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Final Historical Records Review Addendum

Joliet Army Ammunition Plant Wilmington, IL

prepared for
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FINAL HISTORICAL RECORDS REVIEW ADDENDUM
JOLIET ARMY AMMUNITION PLANT, WILMINGTON, ILLINOIS

NOVEMBER 2008

Prepared for:

UNITED STATES ARMY CORPS OF ENGINEERS, BALTIMORE DISTRICT
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DoD Contract W912DR-05-D-0004

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TABLE OF ACRONYMS

Acronym	Definition
AEC	United States Army Environmental Command
AEDB-R	Army Environmental Database-Restoration
APC-T	Armor Piercing Capped—Tracer
ARS	Advance Range Survey
BD	Base Detonating
BLU	Bomb Live Unit
BNA	Base Neutral Acids
BRAC	Base Realignment and Closure
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CSM	Conceptual Site Model
CTT	Closed, Transferring, and Transferred
CW	Chemical Warfare
DA Pam	Department of the Army Pamphlet
DERP	Defense Environmental Restoration Program
DMM	Discarded Military Munitions
DNT	Dinitrotoluene
DoD	Department of Defense
EE/CA	Engineering Evaluation / Cost Analysis
e^2M	engineering-environmental Management, Inc.
EODT	Explosive Ordnance Disposal Technology, Inc.
EOP	Elwood Ordnance Plant
ESS	Explosive Safety Submission
FS	Feasibility Study
ft/yr	foot/year

TABLE OF ACRONYMS

Acronym	Definition
FY	Fiscal Year
GPS	Global Positioning System
HE	High Explosive
HE-T	High Explosive—Tracer
HRR	Historical Records Review
ICM	Improved Conventional Munitions
IEPA	Illinois Environmental Protection Agency
IL	Illinois
IRP	Installation Restoration Program
JOAAP	Joliet Army Ammunition Plant
KOW	Kankakee Ordnance Works
LAP	Load-Assemble-Package
MC	Munitions Constituents
MD	Munitions Debris
MEC	Munitions and Explosives of Concern
MFG	Manufacturing
MGFD	Munition with the Greatest Fragmentation Distance
mm	millimeters
MMRP	Military Munitions Response Program
MRS	Munitions Response Site
msl	Mean Sea Level
MT	Mechanical Time
MWH	Montgomery Watson Harza
NM	Nonmetallic
NPL	National Priorities List

TABLE OF ACRONYMS

Acronym	Definition
OESS	Ordnance and Explosives Safety Specialist
ORSC	Ordnance Removal and Site Characterization Report
PA	Preliminary Assessment
PCB	Polychlorinated Bi-phenyls
RA	Removal Action
RDX	Cyclotrimethylenetrinitramine
RI	Remedial Investigation
SARA	Superfund Amendment and Reauthorization Act
SI	Site Inspection
SOP	Standard Operating Procedures
SUXOS	Senior Unexploded Ordnance Supervisor
TNT	2,4,6-Trinitrotoluene
TP	Target Practice
TPP	Technical Project Planning
U.S.	United States
USACE	United States Army Corps of Engineers
U.S.C	United States Code
USDA	United States Department of Agriculture
UXO	Unexploded Ordnance
VOC	Volatile Organic Compound
WWII	World War II

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 are or 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 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 – The detection, identification, on-site evaluation, rendering safe, recovery, and final disposal of unexploded explosive ordnance. 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 the unacceptable effects of an ammunition or explosives mishap.

Military 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 areas with restricted access and exclusionary areas, and airspace areas designated for military used in accordance with regulations and procedures prescribed by the Administrator of the Federal Aviation Administration.

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 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 nonexplosive materials, and emission, degradation, or breakdown elements of such ordnance or munitions.

Non-Operational Range – Encompasses closed, transferred, and transferring ranges.

Operational Range – A military 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.

Transferred Range – A military 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 is no longer under military control, but 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 military 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, fused, 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) has established the Military Munitions Response Program (MMRP) under the Defense Environmental Restoration Program (DERP) to address defense sites with munitions and explosives of concern (MEC) (which include unexploded ordnance [UXO] and discarded military munitions [DMM]) and munitions constituents (MC). The United States (U.S.) Army's inventory of closed, transferring, and transferred (CTT) military ranges and sites has identified sites eligible for action under the MMRP. The MMRP eligible sites include other than operational ranges where UXO, DMM, and/or MC are known or suspected and the release occurred prior to 30 September 2002. Properties classified as operational ranges, operating storage or manufacturing facilities, or facilities that are used or were permitted for the treatment or disposal of military munitions are not eligible and, therefore, are excluded from the MMRP. This report presents the results of the MMRP Historical Records Review (HRR) Addendum conducted at Joliet Army Ammunition Plant (JOAAP) in Will County, Illinois (IL).

The DoD is currently establishing policy and guidance for munitions response actions under the MMRP. However, key program drivers developed to date conclude that munitions response actions will be conducted under the process outlined in the National Contingency Plan (40 Code of Federal Regulations 300) as authorized by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S. Code (U.S.C.) 9605, as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), Pub. L. 99-499 (hereinafter CERCLA). The *Final Closed, Transferring, and Transferred Range/Site Inventory Report for Joliet Army Ammunition Plant, IL*, 8 September 2002, marks the completion of the Preliminary Assessment (PA) phase under CERCLA (JOAAP017). The Final Site Inspection (SI) Report for JOAAP, IL, completed in May 2005, covers the following munitions response sites (MRSs) (JOAAP013):

- Demolition Area (L3) (JAAP-001-R-01)
- Explosive Burning Ground 1 (L2) (JAAP-002-R-01)
- Training Area 7 (JAAP-003-R-01)
- Former Burning Area (L34) (JAAP-004-R-01)

This HRR Addendum and a subsequent SI report pertain to a newly identified MRS, the L2-L3 Extended Buffer Area (JAAP-001-R-02). The SI report is part of the CERCLA process and will complete the PA/SI requirement for MMRP eligible site.

1.1 PURPOSE/SCOPE

The purpose of this HRR Addendum is to perform an additional detailed records search to document historical and other known information for the newly identified MMRP site at JOAAP, the L2-L3 Extended Buffer Area (JAAP-001-R-02), to supplement the previous MMRP HRR and SI reports. It will also support the Technical Project Planning (TPP) process designed to facilitate decisions on those areas where more information is needed to determine the next steps in the CERCLA process.

1.2 PROJECT DRIVERS

The regulatory structure for managing MMRP sites at JOAAP is guided by a mixture of federal, state, and local laws, as well as DoD and Army regulations and guidance. Key legislative and administrative precedents to date undoubtedly will influence the final regulatory framework for the MMRP. The key legislative and administrative precedents include the following:

Defense Environmental Restoration Program (DERP) Management Guidance (September 2001)

The DERP Management Guidance established an MMRP element for UXO, DMM, and MC defense sites. The history of DERP dates back to the SARA of 1986. The scope of the DERP is defined in 10 U.S.C. §2701(b), which states that the:

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

Army DERP Management Guidance for Active Installations (November 2004)

The Army DERP Management Guidance provides guidance for active installations and non–base realignment and closure (BRAC) excess properties on the management of the Army Installation Restoration Program (IRP), the MMRP, and the Building Demolition and Debris Removal Program categories that are related to environmental cleanup. The Army DERP Management Guidance does not apply to Army restoration activities overseas, the BRAC Environmental Restoration Program, the Compliance-Related Cleanup Program, or the Formerly Used Defense Sites Restoration Program. The guidance document was provided to implement the Army's DERP in accordance with the DoD DERP Management Guidance (September 2001). The Army DERP Management Guidance supplements the roles, responsibilities, and procedures contained in Army Regulation 200-1 and Department of the Army Pamphlet 200-1 (DA PAM 200-1).

National Defense Authorization Act (Fiscal Year [FY] 02) (Sections 311–312)

Sections 311–312 of the National Defense Authorization Act of FY02 reinforced the DoD's 2001 DERP Management Guidance by tasking the DoD to develop and maintain an inventory of defense sites that are known or suspected to contain MEC or MC. Section 311 requires the DoD to develop a protocol for prioritizing defense sites for response activities in consultation with the states and tribes. Section 312 requires the DoD to create a separate program element to ensure that the DoD can identify and track munitions response funding.

The September 2001 DERP Management Guidance and the National Defense Authorization Act of FY02, described above, established the MMRP. The DERP and the

MMRP provide guidance and methods for conducting a baseline inventory of defense sites containing, or potentially containing, UXO, DMM, or MC.

1.3 BACKGROUND

As stated above, the Phase 3 CTT Range Inventory for JOAAP is considered to mark the completion of the PA phase of work under CERCLA. The SI is the next phase in the CERCLA process and will complete the PA/SI requirement for the MMRP eligible sites. The following paragraphs summarize the results of the Range Inventory at JOAAP and present the primary goals of performing an SI.

1.3.1 Inventory

The Army Range/Site Inventory program was conducted in three phases. The first phase (Phase 1) involved a data call issued through the U.S. Army Environmental Command (AEC) requesting general information about ranges on various installations under each U.S. Army Major Command. The Phase 1 Inventory was conducted using a questionnaire called the Advance Range Survey (ARS). The ARS allowed the Army to meet the short-term data goal of supporting the DoD preparation of Senate Report 106-50.

The JOAAP ARS data were submitted to AEC in 2000 and compiled into the master database of Army installations. Mr. Arthur Holz, Commander's Representative, was listed as the point of contact in the ARS for operational and non-operational ranges. There were two records in the ARS for operational/non-operational ranges. No records for CTT ranges at JOAAP were found in the ARS.

The ARS allowed the Army to meet its short-term needs; however, the Army's long-term needs required a more detailed inventory of its ranges that was not achievable based on the information in the ARS. For management and budgetary reasons, the Army divided the detailed follow-on inventory into two phases. The Phase 2 Inventory addressed

active/inactive (operational) military ranges, while Phase 3 covered CTT ranges and sites with MEC (UXO and/or DMM) and/or MC. A Phase 2 Inventory was not conducted at JOAAP because, at the time, there were no operational ranges or training areas on the installation.

An Engineering Evaluation/Cost Analysis (EE/CA) was completed in 1999, listing munitions and components recorded in historical documentation handled at L2 (JAAP-002-R-01) and L3 (JAAP-001-R-01), and recommended further action at the sites, including a removal action. An Ordnance Removal and Site Characterization Report (ORSC) was completed in 2001, expanding on the list of munitions with those actually found on the site. After conducting a site investigation, this report also recommended a removal action at both sites. The Phase 3 Inventory was conducted in 2002 based on information presented in the EE/CA and ORSC reports. The JOAAP site visit occurred on 16–18 April 2002 to collect the Phase 3 range inventory data. While on site, the data collection team reviewed historical records and interviewed knowledgeable installation personnel concerning historical ranges or sites on other than operational range areas. The Phase 3 Inventory is specifically focused on the non-operational range areas and on areas outside the current installation boundary that may have been used in the past for munitions-related disposal, testing or training. The *Final CTT Range/Site Inventory Report for Joliet Army Ammunition Plant, Illinois* was submitted to AEC on 8 September 2002 (JOAAP017). Following a Historical Records Review in February 2005, an SI was completed in May 2005, and the final SI report was submitted to USAEC on 25 May 2005 (JOAAP013). This recommended further investigation of the Explosive Burning Ground 1 (L2) (JAAP-002-R-01), the Demolition Area (L3) (JAAP-001-R-01 (JOAAP013). Based on this recommendation, a removal action (RA) was undertaken in 2007 at these MMRP sites which includes a 200-foot buffer area surrounding each site. During the RA, MEC was located beyond these buffer areas and is likely the result of kick out from munition demolition activities within the burning and demolition areas. An additional area of concern was identified as a result of the RA, and it was determined this area was eligible

for the MMRP. The resulting MRS was named the L2-L3 Extended Buffer Area (JAAP-001-R-02). This HRR Addendum outlines the history of the L2 and L3 sites, as well as the results of the RA and delineation of the L2-L3 Extended Buffer Area (JAAP-001-R-02).

1.3.2 SI

The primary goal of the MMRP SI is to collect sufficient information necessary to make one of the following decisions: 1) whether a Remedial Investigation (RI) / Feasibility Study (FS) is required at a site, 2) whether an immediate response is needed, or 3) whether the site qualifies for no further action. The SI at JOAAP will address the exposure from the hazards from MEC and MC contamination at the MMRP eligible site discussed in this report. The secondary goal of the SI is to collect information for building the MMRP program, to include Cost to Complete estimates and data to complete the site prioritization for the MMRP eligible site.

1.4 REPORT ORGANIZATION

This HRR has the following sections:

Section 1 – Introduction

Section 2 – Site Description

Section 3 – Data Collection and Document Review Process

Section 4 – Historical Records Review Findings

Section 5 – Conceptual Site Model (CSM)

Section 6 – Conclusions

The following supporting information and analyses are appended to this HRR:

- References (**Appendix A**)
- Site Inspection Kick-off Meeting Minutes – 11 June 2008 (**Appendix B**)
- Interview Records (**Appendix C**)
- ICM Waiver and Amendment (**Appendix D**)
- Munitions and Explosives of Concern Log Forms from 2007 Removal Action (**Appendix E**)

- Technical Project Planning Meeting 2 Minutes – 4 August 2004 (**Appendix F**)

2 SITE DESCRIPTION

2.1 DETAILED INSTALLATION DESCRIPTION/HISTORY

JOAAP is located in Will County, IL and was one of the largest and most productive ordnance complexes in the United States, having assembled over 4 billion pounds of military munitions. It encompasses approximately 23,000 acres 10 miles south of Joliet, IL and 40 miles southwest of Chicago, IL (**Figure 2-1**).

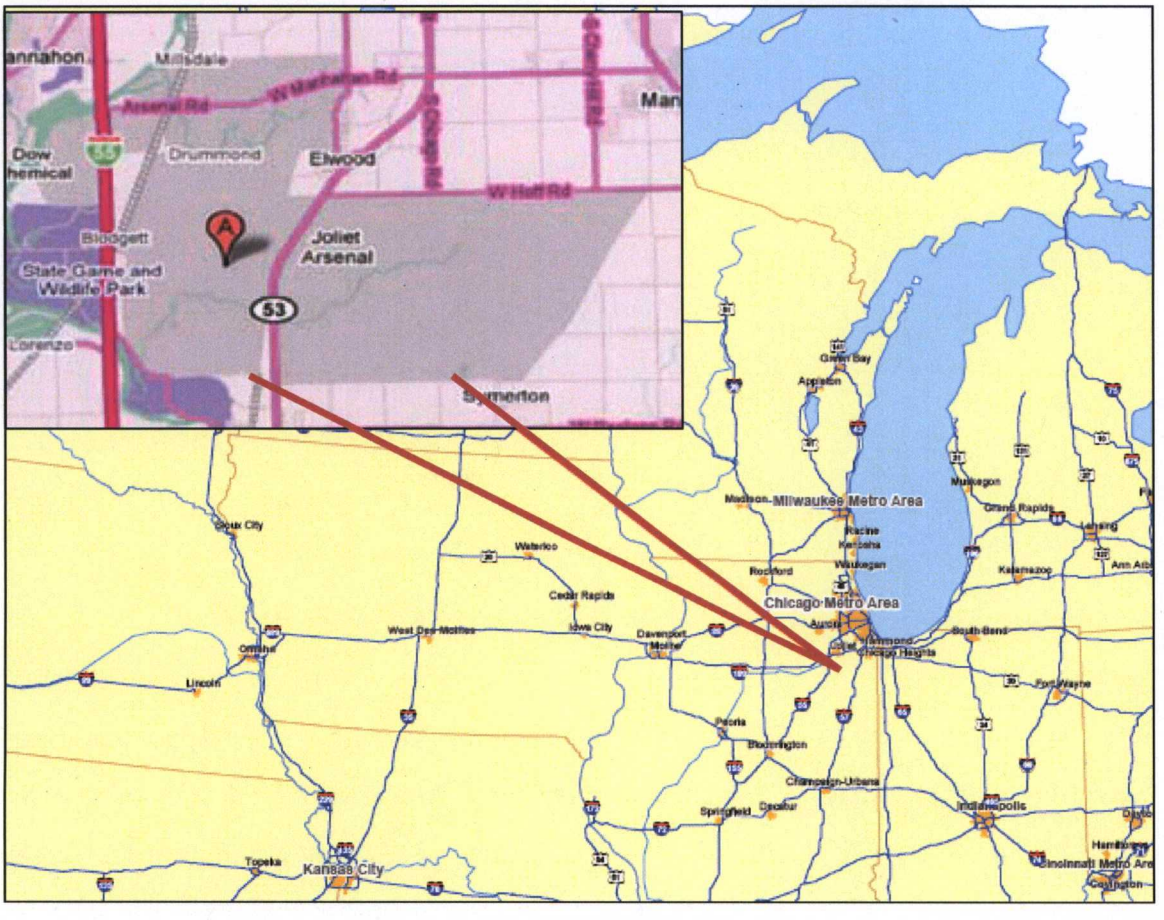


Figure 2-1. Location of JOAAP

JOAAP was constructed on agricultural land in the early 1940s for the purpose of munitions production in support of the U.S. involvement in World War II (WWII). It was built as two separate units: the Elwood Ordnance Plant (EOP) consisting of 14 square

miles and the Kankakee Ordnance Works (KOW) consisting of 22 square miles. These units were later referred to as the Load-Assemble-Package (LAP) Area and the Manufacturing (MFG) Area, respectively (**Figure 2-2**). The two units were joined in 1946 and became known as the Joliet Arsenal.

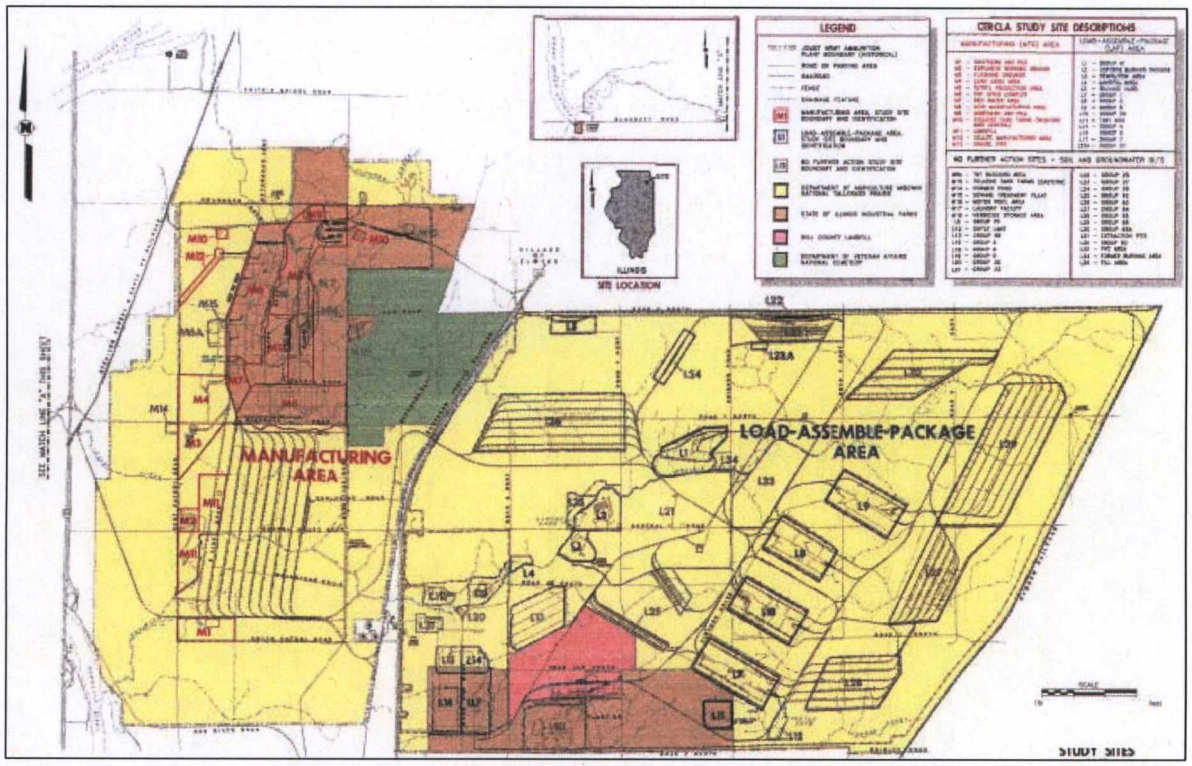


Figure 2-2. MFG Area and LAP Area at JOAAP
(Source: JOAAP010)

Joliet Arsenal was the nation's largest ammunition manufacturer at the end of WWII. When the Uniroyal Chemical Company (then known as U.S. Rubber Company) assumed operational responsibility for both plants in 1965, it was renamed the Joliet Army Ammunition Plant. Production facilities went on inactive or standby status when demand decreased; some of the facilities were leased for commercial use at those times. During times when production was halted, activities included demilitarization of deteriorated and obsolete ammunition items, as well as loading nonstandard research and development ammunition items. The plant was reactivated and production commenced during the Korean and Vietnam conflicts. All production halted in 1976, and the plant was assigned a non-operating status in 1977.

The MFG Area produced explosives including trinitrotoluene (TNT), dinitrotoluene (DNT), trinitrophenylmethylnitramine (tetryl), and other constituent chemicals. The LAP Area assembled and packaged bombs, projectiles, fuzes, and supplementary charges almost without interruption from WWII through 1975. Some of the munitions produced included the standard 105-millimeter (mm) high explosive (HE) M1 cartridge, the 8-inch howitzer HE projectile, 40 mm cartridges, and M14 mines. The property contained 392 igloos for munitions storage.

Congress placed the MFG Area on the National Priorities List (NPL) in July 1987 and placed the LAP Area on the NPL in March 1989. JOAAP was placed on Inactive-Modified Caretaker Status and the U.S. Army declared the 23,000 acres excess property in 1993. As determined by the Illinois Land Conservation Act of 1995, approximately 19,100 acres would be transferred to the U.S. Department of Agriculture (USDA) for the establishment of the Midewin National Tallgrass Prairie, and the rest of the property would be used for a national veteran's cemetery, a landfill, and two industrial parks. JOAAP currently is undergoing closure activities in order to complete the transfer of lands. A timeline of significant events is provided in **Table 2-1**.

Table 2-1: Timeline of Significant Events

Time Period	Significant Events
1940s	1940–41: EOP and KOW were built. 1945: First period of production ended. 1946: Two plants were joined and became Joliet Arsenal.
1950s	1951–53: Joliet Arsenal was reactivated for the Korean Conflict. 1957: Production ceased, and the arsenal was placed on inactive status.

Time Period	Significant Events
1960s–1970s	1965: Uniroyal Chemical Co. assumed control, and the facility was named the Joliet Army Ammunition Plant. 1966: JOAAP was reactivated to support efforts in the Vietnam War. March 1976: All production at JOAAP was terminated. 1977: JOAAP was assigned non-operating status.
1980s – 1990s	1987: MFG Area was placed on the NPL. 1989: LAP Area was placed on the NPL. 1993: U.S. Army declared JOAAP excess property. Joliet Arsenal Citizens Planning Commission was formed. 1995: Illinois Land Conservation Act of 1995 was passed, which authorizes the cleanup and transfer of the property.

2.2 MUNITIONS RESPONSE SITES

During the U.S. Army CTT Inventory (1–18 April 2002) and the SI / HRR visit (23–26 February 2004), a 200-foot buffer area around the perimeter of the IRP sites, Explosives Burning Ground 1 (L2) and Demolition Area (L3), was identified as requiring further characterization under the MMRP. These buffer areas have been designated as MRSs independent of the original IRP sites L2 and L3 and named the Explosive Burning Ground 1 (L2) (JAAP-002-R-01) and Demolition Area (L3) (JAAP-001-R-01). L2 and L3 and the MRSs are displayed in **Figure 2-3**.

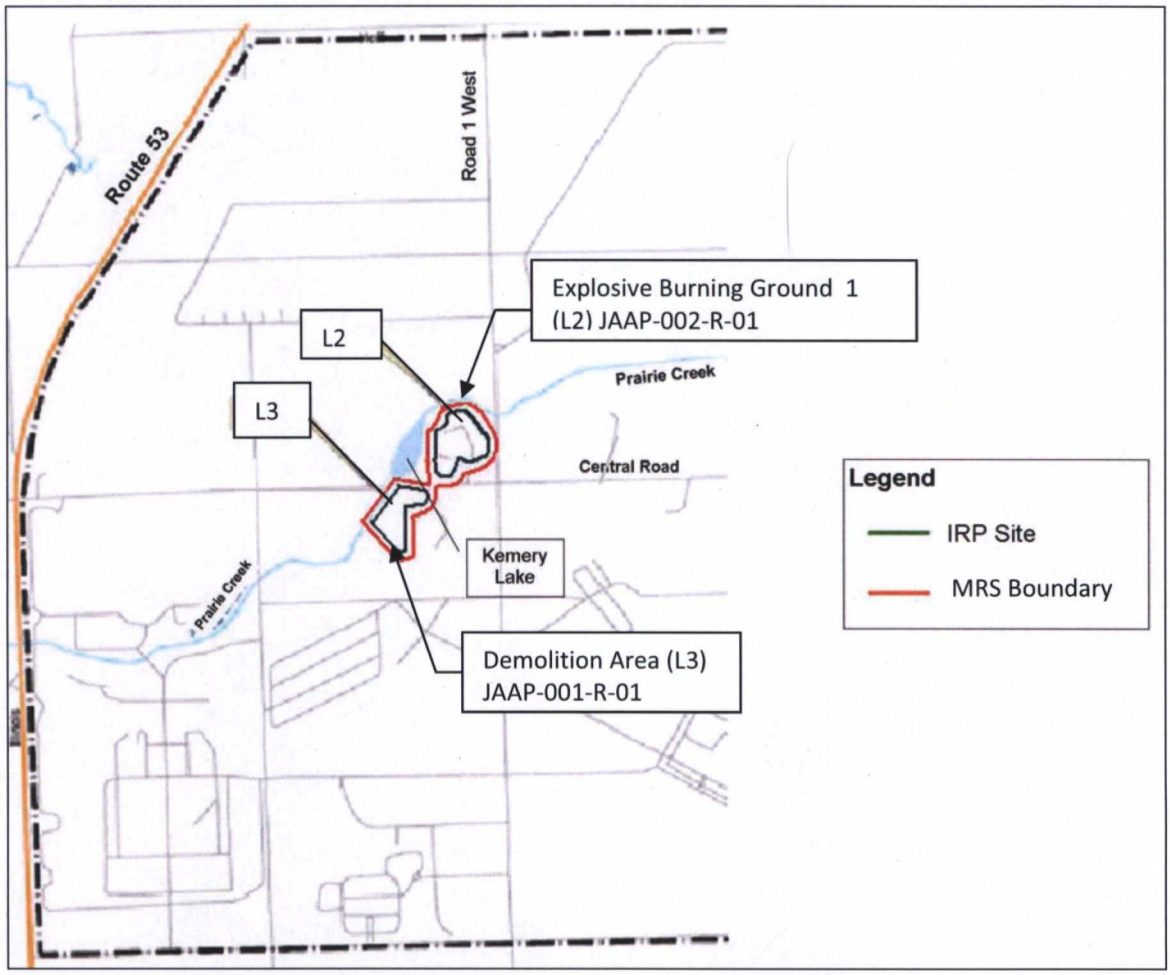


Figure 2-3. MRSs identified for further characterization
(Source: JOAAP012)

A follow-on RA in 2007 identified MEC and munitions debris (MD) close to and potentially outside the Explosive Burning Ground 1 (JAAP-002-R-01) and Demolition Area (JAAP-001-R-01) and recommended an additional area encompassing approximately 396 acres be investigated further. It was determined this area was eligible for inclusion in the MMRP. This new MRS is named the L2-L3 Extended Buffer Area (JAAP-001-R-02). An estimated boundary for this MRS is provided in **Figure 2-4**.

