg/kg		1000	NO	Human Health	
6-35	R07-0004	0.5	Mercury	0	mg/kg	ND	310	NO	Human Health	
6-35	R07-0004	0.5	Nickel	36.23	mg/kg		20000	NO	Human Health	
6-35	R07-0004	0.5	Selenium	0.5	mg/kg		5100	NO	Human Health	
6-35	R07-0004	0.5	Silver	0	mg/kg	ND	5100	NO	Human Health	
6-35	R07-0004	0.5	Zinc	85.65	mg/kg		100000	NO	Human Health	
6-35	R07-0004	1	Antimony	0	mg/kg	ND	816	NO	Human Health	
6-35	R07-0004	1	Arsenic	3.82	mg/kg		30	NO	Human Health	
6-35	R07-0004	1	Barium	252.37	mg/kg		67000	NO	Human Health	
6-35	R07-0004	1	Cadmium	0.17	mg/kg	ND	1000	NO	Human Health	
6-35	R07-0004	1	Chromium	24.96	mg/kg		10000	NO	Human Health	
6-35	R07-0004	1	Copper	19.03	mg/kg		41000	NO	Human Health	
6-35	R07-0004	1	Lead	24.75	mg/kg		1000	NO	Human Health	
6-35	R07-0004	1	Mercury	0.08	mg/kg		310	NO	Human Health	
6-35	R07-0004	1	Nickel	26.91	mg/kg		20000	NO	Human Health	
6-35	R07-0004	1	Selenium	0.4	mg/kg		5100	NO	Human Health	
6-35	R07-0004	1	Silver	0.55	mg/kg		5100	NO	Human Health	
6-35	R07-0004	1	Zinc	71.44	mg/kg		100000	NO	Human Health	
6-35	R07-0006	0.5	Antimony	1.7	mg/kg		816	NO	Human Health	
6-35	R07-0006	0.5	Arsenic	0	mg/kg	ND	30	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-35	R07-0006	0.5	Barium	240.64	mg/kg		67000	NO	Human Health	
6-35	R07-0006	0.5	Cadmium	0.58	mg/kg		1000	NO	Human Health	
6-35	R07-0006	0.5	Chromium	44.25	mg/kg		10000	NO	Human Health	
6-35	R07-0006	0.5	Copper	25.85	mg/kg		41000	NO	Human Health	
6-35	R07-0006	0.5	Lead	32.82	mg/kg		1000	NO	Human Health	
6-35	R07-0006	0.5	Mercury	0.11	mg/kg		310	NO	Human Health	
6-35	R07-0006	0.5	Nickel	35.28	mg/kg		20000	NO	Human Health	
6-35	R07-0006	0.5	Selenium	0.06	mg/kg	ND	5100	NO	Human Health	
6-35	R07-0006	0.5	Silver	0.93	mg/kg		5100	NO	Human Health	
6-35	R07-0006	0.5	Zinc	81.8	mg/kg		100000	NO	Human Health	
6-35	R07-0007	0.5	Antimony	2.4	mg/kg		816	NO	Human Health	
6-35	R07-0007	0.5	Arsenic	0	mg/kg	ND	30	NO	Human Health	
6-35	R07-0007	0.5	Barium	236.92	mg/kg		67000	NO	Human Health	
6-35	R07-0007	0.5	Cadmium	1.32	mg/kg		1000	NO	Human Health	
6-35	R07-0007	0.5	Chromium	24.42	mg/kg		10000	NO	Human Health	
6-35	R07-0007	0.5	Copper	21.11	mg/kg		41000	NO	Human Health	
6-35	R07-0007	0.5	Lead	41.68	mg/kg		1000	NO	Human Health	
6-35	R07-0007	0.5	Mercury	0.15	mg/kg		310	NO	Human Health	
6-35	R07-0007	0.5	Nickel	22.15	mg/kg		20000	NO	Human Health	
6-35	R07-0007	0.5	Selenium	0	mg/kg	ND	5100	NO	Human Health	
6-35	R07-0007	0.5	Silver	0	mg/kg	ND	5100	NO	Human Health	
6-35	R07-0007	0.5	Zinc	115.98	mg/kg		100000	NO	Human Health	
6-35	R07-0009	0.5	Antimony	5.08	mg/kg		816	NO	Human Health	
6-35	R07-0009	0.5	Arsenic	0.33	mg/kg	ND	30	NO	Human Health	
6-35	R07-0009	0.5	Barium	244.04	mg/kg		67000	NO	Human Health	
6-35	R07-0009	0.5	Cadmium	0.16	mg/kg	ND	1000	NO	Human Health	
6-35	R07-0009	0.5	Chromium	40.52	mg/kg		10000	NO	Human Health	
6-35	R07-0009	0.5	Copper	42.7	mg/kg		41000	NO	Human Health	
6-35	R07-0009	0.5	Lead	57.53	mg/kg		1000	NO	Human Health	
6-35	R07-0009	0.5	Mercury	0.08	mg/kg		310	NO	Human Health	
6-35	R07-0009	0.5	Nickel	49.37	mg/kg		20000	NO	Human Health	
6-35	R07-0009	0.5	Selenium	0.83	mg/kg		5100	NO	Human Health	
6-35	R07-0009	0.5	Silver	0	mg/kg	ND	5100	NO	Human Health	
6-35	R07-0009	0.5	Zinc	127.74	mg/kg		100000	NO	Human Health	
6-35	R07-0009E	0.5	1,3,5-Trinitrobenzene	0	mg/kg	ND	102	NO	Human Health	
6-35	R07-0009E	0.5	1,3-Dinitrobenzene	0	mg/kg	ND	62	NO	Human Health	
6-35	R07-0009E	0.5	2,4,6-Trinitrotoluene	0	mg/kg	ND	47.6	NO	Human Health	
6-35	R07-0009E	0.5	2,4-Dinitrotoluene	0	mg/kg	ND	8.7	NO	Human Health	
6-35	R07-0009E	0.5	2,6-Dinitrotoluene	0	mg/kg	ND	620	NO	Human Health	
6-35	R07-0009E	0.5	HMX	0	mg/kg	ND	51000	NO	Human Health	
6-35	R07-0009E	0.5	RDX	0	mg/kg	ND	1.3	NO	Human Health	
6-35	R07-0009E	0.5	Tetryl	0	mg/kg	ND	6200	NO	Human Health	
6-98	SU32SA0102	2.3	1,3,5-Trinitrobenzene	0.48	mg/kg	ND	102	NO	Human Health	
6-98	SU32SA0102	2.3	1,3-Dinitrobenzene	0.49	mg/kg	ND	62	NO	Human Health	
6-98	SU32SA0102	2.3	2,4,6-Trinitrotoluene	0.45	mg/kg	ND	47.6	NO	Human Health	
6-98	SU32SA0102	2.3	2,4-Dinitrotoluene	0.42	mg/kg	ND	8.7	NO	Human Health	
6-98	SU32SA0102	2.3	2,6-Dinitrotoluene	0.52	mg/kg	ND	620	NO	Human Health	
6-98	SU32SA0102	2.3	Aluminum	13900	mg/kg		100000	NO	Human Health	
6-98	SU32SA0102	2.3	Antimony	99.6	mg/kg		816	NO	Human Health	
6-98	SU32SA0102	2.3	Arsenic	3.79	mg/kg		30	NO	Human Health	
6-98	SU32SA0102	2.3	Barium	210	mg/kg		67000	NO	Human Health	
6-98	SU32SA0102	2.3	Beryllium	0.5	mg/kg	ND	5	NO	Human Health	
6-98	SU32SA0102	2.3	Cadmium	0.7	mg/kg	ND	1000	NO	Human Health	
6-98	SU32SA0102	2.3	Chromium	23.7	mg/kg		10000	NO	Human Health	
6-98	SU32SA0102	2.3	Cobalt	7.82	mg/kg		1900	NO	Human Health	
6-98	SU32SA0102	2.3	Copper	1790	mg/kg		41000	NO	Human Health	
6-98	SU32SA0102	2.3	HMX	0.66	mg/kg	ND	51000	NO	Human Health	
6-98	SU32SA0102	2.3	Iron	26400	mg/kg		100000	NO	Human Health	
6-98	SU32SA0102	2.3	Lead	53.1	mg/kg		1000	NO	Human Health	
6-98	SU32SA0102	2.3	Manganese	335	mg/kg		19000	NO	Human Health	
6-98	SU32SA0102	2.3	Mercury	1900	mg/kg		310	YES	Human Health	
6-98	SU32SA0102	2.3	Nickel	24.3	mg/kg		20000	NO	Human Health	

APPENDIX A
Line 6 Ammo Production MRS Soil Sampling Results
Iowa Army Ammunition Plant

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-98	SU32SA0102	2.3	Nitrobenzene	2.41	mg/kg	ND	100	NO	Human Health	
6-98	SU32SA0102	2.3	RDX	0.58	mg/kg	ND	1.3	NO	Human Health	
6-98	SU32SA0102	2.3	Selenium	0.25	mg/kg	ND	5100	NO	Human Health	
6-98	SU32SA0102	2.3	Silver	0.58	mg/kg	ND	5100	NO	Human Health	
6-98	SU32SA0102	2.3	Tetryl	0.73	mg/kg	ND	6200	NO	Human Health	
6-98	SU32SA0102	2.3	Thallium	6.62	mg/kg	ND	143	NO	Human Health	
6-98	SU32SA0102	2.3	Vanadium	33.8	mg/kg		1000	NO	Human Health	
6-98	SU32SA0102	2.3	Zinc	285	mg/kg		100000	NO	Human Health	
6-98	SU32SA0202	2.3	1,3,5-Trinitrobenzene	0.48	mg/kg	ND	102	NO	Human Health	
6-98	SU32SA0202	2.3	1,3-Dinitrobenzene	0.49	mg/kg	ND	62	NO	Human Health	
6-98	SU32SA0202	2.3	2,4,6-Trinitrotoluene	0.45	mg/kg	ND	47.6	NO	Human Health	
6-98	SU32SA0202	2.3	2,4-Dinitrotoluene	0.42	mg/kg	ND	8.7	NO	Human Health	
6-98	SU32SA0202	2.3	2,6-Dinitrotoluene	0.52	mg/kg	ND	620	NO	Human Health	
6-98	SU32SA0202	2.3	Aluminum	12700	mg/kg		100000	NO	Human Health	
6-98	SU32SA0202	2.3	Antimony	7.14	mg/kg	ND	816	NO	Human Health	
6-98	SU32SA0202	2.3	Arsenic	6.51	mg/kg		30	NO	Human Health	
6-98	SU32SA0202	2.3	Barium	191	mg/kg		67000	NO	Human Health	
6-98	SU32SA0202	2.3	Beryllium	0.69	mg/kg		5	NO	Human Health	
6-98	SU32SA0202	2.3	Cadmium	0.7	mg/kg	ND	1000	NO	Human Health	
6-98	SU32SA0202	2.3	Chromium	22.9	mg/kg		10000	NO	Human Health	
6-98	SU32SA0202	2.3	Cobalt	6.61	mg/kg		1900	NO	Human Health	
6-98	SU32SA0202	2.3	Copper	144	mg/kg		41000	NO	Human Health	
6-98	SU32SA0202	2.3	HMX	0.66	mg/kg	ND	51000	NO	Human Health	
6-98	SU32SA0202	2.3	Iron	20200	mg/kg		100000	NO	Human Health	
6-98	SU32SA0202	2.3	Lead	12	mg/kg		1000	NO	Human Health	
6-98	SU32SA0202	2.3	Manganese	239	mg/kg		19000	NO	Human Health	
6-98	SU32SA0202	2.3	Mercury	880	mg/kg		310	YES	Human Health	
6-98	SU32SA0202	2.3	Nickel	22.1	mg/kg		20000	NO	Human Health	
6-98	SU32SA0202	2.3	Nitrobenzene	2.41	mg/kg	ND	100	NO	Human Health	
6-98	SU32SA0202	2.3	RDX	0.58	mg/kg	ND	1.3	NO	Human Health	
6-98	SU32SA0202	2.3	Selenium	0.25	mg/kg	ND	5100	NO	Human Health	
6-98	SU32SA0202	2.3	Silver	0.78	mg/kg		5100	NO	Human Health	
6-98	SU32SA0202	2.3	Tetryl	0.73	mg/kg	ND	6200	NO	Human Health	
6-98	SU32SA0202	2.3	Thallium	6.62	mg/kg	ND	143	NO	Human Health	
6-98	SU32SA0202	2.3	Vanadium	36	mg/kg		1000	NO	Human Health	
6-98	SU32SA0202	2.3	Zinc	85.8	mg/kg		100000	NO	Human Health	
6-98	SU32SS0101	0.5	1,3,5-Trinitrobenzene	0.48	mg/kg	ND	102	NO	Human Health	
6-98	SU32SS0101	0.5	1,3-Dinitrobenzene	0.49	mg/kg	ND	62	NO	Human Health	
6-98	SU32SS0101	0.5	2,4,6-Trinitrotoluene	0.45	mg/kg	ND	47.6	NO	Human Health	
6-98	SU32SS0101	0.5	2,4-Dinitrotoluene	0.42	mg/kg	ND	8.7	NO	Human Health	
6-98	SU32SS0101	0.5	2,6-Dinitrotoluene	0.52	mg/kg	ND	620	NO	Human Health	
6-98	SU32SS0101	0.5	Aluminum	12900	mg/kg		100000	NO	Human Health	
6-98	SU32SS0101	0.5	Antimony	14.1	mg/kg		816	NO	Human Health	
6-98	SU32SS0101	0.5	Arsenic	6.04	mg/kg		30	NO	Human Health	
6-98	SU32SS0101	0.5	Barium	242	mg/kg		67000	NO	Human Health	
6-98	SU32SS0101	0.5	Beryllium	0.85	mg/kg		5	NO	Human Health	
6-98	SU32SS0101	0.5	Cadmium	1.81	mg/kg		1000	NO	Human Health	
6-98	SU32SS0101	0.5	Chromium	70.7	mg/kg		10000	NO	Human Health	
6-98	SU32SS0101	0.5	Cobalt	8.84	mg/kg		1900	NO	Human Health	
6-98	SU32SS0101	0.5	Copper	117	mg/kg		41000	NO	Human Health	
6-98	SU32SS0101	0.5	HMX	0.66	mg/kg	ND	51000	NO	Human Health	
6-98	SU32SS0101	0.5	Iron	25700	mg/kg		100000	NO	Human Health	
6-98	SU32SS0101	0.5	Lead	612	mg/kg		1000	NO	Human Health	
6-98	SU32SS0101	0.5	Manganese	544	mg/kg		19000	NO	Human Health	
6-98	SU32SS0101	0.5	Mercury	130	mg/kg		310	NO	Human Health	
6-98	SU32SS0101	0.5	Nickel	27.8	mg/kg		20000	NO	Human Health	
6-98	SU32SS0101	0.5	Nitrobenzene	2.41	mg/kg	ND	100	NO	Human Health	
6-98	SU32SS0101	0.5	RDX	0.58	mg/kg	ND	1.3	NO	Human Health	
6-98	SU32SS0101	0.5	Selenium	0.25	mg/kg	ND	5100	NO	Human Health	
6-98	SU32SS0101	0.5	Silver	0.58	mg/kg	ND	5100	NO	Human Health	
6-98	SU32SS0101	0.5	Tetryl	0.73	mg/kg	ND	6200	NO	Human Health	
6-98	SU32SS0101	0.5	Thallium	11.4	mg/kg		143	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-98	SU32SS0101	0.5	Vanadium	30.6	mg/kg		1000	NO	Human Health	
6-98	SU32SS0101	0.5	Zinc	623	mg/kg		100000	NO	Human Health	
6-98	SU32SS0201	0.5	1,3,5-Trinitrobenzene	0.48	mg/kg	ND	102	NO	Human Health	
6-98	SU32SS0201	0.5	1,3-Dinitrobenzene	0.49	mg/kg	ND	62	NO	Human Health	
6-98	SU32SS0201	0.5	2,4,6-Trinitrotoluene	0.45	mg/kg	ND	47.6	NO	Human Health	
6-98	SU32SS0201	0.5	2,4-Dinitrotoluene	0.42	mg/kg	ND	8.7	NO	Human Health	
6-98	SU32SS0201	0.5	2,6-Dinitrotoluene	0.52	mg/kg	ND	620	NO	Human Health	
6-98	SU32SS0201	0.5	Aluminum	12800	mg/kg		100000	NO	Human Health	
6-98	SU32SS0201	0.5	Antimony	7.14	mg/kg	ND	816	NO	Human Health	
6-98	SU32SS0201	0.5	Arsenic	5.62	mg/kg		30	NO	Human Health	
6-98	SU32SS0201	0.5	Barium	204	mg/kg		67000	NO	Human Health	
6-98	SU32SS0201	0.5	Beryllium	0.7	mg/kg		5	NO	Human Health	
6-98	SU32SS0201	0.5	Cadmium	0.95	mg/kg		1000	NO	Human Health	
6-98	SU32SS0201	0.5	Chromium	74.8	mg/kg		10000	NO	Human Health	
6-98	SU32SS0201	0.5	Cobalt	6.57	mg/kg		1900	NO	Human Health	
6-98	SU32SS0201	0.5	Copper	53.1	mg/kg		41000	NO	Human Health	
6-98	SU32SS0201	0.5	HMX	0.66	mg/kg	ND	51000	NO	Human Health	
6-98	SU32SS0201	0.5	Iron	19200	mg/kg		100000	NO	Human Health	
6-98	SU32SS0201	0.5	Lead	886	mg/kg		1000	NO	Human Health	
6-98	SU32SS0201	0.5	Manganese	355	mg/kg		19000	NO	Human Health	
6-98	SU32SS0201	0.5	Mercury	5.9	mg/kg		310	NO	Human Health	
6-98	SU32SS0201	0.5	Nickel	20.9	mg/kg		20000	NO	Human Health	
6-98	SU32SS0201	0.5	Nitrobenzene	2.41	mg/kg	ND	100	NO	Human Health	
6-98	SU32SS0201	0.5	RDX	0.58	mg/kg	ND	1.3	NO	Human Health	
6-98	SU32SS0201	0.5	Selenium	0.25	mg/kg	ND	5100	NO	Human Health	
6-98	SU32SS0201	0.5	Silver	0.58	mg/kg	ND	5100	NO	Human Health	
6-98	SU32SS0201	0.5	Tetryl	0.73	mg/kg	ND	6200	NO	Human Health	
6-98	SU32SS0201	0.5	Thallium	6.62	mg/kg	ND	143	NO	Human Health	
6-98	SU32SS0201	0.5	Vanadium	31.6	mg/kg		1000	NO	Human Health	
6-98	SU32SS0201	0.5	Zinc	209	mg/kg		100000	NO	Human Health	
6-96	SU33SA0102	1.8	1,3,5-Trinitrobenzene	0.48	mg/kg	ND	102	NO	Human Health	
6-96	SU33SA0102	1.8	1,3-Dinitrobenzene	0.49	mg/kg	ND	62	NO	Human Health	
6-96	SU33SA0102	1.8	2,4,6-Trinitrotoluene	0.45	mg/kg	ND	47.6	NO	Human Health	
6-96	SU33SA0102	1.8	2,4-Dinitrotoluene	0.42	mg/kg	ND	8.7	NO	Human Health	
6-96	SU33SA0102	1.8	2,6-Dinitrotoluene	0.52	mg/kg	ND	620	NO	Human Health	
6-96	SU33SA0102	1.8	Aluminum	18000	mg/kg		100000	NO	Human Health	
6-96	SU33SA0102	1.8	Antimony	41.5	mg/kg		816	NO	Human Health	
6-96	SU33SA0102	1.8	Arsenic	14.6	mg/kg		30	NO	Human Health	
6-96	SU33SA0102	1.8	Barium	336	mg/kg		67000	NO	Human Health	
6-96	SU33SA0102	1.8	Beryllium	0.76	mg/kg		5	NO	Human Health	
6-96	SU33SA0102	1.8	Cadmium	0.7	mg/kg	ND	1000	NO	Human Health	
6-96	SU33SA0102	1.8	Chromium	24.4	mg/kg		10000	NO	Human Health	
6-96	SU33SA0102	1.8	Cobalt	6.82	mg/kg		1900	NO	Human Health	
6-96	SU33SA0102	1.8	Copper	23.6	mg/kg		41000	NO	Human Health	
6-96	SU33SA0102	1.8	HMX	0.66	mg/kg	ND	51000	NO	Human Health	
6-96	SU33SA0102	1.8	Iron	24500	mg/kg		100000	NO	Human Health	
6-96	SU33SA0102	1.8	Lead	421	mg/kg		1000	NO	Human Health	
6-96	SU33SA0102	1.8	Manganese	166	mg/kg		19000	NO	Human Health	
6-96	SU33SA0102	1.8	Mercury	9.7	mg/kg		310	NO	Human Health	
6-96	SU33SA0102	1.8	Nickel	21.2	mg/kg		20000	NO	Human Health	
6-96	SU33SA0102	1.8	Nitrobenzene	2.41	mg/kg	ND	100	NO	Human Health	
6-96	SU33SA0102	1.8	RDX	0.58	mg/kg	ND	1.3	NO	Human Health	
6-96	SU33SA0102	1.8	Selenium	0.44	mg/kg		5100	NO	Human Health	
6-96	SU33SA0102	1.8	Silver	1.08	mg/kg		5100	NO	Human Health	
6-96	SU33SA0102	1.8	Tetryl	0.73	mg/kg	ND	6200	NO	Human Health	
6-96	SU33SA0102	1.8	Thallium	6.62	mg/kg	ND	143	NO	Human Health	
6-96	SU33SA0102	1.8	Vanadium	36.5	mg/kg		1000	NO	Human Health	
6-96	SU33SA0102	1.8	Zinc	86.1	mg/kg		100000	NO	Human Health	
6-96	SU33SA0202	1	1,3,5-Trinitrobenzene	0.48	mg/kg	ND	102	NO	Human Health	
6-96	SU33SA0202	1	1,3-Dinitrobenzene	0.49	mg/kg	ND	62	NO	Human Health	
6-96	SU33SA0202	1	2,4,6-Trinitrotoluene	0.45	mg/kg	ND	47.6	NO	Human Health	
6-96	SU33SA0202	1	2,4-Dinitrotoluene	0.42	mg/kg	ND	8.7	NO	Human Health	

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-96	SU33SA0202	1	2,6-Dinitrotoluene	0.52	mg/kg	ND	620	NO	Human Health	
6-96	SU33SA0202	1	Aluminum	14200	mg/kg		100000	NO	Human Health	
6-96	SU33SA0202	1	Antimony	7.14	mg/kg	ND	816	NO	Human Health	
6-96	SU33SA0202	1	Arsenic	8	mg/kg		30	NO	Human Health	
6-96	SU33SA0202	1	Barium	234	mg/kg		67000	NO	Human Health	
6-96	SU33SA0202	1	Beryllium	0.84	mg/kg		5	NO	Human Health	
6-96	SU33SA0202	1	Cadmium	0.7	mg/kg	ND	1000	NO	Human Health	
6-96	SU33SA0202	1	Chromium	22.4	mg/kg		10000	NO	Human Health	
6-96	SU33SA0202	1	Cobalt	12.1	mg/kg		1900	NO	Human Health	
6-96	SU33SA0202	1	Copper	20	mg/kg		41000	NO	Human Health	
6-96	SU33SA0202	1	HMX	0.66	mg/kg	ND	51000	NO	Human Health	
6-96	SU33SA0202	1	Iron	22500	mg/kg		100000	NO	Human Health	
6-96	SU33SA0202	1	Lead	113	mg/kg		1000	NO	Human Health	
6-96	SU33SA0202	1	Manganese	517	mg/kg		19000	NO	Human Health	
6-96	SU33SA0202	1	Mercury	0.86	mg/kg		310	NO	Human Health	
6-96	SU33SA0202	1	Nickel	23.8	mg/kg		20000	NO	Human Health	
6-96	SU33SA0202	1	Nitrobenzene	2.41	mg/kg	ND	100	NO	Human Health	
6-96	SU33SA0202	1	RDX	0.58	mg/kg	ND	1.3	NO	Human Health	
6-96	SU33SA0202	1	Selenium	0.25	mg/kg	ND	5100	NO	Human Health	
6-96	SU33SA0202	1	Silver	0.99	mg/kg		5100	NO	Human Health	
6-96	SU33SA0202	1	Tetryl	0.73	mg/kg	ND	6200	NO	Human Health	
6-96	SU33SA0202	1	Thallium	6.62	mg/kg	ND	143	NO	Human Health	
6-96	SU33SA0202	1	Vanadium	35.3	mg/kg		1000	NO	Human Health	
6-96	SU33SA0202	1	Zinc	74.2	mg/kg		100000	NO	Human Health	
6-96	SU33SA0302	1	1,3,5-Trinitrobenzene	0.48	mg/kg	ND	102	NO	Human Health	
6-96	SU33SA0302	1	1,3-Dinitrobenzene	0.49	mg/kg	ND	62	NO	Human Health	
6-96	SU33SA0302	1	2,4,6-Trinitrotoluene	0.45	mg/kg	ND	47.6	NO	Human Health	
6-96	SU33SA0302	1	2,4-Dinitrotoluene	0.42	mg/kg	ND	8.7	NO	Human Health	
6-96	SU33SA0302	1	2,6-Dinitrotoluene	0.52	mg/kg	ND	620	NO	Human Health	
6-96	SU33SA0302	1	Aluminum	18500	mg/kg		100000	NO	Human Health	
6-96	SU33SA0302	1	Antimony	7.14	mg/kg	ND	816	NO	Human Health	
6-96	SU33SA0302	1	Arsenic	5.82	mg/kg		30	NO	Human Health	
6-96	SU33SA0302	1	Barium	550	mg/kg		67000	NO	Human Health	
6-96	SU33SA0302	1	Beryllium	1.24	mg/kg		5	NO	Human Health	
6-96	SU33SA0302	1	Cadmium	0.7	mg/kg	ND	1000	NO	Human Health	
6-96	SU33SA0302	1	Chromium	22.5	mg/kg		10000	NO	Human Health	
6-96	SU33SA0302	1	Cobalt	11.1	mg/kg		1900	NO	Human Health	
6-96	SU33SA0302	1	Copper	18.5	mg/kg		41000	NO	Human Health	
6-96	SU33SA0302	1	HMX	0.66	mg/kg	ND	51000	NO	Human Health	
6-96	SU33SA0302	1	Iron	26400	mg/kg		100000	NO	Human Health	
6-96	SU33SA0302	1	Lead	2630	mg/kg		1000	YES	Human Health	
6-96	SU33SA0302	1	Manganese	514	mg/kg		19000	NO	Human Health	
6-96	SU33SA0302	1	Mercury	20	mg/kg		310	NO	Human Health	
6-96	SU33SA0302	1	Nickel	19.3	mg/kg		20000	NO	Human Health	
6-96	SU33SA0302	1	Nitrobenzene	2.41	mg/kg	ND	100	NO	Human Health	
6-96	SU33SA0302	1	RDX	0.58	mg/kg	ND	1.3	NO	Human Health	
6-96	SU33SA0302	1	Selenium	0.25	mg/kg	ND	5100	NO	Human Health	
6-96	SU33SA0302	1	Silver	1.11	mg/kg		5100	NO	Human Health	
6-96	SU33SA0302	1	Tetryl	0.73	mg/kg	ND	6200	NO	Human Health	
6-96	SU33SA0302	1	Thallium	6.62	mg/kg	ND	143	NO	Human Health	
6-96	SU33SA0302	1	Vanadium	46.8	mg/kg		1000	NO	Human Health	
6-96	SU33SA0302	1	Zinc	97.2	mg/kg		100000	NO	Human Health	
6-96	SU33SS0101	0.5	1,3,5-Trinitrobenzene	0.48	mg/kg	ND	102	NO	Human Health	
6-96	SU33SS0101	0.5	1,3-Dinitrobenzene	0.49	mg/kg	ND	62	NO	Human Health	
6-96	SU33SS0101	0.5	2,4,6-Trinitrotoluene	0.52	mg/kg		47.6	NO	Human Health	
6-96	SU33SS0101	0.5	2,4-Dinitrotoluene	0.42	mg/kg	ND	8.7	NO	Human Health	
6-96	SU33SS0101	0.5	2,6-Dinitrotoluene	0.52	mg/kg	ND	620	NO	Human Health	
6-96	SU33SS0101	0.5	Aluminum	11900	mg/kg		100000	NO	Human Health	
6-96	SU33SS0101	0.5	Antimony	329	mg/kg		816	NO	Human Health	
6-96	SU33SS0101	0.5	Arsenic	3.4	mg/kg		30	NO	Human Health	
6-96	SU33SS0101	0.5	Barium	207	mg/kg		67000	NO	Human Health	
6-96	SU33SS0101	0.5	Beryllium	0.83	mg/kg		5	NO	Human Health	

APPENDIX A
Line 6 Ammo Production MRS Soil Sampling Results
Iowa Army Ammunition Plant

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-96	SU33SS0101	0.5	Cadmium	0.7	mg/kg	ND	1000	NO	Human Health	
6-96	SU33SS0101	0.5	Chromium	38.2	mg/kg		10000	NO	Human Health	
6-96	SU33SS0101	0.5	Cobalt	5.66	mg/kg		1900	NO	Human Health	
6-96	SU33SS0101	0.5	Copper	47.7	mg/kg		41000	NO	Human Health	
6-96	SU33SS0101	0.5	HMX	0.66	mg/kg	ND	51000	NO	Human Health	
6-96	SU33SS0101	0.5	Iron	15800	mg/kg		100000	NO	Human Health	
6-96	SU33SS0101	0.5	Lead	6120	mg/kg		1000	YES	Human Health	
6-96	SU33SS0101	0.5	Manganese	305	mg/kg		19000	NO	Human Health	
6-96	SU33SS0101	0.5	Mercury	79	mg/kg		310	NO	Human Health	
6-96	SU33SS0101	0.5	Nickel	17.9	mg/kg		20000	NO	Human Health	
6-96	SU33SS0101	0.5	Nitrobenzene	2.41	mg/kg	ND	100	NO	Human Health	
6-96	SU33SS0101	0.5	RDX	0.58	mg/kg	ND	1.3	NO	Human Health	
6-96	SU33SS0101	0.5	Selenium	0.59	mg/kg		5100	NO	Human Health	
6-96	SU33SS0101	0.5	Silver	0.58	mg/kg	ND	5100	NO	Human Health	
6-96	SU33SS0101	0.5	Tetryl	0.73	mg/kg	ND	6200	NO	Human Health	
6-96	SU33SS0101	0.5	Thallium	14	mg/kg		143	NO	Human Health	
6-96	SU33SS0101	0.5	Vanadium	30.4	mg/kg		1000	NO	Human Health	
6-96	SU33SS0101	0.5	Zinc	177	mg/kg		100000	NO	Human Health	
6-96	SU33SS0201	0.5	1,3,5-Trinitrobenzene	0.48	mg/kg	ND	102	NO	Human Health	
6-96	SU33SS0201	0.5	1,3-Dinitrobenzene	0.49	mg/kg	ND	62	NO	Human Health	
6-96	SU33SS0201	0.5	2,4,6-Trinitrotoluene	0.45	mg/kg	ND	47.6	NO	Human Health	
6-96	SU33SS0201	0.5	2,4-Dinitrotoluene	0.42	mg/kg	ND	8.7	NO	Human Health	
6-96	SU33SS0201	0.5	2,6-Dinitrotoluene	0.52	mg/kg	ND	620	NO	Human Health	
6-96	SU33SS0201	0.5	Aluminum	16300	mg/kg		100000	NO	Human Health	
6-96	SU33SS0201	0.5	Antimony	7.14	mg/kg	ND	816	NO	Human Health	
6-96	SU33SS0201	0.5	Arsenic	4.33	mg/kg		30	NO	Human Health	
6-96	SU33SS0201	0.5	Barium	303	mg/kg		67000	NO	Human Health	
6-96	SU33SS0201	0.5	Beryllium	0.9	mg/kg		5	NO	Human Health	
6-96	SU33SS0201	0.5	Cadmium	0.7	mg/kg	ND	1000	NO	Human Health	
6-96	SU33SS0201	0.5	Chromium	156	mg/kg		10000	NO	Human Health	
6-96	SU33SS0201	0.5	Cobalt	14.1	mg/kg		1900	NO	Human Health	
6-96	SU33SS0201	0.5	Copper	48.7	mg/kg		41000	NO	Human Health	
6-96	SU33SS0201	0.5	HMX	0.66	mg/kg	ND	51000	NO	Human Health	
6-96	SU33SS0201	0.5	Iron	24900	mg/kg		100000	NO	Human Health	
6-96	SU33SS0201	0.5	Lead	984	mg/kg		1000	NO	Human Health	
6-96	SU33SS0201	0.5	Manganese	502	mg/kg		19000	NO	Human Health	
6-96	SU33SS0201	0.5	Mercury	13	mg/kg		310	NO	Human Health	
6-96	SU33SS0201	0.5	Nickel	48.2	mg/kg		20000	NO	Human Health	
6-96	SU33SS0201	0.5	Nitrobenzene	2.41	mg/kg	ND	100	NO	Human Health	
6-96	SU33SS0201	0.5	RDX	0.58	mg/kg	ND	1.3	NO	Human Health	
6-96	SU33SS0201	0.5	Selenium	0.25	mg/kg	ND	5100	NO	Human Health	
6-96	SU33SS0201	0.5	Silver	1.19	mg/kg		5100	NO	Human Health	
6-96	SU33SS0201	0.5	Tetryl	0.73	mg/kg	ND	6200	NO	Human Health	
6-96	SU33SS0201	0.5	Thallium	22.2	mg/kg		143	NO	Human Health	
6-96	SU33SS0201	0.5	Vanadium	35.7	mg/kg		1000	NO	Human Health	
6-96	SU33SS0201	0.5	Zinc	320	mg/kg		100000	NO	Human Health	
6-96	SU33SS0301	0.5	1,3,5-Trinitrobenzene	0.48	mg/kg	ND	102	NO	Human Health	
6-96	SU33SS0301	0.5	1,3-Dinitrobenzene	0.49	mg/kg	ND	62	NO	Human Health	
6-96	SU33SS0301	0.5	2,4,6-Trinitrotoluene	0.45	mg/kg	ND	47.6	NO	Human Health	
6-96	SU33SS0301	0.5	2,4-Dinitrotoluene	0.42	mg/kg	ND	8.7	NO	Human Health	
6-96	SU33SS0301	0.5	2,6-Dinitrotoluene	0.52	mg/kg	ND	620	NO	Human Health	
6-96	SU33SS0301	0.5	Aluminum	17100	mg/kg		100000	NO	Human Health	
6-96	SU33SS0301	0.5	Antimony	7.14	mg/kg	ND	816	NO	Human Health	
6-96	SU33SS0301	0.5	Arsenic	3.21	mg/kg		30	NO	Human Health	
6-96	SU33SS0301	0.5	Barium	376	mg/kg		67000	NO	Human Health	
6-96	SU33SS0301	0.5	Beryllium	0.5	mg/kg	ND	5	NO	Human Health	
6-96	SU33SS0301	0.5	Cadmium	0.7	mg/kg	ND	1000	NO	Human Health	
6-96	SU33SS0301	0.5	Chromium	23.4	mg/kg		10000	NO	Human Health	
6-96	SU33SS0301	0.5	Cobalt	4.38	mg/kg		1900	NO	Human Health	
6-96	SU33SS0301	0.5	Copper	59	mg/kg		41000	NO	Human Health	
6-96	SU33SS0301	0.5	HMX	0.66	mg/kg	ND	51000	NO	Human Health	
6-96	SU33SS0301	0.5	Iron	17700	mg/kg		100000	NO	Human Health	

APPENDIX A
Line 6 Ammo Production MRS Soil Sampling Results
Iowa Army Ammunition Plant

Closest Building	Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
6-96	SU33SS0301	0.5	Lead	13000	mg/kg		1000	YES	Human Health	
6-96	SU33SS0301	0.5	Manganese	127	mg/kg		19000	NO	Human Health	
6-96	SU33SS0301	0.5	Mercury	120	mg/kg		310	NO	Human Health	
6-96	SU33SS0301	0.5	Nickel	12.5	mg/kg		20000	NO	Human Health	
6-96	SU33SS0301	0.5	Nitrobenzene	2.41	mg/kg	ND	100	NO	Human Health	
6-96	SU33SS0301	0.5	RDX	0.58	mg/kg	ND	1.3	NO	Human Health	
6-96	SU33SS0301	0.5	Selenium	0.62	mg/kg		5100	NO	Human Health	
6-96	SU33SS0301	0.5	Silver	1.89	mg/kg		5100	NO	Human Health	
6-96	SU33SS0301	0.5	Tetryl	0.73	mg/kg	ND	6200	NO	Human Health	
6-96	SU33SS0301	0.5	Thallium	17.3	mg/kg		143	NO	Human Health	
6-96	SU33SS0301	0.5	Vanadium	37.4	mg/kg		1000	NO	Human Health	
6-96	SU33SS0301	0.5	Zinc	132	mg/kg		100000	NO	Human Health	

Possible Demolition Site MRS

APPENDIX A
Possible Demolition Site Soil Sampling Results
Iowa Army Ammunition Plant

Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goals	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
18SA0101	1.5	1,3,5-Trinitrobenzene	2.09	mg/kg	ND	102	NO	Human Health	
18SA0101	1.5	1,3-Dinitrobenzene	0.59	mg/kg	ND	62	NO	Human Health	
18SA0101	1.5	2,4,6-Trinitrotoluene	1.92	mg/kg	ND	47.6	NO	Human Health	
18SA0101	1.5	2,4-Dinitrotoluene	0.42	mg/kg	ND	8.7	NO	Human Health	
18SA0101	1.5	2,6-Dinitrotoluene	0.4	mg/kg	ND	620	NO	Human Health	
18SA0101	1.5	Antimony	19.6	mg/kg	ND	816	NO	Human Health	
18SA0101	1.5	Arsenic	5.9	mg/kg		30	NO	Human Health	
18SA0101	1.5	Barium	140	mg/kg		67000	NO	Human Health	
18SA0101	1.5	Beryllium	0.42	mg/kg	ND	5	NO	Human Health	
18SA0101	1.5	Cadmium	1.2	mg/kg	ND	1000	NO	Human Health	
18SA0101	1.5	Chromium	35.8	mg/kg		10000	NO	Human Health	
18SA0101	1.5	Copper	20.1	mg/kg		41000	NO	Human Health	
18SA0101	1.5	HMX	1.27	mg/kg	ND	51000	NO	Human Health	
18SA0101	1.5	Lead	14	mg/kg		1000	NO	Human Health	
18SA0101	1.5	Mercury	0.06	mg/kg		310	NO	Human Health	
18SA0101	1.5	Nickel	15.1	mg/kg		20000	NO	Human Health	
18SA0101	1.5	Nitrobenzene	0.42	mg/kg	ND	100	NO	Human Health	
18SA0101	1.5	RDX	0.98	mg/kg	ND	1.3	NO	Human Health	
18SA0101	1.5	Selenium	0.44	mg/kg	ND	5100	NO	Human Health	
18SA0101	1.5	Silver	0.8	mg/kg	ND	5100	NO	Human Health	
18SA0101	1.5	Tetryl	0.25	mg/kg	ND	6200	NO	Human Health	
18SA0101	1.5	Thallium	34.3	mg/kg	ND	143	NO	Human Health	
18SA0101	1.5	Zinc	66.7	mg/kg		100000	NO	Human Health	
18SA0201	1.5	1,3,5-Trinitrobenzene	2.09	mg/kg	ND	102	NO	Human Health	
18SA0201	1.5	1,3-Dinitrobenzene	0.59	mg/kg	ND	62	NO	Human Health	
18SA0201	1.5	2,4,6-Trinitrotoluene	1.92	mg/kg	ND	47.6	NO	Human Health	
18SA0201	1.5	2,4-Dinitrotoluene	0.42	mg/kg	ND	8.7	NO	Human Health	
18SA0201	1.5	2,6-Dinitrotoluene	0.4	mg/kg	ND	620	NO	Human Health	
18SA0201	1.5	Antimony	19.6	mg/kg	ND	816	NO	Human Health	
18SA0201	1.5	Arsenic	5.27	mg/kg		30	NO	Human Health	
18SA0201	1.5	Barium	250	mg/kg		67000	NO	Human Health	
18SA0201	1.5	Beryllium	0.42	mg/kg	ND	5	NO	Human Health	
18SA0201	1.5	Cadmium	1.2	mg/kg	ND	1000	NO	Human Health	
18SA0201	1.5	Chromium	26.2	mg/kg		10000	NO	Human Health	
18SA0201	1.5	Copper	17.8	mg/kg		41000	NO	Human Health	
18SA0201	1.5	HMX	1.27	mg/kg	ND	51000	NO	Human Health	
18SA0201	1.5	Lead	19	mg/kg		1000	NO	Human Health	
18SA0201	1.5	Mercury	0.05	mg/kg		310	NO	Human Health	
18SA0201	1.5	Nickel	14.4	mg/kg		20000	NO	Human Health	
18SA0201	1.5	Nitrobenzene	0.42	mg/kg	ND	100	NO	Human Health	
18SA0201	1.5	RDX	0.98	mg/kg	ND	1.3	NO	Human Health	
18SA0201	1.5	Selenium	0.44	mg/kg	ND	5100	NO	Human Health	
18SA0201	1.5	Silver	0.8	mg/kg	ND	5100	NO	Human Health	
18SA0201	1.5	Tetryl	0.25	mg/kg	ND	6200	NO	Human Health	
18SA0201	1.5	Thallium	34.3	mg/kg	ND	143	NO	Human Health	
18SA0201	1.5	Zinc	47	mg/kg		100000	NO	Human Health	
18SA0301	1.5	1,3,5-Trinitrobenzene	2.09	mg/kg	ND	102	NO	Human Health	
18SA0301	1.5	1,3-Dinitrobenzene	0.59	mg/kg	ND	62	NO	Human Health	
18SA0301	1.5	2,4,6-Trinitrotoluene	1.92	mg/kg	ND	47.6	NO	Human Health	
18SA0301	1.5	2,4-Dinitrotoluene	0.42	mg/kg	ND	8.7	NO	Human Health	
18SA0301	1.5	2,6-Dinitrotoluene	0.4	mg/kg	ND	620	NO	Human Health	
18SA0301	1.5	Antimony	19.6	mg/kg	ND	816	NO	Human Health	
18SA0301	1.5	Arsenic	4.9	mg/kg		30	NO	Human Health	
18SA0301	1.5	Barium	260	mg/kg		67000	NO	Human Health	
18SA0301	1.5	Beryllium	0.42	mg/kg	ND	5	NO	Human Health	
18SA0301	1.5	Cadmium	1.2	mg/kg	ND	1000	NO	Human Health	
18SA0301	1.5	Chromium	21.7	mg/kg		10000	NO	Human Health	

APPENDIX A
Possible Demolition Site Soil Sampling Results
Iowa Army Ammunition Plant

Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goals	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
18SA0301	1.5	Copper	12.2	mg/kg		41000	NO	Human Health	
18SA0301	1.5	HMX	1.27	mg/kg	ND	51000	NO	Human Health	
18SA0301	1.5	Lead	19	mg/kg		1000	NO	Human Health	
18SA0301	1.5	Mercury	0.08	mg/kg		310	NO	Human Health	
18SA0301	1.5	Nickel	2.74	mg/kg	ND	20000	NO	Human Health	
18SA0301	1.5	Nitrobenzene	0.42	mg/kg	ND	100	NO	Human Health	
18SA0301	1.5	RDX	0.98	mg/kg	ND	1.3	NO	Human Health	
18SA0301	1.5	Selenium	0.44	mg/kg	ND	5100	NO	Human Health	
18SA0301	1.5	Silver	0.8	mg/kg	ND	5100	NO	Human Health	
18SA0301	1.5	Tetryl	0.25	mg/kg	ND	6200	NO	Human Health	
18SA0301	1.5	Thallium	34.3	mg/kg	ND	143	NO	Human Health	
18SA0301	1.5	Zinc	44.9	mg/kg		100000	NO	Human Health	
PDS-SS-001-0001-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
PDS-SS-001-0001-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
PDS-SS-001-0001-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SS-001-0001-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SS-001-0001-SO	0 - 1	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
PDS-SS-001-0001-SO	0 - 1	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
PDS-SS-001-0001-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
PDS-SS-001-0001-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
PDS-SS-001-0001-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
PDS-SS-001-0001-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
PDS-SS-001-0001-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
PDS-SS-001-0001-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
PDS-SS-001-0001-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SS-001-0001-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SS-001-0001-SO	0 - 1	4-Nitrotoluene	0.5	mg/kg	ND	30	NO	Human Health	
PDS-SS-001-0001-SO	0 - 1	4-Nitrotoluene	0.49	mg/kg	ND	30	NO	Human Health	
PDS-SS-001-0001-SO	0 - 1	Arsenic	4.7	mg/kg		30	NO	Human Health	
PDS-SS-001-0001-SO	0 - 1	Arsenic	4.3	mg/kg		30	NO	Human Health	
PDS-SS-001-0001-SO	0 - 1	Barium	3000	mg/kg		67000	NO	Human Health	
PDS-SS-001-0001-SO	0 - 1	Barium	3200	mg/kg		67000	NO	Human Health	
PDS-SS-001-0001-SO	0 - 1	Beryllium	0.66	mg/kg		5	NO	Human Health	
PDS-SS-001-0001-SO	0 - 1	Beryllium	0.67	mg/kg		5	NO	Human Health	
PDS-SS-001-0001-SO	0 - 1	Boron	2.4	mg/kg		100000	NO	Human Health	
PDS-SS-001-0001-SO	0 - 1	Boron	2.2	mg/kg		100000	NO	Human Health	
PDS-SS-001-0001-SO	0 - 1	Cadmium	0.21	mg/kg	ND	1000	NO	Human Health	
PDS-SS-001-0001-SO	0 - 1	Cadmium	0.23	mg/kg	ND	1000	NO	Human Health	
PDS-SS-001-0001-SO	0 - 1	Chromium	13	mg/kg		10000	NO	Human Health	
PDS-SS-001-0001-SO	0 - 1	Chromium	12	mg/kg		10000	NO	Human Health	
PDS-SS-001-0001-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
PDS-SS-001-0001-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
PDS-SS-001-0001-SO	0 - 1	Lead	42	mg/kg		1000	NO	Human Health	
PDS-SS-001-0001-SO	0 - 1	Lead	41	mg/kg		1000	NO	Human Health	
PDS-SS-001-0001-SO	0 - 1	Mercury	1.5	mg/kg		310	NO	Human Health	
PDS-SS-001-0001-SO	0 - 1	Mercury	2	mg/kg		310	NO	Human Health	
PDS-SS-001-0001-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SS-001-0001-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SS-001-0001-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SS-001-0001-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SS-001-0001-SO	0 - 1	Selenium	1.2	mg/kg	ND	5100	NO	Human Health	
PDS-SS-001-0001-SO	0 - 1	Selenium	1.1	mg/kg	ND	5100	NO	Human Health	
PDS-SS-001-0001-SO	0 - 1	Silver	0.58	mg/kg	ND	5100	NO	Human Health	
PDS-SS-001-0001-SO	0 - 1	Silver	0.53	mg/kg	ND	5100	NO	Human Health	
PDS-SS-001-0001-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
PDS-SS-001-0001-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
PDS-SS-002-0001-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	

APPENDIX A
Possible Demolition Site Soil Sampling Results
Iowa Army Ammunition Plant

Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goals	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
PDS-SS-002-0001-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SS-002-0001-SO	0 - 1	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
PDS-SS-002-0001-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
PDS-SS-002-0001-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
PDS-SS-002-0001-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
PDS-SS-002-0001-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SS-002-0001-SO	0 - 1	4-Nitrotoluene	0.5	mg/kg	ND	30	NO	Human Health	
PDS-SS-002-0001-SO	0 - 1	Arsenic	5.4	mg/kg		30	NO	Human Health	
PDS-SS-002-0001-SO	0 - 1	Barium	280	mg/kg		67000	NO	Human Health	
PDS-SS-002-0001-SO	0 - 1	Beryllium	0.62	mg/kg		5	NO	Human Health	
PDS-SS-002-0001-SO	0 - 1	Boron	2.3	mg/kg		100000	NO	Human Health	
PDS-SS-002-0001-SO	0 - 1	Cadmium	0.22	mg/kg	ND	1000	NO	Human Health	
PDS-SS-002-0001-SO	0 - 1	Chromium	13	mg/kg		10000	NO	Human Health	
PDS-SS-002-0001-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
PDS-SS-002-0001-SO	0 - 1	Lead	17	mg/kg		1000	NO	Human Health	
PDS-SS-002-0001-SO	0 - 1	Mercury	1.3	mg/kg		310	NO	Human Health	
PDS-SS-002-0001-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SS-002-0001-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SS-002-0001-SO	0 - 1	Selenium	1.1	mg/kg	ND	5100	NO	Human Health	
PDS-SS-002-0001-SO	0 - 1	Silver	0.54	mg/kg	ND	5100	NO	Human Health	
PDS-SS-002-0001-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
PDS-SS-002-0011-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
PDS-SS-002-0011-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SS-002-0011-SO	0 - 1	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
PDS-SS-002-0011-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
PDS-SS-002-0011-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
PDS-SS-002-0011-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
PDS-SS-002-0011-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SS-002-0011-SO	0 - 1	4-Nitrotoluene	0.5	mg/kg	ND	30	NO	Human Health	
PDS-SS-002-0011-SO	0 - 1	Arsenic	4.5	mg/kg		30	NO	Human Health	
PDS-SS-002-0011-SO	0 - 1	Barium	210	mg/kg		67000	NO	Human Health	
PDS-SS-002-0011-SO	0 - 1	Beryllium	0.85	mg/kg		5	NO	Human Health	
PDS-SS-002-0011-SO	0 - 1	Boron	5.7	mg/kg		100000	NO	Human Health	
PDS-SS-002-0011-SO	0 - 1	Cadmium	0.13	mg/kg		1000	NO	Human Health	
PDS-SS-002-0011-SO	0 - 1	Chromium	17	mg/kg		10000	NO	Human Health	
PDS-SS-002-0011-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
PDS-SS-002-0011-SO	0 - 1	Lead	17	mg/kg		1000	NO	Human Health	
PDS-SS-002-0011-SO	0 - 1	Mercury	0.1	mg/kg		310	NO	Human Health	
PDS-SS-002-0011-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SS-002-0011-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SS-002-0011-SO	0 - 1	Selenium	1.2	mg/kg	ND	5100	NO	Human Health	
PDS-SS-002-0011-SO	0 - 1	Silver	0.61	mg/kg	ND	5100	NO	Human Health	
PDS-SS-002-0011-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
PDS-SS-002-0021-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
PDS-SS-002-0021-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SS-002-0021-SO	0 - 1	2,4,6-Trinitrotoluene	0.06	mg/kg		47.6	NO	Human Health	
PDS-SS-002-0021-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
PDS-SS-002-0021-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
PDS-SS-002-0021-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
PDS-SS-002-0021-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SS-002-0021-SO	0 - 1	4-Nitrotoluene	0.5	mg/kg	ND	30	NO	Human Health	
PDS-SS-002-0021-SO	0 - 1	Arsenic	6.6	mg/kg		30	NO	Human Health	
PDS-SS-002-0021-SO	0 - 1	Barium	140	mg/kg		67000	NO	Human Health	
PDS-SS-002-0021-SO	0 - 1	Beryllium	0.61	mg/kg		5	NO	Human Health	
PDS-SS-002-0021-SO	0 - 1	Boron	6	mg/kg		100000	NO	Human Health	
PDS-SS-002-0021-SO	0 - 1	Cadmium	0.36	mg/kg		1000	NO	Human Health	
PDS-SS-002-0021-SO	0 - 1	Chromium	12	mg/kg		10000	NO	Human Health	

APPENDIX A
Possible Demolition Site Soil Sampling Results
Iowa Army Ammunition Plant

Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goals	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
PDS-SS-002-0021-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
PDS-SS-002-0021-SO	0 - 1	Lead	33	mg/kg		1000	NO	Human Health	
PDS-SS-002-0021-SO	0 - 1	Mercury	0.47	mg/kg		310	NO	Human Health	
PDS-SS-002-0021-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SS-002-0021-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SS-002-0021-SO	0 - 1	Selenium	0.65	mg/kg		5100	NO	Human Health	
PDS-SS-002-0021-SO	0 - 1	Silver	0.56	mg/kg	ND	5100	NO	Human Health	
PDS-SS-002-0021-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
PDS-SS-002-0031-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
PDS-SS-002-0031-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SS-002-0031-SO	0 - 1	2,4,6-Trinitrotoluene	0.05	mg/kg		47.6	NO	Human Health	
PDS-SS-002-0031-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
PDS-SS-002-0031-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
PDS-SS-002-0031-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
PDS-SS-002-0031-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SS-002-0031-SO	0 - 1	4-Nitrotoluene	0.5	mg/kg	ND	30	NO	Human Health	
PDS-SS-002-0031-SO	0 - 1	Arsenic	4.9	mg/kg		30	NO	Human Health	
PDS-SS-002-0031-SO	0 - 1	Barium	150	mg/kg		67000	NO	Human Health	
PDS-SS-002-0031-SO	0 - 1	Beryllium	0.53	mg/kg		5	NO	Human Health	
PDS-SS-002-0031-SO	0 - 1	Boron	2.8	mg/kg		100000	NO	Human Health	
PDS-SS-002-0031-SO	0 - 1	Cadmium	0.6	mg/kg		1000	NO	Human Health	
PDS-SS-002-0031-SO	0 - 1	Chromium	9.9	mg/kg		10000	NO	Human Health	
PDS-SS-002-0031-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
PDS-SS-002-0031-SO	0 - 1	Lead	110	mg/kg		1000	NO	Human Health	
PDS-SS-002-0031-SO	0 - 1	Mercury	0.54	mg/kg		310	NO	Human Health	
PDS-SS-002-0031-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SS-002-0031-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SS-002-0031-SO	0 - 1	Selenium	1	mg/kg	ND	5100	NO	Human Health	
PDS-SS-002-0031-SO	0 - 1	Silver	0.52	mg/kg	ND	5100	NO	Human Health	
PDS-SS-002-0031-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
PDS-SS-002-0041-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
PDS-SS-002-0041-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SS-002-0041-SO	0 - 1	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
PDS-SS-002-0041-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
PDS-SS-002-0041-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
PDS-SS-002-0041-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
PDS-SS-002-0041-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SS-002-0041-SO	0 - 1	4-Nitrotoluene	0.5	mg/kg	ND	30	NO	Human Health	
PDS-SS-002-0041-SO	0 - 1	Arsenic	5.4	mg/kg		30	NO	Human Health	
PDS-SS-002-0041-SO	0 - 1	Barium	130	mg/kg		67000	NO	Human Health	
PDS-SS-002-0041-SO	0 - 1	Beryllium	0.63	mg/kg		5	NO	Human Health	
PDS-SS-002-0041-SO	0 - 1	Boron	3.9	mg/kg		100000	NO	Human Health	
PDS-SS-002-0041-SO	0 - 1	Cadmium	0.14	mg/kg		1000	NO	Human Health	
PDS-SS-002-0041-SO	0 - 1	Chromium	12	mg/kg		10000	NO	Human Health	
PDS-SS-002-0041-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
PDS-SS-002-0041-SO	0 - 1	Lead	77	mg/kg		1000	NO	Human Health	
PDS-SS-002-0041-SO	0 - 1	Mercury	1.2	mg/kg		310	NO	Human Health	
PDS-SS-002-0041-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SS-002-0041-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SS-002-0041-SO	0 - 1	Selenium	1.3	mg/kg	ND	5100	NO	Human Health	
PDS-SS-002-0041-SO	0 - 1	Silver	0.66	mg/kg	ND	5100	NO	Human Health	
PDS-SS-002-0041-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
PDS-SS-003-0001-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
PDS-SS-003-0001-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SS-003-0001-SO	0 - 1	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
PDS-SS-003-0001-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
PDS-SS-003-0001-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	

APPENDIX A
Possible Demolition Site Soil Sampling Results
Iowa Army Ammunition Plant

Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goals	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
PDS-SS-003-0001-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
PDS-SS-003-0001-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SS-003-0001-SO	0 - 1	4-Nitrotoluene	0.5	mg/kg	ND	30	NO	Human Health	
PDS-SS-003-0001-SO	0 - 1	Arsenic	6.1	mg/kg		30	NO	Human Health	
PDS-SS-003-0001-SO	0 - 1	Barium	170	mg/kg		67000	NO	Human Health	
PDS-SS-003-0001-SO	0 - 1	Beryllium	0.64	mg/kg		5	NO	Human Health	
PDS-SS-003-0001-SO	0 - 1	Boron	3.2	mg/kg		100000	NO	Human Health	
PDS-SS-003-0001-SO	0 - 1	Cadmium	0.22	mg/kg	ND	1000	NO	Human Health	
PDS-SS-003-0001-SO	0 - 1	Chromium	11	mg/kg		10000	NO	Human Health	
PDS-SS-003-0001-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
PDS-SS-003-0001-SO	0 - 1	Lead	64	mg/kg		1000	NO	Human Health	
PDS-SS-003-0001-SO	0 - 1	Mercury	4.7	mg/kg		310	NO	Human Health	
PDS-SS-003-0001-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SS-003-0001-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SS-003-0001-SO	0 - 1	Selenium	1.1	mg/kg	ND	5100	NO	Human Health	
PDS-SS-003-0001-SO	0 - 1	Silver	0.54	mg/kg	ND	5100	NO	Human Health	
PDS-SS-003-0001-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
PDS-SS-003-0011-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
PDS-SS-003-0011-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SS-003-0011-SO	0 - 1	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
PDS-SS-003-0011-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
PDS-SS-003-0011-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
PDS-SS-003-0011-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
PDS-SS-003-0011-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SS-003-0011-SO	0 - 1	4-Nitrotoluene	0.5	mg/kg	ND	30	NO	Human Health	
PDS-SS-003-0011-SO	0 - 1	Arsenic	7.1	mg/kg		30	NO	Human Health	
PDS-SS-003-0011-SO	0 - 1	Barium	130	mg/kg		67000	NO	Human Health	
PDS-SS-003-0011-SO	0 - 1	Beryllium	0.68	mg/kg		5	NO	Human Health	
PDS-SS-003-0011-SO	0 - 1	Boron	4.6	mg/kg		100000	NO	Human Health	
PDS-SS-003-0011-SO	0 - 1	Cadmium	0.22	mg/kg	ND	1000	NO	Human Health	
PDS-SS-003-0011-SO	0 - 1	Chromium	18	mg/kg		10000	NO	Human Health	
PDS-SS-003-0011-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
PDS-SS-003-0011-SO	0 - 1	Lead	17	mg/kg		1000	NO	Human Health	
PDS-SS-003-0011-SO	0 - 1	Mercury	0.09	mg/kg		310	NO	Human Health	
PDS-SS-003-0011-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SS-003-0011-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SS-003-0011-SO	0 - 1	Selenium	0.97	mg/kg		5100	NO	Human Health	
PDS-SS-003-0011-SO	0 - 1	Silver	0.56	mg/kg	ND	5100	NO	Human Health	
PDS-SS-003-0011-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
PDS-SS-003-0021-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
PDS-SS-003-0021-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SS-003-0021-SO	0 - 1	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
PDS-SS-003-0021-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
PDS-SS-003-0021-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
PDS-SS-003-0021-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
PDS-SS-003-0021-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SS-003-0021-SO	0 - 1	4-Nitrotoluene	0.5	mg/kg	ND	30	NO	Human Health	
PDS-SS-003-0021-SO	0 - 1	Arsenic	6.8	mg/kg		30	NO	Human Health	
PDS-SS-003-0021-SO	0 - 1	Barium	170	mg/kg		67000	NO	Human Health	
PDS-SS-003-0021-SO	0 - 1	Beryllium	0.75	mg/kg		5	NO	Human Health	
PDS-SS-003-0021-SO	0 - 1	Boron	3.5	mg/kg		100000	NO	Human Health	
PDS-SS-003-0021-SO	0 - 1	Cadmium	0.23	mg/kg	ND	1000	NO	Human Health	
PDS-SS-003-0021-SO	0 - 1	Chromium	17	mg/kg		10000	NO	Human Health	
PDS-SS-003-0021-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
PDS-SS-003-0021-SO	0 - 1	Lead	11	mg/kg		1000	NO	Human Health	
PDS-SS-003-0021-SO	0 - 1	Mercury	0.05	mg/kg		310	NO	Human Health	
PDS-SS-003-0021-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	

APPENDIX A
Possible Demolition Site Soil Sampling Results
Iowa Army Ammunition Plant

Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goals	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
PDS-SS-003-0021-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SS-003-0021-SO	0 - 1	Selenium	1.1	mg/kg	ND	5100	NO	Human Health	
PDS-SS-003-0021-SO	0 - 1	Silver	0.56	mg/kg	ND	5100	NO	Human Health	
PDS-SS-003-0021-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
PDS-SS-003-0031-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
PDS-SS-003-0031-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
PDS-SS-003-0031-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SS-003-0031-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SS-003-0031-SO	0 - 1	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
PDS-SS-003-0031-SO	0 - 1	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
PDS-SS-003-0031-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
PDS-SS-003-0031-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
PDS-SS-003-0031-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
PDS-SS-003-0031-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
PDS-SS-003-0031-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
PDS-SS-003-0031-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
PDS-SS-003-0031-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SS-003-0031-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SS-003-0031-SO	0 - 1	4-Nitrotoluene	0.5	mg/kg	ND	30	NO	Human Health	
PDS-SS-003-0031-SO	0 - 1	4-Nitrotoluene	0.49	mg/kg	ND	30	NO	Human Health	
PDS-SS-003-0031-SO	0 - 1	Arsenic	6.4	mg/kg		30	NO	Human Health	
PDS-SS-003-0031-SO	0 - 1	Arsenic	6.3	mg/kg		30	NO	Human Health	
PDS-SS-003-0031-SO	0 - 1	Barium	88	mg/kg		67000	NO	Human Health	
PDS-SS-003-0031-SO	0 - 1	Barium	87	mg/kg		67000	NO	Human Health	
PDS-SS-003-0031-SO	0 - 1	Beryllium	0.72	mg/kg		5	NO	Human Health	
PDS-SS-003-0031-SO	0 - 1	Beryllium	0.77	mg/kg		5	NO	Human Health	
PDS-SS-003-0031-SO	0 - 1	Boron	3.5	mg/kg		100000	NO	Human Health	
PDS-SS-003-0031-SO	0 - 1	Boron	3.8	mg/kg		100000	NO	Human Health	
PDS-SS-003-0031-SO	0 - 1	Cadmium	0.21	mg/kg	ND	1000	NO	Human Health	
PDS-SS-003-0031-SO	0 - 1	Cadmium	0.22	mg/kg	ND	1000	NO	Human Health	
PDS-SS-003-0031-SO	0 - 1	Chromium	16	mg/kg		10000	NO	Human Health	
PDS-SS-003-0031-SO	0 - 1	Chromium	16	mg/kg		10000	NO	Human Health	
PDS-SS-003-0031-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
PDS-SS-003-0031-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
PDS-SS-003-0031-SO	0 - 1	Lead	11	mg/kg		1000	NO	Human Health	
PDS-SS-003-0031-SO	0 - 1	Lead	8	mg/kg		1000	NO	Human Health	
PDS-SS-003-0031-SO	0 - 1	Mercury	0.05	mg/kg		310	NO	Human Health	
PDS-SS-003-0031-SO	0 - 1	Mercury	0.08	mg/kg		310	NO	Human Health	
PDS-SS-003-0031-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SS-003-0031-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SS-003-0031-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SS-003-0031-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SS-003-0031-SO	0 - 1	Selenium	1.1	mg/kg	ND	5100	NO	Human Health	
PDS-SS-003-0031-SO	0 - 1	Selenium	1.1	mg/kg	ND	5100	NO	Human Health	
PDS-SS-003-0031-SO	0 - 1	Silver	0.55	mg/kg	ND	5100	NO	Human Health	
PDS-SS-003-0031-SO	0 - 1	Silver	0.53	mg/kg	ND	5100	NO	Human Health	
PDS-SS-003-0031-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
PDS-SS-003-0031-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
PDS-SS-003-0041-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
PDS-SS-003-0041-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SS-003-0041-SO	0 - 1	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
PDS-SS-003-0041-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
PDS-SS-003-0041-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
PDS-SS-003-0041-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
PDS-SS-003-0041-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SS-003-0041-SO	0 - 1	4-Nitrotoluene	0.5	mg/kg	ND	30	NO	Human Health	
PDS-SS-003-0041-SO	0 - 1	Arsenic	5.4	mg/kg		30	NO	Human Health	