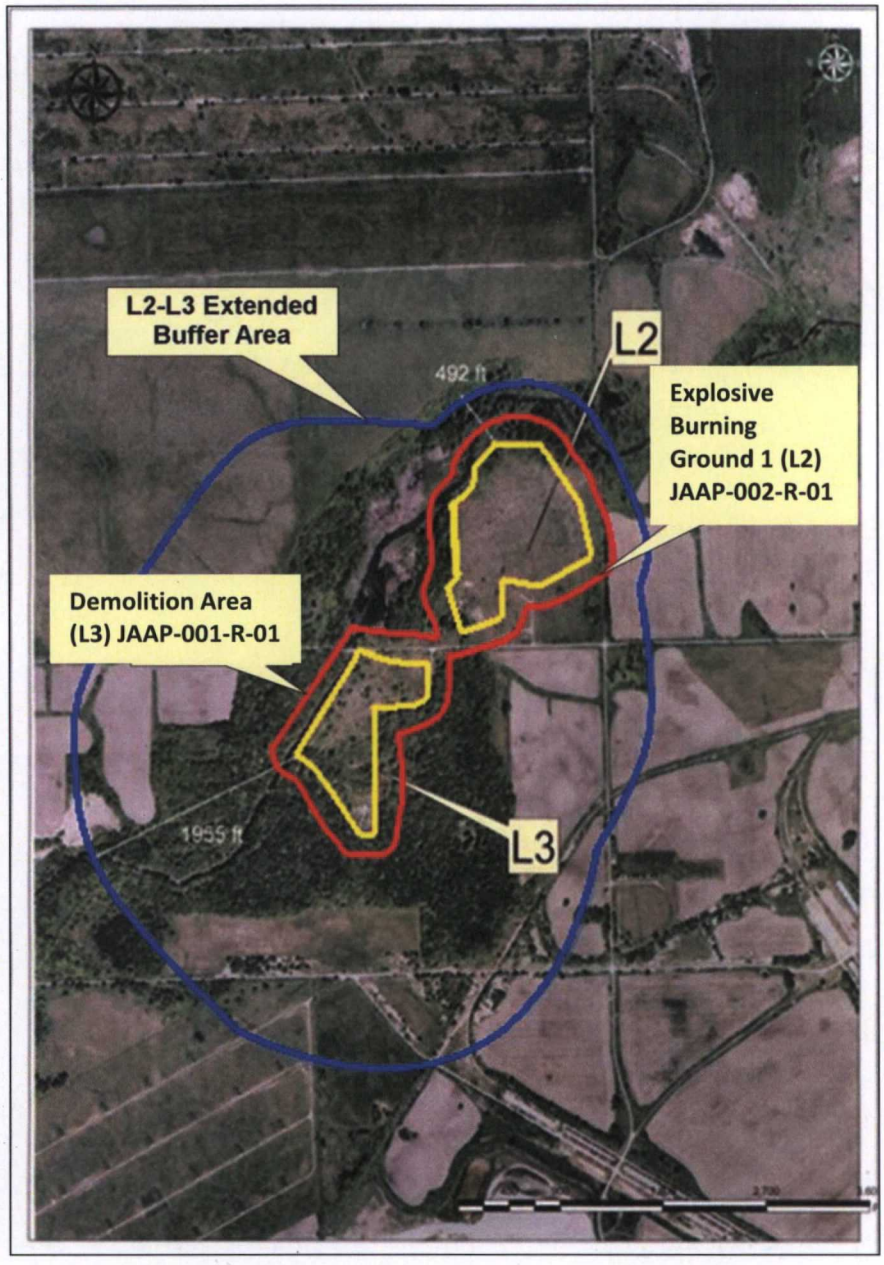


Figure 2-4. L2-L3 Extended Buffer Area extrapolated boundary

3 DATA COLLECTION AND DOCUMENT REVIEW PROCESS

Numerous primary sources of information were researched as part of the data collection effort for the HRR. The types of data include:

1) Installation site visit
2) Internet searches
3) Other data repositories
4) Interviews
5) Other reports and associated data, to include the 2002 Phase 3 Inventory report, 2005 SI report, and 2007 RA report

Each of the information sources is described below.

3.1 INSTALLATION DATA COLLECTION VISIT

A Malcolm Pirnie team visited JOAAP on 9–10 June 2008 in order to conduct a records search. Historical records are kept on site at Joliet and have not been transferred to the National Archives. The Malcolm Pirnie team was able to search documents at JOAAP and photocopy relevant records for use in completing this HRR. While on site, the Malcolm Pirnie team collected environmental reports, historical documents and maps, available MEC and MC data, and geographic information system data and performed interviews of relevant stakeholders and installation personnel for JOAAP. Mr. Holz, Commander's Representative at JOAAP, escorted the team to the L2 and L3 sites and the extended buffer area; they observed what was visible of the sites from the road. Mr. Holz provided personal knowledge of the sites.

The L2-L3 Extended Buffer Area Site Investigation Kick-off Meeting occurred on 11 June 2008. Representatives from JOAAP, AEC, U.S. Army Corps of Engineers (USACE), Illinois Environmental Protection Agency (IEPA), USDA, Montgomery Watson Harza (MWH), MKM Engineers, Inc. (MKM), and Malcolm Pirnie attended the meeting. Meeting

minutes are included in **Appendix B**.

3.2 INTERNET SEARCHES

In addition to the data sources listed above, and in order to supplement the archival data and information received from the installation, Malcolm Pirnie conducted Internet research. The list below presents the Web sites that were searched for information on JOAAP. With the exception of installation history, the Web search did not prove to be successful in collecting relevant data.

- Agency for Toxic Substances and Disease Registry: http://www.atsdr.cdc.gov/HAC/PHA/jolietaap/jol_p2.html
- DoD Archives: http://www.defenselink.mil/pubs/archive.html
- DoD Explosives Safety Board: http://www.ddesb.pentagon.mil/
- Environmental Restoration Information System: http://aero.apgea.army.mil/pls/eris/eris.pmain.erishome
- Global Security: http://www.globalsecurity.org/military/facility/aap-joliet.htm
- Midewin National Tallgrass Prairie: http://www.fs.fed.us/mntp/cultural_jaap.htm
- Midewin National Tallgrass Prairie: http://www.fs.fed.us/mntp/process.htm
- National Imagery and Mapping Agency: http://www.nima.mil/
- USACE Office of History: http://www.hq.usace.army.mil/history
- U.S. Army Center of Military History: http://www.army.mil/cmh-pg/

3.3 OTHER DATA REPOSITORIES

A large set of historical documents collected in conjunction with research for the 2005 SI was provided for use in creating this HRR Addendum. This collection included historical records, aerial photographs, existing site maps, archive search reports, sample and analysis data, and existing environmental restoration documents. Data collected and logged during the 2007 RAs MMRP sites Explosive Burning Ground 1 (JAAP-002-R-01) and Demolition Area (JAAP-001-R-01) was also provided to Malcolm Pirnie.

3.4 INTERVIEWS

The following personnel were interviewed as part of the data collection effort for the HRR. Information gathered during the discussions has been incorporated throughout the HRR. Interview records from these interviews are included in **Appendix C**.

- Mr. Arthur Holz – JOAAP, Commander's Representative
- Ms. Logan Lee, USDA Forest Service
- Mr. Troy Pfertsh, MKM

3.5 OTHER REPORTS

Other reports and associated data were used in completing this HRR Addendum; relevant information is presented in Section 4. These reports include:

- *Engineering Evaluation / Cost Analysis for Sites L2, L3, L11, L16, L21, and L34* (U.S. Army Engineering and Support Center, Huntsville, Alabama), October 1999
- *Ordnance Removal and Site Characterization Report* (EODT), September 2001
- *Site Inspection Munitions Response Sites* (e^2M), May 2005
- *Draft Site-Specific Final Report Military Munitions Response Program Site L2* (MKM Engineers, Inc.), March 2008
- *Draft Site-Specific Final Report Military Munitions Response Program Site L3* (MKM Engineers, Inc.), April 2008

3.6 Summary of HRR Addendum Data Collection

A previous HRR was completed in February 2005, and information collected for the HRR was reviewed during the research for this HRR Addendum. Documents reviewed for the HRR Addendum not available during research for the HRR (Feburary 2005) include:

- *Site Inspection Munitions Response Sites* (e^2M), May 2005
- *Draft Site-Specific Final Report Military Munitions Response Program Site L2* (MKM Engineers, Inc.), March 2008
- *Draft Site-Specific Final Report Military Munitions Response Program Site L3* (MKM Engineers, Inc.), April 2008

In addition, interviews were conducted with personnel that have worked on site since the time of the HRR. Personnel at Midewin National Tallgrass Prairie and contractors working on site offered personal knowledge of the MRS. Information was provided regarding a magnetometer-assisted site walk conducted by USACE and a contractor led team. This team walked beyond the boundary of the L3 Buffer Area (JAAP-001-R-01) and recorded the locations of MEC encountered.

4 HISTORICAL RECORDS REVIEW FINDINGS

During the HRR process, the historical use of the individual MRSs (Explosives Burning Ground 1 [L2; JAAP-002-R-01] and the Demolition Area [L3; JAAP-001-R-01]) was verified or evaluated utilizing information identified through the data collection and interviews with installation personnel. These historical data were used to develop the history of the new MRS, L2-L3 Extended Buffer Area (JAAP-001-R-02). Although a formal survey of the L2-L3 Extended Buffer Area has not yet been conducted, the MEC found at the IRP sites and MRSs are indicative of those expected to be found at the L2-L3 Extended Buffer Area. The MEC and MC source areas for this new MRS are the soils extending beyond the boundaries of the IRP sites L2 and L3 impacted by burning and demolition activities that occurred there. An estimated boundary is provided in **Figure 2-4**; however, this may be refined after further investigation.

The newly established MRS, L2-L3 Extended Buffer Area (JAPP-001-R-02), is presented in the following section using previous studies and investigations from L3 and L2. As applicable, the following information is provided:

- Description of the previous MRSs
- Information pertaining to the previous MRSs as a result of research conducted for this HRR
- Summary based on the research conducted for this HRR

4.1 L2-L3 EXTENDED BUFFER AREA (JAAP-001-R-02)

4.1.1 MRS Explosives Burning Ground 1 (L2) (JAAP-002-R-01)

Previous studies, investigations, and RAs at L2 concluded MEC potentially were located outside of the IRP boundary, and a 200-foot buffer area was delineated for further investigation under the MMRP as a result. The following sections outline the history of L2, results from previous studies and investigations at L2 and the MRS, and a summary pertaining to the resulting new MRS, L2-L3 Extended Buffer Area (JAAP-001-R-02).

4.1.1.1 Site Description

The Explosives Burning Ground 1, also referred to as L2, is located in the west-central portion of the LAP Area and is bounded by Prairie Creek on the north and west, by Road 1 West on the east, and by Central Road on the south (**Figure 2-3**). Kemery Lake lies adjacent to L2. The historical operational area of L2 covered approximately 5 acres, but a fence marks the current boundary of IRP site L2 as defined in Army Environmental Database-Restoration (AEDB-R), enclosing 29 acres.

As recommended by the 1999 *Engineering Evaluation / Cost Analysis for Sites L2, L3, L11, L16, L21, and L34* (EE/CA) and adopted during the 2005 SI as a new MMRP eligible site, a buffer area extending 200 feet from the L2 IRP site boundary was delineated for investigation of surface MEC and MC contamination (JOAAP001). The decision to create this 200-foot buffer area was made after MEC were found on the outer edge of the L2 IRP site, indicating that additional MEC potentially were present outside this boundary. This new MRS, Explosives Burning Ground 1 (JAAP-002-R-01), includes approximately 22 acres as reported in the AEDB-R. L2 and its 200-foot buffer area (MRS - Explosives Burning Ground 1 (JAAP-002-R-01)) can be seen in **Figure 4-1**.

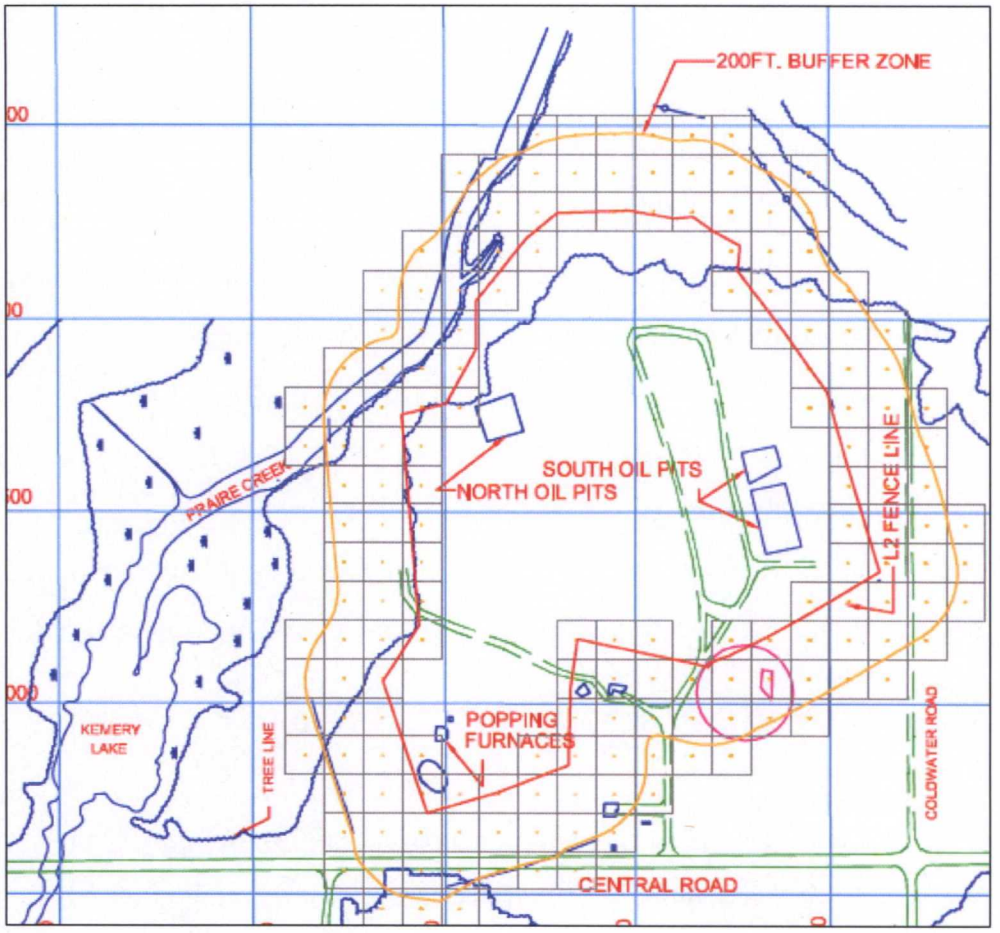


Figure 4-1. Explosives Burning Ground 1 (L2)
(*Source:* JOAAP011)

Historical documentation indicates this site was used for destruction of munitions and associated wastes from 1942 to 1975. Open burning and detonation of primarily small arms munitions occurred at the site on six gravel pads (dimensions: 650 feet by 50 feet; some sources record the pads as l000 feet long) and three popping furnaces. JOAAP personnel reported waste oil was burned in three solvent and oil disposal pits, each of which was less than 0.25 acres in area and was located adjacent to the burning pads. A runoff gully is located in the southwest corner, and a triangular bermed area is south of the burning pads (not depicted in **Figure 4-1**). Two ditches flow from the northern part of the burning pads into Kemery Lake and a gully at the southwestern corner of L2. The gully also receives runoff from the popping furnace area and southern portions of the site.

As discussed in the *Historical Records Review for Other Than Operational Ranges at JOAAP,* a *Report Safety Inspection* (9 January 1952) discusses a 1952 expansion that included the addition of temporary storage magazines, a change house, personnel shelters, and destruction chambers. No documentation was found recording the exact location of these facilities, but according to the *Historical Records Review for Other Than Operational Ranges*, they likely were located in L2 (JOAAP014).

4.1.1.2 HRR Site Findings

Numerous environmental studies and investigations have been conducted at L2 since the 1970s. Following is a summary of the results of the relevant studies and investigations.

Engineering Evaluation / Cost Analysis for Sites L2, L3, L11, L16, L21, and L34 (U.S. Army Engineering and Support Center, Huntsville, Alabama), October 1999

Although not comprehensive, the EE/CA lists munitions and components handled at L2, including the following:

- 155 mm, Shrapnel (MK1)
- 4.5-inch Rocket (M16)
- 90 mm, HE-T (M71E1)
- 81 mm Mortar, HE without fuze
- 75 mm APC-T (M61A1) without fuze BD (M66A1)
- 37 mm, TP (M63 Mod 1)
- Mine, antitank (M4 and NM M5)
- BLU-26/B
- Primer (M1A2, M22A2, M28A2&3, M31A2, M40A2, M40A1, M46-49)
- Fuze; Antitank mine, BD, MT, proximity

Note:
APC-T = armor piercing capped—tracer
BD = base detonating

BLU = bomb live unit
HE-T = high explosive–tank
MT = mechanical time
NM = nonmetallic
TP = target practice

No documentation or evidence of chemical warfare (CW) activities has ever been found in connection with L2.

The EE/CA concluded MEC located outside the fenced area were expected to be encountered at depths less than 1 foot. MEC inside the fenced area were expected to be found less than 4 feet below ground surface. These determinations were based on historical use and management of the sites. The site was categorized as high risk due to accessibility, operations, MEC types potentially present, and number of people expected to use the site. The fenced-in area (IRP site), consisting of 29 acres, was recommended for site characterization, and the 22 acres in the 200-foot perimeter (MRS) was recommended for an RA limited to the removal of MEC. The EE/CA recommended an investigation of L2 followed by subsurface clearance to depth of detection of all surface and subsurface MEC. An RI/FS and Record of Decision were recommended to address residual risk following the RA.

Ordnance Removal and Site Characterization (ORSC) Report (EODT), September 2001

As recommended by the EE/CA, the ORSC describes the site characterization with regard to MEC contamination of the 29 acres inside the fence line, which constitute the IRP site L2 (JOAAP002). MEC were occasionally kicked out during burning activities and, therefore, were found beyond the burning pads and popping furnaces located within the site.

Per the report, during the site characterization, only fragments of one BLU-26/B were located at L2. In addition, 92 MEC items were located within the fenced area. **Appendix E** contains a complete list of those items logged during the site characterization. This log expands the munitions listed in the EE/CA and is indicative of items that might be

encountered beyond the boundary of L2. Due to the high frequency of MEC encountered, the U.S. Army recommended that an RA to the depth of detection be conducted at L2. Because MEC were found at the boundary of the site, an RA to a depth of 1 foot was also recommended for a 200-foot buffer perimeter (JOAAP002).

Site Inspection Munitions Response Sites (e^2M), May 2005

In 2004 an SI was conducted on other than operational ranges and sites with known or suspected UXO, DMM, or MC. As summarized in the following paragraphs, this report provides pertinent information from previous investigations and the rationale for the site recommendations pertaining to L2 and the Explosive Burning Ground 1 (JAAP-002-R-01) MRS.

Based on recommendations from the EE/CA (1999) and the previous MEC survey (2001), it was determined a larger footprint was impacted than that of the IRP site, and stakeholders at the SI TPP Meeting 2 decided to create a new MRS consisting of the 200-foot buffer area surrounding the IRP site named Explosives Burning Ground 1 (JAAP-002-R-01). Minutes from this meeting can be found in **Appendix F**. Future characterization would determine the course of action for the MRS.

Previous investigations included sampling events at the L2 IRP site in 1978, 1982, 1986, 1993, and 1994. Media collected included surface and subsurface soil, surface water, groundwater, and sediment. Samples were analyzed for explosives, anions, metals, volatile organic compounds (VOCs), base-neutral acids (BNAs), and pesticides / polychlorinated biphenyls (PCBs). The Phase II RI completed in 1994 concluded soil contamination was present at the burning pads, burning pad perimeter areas, popping furnaces, and the northern oil pit (JOAAP019). **Table 4-1** summarizes localized soil contamination. Concentration ranges are shown in parentheses.

Table 4-1. Soil Contamination Identified at L2 during Phase II RI

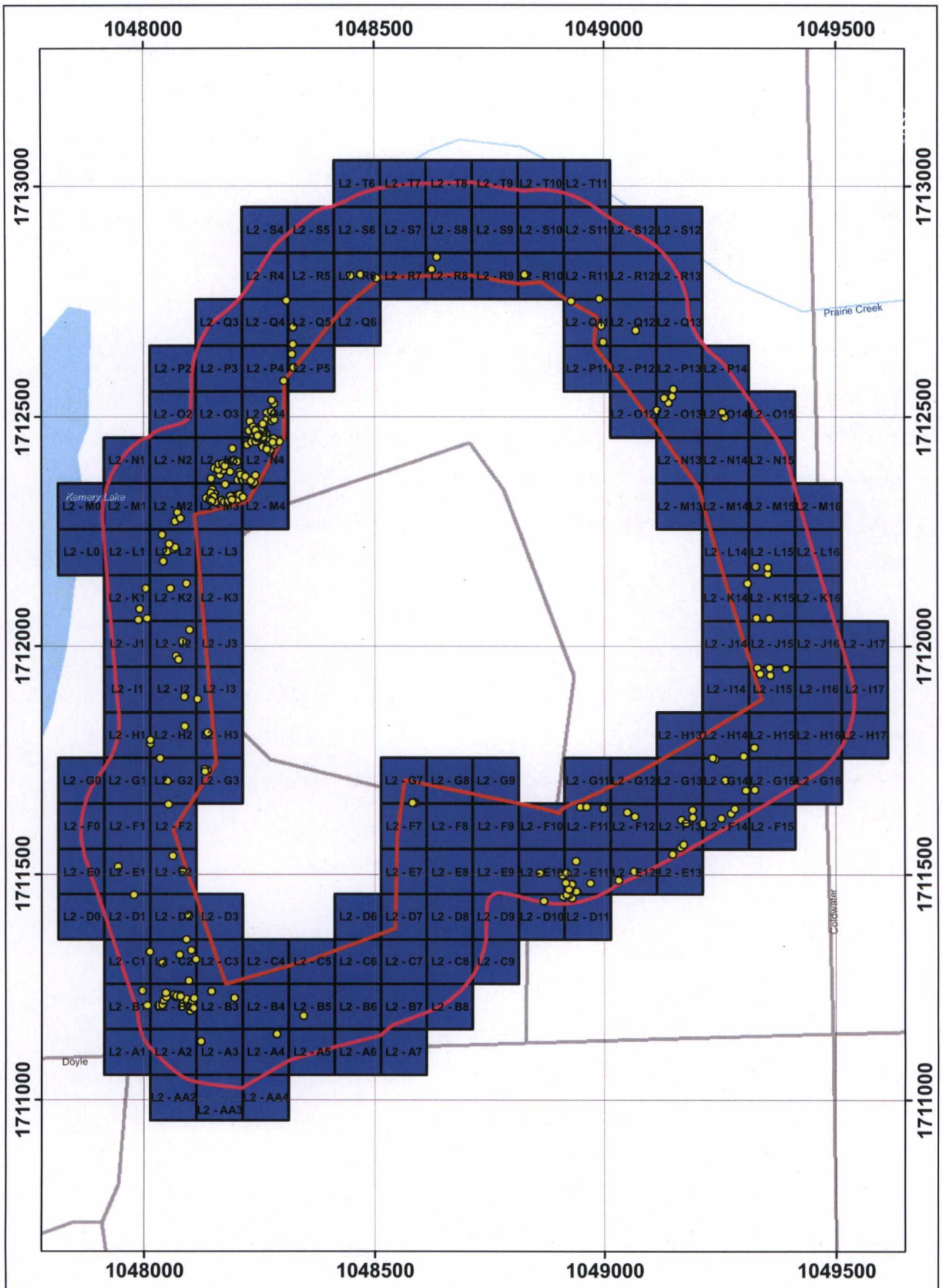
Area	Contaminants
Burning pads	1,3-DNB (1.88—2.58 mg/kg); 1,3,5-TNB (26—217.50 mg/kg); 2,4,6-TNT (210—7800 mg/kg); 2,4-DNT (5.74—60.80); 2,6-DNT (1.60—15.40 mg/kg); HMX (4.23—33.30 mg/kg); RDX (10.20—90.30 mg/kg); tetryl (0.84—52.65 mg/kg); nitrobenzene (7.59—44.00 mg/kg); lead (103—500 mg/kg)
Burning pad perimeter areas	2,4,6-TNT (0.23—1.97 mg/kg); 2-NT (0.58—13.80 mg/kg); nitrobenzene (1.01 mg/kg); tetryl (0.37—1.06 mg/kg); HMX (0.33—39.60 mg/kg); RDX (0.29—1.09 mg/kg)
Popping furnaces	Cadmium (0.458—27.50 mg/kg); copper (26.80—513.00 mg/kg); lead (21.1—471.00 mg/kg); silver (0.031—120.00 mg/kg)
Northern oil pit	2-NT (0.82 mg/kg); acetone (0.032—0.19 mg/kg); benzene (0.011—48.70 mg/kg); ethylbenzene (0.004—24.10 mg/kg); toluene (0.018—48.70 mg/kg); xylenes (0.067—49.10 mg/kg); 2-methylnaphthalene (1.410—112.00 mg/kg); fluorene (0.234—18.10 mg/kg); naphthalene (0.681—21.70); phenanthrene (0.608—64.00 mg/kg); pyrene (1.380—36.70 mg/kg); dibenzofuran (68.90 mg/kg); TPHCs (305—80,600 mg/kg); total phosphorus (269—769 mg/kg)

Source: JOAAP019
Note:
DNB = dinitrobenzene
DNT = dinitrotoluene
HMX = tetrahexamine tetranitramine
RDX = Cyclotrimethylenetrinitramine
NT = nitrotoluene
TNB = 1,3,5-Trinitrobenzene
TNT = trinitrotoluene
TPHC = total petroleum hydrocarbons

Draft Site-Specific Final Report Military Munitions Response Program Site L2 (MKM Engineers, Inc.), March 2008

Following the SI, in 2007, an RA over 100 percent of the MRS Explosives Burning Ground 1 (JAAP-002-R-01) was completed. Approximately 28 acres were cleared of UXO to 1 foot below ground surface. The RA began 7 April 2007 and concluded on 23 August 2007. Submunitions were not located during the RA, but MD from submunitions was

found; therefore, an amendment to the improved conventional munitions (ICM) submunitions waiver was submitted. As referenced in JOAAP011, this document is titled, *"Request for Waiver to the Army Prohibition on Characterizing, Maintaining , and Cleaning Areas of Ranges Containing Submunitions or Improved Conventional Munitions for Joliet Army Ammunition Plant Ordnance Removal Action and Site Characterization Load, Assemble, and Package Facility Sites L2, L3, L11, L16, L21 and L34,"* MWH, 2006. A copy of the ICM Waiver and amendment to the waiver is included in Appendix D. This amendment was submitted according to the requirements listed in DA Pam 385-63 *Range Safety*, 10 April 2003. During the RA, 286 MEC items were found and removed or destroyed. **Appendix E** provides a log of items recovered. Disposal included 4,901 pounds of scrap metal and 3,601 pounds of MD. No sampling was conducted before or after the RA. MEC were located at the outer boundary of the 200-foot perimeter, indicating MEC potentially extend beyond the MRS boundary (**Figure 4-2**). The contractor and USACE personnel confirmed that they observed MEC outside the buffer area during the RA, therefore concluding that the 200 foot buffer did not include all MEC at the site. Long-term monitoring was recommended to ensure any MEC that are exposed in the future are removed (JOAAP001).



Legend

- MEC
- L2 200ft Buffer Zone
- L2 Fence Line
- QA/QC Complete
- Local Road
- Perennial Stream
- Perennial lake or pond

Note - Grids intersecting the fence line and 200ft buffer zone have been cleared only to the extent within the buffer zone area as required by the SOW.

N
W E
S

0 50 100 200 300 400 Feet

Figure 4-2
March 2008

Site L2 - MEC Recovered
Joliet Army Ammunition Plant
Wilmington, Illinois

Drawn By: QX Reviewed By: AG

During an interview for this HRR Addendum, Mr. Pfertsh, Senior UXO Supervisor (SUXOS), confirmed, while some MEC items were found in proximity of the boundary of the 200-foot buffer area, the density had decreased significantly and there were a limited number of finds at the outer edge of the site.

Per the *Draft Site-Specific Final Report Military Munitions Response Program Site L2*, the Explosives Safety Submission (ESS) designated the BLU-26 as the munition with the greatest fragmentation distance (MGFD), but the contractor who conducted the characterization documented an explosive-filled 105 mm M1 and deemed this the MGFD (JOAAP011). The revised MGFD was used to extrapolate a revised boundary for the extended buffer area.

4.1.2 MRS Demolition Area (L3) (JAAP-001-R-01)

Previous studies, investigations, and RAs at L3 concluded MEC were potentially located outside of the IRP boundary, and a 200-foot buffer area was delineated for further investigation under the MMRP as a result. The following sections outline the history of L3, results from previous studies and investigations at L3 and the MRS, and a summary pertaining to the new MRS, L2-L3 Extended Buffer Area.

4.1.2.1 Site Description

The Demolition Area, designated as L3, is located immediately southwest of L2 and is bound by Central Road on the north, a tributary of Prairie Creek on the south, Prairie Creek on the west, and Road 1 West on the east. The site consisted of berms, a burning cage, demolition pits, and a fire training area (**Figure 2-3**). Historical documentation suggests the site was in use from 1944 to 1975. According to the EE/CA, the fenced-in area of L3 contains 15 acres. An additional 24 acres have been marked outside the fence for a total area of 39 acres (JOAAP001). During the Phase 3 Inventory, additional information was found that increased the area of the site to 50 acres (JOAAP017).

As recommended in the EE/CA, a 200-foot buffer area extending from the L3 boundary was delineated and recommended for investigation of surface MEC and MC contamination (JOAAP001). The decision to create this 200-foot buffer area was made after MEC were found on the outer edge of the L3 site, indicating that additional MEC were likely present outside this boundary. L3 and its 200-foot buffer can be seen in **Figure 4-3**.

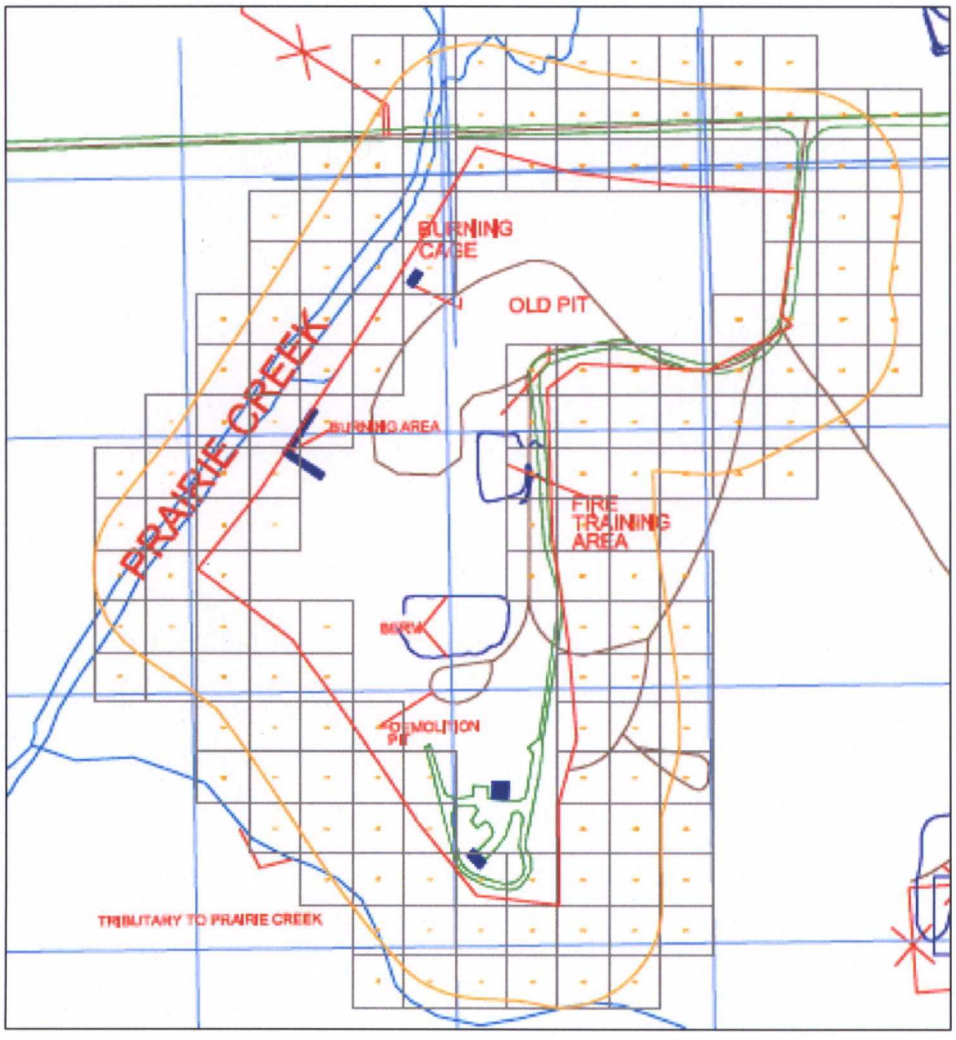


Figure 4-3. Demolition Area (L3)
(*Source:* JOAAP012)

The fire training area covered 1 acre of land where oil was used to burn wooden pallets. The 1951 Standard Operating Procedures (SOP) manual for the Burning Ground shows

the demolition area and suggests uses included flashing of contaminated pipe and scrap metal and burning of munitions crates and MC. Berms near Prairie Creek were used to dispose of metallic debris. A memorandum dated 30 January 1951 discusses demilitarization of M5 mines at the demolition area (JOAAP014).

In 1946, other practices at Joliet Arsenal included the destruction by detonation in demolition pits of MK 29 auxiliary booster depth mines, MK III adapter boosters, M66A1s, M1 mines, M1A1 mines, and M5 antitank mines; however, it is unclear if this particular site was used for such activity. The procedure was as follows (JOAAP014):

> These items were delivered to the demolition ground in their original closed boxes. The boxes of items to be destroyed by detonation were put into demolition pits. HE mines were placed inside the pits on top of the boxes. The blasting foreman set the demolition charge in the pit and when all vehicles and personnel were clear from the area, he fired each charge he set, making sure there were no misfires...Booster caps were placed in a train on the ground in the burning area. They were covered with smokeless powder. The smokeless powder was ignited with an electric squib.

While the locations of the demolition areas were not indicated in procedure manuals, the 1951 Burning Ground SOP manual suggests this occurred in the earth-barricaded pit on the south side of Central Road. In this case, the above-described activity would have been connected with L3 since this site incorporated all demolition areas at JOAAP. Aerial photography suggests the site was active as late as August 1961, but no historical records were located to confirm the dates of use.

4.1.3 HRR Site Findings

Numerous studies have been conducted at L3 IRP site since the 1970s. Following is a summary of the results of the relevant studies and investigations.

Engineering Evaluation / Cost Analysis (U.S. Army Engineering and Support Center, Huntsville, Alabama), October 1999

Demolition may have included any munitions produced at the plant, but a comprehensive list of potential MEC for this site cannot be produced. Some of the munitions and components handled at L3 as listed in the EE/CA include:

- 155 mm, Shrapnel (MK1)
- 4.5-inch Rocket (M16)
- 90 mm, HE-T (M71E1)
- 81 mm Mortar, HE without fuze
- 75 mm APC-T (M61A1) without fuze BD (M66A1)
- 37 mm, TP (M63 Mod 1)
- Mine, antitank (M4 and NM M5)
- BLU-26/B
- Primer (M1A2, M22A2, M28A2&3, M31A2, M40A2, M40A1, M46-49)
- Fuze; antitank mine, BD, MT, proximity

Additionally, the 2005 HRR report lists munitions that were included in demolition procedures in effect at Joliet Arsenal in 1946. The following were destroyed by detonation in the demolition pits (JOAAP014):

- Mk 29 auxiliary booster depth mines
- Mk III adapter-boosters
- M66A1
- M1 mines
- M1A1 mines,
- M5 antitank mines

Burning procedures effective in 1946 at Joliet Arsenal included burning of the following at L3 (JOAAP014):

- Booster cup assembly for M21A4 booster
- Tracer assembly M66A1 fuze

- 75 mm base plugs

No documentation has been found associating CW activities with this site.

The EE/CA reports MEC located outside the fenced area were expected to be encountered at depths less than 1 foot. MEC inside the fenced area were expected to be found less than 4 feet below ground surface. These determinations were based on use and management of the sites. The site was categorized as high risk due to accessibility, operations, MEC types potentially present, and number of persons expected to use the site. The fenced-in area, consisting of 15 acres, was recommended for site characterization, and 24 acres constituting its 200-foot perimeter were recommended for an RA limited to the removal of MEC (JOAAP001).

Ordnance Removal and Site Characterization Report (EODT), September 2001

The ORSC Report describes the site characterization of the 15 acres within the fence line at L3 with regard to MEC contamination, as recommended by the EE/CA (JOAAP002). During the site characterization, 30 MEC items were located within the fence (IRP site). Only one-half of one BLU-26/B not containing any explosive residue was found at L3. **Appendix E** contains a complete list of those items logged during the site characterization. Due to the high frequency of MEC encountered, an RA limited to removal of MEC to the depth of detection was recommended for L3. Because MEC were found at the boundary of the IRP site, an RA to a depth of 1 foot was recommended for a 200-foot buffer surrounding the site (JAAP-001-R-01). Previous soil and groundwater sampling conducted as part of the IRP found high levels of explosives and heavy metals, suggesting that MEC burning and disposal may have occurred at L3.

Site Inspection Munitions Response Sites (e^2M), May 2005

In 2004, an SI was conducted on other than operational ranges and sites with known or suspected UXO, DMM, or MC. As summarized in the following paragraphs, this report contains pertinent information from previous investigations and the rationales for site

recommendations pertaining to L3 (JOAAP013).

Based on recommendations from the EE/CA (1999) and the MEC survey (2001), it was determined that a larger footprint was impacted than that of the IRP site, and stakeholders at the SI TPP Meeting 2 decided to create a new MRS consisting of the 200-foot buffer area surrounding the IRP site – the Demolition Area (JAAP-001-R-01). Future characterization would determine the course of action for this new MRS. The meeting minutes from TPP Meeting 2 are included in **Appendix F**.

Sampling of surface and subsurface soil, surface water, groundwater, and sediment at the L3 IRP site occurred in 1978, 1982, 1986, 1993, and 1994. The Phase II RI was conducted in 1994, and samples collected were analyzed for explosives, anions, metals, VOCs, BNAs, and pesticides/PCBs (JOAAP019). Site-related contaminants were found in soil in the berms along Prairie Creek, the fire training area, the area east of the demolition pits, the demolition pits, the area south of Central Road, the area east of the burning cage, and along the unnamed tributary of Prairie Creek. **Table 4-2** summarizes localized contamination as reported in *Final Waste Classification/Volume Estimation Plan LAP Area*. Sample concentration ranges are in parentheses.

Table 4-2. Soil Contamination Identified at L3 during the Phase II RI

Area	Contaminants
Bermed area between the fire training area and the demolition pit	1,3,5-TNB (0.488—14.150 mg/kg), 1,3-DNB (0.496—0.864 mg/kg), 2,4,6-TNT (0.456—25.950 mg/kg), 2,6-DNT (0.496—8.600 mg/kg), 2,4-DNT (0.424—6.885 mg/kg), RDX (0.587—1700.00 mg/kg), HMX (0.666—350.00), fluoranthene (0.340—0.608 mg/kg), phenanthrene (0.165—0.325 mg/kg), pyrene (0.165—0.621 mg/kg), calcium (36900.00—140000.00 mg/kg), magnesium (22300.00—810000.00 mg/kg), lead (16.20—914.50 mg/kg), cadmium (0.70—25.50 mg/kg), silver (0.050—690.00 mg/kg), copper (22.100—639.00 mg/kg), mercury (0.050—0.500 mg/kg), zinc (49.100—2410.00 mg/kg)
Demolition pits	Copper (17.10—144.00 mg/kg), Lead (20.90—184.00 mg/kg), Mercury (0.025—1.90 mg/kg), Silver (0.02—0.195 mg/kg), Zinc (49.30—409.00 mg/kg)
Fire training area	1,2,4-trichlorobenzene (0.100—0.800 mg/kg), 2-chloronaphthalene (0.100—0.300 mg/kg), naphthalene (0.100—0.300 mg/kg), copper (21.90—1180.00 mg/kg), chromium, lead (14.80—2250.00 mg/kg), mercury (0.025—0.284 mg/kg), silver (0.013—1.030 mg/kg), zinc (63.50—1570.00 mg/kg)
Area south of Central Road and east of the burning cage	2,4,6-TNT (0.250—2.300 mg/kg), 2,6-DNT (0.60—13.70 mg/kg), 2,4-DNT (0.60—1.10 mg/kg), RDX (0.40—67.90 mg/kg), HMX (0.0—2.60 mg/kg) , arsenic (2.210—75.40 mg/kg), cadmium (0.124—10.70 mg/kg), chromium (5.840—109.00 mg/kg), copper (13.30—4390.00 mg/kg), lead (12.80—606.00 mg/kg)
Berms along Prairie Creek	1,3,5-TNB (0.244—17.949 mg/kg), 2,4,6-TNT (0.228—27.614 mg/kg), 2,4-DNT (0.212—1.046 mg/kg), 2,6-DNT (0.262—12.131 mg/kg),2-NT (0.154—5.138 mg/kg), RDX (0.294—35.944 mg/kg), HMX (0.333—18.110 mg/kg), benzo (k) fluoranthene (0.150—0.600 mg/kg), chrysene (0.300—0.700 mg/kg), fluoranthene (0.150—1.000 mg/kg), naphthalene (0.100—0.700 mg/kg), phenanthrene (0.100—0.400 mg/kg), pyrene (0.100—1.000 mg/kg), alpha chloradane (0.002—6.900 mg/kg), gamma chloradane (0.002—0.034 m/kg), TPHCs (49.30—601.00 mg/kg), water-soluble sulfate (45.20—475.00 mg/kg) , total phosphate (250.00—1240.00 mg/kg), aluminum (4810.00—29600.00 mg/kg), antimony (3.570—25.500 mg/kg), barium (62.90—537.00 mg/kg), cadmium (0.350—7.440 mg/kg), copper (36.90—1110.00 mg/kg), iron (14600.00—110000.00 mg/kg), chromium (10.4—275.0 mg/kg), lead (55.60—2740.00 mg/kg), magnesium (8340.00—840000.00 mg/kg), silver (0.335—54.00 mg/kg), sodium (313.00—2180.00 mg/kg), thallium (3.310—95.800 mg/kg), zinc (155.00—4720.00 mg/kg)
Along the unnamed tributary west of MW412	hexachlorobenzene (0.017—0.049 mg/kg), phenanthrene (0.017—0.052 mg/kg), pyrene (0.017—0.070 mg/kg), arsenic (44.00—110.00 mg/kg), lead (17.00—132.00 mg/kg)
Area east of demolition pits	Copper (36.90—1110.00 mg/kg), Lead (55.60—2740.00 mg/kg)

Source: JOAAP018

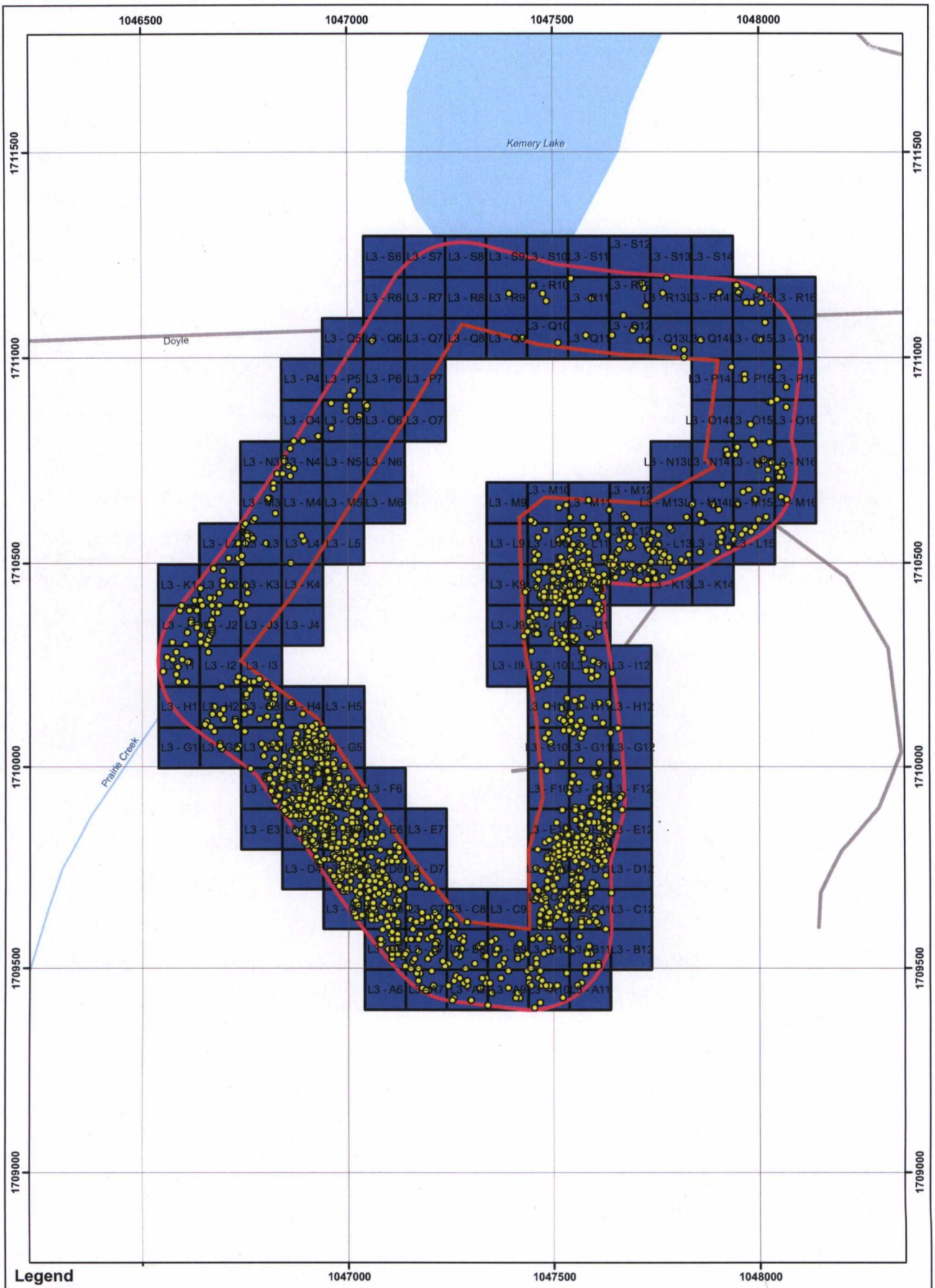
Draft Site-Specific Final Report Military Munitions Response Program Site L3 (MKM Engineers, Inc.) April 2008

Following the SI, an RA limited to the removal of MEC was completed over 100 percent of the MRS – Demolition Area (JAAP-001-R-01) in 2007 (JOAAP012). Approximately 35 acres were cleared of UXO, and the top 1 foot of surface soil was removed and disposed. The RA began 2 April 2007 and concluded on 23 August 2007. Submunitions were not located, but MD from submunitions was found; therefore, an amendment to the ICM submunitions waiver was submitted (*Request for Waiver to the Army Prohibition on Characterizing, Maintaining , and Cleaning Areas of Ranges Containing Submunitions or Improved Conventional Munitions for Joliet Army Ammunition Plant Ordnance Removal Action and Site Characterization Load, Assemble, and Package Facility Sites L2, L3, L11, L16, L21 and L34)*. This amendment was submitted according to the requirements listed in DA Pam 385-63 *Range Safety*, 10 April 2003. **Appendix E** provides a log of the 1825 MEC and MD items that were found during the RA. The items were composed primarily of T-83 fuzes (777), T-83 (552), MK3 boosters (90), M183 fuzes (62), 75 mm shrapnel (53), MK3 (50), 40 mm fuzes (33), and BLU-26 (20) (JOAAP012).

Soil sampling was conducted before and after demolition operations. While results from four samples exceeded remediation goals before remedial activities, MC were not detected in post-demolition operations samples. Disposal included 9.43 tons of scrap metal and 9,440 pounds of MD (JOAAP012).

MEC were located at the outer boundary of the 200-foot buffer, indicating that MEC potentially extend beyond the boundary (**Figure 4-4**). During an interview for this HRR Addendum, Mr. Pfertsh, SUXOS, confirmed that MEC items were found in high density at the boundary of the 200-foot buffer area. The density of items did not decrease upon approaching the boundary of the L3 buffer area. The contractor and USACE personnel confirmed that they observed MEC outside the buffer area during the RA, therefore concluding that the 200 foot buffer did not include all MEC at the site. This was subsequently confirmed during a magnetometer-assisted site walk beyond the L3 Buffer

Area boundary conducted by the USACE during the Summer 2007.



Note - Grids intersecting the fence line and 200ft buffer zone have been cleared only to the extent within the buffer zone area as required by the SOW.

Figure 4-4
April 2008

Site L3 MEC Recovered
Joliet Army Ammunition Plant
Wilmington, Illinois

Drawn By: QX Reviewed By: AG

The ESS designated the BLU-26 as the MGFD, but the contractor who conducted the characterization documented an explosive-filled 105 mm M1 and deemed this the MGFD. The revised MGFD was used to extrapolate a revised boundary for the extended buffer area (JOAAP012).

Magnetometer Assisted Site Walk (Summer 2007)

During summer 2007, a USACE Ordnance and Explosive Safety Specialist (OESS) and a contractor team leader conducted random site walks beyond the MRS Demolition Area (JAAP-001-R-01) 200-foot buffer. Assisted by a magnetometer and Global Positioning System (GPS) unit, they traced their paths and marked MEC encountered. **Figure 4-5** shows the results of this walk. Numerous MEC items were found, confirming that the current MRS boundary (Demolition Area (JAAP-001-R-01)) is not adequate for addressing MEC in vicinity of L3. Points where items were discovered are marked on the figure with red and blue circles.

4.2 SITE SUMMARY

Based on the results from previous studies and the findings during the 2007 RA in the Explosive Burning Ground (JAAP-002-R-01) and Demolition Area (JAAP-001-R-01) MRSs, further characterization is recommended for the area extending beyond the MRS site boundaries. During the 2007 RA, MEC were encountered up to the edge of the southern boundary of Explosive Burning Ground (JAAP-002-R-01) and continuously around the Demolition Area (JAAP-001-R-01), indicating the high potential for MEC beyond these MRS boundaries (**Figures 4-2** and **4-4**). This MEC is likely the result of kick out from previous kick out from previous munition demolition activities within the active burning and demolition areas. A magnetometer assisted site walk conducted during the summer 2007 confirmed that MEC is located beyond the Demolition Area (JAAP-001-R-01) (**Figure 4-5**).

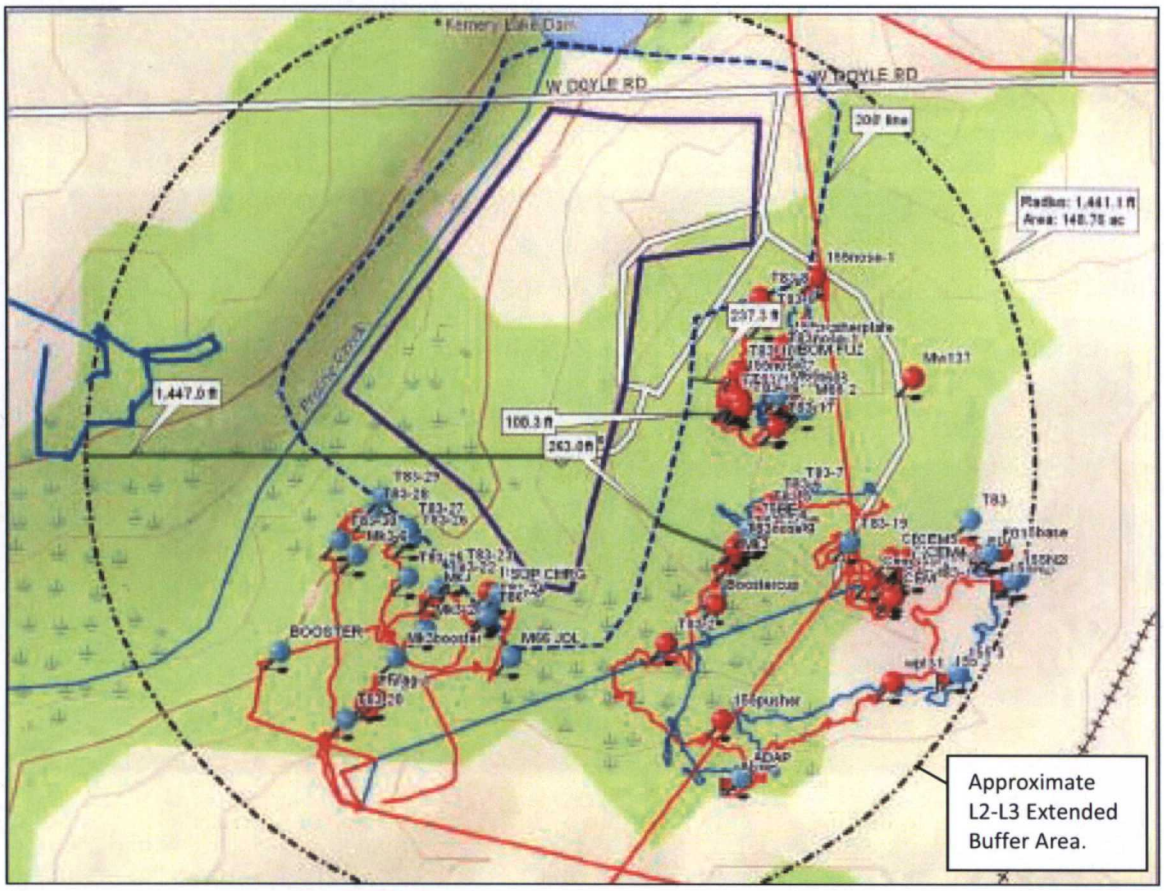


Figure 4-5. MEC Encountered at the Demolition Area (JAAP-001-R-01) MRS site walk

Tilling of soil and other agricultural uses may have dispersed MEC farther than the MGFD indicates. An estimated boundary was extrapolated based on the MGFD, but a magnetometer-assisted site walk may be needed to refine this boundary (**Figure 2-4**). This new MRS is designated the L2-L3 Extended Buffer Area (JAAP-001-R-02) and encompasses approximately 396 acres surrounding the Explosive Burning Ground 1 (JAAP-002-R-01) and the Demolition Area (JAAP-001-R-01).

5 CONCEPTUAL SITE MODEL

The 2007 RA did not alter the results of the 2005 approved SI CSM; therefore, the 2005 approved SI CSM was adapted and incorporated for this HRR.

5.1 INTRODUCTION

This CSM establishes a working hypothesis of the nature and extent of contamination and the likely pathways of MEC and MC exposure to current and future human and ecological receptors. The CSM is established once project decision goals have been established and historical and site-specific information has been gathered. It is used to guide the investigation at the site and is refined throughout the cleanup process as new information is discovered. The CSM also serves as a planning instrument, a modeling and data interpretation aid, and a communication device among the team and stakeholders. The components of the CSM include a description of possible sources of MEC and/or MC at the MRS; potential exposure pathways; current or reasonable proposed use of property; and potential receptors. Since the CSM is a hypothesis, associated uncertainty is expected. The CSM identifies those areas in which additional information needs to be gathered in order to decrease uncertainty and prove or disprove the hypothesis. These areas of uncertainty typically are referred to as data gaps.