APPENDIX A
Possible Demolition Site Soil Sampling Results
Iowa Army Ammunition Plant

Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goals	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
PDS-SS-003-0041-SO	0 - 1	Barium	130	mg/kg		67000	NO	Human Health	
PDS-SS-003-0041-SO	0 - 1	Beryllium	0.63	mg/kg		5	NO	Human Health	
PDS-SS-003-0041-SO	0 - 1	Boron	3	mg/kg		100000	NO	Human Health	
PDS-SS-003-0041-SO	0 - 1	Cadmium	0.21	mg/kg	ND	1000	NO	Human Health	
PDS-SS-003-0041-SO	0 - 1	Chromium	12	mg/kg		10000	NO	Human Health	
PDS-SS-003-0041-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
PDS-SS-003-0041-SO	0 - 1	Lead	16	mg/kg		1000	NO	Human Health	
PDS-SS-003-0041-SO	0 - 1	Mercury	0.15	mg/kg		310	NO	Human Health	
PDS-SS-003-0041-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SS-003-0041-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SS-003-0041-SO	0 - 1	Selenium	1.1	mg/kg	ND	5100	NO	Human Health	
PDS-SS-003-0041-SO	0 - 1	Silver	0.53	mg/kg	ND	5100	NO	Human Health	
PDS-SS-003-0041-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
PDS-SS-004-0001-SD	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
PDS-SS-004-0001-SD	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SS-004-0001-SD	0 - 1	2,4,6-Trinitrotoluene	0.11	mg/kg		47.6	NO	Human Health	
PDS-SS-004-0001-SD	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
PDS-SS-004-0001-SD	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
PDS-SS-004-0001-SD	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
PDS-SS-004-0001-SD	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SS-004-0001-SD	0 - 1	4-Nitrotoluene	0.49	mg/kg	ND	30	NO	Human Health	
PDS-SS-004-0001-SD	0 - 1	Arsenic	5.7	mg/kg		30	NO	Human Health	
PDS-SS-004-0001-SD	0 - 1	Barium	260	mg/kg		67000	NO	Human Health	
PDS-SS-004-0001-SD	0 - 1	Beryllium	0.75	mg/kg		5	NO	Human Health	
PDS-SS-004-0001-SD	0 - 1	Boron	3.4	mg/kg		100000	NO	Human Health	
PDS-SS-004-0001-SD	0 - 1	Cadmium	0.12	mg/kg		1000	NO	Human Health	
PDS-SS-004-0001-SD	0 - 1	Chromium	15	mg/kg		10000	NO	Human Health	
PDS-SS-004-0001-SD	0 - 1	HMX	0.24	mg/kg	ND	51000	NO	Human Health	
PDS-SS-004-0001-SD	0 - 1	Lead	66	mg/kg		1000	NO	Human Health	
PDS-SS-004-0001-SD	0 - 1	Mercury	0.71	mg/kg		310	NO	Human Health	
PDS-SS-004-0001-SD	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SS-004-0001-SD	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SS-004-0001-SD	0 - 1	Selenium	1.1	mg/kg	ND	5100	NO	Human Health	
PDS-SS-004-0001-SD	0 - 1	Silver	0.57	mg/kg	ND	5100	NO	Human Health	
PDS-SS-004-0001-SD	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
PDS-SS-004-0011-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
PDS-SS-004-0011-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SS-004-0011-SO	0 - 1	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
PDS-SS-004-0011-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
PDS-SS-004-0011-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
PDS-SS-004-0011-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
PDS-SS-004-0011-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SS-004-0011-SO	0 - 1	4-Nitrotoluene	0.05	mg/kg		30	NO	Human Health	
PDS-SS-004-0011-SO	0 - 1	Arsenic	3.4	mg/kg		30	NO	Human Health	
PDS-SS-004-0011-SO	0 - 1	Barium	110	mg/kg		67000	NO	Human Health	
PDS-SS-004-0011-SO	0 - 1	Beryllium	0.42	mg/kg		5	NO	Human Health	
PDS-SS-004-0011-SO	0 - 1	Boron	4	mg/kg		100000	NO	Human Health	
PDS-SS-004-0011-SO	0 - 1	Cadmium	0.1	mg/kg		1000	NO	Human Health	
PDS-SS-004-0011-SO	0 - 1	Chromium	8.2	mg/kg		10000	NO	Human Health	
PDS-SS-004-0011-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
PDS-SS-004-0011-SO	0 - 1	Lead	11	mg/kg		1000	NO	Human Health	
PDS-SS-004-0011-SO	0 - 1	Mercury	0.34	mg/kg		310	NO	Human Health	
PDS-SS-004-0011-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SS-004-0011-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SS-004-0011-SO	0 - 1	Selenium	1.1	mg/kg	ND	5100	NO	Human Health	
PDS-SS-004-0011-SO	0 - 1	Silver	0.57	mg/kg	ND	5100	NO	Human Health	
PDS-SS-004-0011-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	

APPENDIX A
Possible Demolition Site Soil Sampling Results
Iowa Army Ammunition Plant

Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goals	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
PDS-SS-004-0021-SO	0 - 1	1,3,5-Trinitrobenzene	0.04	mg/kg		102	NO	Human Health	
PDS-SS-004-0021-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SS-004-0021-SO	0 - 1	2,4,6-Trinitrotoluene	0.41	mg/kg		47.6	NO	Human Health	
PDS-SS-004-0021-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
PDS-SS-004-0021-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
PDS-SS-004-0021-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
PDS-SS-004-0021-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SS-004-0021-SO	0 - 1	4-Nitrotoluene	0.49	mg/kg	ND	30	NO	Human Health	
PDS-SS-004-0021-SO	0 - 1	Arsenic	3.3	mg/kg		30	NO	Human Health	
PDS-SS-004-0021-SO	0 - 1	Barium	2300	mg/kg		67000	NO	Human Health	
PDS-SS-004-0021-SO	0 - 1	Beryllium	0.45	mg/kg		5	NO	Human Health	
PDS-SS-004-0021-SO	0 - 1	Boron	2.9	mg/kg		100000	NO	Human Health	
PDS-SS-004-0021-SO	0 - 1	Cadmium	0.25	mg/kg		1000	NO	Human Health	
PDS-SS-004-0021-SO	0 - 1	Chromium	8.4	mg/kg		10000	NO	Human Health	
PDS-SS-004-0021-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
PDS-SS-004-0021-SO	0 - 1	Lead	24	mg/kg		1000	NO	Human Health	
PDS-SS-004-0021-SO	0 - 1	Mercury	0.81	mg/kg		310	NO	Human Health	
PDS-SS-004-0021-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SS-004-0021-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SS-004-0021-SO	0 - 1	Selenium	1.2	mg/kg	ND	5100	NO	Human Health	
PDS-SS-004-0021-SO	0 - 1	Silver	0.6	mg/kg	ND	5100	NO	Human Health	
PDS-SS-004-0021-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
PDS-SS-004-0031-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
PDS-SS-004-0031-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SS-004-0031-SO	0 - 1	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
PDS-SS-004-0031-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
PDS-SS-004-0031-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
PDS-SS-004-0031-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
PDS-SS-004-0031-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SS-004-0031-SO	0 - 1	4-Nitrotoluene	0.5	mg/kg	ND	30	NO	Human Health	
PDS-SS-004-0031-SO	0 - 1	Arsenic	3.5	mg/kg		30	NO	Human Health	
PDS-SS-004-0031-SO	0 - 1	Barium	240	mg/kg		67000	NO	Human Health	
PDS-SS-004-0031-SO	0 - 1	Beryllium	0.52	mg/kg		5	NO	Human Health	
PDS-SS-004-0031-SO	0 - 1	Boron	3.4	mg/kg		100000	NO	Human Health	
PDS-SS-004-0031-SO	0 - 1	Cadmium	0.19	mg/kg		1000	NO	Human Health	
PDS-SS-004-0031-SO	0 - 1	Chromium	9.7	mg/kg		10000	NO	Human Health	
PDS-SS-004-0031-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
PDS-SS-004-0031-SO	0 - 1	Lead	23	mg/kg		1000	NO	Human Health	
PDS-SS-004-0031-SO	0 - 1	Mercury	1.5	mg/kg		310	NO	Human Health	
PDS-SS-004-0031-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SS-004-0031-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SS-004-0031-SO	0 - 1	Selenium	1.1	mg/kg	ND	5100	NO	Human Health	
PDS-SS-004-0031-SO	0 - 1	Silver	0.56	mg/kg	ND	5100	NO	Human Health	
PDS-SS-004-0031-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
PDS-SS-004-0041-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
PDS-SS-004-0041-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SS-004-0041-SO	0 - 1	2,4,6-Trinitrotoluene	0.04	mg/kg		47.6	NO	Human Health	
PDS-SS-004-0041-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
PDS-SS-004-0041-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
PDS-SS-004-0041-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
PDS-SS-004-0041-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SS-004-0041-SO	0 - 1	4-Nitrotoluene	0.5	mg/kg	ND	30	NO	Human Health	
PDS-SS-004-0041-SO	0 - 1	Arsenic	3.6	mg/kg		30	NO	Human Health	
PDS-SS-004-0041-SO	0 - 1	Barium	590	mg/kg		67000	NO	Human Health	
PDS-SS-004-0041-SO	0 - 1	Beryllium	0.57	mg/kg		5	NO	Human Health	
PDS-SS-004-0041-SO	0 - 1	Boron	3.2	mg/kg		100000	NO	Human Health	
PDS-SS-004-0041-SO	0 - 1	Cadmium	0.32	mg/kg		1000	NO	Human Health	

APPENDIX A
Possible Demolition Site Soil Sampling Results
Iowa Army Ammunition Plant

Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goals	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
PDS-SS-004-0041-SO	0 - 1	Chromium	11	mg/kg		10000	NO	Human Health	
PDS-SS-004-0041-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
PDS-SS-004-0041-SO	0 - 1	Lead	42	mg/kg		1000	NO	Human Health	
PDS-SS-004-0041-SO	0 - 1	Mercury	9.4	mg/kg		310	NO	Human Health	
PDS-SS-004-0041-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SS-004-0041-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SS-004-0041-SO	0 - 1	Selenium	0.51	mg/kg		5100	NO	Human Health	
PDS-SS-004-0041-SO	0 - 1	Silver	0.51	mg/kg	ND	5100	NO	Human Health	
PDS-SS-004-0041-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
PDS-SS-005-0011-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
PDS-SS-005-0011-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SS-005-0011-SO	0 - 1	2,4,6-Trinitrotoluene	0.09	mg/kg		47.6	NO	Human Health	
PDS-SS-005-0011-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
PDS-SS-005-0011-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
PDS-SS-005-0011-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
PDS-SS-005-0011-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SS-005-0011-SO	0 - 1	4-Nitrotoluene	0.5	mg/kg	ND	30	NO	Human Health	
PDS-SS-005-0011-SO	0 - 1	Arsenic	4.8	mg/kg		30	NO	Human Health	
PDS-SS-005-0011-SO	0 - 1	Barium	350	mg/kg		67000	NO	Human Health	
PDS-SS-005-0011-SO	0 - 1	Beryllium	0.5	mg/kg		5	NO	Human Health	
PDS-SS-005-0011-SO	0 - 1	Boron	3.2	mg/kg		100000	NO	Human Health	
PDS-SS-005-0011-SO	0 - 1	Cadmium	0.37	mg/kg		1000	NO	Human Health	
PDS-SS-005-0011-SO	0 - 1	Chromium	11	mg/kg		10000	NO	Human Health	
PDS-SS-005-0011-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
PDS-SS-005-0011-SO	0 - 1	Lead	230	mg/kg		1000	NO	Human Health	
PDS-SS-005-0011-SO	0 - 1	Mercury	14	mg/kg		310	NO	Human Health	
PDS-SS-005-0011-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SS-005-0011-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SS-005-0011-SO	0 - 1	Selenium	1.1	mg/kg	ND	5100	NO	Human Health	
PDS-SS-005-0011-SO	0 - 1	Silver	0.55	mg/kg	ND	5100	NO	Human Health	
PDS-SS-005-0011-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
PDS-SS-005-0021-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
PDS-SS-005-0021-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SS-005-0021-SO	0 - 1	2,4,6-Trinitrotoluene	0.04	mg/kg		47.6	NO	Human Health	
PDS-SS-005-0021-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
PDS-SS-005-0021-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
PDS-SS-005-0021-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
PDS-SS-005-0021-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SS-005-0021-SO	0 - 1	4-Nitrotoluene	0.5	mg/kg	ND	30	NO	Human Health	
PDS-SS-005-0021-SO	0 - 1	Arsenic	4.3	mg/kg		30	NO	Human Health	
PDS-SS-005-0021-SO	0 - 1	Barium	270	mg/kg		67000	NO	Human Health	
PDS-SS-005-0021-SO	0 - 1	Beryllium	0.58	mg/kg		5	NO	Human Health	
PDS-SS-005-0021-SO	0 - 1	Boron	2.5	mg/kg		100000	NO	Human Health	
PDS-SS-005-0021-SO	0 - 1	Cadmium	0.09	mg/kg		1000	NO	Human Health	
PDS-SS-005-0021-SO	0 - 1	Chromium	9.7	mg/kg		10000	NO	Human Health	
PDS-SS-005-0021-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
PDS-SS-005-0021-SO	0 - 1	Lead	31	mg/kg		1000	NO	Human Health	
PDS-SS-005-0021-SO	0 - 1	Mercury	3.1	mg/kg		310	NO	Human Health	
PDS-SS-005-0021-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SS-005-0021-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SS-005-0021-SO	0 - 1	Selenium	1.1	mg/kg	ND	5100	NO	Human Health	
PDS-SS-005-0021-SO	0 - 1	Silver	0.56	mg/kg	ND	5100	NO	Human Health	
PDS-SS-005-0021-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
PDS-SS-005-0031-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
PDS-SS-005-0031-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SS-005-0031-SO	0 - 1	2,4,6-Trinitrotoluene	0.04	mg/kg		47.6	NO	Human Health	
PDS-SS-005-0031-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	

APPENDIX A
Possible Demolition Site Soil Sampling ResultsS
Iowa Army Ammunition Plant

Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goals	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
PDS-SS-005-0031-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
PDS-SS-005-0031-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
PDS-SS-005-0031-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SS-005-0031-SO	0 - 1	4-Nitrotoluene	0.5	mg/kg	ND	30	NO	Human Health	
PDS-SS-005-0031-SO	0 - 1	Arsenic	4.6	mg/kg		30	NO	Human Health	
PDS-SS-005-0031-SO	0 - 1	Barium	120	mg/kg		67000	NO	Human Health	
PDS-SS-005-0031-SO	0 - 1	Beryllium	0.5	mg/kg		5	NO	Human Health	
PDS-SS-005-0031-SO	0 - 1	Boron	2.5	mg/kg		100000	NO	Human Health	
PDS-SS-005-0031-SO	0 - 1	Cadmium	0.42	mg/kg		1000	NO	Human Health	
PDS-SS-005-0031-SO	0 - 1	Chromium	8.9	mg/kg		10000	NO	Human Health	
PDS-SS-005-0031-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
PDS-SS-005-0031-SO	0 - 1	Lead	19	mg/kg		1000	NO	Human Health	
PDS-SS-005-0031-SO	0 - 1	Mercury	0.33	mg/kg		310	NO	Human Health	
PDS-SS-005-0031-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SS-005-0031-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SS-005-0031-SO	0 - 1	Selenium	1.1	mg/kg	ND	5100	NO	Human Health	
PDS-SS-005-0031-SO	0 - 1	Silver	0.57	mg/kg	ND	5100	NO	Human Health	
PDS-SS-005-0031-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
PDS-SS-005-0041-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
PDS-SS-005-0041-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
PDS-SS-005-0041-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SS-005-0041-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SS-005-0041-SO	0 - 1	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
PDS-SS-005-0041-SO	0 - 1	2,4,6-Trinitrotoluene	0.04	mg/kg		47.6	NO	Human Health	
PDS-SS-005-0041-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
PDS-SS-005-0041-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
PDS-SS-005-0041-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
PDS-SS-005-0041-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
PDS-SS-005-0041-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
PDS-SS-005-0041-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
PDS-SS-005-0041-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SS-005-0041-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SS-005-0041-SO	0 - 1	4-Nitrotoluene	0.49	mg/kg	ND	30	NO	Human Health	
PDS-SS-005-0041-SO	0 - 1	4-Nitrotoluene	0.49	mg/kg	ND	30	NO	Human Health	
PDS-SS-005-0041-SO	0 - 1	Arsenic	5.3	mg/kg		30	NO	Human Health	
PDS-SS-005-0041-SO	0 - 1	Arsenic	4.9	mg/kg		30	NO	Human Health	
PDS-SS-005-0041-SO	0 - 1	Barium	350	mg/kg		67000	NO	Human Health	
PDS-SS-005-0041-SO	0 - 1	Barium	220	mg/kg		67000	NO	Human Health	
PDS-SS-005-0041-SO	0 - 1	Beryllium	0.59	mg/kg		5	NO	Human Health	
PDS-SS-005-0041-SO	0 - 1	Beryllium	0.58	mg/kg		5	NO	Human Health	
PDS-SS-005-0041-SO	0 - 1	Boron	2.8	mg/kg		100000	NO	Human Health	
PDS-SS-005-0041-SO	0 - 1	Boron	2.8	mg/kg		100000	NO	Human Health	
PDS-SS-005-0041-SO	0 - 1	Cadmium	0.55	mg/kg		1000	NO	Human Health	
PDS-SS-005-0041-SO	0 - 1	Cadmium	0.16	mg/kg		1000	NO	Human Health	
PDS-SS-005-0041-SO	0 - 1	Chromium	11	mg/kg		10000	NO	Human Health	
PDS-SS-005-0041-SO	0 - 1	Chromium	10	mg/kg		10000	NO	Human Health	
PDS-SS-005-0041-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
PDS-SS-005-0041-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
PDS-SS-005-0041-SO	0 - 1	Lead	71	mg/kg		1000	NO	Human Health	
PDS-SS-005-0041-SO	0 - 1	Lead	94	mg/kg		1000	NO	Human Health	
PDS-SS-005-0041-SO	0 - 1	Mercury	9.8	mg/kg		310	NO	Human Health	
PDS-SS-005-0041-SO	0 - 1	Mercury	9.5	mg/kg		310	NO	Human Health	
PDS-SS-005-0041-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SS-005-0041-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SS-005-0041-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SS-005-0041-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SS-005-0041-SO	0 - 1	Selenium	1	mg/kg	ND	5100	NO	Human Health	

APPENDIX A
Possible Demolition Site Soil Sampling Results
Iowa Army Ammunition Plant

Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goals	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
PDS-SS-005-0041-SO	0 - 1	Selenium	1	mg/kg	ND	5100	NO	Human Health	
PDS-SS-005-0041-SO	0 - 1	Silver	0.51	mg/kg	ND	5100	NO	Human Health	
PDS-SS-005-0041-SO	0 - 1	Silver	0.5	mg/kg	ND	5100	NO	Human Health	
PDS-SS-005-0041-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
PDS-SS-005-0041-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
PDS-SSI-001-0001-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
PDS-SSI-001-0001-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SSI-001-0001-SO	0 - 1	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
PDS-SSI-001-0001-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
PDS-SSI-001-0001-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
PDS-SSI-001-0001-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
PDS-SSI-001-0001-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SSI-001-0001-SO	0 - 1	4-Nitrotoluene	0.5	mg/kg	ND	30	NO	Human Health	
PDS-SSI-001-0001-SO	0 - 1	Arsenic	5.1	mg/kg		30	NO	Human Health	
PDS-SSI-001-0001-SO	0 - 1	Barium	170	mg/kg		67000	NO	Human Health	
PDS-SSI-001-0001-SO	0 - 1	Beryllium	0.66	mg/kg		5	NO	Human Health	
PDS-SSI-001-0001-SO	0 - 1	Boron	5.3	mg/kg		100000	NO	Human Health	
PDS-SSI-001-0001-SO	0 - 1	Cadmium	0.21	mg/kg	ND	1000	NO	Human Health	
PDS-SSI-001-0001-SO	0 - 1	Chromium	16	mg/kg		10000	NO	Human Health	
PDS-SSI-001-0001-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
PDS-SSI-001-0001-SO	0 - 1	Lead	20	mg/kg		1000	NO	Human Health	
PDS-SSI-001-0001-SO	0 - 1	Mercury	1	mg/kg		310	NO	Human Health	
PDS-SSI-001-0001-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SSI-001-0001-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SSI-001-0001-SO	0 - 1	Selenium	0.53	mg/kg		5100	NO	Human Health	
PDS-SSI-001-0001-SO	0 - 1	Silver	0.53	mg/kg	ND	5100	NO	Human Health	
PDS-SSI-001-0001-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
PDS-SSI-002-0001-SO	0 - 1	1,3,5-Trinitrobenzene	0.33	mg/kg		102	NO	Human Health	
PDS-SSI-002-0001-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SSI-002-0001-SO	0 - 1	2,4,6-Trinitrotoluene	78	mg/kg		47.6	YES	Human Health	
PDS-SSI-002-0001-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
PDS-SSI-002-0001-SO	0 - 1	2,6-Dinitrotoluene	0.19	mg/kg	ND	620	NO	Human Health	
PDS-SSI-002-0001-SO	0 - 1	2-Nitrotoluene	0.19	mg/kg	ND	2.2	NO	Human Health	
PDS-SSI-002-0001-SO	0 - 1	3-Nitrotoluene	0.19	mg/kg	ND	1000	NO	Human Health	
PDS-SSI-002-0001-SO	0 - 1	4-Nitrotoluene	0.49	mg/kg	ND	30	NO	Human Health	
PDS-SSI-002-0001-SO	0 - 1	Arsenic	5.9	mg/kg		30	NO	Human Health	
PDS-SSI-002-0001-SO	0 - 1	Barium	210	mg/kg		67000	NO	Human Health	
PDS-SSI-002-0001-SO	0 - 1	Beryllium	0.68	mg/kg		5	NO	Human Health	
PDS-SSI-002-0001-SO	0 - 1	Boron	4.1	mg/kg		100000	NO	Human Health	
PDS-SSI-002-0001-SO	0 - 1	Cadmium	0.2	mg/kg		1000	NO	Human Health	
PDS-SSI-002-0001-SO	0 - 1	Chromium	18	mg/kg		10000	NO	Human Health	
PDS-SSI-002-0001-SO	0 - 1	HMX	0.24	mg/kg	ND	51000	NO	Human Health	
PDS-SSI-002-0001-SO	0 - 1	Lead	1700	mg/kg		1000	YES	Human Health	
PDS-SSI-002-0001-SO	0 - 1	Mercury	1.8	mg/kg		310	NO	Human Health	
PDS-SSI-002-0001-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SSI-002-0001-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SSI-002-0001-SO	0 - 1	Selenium	0.49	mg/kg		5100	NO	Human Health	
PDS-SSI-002-0001-SO	0 - 1	Silver	0.52	mg/kg	ND	5100	NO	Human Health	
PDS-SSI-002-0001-SO	0 - 1	Tetryl	0.19	mg/kg	ND	6200	NO	Human Health	
PDS-SSI-002-0011-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
PDS-SSI-002-0011-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SSI-002-0011-SO	0 - 1	2,4,6-Trinitrotoluene	5	mg/kg		47.6	NO	Human Health	
PDS-SSI-002-0011-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
PDS-SSI-002-0011-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
PDS-SSI-002-0011-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
PDS-SSI-002-0011-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SSI-002-0011-SO	0 - 1	4-Nitrotoluene	0.49	mg/kg	ND	30	NO	Human Health	

APPENDIX A
Possible Demolition Site Soil Sampling Results
Iowa Army Ammunition Plant

Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goals	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
PDS-SSI-002-0011-SO	0 - 1	Arsenic	5.5	mg/kg		30	NO	Human Health	
PDS-SSI-002-0011-SO	0 - 1	Barium	810	mg/kg		67000	NO	Human Health	
PDS-SSI-002-0011-SO	0 - 1	Beryllium	0.72	mg/kg		5	NO	Human Health	
PDS-SSI-002-0011-SO	0 - 1	Boron	4.9	mg/kg		100000	NO	Human Health	
PDS-SSI-002-0011-SO	0 - 1	Cadmium	0.19	mg/kg		1000	NO	Human Health	
PDS-SSI-002-0011-SO	0 - 1	Chromium	34	mg/kg		10000	NO	Human Health	
PDS-SSI-002-0011-SO	0 - 1	HMX	0.24	mg/kg	ND	51000	NO	Human Health	
PDS-SSI-002-0011-SO	0 - 1	Lead	41	mg/kg		1000	NO	Human Health	
PDS-SSI-002-0011-SO	0 - 1	Mercury	0.29	mg/kg		310	NO	Human Health	
PDS-SSI-002-0011-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SSI-002-0011-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SSI-002-0011-SO	0 - 1	Selenium	0.97	mg/kg	ND	5100	NO	Human Health	
PDS-SSI-002-0011-SO	0 - 1	Silver	0.49	mg/kg	ND	5100	NO	Human Health	
PDS-SSI-002-0011-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
PDS-SSI-002-0021-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
PDS-SSI-002-0021-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SSI-002-0021-SO	0 - 1	2,4,6-Trinitrotoluene	0.06	mg/kg		47.6	NO	Human Health	
PDS-SSI-002-0021-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
PDS-SSI-002-0021-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
PDS-SSI-002-0021-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
PDS-SSI-002-0021-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SSI-002-0021-SO	0 - 1	4-Nitrotoluene	0.49	mg/kg	ND	30	NO	Human Health	
PDS-SSI-002-0021-SO	0 - 1	Arsenic	5.2	mg/kg		30	NO	Human Health	
PDS-SSI-002-0021-SO	0 - 1	Barium	120	mg/kg		67000	NO	Human Health	
PDS-SSI-002-0021-SO	0 - 1	Beryllium	0.71	mg/kg		5	NO	Human Health	
PDS-SSI-002-0021-SO	0 - 1	Boron	4.5	mg/kg		100000	NO	Human Health	
PDS-SSI-002-0021-SO	0 - 1	Cadmium	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SSI-002-0021-SO	0 - 1	Chromium	40	mg/kg		10000	NO	Human Health	
PDS-SSI-002-0021-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
PDS-SSI-002-0021-SO	0 - 1	Lead	28	mg/kg		1000	NO	Human Health	
PDS-SSI-002-0021-SO	0 - 1	Mercury	0.8	mg/kg		310	NO	Human Health	
PDS-SSI-002-0021-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SSI-002-0021-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SSI-002-0021-SO	0 - 1	Selenium	0.98	mg/kg	ND	5100	NO	Human Health	
PDS-SSI-002-0021-SO	0 - 1	Silver	0.49	mg/kg	ND	5100	NO	Human Health	
PDS-SSI-002-0021-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
PDS-SSI-002-0031-SO	0 - 1	1,3,5-Trinitrobenzene	0.11	mg/kg		102	NO	Human Health	
PDS-SSI-002-0031-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SSI-002-0031-SO	0 - 1	2,4,6-Trinitrotoluene	11	mg/kg		47.6	NO	Human Health	
PDS-SSI-002-0031-SO	0 - 1	2,4-Dinitrotoluene	0.05	mg/kg		8.7	NO	Human Health	
PDS-SSI-002-0031-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
PDS-SSI-002-0031-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
PDS-SSI-002-0031-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SSI-002-0031-SO	0 - 1	4-Nitrotoluene	0.5	mg/kg	ND	30	NO	Human Health	
PDS-SSI-002-0031-SO	0 - 1	Arsenic	4.4	mg/kg		30	NO	Human Health	
PDS-SSI-002-0031-SO	0 - 1	Barium	200	mg/kg		67000	NO	Human Health	
PDS-SSI-002-0031-SO	0 - 1	Beryllium	0.58	mg/kg		5	NO	Human Health	
PDS-SSI-002-0031-SO	0 - 1	Boron	3	mg/kg		100000	NO	Human Health	
PDS-SSI-002-0031-SO	0 - 1	Cadmium	0.52	mg/kg		1000	NO	Human Health	
PDS-SSI-002-0031-SO	0 - 1	Chromium	24	mg/kg		10000	NO	Human Health	
PDS-SSI-002-0031-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
PDS-SSI-002-0031-SO	0 - 1	Lead	100	mg/kg		1000	NO	Human Health	
PDS-SSI-002-0031-SO	0 - 1	Mercury	2.1	mg/kg		310	NO	Human Health	
PDS-SSI-002-0031-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SSI-002-0031-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SSI-002-0031-SO	0 - 1	Selenium	0.99	mg/kg	ND	5100	NO	Human Health	
PDS-SSI-002-0031-SO	0 - 1	Silver	0.49	mg/kg	ND	5100	NO	Human Health	

APPENDIX A
Possible Demolition Site Soil Sampling Results
Iowa Army Ammunition Plant

Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goals	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
PDS-SSI-002-0031-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
PDS-SSI-002-0041-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
PDS-SSI-002-0041-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SSI-002-0041-SO	0 - 1	2,4,6-Trinitrotoluene	0.11	mg/kg		47.6	NO	Human Health	
PDS-SSI-002-0041-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
PDS-SSI-002-0041-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
PDS-SSI-002-0041-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
PDS-SSI-002-0041-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SSI-002-0041-SO	0 - 1	4-Nitrotoluene	0.5	mg/kg	ND	30	NO	Human Health	
PDS-SSI-002-0041-SO	0 - 1	Arsenic	4.7	mg/kg		30	NO	Human Health	
PDS-SSI-002-0041-SO	0 - 1	Barium	92	mg/kg		67000	NO	Human Health	
PDS-SSI-002-0041-SO	0 - 1	Beryllium	0.66	mg/kg		5	NO	Human Health	
PDS-SSI-002-0041-SO	0 - 1	Boron	3	mg/kg		100000	NO	Human Health	
PDS-SSI-002-0041-SO	0 - 1	Cadmium	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SSI-002-0041-SO	0 - 1	Chromium	25	mg/kg		10000	NO	Human Health	
PDS-SSI-002-0041-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
PDS-SSI-002-0041-SO	0 - 1	Lead	37	mg/kg		1000	NO	Human Health	
PDS-SSI-002-0041-SO	0 - 1	Mercury	1.6	mg/kg		310	NO	Human Health	
PDS-SSI-002-0041-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SSI-002-0041-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SSI-002-0041-SO	0 - 1	Selenium	0.98	mg/kg	ND	5100	NO	Human Health	
PDS-SSI-002-0041-SO	0 - 1	Silver	0.49	mg/kg	ND	5100	NO	Human Health	
PDS-SSI-002-0041-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
PDS-SSI-003-0001-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
PDS-SSI-003-0001-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SSI-003-0001-SO	0 - 1	2,4,6-Trinitrotoluene	7.9	mg/kg		47.6	NO	Human Health	
PDS-SSI-003-0001-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
PDS-SSI-003-0001-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
PDS-SSI-003-0001-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
PDS-SSI-003-0001-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SSI-003-0001-SO	0 - 1	4-Nitrotoluene	0.5	mg/kg	ND	30	NO	Human Health	
PDS-SSI-003-0001-SO	0 - 1	Arsenic	7.2	mg/kg		30	NO	Human Health	
PDS-SSI-003-0001-SO	0 - 1	Barium	110	mg/kg		67000	NO	Human Health	
PDS-SSI-003-0001-SO	0 - 1	Beryllium	0.78	mg/kg		5	NO	Human Health	
PDS-SSI-003-0001-SO	0 - 1	Boron	3.9	mg/kg		100000	NO	Human Health	
PDS-SSI-003-0001-SO	0 - 1	Cadmium	0.21	mg/kg	ND	1000	NO	Human Health	
PDS-SSI-003-0001-SO	0 - 1	Chromium	22	mg/kg		10000	NO	Human Health	
PDS-SSI-003-0001-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
PDS-SSI-003-0001-SO	0 - 1	Lead	20	mg/kg		1000	NO	Human Health	
PDS-SSI-003-0001-SO	0 - 1	Mercury	0.09	mg/kg		310	NO	Human Health	
PDS-SSI-003-0001-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SSI-003-0001-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SSI-003-0001-SO	0 - 1	Selenium	0.85	mg/kg		5100	NO	Human Health	
PDS-SSI-003-0001-SO	0 - 1	Silver	0.52	mg/kg	ND	5100	NO	Human Health	
PDS-SSI-003-0001-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
PDS-SSI-003-0011-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
PDS-SSI-003-0011-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
PDS-SSI-003-0011-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SSI-003-0011-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SSI-003-0011-SO	0 - 1	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
PDS-SSI-003-0011-SO	0 - 1	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
PDS-SSI-003-0011-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
PDS-SSI-003-0011-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
PDS-SSI-003-0011-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
PDS-SSI-003-0011-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
PDS-SSI-003-0011-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
PDS-SSI-003-0011-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	

APPENDIX A
Possible Demolition Site Soil Sampling Results
Iowa Army Ammunition Plant

Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goals	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
PDS-SSI-003-0011-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SSI-003-0011-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SSI-003-0011-SO	0 - 1	4-Nitrotoluene	0.5	mg/kg	ND	30	NO	Human Health	
PDS-SSI-003-0011-SO	0 - 1	4-Nitrotoluene	0.5	mg/kg	ND	30	NO	Human Health	
PDS-SSI-003-0011-SO	0 - 1	Arsenic	7	mg/kg		30	NO	Human Health	
PDS-SSI-003-0011-SO	0 - 1	Arsenic	6.7	mg/kg		30	NO	Human Health	
PDS-SSI-003-0011-SO	0 - 1	Barium	130	mg/kg		67000	NO	Human Health	
PDS-SSI-003-0011-SO	0 - 1	Barium	160	mg/kg		67000	NO	Human Health	
PDS-SSI-003-0011-SO	0 - 1	Beryllium	0.68	mg/kg		5	NO	Human Health	
PDS-SSI-003-0011-SO	0 - 1	Beryllium	0.67	mg/kg		5	NO	Human Health	
PDS-SSI-003-0011-SO	0 - 1	Boron	3.8	mg/kg		100000	NO	Human Health	
PDS-SSI-003-0011-SO	0 - 1	Boron	4.3	mg/kg		100000	NO	Human Health	
PDS-SSI-003-0011-SO	0 - 1	Cadmium	0.22	mg/kg	ND	1000	NO	Human Health	
PDS-SSI-003-0011-SO	0 - 1	Cadmium	0.22	mg/kg	ND	1000	NO	Human Health	
PDS-SSI-003-0011-SO	0 - 1	Chromium	21	mg/kg		10000	NO	Human Health	
PDS-SSI-003-0011-SO	0 - 1	Chromium	28	mg/kg		10000	NO	Human Health	
PDS-SSI-003-0011-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
PDS-SSI-003-0011-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
PDS-SSI-003-0011-SO	0 - 1	Lead	21	mg/kg		1000	NO	Human Health	
PDS-SSI-003-0011-SO	0 - 1	Lead	20	mg/kg		1000	NO	Human Health	
PDS-SSI-003-0011-SO	0 - 1	Mercury	0.2	mg/kg		310	NO	Human Health	
PDS-SSI-003-0011-SO	0 - 1	Mercury	0.13	mg/kg		310	NO	Human Health	
PDS-SSI-003-0011-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SSI-003-0011-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SSI-003-0011-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SSI-003-0011-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SSI-003-0011-SO	0 - 1	Selenium	1.1	mg/kg	ND	5100	NO	Human Health	
PDS-SSI-003-0011-SO	0 - 1	Selenium	0.56	mg/kg		5100	NO	Human Health	
PDS-SSI-003-0011-SO	0 - 1	Silver	0.55	mg/kg	ND	5100	NO	Human Health	
PDS-SSI-003-0011-SO	0 - 1	Silver	0.54	mg/kg	ND	5100	NO	Human Health	
PDS-SSI-003-0011-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
PDS-SSI-003-0011-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
PDS-SSI-003-0021-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
PDS-SSI-003-0021-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SSI-003-0021-SO	0 - 1	2,4,6-Trinitrotoluene	5.7	mg/kg		47.6	NO	Human Health	
PDS-SSI-003-0021-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
PDS-SSI-003-0021-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
PDS-SSI-003-0021-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
PDS-SSI-003-0021-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SSI-003-0021-SO	0 - 1	4-Nitrotoluene	0.5	mg/kg	ND	30	NO	Human Health	
PDS-SSI-003-0021-SO	0 - 1	Arsenic	5.5	mg/kg		30	NO	Human Health	
PDS-SSI-003-0021-SO	0 - 1	Barium	100	mg/kg		67000	NO	Human Health	
PDS-SSI-003-0021-SO	0 - 1	Beryllium	0.64	mg/kg		5	NO	Human Health	
PDS-SSI-003-0021-SO	0 - 1	Boron	3.2	mg/kg		100000	NO	Human Health	
PDS-SSI-003-0021-SO	0 - 1	Cadmium	0.21	mg/kg	ND	1000	NO	Human Health	
PDS-SSI-003-0021-SO	0 - 1	Chromium	21	mg/kg		10000	NO	Human Health	
PDS-SSI-003-0021-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
PDS-SSI-003-0021-SO	0 - 1	Lead	15	mg/kg		1000	NO	Human Health	
PDS-SSI-003-0021-SO	0 - 1	Mercury	0.02	mg/kg	ND	310	NO	Human Health	
PDS-SSI-003-0021-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SSI-003-0021-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SSI-003-0021-SO	0 - 1	Selenium	0.43	mg/kg		5100	NO	Human Health	
PDS-SSI-003-0021-SO	0 - 1	Silver	0.52	mg/kg	ND	5100	NO	Human Health	
PDS-SSI-003-0021-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
PDS-SSI-003-0031-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
PDS-SSI-003-0031-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SSI-003-0031-SO	0 - 1	2,4,6-Trinitrotoluene	1.3	mg/kg		47.6	NO	Human Health	

APPENDIX A
Possible Demolition Site Soil Sampling Results
Iowa Army Ammunition Plant

Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goals	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
PDS-SSI-003-0031-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
PDS-SSI-003-0031-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
PDS-SSI-003-0031-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
PDS-SSI-003-0031-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SSI-003-0031-SO	0 - 1	4-Nitrotoluene	0.5	mg/kg	ND	30	NO	Human Health	
PDS-SSI-003-0031-SO	0 - 1	Arsenic	5.8	mg/kg		30	NO	Human Health	
PDS-SSI-003-0031-SO	0 - 1	Barium	270	mg/kg		67000	NO	Human Health	
PDS-SSI-003-0031-SO	0 - 1	Beryllium	0.71	mg/kg		5	NO	Human Health	
PDS-SSI-003-0031-SO	0 - 1	Boron	3.3	mg/kg		100000	NO	Human Health	
PDS-SSI-003-0031-SO	0 - 1	Cadmium	0.22	mg/kg	ND	1000	NO	Human Health	
PDS-SSI-003-0031-SO	0 - 1	Chromium	16	mg/kg		10000	NO	Human Health	
PDS-SSI-003-0031-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
PDS-SSI-003-0031-SO	0 - 1	Lead	16	mg/kg		1000	NO	Human Health	
PDS-SSI-003-0031-SO	0 - 1	Mercury	0.02	mg/kg	ND	310	NO	Human Health	
PDS-SSI-003-0031-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SSI-003-0031-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SSI-003-0031-SO	0 - 1	Selenium	1.1	mg/kg	ND	5100	NO	Human Health	
PDS-SSI-003-0031-SO	0 - 1	Silver	0.54	mg/kg	ND	5100	NO	Human Health	
PDS-SSI-003-0031-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
PDS-SSI-003-0041-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
PDS-SSI-003-0041-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SSI-003-0041-SO	0 - 1	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
PDS-SSI-003-0041-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
PDS-SSI-003-0041-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
PDS-SSI-003-0041-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
PDS-SSI-003-0041-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SSI-003-0041-SO	0 - 1	4-Nitrotoluene	0.5	mg/kg	ND	30	NO	Human Health	
PDS-SSI-003-0041-SO	0 - 1	Arsenic	5.3	mg/kg		30	NO	Human Health	
PDS-SSI-003-0041-SO	0 - 1	Barium	330	mg/kg		67000	NO	Human Health	
PDS-SSI-003-0041-SO	0 - 1	Beryllium	0.67	mg/kg		5	NO	Human Health	
PDS-SSI-003-0041-SO	0 - 1	Boron	3.1	mg/kg		100000	NO	Human Health	
PDS-SSI-003-0041-SO	0 - 1	Cadmium	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SSI-003-0041-SO	0 - 1	Chromium	15	mg/kg		10000	NO	Human Health	
PDS-SSI-003-0041-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
PDS-SSI-003-0041-SO	0 - 1	Lead	18	mg/kg		1000	NO	Human Health	
PDS-SSI-003-0041-SO	0 - 1	Mercury	0.02	mg/kg	ND	310	NO	Human Health	
PDS-SSI-003-0041-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SSI-003-0041-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SSI-003-0041-SO	0 - 1	Selenium	1	mg/kg	ND	5100	NO	Human Health	
PDS-SSI-003-0041-SO	0 - 1	Silver	0.51	mg/kg	ND	5100	NO	Human Health	
PDS-SSI-003-0041-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
PDS-SSI-004-0001-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
PDS-SSI-004-0001-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SSI-004-0001-SO	0 - 1	2,4,6-Trinitrotoluene	0.13	mg/kg		47.6	NO	Human Health	
PDS-SSI-004-0001-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
PDS-SSI-004-0001-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
PDS-SSI-004-0001-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
PDS-SSI-004-0001-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SSI-004-0001-SO	0 - 1	4-Nitrotoluene	0.5	mg/kg	ND	30	NO	Human Health	
PDS-SSI-004-0001-SO	0 - 1	Arsenic	4.4	mg/kg		30	NO	Human Health	
PDS-SSI-004-0001-SO	0 - 1	Barium	540	mg/kg		67000	NO	Human Health	
PDS-SSI-004-0001-SO	0 - 1	Beryllium	0.55	mg/kg		5	NO	Human Health	
PDS-SSI-004-0001-SO	0 - 1	Boron	3.8	mg/kg		100000	NO	Human Health	
PDS-SSI-004-0001-SO	0 - 1	Cadmium	0.26	mg/kg		1000	NO	Human Health	
PDS-SSI-004-0001-SO	0 - 1	Chromium	17	mg/kg		10000	NO	Human Health	
PDS-SSI-004-0001-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
PDS-SSI-004-0001-SO	0 - 1	Lead	40	mg/kg		1000	NO	Human Health	

APPENDIX A
Possible Demolition Site Soil Sampling Results
Iowa Army Ammunition Plant

Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goals	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
PDS-SSI-004-0001-SO	0 - 1	Mercury	3.2	mg/kg		310	NO	Human Health	
PDS-SSI-004-0001-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SSI-004-0001-SO	0 - 1	RDX	0.06	mg/kg		1.3	NO	Human Health	
PDS-SSI-004-0001-SO	0 - 1	Selenium	0.99	mg/kg	ND	5100	NO	Human Health	
PDS-SSI-004-0001-SO	0 - 1	Silver	0.49	mg/kg	ND	5100	NO	Human Health	
PDS-SSI-004-0001-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
PDS-SSI-004-0011-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
PDS-SSI-004-0011-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SSI-004-0011-SO	0 - 1	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
PDS-SSI-004-0011-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
PDS-SSI-004-0011-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
PDS-SSI-004-0011-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
PDS-SSI-004-0011-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SSI-004-0011-SO	0 - 1	4-Nitrotoluene	0.5	mg/kg	ND	30	NO	Human Health	
PDS-SSI-004-0011-SO	0 - 1	Arsenic	3.8	mg/kg		30	NO	Human Health	
PDS-SSI-004-0011-SO	0 - 1	Barium	260	mg/kg		67000	NO	Human Health	
PDS-SSI-004-0011-SO	0 - 1	Beryllium	0.54	mg/kg		5	NO	Human Health	
PDS-SSI-004-0011-SO	0 - 1	Boron	3.8	mg/kg		100000	NO	Human Health	
PDS-SSI-004-0011-SO	0 - 1	Cadmium	0.16	mg/kg		1000	NO	Human Health	
PDS-SSI-004-0011-SO	0 - 1	Chromium	24	mg/kg		10000	NO	Human Health	
PDS-SSI-004-0011-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
PDS-SSI-004-0011-SO	0 - 1	Lead	20	mg/kg		1000	NO	Human Health	
PDS-SSI-004-0011-SO	0 - 1	Mercury	2	mg/kg		310	NO	Human Health	
PDS-SSI-004-0011-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SSI-004-0011-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SSI-004-0011-SO	0 - 1	Selenium	0.93	mg/kg	ND	5100	NO	Human Health	
PDS-SSI-004-0011-SO	0 - 1	Silver	0.47	mg/kg	ND	5100	NO	Human Health	
PDS-SSI-004-0011-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
PDS-SSI-004-0021-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
PDS-SSI-004-0021-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SSI-004-0021-SO	0 - 1	2,4,6-Trinitrotoluene	0.79	mg/kg		47.6	NO	Human Health	
PDS-SSI-004-0021-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
PDS-SSI-004-0021-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
PDS-SSI-004-0021-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
PDS-SSI-004-0021-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SSI-004-0021-SO	0 - 1	4-Nitrotoluene	0.5	mg/kg	ND	30	NO	Human Health	
PDS-SSI-004-0021-SO	0 - 1	Arsenic	3.7	mg/kg		30	NO	Human Health	
PDS-SSI-004-0021-SO	0 - 1	Barium	1100	mg/kg		67000	NO	Human Health	
PDS-SSI-004-0021-SO	0 - 1	Beryllium	0.52	mg/kg		5	NO	Human Health	
PDS-SSI-004-0021-SO	0 - 1	Boron	3.1	mg/kg		100000	NO	Human Health	
PDS-SSI-004-0021-SO	0 - 1	Cadmium	0.49	mg/kg		1000	NO	Human Health	
PDS-SSI-004-0021-SO	0 - 1	Chromium	20	mg/kg		10000	NO	Human Health	
PDS-SSI-004-0021-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
PDS-SSI-004-0021-SO	0 - 1	Lead	63	mg/kg		1000	NO	Human Health	
PDS-SSI-004-0021-SO	0 - 1	Mercury	3.5	mg/kg		310	NO	Human Health	
PDS-SSI-004-0021-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SSI-004-0021-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SSI-004-0021-SO	0 - 1	Selenium	0.43	mg/kg		5100	NO	Human Health	
PDS-SSI-004-0021-SO	0 - 1	Silver	0.49	mg/kg	ND	5100	NO	Human Health	
PDS-SSI-004-0021-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
PDS-SSI-004-0031-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
PDS-SSI-004-0031-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SSI-004-0031-SO	0 - 1	2,4,6-Trinitrotoluene	0.04	mg/kg		47.6	NO	Human Health	
PDS-SSI-004-0031-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
PDS-SSI-004-0031-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
PDS-SSI-004-0031-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
PDS-SSI-004-0031-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	

APPENDIX A
Possible Demolition Site Soil Sampling Results
Iowa Army Ammunition Plant

Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goals	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
PDS-SSI-004-0031-SO	0 - 1	4-Nitrotoluene	0.5	mg/kg	ND	30	NO	Human Health	
PDS-SSI-004-0031-SO	0 - 1	Arsenic	3.7	mg/kg		30	NO	Human Health	
PDS-SSI-004-0031-SO	0 - 1	Barium	320	mg/kg		67000	NO	Human Health	
PDS-SSI-004-0031-SO	0 - 1	Beryllium	0.55	mg/kg		5	NO	Human Health	
PDS-SSI-004-0031-SO	0 - 1	Boron	3.5	mg/kg		100000	NO	Human Health	
PDS-SSI-004-0031-SO	0 - 1	Cadmium	0.16	mg/kg		1000	NO	Human Health	
PDS-SSI-004-0031-SO	0 - 1	Chromium	26	mg/kg		10000	NO	Human Health	
PDS-SSI-004-0031-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
PDS-SSI-004-0031-SO	0 - 1	Lead	27	mg/kg		1000	NO	Human Health	
PDS-SSI-004-0031-SO	0 - 1	Mercury	3	mg/kg		310	NO	Human Health	
PDS-SSI-004-0031-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SSI-004-0031-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SSI-004-0031-SO	0 - 1	Selenium	0.94	mg/kg	ND	5100	NO	Human Health	
PDS-SSI-004-0031-SO	0 - 1	Silver	0.47	mg/kg	ND	5100	NO	Human Health	
PDS-SSI-004-0031-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
PDS-SSI-004-0041-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
PDS-SSI-004-0041-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SSI-004-0041-SO	0 - 1	2,4,6-Trinitrotoluene	0.04	mg/kg		47.6	NO	Human Health	
PDS-SSI-004-0041-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
PDS-SSI-004-0041-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
PDS-SSI-004-0041-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
PDS-SSI-004-0041-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SSI-004-0041-SO	0 - 1	4-Nitrotoluene	0.5	mg/kg	ND	30	NO	Human Health	
PDS-SSI-004-0041-SO	0 - 1	Arsenic	3.5	mg/kg		30	NO	Human Health	
PDS-SSI-004-0041-SO	0 - 1	Barium	500	mg/kg		67000	NO	Human Health	
PDS-SSI-004-0041-SO	0 - 1	Beryllium	0.55	mg/kg		5	NO	Human Health	
PDS-SSI-004-0041-SO	0 - 1	Boron	2.9	mg/kg		100000	NO	Human Health	
PDS-SSI-004-0041-SO	0 - 1	Cadmium	0.33	mg/kg		1000	NO	Human Health	
PDS-SSI-004-0041-SO	0 - 1	Chromium	20	mg/kg		10000	NO	Human Health	
PDS-SSI-004-0041-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
PDS-SSI-004-0041-SO	0 - 1	Lead	68	mg/kg		1000	NO	Human Health	
PDS-SSI-004-0041-SO	0 - 1	Mercury	17	mg/kg		310	NO	Human Health	
PDS-SSI-004-0041-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SSI-004-0041-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SSI-004-0041-SO	0 - 1	Selenium	0.92	mg/kg	ND	5100	NO	Human Health	
PDS-SSI-004-0041-SO	0 - 1	Silver	0.46	mg/kg	ND	5100	NO	Human Health	
PDS-SSI-004-0041-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
PDS-SSI-005-0001-SO	0 - 1	1,3,5-Trinitrobenzene	0.09	mg/kg		102	NO	Human Health	
PDS-SSI-005-0001-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SSI-005-0001-SO	0 - 1	2,4,6-Trinitrotoluene	46	mg/kg		47.6	NO	Human Health	
PDS-SSI-005-0001-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
PDS-SSI-005-0001-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
PDS-SSI-005-0001-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
PDS-SSI-005-0001-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SSI-005-0001-SO	0 - 1	4-Nitrotoluene	0.49	mg/kg	ND	30	NO	Human Health	
PDS-SSI-005-0001-SO	0 - 1	Arsenic	4.5	mg/kg		30	NO	Human Health	
PDS-SSI-005-0001-SO	0 - 1	Barium	830	mg/kg		67000	NO	Human Health	
PDS-SSI-005-0001-SO	0 - 1	Beryllium	0.56	mg/kg		5	NO	Human Health	
PDS-SSI-005-0001-SO	0 - 1	Boron	3.1	mg/kg		100000	NO	Human Health	
PDS-SSI-005-0001-SO	0 - 1	Cadmium	0.52	mg/kg		1000	NO	Human Health	
PDS-SSI-005-0001-SO	0 - 1	Chromium	16	mg/kg		10000	NO	Human Health	
PDS-SSI-005-0001-SO	0 - 1	HMX	0.24	mg/kg	ND	51000	NO	Human Health	
PDS-SSI-005-0001-SO	0 - 1	Lead	230	mg/kg		1000	NO	Human Health	
PDS-SSI-005-0001-SO	0 - 1	Mercury	27	mg/kg		310	NO	Human Health	
PDS-SSI-005-0001-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SSI-005-0001-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SSI-005-0001-SO	0 - 1	Selenium	1	mg/kg	ND	5100	NO	Human Health	

APPENDIX A
Possible Demolition Site Soil Sampling Results
Iowa Army Ammunition Plant

Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goals	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
PDS-SSI-005-0001-SO	0 - 1	Silver	0.52	mg/kg	ND	5100	NO	Human Health	
PDS-SSI-005-0001-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
PDS-SSI-005-0011-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
PDS-SSI-005-0011-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SSI-005-0011-SO	0 - 1	2,4,6-Trinitrotoluene	0.89	mg/kg		47.6	NO	Human Health	
PDS-SSI-005-0011-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
PDS-SSI-005-0011-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
PDS-SSI-005-0011-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
PDS-SSI-005-0011-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SSI-005-0011-SO	0 - 1	4-Nitrotoluene	0.49	mg/kg	ND	30	NO	Human Health	
PDS-SSI-005-0011-SO	0 - 1	Arsenic	4.1	mg/kg		30	NO	Human Health	
PDS-SSI-005-0011-SO	0 - 1	Barium	270	mg/kg		67000	NO	Human Health	
PDS-SSI-005-0011-SO	0 - 1	Beryllium	0.52	mg/kg		5	NO	Human Health	
PDS-SSI-005-0011-SO	0 - 1	Boron	2.8	mg/kg		100000	NO	Human Health	
PDS-SSI-005-0011-SO	0 - 1	Cadmium	0.46	mg/kg		1000	NO	Human Health	
PDS-SSI-005-0011-SO	0 - 1	Chromium	24	mg/kg		10000	NO	Human Health	
PDS-SSI-005-0011-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
PDS-SSI-005-0011-SO	0 - 1	Lead	89	mg/kg		1000	NO	Human Health	
PDS-SSI-005-0011-SO	0 - 1	Mercury	5.1	mg/kg		310	NO	Human Health	
PDS-SSI-005-0011-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SSI-005-0011-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SSI-005-0011-SO	0 - 1	Selenium	0.94	mg/kg	ND	5100	NO	Human Health	
PDS-SSI-005-0011-SO	0 - 1	Silver	0.47	mg/kg	ND	5100	NO	Human Health	
PDS-SSI-005-0011-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
PDS-SSI-005-0021-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
PDS-SSI-005-0021-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SSI-005-0021-SO	0 - 1	2,4,6-Trinitrotoluene	0.12	mg/kg		47.6	NO	Human Health	
PDS-SSI-005-0021-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
PDS-SSI-005-0021-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
PDS-SSI-005-0021-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
PDS-SSI-005-0021-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SSI-005-0021-SO	0 - 1	4-Nitrotoluene	0.5	mg/kg	ND	30	NO	Human Health	
PDS-SSI-005-0021-SO	0 - 1	Arsenic	4.6	mg/kg		30	NO	Human Health	
PDS-SSI-005-0021-SO	0 - 1	Barium	530	mg/kg		67000	NO	Human Health	
PDS-SSI-005-0021-SO	0 - 1	Beryllium	0.63	mg/kg		5	NO	Human Health	
PDS-SSI-005-0021-SO	0 - 1	Boron	2.8	mg/kg		100000	NO	Human Health	
PDS-SSI-005-0021-SO	0 - 1	Cadmium	0.28	mg/kg		1000	NO	Human Health	
PDS-SSI-005-0021-SO	0 - 1	Chromium	22	mg/kg		10000	NO	Human Health	
PDS-SSI-005-0021-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
PDS-SSI-005-0021-SO	0 - 1	Lead	58	mg/kg		1000	NO	Human Health	
PDS-SSI-005-0021-SO	0 - 1	Mercury	3.2	mg/kg		310	NO	Human Health	
PDS-SSI-005-0021-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SSI-005-0021-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SSI-005-0021-SO	0 - 1	Selenium	0.97	mg/kg	ND	5100	NO	Human Health	
PDS-SSI-005-0021-SO	0 - 1	Silver	0.49	mg/kg	ND	5100	NO	Human Health	
PDS-SSI-005-0021-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
PDS-SSI-005-0031-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
PDS-SSI-005-0031-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SSI-005-0031-SO	0 - 1	2,4,6-Trinitrotoluene	0.09	mg/kg		47.6	NO	Human Health	
PDS-SSI-005-0031-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
PDS-SSI-005-0031-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
PDS-SSI-005-0031-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
PDS-SSI-005-0031-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SSI-005-0031-SO	0 - 1	4-Nitrotoluene	0.5	mg/kg	ND	30	NO	Human Health	
PDS-SSI-005-0031-SO	0 - 1	Arsenic	4	mg/kg		30	NO	Human Health	
PDS-SSI-005-0031-SO	0 - 1	Barium	470	mg/kg		67000	NO	Human Health	
PDS-SSI-005-0031-SO	0 - 1	Beryllium	0.52	mg/kg		5	NO	Human Health	

APPENDIX A
Possible Demolition Site Soil Sampling Results
Iowa Army Ammunition Plant

Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goals	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
PDS-SSI-005-0031-SO	0 - 1	Boron	2.5	mg/kg		100000	NO	Human Health	
PDS-SSI-005-0031-SO	0 - 1	Cadmium	0.48	mg/kg		1000	NO	Human Health	
PDS-SSI-005-0031-SO	0 - 1	Chromium	20	mg/kg		10000	NO	Human Health	
PDS-SSI-005-0031-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
PDS-SSI-005-0031-SO	0 - 1	Lead	68	mg/kg		1000	NO	Human Health	
PDS-SSI-005-0031-SO	0 - 1	Mercury	19	mg/kg		310	NO	Human Health	
PDS-SSI-005-0031-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SSI-005-0031-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SSI-005-0031-SO	0 - 1	Selenium	0.96	mg/kg	ND	5100	NO	Human Health	
PDS-SSI-005-0031-SO	0 - 1	Silver	0.48	mg/kg	ND	5100	NO	Human Health	
PDS-SSI-005-0031-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
PDS-SSI-005-0041-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
PDS-SSI-005-0041-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
PDS-SSI-005-0041-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SSI-005-0041-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SSI-005-0041-SO	0 - 1	2,4,6-Trinitrotoluene	0.17	mg/kg		47.6	NO	Human Health	
PDS-SSI-005-0041-SO	0 - 1	2,4,6-Trinitrotoluene	0.21	mg/kg		47.6	NO	Human Health	
PDS-SSI-005-0041-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
PDS-SSI-005-0041-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
PDS-SSI-005-0041-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
PDS-SSI-005-0041-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
PDS-SSI-005-0041-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
PDS-SSI-005-0041-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
PDS-SSI-005-0041-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SSI-005-0041-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SSI-005-0041-SO	0 - 1	4-Nitrotoluene	0.5	mg/kg	ND	30	NO	Human Health	
PDS-SSI-005-0041-SO	0 - 1	4-Nitrotoluene	0.5	mg/kg	ND	30	NO	Human Health	
PDS-SSI-005-0041-SO	0 - 1	Arsenic	4.6	mg/kg		30	NO	Human Health	
PDS-SSI-005-0041-SO	0 - 1	Arsenic	5.3	mg/kg		30	NO	Human Health	
PDS-SSI-005-0041-SO	0 - 1	Barium	1100	mg/kg		67000	NO	Human Health	
PDS-SSI-005-0041-SO	0 - 1	Barium	1200	mg/kg		67000	NO	Human Health	
PDS-SSI-005-0041-SO	0 - 1	Beryllium	0.52	mg/kg		5	NO	Human Health	
PDS-SSI-005-0041-SO	0 - 1	Beryllium	0.48	mg/kg		5	NO	Human Health	
PDS-SSI-005-0041-SO	0 - 1	Boron	2.5	mg/kg		100000	NO	Human Health	
PDS-SSI-005-0041-SO	0 - 1	Boron	2.7	mg/kg		100000	NO	Human Health	
PDS-SSI-005-0041-SO	0 - 1	Cadmium	0.34	mg/kg		1000	NO	Human Health	
PDS-SSI-005-0041-SO	0 - 1	Cadmium	0.41	mg/kg		1000	NO	Human Health	
PDS-SSI-005-0041-SO	0 - 1	Chromium	22	mg/kg		10000	NO	Human Health	
PDS-SSI-005-0041-SO	0 - 1	Chromium	22	mg/kg		10000	NO	Human Health	
PDS-SSI-005-0041-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
PDS-SSI-005-0041-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
PDS-SSI-005-0041-SO	0 - 1	Lead	800	mg/kg		1000	NO	Human Health	
PDS-SSI-005-0041-SO	0 - 1	Lead	800	mg/kg		1000	NO	Human Health	
PDS-SSI-005-0041-SO	0 - 1	Mercury	330	mg/kg		310	YES	Human Health	
PDS-SSI-005-0041-SO	0 - 1	Mercury	350	mg/kg		310	YES	Human Health	
PDS-SSI-005-0041-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SSI-005-0041-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SSI-005-0041-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SSI-005-0041-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SSI-005-0041-SO	0 - 1	Selenium	1.1	mg/kg	ND	5100	NO	Human Health	
PDS-SSI-005-0041-SO	0 - 1	Selenium	1.1	mg/kg	ND	5100	NO	Human Health	
PDS-SSI-005-0041-SO	0 - 1	Silver	0.54	mg/kg	ND	5100	NO	Human Health	
PDS-SSI-005-0041-SO	0 - 1	Silver	0.55	mg/kg	ND	5100	NO	Human Health	
PDS-SSI-005-0041-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
PDS-SSI-005-0041-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
PDS-SSI-006-0001-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
PDS-SSI-006-0001-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	

APPENDIX A
Possible Demolition Site Soil Sampling Results
Iowa Army Ammunition Plant

Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goals	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
PDS-SSI-006-0001-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SSI-006-0001-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SSI-006-0001-SO	0 - 1	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
PDS-SSI-006-0001-SO	0 - 1	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
PDS-SSI-006-0001-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
PDS-SSI-006-0001-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
PDS-SSI-006-0001-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
PDS-SSI-006-0001-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
PDS-SSI-006-0001-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
PDS-SSI-006-0001-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
PDS-SSI-006-0001-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SSI-006-0001-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SSI-006-0001-SO	0 - 1	4-Nitrotoluene	0.5	mg/kg	ND	30	NO	Human Health	
PDS-SSI-006-0001-SO	0 - 1	4-Nitrotoluene	0.49	mg/kg	ND	30	NO	Human Health	
PDS-SSI-006-0001-SO	0 - 1	Arsenic	4.7	mg/kg		30	NO	Human Health	
PDS-SSI-006-0001-SO	0 - 1	Arsenic	5	mg/kg		30	NO	Human Health	
PDS-SSI-006-0001-SO	0 - 1	Barium	370	mg/kg		67000	NO	Human Health	
PDS-SSI-006-0001-SO	0 - 1	Barium	390	mg/kg		67000	NO	Human Health	
PDS-SSI-006-0001-SO	0 - 1	Beryllium	0.58	mg/kg		5	NO	Human Health	
PDS-SSI-006-0001-SO	0 - 1	Beryllium	0.62	mg/kg		5	NO	Human Health	
PDS-SSI-006-0001-SO	0 - 1	Boron	2.7	mg/kg		100000	NO	Human Health	
PDS-SSI-006-0001-SO	0 - 1	Boron	3	mg/kg		100000	NO	Human Health	
PDS-SSI-006-0001-SO	0 - 1	Cadmium	0.78	mg/kg		1000	NO	Human Health	
PDS-SSI-006-0001-SO	0 - 1	Cadmium	0.7	mg/kg		1000	NO	Human Health	
PDS-SSI-006-0001-SO	0 - 1	Chromium	15	mg/kg		10000	NO	Human Health	
PDS-SSI-006-0001-SO	0 - 1	Chromium	15	mg/kg		10000	NO	Human Health	
PDS-SSI-006-0001-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
PDS-SSI-006-0001-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
PDS-SSI-006-0001-SO	0 - 1	Lead	27	mg/kg		1000	NO	Human Health	
PDS-SSI-006-0001-SO	0 - 1	Lead	29	mg/kg		1000	NO	Human Health	
PDS-SSI-006-0001-SO	0 - 1	Mercury	0.64	mg/kg		310	NO	Human Health	
PDS-SSI-006-0001-SO	0 - 1	Mercury	0.53	mg/kg		310	NO	Human Health	
PDS-SSI-006-0001-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SSI-006-0001-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SSI-006-0001-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SSI-006-0001-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SSI-006-0001-SO	0 - 1	Selenium	0.49	mg/kg		5100	NO	Human Health	
PDS-SSI-006-0001-SO	0 - 1	Selenium	0.46	mg/kg		5100	NO	Human Health	
PDS-SSI-006-0001-SO	0 - 1	Silver	0.48	mg/kg	ND	5100	NO	Human Health	
PDS-SSI-006-0001-SO	0 - 1	Silver	0.5	mg/kg	ND	5100	NO	Human Health	
PDS-SSI-006-0001-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
PDS-SSI-006-0001-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
PDS-SSI-007-0001-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
PDS-SSI-007-0001-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SSI-007-0001-SO	0 - 1	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
PDS-SSI-007-0001-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
PDS-SSI-007-0001-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
PDS-SSI-007-0001-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
PDS-SSI-007-0001-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SSI-007-0001-SO	0 - 1	4-Nitrotoluene	0.49	mg/kg	ND	30	NO	Human Health	
PDS-SSI-007-0001-SO	0 - 1	Arsenic	4.9	mg/kg		30	NO	Human Health	
PDS-SSI-007-0001-SO	0 - 1	Barium	190	mg/kg		67000	NO	Human Health	
PDS-SSI-007-0001-SO	0 - 1	Beryllium	0.62	mg/kg		5	NO	Human Health	
PDS-SSI-007-0001-SO	0 - 1	Boron	3.9	mg/kg		100000	NO	Human Health	
PDS-SSI-007-0001-SO	0 - 1	Cadmium	0.19	mg/kg	ND	1000	NO	Human Health	
PDS-SSI-007-0001-SO	0 - 1	Chromium	18	mg/kg		10000	NO	Human Health	
PDS-SSI-007-0001-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	

APPENDIX A
Possible Demolition Site Soil Sampling Results
Iowa Army Ammunition Plant

Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goals	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
PDS-SSI-007-0001-SO	0 - 1	Lead	16	mg/kg		1000	NO	Human Health	
PDS-SSI-007-0001-SO	0 - 1	Mercury	1.3	mg/kg		310	NO	Human Health	
PDS-SSI-007-0001-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SSI-007-0001-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SSI-007-0001-SO	0 - 1	Selenium	0.94	mg/kg	ND	5100	NO	Human Health	
PDS-SSI-007-0001-SO	0 - 1	Silver	0.47	mg/kg	ND	5100	NO	Human Health	
PDS-SSI-007-0001-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
PDS-SSI-008-0001-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
PDS-SSI-008-0001-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SSI-008-0001-SO	0 - 1	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
PDS-SSI-008-0001-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
PDS-SSI-008-0001-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
PDS-SSI-008-0001-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
PDS-SSI-008-0001-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SSI-008-0001-SO	0 - 1	4-Nitrotoluene	0.49	mg/kg	ND	30	NO	Human Health	
PDS-SSI-008-0001-SO	0 - 1	Arsenic	4.7	mg/kg		30	NO	Human Health	
PDS-SSI-008-0001-SO	0 - 1	Barium	100	mg/kg		67000	NO	Human Health	
PDS-SSI-008-0001-SO	0 - 1	Beryllium	0.62	mg/kg		5	NO	Human Health	
PDS-SSI-008-0001-SO	0 - 1	Boron	3.6	mg/kg		100000	NO	Human Health	
PDS-SSI-008-0001-SO	0 - 1	Cadmium	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SSI-008-0001-SO	0 - 1	Chromium	15	mg/kg		10000	NO	Human Health	
PDS-SSI-008-0001-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
PDS-SSI-008-0001-SO	0 - 1	Lead	13	mg/kg		1000	NO	Human Health	
PDS-SSI-008-0001-SO	0 - 1	Mercury	0.11	mg/kg		310	NO	Human Health	
PDS-SSI-008-0001-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SSI-008-0001-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SSI-008-0001-SO	0 - 1	Selenium	1	mg/kg	ND	5100	NO	Human Health	
PDS-SSI-008-0001-SO	0 - 1	Silver	0.5	mg/kg	ND	5100	NO	Human Health	
PDS-SSI-008-0001-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
PDS-SSI-009-0001-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
PDS-SSI-009-0001-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
PDS-SSI-009-0001-SO	0 - 1	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
PDS-SSI-009-0001-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
PDS-SSI-009-0001-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
PDS-SSI-009-0001-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
PDS-SSI-009-0001-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
PDS-SSI-009-0001-SO	0 - 1	4-Nitrotoluene	0.5	mg/kg	ND	30	NO	Human Health	
PDS-SSI-009-0001-SO	0 - 1	Arsenic	4	mg/kg		30	NO	Human Health	
PDS-SSI-009-0001-SO	0 - 1	Barium	200	mg/kg		67000	NO	Human Health	
PDS-SSI-009-0001-SO	0 - 1	Beryllium	0.54	mg/kg		5	NO	Human Health	
PDS-SSI-009-0001-SO	0 - 1	Boron	2.7	mg/kg		100000	NO	Human Health	
PDS-SSI-009-0001-SO	0 - 1	Cadmium	0.19	mg/kg	ND	1000	NO	Human Health	
PDS-SSI-009-0001-SO	0 - 1	Chromium	13	mg/kg		10000	NO	Human Health	
PDS-SSI-009-0001-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
PDS-SSI-009-0001-SO	0 - 1	Lead	13	mg/kg		1000	NO	Human Health	
PDS-SSI-009-0001-SO	0 - 1	Mercury	0.07	mg/kg		310	NO	Human Health	
PDS-SSI-009-0001-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
PDS-SSI-009-0001-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
PDS-SSI-009-0001-SO	0 - 1	Selenium	0.55	mg/kg		5100	NO	Human Health	
PDS-SSI-009-0001-SO	0 - 1	Silver	0.47	mg/kg	ND	5100	NO	Human Health	
PDS-SSI-009-0001-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
PDS-TTSB-057	0 - 1	1,3,5-Trinitrobenzene	0.25	mg/kg	ND	102	NO	Human Health	
PDS-TTSB-057	0 - 1	1,3-Dinitrobenzene	0.25	mg/kg	ND	62	NO	Human Health	
PDS-TTSB-057	0 - 1	2,4,6-Trinitrotoluene	0.25	mg/kg	ND	47.6	NO	Human Health	
PDS-TTSB-057	0 - 1	2,4-Dinitrotoluene	0.25	mg/kg	ND	8.7	NO	Human Health	
PDS-TTSB-057	0 - 1	2,6-Dinitrotoluene	0.25	mg/kg	ND	620	NO	Human Health	
PDS-TTSB-057	0 - 1	2-Nitrotoluene	0.25	mg/kg	ND	2.2	NO	Human Health	

APPENDIX A
Possible Demolition Site Soil Sampling Results
Iowa Army Ammunition Plant

Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goals	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
PDS-TTSB-057	0 - 1	3-Nitrotoluene	0.25	mg/kg	ND	1000	NO	Human Health	
PDS-TTSB-057	0 - 1	4-Nitrotoluene	0.25	mg/kg	ND	30	NO	Human Health	
PDS-TTSB-057	0 - 1	Aluminum	11200	mg/kg		100000	NO	Human Health	
PDS-TTSB-057	0 - 1	Antimony	0.79	mg/kg		816	NO	Human Health	
PDS-TTSB-057	0 - 1	Arsenic	2.8	mg/kg		30	NO	Human Health	
PDS-TTSB-057	0 - 1	Barium	1390	mg/kg		67000	NO	Human Health	
PDS-TTSB-057	0 - 1	Beryllium	0.7	mg/kg		5	NO	Human Health	
PDS-TTSB-057	0 - 1	Cadmium	0.036	mg/kg	ND	1000	NO	Human Health	
PDS-TTSB-057	0 - 1	Chromium	15.3	mg/kg		10000	NO	Human Health	
PDS-TTSB-057	0 - 1	Cobalt	5.8	mg/kg		1900	NO	Human Health	
PDS-TTSB-057	0 - 1	Copper	154	mg/kg		41000	NO	Human Health	
PDS-TTSB-057	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
PDS-TTSB-057	0 - 1	Iron	16500	mg/kg		100000	NO	Human Health	
PDS-TTSB-057	0 - 1	Lead	21.7	mg/kg		1000	NO	Human Health	
PDS-TTSB-057	0 - 1	Manganese	460	mg/kg		19000	NO	Human Health	
PDS-TTSB-057	0 - 1	Mercury	83.6	mg/kg		310	NO	Human Health	
PDS-TTSB-057	0 - 1	Nickel	14.5	mg/kg		20000	NO	Human Health	
PDS-TTSB-057	0 - 1	Nitrobenzene	0.25	mg/kg	ND	100	NO	Human Health	
PDS-TTSB-057	0 - 1	RDX	0.25	mg/kg	ND	1.3	NO	Human Health	
PDS-TTSB-057	0 - 1	Selenium	4	mg/kg		5100	NO	Human Health	
PDS-TTSB-057	0 - 1	Silver	0.085	mg/kg	ND	5100	NO	Human Health	
PDS-TTSB-057	0 - 1	Tetryl	0.25	mg/kg	ND	6200	NO	Human Health	
PDS-TTSB-057	0 - 1	Thallium	4.7	mg/kg	ND	143	NO	Human Health	
PDS-TTSB-057	0 - 1	Vanadium	26	mg/kg		1000	NO	Human Health	
PDS-TTSB-057	0 - 1	Zinc	37.1	mg/kg		100000	NO	Human Health	
PDS-TTSB-057	1 - 2	1,3,5-Trinitrobenzene	0.24	mg/kg	ND	102	NO	Human Health	
PDS-TTSB-057	1 - 2	1,3-Dinitrobenzene	0.24	mg/kg	ND	62	NO	Human Health	
PDS-TTSB-057	1 - 2	2,4,6-Trinitrotoluene	0.24	mg/kg	ND	47.6	NO	Human Health	
PDS-TTSB-057	1 - 2	2,4-Dinitrotoluene	0.24	mg/kg	ND	8.7	NO	Human Health	
PDS-TTSB-057	1 - 2	2,6-Dinitrotoluene	0.24	mg/kg	ND	620	NO	Human Health	
PDS-TTSB-057	1 - 2	2-Nitrotoluene	0.24	mg/kg	ND	2.2	NO	Human Health	
PDS-TTSB-057	1 - 2	3-Nitrotoluene	0.24	mg/kg	ND	1000	NO	Human Health	
PDS-TTSB-057	1 - 2	4-Nitrotoluene	0.24	mg/kg	ND	30	NO	Human Health	
PDS-TTSB-057	1 - 2	Aluminum	12300	mg/kg		100000	NO	Human Health	
PDS-TTSB-057	1 - 2	Antimony	0.33	mg/kg	ND	816	NO	Human Health	
PDS-TTSB-057	1 - 2	Arsenic	3.4	mg/kg		30	NO	Human Health	
PDS-TTSB-057	1 - 2	Barium	356	mg/kg		67000	NO	Human Health	
PDS-TTSB-057	1 - 2	Beryllium	0.79	mg/kg		5	NO	Human Health	
PDS-TTSB-057	1 - 2	Cadmium	0.036	mg/kg	ND	1000	NO	Human Health	
PDS-TTSB-057	1 - 2	Chromium	15.5	mg/kg		10000	NO	Human Health	
PDS-TTSB-057	1 - 2	Cobalt	6.6	mg/kg		1900	NO	Human Health	
PDS-TTSB-057	1 - 2	Copper	73.2	mg/kg		41000	NO	Human Health	
PDS-TTSB-057	1 - 2	HMX	0.24	mg/kg	ND	51000	NO	Human Health	
PDS-TTSB-057	1 - 2	Iron	17800	mg/kg		100000	NO	Human Health	
PDS-TTSB-057	1 - 2	Lead	7.9	mg/kg		1000	NO	Human Health	
PDS-TTSB-057	1 - 2	Manganese	540	mg/kg		19000	NO	Human Health	
PDS-TTSB-057	1 - 2	Mercury	61.8	mg/kg		310	NO	Human Health	
PDS-TTSB-057	1 - 2	Nickel	16.9	mg/kg		20000	NO	Human Health	
PDS-TTSB-057	1 - 2	Nitrobenzene	0.24	mg/kg	ND	100	NO	Human Health	
PDS-TTSB-057	1 - 2	RDX	0.24	mg/kg	ND	1.3	NO	Human Health	
PDS-TTSB-057	1 - 2	Selenium	4.3	mg/kg		5100	NO	Human Health	
PDS-TTSB-057	1 - 2	Silver	0.085	mg/kg	ND	5100	NO	Human Health	
PDS-TTSB-057	1 - 2	Tetryl	0.24	mg/kg	ND	6200	NO	Human Health	
PDS-TTSB-057	1 - 2	Thallium	4.7	mg/kg	ND	143	NO	Human Health	
PDS-TTSB-057	1 - 2	Vanadium	26.9	mg/kg		1000	NO	Human Health	
PDS-TTSB-057	1 - 2	Zinc	46.5	mg/kg		100000	NO	Human Health	
PDS-TTSB-057	2 - 4	1,3,5-Trinitrobenzene	0.23	mg/kg	ND	102	NO	Human Health	

APPENDIX A
Possible Demolition Site Soil Sampling Results
Iowa Army Ammunition Plant

Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goals	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
PDS-TTSB-057	2 - 4	1,3-Dinitrobenzene	0.23	mg/kg	ND	62	NO	Human Health	
PDS-TTSB-057	2 - 4	2,4,6-Trinitrotoluene	0.23	mg/kg	ND	47.6	NO	Human Health	
PDS-TTSB-057	2 - 4	2,4-Dinitrotoluene	0.23	mg/kg	ND	8.7	NO	Human Health	
PDS-TTSB-057	2 - 4	2,6-Dinitrotoluene	0.23	mg/kg	ND	620	NO	Human Health	
PDS-TTSB-057	2 - 4	2-Nitrotoluene	0.23	mg/kg	ND	2.2	NO	Human Health	
PDS-TTSB-057	2 - 4	3-Nitrotoluene	0.23	mg/kg	ND	1000	NO	Human Health	
PDS-TTSB-057	2 - 4	4-Nitrotoluene	0.23	mg/kg	ND	30	NO	Human Health	
PDS-TTSB-057	2 - 4	Aluminum	10000	mg/kg		100000	NO	Human Health	
PDS-TTSB-057	2 - 4	Antimony	0.47	mg/kg		816	NO	Human Health	
PDS-TTSB-057	2 - 4	Arsenic	3.3	mg/kg		30	NO	Human Health	
PDS-TTSB-057	2 - 4	Barium	128	mg/kg		67000	NO	Human Health	
PDS-TTSB-057	2 - 4	Beryllium	0.6	mg/kg		5	NO	Human Health	
PDS-TTSB-057	2 - 4	Cadmium	0.037	mg/kg	ND	1000	NO	Human Health	
PDS-TTSB-057	2 - 4	Chromium	13.3	mg/kg		10000	NO	Human Health	
PDS-TTSB-057	2 - 4	Cobalt	5.8	mg/kg		1900	NO	Human Health	
PDS-TTSB-057	2 - 4	Copper	5230	mg/kg		41000	NO	Human Health	
PDS-TTSB-057	2 - 4	HMX	0.23	mg/kg	ND	51000	NO	Human Health	
PDS-TTSB-057	2 - 4	Iron	15100	mg/kg		100000	NO	Human Health	
PDS-TTSB-057	2 - 4	Lead	74.9	mg/kg		1000	NO	Human Health	
PDS-TTSB-057	2 - 4	Manganese	356	mg/kg		19000	NO	Human Health	
PDS-TTSB-057	2 - 4	Mercury	409	mg/kg		310	YES	Human Health	
PDS-TTSB-057	2 - 4	Nickel	16.5	mg/kg		20000	NO	Human Health	
PDS-TTSB-057	2 - 4	Nitrobenzene	0.23	mg/kg	ND	100	NO	Human Health	
PDS-TTSB-057	2 - 4	RDX	0.23	mg/kg	ND	1.3	NO	Human Health	
PDS-TTSB-057	2 - 4	Selenium	2.9	mg/kg		5100	NO	Human Health	
PDS-TTSB-057	2 - 4	Silver	0.24	mg/kg		5100	NO	Human Health	
PDS-TTSB-057	2 - 4	Tetryl	0.23	mg/kg	ND	6200	NO	Human Health	
PDS-TTSB-057	2 - 4	Thallium	4.8	mg/kg	ND	143	NO	Human Health	
PDS-TTSB-057	2 - 4	Vanadium	24	mg/kg		1000	NO	Human Health	
PDS-TTSB-057	2 - 4	Zinc	258	mg/kg		100000	NO	Human Health	
PDS-TTSB-058	0 - 1	1,3,5-Trinitrobenzene	0.24	mg/kg	ND	102	NO	Human Health	
PDS-TTSB-058	0 - 1	1,3-Dinitrobenzene	0.24	mg/kg	ND	62	NO	Human Health	
PDS-TTSB-058	0 - 1	2,4,6-Trinitrotoluene	0.24	mg/kg	ND	47.6	NO	Human Health	
PDS-TTSB-058	0 - 1	2,4-Dinitrotoluene	0.24	mg/kg	ND	8.7	NO	Human Health	
PDS-TTSB-058	0 - 1	2,6-Dinitrotoluene	0.24	mg/kg	ND	620	NO	Human Health	
PDS-TTSB-058	0 - 1	2-Nitrotoluene	0.24	mg/kg	ND	2.2	NO	Human Health	
PDS-TTSB-058	0 - 1	3-Nitrotoluene	0.24	mg/kg	ND	1000	NO	Human Health	
PDS-TTSB-058	0 - 1	4-Nitrotoluene	0.24	mg/kg	ND	30	NO	Human Health	
PDS-TTSB-058	0 - 1	Aluminum	10400	mg/kg		100000	NO	Human Health	
PDS-TTSB-058	0 - 1	Antimony	0.94	mg/kg		816	NO	Human Health	
PDS-TTSB-058	0 - 1	Arsenic	4.1	mg/kg		30	NO	Human Health	
PDS-TTSB-058	0 - 1	Barium	531	mg/kg		67000	NO	Human Health	
PDS-TTSB-058	0 - 1	Beryllium	0.69	mg/kg		5	NO	Human Health	
PDS-TTSB-058	0 - 1	Cadmium	0.033	mg/kg	ND	1000	NO	Human Health	
PDS-TTSB-058	0 - 1	Chromium	15.1	mg/kg		10000	NO	Human Health	
PDS-TTSB-058	0 - 1	Cobalt	9.3	mg/kg		1900	NO	Human Health	
PDS-TTSB-058	0 - 1	Copper	24.6	mg/kg		41000	NO	Human Health	
PDS-TTSB-058	0 - 1	HMX	0.24	mg/kg	ND	51000	NO	Human Health	
PDS-TTSB-058	0 - 1	Iron	17400	mg/kg		100000	NO	Human Health	
PDS-TTSB-058	0 - 1	Lead	107	mg/kg		1000	NO	Human Health	
PDS-TTSB-058	0 - 1	Manganese	414	mg/kg		19000	NO	Human Health	
PDS-TTSB-058	0 - 1	Mercury	0.27	mg/kg		310	NO	Human Health	
PDS-TTSB-058	0 - 1	Nickel	16.9	mg/kg		20000	NO	Human Health	
PDS-TTSB-058	0 - 1	Nitrobenzene	0.24	mg/kg	ND	100	NO	Human Health	
PDS-TTSB-058	0 - 1	RDX	0.24	mg/kg	ND	1.3	NO	Human Health	
PDS-TTSB-058	0 - 1	Selenium	4.4	mg/kg		5100	NO	Human Health	
PDS-TTSB-058	0 - 1	Silver	0.076	mg/kg	ND	5100	NO	Human Health	

APPENDIX A
Possible Demolition Site Soil Sampling Results
Iowa Army Ammunition Plant

Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goals	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
PDS-TTSB-058	0 - 1	Tetryl	0.24	mg/kg	ND	6200	NO	Human Health	
PDS-TTSB-058	0 - 1	Thallium	4.2	mg/kg	ND	143	NO	Human Health	
PDS-TTSB-058	0 - 1	Vanadium	28.7	mg/kg		1000	NO	Human Health	
PDS-TTSB-058	0 - 1	Zinc	30.4	mg/kg		100000	NO	Human Health	
PDS-TTSB-058	1 - 2	1,3,5-Trinitrobenzene	0.24	mg/kg	ND	102	NO	Human Health	
PDS-TTSB-058	1 - 2	1,3-Dinitrobenzene	0.24	mg/kg	ND	62	NO	Human Health	
PDS-TTSB-058	1 - 2	2,4,6-Trinitrotoluene	0.24	mg/kg	ND	47.6	NO	Human Health	
PDS-TTSB-058	1 - 2	2,4-Dinitrotoluene	0.24	mg/kg	ND	8.7	NO	Human Health	
PDS-TTSB-058	1 - 2	2,6-Dinitrotoluene	0.24	mg/kg	ND	620	NO	Human Health	
PDS-TTSB-058	1 - 2	2-Nitrotoluene	0.24	mg/kg	ND	2.2	NO	Human Health	
PDS-TTSB-058	1 - 2	3-Nitrotoluene	0.24	mg/kg	ND	1000	NO	Human Health	
PDS-TTSB-058	1 - 2	4-Nitrotoluene	0.24	mg/kg	ND	30	NO	Human Health	
PDS-TTSB-058	1 - 2	Aluminum	10200	mg/kg		100000	NO	Human Health	
PDS-TTSB-058	1 - 2	Antimony	0.9	mg/kg		816	NO	Human Health	
PDS-TTSB-058	1 - 2	Arsenic	3.3	mg/kg		30	NO	Human Health	
PDS-TTSB-058	1 - 2	Barium	2040	mg/kg		67000	NO	Human Health	
PDS-TTSB-058	1 - 2	Beryllium	0.54	mg/kg		5	NO	Human Health	
PDS-TTSB-058	1 - 2	Cadmium	0.036	mg/kg	ND	1000	NO	Human Health	
PDS-TTSB-058	1 - 2	Chromium	13.7	mg/kg		10000	NO	Human Health	
PDS-TTSB-058	1 - 2	Cobalt	2.3	mg/kg		1900	NO	Human Health	
PDS-TTSB-058	1 - 2	Copper	19.2	mg/kg		41000	NO	Human Health	
PDS-TTSB-058	1 - 2	HMX	0.24	mg/kg	ND	51000	NO	Human Health	
PDS-TTSB-058	1 - 2	Iron	13200	mg/kg		100000	NO	Human Health	
PDS-TTSB-058	1 - 2	Lead	64.9	mg/kg		1000	NO	Human Health	
PDS-TTSB-058	1 - 2	Manganese	187	mg/kg		19000	NO	Human Health	
PDS-TTSB-058	1 - 2	Mercury	1.3	mg/kg		310	NO	Human Health	
PDS-TTSB-058	1 - 2	Nickel	13.8	mg/kg		20000	NO	Human Health	
PDS-TTSB-058	1 - 2	Nitrobenzene	0.24	mg/kg	ND	100	NO	Human Health	
PDS-TTSB-058	1 - 2	RDX	0.24	mg/kg	ND	1.3	NO	Human Health	
PDS-TTSB-058	1 - 2	Selenium	3.8	mg/kg		5100	NO	Human Health	
PDS-TTSB-058	1 - 2	Silver	0.083	mg/kg	ND	5100	NO	Human Health	
PDS-TTSB-058	1 - 2	Tetryl	0.24	mg/kg	ND	6200	NO	Human Health	
PDS-TTSB-058	1 - 2	Thallium	4.6	mg/kg	ND	143	NO	Human Health	
PDS-TTSB-058	1 - 2	Vanadium	22.6	mg/kg		1000	NO	Human Health	
PDS-TTSB-058	1 - 2	Zinc	31.4	mg/kg		100000	NO	Human Health	
PDS-TTSB-058	2 - 4	1,3,5-Trinitrobenzene	0.23	mg/kg	ND	102	NO	Human Health	
PDS-TTSB-058	2 - 4	1,3-Dinitrobenzene	0.23	mg/kg	ND	62	NO	Human Health	
PDS-TTSB-058	2 - 4	2,4,6-Trinitrotoluene	0.23	mg/kg	ND	47.6	NO	Human Health	
PDS-TTSB-058	2 - 4	2,4-Dinitrotoluene	0.23	mg/kg	ND	8.7	NO	Human Health	
PDS-TTSB-058	2 - 4	2,6-Dinitrotoluene	0.23	mg/kg	ND	620	NO	Human Health	
PDS-TTSB-058	2 - 4	2-Nitrotoluene	0.23	mg/kg	ND	2.2	NO	Human Health	
PDS-TTSB-058	2 - 4	3-Nitrotoluene	0.23	mg/kg	ND	1000	NO	Human Health	
PDS-TTSB-058	2 - 4	4-Nitrotoluene	0.23	mg/kg	ND	30	NO	Human Health	
PDS-TTSB-058	2 - 4	Aluminum	9830	mg/kg		100000	NO	Human Health	
PDS-TTSB-058	2 - 4	Antimony	0.67	mg/kg		816	NO	Human Health	
PDS-TTSB-058	2 - 4	Arsenic	3.5	mg/kg		30	NO	Human Health	
PDS-TTSB-058	2 - 4	Barium	257	mg/kg		67000	NO	Human Health	
PDS-TTSB-058	2 - 4	Beryllium	0.77	mg/kg		5	NO	Human Health	
PDS-TTSB-058	2 - 4	Cadmium	0.033	mg/kg	ND	1000	NO	Human Health	
PDS-TTSB-058	2 - 4	Chromium	14.3	mg/kg		10000	NO	Human Health	
PDS-TTSB-058	2 - 4	Cobalt	6.2	mg/kg		1900	NO	Human Health	
PDS-TTSB-058	2 - 4	Copper	95.3	mg/kg		41000	NO	Human Health	
PDS-TTSB-058	2 - 4	HMX	0.23	mg/kg	ND	51000	NO	Human Health	
PDS-TTSB-058	2 - 4	Iron	14000	mg/kg		100000	NO	Human Health	
PDS-TTSB-058	2 - 4	Lead	502	mg/kg		1000	NO	Human Health	
PDS-TTSB-058	2 - 4	Manganese	287	mg/kg		19000	NO	Human Health	
PDS-TTSB-058	2 - 4	Mercury	0.35	mg/kg		310	NO	Human Health	

APPENDIX A
Possible Demolition Site Soil Sampling Results
Iowa Army Ammunition Plant

Sample Name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goals	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comments
PDS-TTSB-058	2 - 4	Nickel	16.7	mg/kg		20000	NO	Human Health	
PDS-TTSB-058	2 - 4	Nitrobenzene	0.23	mg/kg	ND	100	NO	Human Health	
PDS-TTSB-058	2 - 4	RDX	0.23	mg/kg	ND	1.3	NO	Human Health	
PDS-TTSB-058	2 - 4	Selenium	3.6	mg/kg		5100	NO	Human Health	
PDS-TTSB-058	2 - 4	Silver	0.077	mg/kg	ND	5100	NO	Human Health	
PDS-TTSB-058	2 - 4	Tetryl	0.23	mg/kg	ND	6200	NO	Human Health	
PDS-TTSB-058	2 - 4	Thallium	4.3	mg/kg	ND	143	NO	Human Health	
PDS-TTSB-058	2 - 4	Vanadium	23	mg/kg		1000	NO	Human Health	
PDS-TTSB-058	2 - 4	Zinc	38.8	mg/kg		100000	NO	Human Health	
S-6	0.8	1,3,5-Trinitrobenzene	1.7	mg/kg	ND	102	NO	Human Health	
S-6	0.8	1,3-Dinitrobenzene	0.7	mg/kg	ND	62	NO	Human Health	
S-6	0.8	2,4,6-Trichlorophenol	5	mg/kg	ND	62	NO	Human Health	
S-6	0.8	2,4,6-Trinitrotoluene	0.6	mg/kg	ND	47.6	NO	Human Health	
S-6	0.8	2,4-Dinitrotoluene	0.3	mg/kg	ND	8.7	NO	Human Health	
S-6	0.8	2,6-Dinitrotoluene	0.8	mg/kg	ND	620	NO	Human Health	
S-6	0.8	Barium	1200	mg/kg		67000	NO	Human Health	
S-6	0.8	Cadmium	0.5	mg/kg	ND	1000	NO	Human Health	
S-6	0.8	Chromium	10	mg/kg		10000	NO	Human Health	
S-6	0.8	Copper	60	mg/kg		41000	NO	Human Health	
S-6	0.8	Hexachlorocyclopentadiene	5	mg/kg	ND	3700	NO	Human Health	
S-6	0.8	Lead	270	mg/kg		1000	NO	Human Health	
S-6	0.8	RDX	3.1	mg/kg	ND	1.3	NO	Human Health	
S-6	0.8	Tetryl	2	mg/kg	ND	6200	NO	Human Health	
S-6	0.8	Zinc	84	mg/kg		100000	NO	Human Health	

Incendiary Disposal Area MRS

APPENDIX A
Incendiary Disposal Area MRS Soil Sampling Results
Iowa Army Ammunition Plant

Sample name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comment
13SD0101	0.5	1,3,5-Trinitrobenzene	2.09	mg/kg	ND	102	NO	Human Health	
13SD0101	0.5	1,3-Dinitrobenzene	0.59	mg/kg	ND	62	NO	Human Health	
13SD0101	0.5	2,4,6-Trinitrotoluene	1.92	mg/kg	ND	47.6	NO	Human Health	
13SD0101	0.5	2,4-Dinitrotoluene	0.42	mg/kg	ND	8.7	NO	Human Health	
13SD0101	0.5	2,6-Dinitrotoluene	0.4	mg/kg	ND	620	NO	Human Health	
13SD0101	0.5	Antimony	19.6	mg/kg	ND	816	NO	Human Health	
13SD0101	0.5	Arsenic	4.95	mg/kg	ND	30	NO	Human Health	
13SD0101	0.5	Barium	105	mg/kg	ND	67000	NO	Human Health	
13SD0101	0.5	Beryllium	0.61	mg/kg	ND	5	NO	Human Health	
13SD0101	0.5	Cadmium	1.2	mg/kg	ND	1000	NO	Human Health	
13SD0101	0.5	Chromium	33.1	mg/kg	ND	10000	NO	Human Health	
13SD0101	0.5	Copper	33.2	mg/kg	ND	41000	NO	Human Health	
13SD0101	0.5	HMX	1.27	mg/kg	ND	51000	NO	Human Health	
13SD0101	0.5	Lead	88	mg/kg	ND	1000	NO	Human Health	
13SD0101	0.5	Mercury	0.4	mg/kg	ND	310	NO	Human Health	
13SD0101	0.5	Nickel	18.3	mg/kg	ND	20000	NO	Human Health	
13SD0101	0.5	Nitrobenzene	0.42	mg/kg	ND	100	NO	Human Health	
13SD0101	0.5	RDX	0.98	mg/kg	ND	1.3	NO	Human Health	
13SD0101	0.5	Selenium	0.44	mg/kg	ND	5100	NO	Human Health	
13SD0101	0.5	Silver	0.8	mg/kg	ND	5100	NO	Human Health	
13SD0101	0.5	Tetryl	0.25	mg/kg	ND	6200	NO	Human Health	
13SD0101	0.5	Thallium	34.3	mg/kg	ND	143	NO	Human Health	
13SD0101	0.5	Zinc	59.8	mg/kg	ND	100000	NO	Human Health	
13SD0201	0.5	1,3,5-Trinitrobenzene	2.09	mg/kg	ND	102	NO	Human Health	
13SD0201	0.5	1,3-Dinitrobenzene	0.59	mg/kg	ND	62	NO	Human Health	
13SD0201	0.5	2,4,6-Trinitrotoluene	1.92	mg/kg	ND	47.6	NO	Human Health	
13SD0201	0.5	2,4-Dinitrotoluene	0.42	mg/kg	ND	8.7	NO	Human Health	
13SD0201	0.5	2,6-Dinitrotoluene	0.4	mg/kg	ND	620	NO	Human Health	
13SD0201	0.5	Antimony	19.6	mg/kg	ND	816	NO	Human Health	
13SD0201	0.5	Arsenic	5.14	mg/kg	ND	30	NO	Human Health	
13SD0201	0.5	Barium	142	mg/kg	ND	67000	NO	Human Health	
13SD0201	0.5	Beryllium	0.42	mg/kg	ND	5	NO	Human Health	
13SD0201	0.5	Cadmium	1.2	mg/kg	ND	1000	NO	Human Health	
13SD0201	0.5	Chromium	31.7	mg/kg	ND	10000	NO	Human Health	
13SD0201	0.5	Copper	24.8	mg/kg	ND	41000	NO	Human Health	
13SD0201	0.5	HMX	1.27	mg/kg	ND	51000	NO	Human Health	
13SD0201	0.5	Lead	90	mg/kg	ND	1000	NO	Human Health	
13SD0201	0.5	Mercury	0.17	mg/kg	ND	310	NO	Human Health	
13SD0201	0.5	Nickel	19.2	mg/kg	ND	20000	NO	Human Health	
13SD0201	0.5	Nitrobenzene	0.42	mg/kg	ND	100	NO	Human Health	
13SD0201	0.5	RDX	0.98	mg/kg	ND	1.3	NO	Human Health	
13SD0201	0.5	Selenium	0.44	mg/kg	ND	5100	NO	Human Health	
13SD0201	0.5	Silver	0.8	mg/kg	ND	5100	NO	Human Health	
13SD0201	0.5	Tetryl	0.25	mg/kg	ND	6200	NO	Human Health	
13SD0201	0.5	Thallium	34.3	mg/kg	ND	143	NO	Human Health	
13SD0201	0.5	Zinc	73.6	mg/kg	ND	100000	NO	Human Health	
IDA-SB-001-0001-SO	1 - 4	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
IDA-SB-001-0001-SO	1 - 4	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
IDA-SB-001-0001-SO	1 - 4	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
IDA-SB-001-0001-SO	1 - 4	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
IDA-SB-001-0001-SO	1 - 4	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
IDA-SB-001-0001-SO	1 - 4	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
IDA-SB-001-0001-SO	1 - 4	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
IDA-SB-001-0001-SO	1 - 4	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	

APPENDIX A
Incendiary Disposal Area MRS Soil Sampling Results
Iowa Army Ammunition Plant

Sample name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comment
IDA-SB-001-0001-SO	1 - 4	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
IDA-SB-001-0001-SO	1 - 4	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
IDA-SB-001-0001-SO	1 - 4	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
IDA-SB-001-0001-SO	1 - 4	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
IDA-SB-001-0001-SO	1 - 4	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
IDA-SB-001-0001-SO	1 - 4	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
IDA-SB-001-0001-SO	1 - 4	4-Nitrotoluene	0.5	mg/kg	ND	30	NO	Human Health	
IDA-SB-001-0001-SO	1 - 4	4-Nitrotoluene	0.49	mg/kg	ND	30	NO	Human Health	
IDA-SB-001-0001-SO	1 - 4	Arsenic	9.3	mg/kg	ND	30	NO	Human Health	
IDA-SB-001-0001-SO	1 - 4	Arsenic	8.7	mg/kg	ND	30	NO	Human Health	
IDA-SB-001-0001-SO	1 - 4	Barium	220	mg/kg	ND	67000	NO	Human Health	
IDA-SB-001-0001-SO	1 - 4	Barium	170	mg/kg	ND	67000	NO	Human Health	
IDA-SB-001-0001-SO	1 - 4	Beryllium	0.91	mg/kg	ND	5	NO	Human Health	
IDA-SB-001-0001-SO	1 - 4	Beryllium	0.95	mg/kg	ND	5	NO	Human Health	
IDA-SB-001-0001-SO	1 - 4	Boron	3.2	mg/kg	ND	100000	NO	Human Health	
IDA-SB-001-0001-SO	1 - 4	Boron	2.9	mg/kg	ND	100000	NO	Human Health	
IDA-SB-001-0001-SO	1 - 4	Cadmium	0.23	mg/kg	ND	1000	NO	Human Health	
IDA-SB-001-0001-SO	1 - 4	Cadmium	0.22	mg/kg	ND	1000	NO	Human Health	
IDA-SB-001-0001-SO	1 - 4	Chromium	19	mg/kg	ND	10000	NO	Human Health	
IDA-SB-001-0001-SO	1 - 4	Chromium	19	mg/kg	ND	10000	NO	Human Health	
IDA-SB-001-0001-SO	1 - 4	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
IDA-SB-001-0001-SO	1 - 4	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
IDA-SB-001-0001-SO	1 - 4	Lead	17	mg/kg	ND	1000	NO	Human Health	
IDA-SB-001-0001-SO	1 - 4	Lead	20	mg/kg	ND	1000	NO	Human Health	
IDA-SB-001-0001-SO	1 - 4	Mercury	0.05	mg/kg	ND	310	NO	Human Health	
IDA-SB-001-0001-SO	1 - 4	Mercury	0.04	mg/kg	ND	310	NO	Human Health	
IDA-SB-001-0001-SO	1 - 4	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
IDA-SB-001-0001-SO	1 - 4	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
IDA-SB-001-0001-SO	1 - 4	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
IDA-SB-001-0001-SO	1 - 4	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
IDA-SB-001-0001-SO	1 - 4	Selenium	1.2	mg/kg	ND	5100	NO	Human Health	
IDA-SB-001-0001-SO	1 - 4	Selenium	1.1	mg/kg	ND	5100	NO	Human Health	
IDA-SB-001-0001-SO	1 - 4	Silver	0.56	mg/kg	ND	5100	NO	Human Health	
IDA-SB-001-0001-SO	1 - 4	Silver	0.58	mg/kg	ND	5100	NO	Human Health	
IDA-SB-001-0001-SO	1 - 4	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
IDA-SB-001-0001-SO	1 - 4	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
IDA-SB-002-0001-SO	1 - 4	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
IDA-SB-002-0001-SO	1 - 4	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
IDA-SB-002-0001-SO	1 - 4	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
IDA-SB-002-0001-SO	1 - 4	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
IDA-SB-002-0001-SO	1 - 4	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
IDA-SB-002-0001-SO	1 - 4	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
IDA-SB-002-0001-SO	1 - 4	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
IDA-SB-002-0001-SO	1 - 4	4-Nitrotoluene	0.5	mg/kg	ND	30	NO	Human Health	
IDA-SB-002-0001-SO	1 - 4	Arsenic	9.4	mg/kg	ND	30	NO	Human Health	
IDA-SB-002-0001-SO	1 - 4	Barium	140	mg/kg	ND	67000	NO	Human Health	
IDA-SB-002-0001-SO	1 - 4	Beryllium	0.87	mg/kg	ND	5	NO	Human Health	
IDA-SB-002-0001-SO	1 - 4	Boron	4	mg/kg	ND	100000	NO	Human Health	
IDA-SB-002-0001-SO	1 - 4	Cadmium	0.23	mg/kg	ND	1000	NO	Human Health	
IDA-SB-002-0001-SO	1 - 4	Chromium	17	mg/kg	ND	10000	NO	Human Health	
IDA-SB-002-0001-SO	1 - 4	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
IDA-SB-002-0001-SO	1 - 4	Lead	16	mg/kg	ND	1000	NO	Human Health	
IDA-SB-002-0001-SO	1 - 4	Mercury	0.04	mg/kg	ND	310	NO	Human Health	
IDA-SB-002-0001-SO	1 - 4	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	

APPENDIX A
Incendiary Disposal Area MRS Soil Sampling Results
Iowa Army Ammunition Plant

Sample name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comment
IDA-SB-002-0001-SO	1 - 4	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
IDA-SB-002-0001-SO	1 - 4	Selenium	1.1	mg/kg	ND	5100	NO	Human Health	
IDA-SB-002-0001-SO	1 - 4	Silver	0.57	mg/kg	ND	5100	NO	Human Health	
IDA-SB-002-0001-SO	1 - 4	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
IDA-SB-003-0001-SO	1 - 4	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
IDA-SB-003-0001-SO	1 - 4	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
IDA-SB-003-0001-SO	1 - 4	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
IDA-SB-003-0001-SO	1 - 4	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
IDA-SB-003-0001-SO	1 - 4	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
IDA-SB-003-0001-SO	1 - 4	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
IDA-SB-003-0001-SO	1 - 4	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
IDA-SB-003-0001-SO	1 - 4	4-Nitrotoluene	0.49	mg/kg	ND	30	NO	Human Health	
IDA-SB-003-0001-SO	1 - 4	Arsenic	7.2	mg/kg	ND	30	NO	Human Health	
IDA-SB-003-0001-SO	1 - 4	Barium	140	mg/kg	ND	67000	NO	Human Health	
IDA-SB-003-0001-SO	1 - 4	Beryllium	0.83	mg/kg	ND	5	NO	Human Health	
IDA-SB-003-0001-SO	1 - 4	Boron	3.9	mg/kg	ND	100000	NO	Human Health	
IDA-SB-003-0001-SO	1 - 4	Cadmium	0.22	mg/kg	ND	1000	NO	Human Health	
IDA-SB-003-0001-SO	1 - 4	Chromium	18	mg/kg	ND	10000	NO	Human Health	
IDA-SB-003-0001-SO	1 - 4	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
IDA-SB-003-0001-SO	1 - 4	Lead	11	mg/kg	ND	1000	NO	Human Health	
IDA-SB-003-0001-SO	1 - 4	Mercury	0.03	mg/kg	ND	310	NO	Human Health	
IDA-SB-003-0001-SO	1 - 4	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
IDA-SB-003-0001-SO	1 - 4	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
IDA-SB-003-0001-SO	1 - 4	Selenium	1.1	mg/kg	ND	5100	NO	Human Health	
IDA-SB-003-0001-SO	1 - 4	Silver	0.56	mg/kg	ND	5100	NO	Human Health	
IDA-SB-003-0001-SO	1 - 4	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
IDA-SS-001-0001-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
IDA-SS-001-0001-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
IDA-SS-001-0001-SO	0 - 1	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
IDA-SS-001-0001-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
IDA-SS-001-0001-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
IDA-SS-001-0001-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
IDA-SS-001-0001-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
IDA-SS-001-0001-SO	0 - 1	4-Nitrotoluene	0.5	mg/kg	ND	30	NO	Human Health	
IDA-SS-001-0001-SO	0 - 1	Arsenic	8.2	mg/kg	ND	30	NO	Human Health	
IDA-SS-001-0001-SO	0 - 1	Barium	150	mg/kg	ND	67000	NO	Human Health	
IDA-SS-001-0001-SO	0 - 1	Beryllium	0.89	mg/kg	ND	5	NO	Human Health	
IDA-SS-001-0001-SO	0 - 1	Boron	3.3	mg/kg	ND	100000	NO	Human Health	
IDA-SS-001-0001-SO	0 - 1	Cadmium	0.22	mg/kg	ND	1000	NO	Human Health	
IDA-SS-001-0001-SO	0 - 1	Chromium	19	mg/kg	ND	10000	NO	Human Health	
IDA-SS-001-0001-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
IDA-SS-001-0001-SO	0 - 1	Lead	13	mg/kg	ND	1000	NO	Human Health	
IDA-SS-001-0001-SO	0 - 1	Mercury	0.04	mg/kg	ND	310	NO	Human Health	
IDA-SS-001-0001-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
IDA-SS-001-0001-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
IDA-SS-001-0001-SO	0 - 1	Selenium	1.1	mg/kg	ND	5100	NO	Human Health	
IDA-SS-001-0001-SO	0 - 1	Silver	0.56	mg/kg	ND	5100	NO	Human Health	
IDA-SS-001-0001-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
IDA-SS-002-0001-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
IDA-SS-002-0001-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
IDA-SS-002-0001-SO	0 - 1	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
IDA-SS-002-0001-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
IDA-SS-002-0001-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
IDA-SS-002-0001-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	

APPENDIX A
Incendiary Disposal Area MRS Soil Sampling Results
Iowa Army Ammunition Plant

Sample name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comment
IDA-SS-002-0001-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
IDA-SS-002-0001-SO	0 - 1	4-Nitrotoluene	0.49	mg/kg	ND	30	NO	Human Health	
IDA-SS-002-0001-SO	0 - 1	Arsenic	5.8	mg/kg	ND	30	NO	Human Health	
IDA-SS-002-0001-SO	0 - 1	Barium	120	mg/kg	ND	67000	NO	Human Health	
IDA-SS-002-0001-SO	0 - 1	Beryllium	0.75	mg/kg	ND	5	NO	Human Health	
IDA-SS-002-0001-SO	0 - 1	Boron	2.9	mg/kg	ND	100000	NO	Human Health	
IDA-SS-002-0001-SO	0 - 1	Cadmium	0.22	mg/kg	ND	1000	NO	Human Health	
IDA-SS-002-0001-SO	0 - 1	Chromium	16	mg/kg	ND	10000	NO	Human Health	
IDA-SS-002-0001-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
IDA-SS-002-0001-SO	0 - 1	Lead	9.5	mg/kg	ND	1000	NO	Human Health	
IDA-SS-002-0001-SO	0 - 1	Mercury	0.03	mg/kg	ND	310	NO	Human Health	
IDA-SS-002-0001-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
IDA-SS-002-0001-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
IDA-SS-002-0001-SO	0 - 1	Selenium	1.1	mg/kg	ND	5100	NO	Human Health	
IDA-SS-002-0001-SO	0 - 1	Silver	0.54	mg/kg	ND	5100	NO	Human Health	
IDA-SS-002-0001-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
IDA-SS-003-0001-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
IDA-SS-003-0001-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
IDA-SS-003-0001-SO	0 - 1	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
IDA-SS-003-0001-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
IDA-SS-003-0001-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
IDA-SS-003-0001-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
IDA-SS-003-0001-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
IDA-SS-003-0001-SO	0 - 1	4-Nitrotoluene	0.5	mg/kg	ND	30	NO	Human Health	
IDA-SS-003-0001-SO	0 - 1	Arsenic	10	mg/kg	ND	30	NO	Human Health	
IDA-SS-003-0001-SO	0 - 1	Barium	170	mg/kg	ND	67000	NO	Human Health	
IDA-SS-003-0001-SO	0 - 1	Beryllium	0.89	mg/kg	ND	5	NO	Human Health	
IDA-SS-003-0001-SO	0 - 1	Boron	6.2	mg/kg	ND	100000	NO	Human Health	
IDA-SS-003-0001-SO	0 - 1	Cadmium	1.2	mg/kg	ND	1000	NO	Human Health	
IDA-SS-003-0001-SO	0 - 1	Chromium	18	mg/kg	ND	10000	NO	Human Health	
IDA-SS-003-0001-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
IDA-SS-003-0001-SO	0 - 1	Lead	79	mg/kg	ND	1000	NO	Human Health	
IDA-SS-003-0001-SO	0 - 1	Mercury	0.06	mg/kg	ND	310	NO	Human Health	
IDA-SS-003-0001-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
IDA-SS-003-0001-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
IDA-SS-003-0001-SO	0 - 1	Selenium	1.2	mg/kg	ND	5100	NO	Human Health	
IDA-SS-003-0001-SO	0 - 1	Silver	0.61	mg/kg	ND	5100	NO	Human Health	
IDA-SS-003-0001-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
IDA-SS-004-0001-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
IDA-SS-004-0001-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
IDA-SS-004-0001-SO	0 - 1	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
IDA-SS-004-0001-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
IDA-SS-004-0001-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
IDA-SS-004-0001-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
IDA-SS-004-0001-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
IDA-SS-004-0001-SO	0 - 1	4-Nitrotoluene	0.5	mg/kg	ND	30	NO	Human Health	
IDA-SS-004-0001-SO	0 - 1	Arsenic	9.8	mg/kg	ND	30	NO	Human Health	
IDA-SS-004-0001-SO	0 - 1	Barium	65	mg/kg	ND	67000	NO	Human Health	
IDA-SS-004-0001-SO	0 - 1	Beryllium	0.82	mg/kg	ND	5	NO	Human Health	
IDA-SS-004-0001-SO	0 - 1	Boron	3.6	mg/kg	ND	100000	NO	Human Health	
IDA-SS-004-0001-SO	0 - 1	Cadmium	0.21	mg/kg	ND	1000	NO	Human Health	
IDA-SS-004-0001-SO	0 - 1	Chromium	17	mg/kg	ND	10000	NO	Human Health	
IDA-SS-004-0001-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
IDA-SS-004-0001-SO	0 - 1	Lead	32	mg/kg	ND	1000	NO	Human Health	

APPENDIX A
Incendiary Disposal Area MRS Soil Sampling Results
Iowa Army Ammunition Plant

Sample name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comment
IDA-SS-004-0001-SO	0 - 1	Mercury	0.03	mg/kg	ND	310	NO	Human Health	
IDA-SS-004-0001-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
IDA-SS-004-0001-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
IDA-SS-004-0001-SO	0 - 1	Selenium	1	mg/kg	ND	5100	NO	Human Health	
IDA-SS-004-0001-SO	0 - 1	Silver	0.52	mg/kg	ND	5100	NO	Human Health	
IDA-SS-004-0001-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
IDA-SS-005-0001-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
IDA-SS-005-0001-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
IDA-SS-005-0001-SO	0 - 1	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
IDA-SS-005-0001-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
IDA-SS-005-0001-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
IDA-SS-005-0001-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
IDA-SS-005-0001-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
IDA-SS-005-0001-SO	0 - 1	4-Nitrotoluene	0.5	mg/kg	ND	30	NO	Human Health	
IDA-SS-005-0001-SO	0 - 1	Arsenic	12	mg/kg	ND	30	NO	Human Health	
IDA-SS-005-0001-SO	0 - 1	Barium	51	mg/kg	ND	67000	NO	Human Health	
IDA-SS-005-0001-SO	0 - 1	Beryllium	0.77	mg/kg	ND	5	NO	Human Health	
IDA-SS-005-0001-SO	0 - 1	Boron	3.7	mg/kg	ND	100000	NO	Human Health	
IDA-SS-005-0001-SO	0 - 1	Cadmium	0.22	mg/kg	ND	1000	NO	Human Health	
IDA-SS-005-0001-SO	0 - 1	Chromium	18	mg/kg	ND	10000	NO	Human Health	
IDA-SS-005-0001-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
IDA-SS-005-0001-SO	0 - 1	Lead	3000	mg/kg	ND	1000	YES	Human Health	
IDA-SS-005-0001-SO	0 - 1	Mercury	0.06	mg/kg	ND	310	NO	Human Health	
IDA-SS-005-0001-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
IDA-SS-005-0001-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
IDA-SS-005-0001-SO	0 - 1	Selenium	1.1	mg/kg	ND	5100	NO	Human Health	
IDA-SS-005-0001-SO	0 - 1	Silver	0.54	mg/kg	ND	5100	NO	Human Health	
IDA-SS-005-0001-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
IDA-SS-006-0001-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
IDA-SS-006-0001-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
IDA-SS-006-0001-SO	0 - 1	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
IDA-SS-006-0001-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
IDA-SS-006-0001-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
IDA-SS-006-0001-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
IDA-SS-006-0001-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
IDA-SS-006-0001-SO	0 - 1	4-Nitrotoluene	0.49	mg/kg	ND	30	NO	Human Health	
IDA-SS-006-0001-SO	0 - 1	Arsenic	16	mg/kg	ND	30	NO	Human Health	
IDA-SS-006-0001-SO	0 - 1	Barium	55	mg/kg	ND	67000	NO	Human Health	
IDA-SS-006-0001-SO	0 - 1	Beryllium	0.9	mg/kg	ND	5	NO	Human Health	
IDA-SS-006-0001-SO	0 - 1	Boron	3.8	mg/kg	ND	100000	NO	Human Health	
IDA-SS-006-0001-SO	0 - 1	Cadmium	0.42	mg/kg	ND	1000	NO	Human Health	
IDA-SS-006-0001-SO	0 - 1	Chromium	50	mg/kg	ND	10000	NO	Human Health	
IDA-SS-006-0001-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
IDA-SS-006-0001-SO	0 - 1	Lead	340	mg/kg	ND	1000	NO	Human Health	
IDA-SS-006-0001-SO	0 - 1	Mercury	0.05	mg/kg	ND	310	NO	Human Health	
IDA-SS-006-0001-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
IDA-SS-006-0001-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
IDA-SS-006-0001-SO	0 - 1	Selenium	1.1	mg/kg	ND	5100	NO	Human Health	
IDA-SS-006-0001-SO	0 - 1	Silver	0.53	mg/kg	ND	5100	NO	Human Health	
IDA-SS-006-0001-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
IDA-SS-007-0001-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
IDA-SS-007-0001-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
IDA-SS-007-0001-SO	0 - 1	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
IDA-SS-007-0001-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	

APPENDIX A
Incendiary Disposal Area MRS Soil Sampling Results
Iowa Army Ammunition Plant

Sample name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comment
IDA-SS-007-0001-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
IDA-SS-007-0001-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
IDA-SS-007-0001-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
IDA-SS-007-0001-SO	0 - 1	4-Nitrotoluene	0.49	mg/kg	ND	30	NO	Human Health	
IDA-SS-007-0001-SO	0 - 1	Arsenic	4.6	mg/kg	ND	30	NO	Human Health	
IDA-SS-007-0001-SO	0 - 1	Barium	62	mg/kg	ND	67000	NO	Human Health	
IDA-SS-007-0001-SO	0 - 1	Beryllium	0.53	mg/kg	ND	5	NO	Human Health	
IDA-SS-007-0001-SO	0 - 1	Boron	2.5	mg/kg	ND	100000	NO	Human Health	
IDA-SS-007-0001-SO	0 - 1	Cadmium	0.22	mg/kg	ND	1000	NO	Human Health	
IDA-SS-007-0001-SO	0 - 1	Chromium	11	mg/kg	ND	10000	NO	Human Health	
IDA-SS-007-0001-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
IDA-SS-007-0001-SO	0 - 1	Lead	89	mg/kg	ND	1000	NO	Human Health	
IDA-SS-007-0001-SO	0 - 1	Mercury	0.02	mg/kg	ND	310	NO	Human Health	
IDA-SS-007-0001-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
IDA-SS-007-0001-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
IDA-SS-007-0001-SO	0 - 1	Selenium	1.1	mg/kg	ND	5100	NO	Human Health	
IDA-SS-007-0001-SO	0 - 1	Silver	0.55	mg/kg	ND	5100	NO	Human Health	
IDA-SS-007-0001-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
IDA-SSI-001-0001-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
IDA-SSI-001-0001-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
IDA-SSI-001-0001-SO	0 - 1	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
IDA-SSI-001-0001-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
IDA-SSI-001-0001-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
IDA-SSI-001-0001-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
IDA-SSI-001-0001-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
IDA-SSI-001-0001-SO	0 - 1	4-Nitrotoluene	0.5	mg/kg	ND	30	NO	Human Health	
IDA-SSI-001-0001-SO	0 - 1	Arsenic	5.8	mg/kg	ND	30	NO	Human Health	
IDA-SSI-001-0001-SO	0 - 1	Barium	120	mg/kg	ND	67000	NO	Human Health	
IDA-SSI-001-0001-SO	0 - 1	Beryllium	0.43	mg/kg	ND	5	NO	Human Health	
IDA-SSI-001-0001-SO	0 - 1	Boron	1.8	mg/kg	ND	100000	NO	Human Health	
IDA-SSI-001-0001-SO	0 - 1	Cadmium	0.17	mg/kg	ND	1000	NO	Human Health	
IDA-SSI-001-0001-SO	0 - 1	Chromium	14	mg/kg	ND	10000	NO	Human Health	
IDA-SSI-001-0001-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
IDA-SSI-001-0001-SO	0 - 1	Lead	15	mg/kg	ND	1000	NO	Human Health	
IDA-SSI-001-0001-SO	0 - 1	Mercury	0.05	mg/kg	ND	310	NO	Human Health	
IDA-SSI-001-0001-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
IDA-SSI-001-0001-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
IDA-SSI-001-0001-SO	0 - 1	Selenium	0.53	mg/kg	ND	5100	NO	Human Health	
IDA-SSI-001-0001-SO	0 - 1	Silver	0.52	mg/kg	ND	5100	NO	Human Health	
IDA-SSI-001-0001-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
IDA-SSI-002-0001-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
IDA-SSI-002-0001-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
IDA-SSI-002-0001-SO	0 - 1	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
IDA-SSI-002-0001-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
IDA-SSI-002-0001-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
IDA-SSI-002-0001-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
IDA-SSI-002-0001-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
IDA-SSI-002-0001-SO	0 - 1	4-Nitrotoluene	0.49	mg/kg	ND	30	NO	Human Health	
IDA-SSI-002-0001-SO	0 - 1	Arsenic	7.3	mg/kg	ND	30	NO	Human Health	
IDA-SSI-002-0001-SO	0 - 1	Barium	150	mg/kg	ND	67000	NO	Human Health	
IDA-SSI-002-0001-SO	0 - 1	Beryllium	0.45	mg/kg	ND	5	NO	Human Health	
IDA-SSI-002-0001-SO	0 - 1	Boron	2.5	mg/kg	ND	100000	NO	Human Health	
IDA-SSI-002-0001-SO	0 - 1	Cadmium	0.2	mg/kg	ND	1000	NO	Human Health	
IDA-SSI-002-0001-SO	0 - 1	Chromium	15	mg/kg	ND	10000	NO	Human Health	

APPENDIX A
Incendiary Disposal Area MRS Soil Sampling Results
Iowa Army Ammunition Plant

Sample name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comment
IDA-SSI-002-0001-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
IDA-SSI-002-0001-SO	0 - 1	Lead	21	mg/kg	ND	1000	NO	Human Health	
IDA-SSI-002-0001-SO	0 - 1	Mercury	0.09	mg/kg	ND	310	NO	Human Health	
IDA-SSI-002-0001-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
IDA-SSI-002-0001-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
IDA-SSI-002-0001-SO	0 - 1	Selenium	0.52	mg/kg	ND	5100	NO	Human Health	
IDA-SSI-002-0001-SO	0 - 1	Silver	0.48	mg/kg	ND	5100	NO	Human Health	
IDA-SSI-002-0001-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
IDA-SSI-003-0001-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
IDA-SSI-003-0001-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
IDA-SSI-003-0001-SO	0 - 1	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
IDA-SSI-003-0001-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
IDA-SSI-003-0001-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
IDA-SSI-003-0001-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
IDA-SSI-003-0001-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
IDA-SSI-003-0001-SO	0 - 1	4-Nitrotoluene	0.5	mg/kg	ND	30	NO	Human Health	
IDA-SSI-003-0001-SO	0 - 1	Arsenic	5.4	mg/kg	ND	30	NO	Human Health	
IDA-SSI-003-0001-SO	0 - 1	Barium	67	mg/kg	ND	67000	NO	Human Health	
IDA-SSI-003-0001-SO	0 - 1	Beryllium	0.43	mg/kg	ND	5	NO	Human Health	
IDA-SSI-003-0001-SO	0 - 1	Boron	1.3	mg/kg	ND	100000	NO	Human Health	
IDA-SSI-003-0001-SO	0 - 1	Cadmium	0.15	mg/kg	ND	1000	NO	Human Health	
IDA-SSI-003-0001-SO	0 - 1	Chromium	15	mg/kg	ND	10000	NO	Human Health	
IDA-SSI-003-0001-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
IDA-SSI-003-0001-SO	0 - 1	Lead	76	mg/kg	ND	1000	NO	Human Health	
IDA-SSI-003-0001-SO	0 - 1	Mercury	0.42	mg/kg	ND	310	NO	Human Health	
IDA-SSI-003-0001-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
IDA-SSI-003-0001-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
IDA-SSI-003-0001-SO	0 - 1	Selenium	0.9	mg/kg	ND	5100	NO	Human Health	
IDA-SSI-003-0001-SO	0 - 1	Silver	0.47	mg/kg	ND	5100	NO	Human Health	
IDA-SSI-003-0001-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
IDA-SSI-004-0001-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
IDA-SSI-004-0001-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
IDA-SSI-004-0001-SO	0 - 1	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
IDA-SSI-004-0001-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
IDA-SSI-004-0001-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
IDA-SSI-004-0001-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
IDA-SSI-004-0001-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
IDA-SSI-004-0001-SO	0 - 1	4-Nitrotoluene	0.5	mg/kg	ND	30	NO	Human Health	
IDA-SSI-004-0001-SO	0 - 1	Arsenic	4.1	mg/kg	ND	30	NO	Human Health	
IDA-SSI-004-0001-SO	0 - 1	Barium	62	mg/kg	ND	67000	NO	Human Health	
IDA-SSI-004-0001-SO	0 - 1	Beryllium	0.4	mg/kg	ND	5	NO	Human Health	
IDA-SSI-004-0001-SO	0 - 1	Boron	1.2	mg/kg	ND	100000	NO	Human Health	
IDA-SSI-004-0001-SO	0 - 1	Cadmium	0.09	mg/kg	ND	1000	NO	Human Health	
IDA-SSI-004-0001-SO	0 - 1	Chromium	12	mg/kg	ND	10000	NO	Human Health	
IDA-SSI-004-0001-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
IDA-SSI-004-0001-SO	0 - 1	Lead	16	mg/kg	ND	1000	NO	Human Health	
IDA-SSI-004-0001-SO	0 - 1	Mercury	0.04	mg/kg	ND	310	NO	Human Health	
IDA-SSI-004-0001-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
IDA-SSI-004-0001-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
IDA-SSI-004-0001-SO	0 - 1	Selenium	0.68	mg/kg	ND	5100	NO	Human Health	
IDA-SSI-004-0001-SO	0 - 1	Silver	0.51	mg/kg	ND	5100	NO	Human Health	
IDA-SSI-004-0001-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
IDA-SSI-005-0001-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
IDA-SSI-005-0001-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	

APPENDIX A
Incendiary Disposal Area MRS Soil Sampling Results
Iowa Army Ammunition Plant