This document summarizes all pertinent historical information and data that are necessary to construct the CSM and to identify data gaps. For detailed data, such as the results of laboratory analysis for soils and groundwater, please refer to the referenced documents.

5.2 PHYSICAL PROFILE

JOAAP is located within the northern part of the extensive Central Lowlands physiographic province, which is characterized by relatively flat topography and low relief. The most prominent topographic feature is an

approximately 50-foot-high escarpment that trends generally north-south through the installation. JOAAP lies within the fork of the confluence of the Des Plaines and Kankakee Rivers. Most of the LAP area drains to the Kankakee River. The Grant Creek and the Prairie Creek drainage basins cover approximately 70 percent of the installation, and the Jackson Creek drainage basin covers the remainder. Jackson and Grant Creeks are tributaries of the Des Plaines River, whereas Prairie Creek eventually discharges to the Kankakee River. Man-made ditches facilitate drainage to these creeks from the sites. (JOAAP020)

The hydrogeology of the area is subdivided into four aquifer systems and major confining beds. From the uppermost downward, the aquifer systems are (1) the glacial drift (Pleistocene glacial deposits), (2) shallow bedrock (Silurian Dolomites), (3) Cambrian-Ordovician (sandstones and dolomites), and (4) Mount Simon (Cambrian sandstone). Groundwater flow at the MFG Area is generally westward but is locally influenced by streams that are incised into the glacial drift. Groundwater flow occurs in several aquifers beneath the site. The shallow overburden aquifer is composed of glacial drift and is underlain by the Silurian Dolomite water-bearing zone. Deeper bedrock aquifers are isolated from the shallow aquifer by low-permeability shale beds in the Maquoketa Group. Groundwater at the installation has been determined to be both Class I and Class II. IEPA has classified the glacial drift aquifer as Class II because its low yield does not supply usable quantities of groundwater. The Silurian Dolomite is considered a Class I groundwater resource and it has a limited use in the vicinity of the installation as a water source despite elevated levels of sulfate and iron. (JOAAP020)

5.2.1 Physical Profile–Explosive Burning Ground 1 (L2), JAAP-002-R-01

The Explosive Burning Ground 1 is located adjacent to Prairie Creek and Kemery Lake, with the topography sloping north/northwest toward the creek and lake. Elevation ranges from approximately 600 feet above mean sea level (msl) along Kemery Lake and Prairie Creek to 635 feet above msl in the southeastern corner of the site. The area immediately surrounding Prairie Creek is a low-lying floodplain that is generally wet. Precipitation either runs off to Prairie Creek and Kemery Lake or is trapped in the bermed areas surrounding the burning pads and either evaporates or infiltrates into the glacial deposits. Precipitation retained in the oil pits eventually evaporates or infiltrates into the ground (JOAAP019). The vegetation consists of low grass and shrubs

(JOAAP017).

"Monitoring well boring logs indicate that soil encountered in the area is composed of glacial deposits. These deposits range from a maximum thickness of 35 feet beneath the burning pads to less than 15 feet by Prairie Creek" (JOAAP019). The stratigraphy is interpreted to be composed of six separate units.

> The uppermost unit consists of organic clays and silts that range in thickness from inches at the central portion of the site to approximately 3 feet near Prairie Creek. This unit is underlain by grayish-brown silty sand that ranges in thickness from 2 to 6 feet. The silty sand is underlain by yellowish-brown clayey sand that ranges from 6 to 8 feet thick. This clayey sand overlies a layer of silty clay that is approximately 8 feet thick at the northeastern portion of the site near Prairie Creek and 20 feet thick across the rest of the site. (JOAAP019).

The basal unit consists of gravely sands and clay. Bedrock occurs at a depth of 12 feet just south of Prairie Creek and north of the bermed area and at a depth of 29 feet east of the bermed area. "Based on water levels collected from the nine monitoring wells in November 1991, the shallow groundwater present in the overburden and shallow bedrock at the site flows toward Prairie Creek and Kemery Lake" (JOAAP019). Prairie Creek and Kemery Lake are areas of shallow groundwater discharge. Based on contours, the average horizontal hydraulic gradient across the site is 0.019. The velocity of shallow groundwater at the site is calculated to be approximately 240 feet per year (ft/yr) (JOAAP019).

5.2.2 Physical Profile–Demolition Area (L3), JAAP-001-R -01

The site is situated on a hill that slopes southwestward toward Prairie Creek and north toward Central Road. The topography of the area ranges from a high of approximately 630 feet above msl in the eastern portion of the site to a low of 600 feet above msl along Prairie Creek. An unnamed tributary to Prairie Creek flows to the south of the site. Drainage ditches parallel the access roads. Runoff in the area either flows west toward Prairie Creek and the berms or toward the unnamed tributary. Accumulated surface water either evaporates or infiltrates into the soil (JOAAP019). The vegetation

consists of low grass and shrubs (JOAAP017).

Overburden in the area appears to be composed of glacial deposits. These deposits are composed primarily of silty clays and clayey sands. The thickness of the overburden varies from approximately 3 feet to probably more than 28 feet (JOAAP019). "The bedrock is composed of dolomite and is argillaceous with clay-filled fractures" (JOAAP019). Based on data collected from groundwater monitoring wells at the site, shallow groundwater appears to flow to the west toward Prairie Creek. The hydraulic gradient across the site is estimated to be 0.02. The shallow groundwater is estimated to flow at a velocity of 95 ft/yr (JOAAP019).

5.3 CONCEPTUAL SITE MODEL

The CSM describes the MRS and its associated environmental setting. The previous sections described historical information, previous investigations, and the physical profile of each MRS at JOAAP. The following sections discuss the data analysis and develop release, land use / exposure, and ecological profiles.

5.3.1 Release Profile

Explosive Ground I (L2), JAAP-002-R-01 and the Demolition Area (L3), JAAP-001-R-01 both had elevated levels of MC and both contain MEC. An area extending beyond the 200-foot buffer areas of L2 and L3 was identified as requiring further investigation due to concerns pertaining to MEC and MC. Following investigation and the RAs in the 200-foot buffers, L2-L3 Extended Buffer Area was delineated for potential MEC concerns.

5.3.2 Land Use and Exposure Profile

The L2-L3 Extended Buffer Area currently is undeveloped, but portions are used for agriculture.

The public has no access to the IRP sites, L2 and L3; they are surrounded by a fence with

a locked gate, only two keys exist for the lock, and all visitors must be accompanied by facility personnel. Homes, offices, a feed mill, and agricultural lands are located within 2 miles of this site (JOAAP017). The L2-L3 Extended Buffer Area has limited public access. The planned future use for this site is open space for the USDA Midewin National Tallgrass Prairie (JOAAP021).

5.3.3 Ecological Profile

Although there are no site-specific ecological data for the MRS, the Army has conducted two ecological risk assessments at JOAAP: *Final Ecological Risk Assessment, Phase 1* (1994) and *Final Phase 2 Aquatic Ecological Risk Assessment* (1997) (JOAAP022 and JOAAP004).

5.3.3.1 Aquatic Species

Water quality, habitat, and the health of fish, crayfish, invertebrates, and other aquatic organisms were examined in Grant, Jackson, Jordan, Prairie, and Spoil Bank creeks. Tissue samples from fish and crayfish were analyzed for explosives (none detected), metals (zinc, iron, and barium detected, but below action levels), PCBs (none detected), and pesticides (trace 4,4-dichlorodiphenyldichloroethylene [DDE] detected at normal background levels). Surveys of the sediment macroinvertebrates found no biologically significant differences related to hazardous chemicals between the streams on JOAAP and those off the installation (JOAAP020). The study concluded that "hazardous chemical substances were not found to significantly impact the aquatic components of the JOAAP ecological system" (JOAAP020).

5.3.3.2 Terrestrial Species

Tissue samples from rodents and deer within the study areas were analyzed for heavy metals and explosives. These tissues were found to not contain metals at concentrations above those found in samples collected from the reference sites (i.e., background). Additionally, explosives were found to not accumulate in these tissues (JOAAP014, JOAAP020). Habitat, historical biological surveys, soil toxicity, and the

health of small mammals and deer were examined. The study concluded that "hazardous substances were not found to significantly impact the terrestrial components of JOAAP ecological system" (JOAAP020).

The upland sandpiper, a state-listed endangered species, populates certain areas of JOAAP.

> Population surveys of the upland sandpiper conducted by the Illinois Department of Conservation over several years beginning in 1983 indicate the populations of these birds are relatively stable on JOAAP and represent some of the best biological resources in northern Illinois. The areas contaminated with chemicals of concern at JOAAP represent a small percentage of the 23,542-acre installation and are areas that were previously developed for industrial activities (contain buildings, roadways, parking lots, railroad tracks, etc.) and currently do not provide desirable habitat for the upland sandpiper. (JOAAP020)

An ecologist at Midewin National Tallgrass Prairie confirmed that grassland birds are the only threatened and endangered species that might be impacted at JOAAP. Bobolinks, upland sandpipers, and Henslow's sparrows have been spotted west of Prairie Creek and north of Central Road. The interview record can be found in **Appendix C**.

5.3.3.3 Invertebrate species

> Soil toxicity tests conducted on field-collected soils at several JOAAP study sites found evidence of excess toxicity for earthworm survival and growth, plant seed germination and growth, and soil micro-organisms. Some tests recorded toxicity due to metals and RDX; however, the greatest adverse effects for all tests were found in soils with TNT contamination. The spatial scale where these toxic effects are found is very small (less than 1%) relative to the entire JOAAP ecological system (JOAAP020).

5.3.4 Pathway Analysis

Analysis of the profile information should allow identification of all potential exposure pathways for the MRSs. An exposure pathway is the route a physical or chemical agent is carried to contact a receptor. For MEC, an exposure pathway must include a source, access, activity, and a receptor. Each pathway for MC must include a source, an

exposure medium, an exposure route, and a receptor. MC are derived from MEC and may be transported or leach into other mediums such as from soil to groundwater. The pathway may also include a release mechanism (such as volatilization) and transport medium (such as air) if the point of exposure is not at the same location as the source.

5.3.5 MEC and MC Sources

The potential source area identified is the L2-L3 Extended Buffer Area.

L2-L3 Extended Buffer Area, JAAP-001-R-02

Contamination has been found at IRP sites L2 and L3 in several areas: burning pads, burning pad perimeter areas, popping furnaces, southern oil pits, northern oil pits, Prairie Creek, and Kemery Lake. A site characterization for L2 was conducted in 2001 and 92 UXO items were found, including M48 nose fuzes, M66 base fuzes, miscellaneous fuze boosters, and 75 mm projectiles. A site characterization was completed for L3 in 2001 and 30 MEC items were found, including 40 mm rifle grenades, fuzes, 57 mm projectiles, 155 mm projectiles, 105 mm projectiles, one M5 ceramic landmine, and one 3.5-inch rocket warhead (JOAAP002). Although a formal survey of the L2-L3 Extended Buffer Area has not been conducted, the MEC found at the IRP sites are indicative of those expected to be found at the L2-L3 Extended Buffer Area. The source area for this site for MEC and MC is soil extending beyond the 200-foot buffer. An estimated boundary is provided in **Figure 2-4**; however, this may be refined after further investigation. Exposure media for MC include surface and subsurface soils, groundwater, surface water, and sediment.

Exposure Pathways for MEC

Exposure pathways for MEC require an interaction between site access and current (or future) activities. This section describes possible exposure pathways of access and activity for MEC at each MRS.

5.3.6 Access

There is limited public access to the L2-L3 Extended Buffer Area.

5.3.7 Future Site Use

The planned future use of the L2-L3 Extended Buffer Area is open space for the USDA Midewin National Tallgrass Prairie.

5.3.8 Activity

Current activities that can bring receptors into contact with MEC are recreational activities by the public or routine work activities or below ground surface utility work performed by installation personnel or authorized contractors or workers working in the L2-L3 Extended Buffer Area.

5.3.9 Exposure Pathways for MC

Exposure pathways for MC require an interaction between exposure media (e.g., surface soil) and an exposure route (e.g., ingestion). This section describes potential exposure media and exposure routes for MC at each MRS.

5.3.10 Exposure Media

Exposure media are those that contain the source or are media that become contaminated through migration of the contaminant from the source area. The following exposure media or potential exposure media were identified at the MRS (JOAAP020):

- Surface and subsurface soils
- Air via volatilization and particulate resuspension (fugitive dust) from surface soils
- Food chain via plant uptake from soils and contaminated fish and wildlife consumption (Biological surveys and tissue sampling took place in 1994 and 1997 and no contamination was found.)

5.3.11 Exposure Routes

Exposure routes are those processes by which a contaminant or physical agent comes in contact with a receptor. For most environmental contaminants, these processes include ingestion, inhalation, and dermal contact. Ingestion is applicable to all exposure media except air. Dermal contact is applicable to all exposure media except air and the food chain. Inhalation is applicable to air, soils, and groundwater. Drinking contaminated water, breathing contaminated dust, or eating contaminated food may bring base personnel or off-site residents into contact with MC.

5.3.12 Receptors

Current receptors include off-site residents, installation personnel, and authorized contractors or workers working in the L2-L3 Extended Buffer Area.

Future receptors are off-site residents and public recreational users, including prairie workers at the L2-L3 Extended Buffer Area.

5.4 GRAPHICAL CONCEPTUAL SITE MODEL

After completing a pathway analysis for each site, a graphical representation of the CSM was developed integrating the profiles to illustrate all exposure pathway interactions at the MRS. **Figure 5-1** and **Figure 5-2** illustrate the MEC and MC pathways for the L2-L3 Extended Buffer Area.

5.5 DATA GAPS

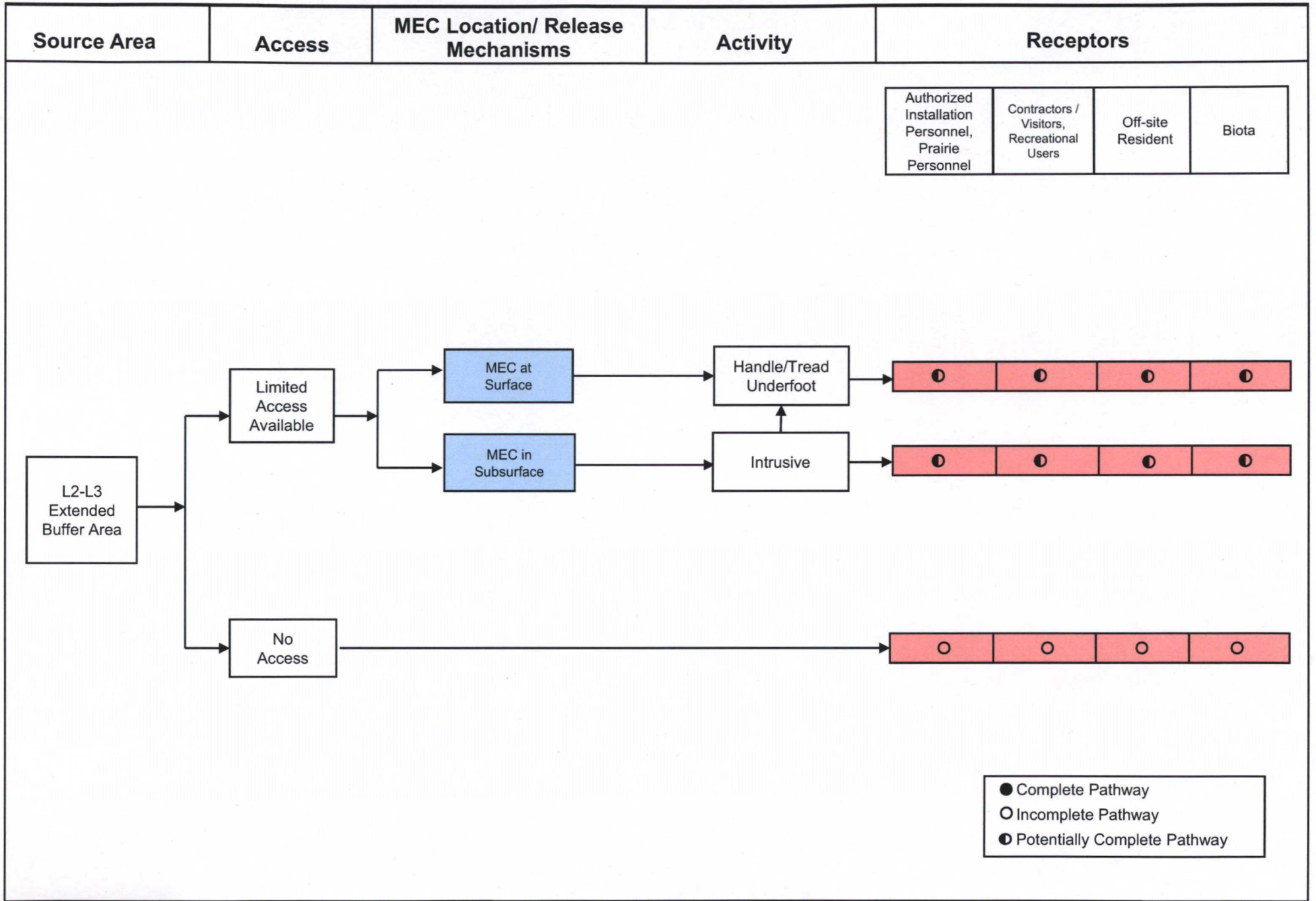
Extensive sampling has taken place at L2, L3, and the 200-foot buffers around both sites. Site contamination involving IRP-related and munitions-related constituents has been sufficiently characterized at the source IRP sites and the 200 foot buffer areas. Geophysical surveys and RAs have also been conducted at these sites. The results of these investigations are indicative of what may be found at the L2-L3 Extended Buffer Area, but no sampling or surveying has occurred at the L2-L3 Extended Buffer Area.

5.6 RECOMMENDATIONS

L2-L3 Extended Buffer Area (JAAP-001-R-02)

The following recommendations are made as a result of findings from the HRR Addendum:

- Perform a limited geophysical survey to determine the extent of possible MEC contaminants.
- Base the need for soil samples upon field geophysical survey results. Collect soil samples as needed to determine the presence of MC contamination.



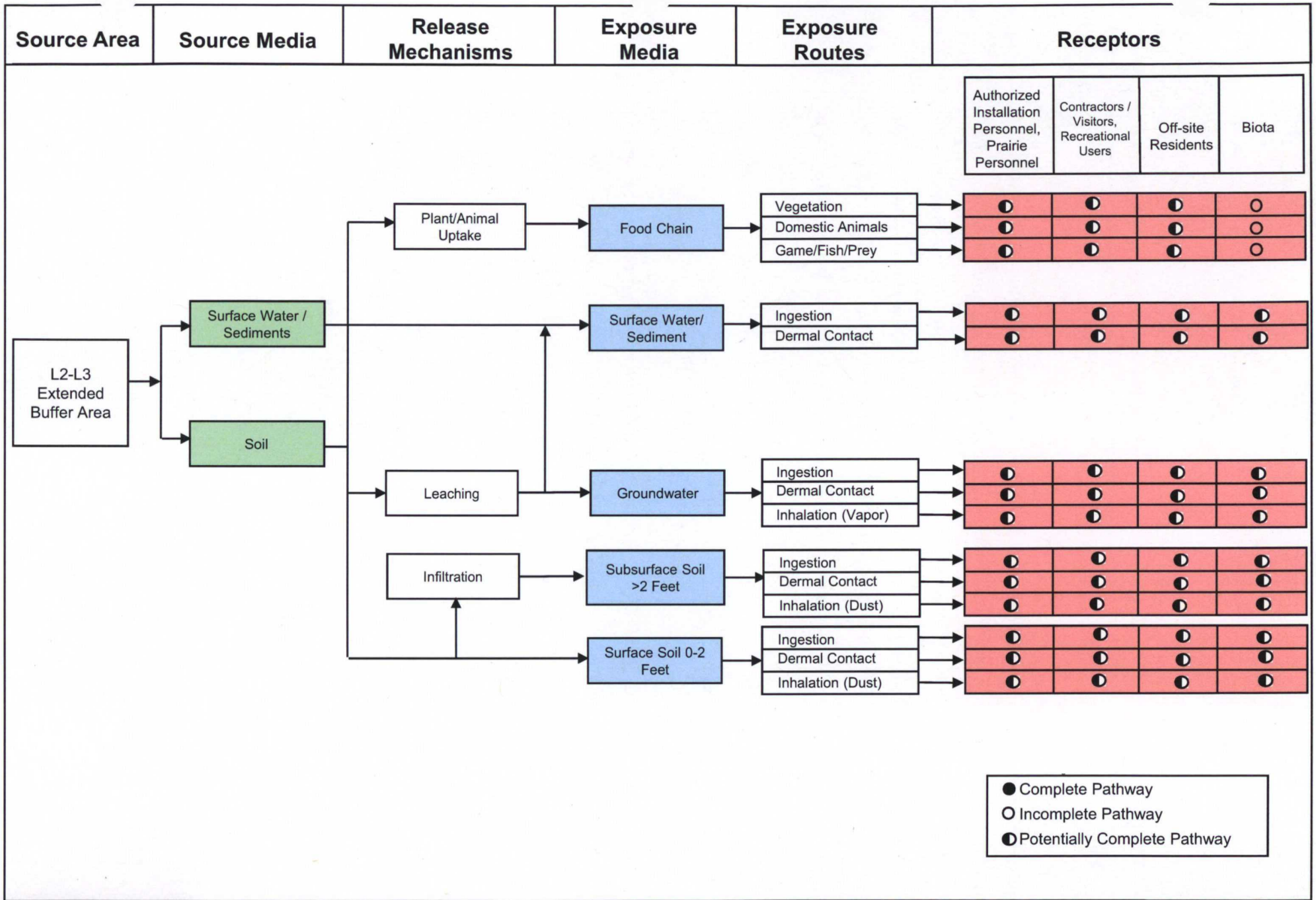
MALCOLM PIRNIE

Prepared for:
USACE Baltimore

CONCEPTUAL SITE MODEL
MEC EXPOSURE PATHWAY ANALYSIS – L2-L3 EXTENDED BUFFER AREA
JOLIET ARMY AMM' 'ION PLANT, WILMINGTON, ILLINOIS

MALCOLM PIRNIE, INC.

Figure 5-1



MALCOLM PIRNIE

Prepared for:
USACE Baltimore

CONCEPTUAL SITE MODEL
MC EXPOSURE PATHWAY ANALYSIS – L2-L3 EXTENDED BUFFER AREA
JOLIET ARMY AMMUNITION PLANT, WILMINGTON, ILLINOIS

MALCOLM PIRNIE, INC.

Figure 5-2

6 CONCLUSIONS

The following conclusions are provided as a result of the information reviewed for this HRR.

During the Phase 3 Range Inventory in April 2002, 200-foot buffer areas surrounding sites L2 and L3 were identified as requiring further characterization under the MMRP 2005 SI, the Explosive Burning Ground 1 (JAAP-002-R-01) and Demolition Area (JAAP-001-R-01) MRSs. In 2007, RAs were conducted at the Explosive Burning Ground 1 (JAAP-002-R-01) and the Demolition Area (JAAP-001-R-01) during which 286 MEC items were removed or destroyed from Explosive Burning Ground 1 (JAAP-002-R-01) and 1825 MEC items were removed or destroyed from Demolition Area (JAAP-001-R-01). A large number of these MEC items were found on the borders of the sites, indicating the potential that MEC are located outside of the MRSs.

During summer 2007, a USACE OESS and a contractor team leader conducted random site walks beyond the Demolition Area (JAAP-001-R-01). Assisted by a magnetometer and GPS unit, they traced their paths and marked the locations of the numerous MEC items they encountered. This confirmed MEC are located outside of the Demolition Area (JAAP-001-R-01) MRS.

A new MRS, the L2-L3 Extended Buffer Area (JAAP-001-R-02), has been designated eligible for the MMRP. The boundary was extrapolated based on the MGFD, but may need to be refined based on further site inspection field work. Currently, the site contains nearly 400 acres and can be seen in **Map 6-1**.

A summary of conclusion is provided in **Table 6-1**.

6.1 DATA GAPS

MC and MEC data are unavailable for delineating a boundary that extends beyond the

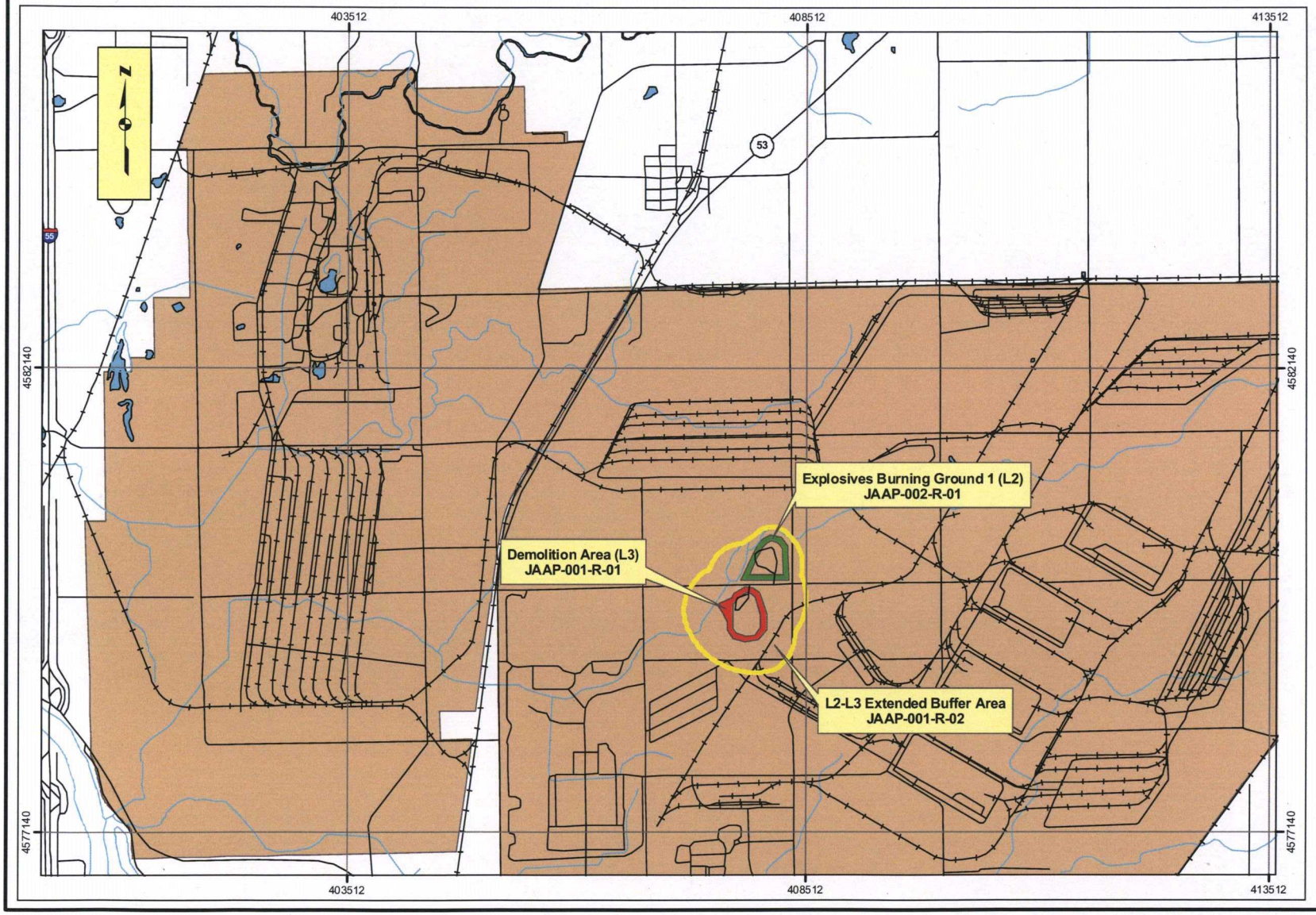
Explosive Burning Ground 1 (JAAP-002-R-01) and Demolition Area (JAAP-001-R-01) MRS boundaries. The land beyond these boundaries is used primarily for agriculture, and farmers in the area have reported no MEC items. This is yet to be confirmed by fieldwork.

Table 6-1: Overview of HRR Findings

Range Name	Phase 3 Inventory Acreage	HRR Acreage	AEDB-R ID	Rationale for Change	Historical Use	Current Use	Munitions Use		MC Data Available
							Type	Known or Suspected	
L2-L3 Extended Buffer Area (JAAP-001-R-02)	N/A	396	JAAP-001-R-02	MEC located near boundary of L2 Buffer Area and L3 Buffer Area, indicating MEC items are likely present outside boundary	Agriculture; L2 used for burning and detonation of munitions; L3 used for demolition area and burning ground.	Agriculture; unused.	Blasting caps, fuzes, boosters, or bursters Bombs, HE Less sensitive explosives (ammonium, nitrate, explosive D, etc.) Medium caliber munitions (20 mm, 25 mm, 30 mm), HE Secondary explosives (PETN, CMP ABC, tetryl, TNT, RDX, HMX, HBX, black powder) Small arms Landmines, anti-personnel Large caliber munitions (37 mm and larger), HE	Known	Yes

Note: CMP ABC = composition A, B, and C explosives / AEDB-R ID = Army Environmental Database-Restoration Identification / HBX = Hexahydro - 1, 3, 5 Trinitro-8-Triazine / N/A = not applicable / PETN = Pentaerythritol tetranitrate

Historic Records Review
Joliet Army Ammunition Plant, IL



MALCOLM PIRNIE

Map 6-1

HRR MRS
L2-L3 Extended Buffer Area

Legend

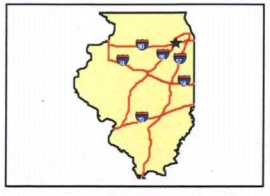
Historic LAP Area

- Historic LAP Area
- Railroads
- Roads
- Streams
- Water
- Extended Buffer Area
- L2 200 Foot Buffer Area
- L3 200 Foot Buffer Area
- ★ Installation

Coordinate System: UTM, Zone 16
Horizontal Datum: NAD83
Units: Meters

Contract:
Edition: Internal Draft Historical Records Review
Date: August 2008

0 0.25 0.5 1 Miles



Source: Adapted from SI Report, May 2005.

Appendix A: References

Source documents included electronically

Document Number	Date	Title	Source & Author	Information Type		
				General	Environmental	Munitions/ Storage
JOAAP001	October 1999	*Engineering Evaluation/ Cost Analysis, Sites L2, L3, L11, L16, L21, L34*	U.S. Army Engineering and Support Center-Huntsville	X		X
JOAAP002	September 2001	*Ordnance Removal and Site Characterization (ORSC) Report*	EODT	X		X
JOAAP003	April 2004	*Five-Year Review Report*	MWH Americas, Inc.	X	X	X
JOAAP004	2 January 1997	*Final Aquatic Ecological Risk Assessment, JOAAP, Phase II*	U.S. Army Center for Health Promotion and Preventive Medicine	X	X	
JOAAP005	October 2002	*Final Remedial Design / Remedial Action Work Plan- Phase 2*	MWH	X		
JOAAP006	May 2006	*Final Work Plan, MEC Removal Action of Sites L2 and L3*	USA Environmental, Inc.	X	X	X
JOAAP007	July 10, 2006	*Draft Explosives Safety Submission Amendment for the Military Munition Response Sites L3, L2 and L34*	MKM Engineers, Inc.	X		
JOAAP008	October 2006	*Final Remedial Action Work Plan for the Military Munition Response Sites L3, L2 and L34*	MKM Engineers, Inc.	X		
JOAAP009	October 2007	*CELRL Munitions and Explosives of Concern Daily Quality Assurance Report*	MWH	X		
JOAAP010	March 2008	*Draft 2006 Semi-Annual Report for the Groundwater Operable Long-Term Monitoring*	MKM Engineers, Inc.	X	X	
JOAAP011	March 2008	*Draft Site-Specific Final Report MMRP Site L2*	MKM Engineers, Inc.	X		X
JOAAP012	March 2008	*Draft Site-Specific Final Report MMRP Site L3*	MKM Engineers, Inc.	X		X
JOAAP013	May 2005	*Final Site Inspection Report,*	e^2M	X	X	X

Document Number	Date	Title	Source & Author	Information Type		
				General	Environmental	Munitions/ Storage
		MMRP Site Inspection Munitions Response Sites				
JOAAP014	February 2005	*Historical Records Review for Other Than Operational Ranges at JOAAP*	USACE St. Louis	X	X	X
JOAAP015	June 11, 2008	*Meeting Minutes for TPP Meeting 1*	Malcolm Pirnie	X		
JOAAP016	September 1978	*Installation Assessment of Joliet Army Ammunition Plant*	U.S. Army	X	X	X
JOAAP017	September 8, 2002	*Final U.S. Army CTT Range/Site Inventory*	e^2M	X		X
JOAAP018	June 29, 1995	*Final Waste Classification/Volume Estimation Plan LAP Area*	Dames & Moore, Inc.	X	X	X
JOAAP019	December 5, 1994	*Final Phase 2 Remedial Investigation LAP Area*	Dames & Moore, Inc.	X	X	X
JOAAP020	October 1998	*Record of Decision for the Soil and Groundwater Operable Units on the Manufacturing and LAP Areas, National Priority List Sites*	U.S. Department of the Army	X	X	X
JOAAP021	September 1998	*Study Sites and Future Land Use Map*	JOAAP	X		X
JOAAP022	1 November 1994	*Final Ecological Risk Assessment, JOAAP, Phase 1*	U.S. Army Environmental Hygiene Agency	X	X	

Appendix B: Site Inspection Kick-off Meeting Minutes

June 2008

MALCOLM PIRNIE

MEETING MINUTES

Purpose: Joliet Army Ammunition Plant Site Inspection Kickoff Meeting Stakeholders Meeting 1:30pm – 3:00pm

Location: Wilmington, Illinois

Date: 27 June 2008

Attendees	Organization	Phone	Email
Andrew Maly	USAEC	410-436-1611	andrew.maly@us.army.mil
Kim Gross	USACE-Baltimore	410-962-6735	kimberly.u.gross@usace.army.mil
Christopher Inlow	USACE-Louisville	502-315-6802	chris.inlow@usace.army.mil
Mark Freuh	USACE-Louisville	815-423-5642	mark.m.frueh@usace.army.mil
Nicole Wilson	IEPA	217-785-8729	nicole.wilson@illinois.gov
Art Holz	JOAAP	815-423-2870	arthur.m.holz@us.army.mil
Delores Kaitschuck	USDA	815-423-6370	dKaitschuck@fs.fed.us
Logan Lee	USDA	815-423-6370	llee@fs.fed.us
Kurt Adams	MWH	773-391-4236	kurt.adams@mwhglobal.com
Kathleen Anthony	MKM	916-920-9146	kanthony@mkmengineers.com
Courtney Ingersoll	Malcolm Pirnie	757-873-4415	cingersoll@pirnie.com
Catherine Kelly	Malcolm Pirnie	757-873-4386	ckelly@pirnie.com

The 11 June 2008 kick off meeting for the Military Munitions Response Program (MMRP) Site Inspection (SI) of the L2-L3 Extended Buffer Area for Joliet Army Ammunition Plant (JOAAP), Wilmington, Illinois was conducted by the United States Army Environmental Command (USAEC), United States Army Corps of Engineers (USACE), Baltimore District and Malcolm Pirnie, Inc at JOAAP in Wilmington, Illinois.

The following summarizes discussions held at the JOAAP MMRP SI kick off meeting. These notes do not include a summary of every discussion held, nor do they quote exact words used. Rather, this document is intended to be used by the group in attendance to reference previously held conversations and decisions.

- ***Introduction***

  The meeting convened at approximately 1330. All meeting attendees provided personal introductions and explained their role as it relates to the project. This kick off meeting was an agenda item on the JOAAP monthly project management meeting. These minutes encompass all discussions during the meeting.

- ***Kick Off Briefing***

  The kick off briefing was given by Ms. Courtney MS Ingersoll and Ms. Catherine Kelly, both of Malcolm Pirnie, Inc. Handouts included a copy of the briefing, and a list of acronyms, and definitions. A copy of the briefing is included in the minutes as Attachment 1.

Comments and discussion generated from the briefing are described below.

- Ms. Ingersoll summarized the MMRP to include a programmatic overview, discussions of definitions and acronyms, description of the MMRP SI implementation, process, and expectations of the stakeholders. Also, results of the Closed, Transferred, Transferring (CTT) Range/Site Inventory and previous MMRP SI were recapped to establish history for the new MMRP SI. What is known to date about the L2-L3 Extended Buffer Area Munitions Response Site (MRS) was discussed.

- Ms. Logan Lee, USDA, suggested the following as additional sources of information:
  - Heritage Group (worked extensively at the cemetery)
  - Science Club came across munitions debris while on the site
  - Environmental Ecologist with U.S. Forest Service came across munitions debris downstream of L4.

- Ms. Lee and Ms. Delores Koutschuck mentioned they would be having a monthly meeting with some of the aforementioned potential sources of information on 17 June 2008. During the meeting they would ask the meeting participants about the area and if any had encounters with potential Munitions and Explosives of Concern (MEC). Both agreed to a phone interview by Malcolm Pirnie, Inc following the meeting. Malcolm Pirnie proposed Thursday, 19 June 2008, for the interview. Ms. Lee and Ms. Koutshcuck stated that they would be available.

- Concerns about Public Access
  - Although liability ultimately is with the Army, the USDA expressed concerns about public access to the sites. USDA asked if the Army had any specific guidance or rules regarding access to sites such as the L2-L3 Extended Buffer Area MRS. USDA is aware people wander in the area north of Paradise Creek, which lies within the buffer zone, roaming throughout the area and walking down to the road. There was a discussion about what educational material might be readily available from the Army for public education with regard to the potential MEC hazard at the MRS.
  - Mr. Maly will investigate availability for public outreach material from the USAEC for use by USDA.

- Rights of Entry (ROE)

- Language in the Finding of Suitability for Transfer (FOST) states an open access agreement between the Army and USDA for remedial actions. The FOST most likely covers entry to the MRS for the MMRP SI activities.
- Although Ms. Lee did not see the need for right of entry on paper, she agreed to sign a form permitting access if requested by the USACE, Baltimore District. Per Ms. Lee, Mr. Bill Mains (wmains@fs.fed.us) is the main Point of Contact (POC) for the USDA.
- Ms. Gross will work with both the USACE Louisville and Baltimore Real Estate Managers to determine need for an ROE.

➢ Project Schedule
- Dates on the proposed schedule may change based on timing of Malcolm Pirnie deliverable submissions and how quickly government and stakeholder reviews are completed. Field work is currently scheduled for 11-19 May 2009. JOAAP suggested Malcolm Pirnie be in the field by late March or April 2009 due to vegetation growth and agricultural land use.

➢ Previous Site Work Performed by Others
- Ms. Anthony, MKM, suggested Mr. Troy Pfurtish (phone number: 281-932-8531) as a contact to discuss previous findings from the MMRP Interim Removal Action (IRA) in L2 and L3. Ms. Anthony requested she be contacted before calling to give Mr. Pfurtish a heads up as to the purpose of the call.
- Ms. Anthony offered GIS data and any other data that might be useful for the L2-L3 Extended Buffer Area SI. This includes their photo log.
- Ms. Anthony noted MKM found BLU 26's at L3; photographs are included in their photo log.

➢ Documents Collected

The following documents were collected by Malcolm Pirnie, Inc for use in preparing the Historical Records Review (HRR) for the L2-L3 Extended Buffer Area SI.
- Engineering Evaluation/Cost Analysis Site L2, L3, L11, L16, L21, L34 (U.S. Army Engineering and Support Center, Huntsville, October 1999)
- Final Report for the Ordnance Removal and Site Characterization (EODT, September 2001)
- Final Five-Year Review Report Soils Operable Unit (MWH, April 2004)
- Final Site Inspection Report (e^2M, 25 May 2005)
- Final Remedial Design/Remedial Action Work Plan – Phase 2, Volume II of II (MWH, October 2005)
- Final Work Plan MEC Removal Action of Sites L2 and L3 (MWH, May 2006)
- Draft Explosives Safety Submission Amendment for the MMRP Sites L3, L2, and L34 (MKM, July 10, 2006)
- Final Remedial Action Work Plan for the MMRP Sites L3, L2, and L34 (MKM, October 2006)

- Draft 2006 Semi-Annual Report for the GW Operable Unit LTM (MKM, March 2008)
- Draft Site-Specific Final Report MMRP Site L2 (MKM, March 2008)
- Draft Site-Specific Final Report MMRP Site L3 (MKM, April 2008)
- In addition, three CDs with numerous documents were obtained from e^2M to include in research conducted by Malcolm Pirnie, Inc.

➢ MRSPP Scores
  - Mr. Gross asked if the previous MRSPP scores had been advertised for public comment. Both Mr. Maly and Mr. Holz were unsure of the status. Mr. Maly offered to follow up with USAEC on the status and check procedure on public comment solicitation for the new MRS.

➢ Next Steps
  - Malcolm Pirnie, Inc will proceed with the HRR. A stakeholder draft will be submitted no later than 7 October 2008.

➢ Meeting concluded at 1500.

The following action items resulted from this meeting:

➢ Malcolm Pirnie will provide meeting minutes to all attendees.
➢ Malcolm Pirnie will conduct a phone interview with USDA on 19 June 2008.
➢ Mr. Maly will provide public education information for USDA.
➢ Ms. Gross will check FOST language for the ROE.
➢ Mr. Maly will check the MRSPP public notice status and procedure.

Appendix C: Interview Records

Project:	**Military Munitions Response Program - Site Inspection**
Site:	Joliet Army Ammunition Plant (JOAAP), IL
Contract No.:	W912DR-05-D-0004
Date:	10 June 2008
Interviewer:	Catherine Kelly, Malcolm Pirnie, Inc. Courtney MS Ingersoll, Malcolm Pirnie, Inc.
Person Interviewed:	Mr. Arthur Holz – JOAAP, Commander's Representative

Discussion:

- Mr. Holz escorted the Malcolm Pirnie team to the L2 and L3 sites and explained the layout. The team conducted a windshield tour only of both sites.
- He provided general background knowledge of the site.
- He provided maps of a site walk conducted by the U.S. Army Corps of Engineers Ordnance and Explosives Safety Specialist and a contractor-led team during the summer of 2007. They walked outside the L3 boundary and marked the MEC they encountered.
- Mr. Holz confirmed that no farmers using land beyond the L2 and L3 buffer areas have reported finding MEC or MD.

Project:	**Military Munitions Response Program - Site Inspection**
Site:	Joliet Army Ammunition Plant, IL
Contract No.:	W912DR-05-D-0004
Date:	29 July 2008
Interviewer:	Catherine Kelly, Malcolm Pirnie, Inc.
Person Interviewed:	Mr. Troy Pfertsh, MKM Engineers, Inc.

Discussion:

- The extrapolated boundary for the L2-L3 extended buffer was determined for both L2 and L3 in the same manner by using the munition with the greatest fragmentation distance (MGFD). The 105-millimeter M1 was designated as the MGFD for both munitions response sites (MRSs).
- The munitions and explosives of concern (MEC) discovered at the L2 Buffer Area were fairly sparse at the boundary. Not a lot was found on the outer reaches of the L2 Buffer Area.
- The MEC discovered at L3 Buffer Area were dense throughout the MRS. It did not become less dense as the field teams approached the boundary.

Project:	**Military Munitions Response Program - Site Inspection**
Site:	Joliet Army Ammunition Plant (JOAAP), IL
Contract No.:	W912DR-05-D-0004
Date:	11 June 2008 and 24 July 2008
Interviewer:	Catherine Kelly, Malcolm Pirnie, Inc. Courtney MS Ingersoll, Malcolm Pirnie, Inc.
Person Interviewed:	Ms. Logan Lee, U.S. Department of Agriculture (USDA) Forest Service

Discussion:

- Malcolm Pirnie requested an updated threatened and endangered species (TES) list for JOAAP. Ms. Lee required written request from the project manager.
- Ms. Lee confirmed that no farmers using land beyond the L2 and L3 buffer areas have reported finding MEC or MD.
- Email from USDA Ecologist, Mr. William Glass, relayed by Logan Lee, 24 July 2008 (Attachment 1):

  The only TES that might be impacted are grassland birds. There have been bobolinks and Henslow's sparrows in the pasture west of Prairie Creek north of Central Road. The arc seems to also pick up a small portion of the bunker field south of L3. There have been bobolinks and upland sandpipers (no sandpipers this year) in this field.

Attachment 1

Email from Logan Lee, 24 July2008

-----Original Message-----
From: Logan Lee
To: Ingersoll, Courtney
Sent: Thu Jul 24 17:58:25 2008
Subject: Fw: T&E List

Courtney,

Per your request. Our specialists have reviewed their records & provided the following. If you need more feel free to let me know or contact Bill directly at the number below.

Logan Lee
Prairie Supervisor,
Midewin National Tallgrass Prairie
Chair NWCG Training Working Team

----- Forwarded by Logan Lee/R9/USDAFS on 07/24/2008 04:56 PM -----

William D Glass/R9/USDAFS
07/24/2008 03:25 PM
To: Logan Lee/R9/USDAFS@FSNOTES
cc: Eric Ulaszek/R9/USDAFS@FSNOTES
Subject: Re: Fw: T&E List(Document link: Logan Lee)

Logan,

The only TES species that might be impacted are grassland birds. There have been bobolinks and henslow's sparrows in the pasture west of the Prairie Creek north of Central Road. The arc seems to also pick up a small portion of the bunker field south of L3. There have been bobolinks and upland sandpipers (no sandpipers this year) in this field. If they have any questions they can contact me.

Bill

William Glass
Ecologist
Midewin National Tallgrass Prairie
30239 S. State Route 53
Wilmington, IL 60481
815/423-6370
815/423-6376 FAX

Appendix D: ICM Waiver and Amendment

DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF STAFF
200 ARMY PENTAGON
WASHINGTON DC 20310-0200

REPLY TO
ATTENTION OF

DACS-SF

8 FEB 2001

MEMORANDUM FOR COMMANDER, U.S. ARMY MATERIEL COMMAND,
ATTN: AMCSF-X, 5001 EISENHOWER AVENUE
ALEXANDRIA, VIRGINIA 22333-0001

COMMANDER, HUNTSVILLE CENTER, CORPS OF
ENGINEERS, ATTN: CEHCN-OE-DC, PO BOX 1600
HUNTSVILLE, ALABAMA 60481-8879

SUBJECT: Approval of Request for Waiver to the Army Prohibition on Characterizing, Maintaining, and Clearing Areas Containing Submunitions or Improved Conventional Munitions for Joliet Army Ammunition Plant Load, Assemble and Pack Facility Sites L2, L3, L11, L16, L21, and L34

1. Reference:

a. MESSAGE DA WASHINGTON DC//DAMO-TR//151835Z APR 96, subject: Ammunition Prohibited from Use During Training.

b. Draft Headquarters Department of the Army Letter, HQDA LTR 385-00-1, subject Improved Conventional Munitions and Submunitions.

c. Memorandum, U.S Army Operations Support Command, AMSOS-SF, dated 14 July 2000, subject, Request for Waiver to the Army Prohibition on Characterizing, Maintaining, and Clearing Areas Containing Submunitions or Improved Conventional Munitions for Joliet Army Ammunition Plant Load, Assemble and Pack Facility Sites L2, L3, L11, L16, L21, and L34 with U.S. Army Materiel Command endorsement, AMCSF-X, dated 18 August 2000 (encl 1).

d. Memorandum, Huntsville Center, Corps of Engineers, CEHNC-OE-DC, dated 2 September 2000, subject, Request for Waiver to the Army Prohibition on Characterizing, Maintaining, and Clearing Areas Containing Submunitions or Improved Conventional Munitions for Joliet Army Ammunition Plant, Wilmington, IL (encl 2).

e. The Huntsville Center, Corps of Engineers' request for waiver to the Army's prohibition on clearance of ranges contaminated with improved conventional munitions (ICMs) and submunitions has been evaluated by the HQDA ICM Working Group. The request for waiver is approved for clearance, including in-place destruction, of ICMs and submunitions on the Joliet Army Ammunition Plant Load, Assemble and Pack Facility

DACS-SF 6 FEB 2001

SUBJECT: Approval of Request for Waiver to the Army Prohibition on Characterizing, Maintaining, and Clearing Areas Containing Submunitions or Improved Conventional Munitions for Joliet Army Ammunition Plant Load, Assemble and Pack Facility Sites L2, L3, L11, L16, L21, and L34

Sites L2, L3, L11, L16, L21, and L34 per reference "d". This approval addresses clearance of ICMs and submunitions. Clearance of items other than ICMs and submunitions, including conventional munitions, will be conducted in accordance with existing approved policy and procedures.

3. Approval of this waiver is contingent upon the following:

a. Execution of ICM/submuniton activities in strict accordance with requirements delineated in reference "d". The Office of the Director of Training, Deputy Chief of Staff for Operations and Plans, and the Office of the Director of Army Safety, Chief of Staff of the Army, shall be notified if there are any changes in work activities or safety controls or changes in clearance personnel, locations, conditions, or munitions for which this waiver was approved. Such changes may necessitate the re-evaluation of this waiver.

b. This waiver has been evaluated for BLU-26/B, bomblets and M39 grenades and any explosive component of an BLU-26/B or M39 submunitions. ICMs/submunitions encountered will not be contacted or touched but will be blown-in-place. If other ICMs/submunitions are discovered during range activities, all work must cease and a request for waiver in consideration of the additional ICMs/ submunitions requested.

c. Any explosive-related incident involving injury to personnel will be immediately reported (in accordance with AR 385-40). Upon the occurrence of such an incident, activities in areas containing ICMs or submunitions will be stopped until a review and validation of procedures has been completed and approved by the Commander with responsibility for the activities.

4. The Office of the Director of Training, Deputy Chief of Staff for Operations and Plans, or the Office of the Director of Army Safety, Chief of Staff of the Army shall be notified upon conclusion of these work activities.

5. Points of contact are: Mr. Anthony Rekas, Office of the Director of Training, Deputy Chief of Staff for Operations and Plans, (703) 614-4991; Mr. Leo Shanley, Munitions Division, Office of the Deputy Chief of Staff for Logistics, (703) 614-3243; Mr. Gary

DACS-SF 6 FEB 2001

SUBJECT: Approval of Request for Waiver to the Army Prohibition on Characterizing, Maintaining, and Clearing Areas Containing Submunitions or Improved Conventional Munitions for Joliet Army Ammunition Plant Load, Assemble and Pack Facility Sites L2, L3, L11, L16, L21, and L34

Abrisz, Office of the Deputy Assistant Secretary of the Army (Environment, Safety and Occupational Health), (703) 695-7824; and Mr. Edwin Lowe, Office of the Director of Army Safety, (703) 601-2408.

GENE M. LACOSTE
Brigadier General, GS
Director of Army Safety

Encl

CF:
DASA(I&E), Mr. Abrisz
DAMO-TR, Mr. Rekas
DALO-AMA, Mr. Shanley

DEPARTMENT OF THE ARMY
US ARMY DEFENSE AMMUNITION CENTER
1 C TREE ROAD
MCALESTER, OK 74501-9053

REPLY TO
ATTENTION OF

SIOAC-ESL (385[A])

06 OCT 2000

MEMORANDUM FOR Office of the Director of Army Safety, ATTN: DACS-SF, Chief of Staff, 2211 South Clark Street, Room 980, Arlington, VA 22202

SUBJECT: Request for Waiver to the Army Prohibition on Characterizing, Maintaining and Clearing Areas of Ranges Containing Submunitions or Improved Conventional Munitions for Joliet Army Ammunition Plant Load, Assemble and Pack Facility Sites L2, L3, L11, L16, L21 and L34

1. References:

a. Draft Headquarters Department of the Army letter, HQDA LTR 385-00-1, subject Improved Conventional Munitions and Submunitions.

b. Memorandum, U.S. Army Operations Support Command, AMSOS-SF, dated July 14, 2000, SAB with Army Materiel Command endorsement, AMCSF-X, dated August 18 2000.

2. We have reviewed the enclosed waiver request IAW reference 1.a. (2 copies enclosed). We believe the subject document contains sufficient controls to allow for a safe and effective clearance of those areas suspected of containing submunitions. We recommend approval.

3. The following information is provided to assist you in your consideration of the request. The Army Materiel Command (AMC) endorsement to reference 1.b. requests approval for the characterization of sites L2, L3 and L11 only. The waiver request would then be resubmitted for the remainder of the project after DoD Explosives Safety Board (DDESB) approval of the Explosives Safety Submission (ESS). We do not feel this is necessary. In the time since AMC forwarded their recommendation for partial approval, DDESB has approved the ESS for the characterization of sites L2, L3 and L11 and for a removal action in sites L16, L21 and L34. In the event the site characterization identifies additional required clearance in sites L2, L3 and L11, the installation will prepare an amendment to the ESS. In any case, since the hazards will remain unchanged, we do not feel it should be necessary to revisit the waiver request.

4. The POC is Mr. James Toburen, SMAAC-ESL, DSN 956-8784, email address toburenj@dac-emh2.army.mil.

FOR THE DIRECTOR:

2 encl
as

MELVIN L. COLBERG
Chief, Ordnance Explosives
Environmental Division

CF (wo/encl):
Commander, U.S. Army Engineering and Support Center, ATTN: CEHND-OE-CX.

AMCSF-X (AMSOS-SF/14 July 2000) (385-10d) 1st End
Mr. Peterson/DSN 767-5481
SUBJECT: Request for Waiver to the Army Prohibition on Characterizing, Maintaining, and Clearing Areas of Ranges Containing Submunitions or Improved Conventional Munitions for Joliet Army Ammunition Plant Load Assemble and Pack Facility Sites L2, L3, L11, L16, L21, and L34

Commander, U.S. Army Materiel Command, 5001 Eisenhower Avenue, Alexandria, VA 22333-0001 18 August 2000

FOR Department of the Army, Office of the Chief of Staff, 200 Army Pentagon, ATTN: DACS-SF, Washington, DC 20310-0200

1. The AMC Safety Office recommends the approval of the Site Characterization (SC) of Sites L2, L3, and L11 only. This office feels these SCs must be accomplished in order to complete the Explosives Safety Submission (ESS) currently awaiting approval by the Department of Defense Explosive Safety Board (DDESB). Following the SC work and approval of the ESS, this office recommends the waiver be resubmitted for the entire Removal Action at Joliet Army Ammunition Plant.

2. Point of contact is Mr. Mark Peterson, DSN 767-5481, commercial (703) 617-5481, fax DSN 767-9469, e-mail mpeterson@hqamc.army.mil.