Sample name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comment
IDA-SSI-005-0001-SO	0 - 1	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
IDA-SSI-005-0001-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
IDA-SSI-005-0001-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
IDA-SSI-005-0001-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
IDA-SSI-005-0001-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
IDA-SSI-005-0001-SO	0 - 1	4-Nitrotoluene	0.5	mg/kg	ND	30	NO	Human Health	
IDA-SSI-005-0001-SO	0 - 1	Arsenic	5.8	mg/kg	ND	30	NO	Human Health	
IDA-SSI-005-0001-SO	0 - 1	Barium	47	mg/kg	ND	67000	NO	Human Health	
IDA-SSI-005-0001-SO	0 - 1	Beryllium	0.52	mg/kg	ND	5	NO	Human Health	
IDA-SSI-005-0001-SO	0 - 1	Boron	1.1	mg/kg	ND	100000	NO	Human Health	
IDA-SSI-005-0001-SO	0 - 1	Cadmium	0.19	mg/kg	ND	1000	NO	Human Health	
IDA-SSI-005-0001-SO	0 - 1	Chromium	19	mg/kg	ND	10000	NO	Human Health	
IDA-SSI-005-0001-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
IDA-SSI-005-0001-SO	0 - 1	Lead	210	mg/kg	ND	1000	NO	Human Health	
IDA-SSI-005-0001-SO	0 - 1	Mercury	0.05	mg/kg	ND	310	NO	Human Health	
IDA-SSI-005-0001-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
IDA-SSI-005-0001-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
IDA-SSI-005-0001-SO	0 - 1	Selenium	0.91	mg/kg	ND	5100	NO	Human Health	
IDA-SSI-005-0001-SO	0 - 1	Silver	0.47	mg/kg	ND	5100	NO	Human Health	
IDA-SSI-005-0001-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
IDA-SSI-006-0001-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
IDA-SSI-006-0001-SO	0 - 1	1,3,5-Trinitrobenzene	0.1	mg/kg	ND	102	NO	Human Health	
IDA-SSI-006-0001-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
IDA-SSI-006-0001-SO	0 - 1	1,3-Dinitrobenzene	0.1	mg/kg	ND	62	NO	Human Health	
IDA-SSI-006-0001-SO	0 - 1	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
IDA-SSI-006-0001-SO	0 - 1	2,4,6-Trinitrotoluene	0.1	mg/kg	ND	47.6	NO	Human Health	
IDA-SSI-006-0001-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
IDA-SSI-006-0001-SO	0 - 1	2,4-Dinitrotoluene	0.1	mg/kg	ND	8.7	NO	Human Health	
IDA-SSI-006-0001-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
IDA-SSI-006-0001-SO	0 - 1	2,6-Dinitrotoluene	0.2	mg/kg	ND	620	NO	Human Health	
IDA-SSI-006-0001-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
IDA-SSI-006-0001-SO	0 - 1	2-Nitrotoluene	0.2	mg/kg	ND	2.2	NO	Human Health	
IDA-SSI-006-0001-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
IDA-SSI-006-0001-SO	0 - 1	3-Nitrotoluene	0.2	mg/kg	ND	1000	NO	Human Health	
IDA-SSI-006-0001-SO	0 - 1	4-Nitrotoluene	0.5	mg/kg	ND	30	NO	Human Health	
IDA-SSI-006-0001-SO	0 - 1	4-Nitrotoluene	0.49	mg/kg	ND	30	NO	Human Health	
IDA-SSI-006-0001-SO	0 - 1	Arsenic	5.6	mg/kg	ND	30	NO	Human Health	
IDA-SSI-006-0001-SO	0 - 1	Arsenic	5.3	mg/kg	ND	30	NO	Human Health	
IDA-SSI-006-0001-SO	0 - 1	Barium	49	mg/kg	ND	67000	NO	Human Health	
IDA-SSI-006-0001-SO	0 - 1	Barium	49	mg/kg	ND	67000	NO	Human Health	
IDA-SSI-006-0001-SO	0 - 1	Beryllium	0.46	mg/kg	ND	5	NO	Human Health	
IDA-SSI-006-0001-SO	0 - 1	Boron	1.3	mg/kg	ND	100000	NO	Human Health	
IDA-SSI-006-0001-SO	0 - 1	Boron	1.4	mg/kg	ND	100000	NO	Human Health	
IDA-SSI-006-0001-SO	0 - 1	Cadmium	0.1	mg/kg	ND	1000	NO	Human Health	
IDA-SSI-006-0001-SO	0 - 1	Cadmium	0.09	mg/kg	ND	1000	NO	Human Health	
IDA-SSI-006-0001-SO	0 - 1	Chromium	15	mg/kg	ND	10000	NO	Human Health	
IDA-SSI-006-0001-SO	0 - 1	Chromium	15	mg/kg	ND	10000	NO	Human Health	
IDA-SSI-006-0001-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
IDA-SSI-006-0001-SO	0 - 1	HMX	0.25	mg/kg	ND	51000	NO	Human Health	
IDA-SSI-006-0001-SO	0 - 1	Lead	180	mg/kg	ND	1000	NO	Human Health	
IDA-SSI-006-0001-SO	0 - 1	Lead	170	mg/kg	ND	1000	NO	Human Health	
IDA-SSI-006-0001-SO	0 - 1	Mercury	0.04	mg/kg	ND	310	NO	Human Health	
IDA-SSI-006-0001-SO	0 - 1	Mercury	0.04	mg/kg	ND	310	NO	Human Health	
IDA-SSI-006-0001-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	

APPENDIX A
Incendiary Disposal Area MRS Soil Sampling Results
Iowa Army Ammunition Plant

Sample name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comment
IDA-SSI-006-0001-SO	0 - 1	Nitrobenzene	0.1	mg/kg	ND	100	NO	Human Health	
IDA-SSI-006-0001-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
IDA-SSI-006-0001-SO	0 - 1	RDX	0.1	mg/kg	ND	1.3	NO	Human Health	
IDA-SSI-006-0001-SO	0 - 1	Selenium	0.85	mg/kg	ND	5100	NO	Human Health	
IDA-SSI-006-0001-SO	0 - 1	Selenium	0.8	mg/kg	ND	5100	NO	Human Health	
IDA-SSI-006-0001-SO	0 - 1	Silver	0.45	mg/kg	ND	5100	NO	Human Health	
IDA-SSI-006-0001-SO	0 - 1	Silver	0.49	mg/kg	ND	5100	NO	Human Health	
IDA-SSI-006-0001-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
IDA-SSI-006-0001-SO	0 - 1	Tetryl	0.2	mg/kg	ND	6200	NO	Human Health	
InDA-TTSB-002	0 - 1	1,3,5-Trinitrobenzene	0.24	mg/kg	ND	102	NO	Human Health	
InDA-TTSB-002	0 - 1	1,3-Dinitrobenzene	0.24	mg/kg	ND	62	NO	Human Health	
InDA-TTSB-002	0 - 1	2,4,6-Trinitrotoluene	0.24	mg/kg	ND	47.6	NO	Human Health	
InDA-TTSB-002	0 - 1	2,4-Dinitrotoluene	0.24	mg/kg	ND	8.7	NO	Human Health	
InDA-TTSB-002	0 - 1	2,6-Dinitrotoluene	0.24	mg/kg	ND	620	NO	Human Health	
InDA-TTSB-002	0 - 1	2-Nitrotoluene	0.24	mg/kg	ND	2.2	NO	Human Health	
InDA-TTSB-002	0 - 1	3-Nitrotoluene	0.24	mg/kg	ND	1000	NO	Human Health	
InDA-TTSB-002	0 - 1	4-Nitrotoluene	0.24	mg/kg	ND	30	NO	Human Health	
InDA-TTSB-002	0 - 1	Aluminum	5640	mg/kg	ND	100000	NO	Human Health	
InDA-TTSB-002	0 - 1	Antimony	0.85	mg/kg	ND	816	NO	Human Health	
InDA-TTSB-002	0 - 1	Arsenic	3.1	mg/kg	ND	30	NO	Human Health	
InDA-TTSB-002	0 - 1	Barium	64.8	mg/kg	ND	67000	NO	Human Health	
InDA-TTSB-002	0 - 1	Beryllium	0.36	mg/kg	ND	5	NO	Human Health	
InDA-TTSB-002	0 - 1	Cadmium	0.038	mg/kg	ND	1000	NO	Human Health	
InDA-TTSB-002	0 - 1	Chromium	8.8	mg/kg	ND	10000	NO	Human Health	
InDA-TTSB-002	0 - 1	Cobalt	8.7	mg/kg	ND	1900	NO	Human Health	
InDA-TTSB-002	0 - 1	Copper	16.8	mg/kg	ND	41000	NO	Human Health	
InDA-TTSB-002	0 - 1	HMX	0.24	mg/kg	ND	51000	NO	Human Health	
InDA-TTSB-002	0 - 1	Iron	9880	mg/kg	ND	100000	NO	Human Health	
InDA-TTSB-002	0 - 1	Lead	14.7	mg/kg	ND	1000	NO	Human Health	
InDA-TTSB-002	0 - 1	Manganese	481	mg/kg	ND	19000	NO	Human Health	
InDA-TTSB-002	0 - 1	Mercury	0.59	mg/kg	ND	310	NO	Human Health	
InDA-TTSB-002	0 - 1	Nickel	7.9	mg/kg	ND	20000	NO	Human Health	
InDA-TTSB-002	0 - 1	Nitrobenzene	0.24	mg/kg	ND	100	NO	Human Health	
InDA-TTSB-002	0 - 1	RDX	0.24	mg/kg	ND	1.3	NO	Human Health	
InDA-TTSB-002	0 - 1	Selenium	2.6	mg/kg	ND	5100	NO	Human Health	
InDA-TTSB-002	0 - 1	Silver	0.09	mg/kg	ND	5100	NO	Human Health	
InDA-TTSB-002	0 - 1	Tetryl	0.24	mg/kg	ND	6200	NO	Human Health	
InDA-TTSB-002	0 - 1	Thallium	2	mg/kg	ND	143	NO	Human Health	
InDA-TTSB-002	0 - 1	Vanadium	16.8	mg/kg	ND	1000	NO	Human Health	
InDA-TTSB-002	0 - 1	Zinc	17.6	mg/kg	ND	100000	NO	Human Health	
InDA-TTSB-002	1 - 2	1,3,5-Trinitrobenzene	0.24	mg/kg	ND	102	NO	Human Health	
InDA-TTSB-002	1 - 2	1,3-Dinitrobenzene	0.24	mg/kg	ND	62	NO	Human Health	
InDA-TTSB-002	1 - 2	2,4,6-Trinitrotoluene	0.24	mg/kg	ND	47.6	NO	Human Health	
InDA-TTSB-002	1 - 2	2,4-Dinitrotoluene	0.24	mg/kg	ND	8.7	NO	Human Health	
InDA-TTSB-002	1 - 2	2,6-Dinitrotoluene	0.24	mg/kg	ND	620	NO	Human Health	
InDA-TTSB-002	1 - 2	2-Nitrotoluene	0.24	mg/kg	ND	2.2	NO	Human Health	
InDA-TTSB-002	1 - 2	3-Nitrotoluene	0.24	mg/kg	ND	1000	NO	Human Health	
InDA-TTSB-002	1 - 2	4-Nitrotoluene	0.24	mg/kg	ND	30	NO	Human Health	
InDA-TTSB-002	1 - 2	Aluminum	7160	mg/kg	ND	100000	NO	Human Health	
InDA-TTSB-002	1 - 2	Antimony	8.6	mg/kg	ND	816	NO	Human Health	
InDA-TTSB-002	1 - 2	Arsenic	3.7	mg/kg	ND	30	NO	Human Health	
InDA-TTSB-002	1 - 2	Barium	69.4	mg/kg	ND	67000	NO	Human Health	
InDA-TTSB-002	1 - 2	Beryllium	0.48	mg/kg	ND	5	NO	Human Health	
InDA-TTSB-002	1 - 2	Cadmium	0.033	mg/kg	ND	1000	NO	Human Health	

APPENDIX A
Incendiary Disposal Area MRS Soil Sampling Results
Iowa Army Ammunition Plant

Sample name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comment
InDA-TTSB-002	1 - 2	Chromium	12	mg/kg	ND	10000	NO	Human Health	
InDA-TTSB-002	1 - 2	Cobalt	8.5	mg/kg	ND	1900	NO	Human Health	
InDA-TTSB-002	1 - 2	Copper	55.9	mg/kg	ND	41000	NO	Human Health	
InDA-TTSB-002	1 - 2	HMX	0.24	mg/kg	ND	51000	NO	Human Health	
InDA-TTSB-002	1 - 2	Iron	12500	mg/kg	ND	100000	NO	Human Health	
InDA-TTSB-002	1 - 2	Lead	328	mg/kg	ND	1000	NO	Human Health	
InDA-TTSB-002	1 - 2	Manganese	560	mg/kg	ND	19000	NO	Human Health	
InDA-TTSB-002	1 - 2	Mercury	1.1	mg/kg	ND	310	NO	Human Health	
InDA-TTSB-002	1 - 2	Nickel	10.7	mg/kg	ND	20000	NO	Human Health	
InDA-TTSB-002	1 - 2	Nitrobenzene	0.24	mg/kg	ND	100	NO	Human Health	
InDA-TTSB-002	1 - 2	RDX	0.24	mg/kg	ND	1.3	NO	Human Health	
InDA-TTSB-002	1 - 2	Selenium	3	mg/kg	ND	5100	NO	Human Health	
InDA-TTSB-002	1 - 2	Silver	0.078	mg/kg	ND	5100	NO	Human Health	
InDA-TTSB-002	1 - 2	Tetryl	0.24	mg/kg	ND	6200	NO	Human Health	
InDA-TTSB-002	1 - 2	Thallium	4.3	mg/kg	ND	143	NO	Human Health	
InDA-TTSB-002	1 - 2	Vanadium	19.4	mg/kg	ND	1000	NO	Human Health	
InDA-TTSB-002	1 - 2	Zinc	26.8	mg/kg	ND	100000	NO	Human Health	
InDA-TTSB-003	0 - 1	1,3,5-Trinitrobenzene	0.24	mg/kg	ND	102	NO	Human Health	
InDA-TTSB-003	0 - 1	1,3-Dinitrobenzene	0.24	mg/kg	ND	62	NO	Human Health	
InDA-TTSB-003	0 - 1	2,4,6-Trinitrotoluene	0.24	mg/kg	ND	47.6	NO	Human Health	
InDA-TTSB-003	0 - 1	2,4-Dinitrotoluene	0.24	mg/kg	ND	8.7	NO	Human Health	
InDA-TTSB-003	0 - 1	2,6-Dinitrotoluene	0.24	mg/kg	ND	620	NO	Human Health	
InDA-TTSB-003	0 - 1	2-Nitrotoluene	0.24	mg/kg	ND	2.2	NO	Human Health	
InDA-TTSB-003	0 - 1	3-Nitrotoluene	0.24	mg/kg	ND	1000	NO	Human Health	
InDA-TTSB-003	0 - 1	4-Nitrotoluene	0.24	mg/kg	ND	30	NO	Human Health	
InDA-TTSB-003	0 - 1	Aluminum	8310	mg/kg	ND	100000	NO	Human Health	
InDA-TTSB-003	0 - 1	Antimony	1.8	mg/kg	ND	816	NO	Human Health	
InDA-TTSB-003	0 - 1	Arsenic	3.7	mg/kg	ND	30	NO	Human Health	
InDA-TTSB-003	0 - 1	Barium	71.2	mg/kg	ND	67000	NO	Human Health	
InDA-TTSB-003	0 - 1	Beryllium	0.53	mg/kg	ND	5	NO	Human Health	
InDA-TTSB-003	0 - 1	Cadmium	0.036	mg/kg	ND	1000	NO	Human Health	
InDA-TTSB-003	0 - 1	Chromium	12.4	mg/kg	ND	10000	NO	Human Health	
InDA-TTSB-003	0 - 1	Cobalt	6.2	mg/kg	ND	1900	NO	Human Health	
InDA-TTSB-003	0 - 1	Copper	14.9	mg/kg	ND	41000	NO	Human Health	
InDA-TTSB-003	0 - 1	HMX	0.24	mg/kg	ND	51000	NO	Human Health	
InDA-TTSB-003	0 - 1	Iron	13700	mg/kg	ND	100000	NO	Human Health	
InDA-TTSB-003	0 - 1	Lead	44	mg/kg	ND	1000	NO	Human Health	
InDA-TTSB-003	0 - 1	Manganese	241	mg/kg	ND	19000	NO	Human Health	
InDA-TTSB-003	0 - 1	Mercury	0.15	mg/kg	ND	310	NO	Human Health	
InDA-TTSB-003	0 - 1	Nickel	12	mg/kg	ND	20000	NO	Human Health	
InDA-TTSB-003	0 - 1	Nitrobenzene	0.24	mg/kg	ND	100	NO	Human Health	
InDA-TTSB-003	0 - 1	RDX	0.24	mg/kg	ND	1.3	NO	Human Health	
InDA-TTSB-003	0 - 1	Selenium	3.3	mg/kg	ND	5100	NO	Human Health	
InDA-TTSB-003	0 - 1	Silver	0.13	mg/kg	ND	5100	NO	Human Health	
InDA-TTSB-003	0 - 1	Tetryl	0.24	mg/kg	ND	6200	NO	Human Health	
InDA-TTSB-003	0 - 1	Thallium	4.7	mg/kg	ND	143	NO	Human Health	
InDA-TTSB-003	0 - 1	Vanadium	20.8	mg/kg	ND	1000	NO	Human Health	
InDA-TTSB-003	0 - 1	Zinc	25.8	mg/kg	ND	100000	NO	Human Health	
InDA-TTSB-003	1 - 2	1,3,5-Trinitrobenzene	0.24	mg/kg	ND	102	NO	Human Health	
InDA-TTSB-003	1 - 2	1,3-Dinitrobenzene	0.24	mg/kg	ND	62	NO	Human Health	
InDA-TTSB-003	1 - 2	2,4,6-Trinitrotoluene	0.24	mg/kg	ND	47.6	NO	Human Health	
InDA-TTSB-003	1 - 2	2,4-Dinitrotoluene	0.24	mg/kg	ND	8.7	NO	Human Health	
InDA-TTSB-003	1 - 2	2,6-Dinitrotoluene	0.24	mg/kg	ND	620	NO	Human Health	
InDA-TTSB-003	1 - 2	2-Nitrotoluene	0.24	mg/kg	ND	2.2	NO	Human Health	

APPENDIX A
Incendiary Disposal Area MRS Soil Sampling Results
Iowa Army Ammunition Plant

Sample name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comment
InDA-TTSB-003	1 - 2	3-Nitrotoluene	0.24	mg/kg	ND	1000	NO	Human Health	
InDA-TTSB-003	1 - 2	4-Nitrotoluene	0.24	mg/kg	ND	30	NO	Human Health	
InDA-TTSB-003	1 - 2	Aluminum	8500	mg/kg	ND	100000	NO	Human Health	
InDA-TTSB-003	1 - 2	Antimony	10.4	mg/kg	ND	816	NO	Human Health	
InDA-TTSB-003	1 - 2	Arsenic	4.5	mg/kg	ND	30	NO	Human Health	
InDA-TTSB-003	1 - 2	Barium	105	mg/kg	ND	67000	NO	Human Health	
InDA-TTSB-003	1 - 2	Beryllium	0.53	mg/kg	ND	5	NO	Human Health	
InDA-TTSB-003	1 - 2	Cadmium	0.042	mg/kg	ND	1000	NO	Human Health	
InDA-TTSB-003	1 - 2	Chromium	12.7	mg/kg	ND	10000	NO	Human Health	
InDA-TTSB-003	1 - 2	Cobalt	7.3	mg/kg	ND	1900	NO	Human Health	
InDA-TTSB-003	1 - 2	Copper	27.2	mg/kg	ND	41000	NO	Human Health	
InDA-TTSB-003	1 - 2	HMX	0.24	mg/kg	ND	51000	NO	Human Health	
InDA-TTSB-003	1 - 2	Iron	13500	mg/kg	ND	100000	NO	Human Health	
InDA-TTSB-003	1 - 2	Lead	509	mg/kg	ND	1000	NO	Human Health	
InDA-TTSB-003	1 - 2	Manganese	502	mg/kg	ND	19000	NO	Human Health	
InDA-TTSB-003	1 - 2	Mercury	0.17	mg/kg	ND	310	NO	Human Health	
InDA-TTSB-003	1 - 2	Nickel	12.2	mg/kg	ND	20000	NO	Human Health	
InDA-TTSB-003	1 - 2	Nitrobenzene	0.24	mg/kg	ND	100	NO	Human Health	
InDA-TTSB-003	1 - 2	RDX	0.24	mg/kg	ND	1.3	NO	Human Health	
InDA-TTSB-003	1 - 2	Selenium	3.5	mg/kg	ND	5100	NO	Human Health	
InDA-TTSB-003	1 - 2	Silver	0.099	mg/kg	ND	5100	NO	Human Health	
InDA-TTSB-003	1 - 2	Tetryl	0.24	mg/kg	ND	6200	NO	Human Health	
InDA-TTSB-003	1 - 2	Thallium	5.5	mg/kg	ND	143	NO	Human Health	
InDA-TTSB-003	1 - 2	Vanadium	23	mg/kg	ND	1000	NO	Human Health	
InDA-TTSB-003	1 - 2	Zinc	28.5	mg/kg	ND	100000	NO	Human Health	
InDA-TTSB-009	0 - 1	1,3,5-Trinitrobenzene	0.24	mg/kg	ND	102	NO	Human Health	
InDA-TTSB-009	0 - 1	1,3-Dinitrobenzene	0.24	mg/kg	ND	62	NO	Human Health	
InDA-TTSB-009	0 - 1	2,4,6-Trinitrotoluene	0.24	mg/kg	ND	47.6	NO	Human Health	
InDA-TTSB-009	0 - 1	2,4-Dinitrotoluene	0.24	mg/kg	ND	8.7	NO	Human Health	
InDA-TTSB-009	0 - 1	2,6-Dinitrotoluene	0.24	mg/kg	ND	620	NO	Human Health	
InDA-TTSB-009	0 - 1	2-Nitrotoluene	0.24	mg/kg	ND	2.2	NO	Human Health	
InDA-TTSB-009	0 - 1	3-Nitrotoluene	0.24	mg/kg	ND	1000	NO	Human Health	
InDA-TTSB-009	0 - 1	4-Nitrotoluene	0.24	mg/kg	ND	30	NO	Human Health	
InDA-TTSB-009	0 - 1	Aluminum	9140	mg/kg	ND	100000	NO	Human Health	
InDA-TTSB-009	0 - 1	Antimony	1.9	mg/kg	ND	816	NO	Human Health	
InDA-TTSB-009	0 - 1	Arsenic	4.2	mg/kg	ND	30	NO	Human Health	
InDA-TTSB-009	0 - 1	Barium	61.1	mg/kg	ND	67000	NO	Human Health	
InDA-TTSB-009	0 - 1	Beryllium	0.69	mg/kg	ND	5	NO	Human Health	
InDA-TTSB-009	0 - 1	Cadmium	0.68	mg/kg	ND	1000	NO	Human Health	
InDA-TTSB-009	0 - 1	Chromium	14.5	mg/kg	ND	10000	NO	Human Health	
InDA-TTSB-009	0 - 1	Cobalt	7.5	mg/kg	ND	1900	NO	Human Health	
InDA-TTSB-009	0 - 1	Copper	15.1	mg/kg	ND	41000	NO	Human Health	
InDA-TTSB-009	0 - 1	HMX	0.24	mg/kg	ND	51000	NO	Human Health	
InDA-TTSB-009	0 - 1	Iron	17800	mg/kg	ND	100000	NO	Human Health	
InDA-TTSB-009	0 - 1	Lead	37.6	mg/kg	ND	1000	NO	Human Health	
InDA-TTSB-009	0 - 1	Manganese	199	mg/kg	ND	19000	NO	Human Health	
InDA-TTSB-009	0 - 1	Mercury	0.048	mg/kg	ND	310	NO	Human Health	
InDA-TTSB-009	0 - 1	Nickel	15.6	mg/kg	ND	20000	NO	Human Health	
InDA-TTSB-009	0 - 1	Nitrobenzene	0.24	mg/kg	ND	100	NO	Human Health	
InDA-TTSB-009	0 - 1	RDX	0.24	mg/kg	ND	1.3	NO	Human Health	
InDA-TTSB-009	0 - 1	Selenium	4.4	mg/kg	ND	5100	NO	Human Health	
InDA-TTSB-009	0 - 1	Silver	0.079	mg/kg	ND	5100	NO	Human Health	
InDA-TTSB-009	0 - 1	Tetryl	0.24	mg/kg	ND	6200	NO	Human Health	
InDA-TTSB-009	0 - 1	Thallium	4.4	mg/kg	ND	143	NO	Human Health	

APPENDIX A
Incendiary Disposal Area MRS Soil Sampling Results
Iowa Army Ammunition Plant

Sample name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comment
InDA-TTSB-009	0 - 1	Vanadium	22.9	mg/kg	ND	1000	NO	Human Health	
InDA-TTSB-009	0 - 1	Zinc	32.9	mg/kg	ND	100000	NO	Human Health	
InDA-TTSB-009	1 - 2	1,3,5-Trinitrobenzene	0.25	mg/kg	ND	102	NO	Human Health	
InDA-TTSB-009	1 - 2	1,3-Dinitrobenzene	0.25	mg/kg	ND	62	NO	Human Health	
InDA-TTSB-009	1 - 2	2,4,6-Trinitrotoluene	0.25	mg/kg	ND	47.6	NO	Human Health	
InDA-TTSB-009	1 - 2	2,4-Dinitrotoluene	0.25	mg/kg	ND	8.7	NO	Human Health	
InDA-TTSB-009	1 - 2	2,6-Dinitrotoluene	0.25	mg/kg		620	NO	Human Health	
InDA-TTSB-009	1 - 2	2-Nitrotoluene	0.25	mg/kg		2.2	NO	Human Health	
InDA-TTSB-009	1 - 2	3-Nitrotoluene	0.25	mg/kg		1000	NO	Human Health	
InDA-TTSB-009	1 - 2	4-Nitrotoluene	0.25	mg/kg		30	NO	Human Health	
InDA-TTSB-009	1 - 2	Aluminum	10600	mg/kg		100000	NO	Human Health	
InDA-TTSB-009	1 - 2	Antimony	5.8	mg/kg		816	NO	Human Health	
InDA-TTSB-009	1 - 2	Arsenic	5.2	mg/kg		30	NO	Human Health	
InDA-TTSB-009	1 - 2	Barium	56.7	mg/kg		67000	NO	Human Health	
InDA-TTSB-009	1 - 2	Beryllium	0.72	mg/kg		5	NO	Human Health	
InDA-TTSB-009	1 - 2	Cadmium	0.7	mg/kg		1000	NO	Human Health	
InDA-TTSB-009	1 - 2	Chromium	15.9	mg/kg		10000	NO	Human Health	
InDA-TTSB-009	1 - 2	Cobalt	8.1	mg/kg		1900	NO	Human Health	
InDA-TTSB-009	1 - 2	Copper	18.5	mg/kg		41000	NO	Human Health	
InDA-TTSB-009	1 - 2	HMX	0.25	mg/kg		51000	NO	Human Health	
InDA-TTSB-009	1 - 2	Iron	23000	mg/kg		100000	NO	Human Health	
InDA-TTSB-009	1 - 2	Lead	350	mg/kg		1000	NO	Human Health	
InDA-TTSB-009	1 - 2	Manganese	203	mg/kg		19000	NO	Human Health	
InDA-TTSB-009	1 - 2	Mercury	0.058	mg/kg		310	NO	Human Health	
InDA-TTSB-009	1 - 2	Nickel	17.9	mg/kg		20000	NO	Human Health	
InDA-TTSB-009	1 - 2	Nitrobenzene	0.25	mg/kg		100	NO	Human Health	
InDA-TTSB-009	1 - 2	RDX	0.25	mg/kg		1.3	NO	Human Health	
InDA-TTSB-009	1 - 2	Selenium	5.5	mg/kg		5100	NO	Human Health	
InDA-TTSB-009	1 - 2	Silver	0.081	mg/kg		5100	NO	Human Health	
InDA-TTSB-009	1 - 2	Tetryl	0.25	mg/kg		6200	NO	Human Health	
InDA-TTSB-009	1 - 2	Thallium	4.5	mg/kg		143	NO	Human Health	
InDA-TTSB-009	1 - 2	Vanadium	25.1	mg/kg		1000	NO	Human Health	
InDA-TTSB-009	1 - 2	Zinc	35	mg/kg		100000	NO	Human Health	
InDA-TTSB-012	0 - 1	1,3,5-Trinitrobenzene	0.24	mg/kg		102	NO	Human Health	
InDA-TTSB-012	0 - 1	1,3-Dinitrobenzene	0.24	mg/kg		62	NO	Human Health	
InDA-TTSB-012	0 - 1	2,4,6-Trinitrotoluene	0.24	mg/kg		47.6	NO	Human Health	
InDA-TTSB-012	0 - 1	2,4-Dinitrotoluene	0.24	mg/kg		8.7	NO	Human Health	
InDA-TTSB-012	0 - 1	2,6-Dinitrotoluene	0.24	mg/kg		620	NO	Human Health	
InDA-TTSB-012	0 - 1	2-Nitrotoluene	0.24	mg/kg		2.2	NO	Human Health	
InDA-TTSB-012	0 - 1	3-Nitrotoluene	0.24	mg/kg		1000	NO	Human Health	
InDA-TTSB-012	0 - 1	4-Nitrotoluene	0.24	mg/kg		30	NO	Human Health	
InDA-TTSB-012	0 - 1	Aluminum	12200	mg/kg		100000	NO	Human Health	
InDA-TTSB-012	0 - 1	Antimony	2.6	mg/kg		816	NO	Human Health	
InDA-TTSB-012	0 - 1	Arsenic	5.2	mg/kg		30	NO	Human Health	
InDA-TTSB-012	0 - 1	Barium	106	mg/kg		67000	NO	Human Health	
InDA-TTSB-012	0 - 1	Beryllium	0.77	mg/kg		5	NO	Human Health	
InDA-TTSB-012	0 - 1	Cadmium	0.042	mg/kg		1000	NO	Human Health	
InDA-TTSB-012	0 - 1	Chromium	18.3	mg/kg		10000	NO	Human Health	
InDA-TTSB-012	0 - 1	Cobalt	9.3	mg/kg		1900	NO	Human Health	
InDA-TTSB-012	0 - 1	Copper	26.2	mg/kg		41000	NO	Human Health	
InDA-TTSB-012	0 - 1	HMX	0.24	mg/kg		51000	NO	Human Health	
InDA-TTSB-012	0 - 1	Iron	20800	mg/kg		100000	NO	Human Health	
InDA-TTSB-012	0 - 1	Lead	87	mg/kg		1000	NO	Human Health	
InDA-TTSB-012	0 - 1	Manganese	236	mg/kg		19000	NO	Human Health	

APPENDIX A
Incendiary Disposal Area MRS Soil Sampling Results
Iowa Army Ammunition Plant

Sample name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comment
InDA-TTSB-012	0 - 1	Mercury	1.6	mg/kg		310	NO	Human Health	
InDA-TTSB-012	0 - 1	Nickel	17.2	mg/kg		20000	NO	Human Health	
InDA-TTSB-012	0 - 1	Nitrobenzene	0.24	mg/kg		100	NO	Human Health	
InDA-TTSB-012	0 - 1	RDX	0.24	mg/kg		1.3	NO	Human Health	
InDA-TTSB-012	0 - 1	Selenium	5.3	mg/kg		5100	NO	Human Health	
InDA-TTSB-012	0 - 1	Silver	0.099	mg/kg		5100	NO	Human Health	
InDA-TTSB-012	0 - 1	Tetryl	0.24	mg/kg		6200	NO	Human Health	
InDA-TTSB-012	0 - 1	Thallium	5.5	mg/kg		143	NO	Human Health	
InDA-TTSB-012	0 - 1	Vanadium	29.6	mg/kg		1000	NO	Human Health	
InDA-TTSB-012	0 - 1	Zinc	47.8	mg/kg		100000	NO	Human Health	
InDA-TTSB-012	1 - 2	1,3,5-Trinitrobenzene	0.25	mg/kg		102	NO	Human Health	
InDA-TTSB-012	1 - 2	1,3-Dinitrobenzene	0.25	mg/kg		62	NO	Human Health	
InDA-TTSB-012	1 - 2	2,4,6-Trinitrotoluene	0.25	mg/kg		47.6	NO	Human Health	
InDA-TTSB-012	1 - 2	2,4-Dinitrotoluene	0.25	mg/kg		8.7	NO	Human Health	
InDA-TTSB-012	1 - 2	2,6-Dinitrotoluene	0.25	mg/kg		620	NO	Human Health	
InDA-TTSB-012	1 - 2	2-Nitrotoluene	0.25	mg/kg		2.2	NO	Human Health	
InDA-TTSB-012	1 - 2	3-Nitrotoluene	0.25	mg/kg		1000	NO	Human Health	
InDA-TTSB-012	1 - 2	4-Nitrotoluene	0.25	mg/kg		30	NO	Human Health	
InDA-TTSB-012	1 - 2	Aluminum	10500	mg/kg		100000	NO	Human Health	
InDA-TTSB-012	1 - 2	Antimony	2	mg/kg		816	NO	Human Health	
InDA-TTSB-012	1 - 2	Arsenic	5	mg/kg		30	NO	Human Health	
InDA-TTSB-012	1 - 2	Barium	110	mg/kg		67000	NO	Human Health	
InDA-TTSB-012	1 - 2	Beryllium	0.89	mg/kg		5	NO	Human Health	
InDA-TTSB-012	1 - 2	Cadmium	0.04	mg/kg		1000	NO	Human Health	
InDA-TTSB-012	1 - 2	Chromium	15.6	mg/kg		10000	NO	Human Health	
InDA-TTSB-012	1 - 2	Cobalt	9.9	mg/kg		1900	NO	Human Health	
InDA-TTSB-012	1 - 2	Copper	21.3	mg/kg		41000	NO	Human Health	
InDA-TTSB-012	1 - 2	HMX	0.25	mg/kg		51000	NO	Human Health	
InDA-TTSB-012	1 - 2	Iron	19200	mg/kg		100000	NO	Human Health	
InDA-TTSB-012	1 - 2	Lead	54.5	mg/kg		1000	NO	Human Health	
InDA-TTSB-012	1 - 2	Manganese	334	mg/kg		19000	NO	Human Health	
InDA-TTSB-012	1 - 2	Mercury	1.2	mg/kg		310	NO	Human Health	
InDA-TTSB-012	1 - 2	Nickel	16.7	mg/kg		20000	NO	Human Health	
InDA-TTSB-012	1 - 2	Nitrobenzene	0.25	mg/kg		100	NO	Human Health	
InDA-TTSB-012	1 - 2	RDX	0.25	mg/kg		1.3	NO	Human Health	
InDA-TTSB-012	1 - 2	Selenium	4.9	mg/kg		5100	NO	Human Health	
InDA-TTSB-012	1 - 2	Silver	0.092	mg/kg		5100	NO	Human Health	
InDA-TTSB-012	1 - 2	Tetryl	0.25	mg/kg		6200	NO	Human Health	
InDA-TTSB-012	1 - 2	Thallium	5.1	mg/kg		143	NO	Human Health	
InDA-TTSB-012	1 - 2	Vanadium	26.1	mg/kg		1000	NO	Human Health	
InDA-TTSB-012	1 - 2	Zinc	42.2	mg/kg		100000	NO	Human Health	
InDA-TTSB-012	2 - 4	1,3,5-Trinitrobenzene	0.25	mg/kg		102	NO	Human Health	
InDA-TTSB-012	2 - 4	1,3-Dinitrobenzene	0.25	mg/kg		62	NO	Human Health	
InDA-TTSB-012	2 - 4	2,4,6-Trinitrotoluene	0.25	mg/kg		47.6	NO	Human Health	
InDA-TTSB-012	2 - 4	2,4-Dinitrotoluene	0.25	mg/kg		8.7	NO	Human Health	
InDA-TTSB-012	2 - 4	2,6-Dinitrotoluene	0.25	mg/kg		620	NO	Human Health	
InDA-TTSB-012	2 - 4	2-Nitrotoluene	0.25	mg/kg		2.2	NO	Human Health	
InDA-TTSB-012	2 - 4	3-Nitrotoluene	0.25	mg/kg		1000	NO	Human Health	
InDA-TTSB-012	2 - 4	4-Nitrotoluene	0.25	mg/kg		30	NO	Human Health	
InDA-TTSB-012	2 - 4	Aluminum	11700	mg/kg		100000	NO	Human Health	
InDA-TTSB-012	2 - 4	Antimony	2.3	mg/kg		816	NO	Human Health	
InDA-TTSB-012	2 - 4	Arsenic	5.5	mg/kg		30	NO	Human Health	
InDA-TTSB-012	2 - 4	Barium	101	mg/kg		67000	NO	Human Health	
InDA-TTSB-012	2 - 4	Beryllium	0.72	mg/kg		5	NO	Human Health	

APPENDIX A
Incendiary Disposal Area MRS Soil Sampling Results
Iowa Army Ammunition Plant

Sample name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comment
InDA-TTSB-012	2 - 4	Cadmium	0.039	mg/kg		1000	NO	Human Health	
InDA-TTSB-012	2 - 4	Chromium	18.2	mg/kg		10000	NO	Human Health	
InDA-TTSB-012	2 - 4	Cobalt	9.4	mg/kg		1900	NO	Human Health	
InDA-TTSB-012	2 - 4	Copper	19.7	mg/kg		41000	NO	Human Health	
InDA-TTSB-012	2 - 4	HMX	0.25	mg/kg		51000	NO	Human Health	
InDA-TTSB-012	2 - 4	Iron	22200	mg/kg		100000	NO	Human Health	
InDA-TTSB-012	2 - 4	Lead	40.9	mg/kg		1000	NO	Human Health	
InDA-TTSB-012	2 - 4	Manganese	395	mg/kg		19000	NO	Human Health	
InDA-TTSB-012	2 - 4	Mercury	1.1	mg/kg		310	NO	Human Health	
InDA-TTSB-012	2 - 4	Nickel	22.3	mg/kg		20000	NO	Human Health	
InDA-TTSB-012	2 - 4	Nitrobenzene	0.25	mg/kg		100	NO	Human Health	
InDA-TTSB-012	2 - 4	RDX	0.25	mg/kg		1.3	NO	Human Health	
InDA-TTSB-012	2 - 4	Selenium	5.6	mg/kg		5100	NO	Human Health	
InDA-TTSB-012	2 - 4	Silver	0.091	mg/kg		5100	NO	Human Health	
InDA-TTSB-012	2 - 4	Tetryl	0.25	mg/kg		6200	NO	Human Health	
InDA-TTSB-012	2 - 4	Thallium	6.1	mg/kg		143	NO	Human Health	
InDA-TTSB-012	2 - 4	Vanadium	27.8	mg/kg		1000	NO	Human Health	
InDA-TTSB-012	2 - 4	Zinc	36.7	mg/kg		100000	NO	Human Health	
InDA-TTSB-013	0 - 1	1,3,5-Trinitrobenzene	0.23	mg/kg		102	NO	Human Health	
InDA-TTSB-013	0 - 1	1,3-Dinitrobenzene	0.23	mg/kg		62	NO	Human Health	
InDA-TTSB-013	0 - 1	2,4,6-Trinitrotoluene	0.23	mg/kg		47.6	NO	Human Health	
InDA-TTSB-013	0 - 1	2,4-Dinitrotoluene	0.23	mg/kg		8.7	NO	Human Health	
InDA-TTSB-013	0 - 1	2,6-Dinitrotoluene	0.23	mg/kg		620	NO	Human Health	
InDA-TTSB-013	0 - 1	2-Nitrotoluene	0.23	mg/kg		2.2	NO	Human Health	
InDA-TTSB-013	0 - 1	3-Nitrotoluene	0.23	mg/kg		1000	NO	Human Health	
InDA-TTSB-013	0 - 1	4-Nitrotoluene	0.23	mg/kg		30	NO	Human Health	
InDA-TTSB-013	0 - 1	Aluminum	8090	mg/kg		100000	NO	Human Health	
InDA-TTSB-013	0 - 1	Antimony	3.4	mg/kg		816	NO	Human Health	
InDA-TTSB-013	0 - 1	Arsenic	4	mg/kg		30	NO	Human Health	
InDA-TTSB-013	0 - 1	Barium	67.9	mg/kg		67000	NO	Human Health	
InDA-TTSB-013	0 - 1	Beryllium	0.42	mg/kg		5	NO	Human Health	
InDA-TTSB-013	0 - 1	Cadmium	0.036	mg/kg		1000	NO	Human Health	
InDA-TTSB-013	0 - 1	Chromium	12.1	mg/kg		10000	NO	Human Health	
InDA-TTSB-013	0 - 1	Cobalt	6.8	mg/kg		1900	NO	Human Health	
InDA-TTSB-013	0 - 1	Copper	64.6	mg/kg		41000	NO	Human Health	
InDA-TTSB-013	0 - 1	HMX	0.23	mg/kg		51000	NO	Human Health	
InDA-TTSB-013	0 - 1	Iron	13300	mg/kg		100000	NO	Human Health	
InDA-TTSB-013	0 - 1	Lead	189	mg/kg		1000	NO	Human Health	
InDA-TTSB-013	0 - 1	Manganese	201	mg/kg		19000	NO	Human Health	
InDA-TTSB-013	0 - 1	Mercury	0.15	mg/kg		310	NO	Human Health	
InDA-TTSB-013	0 - 1	Nickel	10.2	mg/kg		20000	NO	Human Health	
InDA-TTSB-013	0 - 1	Nitrobenzene	0.23	mg/kg		100	NO	Human Health	
InDA-TTSB-013	0 - 1	RDX	0.23	mg/kg		1.3	NO	Human Health	
InDA-TTSB-013	0 - 1	Selenium	3.8	mg/kg		5100	NO	Human Health	
InDA-TTSB-013	0 - 1	Silver	0.083	mg/kg		5100	NO	Human Health	
InDA-TTSB-013	0 - 1	Tetryl	0.23	mg/kg		6200	NO	Human Health	
InDA-TTSB-013	0 - 1	Thallium	4.6	mg/kg		143	NO	Human Health	
InDA-TTSB-013	0 - 1	Vanadium	20.7	mg/kg		1000	NO	Human Health	
InDA-TTSB-013	0 - 1	Zinc	22.7	mg/kg		100000	NO	Human Health	
InDA-TTSB-013	1 - 2	1,3,5-Trinitrobenzene	0.24	mg/kg		102	NO	Human Health	
InDA-TTSB-013	1 - 2	1,3-Dinitrobenzene	0.24	mg/kg		62	NO	Human Health	
InDA-TTSB-013	1 - 2	2,4,6-Trinitrotoluene	0.24	mg/kg		47.6	NO	Human Health	
InDA-TTSB-013	1 - 2	2,4-Dinitrotoluene	0.24	mg/kg		8.7	NO	Human Health	
InDA-TTSB-013	1 - 2	2,6-Dinitrotoluene	0.24	mg/kg		620	NO	Human Health	

APPENDIX A
Incendiary Disposal Area MRS Soil Sampling Results
Iowa Army Ammunition Plant

Sample name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comment
InDA-TTSB-013	1 - 2	2-Nitrotoluene	0.24	mg/kg		2.2	NO	Human Health	
InDA-TTSB-013	1 - 2	3-Nitrotoluene	0.24	mg/kg		1000	NO	Human Health	
InDA-TTSB-013	1 - 2	4-Nitrotoluene	0.24	mg/kg		30	NO	Human Health	
InDA-TTSB-013	1 - 2	Aluminum	8500	mg/kg		100000	NO	Human Health	
InDA-TTSB-013	1 - 2	Antimony	30.6	mg/kg		816	NO	Human Health	
InDA-TTSB-013	1 - 2	Arsenic	12.4	mg/kg		30	NO	Human Health	
InDA-TTSB-013	1 - 2	Barium	62.9	mg/kg		67000	NO	Human Health	
InDA-TTSB-013	1 - 2	Beryllium	0.36	mg/kg		5	NO	Human Health	
InDA-TTSB-013	1 - 2	Cadmium	0.034	mg/kg		1000	NO	Human Health	
InDA-TTSB-013	1 - 2	Chromium	12.3	mg/kg		10000	NO	Human Health	
InDA-TTSB-013	1 - 2	Cobalt	9.2	mg/kg		1900	NO	Human Health	
InDA-TTSB-013	1 - 2	Copper	14	mg/kg		41000	NO	Human Health	
InDA-TTSB-013	1 - 2	HMX	0.24	mg/kg		51000	NO	Human Health	
InDA-TTSB-013	1 - 2	Iron	13100	mg/kg		100000	NO	Human Health	
InDA-TTSB-013	1 - 2	Lead	1050	mg/kg		1000	YES	Human Health	
InDA-TTSB-013	1 - 2	Manganese	331	mg/kg		19000	NO	Human Health	
InDA-TTSB-013	1 - 2	Mercury	0.031	mg/kg		310	NO	Human Health	
InDA-TTSB-013	1 - 2	Nickel	9.7	mg/kg		20000	NO	Human Health	
InDA-TTSB-013	1 - 2	Nitrobenzene	0.24	mg/kg		100	NO	Human Health	
InDA-TTSB-013	1 - 2	RDX	0.24	mg/kg		1.3	NO	Human Health	
InDA-TTSB-013	1 - 2	Selenium	3.6	mg/kg		5100	NO	Human Health	
InDA-TTSB-013	1 - 2	Silver	0.079	mg/kg		5100	NO	Human Health	
InDA-TTSB-013	1 - 2	Tetryl	0.24	mg/kg		6200	NO	Human Health	
InDA-TTSB-013	1 - 2	Thallium	4.4	mg/kg		143	NO	Human Health	
InDA-TTSB-013	1 - 2	Vanadium	22.5	mg/kg		1000	NO	Human Health	
InDA-TTSB-013	1 - 2	Zinc	23	mg/kg		100000	NO	Human Health	
InDA-TTSB-013	2 - 4	1,3,5-Trinitrobenzene	0.24	mg/kg		102	NO	Human Health	
InDA-TTSB-013	2 - 4	1,3-Dinitrobenzene	0.24	mg/kg		62	NO	Human Health	
InDA-TTSB-013	2 - 4	2,4,6-Trinitrotoluene	0.24	mg/kg		47.6	NO	Human Health	
InDA-TTSB-013	2 - 4	2,4-Dinitrotoluene	0.24	mg/kg		8.7	NO	Human Health	
InDA-TTSB-013	2 - 4	2,6-Dinitrotoluene	0.24	mg/kg		620	NO	Human Health	
InDA-TTSB-013	2 - 4	2-Nitrotoluene	0.24	mg/kg		2.2	NO	Human Health	
InDA-TTSB-013	2 - 4	3-Nitrotoluene	0.24	mg/kg		1000	NO	Human Health	
InDA-TTSB-013	2 - 4	4-Nitrotoluene	0.24	mg/kg		30	NO	Human Health	
InDA-TTSB-013	2 - 4	Aluminum	8370	mg/kg		100000	NO	Human Health	
InDA-TTSB-013	2 - 4	Antimony	8.3	mg/kg		816	NO	Human Health	
InDA-TTSB-013	2 - 4	Arsenic	3.8	mg/kg		30	NO	Human Health	
InDA-TTSB-013	2 - 4	Barium	67.7	mg/kg		67000	NO	Human Health	
InDA-TTSB-013	2 - 4	Beryllium	0.38	mg/kg		5	NO	Human Health	
InDA-TTSB-013	2 - 4	Cadmium	0.033	mg/kg		1000	NO	Human Health	
InDA-TTSB-013	2 - 4	Chromium	11.5	mg/kg		10000	NO	Human Health	
InDA-TTSB-013	2 - 4	Cobalt	9.9	mg/kg		1900	NO	Human Health	
InDA-TTSB-013	2 - 4	Copper	24.2	mg/kg		41000	NO	Human Health	
InDA-TTSB-013	2 - 4	HMX	0.24	mg/kg		51000	NO	Human Health	
InDA-TTSB-013	2 - 4	Iron	12300	mg/kg		100000	NO	Human Health	
InDA-TTSB-013	2 - 4	Lead	342	mg/kg		1000	NO	Human Health	
InDA-TTSB-013	2 - 4	Manganese	349	mg/kg		19000	NO	Human Health	
InDA-TTSB-013	2 - 4	Mercury	0.037	mg/kg		310	NO	Human Health	
InDA-TTSB-013	2 - 4	Nickel	9.4	mg/kg		20000	NO	Human Health	
InDA-TTSB-013	2 - 4	Nitrobenzene	0.24	mg/kg		100	NO	Human Health	
InDA-TTSB-013	2 - 4	RDX	0.24	mg/kg		1.3	NO	Human Health	
InDA-TTSB-013	2 - 4	Selenium	2.9	mg/kg		5100	NO	Human Health	
InDA-TTSB-013	2 - 4	Silver	0.077	mg/kg		5100	NO	Human Health	
InDA-TTSB-013	2 - 4	Tetryl	0.24	mg/kg		6200	NO	Human Health	

APPENDIX A
Incendiary Disposal Area MRS Soil Sampling Results
Iowa Army Ammunition Plant

Sample name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comment
InDA-TTSB-013	2 - 4	Thallium	4.3	mg/kg		143	NO	Human Health	
InDA-TTSB-013	2 - 4	Vanadium	20.7	mg/kg		1000	NO	Human Health	
InDA-TTSB-013	2 - 4	Zinc	21.5	mg/kg		100000	NO	Human Health	
InDA-TTSB-014	0 - 1	1,3,5-Trinitrobenzene	0.24	mg/kg		102	NO	Human Health	
InDA-TTSB-014	0 - 1	1,3-Dinitrobenzene	0.24	mg/kg		62	NO	Human Health	
InDA-TTSB-014	0 - 1	2,4,6-Trinitrotoluene	0.24	mg/kg		47.6	NO	Human Health	
InDA-TTSB-014	0 - 1	2,4-Dinitrotoluene	0.24	mg/kg		8.7	NO	Human Health	
InDA-TTSB-014	0 - 1	2,6-Dinitrotoluene	0.24	mg/kg		620	NO	Human Health	
InDA-TTSB-014	0 - 1	2-Nitrotoluene	0.24	mg/kg		2.2	NO	Human Health	
InDA-TTSB-014	0 - 1	3-Nitrotoluene	0.24	mg/kg		1000	NO	Human Health	
InDA-TTSB-014	0 - 1	4-Nitrotoluene	0.24	mg/kg		30	NO	Human Health	
InDA-TTSB-014	0 - 1	Aluminum	8730	mg/kg		100000	NO	Human Health	
InDA-TTSB-014	0 - 1	Antimony	3.3	mg/kg		816	NO	Human Health	
InDA-TTSB-014	0 - 1	Arsenic	4.4	mg/kg		30	NO	Human Health	
InDA-TTSB-014	0 - 1	Barium	90	mg/kg		67000	NO	Human Health	
InDA-TTSB-014	0 - 1	Beryllium	0.5	mg/kg		5	NO	Human Health	
InDA-TTSB-014	0 - 1	Cadmium	0.032	mg/kg		1000	NO	Human Health	
InDA-TTSB-014	0 - 1	Chromium	12.8	mg/kg		10000	NO	Human Health	
InDA-TTSB-014	0 - 1	Cobalt	7.8	mg/kg		1900	NO	Human Health	
InDA-TTSB-014	0 - 1	Copper	17.7	mg/kg		41000	NO	Human Health	
InDA-TTSB-014	0 - 1	HMX	0.24	mg/kg		51000	NO	Human Health	
InDA-TTSB-014	0 - 1	Iron	15400	mg/kg		100000	NO	Human Health	
InDA-TTSB-014	0 - 1	Lead	249	mg/kg		1000	NO	Human Health	
InDA-TTSB-014	0 - 1	Manganese	454	mg/kg		19000	NO	Human Health	
InDA-TTSB-014	0 - 1	Mercury	0.18	mg/kg		310	NO	Human Health	
InDA-TTSB-014	0 - 1	Nickel	13.4	mg/kg		20000	NO	Human Health	
InDA-TTSB-014	0 - 1	Nitrobenzene	0.24	mg/kg		100	NO	Human Health	
InDA-TTSB-014	0 - 1	RDX	0.24	mg/kg		1.3	NO	Human Health	
InDA-TTSB-014	0 - 1	Selenium	3.4	mg/kg		5100	NO	Human Health	
InDA-TTSB-014	0 - 1	Silver	0.075	mg/kg		5100	NO	Human Health	
InDA-TTSB-014	0 - 1	Tetryl	0.24	mg/kg		6200	NO	Human Health	
InDA-TTSB-014	0 - 1	Thallium	4.2	mg/kg		143	NO	Human Health	
InDA-TTSB-014	0 - 1	Vanadium	21.2	mg/kg		1000	NO	Human Health	
InDA-TTSB-014	0 - 1	Zinc	40.6	mg/kg		100000	NO	Human Health	
InDA-TTSB-014	1 - 2	1,3,5-Trinitrobenzene	0.24	mg/kg		102	NO	Human Health	
InDA-TTSB-014	1 - 2	1,3-Dinitrobenzene	0.24	mg/kg		62	NO	Human Health	
InDA-TTSB-014	1 - 2	2,4,6-Trinitrotoluene	0.24	mg/kg		47.6	NO	Human Health	
InDA-TTSB-014	1 - 2	2,4-Dinitrotoluene	0.24	mg/kg		8.7	NO	Human Health	
InDA-TTSB-014	1 - 2	2,6-Dinitrotoluene	0.24	mg/kg		620	NO	Human Health	
InDA-TTSB-014	1 - 2	2-Nitrotoluene	0.24	mg/kg		2.2	NO	Human Health	
InDA-TTSB-014	1 - 2	3-Nitrotoluene	0.24	mg/kg		1000	NO	Human Health	
InDA-TTSB-014	1 - 2	4-Nitrotoluene	0.24	mg/kg		30	NO	Human Health	
InDA-TTSB-014	1 - 2	Aluminum	7020	mg/kg		100000	NO	Human Health	
InDA-TTSB-014	1 - 2	Antimony	14.9	mg/kg		816	NO	Human Health	
InDA-TTSB-014	1 - 2	Arsenic	4.6	mg/kg		30	NO	Human Health	
InDA-TTSB-014	1 - 2	Barium	79.7	mg/kg		67000	NO	Human Health	
InDA-TTSB-014	1 - 2	Beryllium	0.46	mg/kg		5	NO	Human Health	
InDA-TTSB-014	1 - 2	Cadmium	0.033	mg/kg		1000	NO	Human Health	
InDA-TTSB-014	1 - 2	Chromium	11.6	mg/kg		10000	NO	Human Health	
InDA-TTSB-014	1 - 2	Cobalt	6.5	mg/kg		1900	NO	Human Health	
InDA-TTSB-014	1 - 2	Copper	128	mg/kg		41000	NO	Human Health	
InDA-TTSB-014	1 - 2	HMX	0.24	mg/kg		51000	NO	Human Health	
InDA-TTSB-014	1 - 2	Iron	11800	mg/kg		100000	NO	Human Health	
InDA-TTSB-014	1 - 2	Lead	886	mg/kg		1000	NO	Human Health	

APPENDIX A
Incendiary Disposal Area MRS Soil Sampling Results
Iowa Army Ammunition Plant

Sample name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comment
InDA-TTSB-014	1 - 2	Manganese	391	mg/kg		19000	NO	Human Health	
InDA-TTSB-014	1 - 2	Mercury	0.16	mg/kg		310	NO	Human Health	
InDA-TTSB-014	1 - 2	Nickel	12.1	mg/kg		20000	NO	Human Health	
InDA-TTSB-014	1 - 2	Nitrobenzene	0.24	mg/kg		100	NO	Human Health	
InDA-TTSB-014	1 - 2	RDX	0.24	mg/kg		1.3	NO	Human Health	
InDA-TTSB-014	1 - 2	Selenium	2.9	mg/kg		5100	NO	Human Health	
InDA-TTSB-014	1 - 2	Silver	0.077	mg/kg		5100	NO	Human Health	
InDA-TTSB-014	1 - 2	Tetryl	0.24	mg/kg		6200	NO	Human Health	
InDA-TTSB-014	1 - 2	Thallium	1.7	mg/kg		143	NO	Human Health	
InDA-TTSB-014	1 - 2	Vanadium	17.3	mg/kg		1000	NO	Human Health	
InDA-TTSB-014	1 - 2	Zinc	28.1	mg/kg		100000	NO	Human Health	
InDA-TTSB-014	2 - 4	1,3,5-Trinitrobenzene	0.25	mg/kg		102	NO	Human Health	
InDA-TTSB-014	2 - 4	1,3-Dinitrobenzene	0.25	mg/kg		62	NO	Human Health	
InDA-TTSB-014	2 - 4	2,4,6-Trinitrotoluene	0.25	mg/kg		47.6	NO	Human Health	
InDA-TTSB-014	2 - 4	2,4-Dinitrotoluene	0.25	mg/kg		8.7	NO	Human Health	
InDA-TTSB-014	2 - 4	2,6-Dinitrotoluene	0.25	mg/kg		620	NO	Human Health	
InDA-TTSB-014	2 - 4	2-Nitrotoluene	0.25	mg/kg		2.2	NO	Human Health	
InDA-TTSB-014	2 - 4	3-Nitrotoluene	0.25	mg/kg		1000	NO	Human Health	
InDA-TTSB-014	2 - 4	4-Nitrotoluene	0.25	mg/kg		30	NO	Human Health	
InDA-TTSB-014	2 - 4	Aluminum	7080	mg/kg		100000	NO	Human Health	
InDA-TTSB-014	2 - 4	Antimony	2.4	mg/kg		816	NO	Human Health	
InDA-TTSB-014	2 - 4	Arsenic	3	mg/kg		30	NO	Human Health	
InDA-TTSB-014	2 - 4	Barium	64.1	mg/kg		67000	NO	Human Health	
InDA-TTSB-014	2 - 4	Beryllium	0.46	mg/kg		5	NO	Human Health	
InDA-TTSB-014	2 - 4	Cadmium	0.032	mg/kg		1000	NO	Human Health	
InDA-TTSB-014	2 - 4	Chromium	10.4	mg/kg		10000	NO	Human Health	
InDA-TTSB-014	2 - 4	Cobalt	6	mg/kg		1900	NO	Human Health	
InDA-TTSB-014	2 - 4	Copper	18.5	mg/kg		41000	NO	Human Health	
InDA-TTSB-014	2 - 4	HMX	0.25	mg/kg		51000	NO	Human Health	
InDA-TTSB-014	2 - 4	Iron	11100	mg/kg		100000	NO	Human Health	
InDA-TTSB-014	2 - 4	Lead	86.9	mg/kg		1000	NO	Human Health	
InDA-TTSB-014	2 - 4	Manganese	294	mg/kg		19000	NO	Human Health	
InDA-TTSB-014	2 - 4	Mercury	0.11	mg/kg		310	NO	Human Health	
InDA-TTSB-014	2 - 4	Nickel	9.6	mg/kg		20000	NO	Human Health	
InDA-TTSB-014	2 - 4	Nitrobenzene	0.25	mg/kg		100	NO	Human Health	
InDA-TTSB-014	2 - 4	RDX	0.25	mg/kg		1.3	NO	Human Health	
InDA-TTSB-014	2 - 4	Selenium	2.8	mg/kg		5100	NO	Human Health	
InDA-TTSB-014	2 - 4	Silver	0.075	mg/kg		5100	NO	Human Health	
InDA-TTSB-014	2 - 4	Tetryl	0.25	mg/kg		6200	NO	Human Health	
InDA-TTSB-014	2 - 4	Thallium	4.2	mg/kg		143	NO	Human Health	
InDA-TTSB-014	2 - 4	Vanadium	17.2	mg/kg		1000	NO	Human Health	
InDA-TTSB-014	2 - 4	Zinc	19.6	mg/kg		100000	NO	Human Health	
InDA-TTSB-015	0 - 1	1,3,5-Trinitrobenzene	0.25	mg/kg		102	NO	Human Health	
InDA-TTSB-015	0 - 1	1,3-Dinitrobenzene	0.25	mg/kg		62	NO	Human Health	
InDA-TTSB-015	0 - 1	2,4,6-Trinitrotoluene	0.25	mg/kg		47.6	NO	Human Health	
InDA-TTSB-015	0 - 1	2,4-Dinitrotoluene	0.25	mg/kg		8.7	NO	Human Health	
InDA-TTSB-015	0 - 1	2,6-Dinitrotoluene	0.25	mg/kg		620	NO	Human Health	
InDA-TTSB-015	0 - 1	2-Nitrotoluene	0.25	mg/kg		2.2	NO	Human Health	
InDA-TTSB-015	0 - 1	3-Nitrotoluene	0.25	mg/kg		1000	NO	Human Health	
InDA-TTSB-015	0 - 1	4-Nitrotoluene	0.25	mg/kg		30	NO	Human Health	
InDA-TTSB-015	0 - 1	Aluminum	6890	mg/kg		100000	NO	Human Health	
InDA-TTSB-015	0 - 1	Antimony	5.1	mg/kg		816	NO	Human Health	
InDA-TTSB-015	0 - 1	Arsenic	2.7	mg/kg		30	NO	Human Health	
InDA-TTSB-015	0 - 1	Barium	57.6	mg/kg		67000	NO	Human Health	

APPENDIX A
Incendiary Disposal Area MRS Soil Sampling Results
Iowa Army Ammunition Plant