FOR THE COMMANDER:

Donald A. Pittenger

Encl
nc

DONALD A. PITTENGER
Chief
Safety Office

CF: (w/o encl)
Commander,
Huntsville Center, Corps of Engineers, ATTN: CEHNC-OE-DC, P.O. Box 1600, Huntsville, AL 35807-4301
U.S. Army Operations Support Command, 1 Rock Island Arsenal, ATTN: AMSOS-SF, Rock Island, IL 61299-6000
Director, Defense Ammunition Center, ATTN: SMAAC-ESL, 1C Tree Road, Bldg 35, McAlester, OK 74501-9053

DEPARTMENT OF THE ARMY
HEADQUARTERS, U.S. ARMY OPERATIONS SUPPORT COMMAND (PROV)
1 ROCK ISLAND ARSENAL
ROCK ISLAND, IL 61299-6000

REPLY TO ATTENTION OF:

AMSOS-SF (385-10d) 14 JUL 2000

MEMORANDUM FOR Headquarters, Army Materiel Command, ATTN: AMCSF, 5001 Eisenhower Avenue, Alexandria, VA 22333-0001

SUBJECT: Request for Waiver to the Army Prohibition on Characterizing, Maintaining, and Clearing Areas of Ranges Containing Submunitions or Improved Conventional Munitions for Joliet Army Ammunition Plant Load, Assemble and Pack Facility Sites L2, L3, L11, L16, L21, and L34

1. The Corps of Engineers (COE) requests waiver (encl 1) to HQDA LTR 385-00-1, Improved Conventional Munitions and Submunitions, 5 May 2000 (draft) for characterization and clearance of submunitions at "L" sites of Joliet Army Ammunition Plant (encl 2). This office forwarded the "L" sites explosive safety submission (ESS) for ordnance and explosives response action IAW HQDA LTR 385-98-1 to the Technical Center for Explosive Safety on 18 April 2000.

2. The COE anticipates unrestricted land use following removal actions. The acronym TSD used in para 12.1 OE Area table refers to team separation distance.

3. The Operations Support Command (OSC) Safety Team recommends approval of the waiver. Request AMCSF obtain Office of the Director of Army Safety (ODASAF) approval IAW para 8 encl 2.

4. The POC is Mrs. Debby Westervelt, AMSOS-SF, DSN 793-2986, E-mail amsos-sf@osc.army.mil or westerveltd@osc.army.mil.

Encl

for Kristine K. Preston
ROSALENE E. GRAHAM
Chief, Safety/Rad Waste Team

CF:
Commander, Huntsville Center, Corps of Engineers, ATTN: CEHNC-OE-DC/Ms. Berry, P.O. Box 1600, Huntsville, AL 35807-4301
Director, Defense Ammunition Center, ATTN: SMAAC-ESL, 1C Tree Road, Bldg 35,McAlester, OK 74501-9053
SOSMA-ISO
SOSMA-ISD

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DEPARTMENT OF THE ARMY
JOLIET ARMY AMMUNITION PLANT
29401 S. ROUTE 53
WILMINGTON, IL 60481-8879

REPLY TO
ATTENTION OF

SIOJO-CR

9 MAY 2000

MEMORANDUM FOR Commander, US Army Operations Support Command,
ATTN: AMSOS-SF (Ms. Westervelt)
Rock Island, IL 61299-6000

SUBJECT: Request for Waiver for Clearance of Submunitions and Improved Conventional Munitions, Ordnance Removal Action and Site Characterization, Joliet Army Ammunition Plant, Wilmington, IL

1. Reference: CEHNC-OE-DC Memorandum, SAB, dated 2 SEP 99.

2. Enclosed for your action and approval are four copies of subject request.

3. The POC is the undersigned at 815/423-2877.

ARTHUR M. HOLZ
Commander's Representative

ENCLS

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

REPLY TO
ATTENTION OF:
CEHNC-OE-DC

2 September 1999

MEMORANDUM FOR Commander, Joliet Army Ammunition Plant,
ATTN: Mr. Art Holz, Commander's
Representative, 29401 South Route 53,
Wilmington, IL 60481-8879

SUBJECT: Request for Waiver for Clearance of Submunitions and Improved Conventional Munitions, Ordnance Removal Action and Site Characterization, Joliet Army Ammunition Plant, Wilmington, IL

1. Reference: HQDA Memorandum, 385-99-1, DACS-SF, 16 April 1999, subject: Policy and Procedures for Requesting a Waiver to the Army Prohibition on Characterizing, Maintaining, and Clearing Areas of Ranges Containing Submunitions or Improved Conventional Munitions.

2. Please find enclosed 6 copies of the subject document for your review and subsequent transmittal through your Command channels to the Office of the Director of Army Safety (DACS-SF).

3. Routing and approval of the request for waiver is detailed on page 8 of the referenced HQDA memorandum.

4. If you have any questions or concerns, please contact Ms. Patti Berry at 256-895-1525.

FOR THE COMMANDER:

Encls 6

C. DAVID DOUTHAT, P.E., CSP
Director, Ordnance and
Explosives Team

CF: (w/encl)
Commander, Industrial Operations Command, ATTN: Mr. Andrew Poppen, Bldg. 390, 4th Floor, Rock Island, IL 61299-6000
Commander, U.S. Army Engineer District, Louisville, ATTN: CEORL-DL-B (Ms. Melody Thompson), 600 Martin Luther King Place, P.O. 59, Louisville, KY 40201-0059

US Army Corps
of Engineers

Request for Waiver to the Army Prohibition on Characterizing, Maintaining, & Clearing Areas of Ranges Containing Submunitions or Improved Conventional Munitions for Joliet Army Ammunition Plant Ordnance Removal Action and Site Characterization Load, Assemble and Pack Facility Sites L2, L3, L11, L16, L21, and L34

JOLIET ARMY AMMUNITION PLANT
WILMINGTON, ILLINOIS

13 August 1999
Revised July 2000

Prepared by
US ARMY CORPS OF ENGINEERS
Engineering and Support Center, Huntsville

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1.0 Purpose and Scope

1.1 General. This ICM/Submunition waiver request was prepared by the U.S. Army Engineering and Support Center, Huntsville (USAESCH) to address the Ordnance Removal Action (RA) and Site Characterization (SC) activities that will be conducted at the Joliet Army Ammunition Plant (JAAP) located outside Wilmington, Illinois. The U.S. Army Industrial Operations Command (IOC) requested the activities and are funding this action under their Industrial Lease Program.

1.2 JAAP Facility History. JAAP was constructed in the early 1940s for exclusive use by the U.S. Army as an arsenal and manufacturing facility. Production began in September 1941, and in August 1945, the facility was placed in standby status. The plant was reactivated for the Korean Conflict in 1952 and remained in operation until 1957. From the mid-1950s through the early 1960s, JAAP was authorized to operate a production development division to gather and initiate ideas that were applicable industry-wide and to conduct development projects in the fields of design, techniques, and process development.

The facility was reactivated for the Vietnam Conflict in 1966 and continued operation until 1976, when it was placed in an inactive status. From WWII through to 1975, the LAP area continued to conduct various assembly activities involving bombs, projectiles, fuzes, and supplementary charges. This area contains load line groups capable of producing the standard 105-mm projectile, 8 inch Howitzer HE projectile, 40-mm cartridges, M14 mines, bombs, and supplementary charges. The JAAP was recently declared excess and put in Inactive-Modified Caretaker Status in 1993. Alliant Techsystems, Inc. is currently producing, test firing, and storing at JAAP, 25 and 30 millimeter (mm) cartridges and the AT-4.

2.0 Reason for Requesting Waiver

This waiver is requested to perform the Removal Action (RA) activities at sites L2, L3, L11, L16, and L21 and Site Characterization (SC) anomaly sampling within the L2, L3, and L11 sites as specified in the JAAP SOW. Areas L-11, L-16, and L21 are suspected to be contaminated with 105mm, M444 projectiles containing the M39 submunition. Additionally, areas L-2 and L-3 are suspected to be contaminated with the BLU-26/B. We request this waiver be approved for the entire site for either submunition. Site L34 is not suspected to contain improved conventional munitions (ICMs), but is included in this waiver request for information purposes only.

3.0 Name and Locations of Areas

The JAAP is a former U.S. Army munitions facility located on approximately 23,542 acres in Will County, Illinois (see Figure 1 of Appendix A). The facility has two distinct operational areas divided by State Route 53: the approximate 14 square mile explosives manufacturing (MFG) area west of Route 53; and the approximate 22 square mile Load-Assemble-Pack (LAP) area east of Route 53.

Farms are located along the southern and eastern perimeters of JAAP, with a large portion of the facility itself consisting of pasture, crop land and scattered woodlands.

A regional map showing the regional location of the JAAP within the state of Illinois is presented in Figure 1 of Appendix A.

An overall site map is presented in Figure 2 of Appendix A. This figure shows the RA/SC sites and the magazine storage area.

Planned land uses for the JAAP sites include the assignment of sites L2, L3, L21, and L34 to the U.S. Forestry Service for future recreational use, with sites L11 and L16 designated for future industrial use. It is intended that no land use restrictions will be required after removal actions have been completed in all sites. Use of sites L2, L3 and L11 where SC takes place will be restricted until a removal design, if any, can be determined and implemented based upon the OE characterization data.

Site	Size	Use	Depth of Clearance	RA or SC
L2	29ac	Explosive Burning Ground	Depth*	SC
L2	27ac	200' Perimeter	1'	RA
L3	15ac	Demo Ground	Depth*	SC
L3	24ac	200' Perimeter	1'	RA
L11	31ac	Rifle Grenade Tng Area	Depth*	SC
L11	2ac	Removal Area	4'	RA
L16	1ac	Production Area	4'	RA
L21	2ac	LAP Area	4'	RA
L34	7ac	Burning Area	4'	RA

*Sampling will continue until the area is properly characterized.

4.0 Alternatives to Proposed Activities

The activities proposed in paragraph 2.0 above will be what is required when the Explosive Safety Submission (ESS) is approved. Alternative activities will require re-approval of the ESS. The proposed removal alternatives are selected on the default clearance depths specified in DoD 6055.9 STD for the future land use. The proposed characterization alternatives will be used to justify future removal alternatives, if necessary.

5.0 Description of the Use(s) of the Sites that Led to the Presence of ICM/Submunitions

The data presented below was obtained during previous archival research performed in support of past remedial investigations, feasibility studies, and remedial designs. A brief description of why

submunitions are believed or known to exist at the sites is also presented. The actual types of OE contamination associated with each RA and SC site is presented in Table 1 of this waiver request.

1. Site L11: The L11 site was used to test firing velocities and the impact effectiveness of various munitions, with tests primarily involving 40mm grenades. Munitions were fired within the range to a target area consisting of a gravel detonation pad. This site is suspected of containing M39's.

2. Site L16: Within the spiral railroad tie building, there exists evidence of detonators and possibly fuzes that have fallen between the railroad ties. If necessary, OE removal personnel will disassemble the structure to investigate and remove any residual OE. This site is suspected of containing M39's.

3. Site L2: Site L2 is the former explosives burning grounds where ordnance, explosives and small munitions were burned on six gravel pads and three popping furnaces. The popping furnaces were used for the burning of small munitions. This site is suspected of containing BLU-26/B's.

4. Site L3: Former JAAP personnel and aerial photographs indicate that L3 was used for the burning of combustible refuse and munitions crates. However, soil sampling within this site has identified soils and ground water contaminated with explosives and heavy metals, indicating the potential for former OE burning and disposal. This site is suspected of containing BLU-26/B's.

5. Site L21: Site L21 is the former load assemble and pack area. The M444 105mm projectile is suspected to have been demilitarized here. The M39 submunition is suspected here.

6. Site 34: No exact information is available concerning the types of materials burned at the site, but a previous site visit located ceramic items believed to be the bodies of nonmetallic mines containing explosives residues. Archival data indicated that this area was used for the burning of explosives.

5.1 Archival Search Data. Table 1 presents a listing of the munitions and components manufactured or handled within the areas of concern at the JAAP. This table was created from a similar table presented in the JAAP Environmental Baseline Statement for Transfer (EBST) generated for the U.S. Army by a contractor.

TABLE 1: MUNITIONS/COMPONENTS MANUFACTURED/HANDLED

MUNITION/COMPONENT	AREA(S)	COMMENT
Large Caliber Munitions		
155mm, Shrapnel (MK1)	L2/3	
Medium Caliber Munitions		
105mm, HE, ICM (M444)	***L11, L16, and L21***	Loaded, Tested and Demilitarized
90mm, HE (M71)	L21	Manufacture and Demilitarized
90mm, HE-T (M71E1)	L2/3	
75mm APC-T (M61A1) w/fuze BD (M66A1)	L2/3	
37mm, TP (M63 Mod 1)	L2/3	
Mines		
Mine, Antitank (M4)	L2/3	
Mine, Antitank NM (M5)	L2, L3, and L34	
Mine, APERS, NM (M14) /integral fuze	L16	
Dispensers and Submunitions		
BLU-26/B	***L2/3***	
M39 sub-munitions for M444	***L11, L16, and L21***	Loaded, assembled and tested
Fuzes		
Fuze, MT (M43A3 and M43A4)	L 2/3	
Fuze, BD (M66, M66A1 and M68)	L2/3	
Fuze (M103)	L16	Demilitarized
Fuze, (M105 A1) without booster	L21 (61-7)	
Fuze, Proximity (M517) arming mechanism	L2	Destroyed in popping furnace
Fuze, Antitank Mine (M1, M1A1, M1A2 and M5)	L2/3	
Fuze, Antitank Mine NM, Practice (T-3E1)	L2/3	
Fuze, Bomb Nose (AN-M103)	L16	
Primers and Boosters		
Primer (M1A2)	L2/3	
Primer, Percussion (M22A2)	L2/3	Destroyed in popping furnace
Primer (M28A2&3, M31A2, M40A1, M46-49)	L2	Destroyed in popping furnace
Booster (M20) and (M20A1)	L16	
Booster (M25, M102, M104)	L16	
Booster, Auxiliary (M104)	L16	
Mortars and Rockets		
81mm Mortar, HE w/o fuze	L2/3	Loaded (L9), tested and reworked
4.5 inch Rocket (m16)	L2/3	
Supplementary Charges	L16	Manufacture, assemble & pack
Adapter and Booster (MKIII AM2)	L2/3	

6.0 Characterization of Terrain (delineated on each site map, see Appendix A)

Generally the areas flat or mounded from demolitions operations. Vegetation is either sparse or grass covered. Areas L3 and L34 contain a creek.

7.0 Ordnance and Explosives Characterization (other than ICM/Submunitions)

Table 1 above identifies ordnance used at all area addressed in the waiver request. Only L2, L3, L11, L16 and L21 are suspected of containing submunitions. Concentrations or depths of ordnance are not known.

7.1 Soil Sampling. Soil sampling for explosives in soil was conducted throughout the installation. While explosive contamination was located in soil and ground water samples taken from all of the RA and SC sites addressed by this waiver request, none of the samples exceeded the 10% threshold to be considered as explosives soils.

8.0 Ordnance and Explosives Characterization (ICM/Submunitions)

Table 1 above identifies ordnance used at all area addressed in the waiver request. Only L2, L3, L11, and L16 are suspected of containing submunitions. Concentrations or depths of ICM/submunition are not known.

9.0 Clearance Techniques

9.1 Introduction. This section presents information concerning removal of OE from the various sites

at JAAP. Included are discussions of the methods of detection, capabilities/limitation of the method, the process that will be used to determine that ordnance scrap is free of explosive hazards, and the deposition of the ordnance scrap removed from the site, or generated by the clearance activities. The procedures included in this section will directly apply to each of the OE removal sites addressed by this waiver request. Additionally, the OE investigation and disposal procedures referenced will also be used for the OE sampling and characterization operations at sites L2, L3, and L11. If a removal action is later directed for these sites, this waiver request and the referenced procedures will again be implemented for the removal action of sites L2, L3, and L11, thereby avoiding the need for a waiver request for these three sites.

9.2 OE Detection and Removal. UXO personnel will use the Schonstedt GA-52Cx Heliflux magnetometer (52 CX) for the location of ferrous anomalies and the Whites Spectrum XLT (XLT) to locate non-ferrous anomalies. The depth of detection for a given item is dependent upon the size and orientation of the target item, as well as the characteristics of the soil. Prior to the use of both the 52 CX and the XLT at the JAAP facility, a test plot will be established for testing these instruments and the geophysical surveying and mapping (GS&M) equipment. This test plot will be established using inert OE items buried at the depths specified by the USAESCH in the SOW. Both the 52 CX and the XLT are capable of meeting the detection requirements of the SOW, which states that the OE detectors must detect a 40 millimeter (mm) grenade at a depth of one foot and a 105mm projectile at a depth of four feet. **Additionally, the detectors must be able to detect the M39 and BLU-26/B at one foot.** Daily response checks using the test plot will be documented by the UXOQCS who will ensure site personnel adjust and response check the instruments IAW this plan and the

manufacturer's instructions. If an instrument does not respond correctly, and field maintenance fails to correct the problem, that instrument will be tagged as inoperable and removed from service. Replacement equipment will be tested in the same manner as outlined above.

The use of the detection technologies presented may be limited in their application to the explosives removal sites due to the degree of vegetation growth within some of the sites. Therefore, vegetation removal/burning will be conducted as needed by the OE removal teams. It is anticipated that some degree of vegetation removal will be required within each grid. vegetation will be removed to within six inches of the surface and tree limbs will be removed to a height of six feet to allow for the effective application of the detection technologies. No trees greater than three inches in diameter will be cut down without the prior approval of the USAESCH. UXO encountered during vegetation removal will be flagged with two crossed pin flags, and reported to the SUXOS.

Once vegetation has been removed/burned from the project grids, it is not anticipated that there will be any further limitations of the OE detection methods or technologies aside from the potential for surface clutter to hinder the efficient use of the 52 CX or the XLT in the former burn sites. If this is the case, as determined by the SUXOS, a surface clearance will first be conducted at the effected explosives removal sites.

Once all site preparations have been completed within site, the 52 CXs and XLTs will be used to locate anomalies within the grid. Each grid within each site identified for OE removal shall be swept using the procedures listed below. Each of the two OE removal teams will report directly to the SUXOS and will maintain a log of its activities.

1) Search Lanes. Each 200 by 200 foot grid will be subdivided into individual search lanes. These lanes will be five foot wide paths adjacent to each other, running parallel to the north/south boundary line of the grid. Search lanes will be laid out using pre-marked base lines with cones or twine laid between the base line marks to form the lanes.
2) Grid Search. Search personnel will start at one end of each lane and will move forward toward the opposing base line. During the forward movement, the detection instrument will be moved from one side of the lane to the other, with the forward movement and the swing of the magnetometer performed at a pace that ensures complete searching of the lane while also ensuring that the instrument is able to appropriately respond to subsurface anomalies.
3) Excavation of Flagged Items. Surface and near-surface anomalies will be excavated using the procedures contained in Appendix E..
4) Anomaly Identification. The initial anomaly identification will be conducted by the UXO Technician (UXO Tech) who located the item. Once identified by the first UXO Tech, a second UXO Tech will verify the identity, condition and hazards of the item. Those items that are fuzed, unsafe to move, or are submunitions will be marked with crossed red pin flags and disposed of daily by BIP. Those items that are positively identified as being unfuzed and safe to move may be removed from the excavation, transported to a consolidated disposal area located within the grid, and disposed of at the end of the day.

Any M39 or BLU-26/B or any explosive component of an M39 or BLU-26/B regardless of condition will be BIP. The BIPs or consolidated shots will be conducted before the team leaves the grid, or at the end of each day, whichever comes first. Those items that are identified as being non-hazardous ordnance scrap or scrap will be removed and segregated.

9.3 OE Demolition. All OE-related material containing explosives will be disposed of by detonation utilizing standard demolition procedures as outlined in TM 60A-1-1-31 and appropriate 60 Series EOD Publications. All items identified for detonation will have been positively identified prior to demolition. In the event that an item cannot be identified, the SUXOS will inform the USAESCH Safety Specialist, who will request military EOD support.

Explosively contaminated OE and UXO will be disposed of on a daily basis in coordination with the USAESCH Safety Specialist. The SUXOS will verify that the PSD around the grid is clear of all nonessential personnel, and that minimum safe conditions are met prior to detonation. Personnel remaining on site will be limited to those personnel needed to safely and efficiently prepare the item(s) for destruction.

Upon completion of the demolition shot, the SUXOS will visually inspect each disposal shot. While the SUXOS performs a visual inspection of the disposal site(s), a UXO Tech will stand by at a safe distance and be prepared to render assistance in the event of an emergency. Upon completion of this inspection and providing there are no residual hazards, the SUXOS will authorize the resumption of site operations.

10.0 Number, Composition, Training and Certification of Work Teams

The number, composition, training and certification of the site personnel will be in compliance with U.S. Army Engineering and Support Center, Huntsville, Data Item Description OT-025. Only one team will operate in an ICM/submuntion area at anytime. A maximum of 7 UXO qualified personnel, to include the supervisor, will comprise the team. Additionally, the USAESCH Safety Specialist and the either contractor QCS or SSHO or Senior UXO Supervisor may be within the exclusion zone for a maximum of 9 UXO qualified personnel. Non-UXO qualified personnel will not be allowed in ICM/submunitions areas during UXO operations.

11.0 Risk Analysis (see Appendix B)

12.0 Quantity - Distance

A regional map showing the regional location of the JAAP within the state of Illinois is presented in Figure 1 and relevant and appropriate Q-Ds are illustrated in Figures 2 through 8 of Appendix A of this waiver request.

An overall site map is presented in Figure 2 of Appendix A. This figure shows the RA/SC sites and the magazine storage area.

Figure 2 of Appendix A also shows the PWDs for each of the RA/SC sites, and the Q-D arc for the magazine storage area. Figures 3 through 8 in Appendix A contain individual maps of each RA/SC site, with the location of the magazine storage area (with its Q-D arc) sited in Figure 3. As required, these maps detail the OE removal depth, PWD/exclusion zone and future land use for each of the RA/SC areas. These individual site maps are presented to show sufficient detail and accurately show the relevant distances. While the map scale of the individual site maps is smaller than the preferred scale of one inch equals 400 feet, the necessary detail for the exclusion and public withdrawal zones is provided and labeled.

A map depicting the location of any planned or established demolition areas to be used is not presented in this waiver request. As specified in this waiver request, blow-in-place (BIP) will be the only method utilized by the removal contractor to dispose of ICM/submunitions. Therefore, no planned or established demolition area has been designated and since each OE site may be used for demolition, the public withdrawal distance (PWD) for the OE operations will also serve as the exclusion zone (EZ) for the demolition operations.

12.1 OE Areas. *PWD restrictions* from OE areas to non-project personnel will be applied during all surface or intrusive OE removal or characterization operations being conducted. The PWDs identified for each site are as follows:

Site	MPM	PWD (ft)	TSD (ft)	ICM	TSD (ft)
L2	155mm Mk1 Shrapnel	2,500	200	BLU/26	200
L3	155mm Mk1 Shrapnel	2,500	200	BLU/26	200
L11	40mm M433 (confirmed)	305	200	M39 (suspected)	200
L16	M39 Submunitions for M444	374	200	M39	200
L21	M39 Submunitions for M444	374	200	M39	200
L34	Mine, Antitank NM (M5)	2500	200	None suspected	N/A

These PWDs will be enforced at each site whenever project personnel are involved with OE investigation and removal operations. Preliminary site work such as surveying, laying grid lanes and anomaly detection do not require the establishment of a PWD for Q-D purposes. Project personnel are defined as those on-site contractor and DoD personnel required to participate in the OE removal/sampling, along with those approved and authorized visitors. All other personnel are non-project personnel.

For each OE removal and characterization area the outer boundary of each PWD was measured from the site boundaries rather than the center of the site. No inhabited structures or public access ways are located within the PWDs for the sites. **The team separation distance when operating in an ICM/Submunition area will be a minimum of 200 feet (see Appendix C).**

12.2 Magazines. One BATF-approved, Type 2, portable magazine will be used for explosives storage. This magazine will be secured inside a locked nine-gauge, six-foot high fenced area, located south of site L21. The magazine storage location, along with the Q-D arc associated with the magazine NEW is identified in Figure 3 of Appendix A. The Q-D arc of 670 feet is based upon the NEW of 100 pounds, in accordance with (IAW) AR385-64, paragraph 5-5.c.(3). EODT will utilize one magazine with attached detonator box. The fenced enclosure will be posted and secured with a high security lock. In addition, the magazine will be double locked and the appropriate lightning protection will be installed IAW Chapter 13 of CEHNC Interim Guidance Document 98-10. The demolition materials listed below will be stored as indicated:

Storage Location	Item Description	Hazard Class	Compatibility Code
Magazine	Detonating cord	1.1D	D
Magazine	Perforators	1.4S	S
Magazine	Time/Safety Fuze	1.4S	S
Magazine	Fuze Igniters	1.4S	S
Detonator Box	Non-electric Detonators	1.4B	B
Detonator Box	Electric detonators	1.4B	B

T-100 Two-component Green (or Yellow) Stick is classified as one part oxidizer and one part flammable liquid. While these materials create explosives when mixed they are not stored in magazines as explosives. The Green/Yellow Stick will be stored in a controlled/locked area and issued and inventoried as demolition materials.

The explosives hazard classes listed above are those provided by the supplier on the product data sheets, and they reflect commercial classifications that are usually lower than U.S. Army classifications for the same items. Additionally, the compatibility codes listed above were obtained from AR 385-64.

13. Technical Support

The contractor for this project will be EOD Technology, Inc. (EODT) of Lenoir City, Tennessee. All EODT on-site UXO personnel will meet the training and experience requirements required by the USAESCH.

No chemical warfare materiels (CWM) are suspected at any of the RA or SC sites. Additionally, EODT personnel will positively identify all OE items prior to the item being moved or destroyed. If suspected CWM is found, or if an OE item cannot be positively identified, the USAESCH Safety

Specialist will request military support from the Technical Escort Unit or the 788th Ordnance Company (EOD), Fort McCoy, Wisconsin.

14. Quality Assurance/Quality Control

The UXOQCS will perform random, unscheduled audits of the various site activities to ensure that personnel accomplish all work and record keeping as specified in the WP and USAESCH SOW. These quality inspections shall include property accountability, UXO related tasks, equipment operator maintenance, PPE usage and WP compliance. Any non-conformance to contractual requirements will be documented and reported in writing to the SUXOS, QCM and PM. The SUXOS will then be responsible for the field correction of the non-conformance.