Sample name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comment
InDA-TTSB-015	0 - 1	Beryllium	0.39	mg/kg		5	NO	Human Health	
InDA-TTSB-015	0 - 1	Cadmium	0.033	mg/kg		1000	NO	Human Health	
InDA-TTSB-015	0 - 1	Chromium	10.4	mg/kg		10000	NO	Human Health	
InDA-TTSB-015	0 - 1	Cobalt	6.8	mg/kg		1900	NO	Human Health	
InDA-TTSB-015	0 - 1	Copper	12.5	mg/kg		41000	NO	Human Health	
InDA-TTSB-015	0 - 1	HMX	0.25	mg/kg		51000	NO	Human Health	
InDA-TTSB-015	0 - 1	Iron	11000	mg/kg		100000	NO	Human Health	
InDA-TTSB-015	0 - 1	Lead	163	mg/kg		1000	NO	Human Health	
InDA-TTSB-015	0 - 1	Manganese	388	mg/kg		19000	NO	Human Health	
InDA-TTSB-015	0 - 1	Mercury	0.13	mg/kg		310	NO	Human Health	
InDA-TTSB-015	0 - 1	Nickel	10.1	mg/kg		20000	NO	Human Health	
InDA-TTSB-015	0 - 1	Nitrobenzene	0.25	mg/kg		100	NO	Human Health	
InDA-TTSB-015	0 - 1	RDX	0.25	mg/kg		1.3	NO	Human Health	
InDA-TTSB-015	0 - 1	Selenium	3.2	mg/kg		5100	NO	Human Health	
InDA-TTSB-015	0 - 1	Silver	0.077	mg/kg		5100	NO	Human Health	
InDA-TTSB-015	0 - 1	Tetryl	0.25	mg/kg		6200	NO	Human Health	
InDA-TTSB-015	0 - 1	Thallium	1.7	mg/kg		143	NO	Human Health	
InDA-TTSB-015	0 - 1	Vanadium	17.4	mg/kg		1000	NO	Human Health	
InDA-TTSB-015	0 - 1	Zinc	23.1	mg/kg		100000	NO	Human Health	
InDA-TTSB-015	1 - 2	1,3,5-Trinitrobenzene	0.25	mg/kg		102	NO	Human Health	
InDA-TTSB-015	1 - 2	1,3-Dinitrobenzene	0.25	mg/kg		62	NO	Human Health	
InDA-TTSB-015	1 - 2	2,4,6-Trinitrotoluene	0.25	mg/kg		47.6	NO	Human Health	
InDA-TTSB-015	1 - 2	2,4-Dinitrotoluene	0.25	mg/kg		8.7	NO	Human Health	
InDA-TTSB-015	1 - 2	2,6-Dinitrotoluene	0.25	mg/kg		620	NO	Human Health	
InDA-TTSB-015	1 - 2	2-Nitrotoluene	0.25	mg/kg		2.2	NO	Human Health	
InDA-TTSB-015	1 - 2	3-Nitrotoluene	0.25	mg/kg		1000	NO	Human Health	
InDA-TTSB-015	1 - 2	4-Nitrotoluene	0.25	mg/kg		30	NO	Human Health	
InDA-TTSB-015	1 - 2	Aluminum	16500	mg/kg		100000	NO	Human Health	
InDA-TTSB-015	1 - 2	Antimony	1.9	mg/kg		816	NO	Human Health	
InDA-TTSB-015	1 - 2	Arsenic	6.1	mg/kg		30	NO	Human Health	
InDA-TTSB-015	1 - 2	Barium	64.8	mg/kg		67000	NO	Human Health	
InDA-TTSB-015	1 - 2	Beryllium	0.63	mg/kg		5	NO	Human Health	
InDA-TTSB-015	1 - 2	Cadmium	0.85	mg/kg		1000	NO	Human Health	
InDA-TTSB-015	1 - 2	Chromium	23.4	mg/kg		10000	NO	Human Health	
InDA-TTSB-015	1 - 2	Cobalt	6.3	mg/kg		1900	NO	Human Health	
InDA-TTSB-015	1 - 2	Copper	19.3	mg/kg		41000	NO	Human Health	
InDA-TTSB-015	1 - 2	HMX	0.25	mg/kg		51000	NO	Human Health	
InDA-TTSB-015	1 - 2	Iron	25700	mg/kg		100000	NO	Human Health	
InDA-TTSB-015	1 - 2	Lead	15.9	mg/kg		1000	NO	Human Health	
InDA-TTSB-015	1 - 2	Manganese	132	mg/kg		19000	NO	Human Health	
InDA-TTSB-015	1 - 2	Mercury	0.024	mg/kg		310	NO	Human Health	
InDA-TTSB-015	1 - 2	Nickel	19.8	mg/kg		20000	NO	Human Health	
InDA-TTSB-015	1 - 2	Nitrobenzene	0.25	mg/kg		100	NO	Human Health	
InDA-TTSB-015	1 - 2	RDX	0.25	mg/kg		1.3	NO	Human Health	
InDA-TTSB-015	1 - 2	Selenium	6.3	mg/kg		5100	NO	Human Health	
InDA-TTSB-015	1 - 2	Silver	0.079	mg/kg		5100	NO	Human Health	
InDA-TTSB-015	1 - 2	Tetryl	0.25	mg/kg		6200	NO	Human Health	
InDA-TTSB-015	1 - 2	Thallium	4.4	mg/kg		143	NO	Human Health	
InDA-TTSB-015	1 - 2	Vanadium	38.2	mg/kg		1000	NO	Human Health	
InDA-TTSB-015	1 - 2	Zinc	43.5	mg/kg		100000	NO	Human Health	
InDA-TTSB-015	2 - 4	1,3,5-Trinitrobenzene	0.23	mg/kg		102	NO	Human Health	
InDA-TTSB-015	2 - 4	1,3-Dinitrobenzene	0.23	mg/kg		62	NO	Human Health	
InDA-TTSB-015	2 - 4	2,4,6-Trinitrotoluene	0.23	mg/kg		47.6	NO	Human Health	
InDA-TTSB-015	2 - 4	2,4-Dinitrotoluene	0.23	mg/kg		8.7	NO	Human Health	

APPENDIX A
Incendiary Disposal Area MRS Soil Sampling Results
Iowa Army Ammunition Plant

Sample name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comment
InDA-TTSB-015	2 - 4	2,6-Dinitrotoluene	0.23	mg/kg		620	NO	Human Health	
InDA-TTSB-015	2 - 4	2-Nitrotoluene	0.23	mg/kg		2.2	NO	Human Health	
InDA-TTSB-015	2 - 4	3-Nitrotoluene	0.23	mg/kg		1000	NO	Human Health	
InDA-TTSB-015	2 - 4	4-Nitrotoluene	0.23	mg/kg		30	NO	Human Health	
InDA-TTSB-015	2 - 4	Aluminum	14100	mg/kg		100000	NO	Human Health	
InDA-TTSB-015	2 - 4	Antimony	2.3	mg/kg		816	NO	Human Health	
InDA-TTSB-015	2 - 4	Arsenic	7.3	mg/kg		30	NO	Human Health	
InDA-TTSB-015	2 - 4	Barium	64.1	mg/kg		67000	NO	Human Health	
InDA-TTSB-015	2 - 4	Beryllium	0.79	mg/kg		5	NO	Human Health	
InDA-TTSB-015	2 - 4	Cadmium	0.82	mg/kg		1000	NO	Human Health	
InDA-TTSB-015	2 - 4	Chromium	20.7	mg/kg		10000	NO	Human Health	
InDA-TTSB-015	2 - 4	Cobalt	8.7	mg/kg		1900	NO	Human Health	
InDA-TTSB-015	2 - 4	Copper	20.3	mg/kg		41000	NO	Human Health	
InDA-TTSB-015	2 - 4	HMX	0.23	mg/kg		51000	NO	Human Health	
InDA-TTSB-015	2 - 4	Iron	28400	mg/kg		100000	NO	Human Health	
InDA-TTSB-015	2 - 4	Lead	28.8	mg/kg		1000	NO	Human Health	
InDA-TTSB-015	2 - 4	Manganese	291	mg/kg		19000	NO	Human Health	
InDA-TTSB-015	2 - 4	Mercury	0.056	mg/kg		310	NO	Human Health	
InDA-TTSB-015	2 - 4	Nickel	21.6	mg/kg		20000	NO	Human Health	
InDA-TTSB-015	2 - 4	Nitrobenzene	0.23	mg/kg		100	NO	Human Health	
InDA-TTSB-015	2 - 4	RDX	0.23	mg/kg		1.3	NO	Human Health	
InDA-TTSB-015	2 - 4	Selenium	6.8	mg/kg		5100	NO	Human Health	
InDA-TTSB-015	2 - 4	Silver	0.076	mg/kg		5100	NO	Human Health	
InDA-TTSB-015	2 - 4	Tetryl	0.23	mg/kg		6200	NO	Human Health	
InDA-TTSB-015	2 - 4	Thallium	4.2	mg/kg		143	NO	Human Health	
InDA-TTSB-015	2 - 4	Vanadium	34.3	mg/kg		1000	NO	Human Health	
InDA-TTSB-015	2 - 4	Zinc	42.6	mg/kg		100000	NO	Human Health	
InDA-TTSB-016	0 - 1	1,3,5-Trinitrobenzene	0.25	mg/kg		102	NO	Human Health	
InDA-TTSB-016	0 - 1	1,3-Dinitrobenzene	0.25	mg/kg		62	NO	Human Health	
InDA-TTSB-016	0 - 1	2,4,6-Trinitrotoluene	0.25	mg/kg		47.6	NO	Human Health	
InDA-TTSB-016	0 - 1	2,4-Dinitrotoluene	0.25	mg/kg		8.7	NO	Human Health	
InDA-TTSB-016	0 - 1	2,6-Dinitrotoluene	0.25	mg/kg		620	NO	Human Health	
InDA-TTSB-016	0 - 1	2-Nitrotoluene	0.25	mg/kg		2.2	NO	Human Health	
InDA-TTSB-016	0 - 1	3-Nitrotoluene	0.25	mg/kg		1000	NO	Human Health	
InDA-TTSB-016	0 - 1	4-Nitrotoluene	0.25	mg/kg		30	NO	Human Health	
InDA-TTSB-016	0 - 1	Aluminum	12900	mg/kg		100000	NO	Human Health	
InDA-TTSB-016	0 - 1	Antimony	3.2	mg/kg		816	NO	Human Health	
InDA-TTSB-016	0 - 1	Arsenic	3.9	mg/kg		30	NO	Human Health	
InDA-TTSB-016	0 - 1	Barium	88.5	mg/kg		67000	NO	Human Health	
InDA-TTSB-016	0 - 1	Beryllium	0.71	mg/kg		5	NO	Human Health	
InDA-TTSB-016	0 - 1	Cadmium	0.036	mg/kg		1000	NO	Human Health	
InDA-TTSB-016	0 - 1	Chromium	17.5	mg/kg		10000	NO	Human Health	
InDA-TTSB-016	0 - 1	Cobalt	5.7	mg/kg		1900	NO	Human Health	
InDA-TTSB-016	0 - 1	Copper	43.3	mg/kg		41000	NO	Human Health	
InDA-TTSB-016	0 - 1	HMX	0.25	mg/kg		51000	NO	Human Health	
InDA-TTSB-016	0 - 1	Iron	17800	mg/kg		100000	NO	Human Health	
InDA-TTSB-016	0 - 1	Lead	390	mg/kg		1000	NO	Human Health	
InDA-TTSB-016	0 - 1	Manganese	194	mg/kg		19000	NO	Human Health	
InDA-TTSB-016	0 - 1	Mercury	7.8	mg/kg		310	NO	Human Health	
InDA-TTSB-016	0 - 1	Nickel	14.2	mg/kg		20000	NO	Human Health	
InDA-TTSB-016	0 - 1	Nitrobenzene	0.25	mg/kg		100	NO	Human Health	
InDA-TTSB-016	0 - 1	RDX	0.25	mg/kg		1.3	NO	Human Health	
InDA-TTSB-016	0 - 1	Selenium	4.4	mg/kg		5100	NO	Human Health	
InDA-TTSB-016	0 - 1	Silver	0.083	mg/kg		5100	NO	Human Health	

APPENDIX A
Incendiary Disposal Area MRS Soil Sampling Results
Iowa Army Ammunition Plant

Sample name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comment
InDA-TTSB-016	0 - 1	Tetryl	0.25	mg/kg		6200	NO	Human Health	
InDA-TTSB-016	0 - 1	Thallium	4.6	mg/kg		143	NO	Human Health	
InDA-TTSB-016	0 - 1	Vanadium	29.8	mg/kg		1000	NO	Human Health	
InDA-TTSB-016	0 - 1	Zinc	43	mg/kg		100000	NO	Human Health	
InDA-TTSB-016	1 - 2	1,3,5-Trinitrobenzene	0.26	mg/kg		102	NO	Human Health	
InDA-TTSB-016	1 - 2	1,3-Dinitrobenzene	0.26	mg/kg		62	NO	Human Health	
InDA-TTSB-016	1 - 2	2,4,6-Trinitrotoluene	0.26	mg/kg		47.6	NO	Human Health	
InDA-TTSB-016	1 - 2	2,4-Dinitrotoluene	0.26	mg/kg		8.7	NO	Human Health	
InDA-TTSB-016	1 - 2	2,6-Dinitrotoluene	0.26	mg/kg		620	NO	Human Health	
InDA-TTSB-016	1 - 2	2-Nitrotoluene	0.26	mg/kg		2.2	NO	Human Health	
InDA-TTSB-016	1 - 2	3-Nitrotoluene	0.26	mg/kg		1000	NO	Human Health	
InDA-TTSB-016	1 - 2	4-Nitrotoluene	0.26	mg/kg		30	NO	Human Health	
InDA-TTSB-016	1 - 2	Aluminum	5850	mg/kg		100000	NO	Human Health	
InDA-TTSB-016	1 - 2	Antimony	0.37	mg/kg		816	NO	Human Health	
InDA-TTSB-016	1 - 2	Arsenic	2.4	mg/kg		30	NO	Human Health	
InDA-TTSB-016	1 - 2	Barium	39.2	mg/kg		67000	NO	Human Health	
InDA-TTSB-016	1 - 2	Beryllium	0.35	mg/kg		5	NO	Human Health	
InDA-TTSB-016	1 - 2	Cadmium	0.032	mg/kg		1000	NO	Human Health	
InDA-TTSB-016	1 - 2	Chromium	9.6	mg/kg		10000	NO	Human Health	
InDA-TTSB-016	1 - 2	Cobalt	2.5	mg/kg		1900	NO	Human Health	
InDA-TTSB-016	1 - 2	Copper	11.5	mg/kg		41000	NO	Human Health	
InDA-TTSB-016	1 - 2	HMX	0.26	mg/kg		51000	NO	Human Health	
InDA-TTSB-016	1 - 2	Iron	10200	mg/kg		100000	NO	Human Health	
InDA-TTSB-016	1 - 2	Lead	12.3	mg/kg		1000	NO	Human Health	
InDA-TTSB-016	1 - 2	Manganese	60	mg/kg		19000	NO	Human Health	
InDA-TTSB-016	1 - 2	Mercury	2.3	mg/kg		310	NO	Human Health	
InDA-TTSB-016	1 - 2	Nickel	8.7	mg/kg		20000	NO	Human Health	
InDA-TTSB-016	1 - 2	Nitrobenzene	0.26	mg/kg		100	NO	Human Health	
InDA-TTSB-016	1 - 2	RDX	0.26	mg/kg		1.3	NO	Human Health	
InDA-TTSB-016	1 - 2	Selenium	2.9	mg/kg		5100	NO	Human Health	
InDA-TTSB-016	1 - 2	Silver	0.076	mg/kg		5100	NO	Human Health	
InDA-TTSB-016	1 - 2	Tetryl	0.26	mg/kg		6200	NO	Human Health	
InDA-TTSB-016	1 - 2	Thallium	4.2	mg/kg		143	NO	Human Health	
InDA-TTSB-016	1 - 2	Vanadium	16.8	mg/kg		1000	NO	Human Health	
InDA-TTSB-016	1 - 2	Zinc	15.9	mg/kg		100000	NO	Human Health	
InDA-TTSB-016	2 - 4	1,3,5-Trinitrobenzene	0.25	mg/kg		102	NO	Human Health	
InDA-TTSB-016	2 - 4	1,3-Dinitrobenzene	0.25	mg/kg		62	NO	Human Health	
InDA-TTSB-016	2 - 4	2,4,6-Trinitrotoluene	0.25	mg/kg		47.6	NO	Human Health	
InDA-TTSB-016	2 - 4	2,4-Dinitrotoluene	0.25	mg/kg		8.7	NO	Human Health	
InDA-TTSB-016	2 - 4	2,6-Dinitrotoluene	0.25	mg/kg		620	NO	Human Health	
InDA-TTSB-016	2 - 4	2-Nitrotoluene	0.25	mg/kg		2.2	NO	Human Health	
InDA-TTSB-016	2 - 4	3-Nitrotoluene	0.25	mg/kg		1000	NO	Human Health	
InDA-TTSB-016	2 - 4	4-Nitrotoluene	0.25	mg/kg		30	NO	Human Health	
InDA-TTSB-016	2 - 4	Aluminum	6040	mg/kg		100000	NO	Human Health	
InDA-TTSB-016	2 - 4	Antimony	0.3	mg/kg		816	NO	Human Health	
InDA-TTSB-016	2 - 4	Arsenic	2.2	mg/kg		30	NO	Human Health	
InDA-TTSB-016	2 - 4	Barium	30.7	mg/kg		67000	NO	Human Health	
InDA-TTSB-016	2 - 4	Beryllium	0.42	mg/kg		5	NO	Human Health	
InDA-TTSB-016	2 - 4	Cadmium	0.033	mg/kg		1000	NO	Human Health	
InDA-TTSB-016	2 - 4	Chromium	9.5	mg/kg		10000	NO	Human Health	
InDA-TTSB-016	2 - 4	Cobalt	2.7	mg/kg		1900	NO	Human Health	
InDA-TTSB-016	2 - 4	Copper	7.8	mg/kg		41000	NO	Human Health	
InDA-TTSB-016	2 - 4	HMX	0.25	mg/kg		51000	NO	Human Health	
InDA-TTSB-016	2 - 4	Iron	9160	mg/kg		100000	NO	Human Health	

APPENDIX A
Incendiary Disposal Area MRS Soil Sampling Results
Iowa Army Ammunition Plant

Sample name	Sample Depth (feet)	Analyte	Result	Unit	Qualifier	Remedial Goal	Concentration Above OU-1 Cleanup Level?	Criteria Source	Comment
InDA-TTSB-016	2 - 4	Lead	6.9	mg/kg		1000	NO	Human Health	
InDA-TTSB-016	2 - 4	Manganese	45.3	mg/kg		19000	NO	Human Health	
InDA-TTSB-016	2 - 4	Mercury	0.41	mg/kg		310	NO	Human Health	
InDA-TTSB-016	2 - 4	Nickel	8.3	mg/kg		20000	NO	Human Health	
InDA-TTSB-016	2 - 4	Nitrobenzene	0.25	mg/kg		100	NO	Human Health	
InDA-TTSB-016	2 - 4	RDX	0.25	mg/kg		1.3	NO	Human Health	
InDA-TTSB-016	2 - 4	Selenium	2.3	mg/kg		5100	NO	Human Health	
InDA-TTSB-016	2 - 4	Silver	0.078	mg/kg		5100	NO	Human Health	
InDA-TTSB-016	2 - 4	Tetryl	0.25	mg/kg		6200	NO	Human Health	
InDA-TTSB-016	2 - 4	Thallium	4.3	mg/kg		143	NO	Human Health	
InDA-TTSB-016	2 - 4	Vanadium	16.6	mg/kg		1000	NO	Human Health	
InDA-TTSB-016	2 - 4	Zinc	15.4	mg/kg		100000	NO	Human Health	

Appendix B

Draft MRSPP Ranking Summary and Worksheets

Table B-1: Summary of Draft MRSPPs, IAAAP

Site	Draft Module Priority Scores*			Draft Overall Priority*
	Draft Explosive Hazard valuation	Draft Chemical Hazard Evaluation	Draft Human Hazard Evaluation	
Central Test Area (IAAP-001-R-01)	5	No Known or Suspected CWM Hazard	No Known or Suspected MC Hazard	5
Line 6 Ammo Production (IAAP-002-R-01)	4	No Known or Suspected CWM Hazard	No Known or Suspected MC Hazard	4
West Burn Pads (IAAP-003-R-01)	7	No Known or Suspected CWM Hazard	No Known or Suspected MC Hazard	7
Possible Demolition Site MRS (IAAP-004-R-01)	5	No Known or Suspected CWM Hazard	No Known or Suspected MC Hazard	5
West Burn Pads Area South of the Road MRS (IAAP-005-R-01)	3	No Known or Suspected CWM Hazard	3	3
Maneuver Area MRS (IAAP-006-R-02)	6	No Known or Suspected CWM Hazard	Evaluation Pending	6
Incendiary Disposal Area MRS (IAAP-006-R-01)	3	No Known or Suspected CWM Hazard	No Known or Suspected MC Hazard	3

*The MRSPPs draft module priority scores and draft overall priorities presented herein are considered interim pending stakeholder input.

Central Test Area MRS

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond with **all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	◆ UXO that are considered most likely to function upon any interaction with exposed persons (e.g., submunitions, 40mm high-explosive [HE] grenades, white phosphorus [WP] munitions, high-explosive antitank [HEAT] munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions). ◆ Hand grenades containing energetic filler. ◆ Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard.	(30)
High explosive (used or damaged)	◆ UXO containing a high-explosive filler (e.g., RDX, Composition B), that are not considered "sensitive." ◆ DMM containing a high-explosive filler that have: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	25
Pyrotechnic (used or damaged)	◆ UXO containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades). ◆ DMM containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades) that have: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	20
High explosive (unused)	◆ DMM containing a high-explosive filler that: ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability.	15
Propellant	◆ UXO containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: ▪ Damaged by burning or detonation ▪ Deteriorated to the point of instability.	15
Bulk secondary high explosives, pyrotechnics, or propellant	◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ DMM that are bulk secondary high explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	10
Pyrotechnic (not used or damaged)	◆ DMM containing a pyrotechnic filler (i.e., red phosphorus), other than white phosphorus filler, that: ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability.	10
Practice	◆ UXO that are practice munitions that are not associated with a sensitive fuze. ◆ DMM that are practice munitions that are not associated with a sensitive fuze and that have not: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	5
Riot control	◆ UXO or DMM containing a riot control agent filler (e.g., tear gas).	3
Small arms	◆ Used munitions or DMM that are categorized as small arms ammunition. (Physical evidence or historical evidence that no other types of munitions [e.g., grenades, subcaliber training rockets, demolition charges] were used or are present on the MRS is required for selection of this category.)	2
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
MUNITIONS TYPE	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	30

DIRECTIONS: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.

Historical data indicates the Central Test Area was used for research and development from approximately 1943 through 1963 for the testing of hand grenades, landmines, and adapter boosters by test-fire, jumble and jolt tests, and detonation.

Table 2

EHE Module: Source of Hazard Data Element Table

DIRECTIONS: Below are 11 classifications describing sources of explosive hazards. Circle the scores that correspond with **all** the sources of explosive hazards known or suspected to be present at the MRS.

Note: The terms *former range, practice munitions, small arms range, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Former range	◆ The MRS is a former military range where munitions (including practice munitions with sensitive fuzes) have been used. Such areas include impact or target areas and associated buffer and safety zones.	(10)
Former munitions treatment (i.e., OB/OD) unit	◆ The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	8
Former practice munitions range	◆ The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	6
Former maneuver area	◆ The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	5
Former burial pit or other disposal area	◆ The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a water body) without prior thermal treatment.	5
Former industrial operating facilities	◆ The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	4
Former firing points	◆ The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of a former military range.	4
Former missile or air defense artillery emplacements	◆ The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	2
Former storage or transfer points	◆ The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	2
Former small arms range	◆ The MRS is a former military range where only small arms ammunition was used. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present to place an MRS into this category.)	1
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	0
SOURCE OF HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	10

DIRECTIONS: Document any MRS-specific data used in selecting the ***Source of Hazard*** classifications in the space provided.

The Central Test Area consisted of three areas (Building 600-84, Test Pit, and Tripod) used for munitions testing. Building 600-84 (interior) primarily tested fuzes, primers, and detonators. South of Building 600-84, was a walled in area for testing hand grenades. The Test Pit (earthen floor) was used to test-fire hand grenades, adapter boosters, and aerial mines. The tripod (concrete pad) was used to hold components for detonation.

Table 3

EHE Module: Location of Munitions Data Element Table

DIRECTIONS: Below are eight classifications of munitions locations and their descriptions. Circle the scores that correspond with **all** the locations where munitions are known or suspected to be present at the MRS.

Note: The terms *confirmed, surface, subsurface, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed surface	◆ Physical evidence indicates that there are UXO or DMM on the surface of the MRS. ◆ Historical evidence (i.e., a confirmed report such as an explosive ordnance disposal [EOD], police, or fire department report that an incident or accident that involved UXO or DMM occurred) indicates there are UXO or DMM on the surface of the MRS.	25
Confirmed subsurface, active	◆ Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. ◆ Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	20
Confirmed subsurface, stable	◆ Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed. ◆ Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed.	15
Suspected (physical evidence)	◆ There is physical evidence (e.g., munitions debris such as fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	(10)
Suspected (historical evidence)	◆ There is historical evidence indicating that UXO or DMM may be present at the MRS.	(5)
Subsurface, physical constraint	◆ There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	2
Small arms (regardless of location)	◆ The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present at the MRS to place an MRS into this category.)	1
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
LOCATION OF MUNITIONS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	10

DIRECTIONS: Document any MRS-specific data used in selecting the ***Location of Munitions*** classifications in the space provided.

A geophysical survey of 16 acres within the Central Test Area MRS was completed by MKM in 2005. A total of 2,835 anomalies were identified from EM data collected. Two areas of concentrated anomalies were identified. The concentrated anomalies are not located within close proximity to buildings or other surface features and were interpreted as buried anomalies.

During excavation activities in 2006, three areas exceeding OU-1 RGs were excavated. Fuze adaptor bodies (inert) were identified in the excavation that corresponded to the former location of the tripod. The concentrated anomalies previously identified by the MKM geophysical survey were not addressed during these excavations.

Table 4

EHE Module: Ease of Access Data Element Table

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS.

Note: The term *barrier* is defined in Appendix C of the Primer.

Classification	Description	Score
No barrier	◆ There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible).	10
Barrier to MRS access is incomplete	◆ There is a barrier preventing access to parts of the MRS, but not the entire MRS.	8
Barrier to MRS access is complete but not monitored	◆ There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS.	5
Barrier to MRS access is complete and monitored	◆ There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS.	(0)
EASE OF ACCESS	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 10).	0

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ease of Access*** classification in the space provided.

<u>The Central Test Area is located within the boundaries of the Iowa Army Ammunition Plant. Barriers to the Central Test Area includes the Line 5 fence and American Ordnance security patrols. The Line 5 fence includes a gate that is locked. American Ordnance security patrols are conducted of the installation proper on a regular basis.</u>

Table 5

EHE Module: Status of Property Data Element Table

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD control	◆ The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by DoD. Examples are privately owned land or water bodies; land or water bodies owned or controlled by state, tribal, or local governments; and land or water bodies managed by other federal agencies. ◆ The MRS is at a location that is owned by DoD, but that DoD has leased to another entity and for which DoD does not control access 24 hours per day.	5
Scheduled for transfer from DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD, and DoD plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government; a private party; another federal agency) within 3 years from the date the Protocol is applied.	3
DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD. With respect to property that is leased or otherwise possessed, DoD must control access to the MRS 24 hours per day, every day of the calendar year.	(0)
STATUS OF PROPERTY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	0

DIRECTIONS: Document any MRS-specific data used in selecting the ***Status of Property*** classification in the space provided.

Iowa Army Ammunition Plant is an active DOD facility.

Table 6

EHE Module: Population Density Data Element Table

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score.

Note: Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 persons per square mile	◆ There are more than 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	5
100–500 persons per square mile	◆ There are 100 to 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	3
< 100 persons per square mile	◆ There are fewer than 100 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	(1)
POPULATION DENSITY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	1

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Density*** classification in the space provided.

Based on the United States Census Bureau, the population density for Middletown, Iowa in 2000 was 36 persons per square mile. The population density for Des Moines County, Iowa in 2005 was 98 persons per square mile.

Table 7

EHE Module: Population Near Hazard Data Element Table

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term *inhabited structures* is defined in Appendix C of the Primer.

Classification	Description	Score
26 or more inhabited structures	◆ There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	(5)
16 to 25 inhabited structures	◆ There are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	4
11 to 15 inhabited structures	◆ There are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	3
6 to 10 inhabited structures	◆ There are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	2
1 to 5 inhabited structures	◆ There are 1 to 5 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	1
0 inhabited structures	◆ There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	0
POPULATION NEAR HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	5

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classification in the space provided.

Based on GIS data obtained from the Des Moines County Assessor, there are more than 26 inhabited structures within 2 miles from the MRS boundary (www.dmcgis.com).

Table 8

EHE Module: Types of Activities/Structures Data Element Table

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with **all** the activities/structure classifications at the MRS.

Note: The term *inhabited structure* is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, educational, commercial, or subsistence	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets (e.g., hospitals, fire and rescue, police stations, dams), hotels, commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing, and gathering.	(5)
Parks and recreational areas	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	4
Agricultural, forestry	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture or forestry.	3
Industrial or warehousing	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	2
No known or recurring activities	◆ There are no known or recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary.	1
TYPES OF ACTIVITIES/STRUCTURES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	5

DIRECTIONS: Document any MRS-specific data used in selecting the ***Types of Activities/Structures*** classifications in the space provided.

IAAAP, Middletown, Iowa, Middletown Presbyterian Church, various commercial businesses, and residential Structures are present within 2 miles from the MRS boundary.

Table 9

EHE Module: Ecological and/or Cultural Resources Data Element Table

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms *ecological resources* and *cultural resources* are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and cultural resources present	◆ There are both ecological and cultural resources present on the MRS.	5
Ecological resources present	◆ There are ecological resources present on the MRS.	3
Cultural resources present	◆ There are cultural resources present on the MRS.	3
No ecological or cultural resources present	◆ There are no ecological resources or cultural resources present on the MRS.	(0)
ECOLOGICAL AND/OR CULTURAL RESOURCES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	0

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ecological and/or Cultural Resources*** classification in the space provided.

Based on the Integrated Natural Resources Management Plan (HES 2001) and the Integrated Cultural Resources Management Plan (Earth Tech 2002), no ecological or cultural resources are present on the MRS.

Table 10
Determining the EHE Module Rating

DIRECTIONS:

1. From Tables 1–9, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.
4. Circle the appropriate range for the **EHE Module Total** below.
5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
Explosive Hazard Factor Data Elements			
Munitions Type	Table 1	30	40
Source of Hazard	Table 2	10	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	10	10
Ease of Access	Table 4	0	
Status of Property	Table 5	0	
Receptor Factor Data Elements			
Population Density	Table 6	1	11
Population Near Hazard	Table 7	5	
Types of Activities/Structures	Table 8	5	
Ecological and/or Cultural Resources	Table 9	0	
EHE MODULE DRAFT TOTAL			61

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	(D)
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE MODULE DRAFT RATING	D

Table 11

CHE Module: CWM Configuration Data Element Table

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with **all** the CWM configurations known or suspected to be present at the MRS.

Note: The terms *CWM/UXO, CWM/DMM, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, that are either UXO, or explosively configured damaged DMM	The CWM known or suspected of being present at the MRS are: ◆ CWM that are UXO (i.e., CWM/UXO) ◆ Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	30
CWM mixed with UXO	◆ The CWM known or suspected of being present at the MRS are undamaged CWM/DMM or CWM not configured as a munition that are commingled with conventional munitions that are UXO.	25
CWM, explosive configuration that are undamaged DMM	◆ The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM that have not been damaged.	20
CWM/DMM, not explosively configured or CWM, bulk container	The CWM known or suspected of being present at the MRS are: ◆ Nonexplosively configured CWM/DMM either damaged or undamaged ◆ Bulk CWM (e.g., ton container).	15
CAIS K941 and CAIS K942	◆ The CWM/DMM known or suspected of being present at the MRS are CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	12
CAIS (chemical agent identification sets)	◆ CAIS, other than CAIS K941 and K942, are known or suspected of being present at the MRS.	10
Evidence of no CWM	◆ Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	0
CWM CONFIGURATION	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space provided.

No Known or Suspected CWM.

Table 12

CHE Module: Sources of CWM Data Element Table

DIRECTIONS: Below are 11 sources of CWM hazards and their descriptions. Review these classifications and circle the scores that correspond with **all** the sources of CWM hazards known or suspected to be present at the MRS.

Note: The terms *CWM/UXO, CWM/DMM, CAIS/DMM, surface, subsurface, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Live-fire involving CWM	◆ The MRS is a former military range that supported live-fire of explosively configured CWM and the CWM/UXO are known or suspected of being present on the surface or in the subsurface. ◆ The MRS is a former military range that supported live-fire with conventional munitions, and CWM/DMM are on the surface or in the subsurface commingled with conventional munitions that are UXO.	10
Damaged CWM/DMM surface or subsurface	◆ There are damaged CWM/DMM on the surface or in the subsurface at the MRS.	10
Undamaged CWM/DMM surface	◆ There are undamaged CWM/DMM on the surface at the MRS.	10
CAIS/DMM surface	◆ There are CAIS/DMM on the surface.	10
Undamaged CWM/DMM, subsurface	◆ There are undamaged CWM/DMM in the subsurface at the MRS.	5
CAIS/DMM subsurface	◆ There are CAIS/DMM in the subsurface at the MRS.	5
Former CA or CWM Production Facilities	◆ The MRS is a facility that formerly engaged in production of CA or CWM, and CWM/DMM is suspected of being present on the surface or in the subsurface.	3
Former Research, Development, Testing, and Evaluation (RDT&E) facility using CWM	◆ The MRS is at a facility that formerly was involved in non-live-fire RDT&E activities (including static testing) involving CWM, and there are CWM/DMM suspected of being present on the surface or in the subsurface.	3
Former Training Facility using CWM or CAIS	◆ The MRS is a location that formerly was involved in training activities involving CWM and/or CAIS (e.g., training in recognition of CWM, decontamination training) and CWM/DMM or CAIS/DMM are suspected of being present on the surface or in the subsurface.	2
Former Storage or Transfer points of CWM	◆ The MRS is a former storage facility or transfer point (e.g., intermodal transfer) for CWM.	1
Evidence of no CWM	◆ Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	0
SOURCES OF CWM	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Sources of CWM*** classifications in the space provided.

No Known or Suspected CWM.

Table 13

CHE Module: Location of CWM Data Element Table

DIRECTIONS: Below are seven classifications of CWM locations and their descriptions. Review these locations and circle the scores that correspond with **all** the locations where CWM are known or suspected of being found at the MRS.

Note: The terms *confirmed, surface, subsurface, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed surface	◆ Physical evidence indicates that there are CWM on the surface of the MRS. ◆ Historical evidence (i.e., a confirmed report such as an explosive ordnance disposal [EOD], police, or fire department report, that an incident or accident that involved CWM, regardless of configuration, occurred) indicates there are CWM on the surface of the MRS.	25
Confirmed subsurface, active	◆ Physical evidence indicates the presence of CWM in the subsurface of the MRS and the geological conditions at the MRS are likely to cause CWM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose CWM. ◆ Historical evidence indicates that CWM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause CWM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose CWM.	20
Confirmed subsurface, stable	◆ Physical evidence indicates the presence of CWM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause CWM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause CWM to be exposed. ◆ Historical evidence indicates that CWM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause CWM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause CWM to be exposed.	15
Suspected (physical evidence)	◆ There is physical evidence, other than the documented presence of CWM, indicating that CWM may be present at the MRS.	10
Suspected (historical evidence)	◆ There is historical evidence indicating that CWM may be present at the MRS.	5
Subsurface, physical constraint	◆ There is physical or historical evidence indicating that CWM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the CWM.	2
Evidence of no CWM	◆ Following investigation of the MRS, there is physical evidence that there is no CWM present or there is historical evidence indicating that no CWM are present.	0
LOCATION OF CWM	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Location of CWM*** classifications in the space provided.

No Known or Suspected CWM.

Table 14
CHE Module: Ease of Access Data Element Table

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS.

Note: The term *barrier* is defined in Appendix C of the Primer.

Classification	Description	Score
No barrier	◆ There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible).	10
Barrier to MRS access is incomplete	◆ There is a barrier preventing access to parts of the MRS, but not the entire MRS.	8
Barrier to MRS access is complete but not monitored	◆ There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS.	5
Barrier to MRS access is complete and monitored	◆ There is a barrier preventing access to all parts of the MRS, and there is active continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS.	0
EASE OF ACCESS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ease of Access*** classification in the space provided.

No Known or Suspected CWM.

Table 15

CHE Module: Status of Property Data Element Table

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD control	◆ The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by DoD. Examples are privately owned land or water bodies; land or water bodies owned or controlled by state, tribal or local governments; and land or water bodies managed by other federal agencies. ◆ The MRS is at a location that is owned by DoD, but that DoD has leased to another entity and for which DoD does not control access 24 hours per day.	5
Scheduled for transfer from DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD, and DoD plans to transfer that land or water body to control of another entity (e.g., a state, tribal, or local government; a private party; another federal agency) within 3 years from the date the Protocol is applied.	3
DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD. With respect to property that is leased or otherwise possessed, DoD controls access to the MRS 24 hours per day, every day of the calendar year.	0
STATUS OF PROPERTY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Status of Property*** classification in the space provided.

No Known or Suspected CWM.

Table 16

CHE Module: Population Density Data Element Table

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score.

Note: Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 persons per square mile	◆ There are more than 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	5
100–500 persons per square mile	◆ There are 100 to 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	3
< 100 persons per square mile	◆ There are fewer than 100 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	1
POPULATION DENSITY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Density*** classification in the space provided.

No Known or Suspected CWM.

Table 17

CHE Module: Population Near Hazard Data Element Table

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term *inhabited structures* is defined in Appendix C of the Primer.

Classification	Description	Score
26 or more inhabited structures	◆ There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	5
16 to 25 inhabited structures	◆ There are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	4
11 to 15 inhabited structures	◆ There are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	3
6 to 10 inhabited structures	◆ There are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	2
1 to 5 inhabited structures	◆ There are 1 to 5 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	1
0 inhabited structures	◆ There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	0
POPULATION NEAR HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classification in the space provided.

No Known or Suspected CWM.

Table 18

CHE Module: Types of Activities/Structures Data Element Table

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with **all** the activities/structures classifications at the MRS.

Note: The term *inhabited structures* is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, educational, commercial, or subsistence	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets (e.g., hospitals, fire and rescue, police stations, dams), hotels, commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing, and gathering.	5
Parks and recreational areas	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	4
Agricultural, forestry	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture or forestry.	3
Industrial or warehousing	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	2
No known or recurring activities	◆ There are no known of recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary.	1
TYPES OF ACTIVITIES/STRUCTURES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Types of Activities/Structures*** classifications in the space provided.

No Known or Suspected CWM.

Table 19

CHE Module: Ecological and/or Cultural Resources Data Element Table

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms *ecological resources* and *cultural resources* are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and cultural resources present	◆ There are both ecological and cultural resources present on the MRS.	5
Ecological resources present	◆ There are ecological resources present on the MRS.	3
Cultural resources present	◆ There are cultural resources present on the MRS.	3
No ecological or cultural resources present	◆ There are no ecological resources or cultural resources present on the MRS.	0
ECOLOGICAL AND/OR CULTURAL RESOURCES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ecological and/or Cultural Resources*** classification in the space provided.

No Known or Suspected CWM.

Table 20
Determining the CHE Module Rating

DIRECTIONS:

1. From Tables 11–19, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **CHE Module Total** box below.
4. Circle the appropriate range for the **CHE Module Total** below.
5. Circle the **CHE Module Rating** that corresponds to the range selected and record this value in the **CHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
CWM Hazard Factor Data Elements			
CWM Configuration	Table 11		
Sources of CWM	Table 12		
Accessibility Factor Data Elements			
Location of CWM	Table 13		
Ease of Access	Table 14		
Status of Property	Table 15		
Receptor Factor Data Elements			
Population Density	Table 16		
Population Near Hazard	Table 17		
Types of Activities/Structures	Table 18		
Ecological and/or Cultural Resources	Table 19		
CHE MODULE DRAFT TOTAL			

CHE Module Total	CHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected CWM Hazard

CHE MODULE DRAFT RATING	No Known or Suspected CWM

Table 21

HHE Module: Groundwater Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Sum The Ratios**	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Groundwater MC Hazard ☒

Table 22

HHE Module: Surface Water – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios

CHF Scale	CHF Value	Sum The Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Water (Human Endpoint) MC Hazard ☒

Table 23

HHE Module: Sediment – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the sediment, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Sum The Ratios**	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Sediment (Human Endpoint) MC Hazard ☒

Table 24

HHE Module: Surface Water – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Sum the Ratios**	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Water (Ecological Endpoint) MC Hazard ☒

Table 25

HHE Module: Sediment – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the sediment, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Sum the Ratios**	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Sediment (Ecological Endpoint) MC Hazard ☒

Table 26

HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface soil and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface soil contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the surface soil, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratio

CHF Scale	CHF Value	Sum the Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface soil to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Soil MC Hazard ☒

Table 27

HHE Module: Supplemental Contaminant Hazard Factor Table

<u>**Contaminant Hazard Factor (CHF)**</u>

DIRECTIONS: Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the **media** in which these contaminants are present. Then record all **contaminants**, their **maximum concentrations** and their **comparison values** (from Appendix B of the Primer) in the table below. Calculate and record the **ratio** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

Table 28
Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the **Contaminant Hazard**, **Migration Pathway**, and **Receptor Factors** for the media (from Tables 21–26) in the corresponding boxes below.
2. Record the media's three-letter combinations in the **Three-Letter Combination** boxes below (three-letter combinations are arranged from Hs to Ms to Ls).
3. Using the **HHE Ratings** provided below, determine each media's rating (A–G) and record the letter in the corresponding **Media Rating** box below.

Media (Source)	Contaminant Hazard Factor Value	Migratory Pathway Factor Value	Receptor Factor Value		Three-Letter Combination (Hs-Ms-Ls)		Media Rating (A-G)
Groundwater (Table 21)							
Surface Water/Human Endpoint (Table 22)							
Sediment/Human Endpoint (Table 23)							
Surface Water/Ecological Endpoint (Table 24)							
Sediment/Ecological Endpoint (Table 25)							
Surface Soil (Table 26)							

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the **HHE Module Rating** box.

Note:

An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE MODULE DRAFT RATING	

HHE Ratings (for reference only)

Combination	Rating
HHH	A
HHM	B
HHL	C
HMM	C
HML	D
MMM	D
HLL	E
MML	E
MLL	F
LLL	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

Table 29
MRS Draft Priority

DIRECTIONS: In the chart below, circle the letter **rating** for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical **priority** for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the **MRS Priority or Alternative MRS Rating** at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Draft Rating	Draft Priority	CHE Draft Rating	Draft Priority	HHE Draft Rating	Draft Priority
		A	1		
A	2	B	2	A	2
B	3	C	3	B	3
C	4	D	4	C	4
D	5	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	7
G	8			G	8
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		No Longer Required	
No Known or Suspected Explosive Hazard		No Known or Suspected CWM Hazard		No Known or Suspected MC Hazard	
MRS DRAFT PRIORITY or ALTERNATIVE MRS DRAFT RATING				5	

Table A
MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the **MRS Summary**, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental nonmunitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: Central Test Area MRS (IAAAP-001-R-01)

Component: United States Army

Installation/Property Name: Iowa Army Ammunition Plant

Location (City, County, State): Middletown, Des Moines County, Iowa

Site Name/Project Name (Project No.): Central Test Area MRS/IAAAP MMRP SI

Date Information Entered/Updated: April 27, 2007

Point of Contact (Name/Phone): Steve Bellrichard/319-753-7150

Project Phase (check only one):

❑ PA	☒ SI	❑ RI	❑ FS	❑ RD
❑ RA-C	❑ RIP	❑ RA-O	❑ RC	❑ LTM

Media Evaluated (check all that apply):

❑ Groundwater	❑ Sediment (human receptor)
❑ Surface soil	❑ Surface Water (ecological receptor)
❑ Sediment (ecological receptor)	❑ Surface Water (human receptor)

MRS Summary:

MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM, or MC known or suspected to be present. When possible, identify munitions, CWM, and MC by type:
The Central Test Area consisted of three areas (Building 600-84, Test Pit, and Tripod) used for munitions testing. Building 600-84 (interior) primarily tested fuzes, primers, and detonators. South of Building 600-84, was a walled in area for testing hand grenades. The Test Pit (earthen floor) was used to test-fire hand grenades, adapter boosters, and aerial mines. The tripod (concrete pad) was used to hold components for detonation.

Description of Pathways for Human and Ecological Receptors:
MEC: handle/tread underfoot and intrusive activities.
MC: Incomplete Pathway. The nature and extent of MC contamination was delineated by the IRP, and a removal action was completed in December 2006.
Description of Receptors (Human and Ecological):
MEC: IAAAP personnel, contractors, visitors, construction workers, and biota

Line 6 Ammo Production MRS

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond with **all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	◆ UXO that are considered most likely to function upon any interaction with exposed persons (e.g., submunitions, 40mm high-explosive [HE] grenades, white phosphorus [WP] munitions, high-explosive antitank [HEAT] munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions). ◆ Hand grenades containing energetic filler. ◆ Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard.	(30)
High explosive (used or damaged)	◆ UXO containing a high-explosive filler (e.g., RDX, Composition B), that are not considered "sensitive." ◆ DMM containing a high-explosive filler that have: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	25
Pyrotechnic (used or damaged)	◆ UXO containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades). ◆ DMM containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades) that have: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	20
High explosive (unused)	◆ DMM containing a high-explosive filler that: ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability.	15
Propellant	◆ UXO containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: ▪ Damaged by burning or detonation ▪ Deteriorated to the point of instability.	15
Bulk secondary high explosives, pyrotechnics, or propellant	◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ DMM that are bulk secondary high explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	10
Pyrotechnic (not used or damaged)	◆ DMM containing a pyrotechnic filler (i.e., red phosphorus), other than white phosphorus filler, that: ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability.	10
Practice	◆ UXO that are practice munitions that are not associated with a sensitive fuze. ◆ DMM that are practice munitions that are not associated with a sensitive fuze and that have not: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	5
Riot control	◆ UXO or DMM containing a riot control agent filler (e.g., tear gas).	3
Small arms	◆ Used munitions or DMM that are categorized as small arms ammunition. (Physical evidence or historical evidence that no other types of munitions [e.g., grenades, subcaliber training rockets, demolition charges] were used or are present on the MRS is required for selection of this category.)	2
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
MUNITIONS TYPE	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	30

DIRECTIONS: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.

Explosions occurred at Buildings 6-34-2 (1968) and 6-92 (1970). During cleanup for Building 6-34-2, 590 of 334,949 detonators were recovered up to 25 feet from the building. During the cleanup for Building 6-92, explosives items including detonators, grenade fuzes, and fuze adaptor bodies and base charge assemblies were recovered 324 feet from the building. Additional explosives items were also stored in each building, but were not recovered.

Table 2

EHE Module: Source of Hazard Data Element Table

DIRECTIONS: Below are 11 classifications describing sources of explosive hazards. Circle the scores that correspond with **all** the sources of explosive hazards known or suspected to be present at the MRS.

Note: The terms *former range, practice munitions, small arms range, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Former range	◆ The MRS is a former military range where munitions (including practice munitions with sensitive fuzes) have been used. Such areas include impact or target areas and associated buffer and safety zones.	10
Former munitions treatment (i.e., OB/OD) unit	◆ The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	8
Former practice munitions range	◆ The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	6
Former maneuver area	◆ The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	5
Former burial pit or other disposal area	◆ The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a water body) without prior thermal treatment.	5
Former industrial operating facilities	◆ The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	(4)
Former firing points	◆ The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of a former military range.	4
Former missile or air defense artillery emplacements	◆ The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	2
Former storage or transfer points	◆ The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	2
Former small arms range	◆ The MRS is a former military range where only small arms ammunition was used. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present to place an MRS into this category.)	1
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	0
SOURCE OF HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	4

DIRECTIONS: Document any MRS-specific data used in selecting the ***Source of Hazard*** classifications in the space provided.

Building 6-34-2 was used to load detonators. The northern end of the building was used to assemble detonators and the southern end was used for loading black powder into a component known as candlestick.

Building 6-92 was used to clean explosives residue from the newly completed components, such as detonators and relays. Components were mixed with hot sawdust and placed into a rumble machine. The sawdust was removed by vibration. The components were then placed in boxes and sent to the inspection and shipping building.

Table 3

EHE Module: Location of Munitions Data Element Table

DIRECTIONS: Below are eight classifications of munitions locations and their descriptions. Circle the scores that correspond with **all** the locations where munitions are known or suspected to be present at the MRS.

Note: The terms *confirmed, surface, subsurface, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed surface	◆ Physical evidence indicates that there are UXO or DMM on the surface of the MRS. ◆ Historical evidence (i.e., a confirmed report such as an explosive ordnance disposal [EOD], police, or fire department report that an incident or accident that involved UXO or DMM occurred) indicates there are UXO or DMM on the surface of the MRS.	(25)
Confirmed subsurface, active	◆ Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. ◆ Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	20
Confirmed subsurface, stable	◆ Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed. ◆ Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed.	15
Suspected (physical evidence)	◆ There is physical evidence (e.g., munitions debris such as fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	(10)
Suspected (historical evidence)	◆ There is historical evidence indicating that UXO or DMM may be present at the MRS.	(5)
Subsurface, physical constraint	◆ There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	2
Small arms (regardless of location)	◆ The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present at the MRS to place an MRS into this category.)	1
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
LOCATION OF MUNITIONS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	25

DIRECTIONS: Document any MRS-specific data used in selecting the ***Location of Munitions*** classifications in the space provided.

During cleanup for Building 6-34-2, 590 of 334,949 detonators were recovered up to 25 feet from the building. During the cleanup for Building 6-92, explosives items including detonators, grenade fuzes, and fuze adaptor bodies and base charge assemblies were recovered 324 feet from the building. Additional explosives items were also stored in each building, but were not recovered.

A geophysical survey of 32 acres within the Line 6 Ammo Production MRS was completed by MKM in 2005 and identified 8,630 anomalies near buildings and other surface features.

Table 4

EHE Module: Ease of Access Data Element Table

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS.

Note: The term *barrier* is defined in Appendix C of the Primer.

Classification	Description	Score
No barrier	◆ There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible).	10
Barrier to MRS access is incomplete	◆ There is a barrier preventing access to parts of the MRS, but not the entire MRS.	8
Barrier to MRS access is complete but not monitored	◆ There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS.	(5)
Barrier to MRS access is complete and monitored	◆ There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS.	0
EASE OF ACCESS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	5

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ease of Access*** classification in the space provided.

The Line 6 Ammo Production MRS is located within the boundaries of the Iowa Army Ammunition Plant. Site-specific barriers to the Line 6 Ammo Production MRS include fencing around Line 6 with a gate entrance on the west. The gate is not locked and not manned by American Ordnance security personnel. American Ordnance security patrols are conducted of the installation proper on a regular basis.

Table 5

EHE Module: Status of Property Data Element Table

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD control	◆ The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by DoD. Examples are privately owned land or water bodies; land or water bodies owned or controlled by state, tribal, or local governments; and land or water bodies managed by other federal agencies. ◆ The MRS is at a location that is owned by DoD, but that DoD has leased to another entity and for which DoD does not control access 24 hours per day.	5
Scheduled for transfer from DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD, and DoD plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government; a private party; another federal agency) within 3 years from the date the Protocol is applied.	3
DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD. With respect to property that is leased or otherwise possessed, DoD must control access to the MRS 24 hours per day, every day of the calendar year.	(0)
STATUS OF PROPERTY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	0

DIRECTIONS: Document any MRS-specific data used in selecting the ***Status of Property*** classification in the space provided.

Iowa Army Ammunition Plant is an active DOD facility.

Table 6

EHE Module: Population Density Data Element Table

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score.

Note: Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 persons per square mile	◆ There are more than 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	5
100–500 persons per square mile	◆ There are 100 to 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	3
< 100 persons per square mile	◆ There are fewer than 100 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	(1)
POPULATION DENSITY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	1

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Density*** classification in the space provided.

Based on the United States Census Bureau, the population density for Middletown, Iowa in 2000 was 36 persons per square mile. The population density for Des Moines County, Iowa in 2005 was 98 persons per square mile.

Table 7

EHE Module: Population Near Hazard Data Element Table

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term *inhabited structures* is defined in Appendix C of the Primer.

Classification	Description	Score
26 or more inhabited structures	◆ There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	(5)
16 to 25 inhabited structures	◆ There are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	4
11 to 15 inhabited structures	◆ There are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	3
6 to 10 inhabited structures	◆ There are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	2
1 to 5 inhabited structures	◆ There are 1 to 5 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	1
0 inhabited structures	◆ There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	0
POPULATION NEAR HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	5

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classification in the space provided.

Based on GIS data obtained from the Des Moines County Assessor, there are more than 26 inhabited structures within 2 miles from the MRS boundary (www.dmcgis.com).

Table 8

EHE Module: Types of Activities/Structures Data Element Table

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with **all** the activities/structure classifications at the MRS.

Note: The term *inhabited structure* is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, educational, commercial, or subsistence	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets (e.g., hospitals, fire and rescue, police stations, dams), hotels, commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing, and gathering.	(5)
Parks and recreational areas	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	4
Agricultural, forestry	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture or forestry.	3
Industrial or warehousing	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	2
No known or recurring activities	◆ There are no known or recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary.	1
TYPES OF ACTIVITIES/STRUCTURES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	5

DIRECTIONS: Document any MRS-specific data used in selecting the ***Types of Activities/Structures*** classifications in the space provided.

IAAAP, Middletown, Iowa, Middletown Presbyterian Church, various commercial businesses, and residential Structures are present within 2 miles from the MRS boundary.

Table 9

EHE Module: Ecological and/or Cultural Resources Data Element Table

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms *ecological resources* and *cultural resources* are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and cultural resources present	◆ There are both ecological and cultural resources present on the MRS.	5
Ecological resources present	◆ There are ecological resources present on the MRS.	3
Cultural resources present	◆ There are cultural resources present on the MRS.	3
No ecological or cultural resources present	◆ There are no ecological resources or cultural resources present on the MRS.	(0)
ECOLOGICAL AND/OR CULTURAL RESOURCES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	0

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ecological and/or Cultural Resources*** classification in the space provided.

Based on the Integrated Natural Resources Management Plan (HES 2001) and the Integrated Cultural Resources Management Plan (Earth Tech 2002, no ecological or cultural resources are present on the MRS.

Table 10
Determining the EHE Module Rating

DIRECTIONS:

1. From Tables 1–9, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.
4. Circle the appropriate range for the **EHE Module Total** below.
5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
Explosive Hazard Factor Data Elements			
Munitions Type	Table 1	30	34
Source of Hazard	Table 2	4	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	25	30
Ease of Access	Table 4	5	
Status of Property	Table 5	0	
Receptor Factor Data Elements			
Population Density	Table 6	1	11
Population Near Hazard	Table 7	5	
Types of Activities/Structures	Table 8	5	
Ecological and/or Cultural Resources	Table 9	0	
EHE MODULE DRAFT TOTAL			75

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C (circled)
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE MODULE DRAFT RATING	C

Table 11

CHE Module: CWM Configuration Data Element Table

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with **all** the CWM configurations known or suspected to be present at the MRS.

Note: The terms *CWM/UXO, CWM/DMM, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, that are either UXO, or explosively configured damaged DMM	The CWM known or suspected of being present at the MRS are: ◆ CWM that are UXO (i.e., CWM/UXO) ◆ Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	30
CWM mixed with UXO	◆ The CWM known or suspected of being present at the MRS are undamaged CWM/DMM or CWM not configured as a munition that are commingled with conventional munitions that are UXO.	25
CWM, explosive configuration that are undamaged DMM	◆ The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM that have not been damaged.	20
CWM/DMM, not explosively configured or CWM, bulk container	The CWM known or suspected of being present at the MRS are: ◆ Nonexplosively configured CWM/DMM either damaged or undamaged ◆ Bulk CWM (e.g., ton container).	15
CAIS K941 and CAIS K942	◆ The CWM/DMM known or suspected of being present at the MRS are CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	12
CAIS (chemical agent identification sets)	◆ CAIS, other than CAIS K941 and K942, are known or suspected of being present at the MRS.	10
Evidence of no CWM	◆ Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	0
CWM CONFIGURATION	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space provided.

No Known or Suspected CWM.

Table 12

CHE Module: Sources of CWM Data Element Table

DIRECTIONS: Below are 11 sources of CWM hazards and their descriptions. Review these classifications and circle the scores that correspond with **all** the sources of CWM hazards known or suspected to be present at the MRS.

Note: The terms *CWM/UXO, CWM/DMM, CAIS/DMM, surface, subsurface, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Live-fire involving CWM	◆ The MRS is a former military range that supported live-fire of explosively configured CWM and the CWM/UXO are known or suspected of being present on the surface or in the subsurface. ◆ The MRS is a former military range that supported live-fire with conventional munitions, and CWM/DMM are on the surface or in the subsurface commingled with conventional munitions that are UXO.	10
Damaged CWM/DMM surface or subsurface	◆ There are damaged CWM/DMM on the surface or in the subsurface at the MRS.	10
Undamaged CWM/DMM surface	◆ There are undamaged CWM/DMM on the surface at the MRS.	10
CAIS/DMM surface	◆ There are CAIS/DMM on the surface.	10
Undamaged CWM/DMM, subsurface	◆ There are undamaged CWM/DMM in the subsurface at the MRS.	5
CAIS/DMM subsurface	◆ There are CAIS/DMM in the subsurface at the MRS.	5
Former CA or CWM Production Facilities	◆ The MRS is a facility that formerly engaged in production of CA or CWM, and CWM/DMM is suspected of being present on the surface or in the subsurface.	3
Former Research, Development, Testing, and Evaluation (RDT&E) facility using CWM	◆ The MRS is at a facility that formerly was involved in non-live-fire RDT&E activities (including static testing) involving CWM, and there are CWM/DMM suspected of being present on the surface or in the subsurface.	3
Former Training Facility using CWM or CAIS	◆ The MRS is a location that formerly was involved in training activities involving CWM and/or CAIS (e.g., training in recognition of CWM, decontamination training) and CWM/DMM or CAIS/DMM are suspected of being present on the surface or in the subsurface.	2
Former Storage or Transfer points of CWM	◆ The MRS is a former storage facility or transfer point (e.g., intermodal transfer) for CWM.	1
Evidence of no CWM	◆ Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	0
SOURCES OF CWM	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Sources of CWM*** classifications in the space provided.

No Known or Suspected CWM.

Table 13

CHE Module: Location of CWM Data Element Table

DIRECTIONS: Below are seven classifications of CWM locations and their descriptions. Review these locations and circle the scores that correspond with **all** the locations where CWM are known or suspected of being found at the MRS.

Note: The terms *confirmed, surface, subsurface, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed surface	◆ Physical evidence indicates that there are CWM on the surface of the MRS. ◆ Historical evidence (i.e., a confirmed report such as an explosive ordnance disposal [EOD], police, or fire department report, that an incident or accident that involved CWM, regardless of configuration, occurred) indicates there are CWM on the surface of the MRS.	25
Confirmed subsurface, active	◆ Physical evidence indicates the presence of CWM in the subsurface of the MRS and the geological conditions at the MRS are likely to cause CWM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose CWM. ◆ Historical evidence indicates that CWM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause CWM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose CWM.	20
Confirmed subsurface, stable	◆ Physical evidence indicates the presence of CWM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause CWM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause CWM to be exposed. ◆ Historical evidence indicates that CWM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause CWM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause CWM to be exposed.	15
Suspected (physical evidence)	◆ There is physical evidence, other than the documented presence of CWM, indicating that CWM may be present at the MRS.	10
Suspected (historical evidence)	◆ There is historical evidence indicating that CWM may be present at the MRS.	5
Subsurface, physical constraint	◆ There is physical or historical evidence indicating that CWM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the CWM.	2
Evidence of no CWM	◆ Following investigation of the MRS, there is physical evidence that there is no CWM present or there is historical evidence indicating that no CWM are present.	0
LOCATION OF CWM	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Location of CWM*** classifications in the space provided.

No Known or Suspected CWM.

Table 14
CHE Module: Ease of Access Data Element Table

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS.

Note: The term *barrier* is defined in Appendix C of the Primer.

Classification	Description	Score
No barrier	◆ There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible).	10
Barrier to MRS access is incomplete	◆ There is a barrier preventing access to parts of the MRS, but not the entire MRS.	8
Barrier to MRS access is complete but not monitored	◆ There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS.	5
Barrier to MRS access is complete and monitored	◆ There is a barrier preventing access to all parts of the MRS, and there is active continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS.	0
EASE OF ACCESS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ease of Access*** classification in the space provided.

No Known or Suspected CWM.

Table 15

CHE Module: Status of Property Data Element Table

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD control	◆ The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by DoD. Examples are privately owned land or water bodies; land or water bodies owned or controlled by state, tribal or local governments; and land or water bodies managed by other federal agencies. ◆ The MRS is at a location that is owned by DoD, but that DoD has leased to another entity and for which DoD does not control access 24 hours per day.	5
Scheduled for transfer from DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD, and DoD plans to transfer that land or water body to control of another entity (e.g., a state, tribal, or local government; a private party; another federal agency) within 3 years from the date the Protocol is applied.	3
DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD. With respect to property that is leased or otherwise possessed, DoD controls access to the MRS 24 hours per day, every day of the calendar year.	0
STATUS OF PROPERTY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Status of Property*** classification in the space provided.

No Known or Suspected CWM.

Table 16

CHE Module: Population Density Data Element Table

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score.

Note: Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 persons per square mile	◆ There are more than 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	5
100–500 persons per square mile	◆ There are 100 to 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	3
< 100 persons per square mile	◆ There are fewer than 100 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	1
POPULATION DENSITY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Density*** classification in the space provided.

No Known or Suspected CWM.

Table 17

CHE Module: Population Near Hazard Data Element Table

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term *inhabited structures* is defined in Appendix C of the Primer.

Classification	Description	Score
26 or more inhabited structures	◆ There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	5
16 to 25 inhabited structures	◆ There are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	4
11 to 15 inhabited structures	◆ There are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	3
6 to 10 inhabited structures	◆ There are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	2
1 to 5 inhabited structures	◆ There are 1 to 5 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	1
0 inhabited structures	◆ There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	0
POPULATION NEAR HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classification in the space provided.

No Known or Suspected CWM.

Table 18

CHE Module: Types of Activities/Structures Data Element Table

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with **all** the activities/structures classifications at the MRS.

Note: The term *inhabited structures* is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, educational, commercial, or subsistence	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets (e.g., hospitals, fire and rescue, police stations, dams), hotels, commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing, and gathering.	5
Parks and recreational areas	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	4
Agricultural, forestry	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture or forestry.	3
Industrial or warehousing	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	2
No known or recurring activities	◆ There are no known of recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary.	1
TYPES OF ACTIVITIES/STRUCTURES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Types of Activities/Structures*** classifications in the space provided.

No Known or Suspected CWM.

Table 19

CHE Module: Ecological and/or Cultural Resources Data Element Table

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms *ecological resources* and *cultural resources* are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and cultural resources present	◆ There are both ecological and cultural resources present on the MRS.	5
Ecological resources present	◆ There are ecological resources present on the MRS.	3
Cultural resources present	◆ There are cultural resources present on the MRS.	3
No ecological or cultural resources present	◆ There are no ecological resources or cultural resources present on the MRS.	0
ECOLOGICAL AND/OR CULTURAL RESOURCES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ecological and/or Cultural Resources*** classification in the space provided.

No Known or Suspected CWM.

Table 20
Determining the CHE Module Rating

DIRECTIONS:

1. From Tables 11–19, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **CHE Module Total** box below.
4. Circle the appropriate range for the **CHE Module Total** below.
5. Circle the **CHE Module Rating** that corresponds to the range selected and record this value in the **CHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
CWM Hazard Factor Data Elements			
CWM Configuration	Table 11		
Sources of CWM	Table 12		
Accessibility Factor Data Elements			
Location of CWM	Table 13		
Ease of Access	Table 14		
Status of Property	Table 15		
Receptor Factor Data Elements			
Population Density	Table 16		
Population Near Hazard	Table 17		
Types of Activities/Structures	Table 18		
Ecological and/or Cultural Resources	Table 19		
CHE MODULE DRAFT TOTAL			

CHE Module Total	CHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected CWM Hazard
CHE MODULE DRAFT RATING	No Known or Suspected CWM

Table 21

HHE Module: Groundwater Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Sum The Ratios**	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Groundwater MC Hazard ☒

Table 22

HHE Module: Surface Water – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios

CHF Scale	CHF Value	Sum The Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Water (Human Endpoint) MC Hazard ☒

Table 23

HHE Module: Sediment – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the sediment, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Sum The Ratios**	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Sediment (Human Endpoint) MC Hazard ☒

Table 24

HHE Module: Surface Water – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Sum the Ratios**	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Water (Ecological Endpoint) MC Hazard ☒

Table 25

HHE Module: Sediment – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the sediment, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Sum the Ratios**	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Sediment (Ecological Endpoint) MC Hazard ☒

Table 26

HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface soil and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface soil contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the surface soil, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratio
CHF Scale	**CHF Value**	**Sum the Ratios**	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface soil to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Soil MC Hazard ☒

Table 27

HHE Module: Supplemental Contaminant Hazard Factor Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: **Only use this table if there are more than five contaminants in any given medium present at the MRS.** This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the **media** in which these contaminants are present. Then record all **contaminants**, their **maximum concentrations** and their **comparison values** (from Appendix B of the Primer) in the table below. Calculate and record the **ratio** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

Table 28
Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the **Contaminant Hazard**, **Migration Pathway**, and **Receptor Factors** for the media (from Tables 21–26) in the corresponding boxes below.
2. Record the media's three-letter combinations in the **Three-Letter Combination** boxes below (three-letter combinations are arranged from Hs to Ms to Ls).
3. Using the **HHE Ratings** provided below, determine each media's rating (A–G) and record the letter in the corresponding **Media Rating** box below.

Media (Source)	Contaminant Hazard Factor Value	Migratory Pathway Factor Value	Receptor Factor Value		Three-Letter Combination (Hs-Ms-Ls)		Media Rating (A-G)
Groundwater (Table 21)							
Surface Water/Human Endpoint (Table 22)							
Sediment/Human Endpoint (Table 23)							
Surface Water/Ecological Endpoint (Table 24)							
Sediment/Ecological Endpoint (Table 25)							
Surface Soil (Table 26)							

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the **HHE Module Rating** box.

Note:

An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE MODULE DRAFT RATING	

HHE Ratings (for reference only)

Combination	Rating
HHH	A
HHM	B
HHL	C
HMM	C
HML	D
MMM	D
HLL	E
MML	E
MLL	F
LLL	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

Table 29
MRS Draft Priority

DIRECTIONS: In the chart below, circle the letter **rating** for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical **priority** for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the **MRS Priority or Alternative MRS Rating** at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Draft Rating	Draft Priority	CHE Draft Rating	Draft Priority	HHE Draft Rating	Draft Priority
		A	1		
A	2	B	2	A	2
B	3	C	3	B	3
C	4	D	4	C	4
D	5	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	7
G	8			G	8
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		No Longer Required	
No Known or Suspected Explosive Hazard		No Known or Suspected CWM Hazard		No Known or Suspected MC Hazard	
MRS DRAFT PRIORITY or ALTERNATIVE MRS DRAFT RATING				4	

Table A
MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the **MRS Summary**, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental nonmunitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: Line 6 Ammo Production MRS (IAAAP-002-R-01)

Component: United States Army

Installation/Property Name: Iowa Army Ammunition Plant

Location (City, County, State): Middletown, Des Moines County, Iowa

Site Name/Project Name (Project No.): Line 6 Ammo Production MRS/IAAAP MMRP SI

Date Information Entered/Updated: April 19, 2007

Point of Contact (Name/Phone): Steve Bellrichard/319-753-7150

Project Phase (check only one):

❑ PA	☒ SI	❑ RI	❑ FS	❑ RD
❑ RA-C	❑ RIP	❑ RA-O	❑ RC	❑ LTM

Media Evaluated (check all that apply):

❑ Groundwater	❑ Sediment (human receptor)
❑ Surface soil	❑ Surface Water (ecological receptor)
❑ Sediment (ecological receptor)	❑ Surface Water (human receptor)

MRS Summary:

MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM, or MC known or suspected to be present. When possible, identify munitions, CWM, and MC by type:
Line 6 Ammo Production consists of the explosions that occurred at Buildings 6-34-2 (1968) and 6-92 (1970). Explosives items recovered after the accidents included detonators, grenade fuzes (loaded), and fuze adaptor bodies and base charge assemblies (loaded). Additional explosives items were involved in the explosions; however, these items were not recovered during cleanup activities.

Description of Pathways for Human and Ecological Receptors:
MEC: handle/tread underfoot and intrusive activities.
MC: Incomplete Pathway. The nature and extent of MC contamination was delineated by the IRP, and a removal action was completed in December 2006.

Description of Receptors (Human and Ecological):
MEC: IAAAP personnel, contractors, visitors, construction workers, and biota

West Burn Pads MRS

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond with **all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	◆ UXO that are considered most likely to function upon any interaction with exposed persons (e.g., submunitions, 40mm high-explosive [HE] grenades, white phosphorus [WP] munitions, high-explosive antitank [HEAT] munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions). ◆ Hand grenades containing energetic filler. ◆ Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard.	30
High explosive (used or damaged)	◆ UXO containing a high-explosive filler (e.g., RDX, Composition B), that are not considered "sensitive." ◆ DMM containing a high-explosive filler that have: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	25
Pyrotechnic (used or damaged)	◆ UXO containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades). ◆ DMM containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades) that have: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	20
High explosive (unused)	◆ DMM containing a high-explosive filler that: ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability.	15
Propellant	◆ UXO containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: ▪ Damaged by burning or detonation ▪ Deteriorated to the point of instability.	15
Bulk secondary high explosives, pyrotechnics, or propellant	◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ DMM that are bulk secondary high explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	(10)
Pyrotechnic (not used or damaged)	◆ DMM containing a pyrotechnic filler (i.e., red phosphorus), other than white phosphorus filler, that: ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability.	10
Practice	◆ UXO that are practice munitions that are not associated with a sensitive fuze. ◆ DMM that are practice munitions that are not associated with a sensitive fuze and that have not: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	5
Riot control	◆ UXO or DMM containing a riot control agent filler (e.g., tear gas).	3
Small arms	◆ Used munitions or DMM that are categorized as small arms ammunition. (Physical evidence or historical evidence that no other types of munitions [e.g., grenades, subcaliber training rockets, demolition charges] were used or are present on the MRS is required for selection of this category.)	2
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
MUNITIONS TYPE	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	10

DIRECTIONS: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.

The West Burn Pads MRS was used for flashing metals contaminated with explosives between the years 1949 and 1982.

Table 2

EHE Module: Source of Hazard Data Element Table

DIRECTIONS: Below are 11 classifications describing sources of explosive hazards. Circle the scores that correspond with **all** the sources of explosive hazards known or suspected to be present at the MRS.

Note: The terms *former range, practice munitions, small arms range, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Former range	◆ The MRS is a former military range where munitions (including practice munitions with sensitive fuzes) have been used. Such areas include impact or target areas and associated buffer and safety zones.	10
Former munitions treatment (i.e., OB/OD) unit	◆ The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	(8)
Former practice munitions range	◆ The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	6
Former maneuver area	◆ The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	5
Former burial pit or other disposal area	◆ The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a water body) without prior thermal treatment.	(5)
Former industrial operating facilities	◆ The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	4
Former firing points	◆ The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of a former military range.	4
Former missile or air defense artillery emplacements	◆ The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	2
Former storage or transfer points	◆ The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	2
Former small arms range	◆ The MRS is a former military range where only small arms ammunition was used. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present to place an MRS into this category.)	1
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	0
SOURCE OF HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	8

DIRECTIONS: Document any MRS-specific data used in selecting the ***Source of Hazard*** classifications in the space provided.

The West Burn Pads MRS encompasses the West Burn Pads, West Burn Pads Landfill, Burn Cages, and the Burn Cage Ash Disposal Landfill. The West Burn Pads - flashing of metals contaminated with explosives. The Burn Cages - incineration of inert and explosive contaminated packaging. The Burn Cage Ash Disposal Landfill received residual ash generated from the burn cages. Combustion residue was periodically pushed over the side and covered with soil. The West Burn Pads Landfill received residue from the burn pads and various types of solid waste. (ECC 2001)

Table 3

EHE Module: Location of Munitions Data Element Table

DIRECTIONS: Below are eight classifications of munitions locations and their descriptions. Circle the scores that correspond with **all** the locations where munitions are known or suspected to be present at the MRS.

Note: The terms *confirmed, surface, subsurface, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed surface	◆ Physical evidence indicates that there are UXO or DMM on the surface of the MRS. ◆ Historical evidence (i.e., a confirmed report such as an explosive ordnance disposal [EOD], police, or fire department report that an incident or accident that involved UXO or DMM occurred) indicates there are UXO or DMM on the surface of the MRS.	25
Confirmed subsurface, active	◆ Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. ◆ Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	20
Confirmed subsurface, stable	◆ Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed. ◆ Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed.	15
Suspected (physical evidence)	◆ There is physical evidence (e.g., munitions debris such as fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	10
Suspected (historical evidence)	◆ There is historical evidence indicating that UXO or DMM may be present at the MRS.	(5)
Subsurface, physical constraint	◆ There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	2
Small arms (regardless of location)	◆ The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present at the MRS to place an MRS into this category.)	1
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
LOCATION OF MUNITIONS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	5

DIRECTIONS: Document any MRS-specific data used in selecting the ***Location of Munitions*** classifications in the space provided.

The West Burn Pads MRS encompasses the West Burn Pads, West Burn Pads Landfill, Burn Cages, and the Burn Cage Ash Disposal Landfill. The West Burn Pads - flashing of metals contaminated with explosives. The Burn Cages - incineration of inert and explosive contaminated packaging.The Burn Cage Ash Disposal Landfill received residual ash generated from the burn cages. Combustion residue was periodically pushed over the side and covered with soil. The West Burn Pads Landfill received residue from the burn pads and various types of solid waste. (ECC 2001)

Table 4

EHE Module: Ease of Access Data Element Table

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS.

Note: The term *barrier* is defined in Appendix C of the Primer.

Classification	Description	Score
No barrier	◆ There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible).	(10)
Barrier to MRS access is incomplete	◆ There is a barrier preventing access to parts of the MRS, but not the entire MRS.	8
Barrier to MRS access is complete but not monitored	◆ There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS.	5
Barrier to MRS access is complete and monitored	◆ There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS.	0
EASE OF ACCESS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	10

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ease of Access*** classification in the space provided.

The West Burn Pads MRS is located within the boundaries of the Iowa Army Ammunition Plant. There are no site-specific barriers to this MRS. American Ordnance security patrols are conducted on the installation proper on a regular basis and warning signs are posted.

Table 5

EHE Module: Status of Property Data Element Table

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD control	◆ The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by DoD. Examples are privately owned land or water bodies; land or water bodies owned or controlled by state, tribal, or local governments; and land or water bodies managed by other federal agencies. ◆ The MRS is at a location that is owned by DoD, but that DoD has leased to another entity and for which DoD does not control access 24 hours per day.	5
Scheduled for transfer from DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD, and DoD plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government; a private party; another federal agency) within 3 years from the date the Protocol is applied.	3
DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD. With respect to property that is leased or otherwise possessed, DoD must control access to the MRS 24 hours per day, every day of the calendar year.	(0)
STATUS OF PROPERTY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	0

DIRECTIONS: Document any MRS-specific data used in selecting the ***Status of Property*** classification in the space provided.

Iowa Army Ammunition Plant is an active DOD facility.

Table 6

EHE Module: Population Density Data Element Table

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score.

Note: Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 persons per square mile	◆ There are more than 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	5
100–500 persons per square mile	◆ There are 100 to 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	3
< 100 persons per square mile	◆ There are fewer than 100 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	(1)
POPULATION DENSITY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	1

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Density*** classification in the space provided.

Based on the United States Census Bureau, the population density for Middletown, Iowa in 2000 was 36 persons per square mile. The population density for Des Moines County, Iowa in 2005 was 98 persons per square mile.

Table 7

EHE Module: Population Near Hazard Data Element Table

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term *inhabited structures* is defined in Appendix C of the Primer.

Classification	Description	Score
26 or more inhabited structures	◆ There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	(5)
16 to 25 inhabited structures	◆ There are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	4
11 to 15 inhabited structures	◆ There are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	3
6 to 10 inhabited structures	◆ There are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	2
1 to 5 inhabited structures	◆ There are 1 to 5 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	1
0 inhabited structures	◆ There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	0
POPULATION NEAR HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	5

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classification in the space provided.

Based on GIS data obtained from the Des Moines County Assessor, there are more than 26 inhabited structures within 2 miles from the MRS boundary (www.dmcgis.com).

Table 8

EHE Module: Types of Activities/Structures Data Element Table

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with **all** the activities/structure classifications at the MRS.

Note: The term *inhabited structure* is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, educational, commercial, or subsistence	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets (e.g., hospitals, fire and rescue, police stations, dams), hotels, commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing, and gathering.	(5)
Parks and recreational areas	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	4
Agricultural, forestry	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture or forestry.	3
Industrial or warehousing	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	2
No known or recurring activities	◆ There are no known or recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary.	1
TYPES OF ACTIVITIES/STRUCTURES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	5

DIRECTIONS: Document any MRS-specific data used in selecting the ***Types of Activities/Structures*** classifications in the space provided.

IAAAP, Great River Medical Center, Southeastern College at Burlington, Buena Vista School (inactive), various commercial businesses, and residential structures are present within 2 miles from the MRS boundary.

Table 9

EHE Module: Ecological and/or Cultural Resources Data Element Table

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms *ecological resources* and *cultural resources* are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and cultural resources present	◆ There are both ecological and cultural resources present on the MRS.	5
Ecological resources present	◆ There are ecological resources present on the MRS.	3
Cultural resources present	◆ There are cultural resources present on the MRS.	3
No ecological or cultural resources present	◆ There are no ecological resources or cultural resources present on the MRS.	(0)
ECOLOGICAL AND/OR CULTURAL RESOURCES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	0

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ecological and/or Cultural Resources*** classification in the space provided.

Based on the Integrated Natural Resources Management Plan (HES 2001) and the Integrated Cultural Resources Management Plan (Earth Tech 2002), no ecological or cultural resources are present on the MRS.

Table 10
Determining the EHE Module Rating

DIRECTIONS:

1. From Tables 1–9, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.
4. Circle the appropriate range for the **EHE Module Total** below.
5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
Explosive Hazard Factor Data Elements			
Munitions Type	Table 1	10	18
Source of Hazard	Table 2	8	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	5	15
Ease of Access	Table 4	10	
Status of Property	Table 5	0	
Receptor Factor Data Elements			
Population Density	Table 6	1	11
Population Near Hazard	Table 7	5	
Types of Activities/Structures	Table 8	5	
Ecological and/or Cultural Resources	Table 9	0	
EHE MODULE DRAFT TOTAL			44

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F (circled)
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE MODULE DRAFT RATING	F

Table 11

CHE Module: CWM Configuration Data Element Table

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with **all** the CWM configurations known or suspected to be present at the MRS.

Note: The terms *CWM/UXO, CWM/DMM, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, that are either UXO, or explosively configured damaged DMM	The CWM known or suspected of being present at the MRS are: ◆ CWM that are UXO (i.e., CWM/UXO) ◆ Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	30
CWM mixed with UXO	◆ The CWM known or suspected of being present at the MRS are undamaged CWM/DMM or CWM not configured as a munition that are commingled with conventional munitions that are UXO.	25
CWM, explosive configuration that are undamaged DMM	◆ The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM that have not been damaged.	20
CWM/DMM, not explosively configured or CWM, bulk container	The CWM known or suspected of being present at the MRS are: ◆ Nonexplosively configured CWM/DMM either damaged or undamaged ◆ Bulk CWM (e.g., ton container).	15
CAIS K941 and CAIS K942	◆ The CWM/DMM known or suspected of being present at the MRS are CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	12
CAIS (chemical agent identification sets)	◆ CAIS, other than CAIS K941 and K942, are known or suspected of being present at the MRS.	10
Evidence of no CWM	◆ Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	0
CWM CONFIGURATION	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space provided.

No Known or Suspected CWM.

Table 12

CHE Module: Sources of CWM Data Element Table

DIRECTIONS: Below are 11 sources of CWM hazards and their descriptions. Review these classifications and circle the scores that correspond with **all** the sources of CWM hazards known or suspected to be present at the MRS.

Note: The terms *CWM/UXO, CWM/DMM, CAIS/DMM, surface, subsurface, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Live-fire involving CWM	◆ The MRS is a former military range that supported live-fire of explosively configured CWM and the CWM/UXO are known or suspected of being present on the surface or in the subsurface. ◆ The MRS is a former military range that supported live-fire with conventional munitions, and CWM/DMM are on the surface or in the subsurface commingled with conventional munitions that are UXO.	10
Damaged CWM/DMM surface or subsurface	◆ There are damaged CWM/DMM on the surface or in the subsurface at the MRS.	10
Undamaged CWM/DMM surface	◆ There are undamaged CWM/DMM on the surface at the MRS.	10
CAIS/DMM surface	◆ There are CAIS/DMM on the surface.	10
Undamaged CWM/DMM, subsurface	◆ There are undamaged CWM/DMM in the subsurface at the MRS.	5
CAIS/DMM subsurface	◆ There are CAIS/DMM in the subsurface at the MRS.	5
Former CA or CWM Production Facilities	◆ The MRS is a facility that formerly engaged in production of CA or CWM, and CWM/DMM is suspected of being present on the surface or in the subsurface.	3
Former Research, Development, Testing, and Evaluation (RDT&E) facility using CWM	◆ The MRS is at a facility that formerly was involved in non-live-fire RDT&E activities (including static testing) involving CWM, and there are CWM/DMM suspected of being present on the surface or in the subsurface.	3
Former Training Facility using CWM or CAIS	◆ The MRS is a location that formerly was involved in training activities involving CWM and/or CAIS (e.g., training in recognition of CWM, decontamination training) and CWM/DMM or CAIS/DMM are suspected of being present on the surface or in the subsurface.	2
Former Storage or Transfer points of CWM	◆ The MRS is a former storage facility or transfer point (e.g., intermodal transfer) for CWM.	1
Evidence of no CWM	◆ Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	0
SOURCES OF CWM	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Sources of CWM*** classifications in the space provided.

No Known or Suspected CWM.

Table 13

CHE Module: Location of CWM Data Element Table

DIRECTIONS: Below are seven classifications of CWM locations and their descriptions. Review these locations and circle the scores that correspond with **all** the locations where CWM are known or suspected of being found at the MRS.

Note: The terms *confirmed, surface, subsurface, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed surface	◆ Physical evidence indicates that there are CWM on the surface of the MRS. ◆ Historical evidence (i.e., a confirmed report such as an explosive ordnance disposal [EOD], police, or fire department report, that an incident or accident that involved CWM, regardless of configuration, occurred) indicates there are CWM on the surface of the MRS.	25
Confirmed subsurface, active	◆ Physical evidence indicates the presence of CWM in the subsurface of the MRS and the geological conditions at the MRS are likely to cause CWM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose CWM. ◆ Historical evidence indicates that CWM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause CWM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose CWM.	20
Confirmed subsurface, stable	◆ Physical evidence indicates the presence of CWM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause CWM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause CWM to be exposed. ◆ Historical evidence indicates that CWM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause CWM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause CWM to be exposed.	15
Suspected (physical evidence)	◆ There is physical evidence, other than the documented presence of CWM, indicating that CWM may be present at the MRS.	10
Suspected (historical evidence)	◆ There is historical evidence indicating that CWM may be present at the MRS.	5
Subsurface, physical constraint	◆ There is physical or historical evidence indicating that CWM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the CWM.	2
Evidence of no CWM	◆ Following investigation of the MRS, there is physical evidence that there is no CWM present or there is historical evidence indicating that no CWM are present.	0
LOCATION OF CWM	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Location of CWM*** classifications in the space provided.

No Known or Suspected CWM.

Table 14
CHE Module: Ease of Access Data Element Table

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS.

Note: The term *barrier* is defined in Appendix C of the Primer.

Classification	Description	Score
No barrier	◆ There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible).	10
Barrier to MRS access is incomplete	◆ There is a barrier preventing access to parts of the MRS, but not the entire MRS.	8
Barrier to MRS access is complete but not monitored	◆ There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS.	5
Barrier to MRS access is complete and monitored	◆ There is a barrier preventing access to all parts of the MRS, and there is active continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS.	0
EASE OF ACCESS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ease of Access*** classification in the space provided.

No Known or Suspected CWM.

Table 15

CHE Module: Status of Property Data Element Table

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD control	◆ The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by DoD. Examples are privately owned land or water bodies; land or water bodies owned or controlled by state, tribal or local governments; and land or water bodies managed by other federal agencies. ◆ The MRS is at a location that is owned by DoD, but that DoD has leased to another entity and for which DoD does not control access 24 hours per day.	5
Scheduled for transfer from DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD, and DoD plans to transfer that land or water body to control of another entity (e.g., a state, tribal, or local government; a private party; another federal agency) within 3 years from the date the Protocol is applied.	3
DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD. With respect to property that is leased or otherwise possessed, DoD controls access to the MRS 24 hours per day, every day of the calendar year.	0
STATUS OF PROPERTY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Status of Property*** classification in the space provided.

No Known or Suspected CWM.

Table 16

CHE Module: Population Density Data Element Table

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score.

Note: Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 persons per square mile	◆ There are more than 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	5
100–500 persons per square mile	◆ There are 100 to 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	3
< 100 persons per square mile	◆ There are fewer than 100 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	1
POPULATION DENSITY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Density*** classification in the space provided.

No Known or Suspected CWM.

Table 17

CHE Module: Population Near Hazard Data Element Table

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term *inhabited structures* is defined in Appendix C of the Primer.

Classification	Description	Score
26 or more inhabited structures	◆ There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	5
16 to 25 inhabited structures	◆ There are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	4
11 to 15 inhabited structures	◆ There are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	3
6 to 10 inhabited structures	◆ There are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	2
1 to 5 inhabited structures	◆ There are 1 to 5 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	1
0 inhabited structures	◆ There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	0
POPULATION NEAR HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classification in the space provided.

No Known or Suspected CWM.

Table 18

CHE Module: Types of Activities/Structures Data Element Table

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with **all** the activities/structures classifications at the MRS.

Note: The term *inhabited structures* is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, educational, commercial, or subsistence	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets (e.g., hospitals, fire and rescue, police stations, dams), hotels, commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing, and gathering.	5
Parks and recreational areas	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	4
Agricultural, forestry	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture or forestry.	3
Industrial or warehousing	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	2
No known or recurring activities	◆ There are no known of recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary.	1
TYPES OF ACTIVITIES/STRUCTURES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Types of Activities/Structures*** classifications in the space provided.

No Known or Suspected CWM.

Table 19

CHE Module: Ecological and/or Cultural Resources Data Element Table

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms *ecological resources* and *cultural resources* are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and cultural resources present	◆ There are both ecological and cultural resources present on the MRS.	5
Ecological resources present	◆ There are ecological resources present on the MRS.	3
Cultural resources present	◆ There are cultural resources present on the MRS.	3
No ecological or cultural resources present	◆ There are no ecological resources or cultural resources present on the MRS.	0
ECOLOGICAL AND/OR CULTURAL RESOURCES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ecological and/or Cultural Resources*** classification in the space provided.

No Known or Suspected CWM.

Table 20
Determining the CHE Module Rating

DIRECTIONS:

1. From Tables 11–19, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **CHE Module Total** box below.
4. Circle the appropriate range for the **CHE Module Total** below.
5. Circle the **CHE Module Rating** that corresponds to the range selected and record this value in the **CHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
CWM Hazard Factor Data Elements			
CWM Configuration	Table 11		
Sources of CWM	Table 12		
Accessibility Factor Data Elements			
Location of CWM	Table 13		
Ease of Access	Table 14		
Status of Property	Table 15		
Receptor Factor Data Elements			
Population Density	Table 16		
Population Near Hazard	Table 17		
Types of Activities/Structures	Table 18		
Ecological and/or Cultural Resources	Table 19		
CHE MODULE DRAFT TOTAL			

CHE Module Total	CHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected CWM Hazard
CHE MODULE DRAFT RATING	No Known or Suspected CWM

Table 21

HHE Module: Groundwater Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Sum The Ratios**	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Groundwater MC Hazard ☒

Table 22

HHE Module: Surface Water – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios

CHF Scale	CHF Value	Sum The Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Water (Human Endpoint) MC Hazard ☒

Table 23

HHE Module: Sediment – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the sediment, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Sum The Ratios**	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Sediment (Human Endpoint) MC Hazard ☒

Table 24

HHE Module: Surface Water – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Sum the Ratios**	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Water (Ecological Endpoint) MC Hazard ☒

Table 25

HHE Module: Sediment – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the sediment, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Sum the Ratios**	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Sediment (Ecological Endpoint) MC Hazard ☒

Table 26

HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface soil and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface soil contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the surface soil, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratio

CHF Scale	CHF Value	Sum the Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface soil to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Soil MC Hazard ☒

Table 27

HHE Module: Supplemental Contaminant Hazard Factor Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the **media** in which these contaminants are present. Then record all **contaminants**, their **maximum concentrations** and their **comparison values** (from Appendix B of the Primer) in the table below. Calculate and record the **ratio** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

Table 28
Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the **Contaminant Hazard**, **Migration Pathway**, and **Receptor Factors** for the media (from Tables 21–26) in the corresponding boxes below.
2. Record the media's three-letter combinations in the **Three-Letter Combination** boxes below (three-letter combinations are arranged from Hs to Ms to Ls).
3. Using the **HHE Ratings** provided below, determine each media's rating (A–G) and record the letter in the corresponding **Media Rating** box below.

Media (Source)	Contaminant Hazard Factor Value	Migratory Pathway Factor Value	Receptor Factor Value		Three-Letter Combination (Hs-Ms-Ls)		Media Rating (A-G)
Groundwater (Table 21)							
Surface Water/Human Endpoint (Table 22)							
Sediment/Human Endpoint (Table 23)							
Surface Water/Ecological Endpoint (Table 24)							
Sediment/Ecological Endpoint (Table 25)							
Surface Soil (Table 26)							

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the **HHE Module Rating** box.

Note:

An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE MODULE DRAFT RATING	

HHE Ratings (for reference only)	
Combination	**Rating**
HHH	A
HHM	B
HHL	C
HMM	C
HML	D
MMM	D
HLL	E
MML	E
MLL	F
LLL	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

Table 29
MRS Draft Priority

DIRECTIONS: In the chart below, circle the letter **rating** for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical **priority** for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the **MRS Priority or Alternative MRS Rating** at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Draft Rating	Draft Priority	CHE Draft Rating	Draft Priority	HHE Draft Rating	Draft Priority
		A	1		
A	2	B	2	A	2
B	3	C	3	B	3
C	4	D	4	C	4
D	5	E	5	D	5
E	6	F	6	E	6
(F)	(7)	G	7	F	7
G	8			G	8
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		No Longer Required	
No Known or Suspected Explosive Hazard		(No Known or Suspected CWM Hazard)		(No Known or Suspected MC Hazard)	
MRS DRAFT PRIORITY or ALTERNATIVE MRS DRAFT RATING				7	

Table A
MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the **MRS Summary**, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental nonmunitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: West Burn Pads MRS (IAAP-003-R-01)

Component: United States Army

Installation/Property Name: Iowa Army Ammunition Plant

Location (City, County, State): Middletown, Des Moines County, Iowa

Site Name/Project Name (Project No.): West Burn Pads MRS/IAAAP MMRP SI

Date Information Entered/Updated: July 11, 2007

Point of Contact (Name/Phone): Steve Bellrichard/319-753-7150

Project Phase (check only one):

❑ PA	☒ SI	❑ RI	❑ FS	❑ RD
❑ RA-C	❑ RIP	❑ RA-O	❑ RC	❑ LTM

Media Evaluated (check all that apply):

❑ Groundwater	❑ Sediment (human receptor)
❑ Surface soil	❑ Surface Water (ecological receptor)
❑ Sediment (ecological receptor)	❑ Surface Water (human receptor)

MRS Summary:

MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM, or MC known or suspected to be present. When possible, identify munitions, CWM, and MC by type:

The West Burn Pads MRS was used for flashing metals contaminated with explosives between the years 1949 – 1982.

Description of Pathways for Human and Ecological Receptors:
MEC: handle/tread underfoot and intrusive activities.
MC: Incomplete Pathway. The nature and extent of MC contamination was delineated by the IRP, and a removal action was completed in 2000.
Description of Receptors (Human and Ecological):
MEC: IAAAP personnel, contractors, visitors, hunters, trespassers, construction workers, and biota.

Possible Demolition Site MRS

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond with **all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	◆ UXO that are considered most likely to function upon any interaction with exposed persons (e.g., submunitions, 40mm high-explosive [HE] grenades, white phosphorus [WP] munitions, high-explosive antitank [HEAT] munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions). ◆ Hand grenades containing energetic filler. ◆ Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard.	(30)
High explosive (used or damaged)	◆ UXO containing a high-explosive filler (e.g., RDX, Composition B), that are not considered "sensitive." ◆ DMM containing a high-explosive filler that have: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	25
Pyrotechnic (used or damaged)	◆ UXO containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades). ◆ DMM containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades) that have: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	20
High explosive (unused)	◆ DMM containing a high-explosive filler that: ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability.	15
Propellant	◆ UXO containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: ▪ Damaged by burning or detonation ▪ Deteriorated to the point of instability.	15
Bulk secondary high explosives, pyrotechnics, or propellant	◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ DMM that are bulk secondary high explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	10
Pyrotechnic (not used or damaged)	◆ DMM containing a pyrotechnic filler (i.e., red phosphorus), other than white phosphorus filler, that: ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability.	10
Practice	◆ UXO that are practice munitions that are not associated with a sensitive fuze. ◆ DMM that are practice munitions that are not associated with a sensitive fuze and that have not: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	5
Riot control	◆ UXO or DMM containing a riot control agent filler (e.g., tear gas).	3
Small arms	◆ Used munitions or DMM that are categorized as small arms ammunition. (Physical evidence or historical evidence that no other types of munitions [e.g., grenades, subcaliber training rockets, demolition charges] were used or are present on the MRS is required for selection of this category.)	2
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
MUNITIONS TYPE	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	30

DIRECTIONS: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.

Historical data indicates the Possible Demolition Site was used during the 1940s and early 1950s as a demolition area for ammunition items.

Table 2

EHE Module: Source of Hazard Data Element Table

DIRECTIONS: Below are 11 classifications describing sources of explosive hazards. Circle the scores that correspond with **all** the sources of explosive hazards known or suspected to be present at the MRS.

Note: The terms *former range, practice munitions, small arms range, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Former range	◆ The MRS is a former military range where munitions (including practice munitions with sensitive fuzes) have been used. Such areas include impact or target areas and associated buffer and safety zones.	10
Former munitions treatment (i.e., OB/OD) unit	◆ The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	(8)
Former practice munitions range	◆ The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	6
Former maneuver area	◆ The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	5
Former burial pit or other disposal area	◆ The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a water body) without prior thermal treatment.	5
Former industrial operating facilities	◆ The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	4
Former firing points	◆ The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of a former military range.	4
Former missile or air defense artillery emplacements	◆ The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	2
Former storage or transfer points	◆ The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	2
Former small arms range	◆ The MRS is a former military range where only small arms ammunition was used. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present to place an MRS into this category.)	1
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	0
SOURCE OF HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	8

DIRECTIONS: Document any MRS-specific data used in selecting the ***Source of Hazard*** classifications in the space provided.

Historical data indicates the Possible Demolition Site was used during the 1940s and early 1950s as a demolition area for ammunition items.

Table 3

EHE Module: Location of Munitions Data Element Table

DIRECTIONS: Below are eight classifications of munitions locations and their descriptions. Circle the scores that correspond with **all** the locations where munitions are known or suspected to be present at the MRS.

Note: The terms *confirmed, surface, subsurface, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed surface	◆ Physical evidence indicates that there are UXO or DMM on the surface of the MRS. ◆ Historical evidence (i.e., a confirmed report such as an explosive ordnance disposal [EOD], police, or fire department report that an incident or accident that involved UXO or DMM occurred) indicates there are UXO or DMM on the surface of the MRS.	25
Confirmed subsurface, active	◆ Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. ◆ Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	20
Confirmed subsurface, stable	◆ Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed. ◆ Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed.	15
Suspected (physical evidence)	◆ There is physical evidence (e.g., munitions debris such as fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	10
Suspected (historical evidence)	◆ There is historical evidence indicating that UXO or DMM may be present at the MRS.	(5)
Subsurface, physical constraint	◆ There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	2
Small arms (regardless of location)	◆ The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present at the MRS to place an MRS into this category.)	1
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
LOCATION OF MUNITIONS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	5

DIRECTIONS: Document any MRS-specific data used in selecting the ***Location of Munitions*** classifications in the space provided.

Historical data indicates the Possible Demolition Site was used during the 1940s and early 1950s as a demolition area for ammunition items.

Table 4

EHE Module: Ease of Access Data Element Table

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS.

Note: The term *barrier* is defined in Appendix C of the Primer.

Classification	Description	Score
No barrier	◆ There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible).	(10)
Barrier to MRS access is incomplete	◆ There is a barrier preventing access to parts of the MRS, but not the entire MRS.	8
Barrier to MRS access is complete but not monitored	◆ There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS.	5
Barrier to MRS access is complete and monitored	◆ There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS.	0
EASE OF ACCESS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	10

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ease of Access*** classification in the space provided.

The Possible Demolition Site MRS is located within the boundaries of the Iowa Army Ammunition Plant. There are no site-specific barriers to this MRS. American Ordnance security patrols are conducted on the installation propert on a regular basis.

Table 5

EHE Module: Status of Property Data Element Table

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD control	◆ The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by DoD. Examples are privately owned land or water bodies; land or water bodies owned or controlled by state, tribal, or local governments; and land or water bodies managed by other federal agencies. ◆ The MRS is at a location that is owned by DoD, but that DoD has leased to another entity and for which DoD does not control access 24 hours per day.	5
Scheduled for transfer from DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD, and DoD plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government; a private party; another federal agency) within 3 years from the date the Protocol is applied.	3
DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD. With respect to property that is leased or otherwise possessed, DoD must control access to the MRS 24 hours per day, every day of the calendar year.	(0)
STATUS OF PROPERTY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	0

DIRECTIONS: Document any MRS-specific data used in selecting the ***Status of Property*** classification in the space provided.

Iowa Army Ammunition Plant is an active DOD facility.

Table 6

EHE Module: Population Density Data Element Table

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score.

Note: Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 persons per square mile	◆ There are more than 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	5
100–500 persons per square mile	◆ There are 100 to 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	3
< 100 persons per square mile	◆ There are fewer than 100 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	(1)
POPULATION DENSITY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	1

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Density*** classification in the space provided.

Based on the United States Census Bureau, the population density for Middletown, Iowa in 2000 was 36 persons per square mile. The population density for Des Moines County, Iowa in 2005 was 98 persons per square mile.

Table 7

EHE Module: Population Near Hazard Data Element Table

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term *inhabited structures* is defined in Appendix C of the Primer.

Classification	Description	Score
26 or more inhabited structures	◆ There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	(5)
16 to 25 inhabited structures	◆ There are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	4
11 to 15 inhabited structures	◆ There are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	3
6 to 10 inhabited structures	◆ There are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	2
1 to 5 inhabited structures	◆ There are 1 to 5 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	1
0 inhabited structures	◆ There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	0
POPULATION NEAR HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	5

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classification in the space provided.

Based on GIS data obtained from the Des Moines County Assessor, there are more than 26 inhabited structures within 2 miles from the MRS boundary (www.dmcgis.com).

Table 8

EHE Module: Types of Activities/Structures Data Element Table

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with **all** the activities/structure classifications at the MRS.

Note: The term *inhabited structure* is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, educational, commercial, or subsistence	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets (e.g., hospitals, fire and rescue, police stations, dams), hotels, commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing, and gathering.	(5)
Parks and recreational areas	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	4
Agricultural, forestry	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture or forestry.	3
Industrial or warehousing	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	2
No known or recurring activities	◆ There are no known or recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary.	1
TYPES OF ACTIVITIES/STRUCTURES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	5

DIRECTIONS: Document any MRS-specific data used in selecting the ***Types of Activities/Structures*** classifications in the space provided.

IAAAP, Welter County Park, and residential structures are present within 2 miles from the MRS boundary.

Table 9

EHE Module: Ecological and/or Cultural Resources Data Element Table

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms *ecological resources* and *cultural resources* are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and cultural resources present	◆ There are both ecological and cultural resources present on the MRS.	5
Ecological resources present	◆ There are ecological resources present on the MRS.	3
Cultural resources present	◆ There are cultural resources present on the MRS.	3
No ecological or cultural resources present	◆ There are no ecological resources or cultural resources present on the MRS.	(0)
ECOLOGICAL AND/OR CULTURAL RESOURCES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	0

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ecological and/or Cultural Resources*** classification in the space provided.

Based on the Integrated Natural Resources Management Plan (HES 2001) and the Integrated Cultural Resources Management Plan (Earth Tech 2002), no ecological or cultural resources are present on the MRS.

Table 10
Determining the EHE Module Rating

DIRECTIONS:

1. From Tables 1–9, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.
4. Circle the appropriate range for the **EHE Module Total** below.
5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
Explosive Hazard Factor Data Elements			
Munitions Type	Table 1	30	38
Source of Hazard	Table 2	8	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	5	15
Ease of Access	Table 4	10	
Status of Property	Table 5	0	
Receptor Factor Data Elements			
Population Density	Table 6	1	11
Population Near Hazard	Table 7	5	
Types of Activities/Structures	Table 8	5	
Ecological and/or Cultural Resources	Table 9	0	
EHE MODULE DRAFT TOTAL			64

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	(D)
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE MODULE DRAFT RATING	D

Table 11

CHE Module: CWM Configuration Data Element Table

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with **all** the CWM configurations known or suspected to be present at the MRS.

Note: The terms *CWM/UXO, CWM/DMM, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, that are either UXO, or explosively configured damaged DMM	The CWM known or suspected of being present at the MRS are: ◆ CWM that are UXO (i.e., CWM/UXO) ◆ Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	30
CWM mixed with UXO	◆ The CWM known or suspected of being present at the MRS are undamaged CWM/DMM or CWM not configured as a munition that are commingled with conventional munitions that are UXO.	25
CWM, explosive configuration that are undamaged DMM	◆ The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM that have not been damaged.	20
CWM/DMM, not explosively configured or CWM, bulk container	The CWM known or suspected of being present at the MRS are: ◆ Nonexplosively configured CWM/DMM either damaged or undamaged ◆ Bulk CWM (e.g., ton container).	15
CAIS K941 and CAIS K942	◆ The CWM/DMM known or suspected of being present at the MRS are CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	12
CAIS (chemical agent identification sets)	◆ CAIS, other than CAIS K941 and K942, are known or suspected of being present at the MRS.	10
Evidence of no CWM	◆ Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	0
CWM CONFIGURATION	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space provided.

No Known or Suspected CWM.

Table 12

CHE Module: Sources of CWM Data Element Table

DIRECTIONS: Below are 11 sources of CWM hazards and their descriptions. Review these classifications and circle the scores that correspond with **all** the sources of CWM hazards known or suspected to be present at the MRS.

Note: The terms *CWM/UXO, CWM/DMM, CAIS/DMM, surface, subsurface, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Live-fire involving CWM	◆ The MRS is a former military range that supported live-fire of explosively configured CWM and the CWM/UXO are known or suspected of being present on the surface or in the subsurface. ◆ The MRS is a former military range that supported live-fire with conventional munitions, and CWM/DMM are on the surface or in the subsurface commingled with conventional munitions that are UXO.	10
Damaged CWM/DMM surface or subsurface	◆ There are damaged CWM/DMM on the surface or in the subsurface at the MRS.	10
Undamaged CWM/DMM surface	◆ There are undamaged CWM/DMM on the surface at the MRS.	10
CAIS/DMM surface	◆ There are CAIS/DMM on the surface.	10
Undamaged CWM/DMM, subsurface	◆ There are undamaged CWM/DMM in the subsurface at the MRS.	5
CAIS/DMM subsurface	◆ There are CAIS/DMM in the subsurface at the MRS.	5
Former CA or CWM Production Facilities	◆ The MRS is a facility that formerly engaged in production of CA or CWM, and CWM/DMM is suspected of being present on the surface or in the subsurface.	3
Former Research, Development, Testing, and Evaluation (RDT&E) facility using CWM	◆ The MRS is at a facility that formerly was involved in non-live-fire RDT&E activities (including static testing) involving CWM, and there are CWM/DMM suspected of being present on the surface or in the subsurface.	3
Former Training Facility using CWM or CAIS	◆ The MRS is a location that formerly was involved in training activities involving CWM and/or CAIS (e.g., training in recognition of CWM, decontamination training) and CWM/DMM or CAIS/DMM are suspected of being present on the surface or in the subsurface.	2
Former Storage or Transfer points of CWM	◆ The MRS is a former storage facility or transfer point (e.g., intermodal transfer) for CWM.	1
Evidence of no CWM	◆ Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	0
SOURCES OF CWM	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Sources of CWM*** classifications in the space provided.

No Known or Suspected CWM.

Table 13

CHE Module: Location of CWM Data Element Table

DIRECTIONS: Below are seven classifications of CWM locations and their descriptions. Review these locations and circle the scores that correspond with **all** the locations where CWM are known or suspected of being found at the MRS.

Note: The terms *confirmed, surface, subsurface, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed surface	◆ Physical evidence indicates that there are CWM on the surface of the MRS. ◆ Historical evidence (i.e., a confirmed report such as an explosive ordnance disposal [EOD], police, or fire department report, that an incident or accident that involved CWM, regardless of configuration, occurred) indicates there are CWM on the surface of the MRS.	25
Confirmed subsurface, active	◆ Physical evidence indicates the presence of CWM in the subsurface of the MRS and the geological conditions at the MRS are likely to cause CWM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose CWM. ◆ Historical evidence indicates that CWM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause CWM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose CWM.	20
Confirmed subsurface, stable	◆ Physical evidence indicates the presence of CWM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause CWM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause CWM to be exposed. ◆ Historical evidence indicates that CWM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause CWM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause CWM to be exposed.	15
Suspected (physical evidence)	◆ There is physical evidence, other than the documented presence of CWM, indicating that CWM may be present at the MRS.	10
Suspected (historical evidence)	◆ There is historical evidence indicating that CWM may be present at the MRS.	5
Subsurface, physical constraint	◆ There is physical or historical evidence indicating that CWM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the CWM.	2
Evidence of no CWM	◆ Following investigation of the MRS, there is physical evidence that there is no CWM present or there is historical evidence indicating that no CWM are present.	0
LOCATION OF CWM	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Location of CWM*** classifications in the space provided.

No Known or Suspected CWM.

Table 14
CHE Module: Ease of Access Data Element Table

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS.

Note: The term *barrier* is defined in Appendix C of the Primer.

Classification	Description	Score
No barrier	◆ There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible).	10
Barrier to MRS access is incomplete	◆ There is a barrier preventing access to parts of the MRS, but not the entire MRS.	8
Barrier to MRS access is complete but not monitored	◆ There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS.	5
Barrier to MRS access is complete and monitored	◆ There is a barrier preventing access to all parts of the MRS, and there is active continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS.	0
EASE OF ACCESS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ease of Access*** classification in the space provided.

No Known or Suspected CWM.

Table 15

CHE Module: Status of Property Data Element Table

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD control	◆ The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by DoD. Examples are privately owned land or water bodies; land or water bodies owned or controlled by state, tribal or local governments; and land or water bodies managed by other federal agencies. ◆ The MRS is at a location that is owned by DoD, but that DoD has leased to another entity and for which DoD does not control access 24 hours per day.	5
Scheduled for transfer from DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD, and DoD plans to transfer that land or water body to control of another entity (e.g., a state, tribal, or local government; a private party; another federal agency) within 3 years from the date the Protocol is applied.	3
DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD. With respect to property that is leased or otherwise possessed, DoD controls access to the MRS 24 hours per day, every day of the calendar year.	0
STATUS OF PROPERTY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Status of Property*** classification in the space provided.

No Known or Suspected CWM.

Table 16

CHE Module: Population Density Data Element Table

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score.

Note: Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 persons per square mile	◆ There are more than 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	5
100–500 persons per square mile	◆ There are 100 to 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	3
< 100 persons per square mile	◆ There are fewer than 100 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	1
POPULATION DENSITY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Density*** classification in the space provided.

No Known or Suspected CWM.

Table 17

CHE Module: Population Near Hazard Data Element Table

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term *inhabited structures* is defined in Appendix C of the Primer.

Classification	Description	Score
26 or more inhabited structures	◆ There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	5
16 to 25 inhabited structures	◆ There are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	4
11 to 15 inhabited structures	◆ There are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	3
6 to 10 inhabited structures	◆ There are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	2
1 to 5 inhabited structures	◆ There are 1 to 5 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	1
0 inhabited structures	◆ There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	0
POPULATION NEAR HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classification in the space provided.

No Known or Suspected CWM.

Table 18

CHE Module: Types of Activities/Structures Data Element Table

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with **all** the activities/structures classifications at the MRS.

Note: The term *inhabited structures* is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, educational, commercial, or subsistence	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets (e.g., hospitals, fire and rescue, police stations, dams), hotels, commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing, and gathering.	5
Parks and recreational areas	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	4
Agricultural, forestry	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture or forestry.	3
Industrial or warehousing	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	2
No known or recurring activities	◆ There are no known of recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary.	1
TYPES OF ACTIVITIES/STRUCTURES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Types of Activities/Structures*** classifications in the space provided.

No Known or Suspected CWM.

Table 19

CHE Module: Ecological and/or Cultural Resources Data Element Table

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms *ecological resources* and *cultural resources* are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and cultural resources present	◆ There are both ecological and cultural resources present on the MRS.	5
Ecological resources present	◆ There are ecological resources present on the MRS.	3
Cultural resources present	◆ There are cultural resources present on the MRS.	3
No ecological or cultural resources present	◆ There are no ecological resources or cultural resources present on the MRS.	0
ECOLOGICAL AND/OR CULTURAL RESOURCES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ecological and/or Cultural Resources*** classification in the space provided.

No Known or Suspected CWM.

Table 20
Determining the CHE Module Rating

DIRECTIONS:

1. From Tables 11–19, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **CHE Module Total** box below.
4. Circle the appropriate range for the **CHE Module Total** below.
5. Circle the **CHE Module Rating** that corresponds to the range selected and record this value in the **CHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
CWM Hazard Factor Data Elements			
CWM Configuration	Table 11		
Sources of CWM	Table 12		
Accessibility Factor Data Elements			
Location of CWM	Table 13		
Ease of Access	Table 14		
Status of Property	Table 15		
Receptor Factor Data Elements			
Population Density	Table 16		
Population Near Hazard	Table 17		
Types of Activities/Structures	Table 18		
Ecological and/or Cultural Resources	Table 19		
CHE MODULE DRAFT TOTAL			

CHE Module Total	CHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected CWM Hazard
CHE MODULE DRAFT RATING	No Known or Suspected CWM

Table 21

HHE Module: Groundwater Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Sum The Ratios**	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Groundwater MC Hazard ☒

Table 22

HHE Module: Surface Water – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios

CHF Scale	CHF Value	Sum The Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Water (Human Endpoint) MC Hazard ☒

Table 23

HHE Module: Sediment – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the sediment, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios

CHF Scale	CHF Value	Sum The Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right maximum value = H).	

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L

MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L

RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Sediment (Human Endpoint) MC Hazard ☒

Table 24

HHE Module: Surface Water – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Sum the Ratios**	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Water (Ecological Endpoint) MC Hazard ☒

Table 25

HHE Module: Sediment – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the sediment, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Sum the Ratios**	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Sediment (Ecological Endpoint) MC Hazard ☒

Table 26

HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface soil and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface soil contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the surface soil, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratio

CHF Scale	CHF Value	Sum the Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface soil to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Soil MC Hazard ☒

Table 27

HHE Module: Supplemental Contaminant Hazard Factor Table

<u>**Contaminant Hazard Factor (CHF)**</u>

DIRECTIONS: Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the **media** in which these contaminants are present. Then record all **contaminants**, their **maximum concentrations** and their **comparison values** (from Appendix B of the Primer) in the table below. Calculate and record the **ratio** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

Table 28
Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the **Contaminant Hazard**, **Migration Pathway**, and **Receptor Factors** for the media (from Tables 21–26) in the corresponding boxes below.
2. Record the media's three-letter combinations in the **Three-Letter Combination** boxes below (three-letter combinations are arranged from Hs to Ms to Ls).
3. Using the **HHE Ratings** provided below, determine each media's rating (A–G) and record the letter in the corresponding **Media Rating** box below.

Media (Source)	Contaminant Hazard Factor Value	Migratory Pathway Factor Value	Receptor Factor Value		Three-Letter Combination (Hs-Ms-Ls)		Media Rating (A-G)
Groundwater (Table 21)							
Surface Water/Human Endpoint (Table 22)							
Sediment/Human Endpoint (Table 23)							
Surface Water/Ecological Endpoint (Table 24)							
Sediment/Ecological Endpoint (Table 25)							
Surface Soil (Table 26)							

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the **HHE Module Rating** box.

Note:

An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE MODULE DRAFT RATING	

HHE Ratings (for reference only)

Combination	Rating
HHH	A
HHM	B
HHL	C
HMM	C
HML	D
MMM	D
HLL	E
MML	E
MLL	F
LLL	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

Table 29
MRS Draft Priority

DIRECTIONS: In the chart below, circle the letter **rating** for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical **priority** for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the **MRS Priority or Alternative MRS Rating** at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Draft Rating	Draft Priority	CHE Draft Rating	Draft Priority	HHE Draft Rating	Draft Priority
		A	1		
A	2	B	2	A	2
B	3	C	3	B	3
C	4	D	4	C	4
D	5	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	7
G	8			G	8
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		No Longer Required	
No Known or Suspected Explosive Hazard		No Known or Suspected CWM Hazard		No Known or Suspected MC Hazard	
MRS DRAFT PRIORITY or ALTERNATIVE MRS DRAFT RATING				5	

Table A
MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the **MRS Summary**, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental nonmunitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: Possible Demolition Site MRS (IAAP-004-R-01)

Component: United States Army

Installation/Property Name: Iowa Army Ammunition Plant

Location (City, County, State): Middletown, Des Moines County, Iowa

Site Name/Project Name (Project No.): Possible Demolition Site MRS/IAAAP MMRP SI

Date Information Entered/Updated: April 27, 2007

Point of Contact (Name/Phone): Steve Bellrichard/319-753-7150

Project Phase (check only one):

❑ PA	☒ SI	❑ RI	❑ FS	❑ RD
❑ RA-C	❑ RIP	❑ RA-O	❑ RC	❑ LTM

Media Evaluated (check all that apply):

❑ Groundwater	❑ Sediment (human receptor)
❑ Surface soil	❑ Surface Water (ecological receptor)
❑ Sediment (ecological receptor)	❑ Surface Water (human receptor)

MRS Summary:

MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM, or MC known or suspected to be present. When possible, identify munitions, CWM, and MC by type:
Historical data indicates the Possible Demolition Site was used during the 1940s and early 1950s as a demolition area for ammunition items.

Description of Pathways for Human and Ecological Receptors:
MEC: handle/tread underfoot and intrusive activities.
MC: Incomplete Pathway. The nature and extent of MC contamination was delineated by the IRP, and a removal action was completed in December 2006.

Description of Receptors (Human and Ecological):
MEC: IAAAP personnel, contractors, visitors, hunters, trespassers, construction workers, and biota.

West Burn Pads Area South of the Road MRS

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond with **all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	◆ UXO that are considered most likely to function upon any interaction with exposed persons (e.g., submunitions, 40mm high-explosive [HE] grenades, white phosphorus [WP] munitions, high-explosive antitank [HEAT] munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions). ◆ Hand grenades containing energetic filler. ◆ Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard.	(30)
High explosive (used or damaged)	◆ UXO containing a high-explosive filler (e.g., RDX, Composition B), that are not considered "sensitive." ◆ DMM containing a high-explosive filler that have: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	25
Pyrotechnic (used or damaged)	◆ UXO containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades). ◆ DMM containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades) that have: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	20
High explosive (unused)	◆ DMM containing a high-explosive filler that: ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability.	15
Propellant	◆ UXO containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: ▪ Damaged by burning or detonation ▪ Deteriorated to the point of instability.	15
Bulk secondary high explosives, pyrotechnics, or propellant	◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ DMM that are bulk secondary high explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	(10)
Pyrotechnic (not used or damaged)	◆ DMM containing a pyrotechnic filler (i.e., red phosphorus), other than white phosphorus filler, that: ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability.	10
Practice	◆ UXO that are practice munitions that are not associated with a sensitive fuze. ◆ DMM that are practice munitions that are not associated with a sensitive fuze and that have not: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	5
Riot control	◆ UXO or DMM containing a riot control agent filler (e.g., tear gas).	3
Small arms	◆ Used munitions or DMM that are categorized as small arms ammunition. (Physical evidence or historical evidence that no other types of munitions [e.g., grenades, subcaliber training rockets, demolition charges] were used or are present on the MRS is required for selection of this category.)	2
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
MUNITIONS TYPE	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	30

DIRECTIONS: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.

During an USACE investigation (2001), sump sludge was identified on the surface. The sump sludge was tested for explosive content, which contained a TNT concentration of 750,000 mg/kg and a RDX concentration of 53 mg/kg. Additional sump sludge was observed on the surface during the URS site visit (2006). The sump sludge was removed by American Ordnance.

Table 2

EHE Module: Source of Hazard Data Element Table

DIRECTIONS: Below are 11 classifications describing sources of explosive hazards. Circle the scores that correspond with **all** the sources of explosive hazards known or suspected to be present at the MRS.

Note: The terms *former range, practice munitions, small arms range, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Former range	◆ The MRS is a former military range where munitions (including practice munitions with sensitive fuzes) have been used. Such areas include impact or target areas and associated buffer and safety zones.	10
Former munitions treatment (i.e., OB/OD) unit	◆ The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	(8)
Former practice munitions range	◆ The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	6
Former maneuver area	◆ The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	5
Former burial pit or other disposal area	◆ The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a water body) without prior thermal treatment.	(5)
Former industrial operating facilities	◆ The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	4
Former firing points	◆ The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of a former military range.	4
Former missile or air defense artillery emplacements	◆ The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	2
Former storage or transfer points	◆ The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	2
Former small arms range	◆ The MRS is a former military range where only small arms ammunition was used. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present to place an MRS into this category.)	1
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	0
SOURCE OF HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	8

DIRECTIONS: Document any MRS-specific data used in selecting the ***Source of Hazard*** classifications in the space provided.

The West Burn Pads Area South of the Road MRS is believed to be an extension of the West Burn Pads (IAAP-03-R-01), which was used for flashing metals contaminated with explosives. In addition, trenching and disposal activities may have been conducted in this area.

Table 3

EHE Module: Location of Munitions Data Element Table

DIRECTIONS: Below are eight classifications of munitions locations and their descriptions. Circle the scores that correspond with **all** the locations where munitions are known or suspected to be present at the MRS.

Note: The terms *confirmed, surface, subsurface, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed surface	◆ Physical evidence indicates that there are UXO or DMM on the surface of the MRS. ◆ Historical evidence (i.e., a confirmed report such as an explosive ordnance disposal [EOD], police, or fire department report that an incident or accident that involved UXO or DMM occurred) indicates there are UXO or DMM on the surface of the MRS.	(25)
Confirmed subsurface, active	◆ Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. ◆ Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	20
Confirmed subsurface, stable	◆ Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed. ◆ Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed.	15
Suspected (physical evidence)	◆ There is physical evidence (e.g., munitions debris such as fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	(10)
Suspected (historical evidence)	◆ There is historical evidence indicating that UXO or DMM may be present at the MRS.	(5)
Subsurface, physical constraint	◆ There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	2
Small arms (regardless of location)	◆ The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present at the MRS to place an MRS into this category.)	1
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
LOCATION OF MUNITIONS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	25

DIRECTIONS: Document any MRS-specific data used in selecting the ***Location of Munitions*** classifications in the space provided

During an USACE investigation (2001), sump sludge was identified on the surface. The sump sludge was tested for explosive content, which contained a TNT concentration of 750,000 mg/kg and a RDX concentration of 53 mg/kg. Additional sump sludge was observed on the surface during the URS site visit (2006). The sump sludge was removed by American Ordnance. The potential for additional MEC to be present at this MRS exists.

Based on an HRR interview, trenching and disposal activities (OB/OD) may have been conducted on this MRS.

Table 4

EHE Module: Ease of Access Data Element Table

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS.

Note: The term *barrier* is defined in Appendix C of the Primer.

Classification	Description	Score
No barrier	◆ There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible).	(10)
Barrier to MRS access is incomplete	◆ There is a barrier preventing access to parts of the MRS, but not the entire MRS.	8
Barrier to MRS access is complete but not monitored	◆ There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS.	5
Barrier to MRS access is complete and monitored	◆ There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS.	0
EASE OF ACCESS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	10

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ease of Access*** classification in the space provided.

The West Burn Pads Area South of the Road MRS is located within the boundaries of the Iowa Army Ammunition Plant. There are no site-specific barriers to this MRS. American Ordnance security patrols are conducted on the installation proper on a regular basis.

Table 5

EHE Module: Status of Property Data Element Table

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD control	◆ The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by DoD. Examples are privately owned land or water bodies; land or water bodies owned or controlled by state, tribal, or local governments; and land or water bodies managed by other federal agencies. ◆ The MRS is at a location that is owned by DoD, but that DoD has leased to another entity and for which DoD does not control access 24 hours per day.	5
Scheduled for transfer from DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD, and DoD plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government; a private party; another federal agency) within 3 years from the date the Protocol is applied.	3
DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD. With respect to property that is leased or otherwise possessed, DoD must control access to the MRS 24 hours per day, every day of the calendar year.	(0)
STATUS OF PROPERTY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	0

DIRECTIONS: Document any MRS-specific data used in selecting the ***Status of Property*** classification in the space provided.

Iowa Army Ammunition Plant is an active DOD facility.

Table 6

EHE Module: Population Density Data Element Table

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score.

Note: Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 persons per square mile	◆ There are more than 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	5
100–500 persons per square mile	◆ There are 100 to 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	3
< 100 persons per square mile	◆ There are fewer than 100 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	(1)
POPULATION DENSITY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	1

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Density*** classification in the space provided.

Based on the United States Census Bureau, the population density for Middletown, Iowa in 2000 was 36 persons per square mile. The population density for Des Moines County, Iowa in 2005 was 98 persons per square mile.

Table 7

EHE Module: Population Near Hazard Data Element Table

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term *inhabited structures* is defined in Appendix C of the Primer.

Classification	Description	Score
26 or more inhabited structures	◆ There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	(5)
16 to 25 inhabited structures	◆ There are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	4
11 to 15 inhabited structures	◆ There are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	3
6 to 10 inhabited structures	◆ There are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	2
1 to 5 inhabited structures	◆ There are 1 to 5 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	1
0 inhabited structures	◆ There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	0
POPULATION NEAR HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	5

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classification in the space provided.

Based on GIS data obtained from the Des Moines County Assessor, there are more than 26 inhabited structures within 2 miles from the MRS boundary (www.dmcgis.com).

Table 8

EHE Module: Types of Activities/Structures Data Element Table

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with **all** the activities/structure classifications at the MRS.

Note: The term *inhabited structure* is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, educational, commercial, or subsistence	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets (e.g., hospitals, fire and rescue, police stations, dams), hotels, commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing, and gathering.	(5)
Parks and recreational areas	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	4
Agricultural, forestry	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture or forestry.	3
Industrial or warehousing	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	2
No known or recurring activities	◆ There are no known or recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary.	1
TYPES OF ACTIVITIES/STRUCTURES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	5

DIRECTIONS: Document any MRS-specific data used in selecting the ***Types of Activities/Structures*** classifications in the space provided.

IAAAP, Great River Medical Center, Southeastern College at Burlington, Buena Vista School (inactive), various commercial businesses, and residential structures are present within 2 miles from the MRS boundary.

Table 9

EHE Module: Ecological and/or Cultural Resources Data Element Table

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms *ecological resources* and *cultural resources* are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and cultural resources present	◆ There are both ecological and cultural resources present on the MRS.	5
Ecological resources present	◆ There are ecological resources present on the MRS.	3
Cultural resources present	◆ There are cultural resources present on the MRS.	3
No ecological or cultural resources present	◆ There are no ecological resources or cultural resources present on the MRS.	(0)
ECOLOGICAL AND/OR CULTURAL RESOURCES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	0

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ecological and/or Cultural Resources*** classification in the space provided.

Based on the Integrated Natural Resources Management Plan (HES 2001) and the Integrated Cultural Resources Management Plan (Earth Tech 2002), no ecological or cultural resources are present on the MRS.

Table 10
Determining the EHE Module Rating

DIRECTIONS:

1. From Tables 1–9, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.
4. Circle the appropriate range for the **EHE Module Total** below.
5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
Explosive Hazard Factor Data Elements			
Munitions Type	Table 1	30	38
Source of Hazard	Table 2	8	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	25	35
Ease of Access	Table 4	10	
Status of Property	Table 5	0	
Receptor Factor Data Elements			
Population Density	Table 6	1	11
Population Near Hazard	Table 7	5	
Types of Activities/Structures	Table 8	5	
Ecological and/or Cultural Resources	Table 9	0	
EHE MODULE DRAFT TOTAL			84

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	B (circled)
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE MODULE DRAFT RATING	B

Table 11

CHE Module: CWM Configuration Data Element Table

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with **all** the CWM configurations known or suspected to be present at the MRS.

Note: The terms *CWM/UXO, CWM/DMM, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, that are either UXO, or explosively configured damaged DMM	The CWM known or suspected of being present at the MRS are: ◆ CWM that are UXO (i.e., CWM/UXO) ◆ Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	30
CWM mixed with UXO	◆ The CWM known or suspected of being present at the MRS are undamaged CWM/DMM or CWM not configured as a munition that are commingled with conventional munitions that are UXO.	25
CWM, explosive configuration that are undamaged DMM	◆ The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM that have not been damaged.	20
CWM/DMM, not explosively configured or CWM, bulk container	The CWM known or suspected of being present at the MRS are: ◆ Nonexplosively configured CWM/DMM either damaged or undamaged ◆ Bulk CWM (e.g., ton container).	15
CAIS K941 and CAIS K942	◆ The CWM/DMM known or suspected of being present at the MRS are CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	12
CAIS (chemical agent identification sets)	◆ CAIS, other than CAIS K941 and K942, are known or suspected of being present at the MRS.	10
Evidence of no CWM	◆ Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	0
CWM CONFIGURATION	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space provided.

No Known or Suspected CWM.

Table 12

CHE Module: Sources of CWM Data Element Table

DIRECTIONS: Below are 11 sources of CWM hazards and their descriptions. Review these classifications and circle the scores that correspond with **all** the sources of CWM hazards known or suspected to be present at the MRS.

Note: The terms *CWM/UXO, CWM/DMM, CAIS/DMM, surface, subsurface, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Live-fire involving CWM	◆ The MRS is a former military range that supported live-fire of explosively configured CWM and the CWM/UXO are known or suspected of being present on the surface or in the subsurface. ◆ The MRS is a former military range that supported live-fire with conventional munitions, and CWM/DMM are on the surface or in the subsurface commingled with conventional munitions that are UXO.	10
Damaged CWM/DMM surface or subsurface	◆ There are damaged CWM/DMM on the surface or in the subsurface at the MRS.	10
Undamaged CWM/DMM surface	◆ There are undamaged CWM/DMM on the surface at the MRS.	10
CAIS/DMM surface	◆ There are CAIS/DMM on the surface.	10
Undamaged CWM/DMM, subsurface	◆ There are undamaged CWM/DMM in the subsurface at the MRS.	5
CAIS/DMM subsurface	◆ There are CAIS/DMM in the subsurface at the MRS.	5
Former CA or CWM Production Facilities	◆ The MRS is a facility that formerly engaged in production of CA or CWM, and CWM/DMM is suspected of being present on the surface or in the subsurface.	3
Former Research, Development, Testing, and Evaluation (RDT&E) facility using CWM	◆ The MRS is at a facility that formerly was involved in non-live-fire RDT&E activities (including static testing) involving CWM, and there are CWM/DMM suspected of being present on the surface or in the subsurface.	3
Former Training Facility using CWM or CAIS	◆ The MRS is a location that formerly was involved in training activities involving CWM and/or CAIS (e.g., training in recognition of CWM, decontamination training) and CWM/DMM or CAIS/DMM are suspected of being present on the surface or in the subsurface.	2
Former Storage or Transfer points of CWM	◆ The MRS is a former storage facility or transfer point (e.g., intermodal transfer) for CWM.	1
Evidence of no CWM	◆ Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	0
SOURCES OF CWM	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Sources of CWM*** classifications in the space provided.

No Known or Suspected CWM.

Table 13

CHE Module: Location of CWM Data Element Table

DIRECTIONS: Below are seven classifications of CWM locations and their descriptions. Review these locations and circle the scores that correspond with **all** the locations where CWM are known or suspected of being found at the MRS.

Note: The terms *confirmed, surface, subsurface, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed surface	◆ Physical evidence indicates that there are CWM on the surface of the MRS. ◆ Historical evidence (i.e., a confirmed report such as an explosive ordnance disposal [EOD], police, or fire department report, that an incident or accident that involved CWM, regardless of configuration, occurred) indicates there are CWM on the surface of the MRS.	25
Confirmed subsurface, active	◆ Physical evidence indicates the presence of CWM in the subsurface of the MRS and the geological conditions at the MRS are likely to cause CWM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose CWM. ◆ Historical evidence indicates that CWM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause CWM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose CWM.	20
Confirmed subsurface, stable	◆ Physical evidence indicates the presence of CWM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause CWM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause CWM to be exposed. ◆ Historical evidence indicates that CWM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause CWM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause CWM to be exposed.	15
Suspected (physical evidence)	◆ There is physical evidence, other than the documented presence of CWM, indicating that CWM may be present at the MRS.	10
Suspected (historical evidence)	◆ There is historical evidence indicating that CWM may be present at the MRS.	5
Subsurface, physical constraint	◆ There is physical or historical evidence indicating that CWM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the CWM.	2
Evidence of no CWM	◆ Following investigation of the MRS, there is physical evidence that there is no CWM present or there is historical evidence indicating that no CWM are present.	0
LOCATION OF CWM	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Location of CWM*** classifications in the space provided.

No Known or Suspected CWM.

Table 14
CHE Module: Ease of Access Data Element Table

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS.

Note: The term *barrier* is defined in Appendix C of the Primer.

Classification	Description	Score
No barrier	◆ There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible).	10
Barrier to MRS access is incomplete	◆ There is a barrier preventing access to parts of the MRS, but not the entire MRS.	8
Barrier to MRS access is complete but not monitored	◆ There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS.	5
Barrier to MRS access is complete and monitored	◆ There is a barrier preventing access to all parts of the MRS, and there is active continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS.	0
EASE OF ACCESS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ease of Access*** classification in the space provided.

No Known or Suspected CWM.

Table 15

CHE Module: Status of Property Data Element Table

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD control	◆ The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by DoD. Examples are privately owned land or water bodies; land or water bodies owned or controlled by state, tribal or local governments; and land or water bodies managed by other federal agencies. ◆ The MRS is at a location that is owned by DoD, but that DoD has leased to another entity and for which DoD does not control access 24 hours per day.	5
Scheduled for transfer from DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD, and DoD plans to transfer that land or water body to control of another entity (e.g., a state, tribal, or local government; a private party; another federal agency) within 3 years from the date the Protocol is applied.	3
DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD. With respect to property that is leased or otherwise possessed, DoD controls access to the MRS 24 hours per day, every day of the calendar year.	0
STATUS OF PROPERTY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Status of Property*** classification in the space provided.

No Known or Suspected CWM.

Table 16

CHE Module: Population Density Data Element Table

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score.

Note: Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 persons per square mile	◆ There are more than 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	5
100–500 persons per square mile	◆ There are 100 to 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	3
< 100 persons per square mile	◆ There are fewer than 100 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	1
POPULATION DENSITY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Density*** classification in the space provided.

No Known or Suspected CWM.

Table 17

CHE Module: Population Near Hazard Data Element Table

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term *inhabited structures* is defined in Appendix C of the Primer.

Classification	Description	Score
26 or more inhabited structures	◆ There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	5
16 to 25 inhabited structures	◆ There are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	4
11 to 15 inhabited structures	◆ There are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	3
6 to 10 inhabited structures	◆ There are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	2
1 to 5 inhabited structures	◆ There are 1 to 5 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	1
0 inhabited structures	◆ There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	0
POPULATION NEAR HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classification in the space provided.

No Known or Suspected CWM.

Table 18

CHE Module: Types of Activities/Structures Data Element Table

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with **all** the activities/structures classifications at the MRS.

Note: The term *inhabited structures* is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, educational, commercial, or subsistence	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets (e.g., hospitals, fire and rescue, police stations, dams), hotels, commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing, and gathering.	5
Parks and recreational areas	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	4
Agricultural, forestry	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture or forestry.	3
Industrial or warehousing	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	2
No known or recurring activities	◆ There are no known of recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary.	1
TYPES OF ACTIVITIES/STRUCTURES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Types of Activities/Structures*** classifications in the space provided.

No Known or Suspected CWM.

Table 19

CHE Module: Ecological and/or Cultural Resources Data Element Table

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms *ecological resources* and *cultural resources* are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and cultural resources present	◆ There are both ecological and cultural resources present on the MRS.	5
Ecological resources present	◆ There are ecological resources present on the MRS.	3
Cultural resources present	◆ There are cultural resources present on the MRS.	3
No ecological or cultural resources present	◆ There are no ecological resources or cultural resources present on the MRS.	0
ECOLOGICAL AND/OR CULTURAL RESOURCES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ecological and/or Cultural Resources*** classification in the space provided.

No Known or Suspected CWM.

Table 20
Determining the CHE Module Rating

DIRECTIONS:

1. From Tables 11–19, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **CHE Module Total** box below.
4. Circle the appropriate range for the **CHE Module Total** below.
5. Circle the **CHE Module Rating** that corresponds to the range selected and record this value in the **CHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
CWM Hazard Factor Data Elements			
CWM Configuration	Table 11		
Sources of CWM	Table 12		
Accessibility Factor Data Elements			
Location of CWM	Table 13		
Ease of Access	Table 14		
Status of Property	Table 15		
Receptor Factor Data Elements			
Population Density	Table 16		
Population Near Hazard	Table 17		
Types of Activities/Structures	Table 18		
Ecological and/or Cultural Resources	Table 19		
CHE MODULE DRAFT TOTAL			

CHE Module Total	CHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected CWM Hazard
CHE MODULE DRAFT RATING	No Known or Suspected CWM

Table 21

HHE Module: Groundwater Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
RDX	1,200	610	1.96
CHF Scale	**CHF Value**	**Sum The Ratios**	1.96
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		L

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	H

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	M

No Known or Suspected Groundwater MC Hazard ❑

Table 22

HHE Module: Surface Water – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
RDX	0.82	610	.001
CHF Scale	**CHF Value**	**Sum The Ratios**	.001
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		L

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	H

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	H

No Known or Suspected Surface Water (Human Endpoint) MC Hazard ❑

Table 23

HHE Module: Sediment – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the sediment, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios

CHF Scale	CHF Value	Sum The Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right maximum value = H).	

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L

MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L

RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Sediment (Human Endpoint) MC Hazard ☒

Table 24

HHE Module: Surface Water – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Sum the Ratios**	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Water (Ecological Endpoint) MC Hazard ☒

Table 25

HHE Module: Sediment – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the sediment, select the box at the bottom of the table.

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Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Sum the Ratios**	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Sediment (Ecological Endpoint) MC Hazard ☒

Table 26

HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface soil and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface soil contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the surface soil, select the box at the bottom of the table.

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Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratio
TNT	630	1,500	0.42
Lead	1,300	400	3.25
Barium	55,000	5,300	10.38
RDX	310	400	0.775
CHF Scale	**CHF Value**	**Sum the Ratios**	14.8
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		M

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	H

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface soil to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	H

No Known or Suspected Surface Soil MC Hazard ❑

Table 27

HHE Module: Supplemental Contaminant Hazard Factor Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the **media** in which these contaminants are present. Then record all **contaminants**, their **maximum concentrations** and their **comparison values** (from Appendix B of the Primer) in the table below. Calculate and record the **ratio** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

Table 28
Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the **Contaminant Hazard**, **Migration Pathway**, and **Receptor Factors** for the media (from Tables 21–26) in the corresponding boxes below.
2. Record the media's three-letter combinations in the **Three-Letter Combination** boxes below (three-letter combinations are arranged from Hs to Ms to Ls).
3. Using the **HHE Ratings** provided below, determine each media's rating (A–G) and record the letter in the corresponding **Media Rating** box below.

Media (Source)	Contaminant Hazard Factor Value	Migratory Pathway Factor Value	Receptor Factor Value	Three-Letter Combination (Hs-Ms-Ls)	Media Rating (A-G)
Groundwater (Table 21)	L	H	M	LHM	D
Surface Water/Human Endpoint (Table 22)	L	H	H	LHH	C
Sediment/Human Endpoint (Table 23)	NA	NA	NA		
Surface Water/Ecological Endpoint (Table 24)	NA	NA	NA		
Sediment/Ecological Endpoint (Table 25)	NA	NA	NA		
Surface Soil (Table 26)	M	H	H	MHH	B

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the **HHE Module Rating** box.

Note:

An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE MODULE DRAFT RATING	B

HHE Ratings (for reference only)

Combination	Rating
HHH	A
HHM	B
HHL	C
HMM	C
HML	D
MMM	D
HLL	E
MML	E
MLL	F
LLL	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

Table 29
MRS Draft Priority

DIRECTIONS: In the chart below, circle the letter **rating** for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical **priority** for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the **MRS Priority or Alternative MRS Rating** at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Draft Rating	Draft Priority	CHE Draft Rating	Draft Priority	HHE Draft Rating	Draft Priority
		A	1		
A	2	B	2	A	2
(B)	(3)	C	3	(B)	(3)
C	4	D	4	C	4
D	5	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	7
G	8			G	8
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		No Longer Required	
No Known or Suspected Explosive Hazard		(No Known or Suspected CWM Hazard)		No Known or Suspected MC Hazard	
MRS DRAFT PRIORITY or ALTERNATIVE MRS DRAFT RATING				3	

Table A
MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the **MRS Summary**, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental nonmunitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: West Burn Pads Area South of the Road MRS (IAAP-005-R-01)

Component: United States Army

Installation/Property Name: Iowa Army Ammunition Plant

Location (City, County, State): Middletown, Des Moines County, Iowa

Site Name/Project Name (Project No.): West Burn Pads Area South of the Road MRS/IAAAP MMRP SI

Date Information Entered/Updated: April 27, 2007

Point of Contact (Name/Phone): Steve Bellrichard/319-753-7150

Project Phase (check only one):

❑ PA	☒ SI	❑ RI	❑ FS	❑ RD
❑ RA-C	❑ RIP	❑ RA-O	❑ RC	❑ LTM

Media Evaluated (check all that apply):

☒ Groundwater	❑ Sediment (human receptor)
☒ Surface soil	❑ Surface Water (ecological receptor)
❑ Sediment (ecological receptor)	☒ Surface Water (human receptor)

MRS Summary:

MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM, or MC known or suspected to be present. When possible, identify munitions, CWM, and MC by type:
The West Burn Pads Area South of the Road MRS is believed to be an extension of the West Burn Pads (IAAP-03-R-01), which was used for flashing metals contaminated with explosives. In addition, trenching and disposal activities may have been conducted in this area.

Description of Pathways for Human and Ecological Receptors:
MEC: handle/tread underfoot and intrusive activities.
MC (soil): incidental ingestion, inhalation, or dermal contact.
MC (surface water/sediment): incidental ingestion or dermal contact.
MC (groundwater): incidental ingestion, inhalation, or dermal contact.

Description of Receptors (Human and Ecological):
MEC: IAAAP personnel, contractors, visitors, hunters, trespassers, construction workers, and biota.
MC (soil): IAAAP personnel, contractors, visitors, hunters, trespassers, construction workers, and biota.
MC (surface water/sediment): hunters, trespassers, and biota.
MC (groundwater): construction workers and biota.

Maneuver Area MRS

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond with **all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	◆ UXO that are considered most likely to function upon any interaction with exposed persons (e.g., submunitions, 40mm high-explosive [HE] grenades, white phosphorus [WP] munitions, high-explosive antitank [HEAT] munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions). ◆ Hand grenades containing energetic filler. ◆ Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard.	30
High explosive (used or damaged)	◆ UXO containing a high-explosive filler (e.g., RDX, Composition B), that are not considered "sensitive." ◆ DMM containing a high-explosive filler that have: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	25
Pyrotechnic (used or damaged)	◆ UXO containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades). ◆ DMM containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades) that have: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	(20)
High explosive (unused)	◆ DMM containing a high-explosive filler that: ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability.	15
Propellant	◆ UXO containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: ▪ Damaged by burning or detonation ▪ Deteriorated to the point of instability.	15
Bulk secondary high explosives, pyrotechnics, or propellant	◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ DMM that are bulk secondary high explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	10
Pyrotechnic (not used or damaged)	◆ DMM containing a pyrotechnic filler (i.e., red phosphorus), other than white phosphorus filler, that: ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability.	10
Practice	◆ UXO that are practice munitions that are not associated with a sensitive fuze. ◆ DMM that are practice munitions that are not associated with a sensitive fuze and that have not: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	5
Riot control	◆ UXO or DMM containing a riot control agent filler (e.g., tear gas).	3
Small arms	◆ Used munitions or DMM that are categorized as small arms ammunition. (Physical evidence or historical evidence that no other types of munitions [e.g., grenades, subcaliber training rockets, demolition charges] were used or are present on the MRS is required for selection of this category.)	2
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
MUNITIONS TYPE	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	20

DIRECTIONS: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.

The Iowa Army National Guard (IA ARNG) has been authorized to perform training exercises at the Maneuver Area MRS since at least 1969. Training exercises at a minimum have included dismounted movement, construction of bivouac sites, and night convoy operations. In addition, IA ARNG has historically been authorized to use ammunition blanks and pyrotechnics during training activities.

Table 2

EHE Module: Source of Hazard Data Element Table

DIRECTIONS: Below are 11 classifications describing sources of explosive hazards. Circle the scores that correspond with **all** the sources of explosive hazards known or suspected to be present at the MRS.

Note: The terms *former range, practice munitions, small arms range, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Former range	◆ The MRS is a former military range where munitions (including practice munitions with sensitive fuzes) have been used. Such areas include impact or target areas and associated buffer and safety zones.	10
Former munitions treatment (i.e., OB/OD) unit	◆ The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	8
Former practice munitions range	◆ The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	6
Former maneuver area	◆ The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	(5)
Former burial pit or other disposal area	◆ The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a water body) without prior thermal treatment.	5
Former industrial operating facilities	◆ The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	4
Former firing points	◆ The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of a former military range.	4
Former missile or air defense artillery emplacements	◆ The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	2
Former storage or transfer points	◆ The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	2
Former small arms range	◆ The MRS is a former military range where only small arms ammunition was used. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present to place an MRS into this category.)	1
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	0
SOURCE OF HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	5

DIRECTIONS: Document any MRS-specific data used in selecting the ***Source of Hazard*** classifications in the space provided.

In 1969, IAAAP transferred land to the IA ARNG for year round training. The IA ARNG was restricted to the following guidelines when in the training areas (USACE 1994): No storage of weapons, ammunition, or flammable materials. The use of blank ammunition and pyrotechnics was allowed.

Multiple agreements have been granted to the IA ARNG since this license. The most recent agreement (with American Ordnance – operating contractor) was put in place in 2000. IA ARNG was allowed to perform training related to dismounted movement, construction of bivouac sites, and night convoy operations. In addition, IA ARNG was authorized in this agreement to use ammunition blanks and pyrotechnics during training activities

Table 3

EHE Module: Location of Munitions Data Element Table

DIRECTIONS: Below are eight classifications of munitions locations and their descriptions. Circle the scores that correspond with **all** the locations where munitions are known or suspected to be present at the MRS.

Note: The terms *confirmed, surface, subsurface, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed surface	◆ Physical evidence indicates that there are UXO or DMM on the surface of the MRS. ◆ Historical evidence (i.e., a confirmed report such as an explosive ordnance disposal [EOD], police, or fire department report that an incident or accident that involved UXO or DMM occurred) indicates there are UXO or DMM on the surface of the MRS.	25
Confirmed subsurface, active	◆ Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. ◆ Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	20
Confirmed subsurface, stable	◆ Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed. ◆ Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed.	15
Suspected (physical evidence)	◆ There is physical evidence (e.g., munitions debris such as fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	10
Suspected (historical evidence)	◆ There is historical evidence indicating that UXO or DMM may be present at the MRS.	(5)
Subsurface, physical constraint	◆ There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	2
Small arms (regardless of location)	◆ The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present at the MRS to place an MRS into this category.)	1
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
LOCATION OF MUNITIONS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	5

DIRECTIONS: Document any MRS-specific data used in selecting the ***Location of Munitions*** classifications in the space provided.

According to IA ARNG, blanks and pyrotechnics were used on several occasions during field training exercises from 1984 through 1990. Items may have included 5.56 and 7.62 blanks, smoke, CS, and hand grenade simulators.

Table 4

EHE Module: Ease of Access Data Element Table

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS.

Note: The term *barrier* is defined in Appendix C of the Primer.

Classification	Description	Score
No barrier	◆ There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible).	(10)
Barrier to MRS access is incomplete	◆ There is a barrier preventing access to parts of the MRS, but not the entire MRS.	8
Barrier to MRS access is complete but not monitored	◆ There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS.	5
Barrier to MRS access is complete and monitored	◆ There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS.	0
EASE OF ACCESS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	10

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ease of Access*** classification in the space provided.

The Maneuver Area MRS is located within the boundaries of the Iowa Army Ammunition Plant. There are no site-specific barriers to this MRS. American Ordnance security patrols are conducted of the installation proper on a regular basis.

Table 5

EHE Module: Status of Property Data Element Table

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD control	◆ The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by DoD. Examples are privately owned land or water bodies; land or water bodies owned or controlled by state, tribal, or local governments; and land or water bodies managed by other federal agencies. ◆ The MRS is at a location that is owned by DoD, but that DoD has leased to another entity and for which DoD does not control access 24 hours per day.	5
Scheduled for transfer from DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD, and DoD plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government; a private party; another federal agency) within 3 years from the date the Protocol is applied.	3
DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD. With respect to property that is leased or otherwise possessed, DoD must control access to the MRS 24 hours per day, every day of the calendar year.	(0)
STATUS OF PROPERTY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	0

DIRECTIONS: Document any MRS-specific data used in selecting the ***Status of Property*** classification in the space provided.

Iowa Army Ammunition Plant is an active DOD facility.

Table 6

EHE Module: Population Density Data Element Table

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score.

Note: Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 persons per square mile	◆ There are more than 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	5
100–500 persons per square mile	◆ There are 100 to 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	3
< 100 persons per square mile	◆ There are fewer than 100 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	(1)
POPULATION DENSITY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	1

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Density*** classification in the space provided.

Based on the United States Census Bureau, the population density for Middletown, Iowa in 2000 was 36 persons per square mile. The population density for Des Moines County, Iowa in 2005 was 98 persons per square mile.

Table 7

EHE Module: Population Near Hazard Data Element Table

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term *inhabited structures* is defined in Appendix C of the Primer.

Classification	Description	Score
26 or more inhabited structures	◆ There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	(5)
16 to 25 inhabited structures	◆ There are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	4
11 to 15 inhabited structures	◆ There are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	3
6 to 10 inhabited structures	◆ There are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	2
1 to 5 inhabited structures	◆ There are 1 to 5 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	1
0 inhabited structures	◆ There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	0
POPULATION NEAR HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	5

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classification in the space provided.

Based on GIS data obtained from the Des Moines County Assessor, there are more than 26 inhabited structures within 2 miles from the MRS boundary (www.dmcgis.com).

Table 8

EHE Module: Types of Activities/Structures Data Element Table

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with **all** the activities/structure classifications at the MRS.

Note: The term *inhabited structure* is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, educational, commercial, or subsistence	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets (e.g., hospitals, fire and rescue, police stations, dams), hotels, commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing, and gathering.	(5)
Parks and recreational areas	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	4
Agricultural, forestry	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture or forestry.	3
Industrial or warehousing	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	2
No known or recurring activities	◆ There are no known or recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary.	1
TYPES OF ACTIVITIES/STRUCTURES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	5

DIRECTIONS: Document any MRS-specific data used in selecting the ***Types of Activities/Structures*** classifications in the space provided.

IAAAP, portions of Middletown, and West Burlington are within 2 miles from the MRS boundary. Numerous structures including residential, educational, critical assets, commercial, community, hunting, shopping centers, etc. are within 2 miles from the MRS boundary.

Table 9

EHE Module: Ecological and/or Cultural Resources Data Element Table

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms *ecological resources* and *cultural resources* are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and cultural resources present	◆ There are both ecological and cultural resources present on the MRS.	5
Ecological resources present	◆ There are ecological resources present on the MRS.	3
Cultural resources present	◆ There are cultural resources present on the MRS.	3
No ecological or cultural resources present	◆ There are no ecological resources or cultural resources present on the MRS.	(0)
ECOLOGICAL AND/OR CULTURAL RESOURCES	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 5).	0

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ecological and/or Cultural Resources*** classification in the space provided.

<u>Based on the Integrated Natural Resources Management Plan (HES 2001) and the Integrated Cultural Resources Management Plan (Earth Tech 2002), no ecological or cultural resources are present on the MRS.</u>

Table 10
Determining the EHE Module Rating

DIRECTIONS:

1. From Tables 1–9, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.
4. Circle the appropriate range for the **EHE Module Total** below.
5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
Explosive Hazard Factor Data Elements			
Munitions Type	Table 1	20	25
Source of Hazard	Table 2	5	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	5	15
Ease of Access	Table 4	10	
Status of Property	Table 5	0	
Receptor Factor Data Elements			
Population Density	Table 6	1	11
Population Near Hazard	Table 7	5	
Types of Activities/Structures	Table 8	5	
Ecological and/or Cultural Resources	Table 9	0	
EHE MODULE DRAFT TOTAL			51

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE MODULE DRAFT RATING	E

Table 11

CHE Module: CWM Configuration Data Element Table

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with **all** the CWM configurations known or suspected to be present at the MRS.

Note: The terms *CWM/UXO, CWM/DMM, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, that are either UXO, or explosively configured damaged DMM	The CWM known or suspected of being present at the MRS are: ◆ CWM that are UXO (i.e., CWM/UXO) ◆ Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	30
CWM mixed with UXO	◆ The CWM known or suspected of being present at the MRS are undamaged CWM/DMM or CWM not configured as a munition that are commingled with conventional munitions that are UXO.	25
CWM, explosive configuration that are undamaged DMM	◆ The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM that have not been damaged.	20
CWM/DMM, not explosively configured or CWM, bulk container	The CWM known or suspected of being present at the MRS are: ◆ Nonexplosively configured CWM/DMM either damaged or undamaged ◆ Bulk CWM (e.g., ton container).	15
CAIS K941 and CAIS K942	◆ The CWM/DMM known or suspected of being present at the MRS are CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	12
CAIS (chemical agent identification sets)	◆ CAIS, other than CAIS K941 and K942, are known or suspected of being present at the MRS.	10
Evidence of no CWM	◆ Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	0
CWM CONFIGURATION	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space provided.

No Known or Suspected CWM.

Table 12

CHE Module: Sources of CWM Data Element Table

DIRECTIONS: Below are 11 sources of CWM hazards and their descriptions. Review these classifications and circle the scores that correspond with **all** the sources of CWM hazards known or suspected to be present at the MRS.

Note: The terms *CWM/UXO, CWM/DMM, CAIS/DMM, surface, subsurface, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Live-fire involving CWM	◆ The MRS is a former military range that supported live-fire of explosively configured CWM and the CWM/UXO are known or suspected of being present on the surface or in the subsurface. ◆ The MRS is a former military range that supported live-fire with conventional munitions, and CWM/DMM are on the surface or in the subsurface commingled with conventional munitions that are UXO.	10
Damaged CWM/DMM surface or subsurface	◆ There are damaged CWM/DMM on the surface or in the subsurface at the MRS.	10
Undamaged CWM/DMM surface	◆ There are undamaged CWM/DMM on the surface at the MRS.	10
CAIS/DMM surface	◆ There are CAIS/DMM on the surface.	10
Undamaged CWM/DMM, subsurface	◆ There are undamaged CWM/DMM in the subsurface at the MRS.	5
CAIS/DMM subsurface	◆ There are CAIS/DMM in the subsurface at the MRS.	5
Former CA or CWM Production Facilities	◆ The MRS is a facility that formerly engaged in production of CA or CWM, and CWM/DMM is suspected of being present on the surface or in the subsurface.	3
Former Research, Development, Testing, and Evaluation (RDT&E) facility using CWM	◆ The MRS is at a facility that formerly was involved in non-live-fire RDT&E activities (including static testing) involving CWM, and there are CWM/DMM suspected of being present on the surface or in the subsurface.	3
Former Training Facility using CWM or CAIS	◆ The MRS is a location that formerly was involved in training activities involving CWM and/or CAIS (e.g., training in recognition of CWM, decontamination training) and CWM/DMM or CAIS/DMM are suspected of being present on the surface or in the subsurface.	2
Former Storage or Transfer points of CWM	◆ The MRS is a former storage facility or transfer point (e.g., intermodal transfer) for CWM.	1
Evidence of no CWM	◆ Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	0
SOURCES OF CWM	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Sources of CWM*** classifications in the space provided.

No Known or Suspected CWM.

Table 13

CHE Module: Location of CWM Data Element Table

DIRECTIONS: Below are seven classifications of CWM locations and their descriptions. Review these locations and circle the scores that correspond with **all** the locations where CWM are known or suspected of being found at the MRS.

Note: The terms *confirmed, surface, subsurface, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed surface	◆ Physical evidence indicates that there are CWM on the surface of the MRS. ◆ Historical evidence (i.e., a confirmed report such as an explosive ordnance disposal [EOD], police, or fire department report, that an incident or accident that involved CWM, regardless of configuration, occurred) indicates there are CWM on the surface of the MRS.	25
Confirmed subsurface, active	◆ Physical evidence indicates the presence of CWM in the subsurface of the MRS and the geological conditions at the MRS are likely to cause CWM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose CWM. ◆ Historical evidence indicates that CWM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause CWM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose CWM.	20
Confirmed subsurface, stable	◆ Physical evidence indicates the presence of CWM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause CWM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause CWM to be exposed. ◆ Historical evidence indicates that CWM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause CWM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause CWM to be exposed.	15
Suspected (physical evidence)	◆ There is physical evidence, other than the documented presence of CWM, indicating that CWM may be present at the MRS.	10
Suspected (historical evidence)	◆ There is historical evidence indicating that CWM may be present at the MRS.	5
Subsurface, physical constraint	◆ There is physical or historical evidence indicating that CWM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the CWM.	2
Evidence of no CWM	◆ Following investigation of the MRS, there is physical evidence that there is no CWM present or there is historical evidence indicating that no CWM are present.	0
LOCATION OF CWM	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Location of CWM*** classifications in the space provided.

No Known or Suspected CWM.

Table 14

CHE Module: Ease of Access Data Element Table

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS.

Note: The term *barrier* is defined in Appendix C of the Primer.

Classification	Description	Score
No barrier	◆ There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible).	10
Barrier to MRS access is incomplete	◆ There is a barrier preventing access to parts of the MRS, but not the entire MRS.	8
Barrier to MRS access is complete but not monitored	◆ There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS.	5
Barrier to MRS access is complete and monitored	◆ There is a barrier preventing access to all parts of the MRS, and there is active continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS.	0
EASE OF ACCESS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ease of Access*** classification in the space provided.

No Known or Suspected CWM.

Table 15

CHE Module: Status of Property Data Element Table

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD control	◆ The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by DoD. Examples are privately owned land or water bodies; land or water bodies owned or controlled by state, tribal or local governments; and land or water bodies managed by other federal agencies. ◆ The MRS is at a location that is owned by DoD, but that DoD has leased to another entity and for which DoD does not control access 24 hours per day.	5
Scheduled for transfer from DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD, and DoD plans to transfer that land or water body to control of another entity (e.g., a state, tribal, or local government; a private party; another federal agency) within 3 years from the date the Protocol is applied.	3
DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD. With respect to property that is leased or otherwise possessed, DoD controls access to the MRS 24 hours per day, every day of the calendar year.	0
STATUS OF PROPERTY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Status of Property*** classification in the space provided.

No Known or Suspected CWM.

Table 16

CHE Module: Population Density Data Element Table

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score.

Note: Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 persons per square mile	◆ There are more than 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	5
100–500 persons per square mile	◆ There are 100 to 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	3
< 100 persons per square mile	◆ There are fewer than 100 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	1
POPULATION DENSITY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Density*** classification in the space provided.

No Known or Suspected CWM.

Table 17

CHE Module: Population Near Hazard Data Element Table

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term *inhabited structures* is defined in Appendix C of the Primer.

Classification	Description	Score
26 or more inhabited structures	◆ There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	5
16 to 25 inhabited structures	◆ There are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	4
11 to 15 inhabited structures	◆ There are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	3
6 to 10 inhabited structures	◆ There are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	2
1 to 5 inhabited structures	◆ There are 1 to 5 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	1
0 inhabited structures	◆ There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	0
POPULATION NEAR HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classification in the space provided.

No Known or Suspected CWM.

Table 18

CHE Module: Types of Activities/Structures Data Element Table

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with **all** the activities/structures classifications at the MRS.

Note: The term *inhabited structures* is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, educational, commercial, or subsistence	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets (e.g., hospitals, fire and rescue, police stations, dams), hotels, commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing, and gathering.	5
Parks and recreational areas	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	4
Agricultural, forestry	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture or forestry.	3
Industrial or warehousing	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	2
No known or recurring activities	◆ There are no known of recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary.	1
TYPES OF ACTIVITIES/STRUCTURES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Types of Activities/Structures*** classifications in the space provided.

No Known or Suspected CWM.

Table 19

CHE Module: Ecological and/or Cultural Resources Data Element Table

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms *ecological resources* and *cultural resources* are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and cultural resources present	◆ There are both ecological and cultural resources present on the MRS.	5
Ecological resources present	◆ There are ecological resources present on the MRS.	3
Cultural resources present	◆ There are cultural resources present on the MRS.	3
No ecological or cultural resources present	◆ There are no ecological resources or cultural resources present on the MRS.	0
ECOLOGICAL AND/OR CULTURAL RESOURCES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ecological and/or Cultural Resources*** classification in the space provided.

No Known or Suspected CWM.

Table 20
Determining the CHE Module Rating

DIRECTIONS:

1. From Tables 11–19, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **CHE Module Total** box below.
4. Circle the appropriate range for the **CHE Module Total** below.
5. Circle the **CHE Module Rating** that corresponds to the range selected and record this value in the **CHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
CWM Hazard Factor Data Elements			
CWM Configuration	Table 11		
Sources of CWM	Table 12		
Accessibility Factor Data Elements			
Location of CWM	Table 13		
Ease of Access	Table 14		
Status of Property	Table 15		
Receptor Factor Data Elements			
Population Density	Table 16		
Population Near Hazard	Table 17		
Types of Activities/Structures	Table 18		
Ecological and/or Cultural Resources	Table 19		
CHE MODULE DRAFT TOTAL			

CHE Module Total	CHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected CWM Hazard
CHE MODULE DRAFT RATING	No Known or Suspected CWM

Table 21

HHE Module: Groundwater Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Sum The Ratios**	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Groundwater MC Hazard ❑

Table 22

HHE Module: Surface Water – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios

CHF Scale	CHF Value	Sum The Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Water (Human Endpoint) MC Hazard ❑

Table 23

HHE Module: Sediment – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the sediment, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Sum The Ratios**	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Sediment (Human Endpoint) MC Hazard ❑

Table 24

HHE Module: Surface Water – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Sum the Ratios**	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Water (Ecological Endpoint) MC Hazard ❑

Table 25

HHE Module: Sediment – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the sediment, select the box at the bottom of the table.

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Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Sum the Ratios**	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Sediment (Ecological Endpoint) MC Hazard ❑

Table 26

HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface soil and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface soil contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the surface soil, select the box at the bottom of the table.

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Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratio

CHF Scale	CHF Value	Sum the Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface soil to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Soil MC Hazard ❑

Table 27

HHE Module: Supplemental Contaminant Hazard Factor Table

<u>**Contaminant Hazard Factor (CHF)**</u>

DIRECTIONS: Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the **media** in which these contaminants are present. Then record all **contaminants**, their **maximum concentrations** and their **comparison values** (from Appendix B of the Primer) in the table below. Calculate and record the **ratio** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

Table 28
Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the **Contaminant Hazard**, **Migration Pathway**, and **Receptor Factors** for the media (from Tables 21–26) in the corresponding boxes below.
2. Record the media's three-letter combinations in the **Three-Letter Combination** boxes below (three-letter combinations are arranged from Hs to Ms to Ls).
3. Using the **HHE Ratings** provided below, determine each media's rating (A–G) and record the letter in the corresponding **Media Rating** box below.

Media (Source)	Contaminant Hazard Factor Value	Migratory Pathway Factor Value	Receptor Factor Value		Three-Letter Combination (Hs-Ms-Ls)		Media Rating (A-G)
Groundwater (Table 21)							
Surface Water/Human Endpoint (Table 22)							
Sediment/Human Endpoint (Table 23)							
Surface Water/Ecological Endpoint (Table 24)							
Sediment/Ecological Endpoint (Table 25)							
Surface Soil (Table 26)							

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the **HHE Module Rating** box.

Note:

An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE MODULE DRAFT RATING	

HHE Ratings (for reference only)

Combination	Rating
HHH	A
HHM	B
HHL	C
HMM	C
HML	D
MMM	D
HLL	E
MML	E
MLL	F
LLL	G

Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

Table 29
MRS Draft Priority

DIRECTIONS: In the chart below, circle the letter **rating** for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical **priority** for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the **MRS Priority or Alternative MRS Rating** at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Draft Rating	Draft Priority	CHE Draft Rating	Draft Priority	HHE Draft Rating	Draft Priority
		A	1		
A	2	B	2	A	2
B	3	C	3	B	3
C	4	D	4	C	4
D	5	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	7
G	8			G	8
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		No Longer Required	
No Known or Suspected Explosive Hazard		No Known or Suspected CWM Hazard		No Known or Suspected MC Hazard	
DRAFT MRS PRIORITY or ALTERNATIVE MRS RATING				6	

Table A
MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the **MRS Summary**, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental nonmunitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: Maneuver Area MRS (IAAP-006-R-02)

Component: United States Army

Installation/Property Name: Iowa Army Ammunition Plant

Location (City, County, State): Middletown, Des Moines County, Iowa

Site Name/Project Name (Project No.): Maneuver Area MRS/IAAAP MMRP SI

Date Information Entered/Updated: April 27, 2007

Point of Contact (Name/Phone): Steve Bellrichard/319-753-7150

Project Phase (check only one):

❑ PA	☒ SI	❑ RI	❑ FS	❑ RD
❑ RA-C	❑ RIP	❑ RA-O	❑ RC	❑ LTM

Media Evaluated (check all that apply):

❑ Groundwater	❑ Sediment (human receptor)
❑ Surface Soil	❑ Surface Water (ecological receptor)
❑ Sediment (ecological receptor)	❑ Surface Water (human receptor)

MRS Summary:

MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM, or MC known or suspected to be present. When possible, identify munitions, CWM, and MC by type:
Maneuver Area has been historically leased to the IA ARNG for use as a maneuver/training area. IA ARNG has been permitted to use pyrotechnics and blanks for training activities.

Description of Pathways for Human and Ecological Receptors:
MEC: handle/tread underfoot and intrusive activities.
MC (soil): incidental ingestion, inhalation, or dermal contact.
MC (surface water/sediment): incidental ingestion or dermal contact.

Description of Receptors (Human and Ecological):
MEC: IAAAP personnel, contractors, visitors, hunters, trespassers, construction workers, and biota.
MC (soil): IAAAP personnel, contractors, visitors, hunters, trespassers, construction workers, and biota.
MC (surface water/sediment): trespassers, hunters, and biota.

Incendiary Disposal Area MRS

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond with **all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	◆ UXO that are considered most likely to function upon any interaction with exposed persons (e.g., submunitions, 40mm high-explosive [HE] grenades, white phosphorus [WP] munitions, high-explosive antitank [HEAT] munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions). ◆ Hand grenades containing energetic filler. ◆ Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard.	(30)
High explosive (used or damaged)	◆ UXO containing a high-explosive filler (e.g., RDX, Composition B), that are not considered "sensitive." ◆ DMM containing a high-explosive filler that have: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	25
Pyrotechnic (used or damaged)	◆ UXO containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades). ◆ DMM containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades) that have: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	20
High explosive (unused)	◆ DMM containing a high-explosive filler that: ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability.	(15)
Propellant	◆ UXO containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: ▪ Damaged by burning or detonation ▪ Deteriorated to the point of instability.	15
Bulk secondary high explosives, pyrotechnics, or propellant	◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ DMM that are bulk secondary high explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	10
Pyrotechnic (not used or damaged)	◆ DMM containing a pyrotechnic filler (i.e., red phosphorus), other than white phosphorus filler, that: ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability.	10
Practice	◆ UXO that are practice munitions that are not associated with a sensitive fuze. ◆ DMM that are practice munitions that are not associated with a sensitive fuze and that have not: ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability.	5
Riot control	◆ UXO or DMM containing a riot control agent filler (e.g., tear gas).	3
Small arms	◆ Used munitions or DMM that are categorized as small arms ammunition. (Physical evidence or historical evidence that no other types of munitions [e.g., grenades, subcaliber training rockets, demolition charges] were used or are present on the MRS is required for selection of this category.)	2
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
MUNITIONS TYPE	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	30

DIRECTIONS: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.

In April 2007, the 763rd Ordnance Company (EOD) identified 1 mine, AT, M1A1; 14 Fuses, Projectile, PD, Mark II; and 13 Projectile, Shrapnel, Cannon 75mm Mk1 shells. The munitions items were detonated in place. In June 2007, five additional 75mm rounds were identified (pusher plates intact, black powder expelling charge, no fuzes). The munitions were safely removed.

Table 2

EHE Module: Source of Hazard Data Element Table

DIRECTIONS: Below are 11 classifications describing sources of explosive hazards. Circle the scores that correspond with **all** the sources of explosive hazards known or suspected to be present at the MRS.

Note: The terms *former range, practice munitions, small arms range, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Former range	◆ The MRS is a former military range where munitions (including practice munitions with sensitive fuzes) have been used. Such areas include impact or target areas and associated buffer and safety zones.	10
Former munitions treatment (i.e., OB/OD) unit	◆ The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	(8)
Former practice munitions range	◆ The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	6
Former maneuver area	◆ The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	5
Former burial pit or other disposal area	◆ The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a water body) without prior thermal treatment.	(5)
Former industrial operating facilities	◆ The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	4
Former firing points	◆ The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of a former military range.	4
Former missile or air defense artillery emplacements	◆ The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	2
Former storage or transfer points	◆ The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	2
Former small arms range	◆ The MRS is a former military range where only small arms ammunition was used. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present to place an MRS into this category.)	1
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	0
SOURCE OF HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	8

DIRECTIONS: Document any MRS-specific data used in selecting the ***Source of Hazard*** classifications in the space provided.

According to the Installation Assessment in 1980, a fenced area in the southern portion of the installation near the eastern boundary was used in the 1940s and 1950s for high explosives demolition and for burial of unknown materials.

Based on EOD observations in April and June 2007, the Incendiary Disposal Area MRS was potentially used for open detonation as well.

Table 3

EHE Module: Location of Munitions Data Element Table

DIRECTIONS: Below are eight classifications of munitions locations and their descriptions. Circle the scores that correspond with **all** the locations where munitions are known or suspected to be present at the MRS.

Note: The terms *confirmed, surface, subsurface, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed surface	◆ Physical evidence indicates that there are UXO or DMM on the surface of the MRS. ◆ Historical evidence (i.e., a confirmed report such as an explosive ordnance disposal [EOD], police, or fire department report that an incident or accident that involved UXO or DMM occurred) indicates there are UXO or DMM on the surface of the MRS.	(25)
Confirmed subsurface, active	◆ Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. ◆ Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	(20)
Confirmed subsurface, stable	◆ Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed. ◆ Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed.	15
Suspected (physical evidence)	◆ There is physical evidence (e.g., munitions debris such as fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	(10)
Suspected (historical evidence)	◆ There is historical evidence indicating that UXO or DMM may be present at the MRS.	(5)
Subsurface, physical constraint	◆ There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	2
Small arms (regardless of location)	◆ The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present at the MRS to place an MRS into this category.)	1
Evidence of no munitions	◆ Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
LOCATION OF MUNITIONS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	25

DIRECTIONS: Document any MRS-specific data used in selecting the ***Location of Munitions*** classifications in the space provided.

In April 2007, the 763rd Ordnance Company (EOD) identified 1 mine, AT, M1A1; 14 Fuses, Projectile, PD, Mark II; and 13 Projectile, Shrapnel, Cannon 75mm Mk1 shells. The munitions items were detonated in place. In June 2007, five additional 75mm rounds were identified (pusher plates intact, black powder expelling charge, no fuzes). The munitions were safely removed.

Table 4

EHE Module: Ease of Access Data Element Table

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS.

Note: The term *barrier* is defined in Appendix C of the Primer.

Classification	Description	Score
No barrier	◆ There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible).	(10)
Barrier to MRS access is incomplete	◆ There is a barrier preventing access to parts of the MRS, but not the entire MRS.	8
Barrier to MRS access is complete but not monitored	◆ There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS.	5
Barrier to MRS access is complete and monitored	◆ There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS.	0
EASE OF ACCESS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	10

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ease of Access*** classification in the space provided.

The Incendiary Disposal Area MRS is located within the boundaries of the Iowa Army Ammunition Plant. There are no site-specific barriers to this MRS. American Ordnance security patrols are conducted of the installation proper on a regular basis and warning signs are posted around the perimeter of the site.

Table 5

EHE Module: Status of Property Data Element Table

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD control	◆ The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by DoD. Examples are privately owned land or water bodies; land or water bodies owned or controlled by state, tribal, or local governments; and land or water bodies managed by other federal agencies. ◆ The MRS is at a location that is owned by DoD, but that DoD has leased to another entity and for which DoD does not control access 24 hours per day.	5
Scheduled for transfer from DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD, and DoD plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government; a private party; another federal agency) within 3 years from the date the Protocol is applied.	3
DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD. With respect to property that is leased or otherwise possessed, DoD must control access to the MRS 24 hours per day, every day of the calendar year.	(0)
STATUS OF PROPERTY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	0

DIRECTIONS: Document any MRS-specific data used in selecting the ***Status of Property*** classification in the space provided.

Iowa Army Ammunition Plant is an active DOD facility.

Table 6

EHE Module: Population Density Data Element Table

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score.

Note: Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 persons per square mile	◆ There are more than 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	5
100–500 persons per square mile	◆ There are 100 to 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	3
< 100 persons per square mile	◆ There are fewer than 100 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	(1)
POPULATION DENSITY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	1

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Density*** classification in the space provided.

Based on the United States Census Bureau, the population density for Middletown, Iowa in 2000 was 36 persons per square mile. The population density for Des Moines County, Iowa in 2005 was 98 persons per square mile.

Table 7

EHE Module: Population Near Hazard Data Element Table

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term *inhabited structures* is defined in Appendix C of the Primer.

Classification	Description	Score
26 or more inhabited structures	◆ There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	(5)
16 to 25 inhabited structures	◆ There are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	4
11 to 15 inhabited structures	◆ There are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	3
6 to 10 inhabited structures	◆ There are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	2
1 to 5 inhabited structures	◆ There are 1 to 5 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	1
0 inhabited structures	◆ There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	0
POPULATION NEAR HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	5

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classification in the space provided.

Based on GIS data obtained from the Des Moines County Assessor, there are more than 26 inhabited structures within 2 miles from the MRS boundary (www.dmcgis.com).

Table 8

EHE Module: Types of Activities/Structures Data Element Table

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with **all** the activities/structure classifications at the MRS.

Note: The term *inhabited structure* is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, educational, commercial, or subsistence	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets (e.g., hospitals, fire and rescue, police stations, dams), hotels, commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing, and gathering.	(5)
Parks and recreational areas	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	4
Agricultural, forestry	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture or forestry.	3
Industrial or warehousing	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	2
No known or recurring activities	◆ There are no known or recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary.	1
TYPES OF ACTIVITIES/STRUCTURES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	5

DIRECTIONS: Document any MRS-specific data used in selecting the ***Types of Activities/Structures*** classifications in the space provided.

IAAAP, Middletown, Buena Vista School (inactive), Brush College School (inactive), various commercial businesses, and residential structures are present within 2 miles from the MRS boundary

Table 9

EHE Module: Ecological and/or Cultural Resources Data Element Table

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms *ecological resources* and *cultural resources* are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and cultural resources present	◆ There are both ecological and cultural resources present on the MRS.	5
Ecological resources present	◆ There are ecological resources present on the MRS.	3
Cultural resources present	◆ There are cultural resources present on the MRS.	3
No ecological or cultural resources present	◆ There are no ecological resources or cultural resources present on the MRS.	(0)
ECOLOGICAL AND/OR CULTURAL RESOURCES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	0

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ecological and/or Cultural Resources*** classification in the space provided.

Based on the Integrated Natural Resources Management Plan (HES 2001) and the Integrated Cultural Resources Management Plan (Earth Tech 2002), no ecological or cultural resources are present on the MRS

Table 10
Determining the EHE Module Rating

DIRECTIONS:

1. From Tables 1–9, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.
4. Circle the appropriate range for the **EHE Module Total** below.
5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
Explosive Hazard Factor Data Elements			
Munitions Type	Table 1	30	38
Source of Hazard	Table 2	8	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	25	35
Ease of Access	Table 4	10	
Status of Property	Table 5	0	
Receptor Factor Data Elements			
Population Density	Table 6	1	11
Population Near Hazard	Table 7	5	
Types of Activities/Structures	Table 8	5	
Ecological and/or Cultural Resources	Table 9	0	
EHE MODULE DRAFT TOTAL			84

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	B (circled)
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE MODULE DRAFT RATING	C

Table 11

CHE Module: CWM Configuration Data Element Table

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with **all** the CWM configurations known or suspected to be present at the MRS.

Note: The terms *CWM/UXO, CWM/DMM, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, that are either UXO, or explosively configured damaged DMM	The CWM known or suspected of being present at the MRS are: ◆ CWM that are UXO (i.e., CWM/UXO) ◆ Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	30
CWM mixed with UXO	◆ The CWM known or suspected of being present at the MRS are undamaged CWM/DMM or CWM not configured as a munition that are commingled with conventional munitions that are UXO.	25
CWM, explosive configuration that are undamaged DMM	◆ The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM that have not been damaged.	20
CWM/DMM, not explosively configured or CWM, bulk container	The CWM known or suspected of being present at the MRS are: ◆ Nonexplosively configured CWM/DMM either damaged or undamaged ◆ Bulk CWM (e.g., ton container).	15
CAIS K941 and CAIS K942	◆ The CWM/DMM known or suspected of being present at the MRS are CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	12
CAIS (chemical agent identification sets)	◆ CAIS, other than CAIS K941 and K942, are known or suspected of being present at the MRS.	10
Evidence of no CWM	◆ Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	0
CWM CONFIGURATION	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space provided.

No Known or Suspected CWM.

Table 12

CHE Module: Sources of CWM Data Element Table

DIRECTIONS: Below are 11 sources of CWM hazards and their descriptions. Review these classifications and circle the scores that correspond with **all** the sources of CWM hazards known or suspected to be present at the MRS.

Note: The terms *CWM/UXO, CWM/DMM, CAIS/DMM, surface, subsurface, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Live-fire involving CWM	◆ The MRS is a former military range that supported live-fire of explosively configured CWM and the CWM/UXO are known or suspected of being present on the surface or in the subsurface. ◆ The MRS is a former military range that supported live-fire with conventional munitions, and CWM/DMM are on the surface or in the subsurface commingled with conventional munitions that are UXO.	10
Damaged CWM/DMM surface or subsurface	◆ There are damaged CWM/DMM on the surface or in the subsurface at the MRS.	10
Undamaged CWM/DMM surface	◆ There are undamaged CWM/DMM on the surface at the MRS.	10
CAIS/DMM surface	◆ There are CAIS/DMM on the surface.	10
Undamaged CWM/DMM, subsurface	◆ There are undamaged CWM/DMM in the subsurface at the MRS.	5
CAIS/DMM subsurface	◆ There are CAIS/DMM in the subsurface at the MRS.	5
Former CA or CWM Production Facilities	◆ The MRS is a facility that formerly engaged in production of CA or CWM, and CWM/DMM is suspected of being present on the surface or in the subsurface.	3
Former Research, Development, Testing, and Evaluation (RDT&E) facility using CWM	◆ The MRS is at a facility that formerly was involved in non-live-fire RDT&E activities (including static testing) involving CWM, and there are CWM/DMM suspected of being present on the surface or in the subsurface.	3
Former Training Facility using CWM or CAIS	◆ The MRS is a location that formerly was involved in training activities involving CWM and/or CAIS (e.g., training in recognition of CWM, decontamination training) and CWM/DMM or CAIS/DMM are suspected of being present on the surface or in the subsurface.	2
Former Storage or Transfer points of CWM	◆ The MRS is a former storage facility or transfer point (e.g., intermodal transfer) for CWM.	1
Evidence of no CWM	◆ Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	0
SOURCES OF CWM	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Sources of CWM*** classifications in the space provided.

No Known or Suspected CWM.

Table 13

CHE Module: Location of CWM Data Element Table

DIRECTIONS: Below are seven classifications of CWM locations and their descriptions. Review these locations and circle the scores that correspond with **all** the locations where CWM are known or suspected of being found at the MRS.

Note: The terms *confirmed, surface, subsurface, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed surface	◆ Physical evidence indicates that there are CWM on the surface of the MRS. ◆ Historical evidence (i.e., a confirmed report such as an explosive ordnance disposal [EOD], police, or fire department report, that an incident or accident that involved CWM, regardless of configuration, occurred) indicates there are CWM on the surface of the MRS.	25
Confirmed subsurface, active	◆ Physical evidence indicates the presence of CWM in the subsurface of the MRS and the geological conditions at the MRS are likely to cause CWM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose CWM. ◆ Historical evidence indicates that CWM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause CWM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose CWM.	20
Confirmed subsurface, stable	◆ Physical evidence indicates the presence of CWM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause CWM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause CWM to be exposed. ◆ Historical evidence indicates that CWM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause CWM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause CWM to be exposed.	15
Suspected (physical evidence)	◆ There is physical evidence, other than the documented presence of CWM, indicating that CWM may be present at the MRS.	10
Suspected (historical evidence)	◆ There is historical evidence indicating that CWM may be present at the MRS.	5
Subsurface, physical constraint	◆ There is physical or historical evidence indicating that CWM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the CWM.	2
Evidence of no CWM	◆ Following investigation of the MRS, there is physical evidence that there is no CWM present or there is historical evidence indicating that no CWM are present.	0
LOCATION OF CWM	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Location of CWM*** classifications in the space provided.

No Known or Suspected CWM.

Table 14
CHE Module: Ease of Access Data Element Table

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS.

Note: The term *barrier* is defined in Appendix C of the Primer.

Classification	Description	Score
No barrier	◆ There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible).	10
Barrier to MRS access is incomplete	◆ There is a barrier preventing access to parts of the MRS, but not the entire MRS.	8
Barrier to MRS access is complete but not monitored	◆ There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS.	5
Barrier to MRS access is complete and monitored	◆ There is a barrier preventing access to all parts of the MRS, and there is active continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS.	0
EASE OF ACCESS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ease of Access*** classification in the space provided.

No Known or Suspected CWM.

Table 15

CHE Module: Status of Property Data Element Table

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD control	◆ The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by DoD. Examples are privately owned land or water bodies; land or water bodies owned or controlled by state, tribal or local governments; and land or water bodies managed by other federal agencies. ◆ The MRS is at a location that is owned by DoD, but that DoD has leased to another entity and for which DoD does not control access 24 hours per day.	5
Scheduled for transfer from DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD, and DoD plans to transfer that land or water body to control of another entity (e.g., a state, tribal, or local government; a private party; another federal agency) within 3 years from the date the Protocol is applied.	3
DoD control	◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD. With respect to property that is leased or otherwise possessed, DoD controls access to the MRS 24 hours per day, every day of the calendar year.	0
STATUS OF PROPERTY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Status of Property*** classification in the space provided.

No Known or Suspected CWM.

Table 16

CHE Module: Population Density Data Element Table

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score.

Note: Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 persons per square mile	◆ There are more than 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	5
100–500 persons per square mile	◆ There are 100 to 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	3
< 100 persons per square mile	◆ There are fewer than 100 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	1
POPULATION DENSITY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Density*** classification in the space provided.

No Known or Suspected CWM.

Table 17

CHE Module: Population Near Hazard Data Element Table

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term *inhabited structures* is defined in Appendix C of the Primer.

Classification	Description	Score
26 or more inhabited structures	◆ There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	5
16 to 25 inhabited structures	◆ There are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	4
11 to 15 inhabited structures	◆ There are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	3
6 to 10 inhabited structures	◆ There are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	2
1 to 5 inhabited structures	◆ There are 1 to 5 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	1
0 inhabited structures	◆ There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	0
POPULATION NEAR HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classification in the space provided.

No Known or Suspected CWM.

Table 18

CHE Module: Types of Activities/Structures Data Element Table

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with **all** the activities/structures classifications at the MRS.

Note: The term *inhabited structures* is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, educational, commercial, or subsistence	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets (e.g., hospitals, fire and rescue, police stations, dams), hotels, commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing, and gathering.	5
Parks and recreational areas	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	4
Agricultural, forestry	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture or forestry.	3
Industrial or warehousing	◆ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	2
No known or recurring activities	◆ There are no known of recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary.	1
TYPES OF ACTIVITIES/STRUCTURES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Types of Activities/Structures*** classifications in the space provided.

No Known or Suspected CWM.

Table 19

CHE Module: Ecological and/or Cultural Resources Data Element Table

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms *ecological resources* and *cultural resources* are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and cultural resources present	◆ There are both ecological and cultural resources present on the MRS.	5
Ecological resources present	◆ There are ecological resources present on the MRS.	3
Cultural resources present	◆ There are cultural resources present on the MRS.	3
No ecological or cultural resources present	◆ There are no ecological resources or cultural resources present on the MRS.	0
ECOLOGICAL AND/OR CULTURAL RESOURCES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ecological and/or Cultural Resources*** classification in the space provided.

No Known or Suspected CWM.

Table 20
Determining the CHE Module Rating

DIRECTIONS:

1. From Tables 11–19, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **CHE Module Total** box below.
4. Circle the appropriate range for the **CHE Module Total** below.
5. Circle the **CHE Module Rating** that corresponds to the range selected and record this value in the **CHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
CWM Hazard Factor Data Elements			
CWM Configuration	Table 11		
Sources of CWM	Table 12		
Accessibility Factor Data Elements			
Location of CWM	Table 13		
Ease of Access	Table 14		
Status of Property	Table 15		
Receptor Factor Data Elements			
Population Density	Table 16		
Population Near Hazard	Table 17		
Types of Activities/Structures	Table 18		
Ecological and/or Cultural Resources	Table 19		
CHE MODULE DRAFT TOTAL			

CHE Module Total	CHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected CWM Hazard
CHE MODULE DRAFT RATING	No Known or Suspected CWM

Table 21

HHE Module: Groundwater Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Sum The Ratios**	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Groundwater MC Hazard ☒

Table 22

HHE Module: Surface Water – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios

CHF Scale	CHF Value	Sum The Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Water (Human Endpoint) MC Hazard ☒

Table 23

HHE Module: Sediment – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the sediment, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Sum The Ratios**	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Sediment (Human Endpoint) MC Hazard ☒

Table 24

HHE Module: Surface Water – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	**CHF Value**	**Sum the Ratios**	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Water (Ecological Endpoint) MC Hazard ☒

Table 25

HHE Module: Sediment – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the sediment, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Sum the Ratios**	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Sediment (Ecological Endpoint) MC Hazard ☒

Table 26

HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface soil and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface soil contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the surface soil, select the box at the bottom of the table.

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Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratio

CHF Scale	CHF Value	Sum the Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface soil to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Soil MC Hazard ☒

Table 27

HHE Module: Supplemental Contaminant Hazard Factor Table

<u>**Contaminant Hazard Factor (CHF)**</u>

DIRECTIONS: Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the **media** in which these contaminants are present. Then record all **contaminants**, their **maximum concentrations** and their **comparison values** (from Appendix B of the Primer) in the table below. Calculate and record the **ratio** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

Table 28
Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the **Contaminant Hazard**, **Migration Pathway**, and **Receptor Factors** for the media (from Tables 21–26) in the corresponding boxes below.
2. Record the media's three-letter combinations in the **Three-Letter Combination** boxes below (three-letter combinations are arranged from Hs to Ms to Ls).
3. Using the **HHE Ratings** provided below, determine each media's rating (A–G) and record the letter in the corresponding **Media Rating** box below.

Media (Source)	Contaminant Hazard Factor Value	Migratory Pathway Factor Value	Receptor Factor Value		Three-Letter Combination (Hs-Ms-Ls)		Media Rating (A-G)
Groundwater (Table 21)							
Surface Water/Human Endpoint (Table 22)							
Sediment/Human Endpoint (Table 23)							
Surface Water/Ecological Endpoint (Table 24)							
Sediment/Ecological Endpoint (Table 25)							
Surface Soil (Table 26)							

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the **HHE Module Rating** box.

Note:

An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE MODULE DRAFT RATING	

HHE Ratings (for reference only)

Combination	Rating
HHH	A
HHM	B
HHL	C
HMM	C
HML	D
MMM	D
HLL	E
MML	E
MLL	F
LLL	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

Table 29
MRS Draft Priority

DIRECTIONS: In the chart below, circle the letter **rating** for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical **priority** for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the **MRS Priority or Alternative MRS Rating** at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Draft Rating	Draft Priority	CHE Draft Rating	Draft Priority	HHE Draft Rating	Draft Priority
		A	1		
A	2	B	2	A	2
B	3	C	3	B	3
C	4	D	4	C	4
D	5	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	7
G	8			G	8
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		No Longer Required	
No Known or Suspected Explosive Hazard		No Known or Suspected CWM Hazard		No Known or Suspected MC Hazard	
MRS DRAFT PRIORITY or ALTERNATIVE MRS DRAFT RATING				3	

Table A
MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the **MRS Summary**, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental nonmunitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: Incendiary Disposal Area MRS (IAAP-006-R-01)

Component: United States Army

Installation/Property Name: Iowa Army Ammunition Plant

Location (City, County, State): Middletown, Des Moines County, Iowa

Site Name/Project Name (Project No.): Incendiary Disposal Area MRS/IAAAP MMRP SI

Date Information Entered/Updated: April 27, 2007

Point of Contact (Name/Phone): Steve Bellrichard/319-753-7150

Project Phase (check only one):

❑ PA	☒ SI	❑ RI	❑ FS	❑ RD
❑ RA-C	❑ RIP	❑ RA-O	❑ RC	❑ LTM

Media Evaluated (check all that apply):

❑ Groundwater	❑ Sediment (human receptor)
❑ Surface Soil	❑ Surface Water (ecological receptor)
❑ Sediment (ecological receptor)	❑ Surface Water (human receptor)

MRS Summary:

MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM, or MC known or suspected to be present. When possible, identify munitions, CWM, and MC by type:
The Incendiary Disposal Area was potentially used as a high explosives demolition area and for burial of unknown materials. Following IRP activities in April and June 2007, EOD personnel identified 1 mine, AT, M1A1; 14 Fuses, Projectile, PD, Mark II; 13 Projectile, Shrapnel, Cannon 75mm Mk1 shells, and five additional 75mm rounds (pusher plates intact, black powder expelling charge, no fuzes). Additional items may still exist beneath the surface.

Description of Pathways for Human and Ecological Receptors:
MEC: handle/tread underfoot and intrusive activities.
MC: Incomplete Pathway. The nature and extent of MC contamination was delineated by the IRP, and a removal action was completed in March 2007. Based on this information, additional MC is not expected to be present at the site.

Description of Receptors (Human and Ecological):
MEC: IAAAP personnel, contractors, visitors, hunters, trespassers, construction workers, and biota.

RESPONSE TO USAEC COMMENTS
Travis McCoun, 5 JUNE 2007

RESPONSE TO USACE COMMENTS
Marc Anderson, 30 MAY 2007
Janie Carrig, 11 JUNE 2007
Glenn Marks, 7 NOVEMBER 2006

RESPONSE TO IAAAP COMMENTS
Rodger Allison, 15 JUNE 2007
Steve Bellrichard, 6 DECEMBER 2006

DRAFT
URS RESPONSE TO COMMENTS ON THE
INTERNAL DRAFT SITE INSPECTION REPORT
IOWA ARMY AMMUNITION PLANT

Note: The West Burn Pads MRS was added to applicable sections of this document. These additions altered the Draft MMRP SI references for text, tables, and figures throughout the document (i.e., **Section 3.5.1** is now **Section 3.6.1**).

Comments by Marc Anderson, USACE, May 30, 2007:

Comment 1. **Section 4.1.3.5**: clarify that the shallow surficial soil aquifer yields only small quantities of groundwater to monitoring wells, and specify which of the four aquifers yield production quantities of water.

> **Response:** The text will be revised to read, "In … to *monitoring* wells. Within … outcrops. (URS 2002)
>
> **Response:** Information regarding the aquifers bedrock aquifers is sparse. The following text is included in **Section 4.1.3.5**, "Information on hydrogeological conditions in the bedrock aquifers underlying the deeper till is sparse. Generally, groundwater in the limestones would be contained primarily within open bedding planes and/or joints. Therefore, the occurrence and orientation of these features would control groundwater flow, in part. It is common for much of the groundwater in these bedrock units to be found in the more fractured and weathered upper sequence just under the deeper till. Where this is the case, the deeper till aquifer and the uppermost Mississippian bedrock aquifer, defined in previous investigations as the uppermost 20 feet of bedrock underlying the till, may comprise a single hydraulic system. Facility-wide groundwater levels suggest that overall flow direction in the bedrock is to the south and east toward the Skunk and Mississippi Rivers, when not intercepted by incised surface drainages. (URS 2002)."
>
> **Response:** The following text will be included at the end of **Section 4.1.3.5**, "*Groundwater at IAAAP is not used for production or for potable water. In 1993, the presence of explosives in off-site groundwater was confirmed after an initial round of private drinking water well sampling was completed. IAAAP contracted to connect private residences in the contaminated area to the public water supply. This remedial action completed in 1994, was designed to eliminate the future exposure to contaminated drinking water. In 2001, IAAAP provided connection to the public water supply for several homeowners who declined in 1994. (URS 2003)"*

Comment 2. **All MRSs Section 4.x.1 - 4.x.3**: please add or reference a figure showing the layout of the MRS. Show the locations of the structures and utilities listed.

> **Response:** For each MRS in **Section 4.x.1**, a reference will be added referring back to the respective MRS figure in **Section 2**, which shows the MRS boundary and site features based on the HRR research.

Comment 3. **All MRSs Sections 4.x.7.1 and 4.x.7.3**: please clarify, as appropriate, "unused and undeveloped" is not the same as "industrial" land uses.

Response: The text "(industrial)" will be removed from **Sections 4.2.7.3**, **4.3.7.3**, **4.5.7.3**, and **4.6.7.3**.

Comment 4. **All MRSs Section 4.x.7.2**: describe the activities of the current/potential future receptors. Their activities should match the description provided in section 4.x.7.1.

Response: For applicable **Sections 4.x.7.1**, the following sentence will be added, "*The Active Army MMRP is currently investigating this site*."

Comment 5. **All MRSs Section 4.x.8.2**: briefly describe the objective and extent of the removal actions in December 2006 and March 2007, as appropriate. The information provided is inadequate to conclude no potential MC source. Show the removal area on a figure.

Response: The primary focus of the RI/FS will be to determine if MEC is present at each MRS. Geophysics (handheld or EM61) and media sampling will be completed for the RI/FS. If MC is found to be present, it will be addressed.

Response: The text in **Section 4.2.8.2** will be revised to read, "The nature and extent of MC contamination was delineated by the IRP, and a ~~removal~~ *remedial* action ~~was completed in December 2006~~ *began in October 2006. The remedial action included excavation of contaminated soil at locations that had analyte concentrations above their respective OU-1 remediation goal, backfill of excavations, confirmation sampling, and site restoration. The excavation activities were completed in November 2006 and consisted of excavations totaling approximately 239 cubic yards of soil.* Based on this ~~information~~ *remedial action*, ~~additional~~ MC ~~is not expected~~ *concentrations above action levels ~~is~~ are* not expected to be present at the site." Similar text changes will be made for the applicable **Sections 4.x.8.2**.

Response: The Draft Remedial Action Report (Tetra Tech 2007) was issued and is currently under review by stakeholders. Figures developed for the Draft Remedial Action Report will be included in **Section 3**. The figures will be addressed in **Section 3.x.2** for the Central Test Area MRS, Line 6 Ammo Production MRS, Possible Demolition Site MRS, and the Incendiary Disposal Area MRS.

Comment 6. **All MRSs Section 4.x.8.3**: distinguish between MEC and MC hazard. Erosion and frost heave are processes that may change the accessibility of MEC and bear discussion. Soil disturbance is an activity. Infiltration does not affect MEC or receptor access or activity. For the Central Test Area, Line 6 Ammo Production, Possible Demolition Site, and Incendiary Disposal Area, assuming no MC risk as a result of the 2006 and 2007 removal actions, only MEC hazard should be described and modeled.

Response: The following text changes will be made to all applicable sections:

- For the Erosion paragraph, "*MC*" will be added prior to the word "contaminated."

- For the **Soil Disturbance** paragraph**,** The beginning text, "~~Surface and subsurface disturbances can lead to transport and migration of MC from one environmental media to another (soil to surface water or groundwater or both) through surface water runoff and erosion~~" will be revised to read, "*Disturbance of soils may increase infiltration rates and dispersion of MC, making it more susceptible to migration due to infiltration. Additionally, MC exposed to the ground surface by soil disturbances may become more susceptible to transport via surface water run-off. MEC soil disturbances, such as construction activities, tilling for agriculture, landscaping or grading, frost heave, or animal burrows may bring MEC to the ground surface.*"

- For the **Infiltration** paragraph, "*MC*" will be added prior to the word "contamination."

Response: For the comment regarding MC modeling, refer to the response provided for McCoun (USAEC) Comment #10.

Comment 7. **All MRSs Section 4.x.8**: describe the source of potential munitions in the environment; that is, site history.

Response: Site history is addressed in the subsections of **Section 2.3** for each MRS. The tables presented in applicable **Sections 4.x.8** provide a list of potential munitions for each respective MRS.

Comment 8. **All MRSs Tables 4-2 - 4-7**: reconsider the meaning of "primary release mechanism". I suggest it should describe processes that contribute to the relocation of an MEC in the environment after initial placement, not how it came to be in the environment. Alternatively, rename the last column "munitions source" or similar.

Response: Open for discussion. The intent of the tables are to identify how the MC/MEC was initially released to the environment. No changes are proposed at this time.

Comment 9. **All MRSs Section 4.x.9**: Please identify the receptors that could be treading surface MEC underfoot and engaging in "intrusive activities". Specify the intrusive activities. I suggest only construction workers potentially contact subsurface MEC, and soldiers in the Maneuver Area. See also MEC Exposure Pathway figures in this section.

Response: Human Receptors are discussed in **Sections 4.x.7.2**. Potential receptors present during intrusive activities may include visitors (i.e., Fort Leonard Wood EOD personnel), contractors (i.e., UXO personnel), and construction workers. Receptors and their pathways are presented on the MEC Exposure Pathway Analysis figures for each MRS presented in **Section 4**.

Response: In regards to the Maneuver Area MRS, on 22 November 2006, the Department of the Army Management Office - Training Simulations granted the Request

for Reclassification of the East Training Range MRA (referred to as the Land Navigation Range in the Department of Army Memorandum), which includes the Maneuver Area MRS and Incendiary Disposal Area MRS. This reclassification resulted in the East Training Range MRA status being changed from active to closed. Training activities by the IA ARNG are no longer authorized at the Maneuver Area MRS.

Comment 10. All MRSs MEC Exposure Pathway figures: reverse "activities" and "access" columns. To be meaningful, the receptor must first have access to the site and then engage in an activity that puts them at a point of exposure to MEC. Draw pathway arrows from the receptors to the source.

Response: Comment noted. The CSE format was approved by USAEC for the Active Army MMRP SI reports. This format has been utilized since project inception and is consistent with historical submittals for other Army installations. The format will be retained.

Comment 11. Section 4.2.7.5 and Figure 4-1 and Section 4.3.7.5 and Figure 4-2: show biota pathways incomplete or describe biota in text as appropriate.

Response: The text in **Section 4.2.7.5** will be revised to read, "*The Indiana Bat (Myotis Sodalist) has been known to roost and forage on IAAAP. This MRS contains suitable habitat for the Indiana Bat* ~~No potential habitat for ecologically sensitive species has been identified at this site~~."

Response: The text in **Section 4.3.7.5** will be revised to read, "*This MRS contains* no *potential* ~~suitable~~ habitat for ecologically sensitive species ~~has~~ *that have* been identified at ~~this site~~, ~~and given the heavily developed nature of the area, there is little, if any, natural habitat.~~ *IAAAP*."

Response: This text change will be made for the Central Test Area MRS, Possible Demolition Site MRS, West Burn Pads Area South of the Road MRS, Maneuver Area MRS, and the Incendiary Disposal Area MRS.

Comment 12. Section 4.2.7.5 and Figure 4-1: biota receptors should be incomplete or text revised to describe potential exposure.

Response: The text in **Section 4.2.7.5** will be revised to read, "*The Indiana Bat (Myotis Sodalist) has been known to roost and forage on IAAAP. This MRS contains suitable habitat for the Indiana Bat* ~~No potential habitat for ecologically sensitive species has been identified at this site~~."

Comment 13. Section 4.2.5, Figure 4-1, and section 4.2.9: visitors should have incomplete surface MEC exposure based reported site security.

Response: Comment noted. No changes are proposed for the visitor receptor. Based on the presence of the tenant Advanced Environmental Technology Inc., the potential for visitors exists.

Comment 14. Sections 4.4.1 and 4.7.1: clearly report actual boundaries of the Possible Demolition Area and Incendiary Disposal Area as we intend to remediate it. Reference a figure.

Response: The depicted boundaries are based on the HRR findings. During the RI phase, the MRS boundaries will be refined or confirmed.

Comment 15. Sections 4.6.7.2 and 4.6.7.4 and Figures 4-6 and 4-7: I recommend including soldiers training as current and future human receptor to MEC and MC hazards.

Response: The East Training Range MRA has been officially closed and is no longer used by the Iowa Army National Guard.

Comment 16. Appendix B. Tables 29: the third alternative rating for EHE module is "No Known or Suspected MC Hazard".

Response: The third alternative rating on **Table 29** of each MRSPP will be revised as needed to read, "No Known or Suspected MC Hazard".

Comment 17. Appendix B. **Central Training Area, Line 6 Ammo Production, Possible Demolition Area, and Incendiary Disposal Area Tables A**: environmental medial are not evaluated in MRSPP; uncheck all media evaluated boxes.

Response: The MRSPP **Table A** for the MRSs listed above will be revised as suggested.

Comment 18. Appendix B. **West Burn Pads Area Table 21**: the conceptual site model does not support a RF = H; no drinking water wells are identified. I suggest the Receptor Factor for groundwater is moderate.

Response: The receptor factor for the West Burn Pads Area South of the Road MRSPP **Table 21** will be revised from "~~high~~" to "*moderate*". The **Table 28** groundwater three letter combination will be revised from "~~LHH~~" to "*LHM*".

Comment 19. Appendix B. **West Burn Pads Area Table 28**: complete the HHE modules for 3-letter combinations for groundwater, surface water (human), and surface soil, and re-evaluate the module rating.

Response: The HHE modules will be completed for groundwater, surface water, and surface soil. The module rating will be updated as appropriate.

Comments by Janie E. Carrig, CENWO-ED-GC, USACE, June 11, 2007:

Comment 1. **Figure 1-2**: Please remove the MRSs that aren't included in this SI from the figure.

Response: **Figure 1-2** will be removed from the report.

Comment 2. **Section 2.3.2**: Suggest a revision of this first sentence. The MRS consists of those portions of the buildings impacted by the explosions, not the explosions themselves since they were an event.

Response: The text will be revised to read, "The Line 6 Ammo Production MRS ~~(AEDB-R IAAP-002-R-01)~~ consists of ~~the explosions that occurred at~~ Building 6-34-2 ~~in 1968~~ and Building 6-92*, which were impacted by separate explosions in 1968 and 1970, respectively, that resulted in the dispersion of MEC in surrounding areas* ~~in 1970~~."

Comment 3. **Figure 2-4**: The rationale for the location of the southeast boundary of the MRS is not clear. It appears more acreage than needed has been included.

Response: The following text will be added to the end of **Section 2.3.4**, *"The MRS boundary will be refined or confirmed during the RI phase."*

Response: Based on the historical records obtained during the HRR (e.g., drawings, interviews, and previous investigations), reliable information does not exist that depicts the Possible Demolition Site MRS layout or operational details. Due to the low quality of historical records, a decrease of the boundary established during the PA/SI (Jaycor 1994) could not be justified.

Comment 4. **Section 2.3.4, page 2-9**: The information in the second paragraph is redundant to the first. Suggest combining.

Response: The text will be revised to read, "The West Burn Pads Area South of the Road MRS (~~AEDB-R Number to be determined~~ *IAAP-005-R-01*) was not identified as an Active Army MMRP site in the *Closed, Transferring, and Transferred Range/Site Inventory Report* (e^2M 2003). Based on the HRR (URS 2007) findings, the West Burn Pads Area South of the Road MRS was located in the northeast corner of IAAAP, south of the West Burn Pads MRS *(IAAP-003-R-01)*, and within the boundaries of the Explosive Disposal Area. ~~The West Burn Pads Area South of the Road MRS may have been an extension of the West Burn Pads MRS (AEDB-R IAAP-003-R-01), which was used from 1949 through 1982 for flashing of metals contaminated with explosives. In addition, interviews indicate trenching and disposal activities may have been conducted in this area.~~ Historical research by USACE determined that the West Burn Pads Area South of the Road MRS might have been an extension of the West Burn Pads MRS, *which was used from 1949 through 1982 for flashing of metals contaminated with explosives*, based on the following conclusions (USACE 2003):

- An … vicinity.

- An … MRS.
- An … location.
- A … known.

"*During the HRR site visit, an American Ordnance personnel interview indicated that two trenches were present at the West Burn Pads Area South of the Road MRS and were used between the 1940s and 1950s for approximately one year (before the West Burn Pads [IAAP-003-R-01] was completed).*

"The … **Figure 2-6**."

Comment 5. Section 2.3.4, last paragraph: Suggest revising "….did not undergo any remedial actions during the Focused Feasibility Study….." since the FFS evaluates the potential RA's but is not the instrument for performing them.

Response: The text will be revised to read, "The West Burn Pads Area South of the Road MRS did not undergo any remedial actions during the ~~Focused Feasibility Study~~ *Phase 3 Remedial Action for the West Burn Pads Area* ~~at the West Burn Pads MRS (AEDB-R-IAAP-003-R-01)~~ (USACE 2003). The MRS boundary, as presented in the HRR (URS 2007), is illustrated on **Figure 2-6**.

Comment 6. Section 2.3.5: As written it appears this area is still operational. If so it would not be MMRP eligible.

Response: **Section 2.3.5** will be revised to read, "The … Battalion.

"*On 22 November 2006, the Department of the Army Management Office - Training Simulations granted the Request for Reclassification of the East Training Range MRA (referred to as the Land Navigation Range in the Department of Army Memorandum), which includes the Maneuver Area MRS and Incendiary Disposal Area MRS. This reclassification resulted in the East Training Range MRA status being changed from active to closed. In addition, the memorandum stated that the East Training Range MRA training areas (Maneuver Area MRS) have not been used for live fire since 28 September 2001.*

"The … **Figure 2-7.**"

Comment 7. Figure 2-5: Please define the symbol BG-X. Note also that two areas are labeled BG-1. The color figure suggests these are building.

Response: The symbol BG-X will be defined in the legend and will read, "*BG-X*" "*Burning Ground - (Building Number).*"

Response: The "BG-1" located to the immediate west of "BG-3" will be revised to read, "BG-4."

Comment 8. Figure 2-6: Please remove the East Training Range from the figure.

Response: The Maneuver Area MRS is an MRS within the East Training Range MRA. The East Training Range will be revised to read, "East Training Range MRA (IAAP-006-R)."

Comment 9. Figure 2-7: The rationale for the MRS boundary is not clear. Additionally, more information should be provided in the text to explain the 2004 IRP Sampling Grids and the 2006 IRP Excavation Package.

Response: The last paragraph of **Section 2.3.7** will be revised to read, "*During the PA/SI (Jaycor 1994),* the Incendiary Disposal Area MRS was ~~originally~~ believed to be small (approximately 40 feet by 60 feet)~~;~~ *and surrounded by a barbed wire fence.* However, during a site walkover in 2000 *for the IRP,* a cratered area was identified west of the Incendiary Disposal Area. ~~The craters are approximately 4 feet wide and 2 feet deep and were spread over approximately 10 acres.~~ *The PA/SI boundary was expanded to approximately 10 acres to include the cratered areas identified during this site walkover, which was the basis for the 2004 IRP sampling grids. The Excavation Package prepared for the IRP in 2005 identified additional detonation craters beyond the previously established border of 10 acres. To incorporate the additional detonation craters represented on the Incendiary Disposal Area Excavation Package, the site boundary was increased, which resulted in a net addition of two acres to the Incendiary Disposal Area MRS acreage.* The MRS boundary (including the cratered area), as presented in the HRR (URS 2007), is illustrated on **Figure 2-8**."

Comment 10. Based on **Table 3-2** no further action is required in regard to MC at the Central Test Area, the Line 6 Ammo Production, and the Possible Demolition Site. If this is true please state within the text.

Response: Refer to the response provided for McCoun (USAEC) Comment# 10.

Comment 11. Section 3.2.1, second paragraph: If known please describe the fence material. Also note that a tripod is discussed at the beginning and end of the paragraph. If this is the same area please remove one of the discussions

Response: **Section 3.2.1**, second paragraph, eighth sentence will be revised to read, "A chain link fence encircled the firing pit at a distance of approximately 215 feet out from the center of the pit."

Response: The first sentence of the paragraph identifies the key features for the Central Test Area. The subsequent sentences provide additional information about each

key feature. The second paragraph will be revised to read, "The … pit. *To the northwest of the test fire pit was a concrete pad that supported the tripod used to hold components for test detonation.* ~~A small area northwest of the test fire pit contained *the* a metal stand (e.g., tripod) on a concrete pad used to hold components for test detonation.~~"

Comment 12. Section 3.3.1: See comment 1.

Response: Carrig (USACE) Comment# 1 does not apply to the information presented in **Section 3.3.1**. The text revision proposed below is based on Carrig (USACE) Comment# 2.

Response: The text will be revised to read, "Based … MMRP SI. The Line 6 Ammo Production MRS *(IAAP-002-R-01)* consists of ~~the explosions that occurred at~~ Building 6-34-2 ~~(1968)~~ and Building 6-92 ~~(1970)~~*, which were impacted by separate explosions in 1968 and 1970, respectively, that resulted in the dispersion of MEC in surrounding areas*. Based … addressed."

Comment 13. Section 3.4.1: Since this is the report moving the site forward a bit more detail on the potential for MEC should be provided.

Response: The following text will be included in **Section 3.5.1**, "Based … will *move* ~~go~~ directly … activities.

"*The 1945 Day and Zimmermann Inc. drawing titled, 'Contm'd Areas Near East Boundary – South of Lower Augusta Rd. & East of YD. "E,"' identifies three contaminated areas at IAAAP. The area depicted on the bottom left of the drawing (Contaminated Area South of Augusta Road, East of Long Creek) represents the Possible Demolition Site MRS. No ground scarring was observed in the aerial photographs reviewed for this area at the location identified in the drawing.*

"*According to the Installation Assessment in 1980, two former demolition areas were located near the southern boundary along Augusta Road. An area east of the pistol range was used during the 1940s and 1950s; white phosphorous rounds were demilitarized there in the mid-1940s. (USATHAMA 1980)*"

Comment 14. Section 3.5.1: Suggest that MEC is present, not just the potential, based on the presence of MC at concentrations high enough to present an explosive hazard.

The text in Section **3.6.1** will be revised to read, "No … the *2006* HRR site visit, an additional piece of sump sludge, *containing percent concentration levels of TNT (MEC),* was identified on the surface. American Ordnance disposed of the sump sludge. *Based on the HRR (URS 2007) findings,* ~~the potential exists for~~ *MEC* ~~to be~~ *is present.* ~~and this site is recommended to advance to the RI phase to complete the MEC investigative activities.~~

Comment 15. Section 3.6.2: See comment 6.

Response: **Section 3.7.1** will be revised to read, "No … simulators.

"*On 22 November 2006, the Department of the Army Management Office - Training Simulations granted the Request for Reclassification of the East Training Range MRA (referred to as the Land Navigation Range in the Department of Army Memorandum), which includes the Maneuver Area MRS and Incendiary Disposal Area MRS. This reclassification resulted in the East Training Range MRA status being changed from active to closed. In addition, the memorandum stated that the East Training Range MRA training areas (Maneuver Area MRS) have not been used for live fire since 28 September 2001.*

"Since … activities."

Comment 16. Section 4: Please describe the groundwater use in the vicinity of the sites and installation.

Response: The following text will be included at the end of **Section 4.1.3.5**, "*Groundwater at IAAAP is not used for production or for potable water. In 1993, the presence of explosives in off-site groundwater was confirmed after an initial round of private drinking water well sampling was completed. IAAAP contracted to connect private residences in the contaminated area to the public water supply. This remedial action completed in 1994, was designed to eliminate the future exposure to contaminated drinking water. In 2001, IAAAP provided connection to the public water supply for several homeowners who declined in 1994. (URS 2003)*"

Response: The following reference will be included in **Section 7**, "*URS. 2003. Draft Final Off-Site Groundwater Remedial Investigation, IAAAP, Iowa. April.*"

Comment 17. Section 4.6.8.3: Verify lead as MC. The munitions are pyrotechnic.

Response: **Section 4.7.8.3** will be revised to read, "MC associated with this site includes lead, *perchlorates, and white phosphorus*."

Comment 18. Section 6.2: See comment 1.

Response: The text will be revised to read, "The Line 6 Ammo Production MRS consists of ~~the explosions that occurred at~~ Building 6-34-2 ~~in 1968~~ and Building 6-92, *which were impacted by separate explosions in 1968 and 1970, respectively, that resulted in the dispersion of MEC in surrounding areas* ~~in 1970~~."

Comment 19. Section 6.7: Please reconcile this information with the dispute resolution, which requires including the West Burn Pads MRS in the RI. AEC has decided that the SI recommendations may not be the same as the dispute resolution and therefore the RI WP.

Response: The following sites will be included in the RI WP: Central Test Area MRS, Line 6 Ammo Production MRS, West Burn Pads MRS, Possible Demolition Site MRS, West Burn Pads Area South of the Road MRS, Maneuver Area MRS, and the Incendiary Disposal Area MRS.

Comments by Glenn Marks, CENWO-ED-GI, USACE OE Safety Specialist, November 7, 2006:

Comment 1. Figure 2-4. Please show the boundary for the possible demolition area for reader clarification.

Response: The Possible Demolition Site MRS boundary is identified on **Figure 2-4**. The actual location of demolition activities is not known. Limited information is available concerning the site layout and operational details. The MRS boundary will be refined or confirmed during the RI phase.

Comment 2. Section 3.3.1. What is the 25 feet based on?

Response: The text will be revised to read, "The … 25 feet. *(Mason & Hanger-Silas Mason Co. Inc. [DA Form 285 Report No. 027] not dated)*

Response: The 25 feet is based on information obtained from DA Form 285 – Report No. 027 – Section D. Narrative And Corrective Action. Mason & Hanger-Silas Mason Co. Inc.

Comment 3. Section 3.3.1. The first paragraph says only 2 buildings but the 3rd para has 2 and para 2 has 1. Please revise

Response: Building 6-93 will be removed from **Section 3.3.1** to make the paragraphs consistent.

Response: The first paragraph will be revised to read, "Based … SI. The Line 6 Ammo Production MRS *(IAAP-002-R-01)* consists of ~~the explosions that occurred at~~ Building 6-34-2 ~~(1968)~~ and Building 6-92 ~~(1970)~~, *which were impacted by separate explosions in 1968 and 1970, respectively, that resulted in the dispersion of MEC in surrounding areas*. Based on the HRR (URS 2007) findings, MEC was identified and addressed at Line 6 after the 1968 and 1970 explosions.

Response: No changes are proposed for the second paragraph. This paragraph only discusses Building 6-34-2.

Response: The third paragraph will be revised to read, "The … 0540 hours. ~~Explosions occurred in both Buildings 6-92 and 6-93.~~ Following … 324 feet. *(Mason & Hanger-Silas Mason Co. Inc. [DA Form 285 Report No. 016] not dated)*

Comment 4. Sections 3.3.1. What is the 324 feet based on?

Response: The text will be revised to read, "The … 324 feet. *(Mason & Hanger-Silas Mason Co. Inc. [DA Form 285 Report No. 016] not dated)*

Response: The 324 feet is based on information obtained from DA Form 285 – Report No. 016 – Section D. Narrative And Corrective Action. Mason & Hanger-Silas Mason Co. Inc.

Comment 5. Table 4-6. Why do we not have small arms and CS here?

Response: **Table 4-7** will be amended to include "*Small Arms*" and "*CS*."

Comment 6. Section 4.6.8.1. I would say we could take a pretty good educated guess with the anticipated munitions.

Response: The text will be revised to read, "The maximum probable penetration depth is ~~not known~~ *0.5 foot* for the Maneuver Area MRS."

Comment 7. Section 6.7. Please explain why these sites are not eligible.

Response: The West Burn Pads MRS will be included in the RI based on the USEPA dispute resolution and will be removed from the text in **Section 6.7**.

Section 6.8 will be revised to read, "Based on the findings of the HRR (URS 2007), ~~two sites identified~~ *the North Burn Pads MRS was identified* in the *Closed, Transferring, and Transferred Range/Site Inventory Report* (e2M 2003) *as not eligible for munitions response.* ~~The were determined not to be eligible under the Active Army MMRP. A listing of these sites and the rationale for their removal from the program are as follows:~~

- ~~West Burn Pads MRS (AEDB-R No. IAAP-003 -R-01). A soil removal action was completed at the West Burn Pads MRS in 2000. MC was confirmed at the site. The nature and extent was delineated, and a removal action was completed. Based on this information, additional MC is not expected to be present at the site. MC is present in groundwater at the site. A remedial alternative of LTM has been implemented at the site and is being managed by the IRP.~~

The North Burn Pads MRS ~~(AEDB-R Not Assigned)~~. A soil removal action was completed at the North Burn Pads MRS *was not eligible for munitions response because MEC was not likely to be present and MC was addressed with* ~~in 1998. MC was confirmed at the site. The nature and extent was delineated, and~~ a ~~removal~~ *remedial* ~~action was~~ completed *in 1998 (e^2M 2003).* ~~Based on this information, additional MC is not expected to be present at the site.~~

Comments by Travis R McCoun, USAEC, June 5, 2007:

Comment 1. **Figure 1-2.** Please develop a way to visually make the MRA LABEL stand out from the MRS LABELS on this map.

Response: The background color for the East Training Range MRA label will be modified so that the MRA background color is distinct from the MRS background color.

Comment 2. **Figure 2-1.** The MRS boundary for the InDA does not appear to be illustrated on the map.

Response: **Figure 2-1** will be revised to include the Incendiary Disposal Area MRS.

Comment 3. **Figure 1-2 and Figure 2-1.** Please add AEDB-R numbers to Figures 1-2 and 2-1.

Response: The AEDB-R numbers will be added to **Figures 1-2** and **2-1**.

Comment 4. **General Comment.** In the text, table, and figures, it is not necessary to precede the AEDB-R number with "AEDB-R." Simply reporting the number is sufficient. I don't have a problem with it being that way as long as it is consistent, but you may want to consider removing to simplify.

Response: The identifier "AEDB-R" will be removed from all tables, text, and figures.

Comment 5. **AEDB-R Numbers.** In the Final Document, there should be no TBD AEDB-R numbers. Please update the document to include the following assignments:

MRA	MRS	Comments
Central Test Area	Central Test Area	AEDB- R# IAAP-001-R-01
Line 6 Ammo Production	Line 6 Ammo Production	AEDB- R# IAAP-002-R-01
West Burn Pads	West Burn Pads	AEDB- R# IAAP-003-R-01 Not Eligible for MMRP.
North Burn Pads	North Burn Pads	Not Eligible for MMRP.
Possible Demolition Site	Possible Demolition Site	New AEDB-R# IAAP-004-R-01
West Burn Pads South of the Road	West Burn Pads South of the Road	New AEDB-R# IAAP-005-R-01 Included in the Dispute Resolution, but not called out to be included in the RI WP.
East Training Area	Incendiary Disposal Area	New AEDB-R# IAAP-006-R-01
East Training Area	Maneuver Area	New AEDB-R# IAAP-006-R-02

Response: The text, tables, and figures will be revised with the AEDB-R numbers presented in McCoun (USAEC) Comment# 5.

Comment 6. **Section 2.3.2.** First Sentence does not seem to make sense. Please address.

Response: The text will be revised to read, "The Line 6 Ammo Production MRS ~~(AEDB-R IAAP-002-R-01)~~ consists of ~~the explosions that occurred at~~ Building 6-34-2 ~~in 1968~~ and Building 6-92, *which were impacted by separate explosions in 1968 and 1970, respectively, that resulted in the dispersion of MEC in surrounding areas* ~~in 1970~~."

Comment 7. **Section 3.1. First Paragraph.** Please modify the second sentence to read: "The Dispute Resolution requires that the following sites move directly to an RI: Central Test Area MRS, Line 6 Ammo Production MRS Possible Demolition Site MRS, West Burn Pads Area South of the Road MRS, and Incendiary Disposal Area MRS, and West Burn Pads MRS."

Response: The text will be revised as suggested.

Comment 8. **Section 3.1. First Paragraph.** Please modify the fourth Sentence to read: The Technical Project Planning Process (TPP) Meetings 2 and 3 were not scheduled because all the sites identified in the HRR (URS 2007) are moving directly to the RI Phase."

Response: The text will be revised as suggested.

Comment 9. **Table 3.1.** Please update Table 3.1 to include the West Burn Pads MRS.

Response: The table will be updated to include the West Burn Pads MRS.

Comment 10. **Table 3.2.** Please update Table 3.2 to include the West Burn Pads MRS. In addition Table 3.2 should recognize the need to investigate MC due to the Dispute Resolution. (e.g. the RI will be looking at MEC and MC).

Response: **Table 3-2** will be amended to include the West Burn Pads MRS shown. For the "Activity" column, all sites will be revised to read, "*RI*." For the "Purpose" column all sites, with exception of the West Burn Pads Area South of the Road MRS and Maneuver Area MRS, will be revised to read, "*USEPA Dispute Resolution*."

Comment 11. Please add AEDB-R numbers to Tables 3-1 and 3-2.

Response: AEDB-R numbers will be added to **Tables 3-1** and **3-2**.

Comment 12. **Section 3.1.** Please add the West Burn Pads MRS to Section 3. The intro text should identify that this site was found to be ineligible for MMRP in the HRR, but is being discussed here as the Dispute Resolution requires the site move forward to RI.

Response: The following text will be added to **Section 3.1**, "*Based on the HRR (URS 2007) findings, the West Burn Pads MRS was found to be ineligible for the Active Army MMRP; however, the West Burn Pads MRS will move directly to the RI phase based on the USEPA Dispute Resolution dated 20 December 2006."*

Response: The West Burn Pads MRS will be included in **Section 3**.

Comment 13. **List of Acronyms and rest of document**. Please note that "TPP" stands for "Technical Project Planning" not Technical Process Planning. Please correct.

Response: The acronym will be revised to read, "*Technical Project Planning*."

Comment 14. **First Sentence and Rest of Section 3**. Recommend the word "go" be replaced with the word "move."

Response: The text will be revised as suggested.

Comment 15. **Section 3.2.2.** Per the dispute resolution, the site is moving forward to RI, and I assume for both MEC and MC. So it is difficult to understand how we can also make other recommendations (contradictory or similar) on top of that. Recommend the text be modified to simply state the site is moving forward to RI, present the facts as to what work was done, and make a statement as to the potential for MEC or MC to be present (e.g. no subsequent recommendation). This should be done for all section in Section 3.

Response: The text in **Section 3.2.2** will be revised to read, "Based on the USEPA Dispute Resolution dated 20 December 2006 and HRR (URS 2007) findings, it was determined that the ~~No activities were completed for MC at~~ Central Test Area MRS *will move directly to the RI phase; therefore, no MC investigative activities were completed* during the MMRP SI.

"Based on the IRP's investigation, MC was confirmed in soil at this site. The nature and extent of MC contamination was delineated and a ~~removal~~ *remedial* action *began in October 2006. The remedial action included the following activities: excavation of contaminated soil at locations that had analyte concentrations above their respective OU-1 remediation goal, backfill of excavations, confirmation sampling, and site restoration. The excavation activities were* ~~was~~ completed in ~~December~~ *November* 2006 *and consisted of excavations totaling approximately 239 cubic yards of soil. **Figure 3-2** shows the final excavation locations (shaded in orange) for the remedial action.* Additional MC*, above action levels,* is not expected to be present at this site.~~, and NFA, under the Active Army MMRP, for MC is recommended.~~ Cumulative IRP sampling results from previous investigations conducted at the Central Test Area MRS are presented in **Appendix A**."

Response: The text in **Section 3.3.2** will be revised to read, "Based on the USEPA Dispute Resolution dated 20 December 2006 and HRR (URS 2007) findings, it was determined that the ~~No activities were completed for MC at~~ Line 6 Ammo Production MRS *will move directly to the RI phase; therefore, no MC investigative activities were completed* during the MMRP SI.

"Based on the IRP's investigation, MC was confirmed in soil at this site. The nature and extent of MC contamination was delineated and a ~~removal~~ *remedial action began in October 2006. The remedial action included the following activities: excavation of contaminated soil at locations that had analyte concentrations above their respective OU-1 remediation goal, backfill of excavations, confirmation sampling, and site restoration. The excavation activities were* ~~was~~ completed in ~~December~~ *October* 2006 *and consisted of excavations totaling approximately 56 cubic yards of soil. **Figure 3-4** shows the final excavation locations (shaded in orange) for the remedial action.* Additional MC*, above action levels,* is not expected to be present at this site.~~, and NFA, under the Active Army MMRP, for MC is recommended.~~ Cumulative IRP sampling results from previous investigations conducted at the Line 6 Ammo Production MRS are presented in **Appendix A**."

Response: The text in **Section 3.5.2** will be revised to read, "Based on the USEPA Dispute Resolution dated 20 December 2006 and HRR (URS 2007) findings, it was determined that the ~~No activities were completed for MC at~~ Possible Demolition Site MRS will move directly to the RI phase; therefore, no MC investigative activities were completed during the MMRP SI.

"Based on the IRP's investigation, MC was confirmed in soil at this site. The nature and extent of MC contamination was delineated and a ~~removal~~ *remedial* action *began in October 2006. The remedial action included the following activities: excavation of contaminated soil at locations that had analyte concentrations above their respective OU-1 remediation goal, backfill of excavations, confirmation sampling, and site restoration. The excavation activities were* ~~was~~ completed in ~~December~~ *May 2007* ~~2006~~ *and consisted of excavations totaling approximately 3,952 cubic yards of soil.* ***Figure 3-5*** *shows the final excavation locations (shaded in orange) for the remedial action.* Additional MC, above action levels, is not expected to be present at this site.~~, and NFA, under the Active Army MMRP, for MC is recommended.~~ Cumulative IRP sampling results from previous investigations conducted at the Possible Demolition Site MRS are presented in **Appendix A**."

Response: The text in **Section 3.6.2** will be revised to read, "*Based on the USEPA Dispute Resolution dated 20 December 2006 and HRR (URS 2007) findings, it was determined that the West Burn Pads Area South of the Road MRS will move directly to the RI phase; therefore, no MC investigative activities were completed during the MMRP SI.* ~~No activities were completed for MC at the West Burn Pads Area South of the Road MRS during the MMRP SI.~~"

"During … 1,200 µg/L.

"USACE … samples. (USACE 2003)

"On 8 … MRS. (USACE 2003)

(**Table 3-3**)

"During … setting). (USACE 2007)

"MC contamination in the soil and groundwater exists. The nature and extent of MC contamination has not been delineated and no ~~removal~~ *remedial* actions have been completed for MC contaminated soils. A remedial alternative ~~of Long Term Monitoring (LTM)~~ has ~~been implemented for~~ *not been selected to address* groundwater, *OU3. Contaminated groundwater in OU3 will be managed by the Army IRP*. ~~Based on these findings, this site is recommended to advance to the RI for MC.~~"

Response: The text in **Section 3.7.2** will be revised to read, "No …. simulators.

"Since this area has never been investigated and the use of MEC *during historical training activities* was substantiated, the potential exists for MC to be present at this site."

Response: The text in **Section 3.8.2** will be revised to read, "Based on the USEPA Dispute Resolution dated 20 December 2006 and HRR (URS 2007) findings, it was determined that the ~~No activities were completed for MC at~~ Incendiary Disposal Area

MRS will move directly to the RI phase; therefore, no MC investigative activities were completed during the MMRP SI.

"Based on the IRP's investigation, MC was confirmed in soil at this site. The nature and extent of MC contamination was delineated and a ~~removal~~ *remedial* action *began in February 2007. The remedial action included the following activities: excavation of contaminated soil at locations that had analyte concentrations above their respective OU-1 remediation goal and confirmation sampling. The excavation activities were* ~~was~~ completed in ~~December~~ *March 2007* ~~2006~~ *and consisted of excavations totaling approximately 239 cubic yards of soil.* ***Figure 3-6*** *shows the final excavation locations (shaded in orange) for the remedial action.* Additional MC is not expected to be present at this site.~~, and NFA, under the Active Army MMRP, for MC is recommended.~~ Cumulative IRP sampling results from previous investigations conducted at the Incendiary Disposal Area MRS are presented in **Appendix A**."

Comment 16. **Section 3.4.1.** This section states that the potential for MEC was identified in the HRR, but does not explain why. This information should be added to support this statement. Please address.

Response: The text in **Section 3.5.1** will be amended to read, "Based … will *move* ~~go~~ directly … activities.

"*The 1945 Day and Zimmermann Inc. drawing titled, 'Contm'd Areas Near East Boundary – South of Lower Augusta Rd. & East of YD. "E,"' identifies three contaminated areas at IAAAP. The area depicted on the bottom left of the drawing (Contaminated Area South of Augusta Road, East of Long Creek) represents the Possible Demolition Site MRS. No ground scarring was observed in the aerial photographs reviewed for this area at the location identified in the drawing.*

"*According to the Installation Assessment in 1980, two former demolition areas were located near the southern boundary along Augusta Road. An area east of the pistol range was used during the 1940s and 1950s; white phosphorous rounds were demilitarized there in the mid-1940s. (USATHAMA 1980)*"

Comment 17. **Section 4.** It appears that the MC exposure pathways have been omitted for any of the sites required to move forward to RI per the Dispute Resolution. If the site is moving forward for MEC, then by default it has to move forward for MC, because MC has the potential to enter the environment from the MEC. In addition our goal for the CSM is for it to address all constituents being addressed in the RI: MEC and MC. Please address.

Response: The MC exposure pathways will be included in **Section 4**.

Comment 18. **Appendix B.** Please develop a Table for Appendix B to summarize the MRS-PP scores. The format of this Table should be consistent with the example provided in the August

2007 QIPR discussion slides (see attached to email), and a hard copy included in the final document.

Response: A **Table B-1** will be developed for Appendix B and will be consistent with the format from the 2007 QIPR discussion slides.

Comment 19. Please update Section 6 text and Table 6-1 to be consistent with previous comments made on Sections 4 and 5. Recommendations other than RI for MEC and MC should be removed from this Table. Table should reflect facts, not recommendations other than RI per Dispute Resolution.

Response: The text in **Section 6.1** will be revised to read, "The … present *and operational* today *(occupied by Advanced Environmental Technology Inc. and not eligible for the MMRP)*. The … (URS 2007).~~, and **Figure 2-2** illustrates the MRS boundary.~~ Based on the USEPA Dispute Resolution *dated 20 December 2006*, the Central Test Area MRS will *move* ~~go~~ directly to the RI phase; therefore, no MEC investigative activities were completed during the MMRP SI. ~~Based on the IRP's investigation, MC was confirmed in soil at the site. The nature and extent of MC contamination was delineated and a removal action was completed in December 2006. Therefore, NFA is recommended for MC under the Active Army MMRP.~~"

Response: Similar changes will be made to the conclusions for Line 6 Ammo Production MRS, West Burn Pads MRS, Possible Demolition Site MRS, West Burn Pads Area South of the Road MRS, and Incendiary Disposal MRS.

Response: The text in **Section 6.6** will be revised to read, "The … (URS 2007).~~, and **Figure 2-6** illustrates the MRS boundary.~~ Based on the ~~findings of the~~ HRR (URS 2007) *findings*, the potential *exists for* ~~presence of~~ MEC or MC *to be present. No MEC or MC investigations have been completed for this MRS* ~~has not been investigated~~. ~~Therefore, it~~ *This MRS* is recommended *to* ~~that the Maneuver Area MRS~~ advance to the RI phase for MEC and MC investigations.

Comment 20. **Table 6-1.** Acreage Column. Please modify the title of this column from "Acreage" to "SI Acres."

Response: The column will be revised as suggested.

Comment 21. **Table 6-1**. Please modify Table 6-1 to be consistent with the information requested at the May 2007 QIPR (see attached).

Response: **Table 6-1** will be modified. The following columns will be included in the revised **Table 6-1**: MMRP Site (AEDB-R Number); MRSPP Priority; CTT Acres; HRR Acres; and SI Acres. **Table 6-2** will be created and include MMRP Site (AEDB-R Number); Primary MEC; Primary MC; Recommendations for MEC and MC; and Basis for Recommendation.

Comment 22. Please update document with AEDB-R numbers. Please add AEDB-R numbers to the section text, or titles of the MRSs in Sections 4, 5, and 6 (as was done is Section 2).

Response: AEDB-R numbers will be added to the titles in **Sections 4**, **5**, and **6**.

Response: AEDB-R numbers in the text of Section 2 will be removed and the AEDB-R numbers will be added to the titles to be consistent throughout the document.

Comment 23. **Section 6.7**. Please remove West Burn Pads from this Section.

Response: The West Burn Pads MRS will be added as a separate section in **Section 6**. West Burn Pads MRS will be removed from **Section 6.7**.

Comment 24. Please develop an MRS Summary Map for Section 6. This map should be consistent with what was done in the Fort Eustis SD SI Report.

Response: A figure will be included in **Section 6** that is consistent with the Fort Eustis SI Report.

Comment 25. **Section 6**. Please add West Burn Pads Section to Section 6 text.

Response: The West Burn Pads MRS will be added as a separate section in **Section 6**. West Burn Pads MRS will be removed from **Section 6.7**.

Comment 26. **Appendix B**. Please prepare an MRSPP scoring for the West Burn Pads and include in Appendix A. Because the West Burn Pads will need to be an open site, and will need to be reported as an open site, it will have to have a numeric MRSPP score, even though the site has been completely remediated to bedrock. Lets also discuss verbally.

Response: An MRSPP score will be developed for the West Burn Pads MRS and included in **Appendix B**.

Comments by Rodger Allison, IAAAP, June 15, 2007

Comment 1. **Section 1.2, page 1-4**: The dispute resolution should be recognized in this paragraph. The decisions for points 1 and 3 listed here have already been made by the agreements identified in the dispute resolution and will not actually be made using this document. It is clearly covered in later sections and should be covered here also.

Response: An additional paragraph will be added to **Section 1.2** and will read, "*Based on the USEPA Dispute Resolution dated 20 December 2006, it was determined that the Central Test Area MRS, Line 6 Ammo Production MRS, West Burn Pads MRS, Possible Demolition Site MRS, West Burn Pads Area South of the Road MRS, and Incendiary Disposal Area MRS will go directly to the RI phase. This resolution supercedes recommendations based on available information in the Active Army MMRP SI Report.*"

Comment 2. **Section 2.1, page 2-1**: What is the purpose of the Note? Are you saying that the INRMP is more complete and accurate than the property records?

Response: The purpose of the note is to acknowledge the different acreages presented by the real property records and the INRMP. The total acreage (19,011) is from real property records. The information presented from the INRMP shows the relative acreage breakdown for IAAAP; however, the two acreages do not equal each other. To resolve this discrepancy, the note was added.

Response: The note will be revised to read, "Note: ~~IAAAP acreage according to~~ *Based on real property records, IAAAP acreage* is ~~currently~~ *officially* 19,011 acres. *The* ~~acreage breakdown provided by the~~ Integrated Natural Resources Management Plan (INRMP) (HES 2001) ~~does not account for all 19,011 acres.~~ *provides an acreage breakdown for 18,785 acres.* Although the ~~IAAAP~~ *INRMP* acreage breakdown is not complete, *the* ~~current~~ *official (real property)* acreage breakdown is expected to be ~~fairly~~ similar *to* ~~with~~ the acreage breakdow*n* provided in the INRMP (HES 2001)."

Comment 3. **Section 2.1, Page 2-1**: What is the purpose of the acreage breakdown discussion in the note?

Response: Refer to the response provided for Allison (IAAAP) Comment # 2.

Comment 4. **Figure 2-2**: Was the drop test fixture actually used to test incendiary bombs? It seemed to be a very small fixture for bomb testing.

Response: Historical information was not identified to validate the operational details of the drop test fixture for exploding incendiary bombs. According to Ms. Beverly Johnson, the drop test fixture for exploding incendiary bombs was not operational during her time at the Central Testing Area MRS. No other employees with first hand knowledge of the Central Test Area MRS were identified during our interviews. In addition, historical documents were not identified that discussed the operational details; however, the as built drawings for the structure were titled "Drop Test Fixture for Exploding Incendiary Bombs."

Response: The Central Test Area MRS (tripod) feature is referred to as the "Drop Test Fixture for Exploding Incendiary Bombs" on the following drawings obtained from the American Ordnance Mapping Department:

- *Drop Test Fixture for Exploding Incendiary Bombs. Day & Zimmermann Inc. 20 July 1945*
- *Testing Area for Exploding Incendiary Bombs in Central Testing Field. Day & Zimmermann Inc. 10 August 1945*.

Comment 5. **Section 2.3.2, page 2-6**: Please double check to ensure that we can say that detonator loading was accomplished in a specific building such as 6-34-2. This may fall under operations security.

Response: Information presented in the SI is consistent with the HRR, which was reviewed by Mr. Haines. No requests or comments were made regarding the identification of Building 6-34-2 as a detonator loading line. URS will contact Mr. Haines to ensure that this is not a breech in operations security.

Comment 6. **Section 3.2.1, page 3-2**: Was the drop test fixture actually used to test incendiary bombs? It seemed to be a very small fixture for bomb testing.

Response: Refer to the response provided for Allison (IAAAP) Comment #4.

Comment 7. **Section 4.1.3.6, page 4-6**: There are five watersheds on the Iowa AAP. This section does not recognize Little Flint Creek watershed at the northern portion of the Plant near L Yard.

Response: The text will be revised to read, "IAAAP has *five* ~~four~~ watersheds within its boundaries. Two watersheds, Long Creek and Brush Creek, are a subset of the third watershed, Skunk River. *The Little Flint Creek Watershed is the fourth watershed and drains into Spring Creek.* Spring Creek is the *fifth* watershed and drains directly into the Mississippi River. Brush Creek has the majority of installation areas within its boundaries. Spring Creek and Long Creek may be critical to the overall hydrogeology due to the thin overburden layer above the bedrock. (Jaycor 1996)"

Comment 8. **Section 4.5.2, page 4-20**: Change B-3 to BG-3.

Response: The text in **Section 4.6.2** will be revised as suggested.

Comment 9. **Section 4.5, pages 4-20 thru 4-26**: There is no recognition of FUSRAP activities and responsibilities at this site. Recommend this information be included in this section.

Response: The following reference will be added to **Section 7**: USACE. 2007. Remedial Investigation Work Plan for Line 1, Firing Sites Area, Yards C, G, and L, Warehouse 3-01 and the West Burn Pads Area South of the Road. February.

Response: The following text will be included in **Section 2.3.5**, "

"*In July 2002, the West Burn Pads Area South of the Road MRS was designated by Congress into FUSRAP as a site used by the former Atomic Energy Commission. FUSRAP was contracted to complete an RI to investigate potential radioactive, chemical, and explosives contamination at the West Burn Pads Area South of the Road MRS. The objectives of the RI are to determine if concentrations of chemical or radiological contaminants exceed screening levels for soil or sediment and determine if structures present contain radiological constituents that exceed screening criteria. (USACE 2007)*

"*In August 2004, for the FUSRAP RI Work Plan, FUSRAP completed a gamma walkover survey, building survey, and soil sampling. No radiological contamination was present at the West Burn Pads Area South of the Road MRS. Five surface soil samples were collected by FUSRAP and analyzed for metals (arsenic, barium, cadmium, chromium, lead and mercury), uranium-234, uranium-235, and uranium-238. No metal concentrations of this data group exceeded the current screening criteria (USEPA – Region 9 PRGs for an industrial setting). (USACE 2007)*

"*Radiological soil sampling results from the August 2004 radiological surveys were used to perform a determination of impacted or non-impacted classification in accordance with Multi-Agency Radiation Survey and Site Investigation Manual guidance for the West Burn Pads Area South of the Road MRS. No residual radioactive contamination was identified in the surface soils, but the potential exists for radioactive contamination to have either migrated to the subsurface soil or to have been placed there during land-disturbing activities. FUSRAP is still in the process of completing the RI for IAAAP areas, including the West Burn Pads Area South of the Road MRS. (USACE 2007)*"

Comment 10. **Section 4.6, General Comment**: Should this document recognize the cemetery that used to be in this area. The Swedish Cemetery was located just E/NE of the InDA. Those interred there were relocated to other cemeteries on the Plant circa 1941. (This might be address as a boundary for the InDA itself in section 4.7.1.)

Response: Information will be obtained during the RI phase to refine or confirm the site boundary for the MRSs.

Comment 11. **Section 4.6.5, page 4-27**: This site no longer has unrestricted access. Please adjust text to reflect the restriction.

Response: The text in **Section 4.7.5** will be revised to read, "*The majority of this* site has unrestricted access and is accessible to all authorized personnel and visitors that are allowed on the installation. *However, K Road, within the Maneuver Area MRS, is restricted. The road is barricaded to prevent access to the Incendiary Disposal Area MRS. Recreational activities are not permitted within portions of this MRS (**Figure 4-1**).*"

Comment 12. **Section 4.6.7, page 4-27**: It is my understanding that this area is no longer authorized for use by the IA ARNG for training. Please adjust the text if this is true.

Response: The text in **Section 4.7.7.1** will be revised to read, "The Maneuver Area MRS is ~~leased to the IA ARNG to perform training activities~~ *currently unused and undeveloped*."

Comment 13. **Section 4.6.7.2, page 4-28**: This section should be adjusted as the receptors may change due to the established security/safety restrictions.

Response: Comment noted. No changes are proposed. Access to the site is restricted on K Road only, which prevents access to the Incendiary Disposal Area MRS. The remainder of the site is accessible to all receptors allowed on IAAAP.

Comment 14. **Section 4.6.9, page 4-32**, last paragraph, first sentence: Based on recent changes, access to this are is restricted. Please re-evaluate this assessment.

Response: The text will be revised to read, "Potentially complete pathways for all exposure routes for surface soil exist for all receptors *as the majority of this site has unrestricted* access, with exception of K Road, which *is restricted (barricaded road)* ~~to and activities at this site are not restricted~~. The subsurface … activities."

Comment 15. **Table 5-1, page 5-1 and Table 6-1, page 6-1**: Please explain what the priority ranking means in either the text or the table's legend. Is this a national relative risk priority or a general priority for funding?

Response: The following note will be included for **Table 5-1** and **Table 6-1**, "An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority."

Comment 16. **Table 6-1, page 6-1**: This table does not recognize FUSRAP responsibilities and activities at the West Burn Pads Area (South of the Road). Please research and adjust text accordingly.

Response: Refer to the response provided for Allison (IAAAP) Comment #9.

Comment 17. **Section 6.1, page 6-1**: Was the drop test fixture actually used to test incendiary bombs? It seemed to be a very small fixture for bomb testing.

Response: Refer to the response provided for Allison (IAAAP) Comment #4.

Comment 18. **Section 6.2, page 6-2**: Please double check to ensure that we can say that detonator loading was accomplished in a specific building such as 6-34-2. This may fall under operations security.

Response: Information presented in the Active Army MMRP SI is consistent with the Active Army MMRP HRR, which was reviewed by Mr. Haines. No requests or comments were made regarding the identification of Building 6-34-2 as a detonator loading line. URS will contact Mr. Haines to ensure that this is not a breech in operations security.

Comment 19. **Section 6.4, page 6-3**: Remove the closed parenthesis after the third sentence.

Response: The text in **Section 6.5** will be revised as suggested.

Comment 20. **Section 6.4, page 6-3**: Please mention responsibilities covered under FUSRAP.

Response: Refer to the response provided for Allison (IAAAP) Comment #9.

Comment 21. **Appendix A**: Please highlight analytes with concentrations above the cleanup level for easier identification.

Response: The text within the cells of Appendix A that shows analytes with concentrations above the cleanup level will be highlighted.

Comments by Steve Bellrichard, IAAAP, December 6, 2006

Comment 1. Page 2-11, first sentence top of page – In correct. The guard has not been authorized to use this range since (I believe) 2001, just prior to 911

Response: Comment noted. The text is referring to the earliest known time, based on the HRR, that IA ARNG has been authorized to perform training activities.

Response: Refer to the response provided for Carrig (USACE) Comment #6. The additional text added, based on Carrig (USACE) Comment #6, to the section indicates the East Training Range MRA training areas (Maneuver Area MRS) have not been used for live fire since 28 September 2001.

Comment 2. Page 3-7, section 3.5.2 – FUSRAP has collected samples from this area as part of their RI workplan. Why is this not mentioned here?

Response: The following text will be included after **Table 3-3** in **Section 3.6.2**, "*During the August 2004 FUSRAP investigation, five surface soil samples were collected and analyzed for metals (arsenic, barium, cadmium, chromium, lead and mercury), uranium-234, uranium-235, and uranium-238. No metal concentrations of this data group exceeded the current screening criteria (USEPA – Region 9 PRGs for an industrial setting). (USACE 2007)*"

Response: The following reference will be added to **Section 7**: *USACE. 2007. Remedial Investigation Work Plan for Line 1, Firing Sites Area, Yards C, G, and L, Warehouse 3-01 and the West Burn Pads Area South of the Road. February.*

Comment 3. Page 3-9, section 3.6.2 – as per comment #1, the guard has not been authorized to use this range for some time now.

Response: **Section 3.7.1** will be revised to read, "No … simulators.

"On 22 November 2006, the Department of the Army Management Office - Training Simulations granted the Request for Reclassification of the East Training Range MRA (referred to as the Land Navigation Range in the Department of Army Memorandum), which includes the Maneuver Area MRS and Incendiary Disposal Area MRS. This reclassification resulted in the East Training Range MRA status being changed from active to closed. In addition, the memorandum stated that the East Training Range MRA

training areas (Maneuver Area MRS) have not been used for live fire since 28 September 2001.

"Since … MC."

Comment 4. Page 3-10, section 3.7.1 – There is no mention of the M1A1 mine found and destroyed. I have 2 reports (one from EOD and one from me) that should be used to amend this section so that the correct number and types of UXO were found and destroyed is correct. There are no remaining known UXO at this site.

Response: The text in Section **3.8.1** will be revised to read, "Based … activities.

"In April 2007, during IRP remedial activities, DMM was exposed by heavy equipment mobilization. The IRP contractor identified the DMM and notified IAAAP Army Environmental, which contacted the 763rd Ordnance Company (EOD) located at Fort Leonard Wood, Missouri. EOD personnel inspected the DMM and identified 1 mine, AT, M1A1; 14 Fuses, Projectile, PD, Mark II; and 13 Projectile, Shrapnel, Cannon 75mm Mk1 shells. The munitions items were detonated in place by Fort Leonard Wood EOD. No further investigation (i.e., geophysical survey) for the presence of additional MEC items was completed following the detonation.

"Fort Leonard Wood EOD returned to IAAAP in June 2007 to address any residual from the April 2007 detonation in place at the Incendiary Disposal Area MRS. Five additional 75mm rounds were identified (pusher plates intact, black powder expelling charge, no fuzes). The munitions were safely removed from the Incendiary Disposal Area MRS and were destroyed by detonation at the Demolition Area by Fort Leonard Wood EOD. Based on the recent findings, MEC is present at the Incendiary Disposal Area MRS."

Comment 5. **Page 4-18, section 4.4.5** – This statement is not accurate – The site has been removed from recreational access. Furthermore, only authorized personnel can enter the site, as per memo signed earlier this year by our CO. I can get you a copy if you like.

Response: The text in **Section 4.5.5** will be revised to read, "*Access to* ~~the~~ this site *is* ~~has unrestricted access and is accessible to all authorized personnel and visitors that are allowed on the installation.~~ *restricted (warning signs posted per USEPA Dispute Resolution) due to potential explosives hazards. Authorization from a supervisor or sponsor is required for employees, visitors, contractors, or tenants to access this site. Recreational activities are not permitted within the boundary of this MRS (**Figure 4-1**).*"

Comment 6. **Page 4-14, section 4.3.5** – This statement is not accurate – Access is restricted per CO memo.

Response: The text in **Section 4.3.5** will be revised to read, "*This* ~~The~~ site is fenced *and* ~~with unrestricted~~ access~~. Line 6 Ammo Production MRS is accessible to all authorized personnel and visitors that are allowed on the installation.~~ *to this site is*

*restricted (warning signs posted per USEPA Dispute Resolution) due to potential explosives hazards. Authorization from a supervisor or sponsor is required for employees, visitors, contractors, or tenants to access this site. Recreational activities are not permitted within the boundary of this MRS (**Figure 4-1**).*"

Comment 7. **Page 4-10, section 4.2.5** - This statement is not accurate – Access is restricted per CO memo.

Response: The text in **Section 4.2.5** will be revised to read, "*This* ~~The~~ site is fenced~~,~~ and ~~is accessible to authorized personnel; visitors that are allowed on the installation will require an escort at this site.~~ *access to this site is restricted (warning signs posted per USEPA Dispute Resolution) due to potential explosives hazards. Authorization from a supervisor or sponsor is required for employees, visitors, contractors, or tenants to access this site. Recreational activities are not permitted within the boundary of this MRS (**Figure 4-1**).*"

Comment 8. **Page 4-22, section 4.5.5** – This statement is not accurate – Access is restricted per CO memo.

Response: The text in **Section 4.6.5** will be revised to read, "~~The site has unrestricted~~ Access ~~and is accessible to all authorized personnel and visitors that are allowed on the installation.~~ *to this site is restricted (warning signs posted per Memorandum for IAAAP Employees, Visitors, Contractor and Tenants dated 19 March 2007) due to potential explosives hazards. Authorization from a supervisor or sponsor is required for employees, visitors, contractors, or tenants to access this site. Recreational activities are not permitted within the boundary of this MRS (**Figure 4-1**).*"

Comment 9. **Page 4-27, section 4.6.5** – This statement is true, except for InDA area addressed by the CO memo and the hunting zones that have been closed since the discovery of the UXO. Further more, and this goes for the InDA, the road leading to the InDA has been barricaded.

Response: Refer to the response provided for Allison (IAAAP) Comment #11.

Comment 10. **Page 4-33, section 4.7.5** – This statement is not accurate. The CO memo, hunting regulations, and road closure have all been put in place after the April finding of UXO.

Highly recommend that you are very clear and precise when addressing comment 5-10. EPA will be all over inaccuracies here. Changes have also been made because of the recent dispute resolution. Recommend you review this dispute, to make sure all it required have been addressed here. UXO signs are in place and visitors and contractors are being informed (via CO memo). The IRP program manager submitted the documents to EPA required by the dispute resolution. Therefore, please contact him for this info.

Response: Although K Road is barricaded (Bellrichard [IAAAP] Comment #9), the actual barricade resides within the Maneuver Area MRS and will be discussed in **Section 4.7.5**.

Response: The text in **Section 4.8.5** will be revised to read, "~~The site has unrestricted~~ Access ~~and accessible to all authorized personnel and visitors that are allowed on the installation.~~ *to this site is restricted (warning signs posted per USEPA Dispute Resolution) due to potential explosives hazards. Authorization from a supervisor or sponsor is required for employees, visitors, contractors, or tenants to access this site. Recreational activities are not permitted within the boundary of this MRS (**Figure 4-1**).*"

Comment 11. **Page 4-34, section 4.7.8** – I think you should update this section to include the munitions found in April (i.e. MIAI mine, 75mm, fuzes etc). If you did not get the list found and destroyed, let me know and I will forward. Secondly, Table 4-7 says the primary release mechanism is open burn and burial. Because of the craters and what EOD said, I think open detonation is a primary release mechanism as well.

Response: The "Potential Munitions" column will be updated to include "*Mines*," "*Fuzes*," and "*Large Caliber*."

Response: **Table 4-8** will be revised to include "*Open Detonation*."

Comment 12. **Page 6-3, section 6.6** – There were no intrusive actions in April 2007. I would state that in April UXO were discovered and disposed of by EOD.

Response: The text in **Section 6.7** will be revised to read, "The … substantiated *in April 2007 when MEC were discovered and disposed of by Fort Leonard Wood EOD personnel* ~~during intrusive activities in April 2007~~. This … MMRP SI."

Comment 13. If the UXO discovery and disposal has not been considered in your ranking, please amend to reflect that UXO were confirmed at the InDA.

Response: The Incendiary Disposal Area MRS MRSPP score will be reviewed and updated as appropriate.

RESPONSE TO USAEC COMMENTS
13 AUGUST 2007

-AND-

RESPONSE TO IAAAP COMMENTS
1 AUGUST 2007

CHECK COPY
URS RESPONSE TO COMMENTS ON THE
CHECK COPY SITE INSPECTION REPORT
IOWA ARMY AMMUNITION PLANT

Comments by Travis R McCoun, USAEC, August 13, 2007:

Comment 1. Please update definitions as follows: Operational Range - A range that is under the jurisdiction, custody, or control of the Secretary of Defense and that is used for range activities; or although not currently being used for range activities, that is still considered by the Secretary to be a range and has not been put to a new use that is incompatible with range activities. (10 U.S.C. 101(e)(3)(A) and (B)). Also includes "military range," "active range," and "inactive range" as those terms are defined in 40 CFR §266.201. (See reference (f)). Other than operational Range - Includes all property that is under jurisdiction, custody, or control of the Secretary of Defense that is not defined as an Operational Range Area.

Response: The definition will be revised as suggested.

Comment 2. Page 2-14. Second paragraph. Second sentence should read: "...from operational to closed." Same comment Page 3-14, second paragraph.

Response: The text will be revised as suggested.

Comment 3. Section 4 MC exposure pathways. The figures illustrate the potential MC exposure pathways as incomplete for some of the MRSs. Reference RTC for McCoun Comment #17. Since MC should be present in MEC, shouldn't these be illustrated as potentially complete? I understand this approach based on supporting MC text, but would like to discuss further.

Response: Based on discussions with USAEC, no changes were made.

Comment 4. Section 5. MRSPP scoring should be referred to and labeled as "draft" in the document and **Appendix B**.

Response: The text will be revised as suggested.

Comment 5. Summary Figure. Figure 6-1 includes the North Burn Pads MRS. This site was not discussed in the SI Report as it was weeded out as ineligible during the HRR, but is qualified in Section 6.8. Should we be illustrate in the SI Report Summary Figure? Lets Discuss rationale here.

Response: Based on a discussion with USAEC, the North Burn Pads MRS will be removed from **Figure 6-1**. **Section 6.8** will be removed from the text.

Comment 6. As you indicated in your email, Tables 6-1 and 6-2 need to be updated per MFR requirements outlined in QIPR discussions.

Response: The tables will be revised based on the examples provided in the MEMORANDUM FOR RECORD – 006MFR FINAL SI SUBMITTAL REVIEW AND APPROVAL PROCESS.

Comment 7. Sections 6-1 through 6-7. The recommendations for RI should be specific for MEC and MC for all sites (e.g. the site is recommended for RI for MEC and MC).

Response: The recommendations will be revised as suggested.

Comments by Steve Bellrichard, IAAAP, August 1, 2007

Comment 1. Rodger Allison Comment #1 – The last part of the response says, "…Active Army MMRP SI Report." Do you referring to the HRR, or is this another document.

Response: The text will be revised to read, "This resolution supersedes recommendations based on available information in the Active Army MMRP *HRR and* SI Report."

Response: The conclusions made based in the Active Army MMRP SI Report are superseded by the USEPA Dispute Resolution.

Comment 2. Rodger Allison Comment #4 – The first sentence of this response says, "…DMM was exposed by heavy equipment mobilization." This is not accurate and we would prefer you just say it was found. No heavy equipment was in the area when the DMM was found.

Response: "In April 2007, during IRP remedial activities, DMM was *found* ~~exposed by heavy equipment mobilization~~. The … detonation.

"Fort … MRS."

Comment 3. **Page 4-23, section 4.4.5** - There are no warning signs posted around the West Burn Pads. Signs are posted around the area south of the road.

Response: The text will be revised to read, "~~Access to this site is restricted (warning signs posted per USEPA Dispute Resolution) due to potential explosives hazards. Authorization from a supervisor or sponsor is required for employees, visitors, contractors, or tenants to access this site.~~ *The site has unrestricted access and is accessible to all authorized personnel and visitors that are allowed on the installation.* Recreational activities are not permitted within the boundary of this MRS (**Figure 4-1**).

Comment 4. **Figure 2-2** – I see that there is now an ineligible portion of this site. Is this just the building itself?

Response: Correct. Building 600-84, which is currently occupied by Advanced Environmental Technology Inc., is operational.

Comment 5. Question, why is the North Burn Pads ineligible? I don't believe it needs to be a MRS, just want to know.

Response: The presence of UXO, or DMM, or a release of MC to the environment is no longer present at the North Burn Pads MRS based on the IRP work performed by Environmental Chemical Corporation. Attached below is the decision tree for determining MMRP eligibility for sites. Based on the decision tree, the North Burn Pads MRS is not eligible for the MMRP.

Figure 2-1. Decision Tree for MMRP Eligibility Criteria