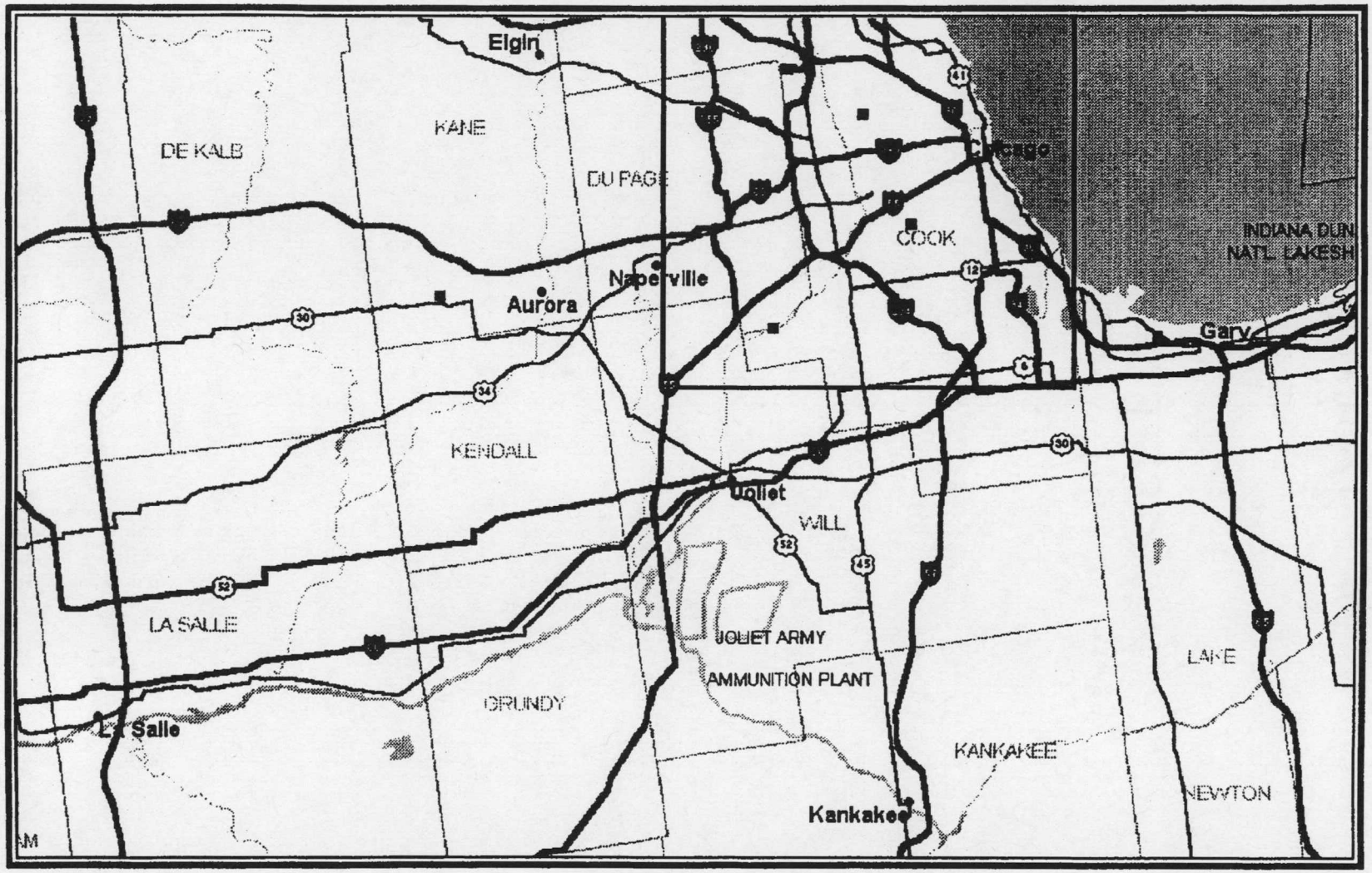
Upon conclusion of the removal activities in each grid within each site, the UXOSO/QCS will conduct a surface and subsurface QC sweep of the grid within a reasonable time after the completion of the work (five to seven working days). During this QC sweep, a minimum of 10% of a site will be checked, unless the SOW requires more than 10% be checked, in which case the SOW takes precedence. The QCS will proceed on a zig-zag pattern covering 10% of the entire site, with a report of the findings submitted to the SUXOS. Grids that pass the QC sweep will be submitted to the USAESCH for QA inspection. The pass/fail criteria for both the QC or the QA inspections will be the location of either one UXO or more than five pieces of metal greater than two square inches, located in the grid. If a grid does not pass a QC or QA inspection, it will be reported to the SUXOS and the grid will be scheduled for a re-sweep.

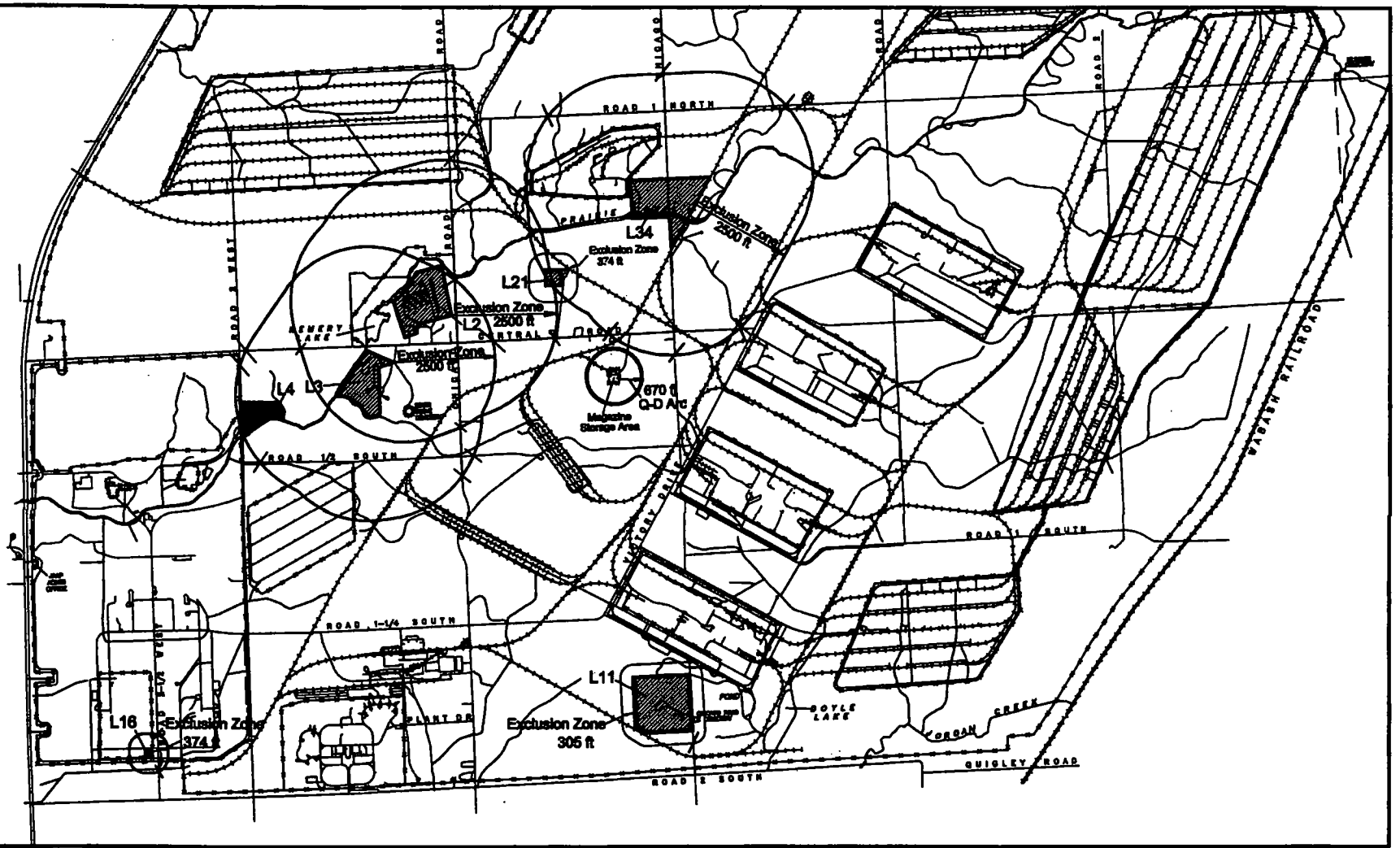
APPENDIX A

SITE MAPS

JOLIET ARMY AMMUNITION PLANT
WILMINGTON, ILLINOIS

Figure 1: Joliet Army Ammunition Plant Regional Location Map





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Legend:

- Project Work Site
- TNT Removal Area
- Roadblock

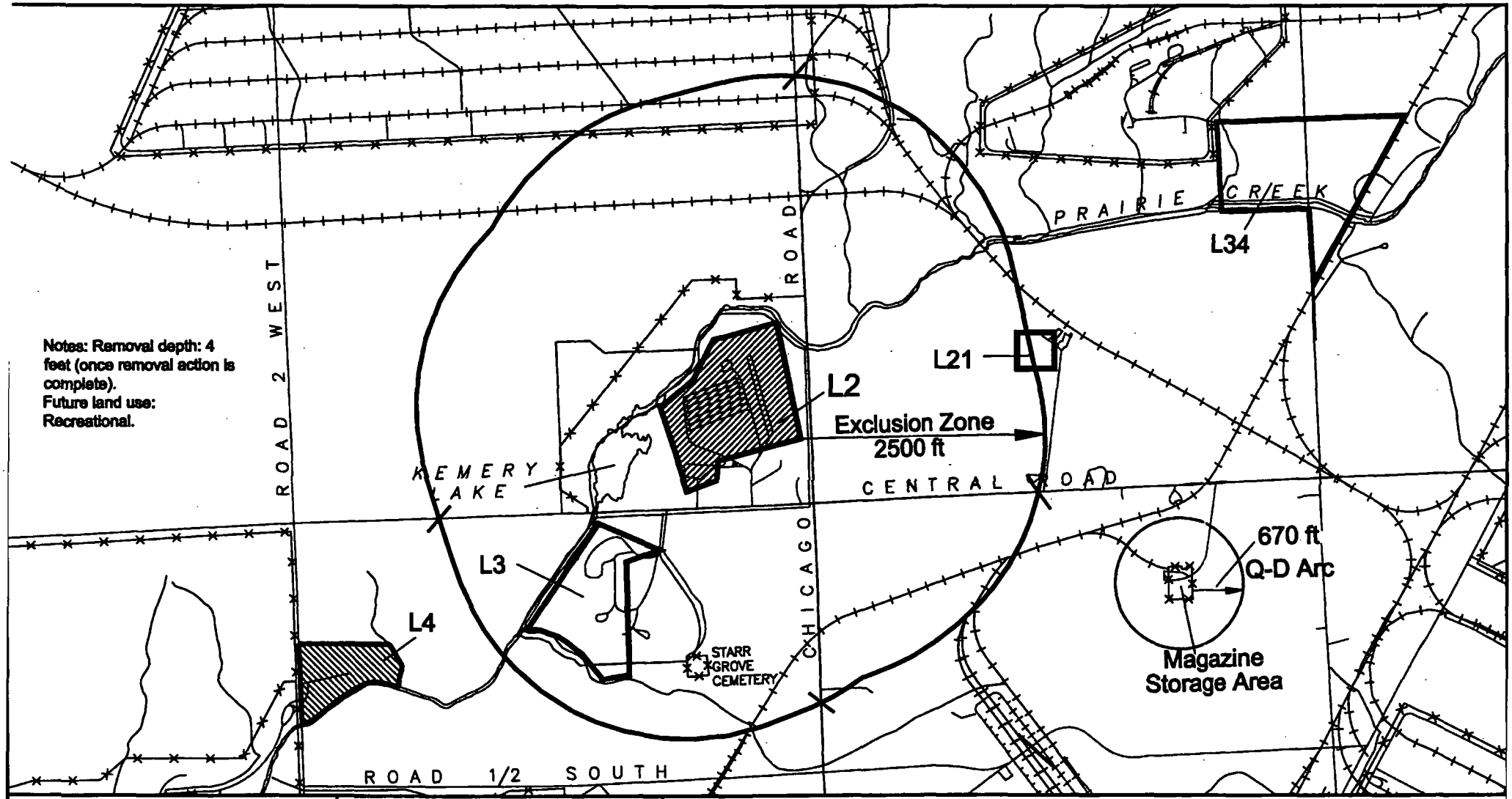
North

Scale in Feet: 0 1250 2500

Joliet Army Ammunition Plant
Joliet, Illinois

Project Site Map with Exclusion Zones

Drawing Version No.: Rev 1.	Drawn by: JKD	Contract Number: DACA87-97-D-005	Figure No.
Date: 8/27/99	Checked by: ALB	Task Order Number: 0007	2



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Legend:

- Project Work Site
- TNT Removal Site
- Roadblock

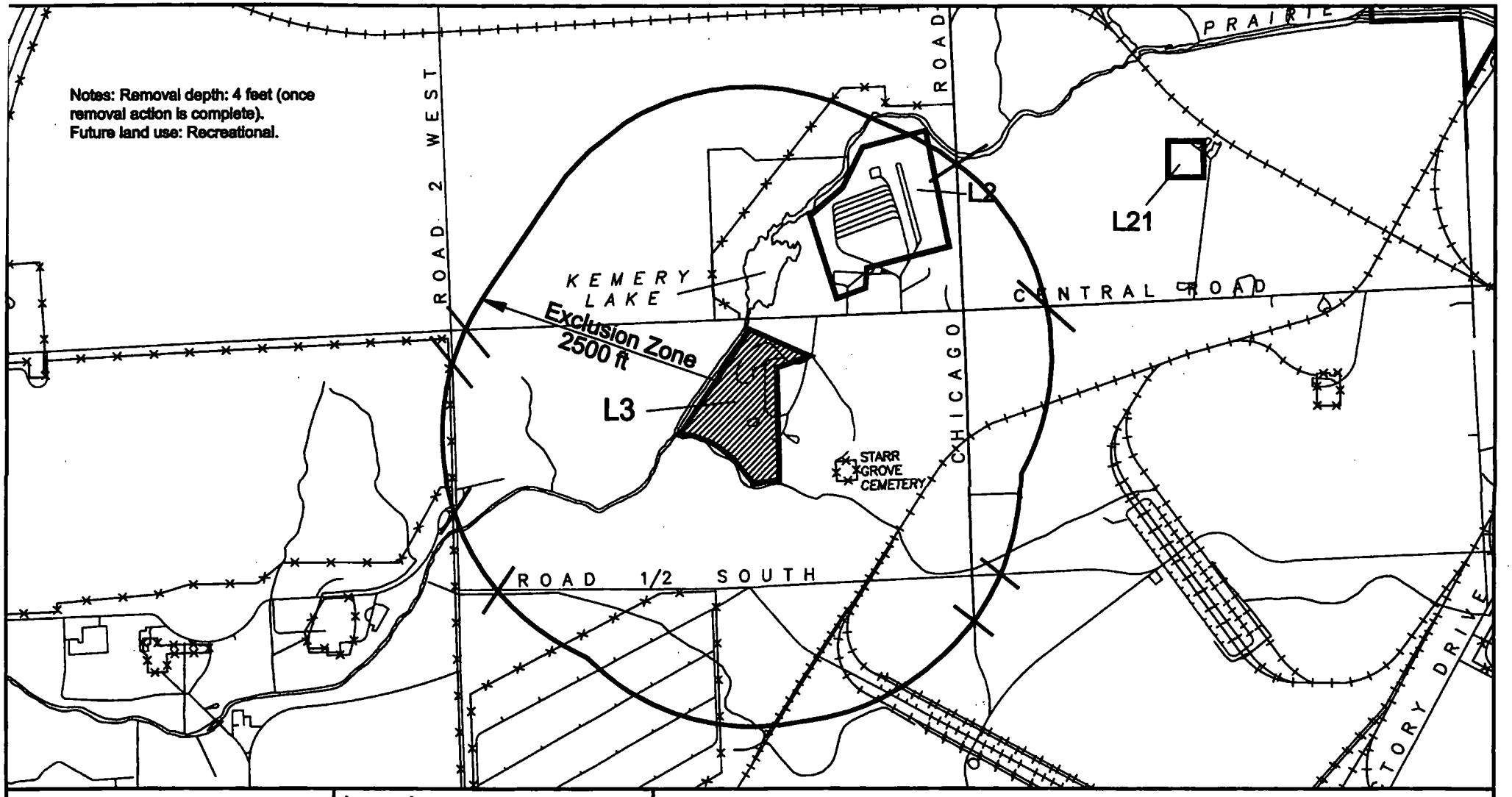
North

Scale in Feet: 0 500 1000

Joliet Army Ammunition Plant
Joliet, Illinois

L2 Site Map

Drawing Version No.: Rev 1.	Drawn by: JKD	Contract Number: DACA87-97-D-005	Figure No.
Date: 8/27/99	Checked by: ALB	Task Order Number: 0007	3



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Legend:

— Project Work Site

— Roadblock

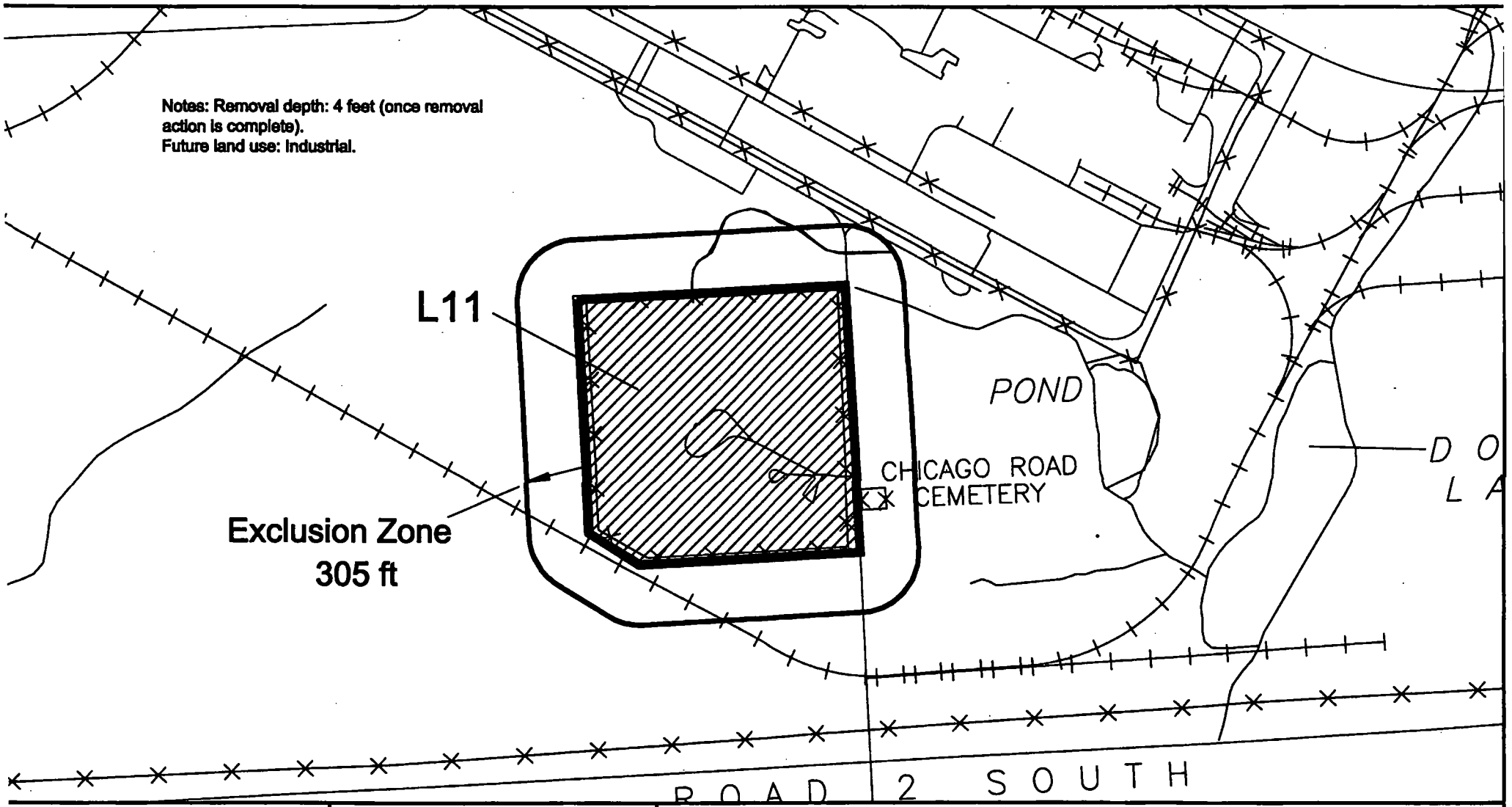
North

Scale in Feet: 0 500 1000

Joliet Army Ammunition Plant
Joliet, Illinois

L3 Site Map

Drawing Version No.: Rev 1.	Drawn by: JKD	Contract Number: DACA87-97-D-005	Figure No.
Date: 8/27/99	Checked by: ALB	Task Order Number: 0007	4



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Legend:

— Project Work Site

/ — Roadblock

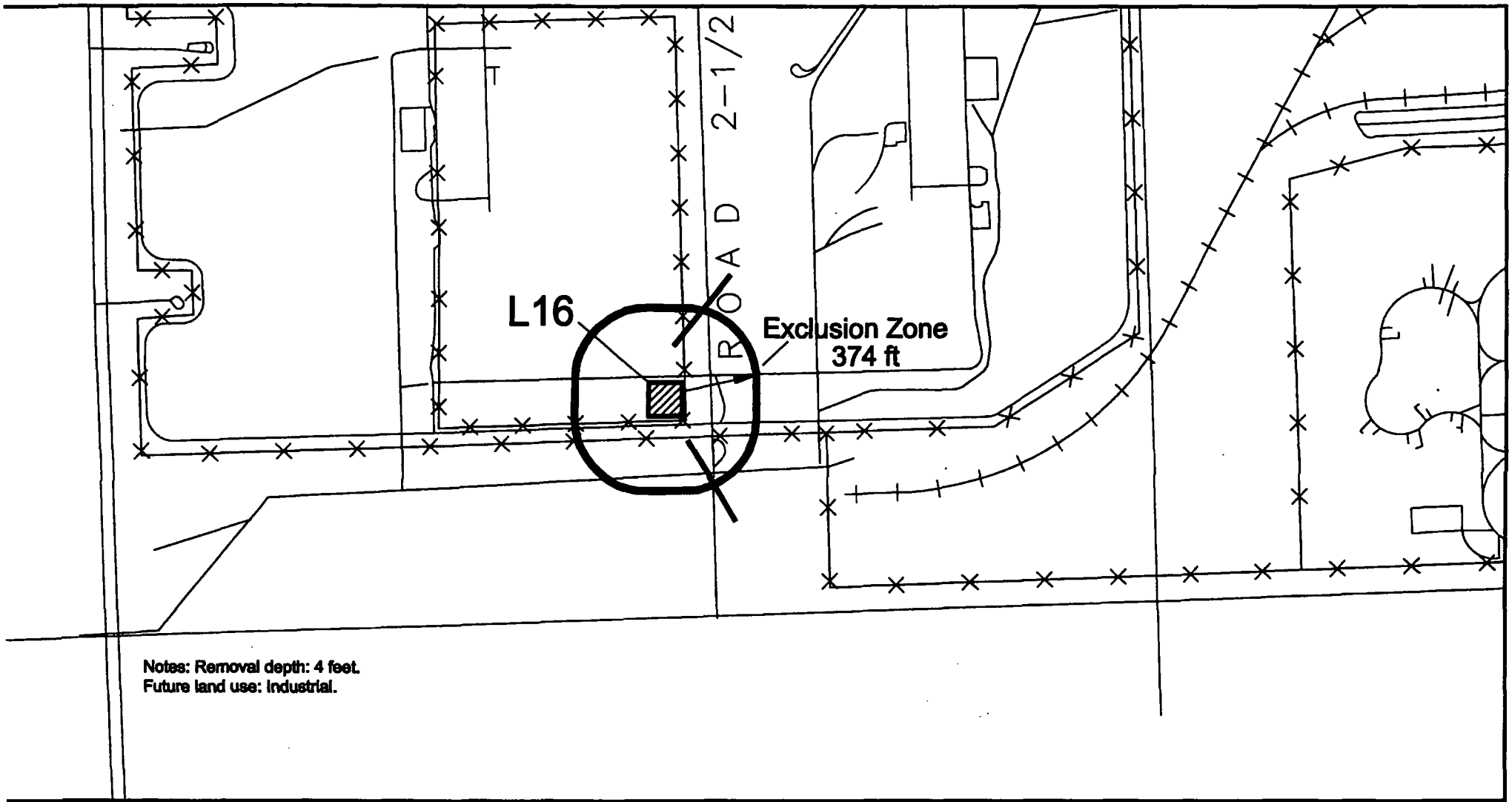
North

Scale in Feet
0 250 500

Joliet Army Ammunition Plant
Joliet, Illinois

L11 Site Map

Drawing Version No.: Rev 1.	Drawn by: JKD	Contract Number: DACA87-97-D-005	Figure No.
Date: 8/27/99	Checked by: ALB	Task Order Number: 0007	5



Notes: Removal depth: 4 feet.
Future land use: Industrial.

EOD Technology, Inc.
P.O. Box 24173
Knoxville, Tennessee 37933-2173
423.988.6063 - Fax 423.988.6067
E-mail eodtg@aol.com

Legend:

— Project Work Site

— Roadblock

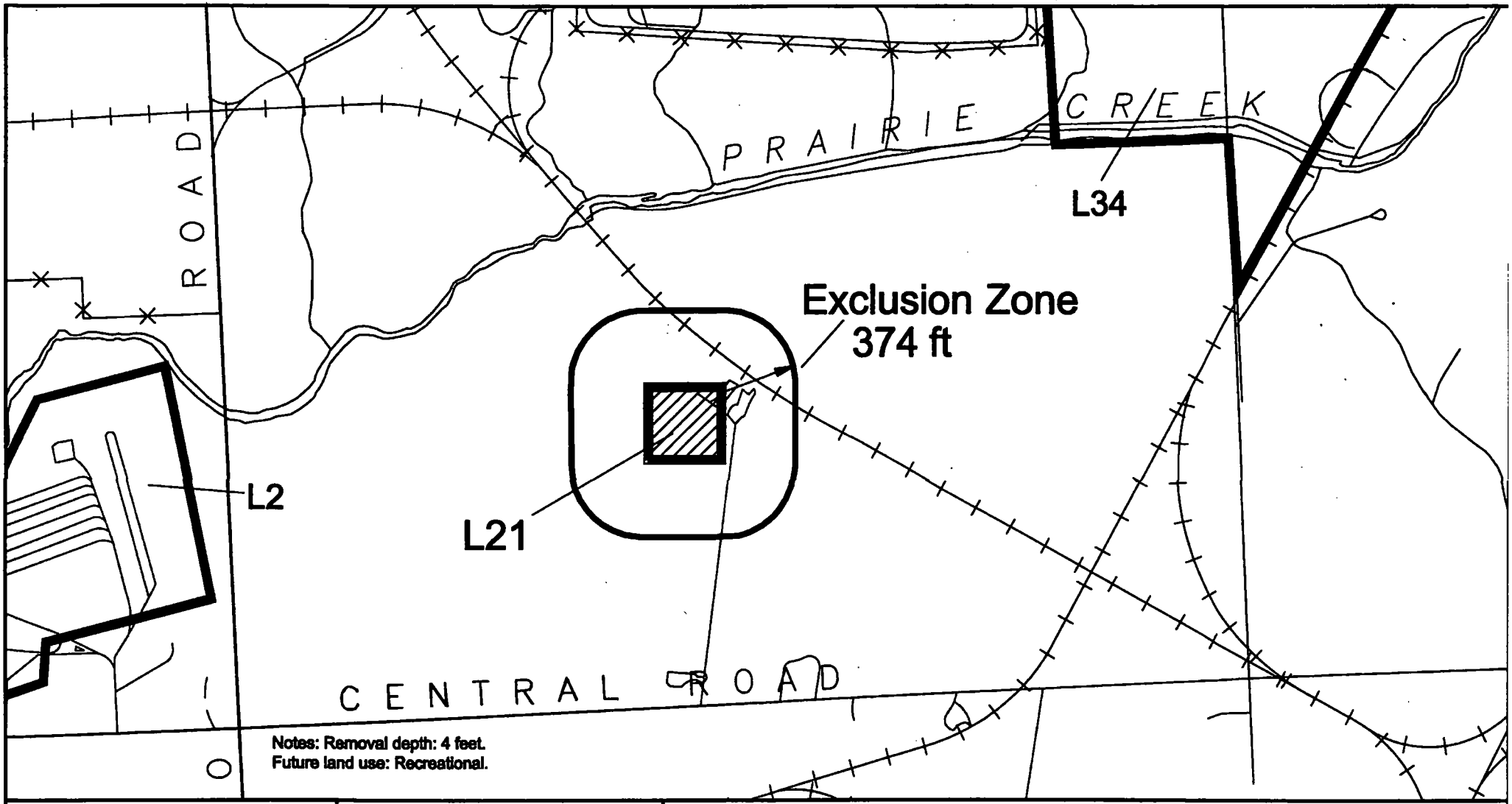
North

Scale in Feet
0 250 500

Joliet Army Ammunition Plant
Joliet, Illinois

L16 Site Map

Drawing Version No.: Rev 1. Date: 8/27/99	Drawn by: JKD Checked by: ALB	Contract Number: DACA87-97-D-005 Task Order Number: 0007	Figure No. 6



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Legend:

— Project Work Site

— Roadblock

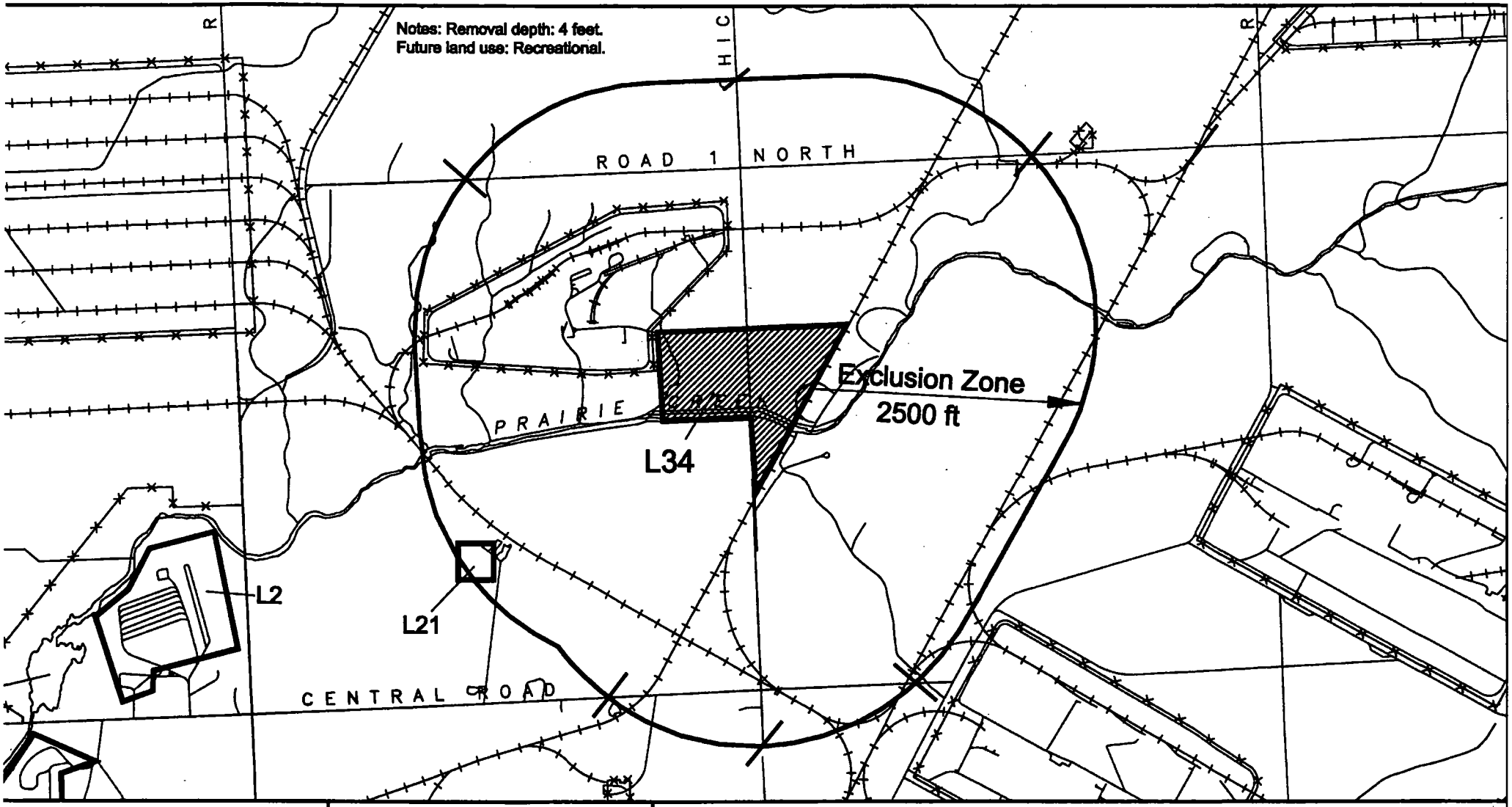
North

Scale in Feet: 0 250 500

Joliet Army Ammunition Plant
Joliet, Illinois

L21 Site Map

Drawing Version No.: Rev 1.	Drawn by: JKD	Contract Number: DACA87-97-D-005	Figure No.
Date: 8/27/99	Checked by: ALB	Task Order Number: 0007	7



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E-mail eodtg@aol.com

Legend:

— Project Work Site

— Roadblock

North

Scale in Feet: 0 500 1000

Joliet Army Ammunition Plant
Joliet, Illinois

L34 Site Map

Drawing Version No.: Rev 1.	Drawn by: JKD	Contract Number: DACA87-97-D-005	Figure No.
Date: 8/27/99	Checked by: ALB	Task Order Number: 0007	8

APPENDIX B

Risk Analysis

JOLIET ARMY AMMUNITION PLANT
WILMINGTON, ILLINOIS

RISK MANAGEMENT PLAN AND RISK ASSESSMENT JOLIET ARMY AMMUNITION PLANT REMOVAL ACTION AND SITE CHARACTERIZATION

GENERAL PROGRAM REQUIREMENTS

Purpose. This plan establishes management policies, objectives, and responsibilities for a risk management program for the removal action and site characterization at Joliet Army Ammunition Plant (JAAP).

References. (U) AR 385-16
(U) DA PAM 385-61
(U) MIL-STD-882
(U) AR 385-61
(U) AR 385-10
(U) FM 100-14 Risk Management
(C) TM 60T 2-2-11 (BLU-26/B)
(C) TM 60C-2-2-3 (M39)
(U) TM 60-A-1-1-22 (General EOD Safety Precautions)
Contractor's Work Plan, Site Specific Health and Safety Plan and Standard Operating Procedures

Scope. This plan establishes the ground rules and methodology by which risk assessment will be developed and the procedures for identifying objectives, hazard identification, categorization, tracking, and elimination of Unexploded Ordnance (UXO) and Improved Conventional Munitions (ICM) hazards.

Objectives.
(1) To use risk assessment as a tool for accepting risk when a requirement in AR 385-16 cannot be met.
(2) To ensure that no hazard is accepted without formal documentation of associated risks.
(3) Risk acceptance decisions are documented.

RISK MANAGEMENT

The intent of risk management plan is to optimize safety within the framework of mission accomplishment and is not to put safety "first" or ensure "zero defects". System safety is applied with the overall goal of improving operational effectiveness by conserving valuable resources and reducing inherent risk.

RISK ASSESSMENT

Risk analysis provides a useful tool for estimating the effectiveness of existing and proposed safeguards against site hazards. The potential for and consequences of hazards must be carefully analyzed. The risk assessment will consider the probabilities and consequences of any realistic accident scenario that could present a risk to workers, the environment, or the public. The risk assessment assumptions should be verified for accuracy to the maximum extent possible once field operations begin.

Hazards will be risk assessed in terms of hazard severity (Table-1) and accident probability (Table-2) and assigned a risk assessment code {RAC} (Table-3).

TABLE - 1
HAZARD SEVERITY

Category: I
Description: Catastrophic
Definition: Death or permanent total disability, system loss, major property damage.

Category: II
Description: Critical
Definition: Permanent partial disability or temporary total disability in excess of 3 months, major system damage, significant property damage.

Category: III
Description: Marginal
Definition: Minor injury, lost workday accident, or compensable injury or illness; minor system damage; minor property damage.

Category: IV
Description: Negligible
Definition: First aid or minor supportive medical treatment, minor system impairment.

TABLE - 2
ACCIDENT PROBABILITY

Description: Frequent
Level: A
Individual Item: Likely to occur frequently.

Description: Probable
Level: B
Individual Item: Will occur several times.

Description: Occasional
Level: C
Individual Item: Likely to occur sometimes.

TABLE - 2
ACCIDENT PROBABILITY (CONT.)

Description: Remote
Level: D
Individual Item: Unlikely but possible to occur.

Description: Improbable
Level: E
Individual Item: So unlikely it can be assumed occurrence may not be experienced.

TABLE - 3
RISK ASSESSMENT CODE MATRIX

	Accident Probability				
Hazard Severity	A	B	C	D	E
I	1	1	2	3	5
II	1	2	3	4	5
III	2	3	4	5	5
IV	3	4	5	5	5

SITE PREPARATION (MANUAL VEGETATION REMOVAL)

NTIFY RISK HAZARD SCRIPTION)	PRE-RAC (ASSESS RISK)	EFFECT OF THE RISK	IMPLEMENT CONTROLS (RECOMMENDED ACTIONS)	RESPONSIBLE PARTY	POST-RAC RISK ASSESSMENT
ps, & Falls	III/C 4	Minor injuries, broken bones, cuts and scratches.	1. Clear walkways and work areas of equipment, tools, vegetation, excavated materials, and debris. 2. Mark, identify, or barricade other obstructions and/or fall hazards.	SSO	5
Heavy Objects	III/D 5	Strain lower back, muscle strains, crushed hands and feet.	1. Observe Proper lifting techniques. 2. Obey sensible lifting limits. 3. Use mechanical lifting equipment to move large, awkward loads.	All personnel	5
jects	III/C 4	Lacerations, loss of finger/limbs.	1. Wear cut resistant work gloves when possibility of lacerations to hands. 2. Maintain all hand and power tools in a safe condition. 3. Keep guards in place during use. 4. When using chain saws or machetes wear protective leggings.	SSO, UXO Tech III, all personnel	5
se Levels	III/D 5	Loss of hearing.	1. Use hearing protection when exposed to excessive noise levels (greater than 85 dBA over an 8-hour TWA) based on noise monitoring.	SSO, UXO Tech III	5
OE	I/B 1	Detonation or misidentification.	1. Mark and report all UXO located. 2. Only necessary personnel will be in the exclusion zone. 3. Only qualified UXO personnel will be allowed in ICM areas. 4. Post warning signs, establish exclusion zones, and stop all unauthorized personnel from entering the exclusion zone. 5. Review all known ordnance data, especially M39 and BLU-26/B data. **See Appendix D** 6. Positively identified OE items prior to movement. 7. If item is unknown the item will remain in place until positively identified.	SUXOS, SSO, UXO Tech III's, and UXO Tech II	I/D 3

SITE PREPARATION (MANUAL VEGETATION REMOVAL) cont.

ENTIFY RISK (HAZARD ESCRIPTION)	PRE-RAC (ASSESS RISK)	EFFECT OF THE RISK	IMPLEMENT CONTROLS (RECOMMENDED ACTIONS)	RESPONSIBLE PARTY	POST-RAC RISK ASSESSMENT
cal Hazards	IV/B 4	Insect and spider bites	1. Review injury potential with field employees. 2. Mark off bee, yellow jackets, and wasp nests. 3. Use PPE.	SUXOS, SSO, & UXO Tech IIIs	5
	III/C 4	Contact Dermatitis	1. Wear PPE to avoid skin contact. 2. Identify and review plant hazards, avoidance, and first aid procedures.	SUXOS	5
ress	III/D 5	Heat Exhaustion/Stroke	1. Wear proper clothing. 2. Take appropriate weather protection measures. 3. Review SSHP on signs, symptoms, and first aid procedures.	SSO & UXO Tech III	5
equipment and s	III/D 5	Cuts/Amputations, Eye Injuries/Hearing Loss/ Burns/Grinding Injuries/Physical Exertion	1. Wear appropriate PPE. 2. Maintain firm footing. 3. Kick-back and/or guards in place. 4. Sharp cutting surfaces. 5. Work/Rest regime. 6. Heat Stress monitoring. 7. Remain clear of feed and exit chute.	SUXOS, SSO, & UXO Tech III	5

SITE PREPARATIONS (ESTABLISHING BOUNDARIES AND GRIDS)

IFY RISK (HAZARD DESCRIPTION)	PRE-RAC (ASSESS RISK)	EFFECT OF THE RISK	IMPLEMENT CONTROLS (RECOMMENDED ACTIONS)	RESPONSIBLE PARTY	POST-RAC RISK ASSESSMENT
·ips, & Falls	III/C 4	Minor injuries, broken bones, cuts and scratches.	1. Clear walkways and work areas of equipment, tools, vegetation, excavated materials, and debris. 2. Mark, identify, or barricade other obstructions and/or fall hazards.	SSO	5
g Heavy Objects	III/D 5	Strain lower back, muscle strains, crushed hands and feet.	1. Observe Proper lifting techniques. 2. Obey sensible lifting limits. 3. Use mechanical lifting equipment to move large, awkward loads.	All personnel	5
bjects	III/C 4	Lacerations, loss of finger/limbs.	1. Wear cut resistant work gloves when possibility of lacerations to hands. 2. Maintain all hand and power tools in a safe condition. 3. Keep guards in place during use. 4.. When using chain saws or machetes wear protective leggings.	SSO, UXO Tech IIIs, all personnel	5
ise Levels	III/D 5	Loss of hearing.	1. Use hearing protection when exposed to excessive noise levels (greater than 85 dBA over an 8-hour TWA) based on noise monitoring.	SSO, UXO Tech III	5
OE	I/B 1	Detonation	1. Mark and report all UXO located. 2. Mag area prior to driving stakes into the ground. 3. If using a subcontractor, provide UXO escort at all times. 4. Follow WP/SSHP and other safety standards. 5. Review all known ordnance data, especially M39 and BLU-26/B data. **See Appendix D.** 6. Teams separated by a minimum of 200 feet when performing UXO operations. 7. Use magnetometers when ground surface is obstructed. 8. Only necessary personnel will be in the exclusion zone.	SUXOS, SSO, UXO Tech IIIs, and UXO Escort	I/D 3
ess	III/D 5	Heat Exhaustion/Stroke	1. Wear proper clothing. 2. Take appropriate weather protection measures. 3. Review SSHP on signs, symptoms, and first aid procedures.	SSO & UXO Tech III	5

OE Removal Operations (Marking and Searching Grids/Sweep Lanes)

IFY RISK (HAZARD DESCRIPTION)	PRE-RAC (ASSESS RISK)	EFFECT OF THE RISK	IMPLEMENT CONTROLS (RECOMMENDED ACTIONS)	RESPONSIBLE PARTY	POST-RAC RISK ASSESSMENT
ips, & Falls	III/C 4	Minor injuries, broken bones, cuts and scratches.	1. Clear walkways and work areas of equipment, tools, vegetation, excavated materials, and debris. 2. Mark, identify, or barricade other obstructions and/or fall hazards.	SSO	5
g Heavy Objects	III/D 5	Strain lower back, muscle strains, crushed hands and feet.	1. Observe Proper lifting techniques. 2. Obey sensible lifting limits. 3. Use mechanical lifting equipment to move large, awkward loads.	All personnel	5
bjects	III/C 4	Lacerations, loss of finger/limbs.	1. Wear cut resistant work gloves when possibility of lacerations to hands. 2. Maintain all hand and power tools in a safe condition. 3. Keep guards in place during use. 4.. When using chain saws or machetes wear protective leggings.	SSO, UXO Tech IIIs, all personnel	5
ise Levels	III/D 5	Loss of hearing.	1. Use hearing protection when exposed to excessive noise levels (greater than 85 dBA over an 8-hour TWA) based on noise monitoring.	SSO, UXO Tech III	5
OE	I/D 3	Detonation	1. Mark and report all UXO located. 2. Mag area prior to driving stakes into the ground. 3. Follow WP/SSHP and other safety standards. 4. Do not move UXO. 5. Review all known ordnance data, especially M39 and BLU-26/B data. **See Appendix D** 6. Teams separated by a minimum of 200 feet when performing UXO operations. 7. Use magnetometers when ground surface is obstructed. 8. Only necessary and UXO qualified personnel are allowed in ICM areas.	SUXOS, SSO, UXO Tech IIIs, and UXO Tech II	5
ss	III/D 5	Heat Exhaustion/Stroke	1. Wear proper clothing. 2. Take appropriate weather protection measures. 3. Review SSHP on signs, symptoms, and first aid procedures.	SSO & UXO Tech III	5

OE REMOVAL OPERATIONS (MARKING AND SEARCHING GRIDS/SWEEP LANES) CONT.

perations	III/c 4	See "Handling Heavy Objects" and "Slips Trips & Falls" above.	1. Observe Proper lifting techniques. 2. Obey sensible lifting limits. 3. Use mechanical lifting equipment to move large, awkward loads. 4. Clear walkways and work areas of equipment, tools, vegetation, excavated materials, and debris. 5. Mark, identify, or barricade other obstructions and/or fall hazards. 6. Only UXO qualified personnel allowed in ICM areas	All Personnel	5
neter Operations	III/D 5	Repetitive motion	1. Use wrist supports while using the magnetometers.	SSO & UXO Tech III	5

OE Removal Operations (Manual Excavating and Removing OE Anomalies)

IFY RISK (HAZARD DESCRIPTION)	PRE-RAC (ASSESS RISK)	EFFECT OF THE RISK	IMPLEMENT CONTROLS (RECOMMENDED ACTIONS)	RESPONSIBLE PARTY	POST-RAC RISK ASSESSMENT
ips, & Falls	III/C 4	Minor injuries, broken bones, cuts and scratches.	1. Clear walkways and work areas of equipment, tools, vegetation, excavated materials, and debris. 2. Mark, identify, or barricade other obstructions and/or fall hazards.	SSO	5
g Heavy Objects	III/D 5	Strain lower back, muscle strains, crushed hands and feet.	1. Observe Proper lifting techniques. 2. Obey sensible lifting limits. 3. Use mechanical lifting equipment to move large, awkward loads.	All personnel	5
bjects	III/C. 4	Lacerations, loss of finger/limbs.	1. Wear cut resistant work gloves when possibility of lacerations to hands. 2. Maintain all hand and power tools in a safe condition. 3. Keep guards in place during use.	SSO, UXO Tech IIIs, all personnel	5
ise Levels	III/D 5	Loss of hearing.	1. Use hearing protection when exposed to excessive noise levels (greater than 85 dBA over an 8-hour TWA) based on noise monitoring.	SSO, UXO Tech III	5
OE	I/B 1	Detonation, or misidentification.	1. Mark and report all UXO located. 2. Only necessary personnel will be in the exclusion zone. 3. Only qualified UXO personnel will excavate OE in accordance with WP/SSHP and CEHNC Basic Concepts and Safety Considerations dated February 1996. See Attachment 3. 4. Only hand excavation will be permitted within the last 12" of the anomaly. 5. Post warning signs, establish exclusion zones, and stop all unauthorized personnel from entering the exclusion zone. 6. Do not move fuzed ordnance. 7. Positively identified OE items prior to movement. 8. If item is unknown the item will remain in place until positively identified. 9. Excavation and trenching will comply with WP/SSHP and 29 CFR 1926. 10. Review all known ordnance data, especially M39 and BLU-26/B data. **See Appendix D** 11. Teams separated by a minimum of 200 feet when performing UXO operations. 12. Use magnetometers when ground surface is obstructed. 13 .Follow dig procedures in Appendix E	SUXOS, SSO, UXO Tech IIIs, and UXO Tech II	I/D 3

IFY RISK (HAZARD DESCRIPTION)	PRE-RAC (ASSESS RISK)	EFFECT OF THE RISK	IMPLEMENT CONTROLS (RECOMMENDED ACTIONS)	RESPONSIBLE PARTY	POST-RAC RISK ASSESSMENT
ess	III/D 5	Heat Exhaustion/Stroke	1. Wear proper clothing. 2. Take appropriate weather protection measures. 3. Review SSHP on signs, symptoms, and first aid procedures.	SSO & UXO Tech III	5

OE REMOVAL OPERATIONS (TRANSPORTING DEMOLITION MATERIAL)

DENTIFY RISK (HAZARD DESCRIPTION)	PRE-RAC (ASSESS RISK)	EFFECT OF THE RISK	IMPLEMENT CONTROLS (RECOMMENDED ACTIONS)	RESPONSIBLE PARTY	POST-RAC RISK ASSESSMENT
›s, Trips, and Falls	III/C 4	Minor injuries and broken bones.	1. Clear walkways and work areas of equipment, tools, vegetation, excavated materials, and debris. 2. Mark, identify, or barricade other obstructions and/or fall hazards.	SSO	5
ndling Heavy Objects	III/D 5	Strain lower back, muscle strains, crushed hands and feet.	1. Observe Proper lifting techniques. 2. Obey sensible lifting limits. 3. Use mechanical lifting equipment to move large, awkward loads.	All personnel	5
ınsporting Explosives	II/D 4	Detonation, Vehicle Accident, & Vehicle Fire	1 Vehicle used for transporting explosives will be inspected IAW EODT's (contractor) Vehicle Inspection Form. 2. Vehicles transporting explosives will be placard. 3. Vehicles transporting HE and blasting caps will stored in separated containers and IAW ATF P 5400.7 and IME Publications. 4. Explosives will be secured and braced in a cross-over pattern, side to side, and forward to rear. 5. Do not subject explosives to shock or friction. 6. Do not exceed speed limit or safe driving conditions. 7. At least two fire extinguishers rated at 10 BC. 8. Vehicle operators trained and licensed.	SSO, UXO Tech IIIs, all personnel	5
;h Noise Levels	III/D 5	Loss of hearing.	1. Use hearing protection when exposed to excessive noise levels (greater than 85 dBA over an 8-hour TWA) based on noise monitoring.	SSO, UXO Tech III	5
ıt Stress	III/D 5	Heat Exhaustion/Stroke	1. Wear proper clothing. 2. Take appropriate weather protection measures. 3. Review SSHP on signs, symptoms, and first aid procedures.	SSO & UXO Tech III	5

OE REMOVAL OPERATIONS (DEMOLITION OPERATIONS)

IFY RISK (HAZARD DESCRIPTION)	PRE-RAC (ASSESS RISK)	EFFECT OF THE RISK	IMPLEMENT CONTROLS (RECOMMENDED ACTIONS)	RESPONSIBLE PARTY	POST-RAC RISK ASSESSMENT
ips, & Falls	III/C 4	Minor injuries, broken bones.	1. Clear walkways and work areas of equipment, tools, vegetation, excavated materials, and debris. 2. Mark, identify, or barricade other obstructions and/or fall hazards. 3. Do not carry initiators and explosives together.	SSO	5
g Heavy Objects	III/D 5	Strain lower back, muscle strains, crushed hands and feet.	1. Observe Proper lifting techniques. 2. Obey sensible lifting limits. 3. Use mechanical lifting equipment to move large, awkward loads.	All personnel	5
bjects	III/C 4	Lacerations, loss of finger/limbs.	1. Wear cut resistant work gloves when possibility of lacerations to hands.	SSO, UXO Tech III, all personnel	5
ise Levels	III/D 5	Loss of hearing.	1. Use hearing protection when exposed to excessive noise levels (greater than 85 dBA over an 8-hour TWA) based on noise monitoring.	SSO, UXO Tech III	5
on of Ordnance osives	I/B 1	Detonation, misidentification or premature detonation.	1. Account for all explosives and items to be destroyed. 2. Only necessary personnel will be in the exclusion zone. 3. Only qualified UXO personnel will perform demolitions operations in accordance with WP/SSHP. 4. Post warning signs, establish exclusion zones, and stop all unauthorized personnel from entering the exclusion zone. 5. Do not move fuzed ordnance. 6. Positively identified OE items prior to movement. 7. If item is unknown the item will remain in place until positively identified. 8. BIP is the first option. 9. The blaster shall keep control of the blasting machine. 10. When initiating charges evacuate to the maximum fragment distance and seek cover. 11. When necessary tamp all shots to reduce fragmentation.	SUXOS, SSO, UXO Tech IIIs, and UXO Tech II	5
and placing charges	II/D 4	Accidental Detonation, Seismic Damage, Fragmentation Damage, and Chemical Hazard	1. Obtain approval and coordinate with Range Control. 2. Only qualified UXO personnel will be involved with demolition operations. 3. Minimize personnel exposure. 4. Utilize procedures in WP/SSHP and 29 CFR 1910.109. 5. Observe safe fragmentation and blast distances. 6. Observe EMR hazards. 7. If necessary use tamping material. 8. Wear chemical resistance gloves when handling exposed or bulk explosive. 9. Ensure necessary safety and communications equipment is on hand.	SUXOS, SSO, & UXO Tech III	5

OE REMOVAL OPERATIONS (HEAVY EQUIPMENT OPERATION)

IFY RISK (HAZARD DESCRIPTION)	PRE-RAC (ASSESS RISK)	EFFECT OF THE RISK	IMPLEMENT CONTROLS (RECOMMENDED ACTIONS)	RESPONSIBLE PARTY	POST-RAC RISK ASSESSMENT
ips, & Falls	III/C 4	Minor injuries, broken bones, cuts and scratches.	1. Clear walkways and work areas of equipment, tools, vegetation, excavated materials, and debris. 2. Mark, identify, or barricade other obstructions and/or fall hazards.	SSO	5
g Heavy Objects	III/D 5	Strain lower back, muscle strains, crushed hands and feet.	1. Observe Proper lifting techniques. 2. Obey sensible lifting limits. 3. Use mechanical lifting equipment to move large, awkward loads.	All personnel	5
ng/Backfilling	II/D 4	Struck by/Against Heavy equipment (Lacerations, loss of finger/limbs), Fire Hazard from refueling Equipment, & Unsafe Mechanical Equipment.	1. Wear reflective warning vest. 2. Avoid equipment swing/pinching areas. 3. Make eye contact with operators before approaching equipment. 4. Understand and review hand signals. 5. Use spotter where necessary. 6. Fire extinguisher will be placed near fuel storage/refueling areas. 7. Fuel will be stored at least 50 feet away from the work site. 8. No smoking during refueling. 9. Ground/bond equipment during refueling. 10. All equipment will be inspected, tested, and certified to be in a safe working condition by a competent person prior to use. 11. Only necessary personnel in the exclusion zone.	SSO, UXO Tech IIIs, all UXO qualified equipment operators	5
ess	III/D 5	Heat Exhaustion/Stroke	1. Wear proper clothing. 2. Take appropriate weather protection measures. 3. Review SSHP on signs, symptoms, and first aid procedures.	SSO & UXO Tech III	5
ise Levels	III/D 5	Loss of hearing.	1. Use hearing protection when exposed to excessive noise levels (greater than 85 dBA over an 8-hour TWA) based on noise monitoring.	SSO, UXO Tech III	5

IDENTIFY RISK (HAZARD DESCRIPTION)	PRE-RAC (ASSESS RISK)	EFFECT OF THE RISK	IMPLEMENT CONTROLS (RECOMMENDED ACTIONS)	RESPONSIBLE PARTY	POST-RAC RISK ASSESSMENT
ccavation Soil Operations	II/D 4	Struck by falling objects, getting caught in equipment (Lacerations, loss of finger/limbs), Fire Hazard from refueling Equipment, potential OE, & Unsafe Mechanical Equipment.	1. Wear reflective warning vest. 2. Avoid equipment moving parts/pinching areas. 3. Make eye contact with operators before approaching equipment. 4. Understand and review hand signals. 5. Use safety spotter where necessary. 6. Fire extinguisher will be placed near fuel storage/refueling areas. 7. Fuel will be stored at least 50 feet away from the work site. 8. No smoking during refueling. 9. Ground/bond equipment during refueling. 10. All equipment will be inspected, tested, and certified to be in a safe working condition by a competent person prior to use. 11.Only necessary personnel in the exclusion zone.	SSO, UXO Tech III, UXO qualified equipment operators	5

OE REMOVAL OPERATIONS (HEAVY EQUIPMENT OPERATION) CONT.

IFY RISK (HAZARD DESCRIPTION)	PRE-RAC (ASSESS RISK)	EFFECT OF THE RISK	IMPLEMENT CONTROLS (RECOMMENDED ACTIONS)	RESPONSIBLE PARTY	POST-RAC RISK ASSESSMENT
l OE	I/D 3	Detonation or misidentification.	1. Mark and report all UXO located. 2. Only personnel necessary to the excavating activity will be in the exclusion zone. 3. A UXO Supervisor will supervise non-UXO qualified personnel excavating OE in accordance with WP/SSHP. 4. Only hand excavation will be permitted within the last 12" of the OE anomaly. 5. Post warning signs, establish exclusion zones, and stop all unauthorized personnel from entering the exclusion zone. 6. Do not move fuzed ordnance. 7. Positively identified OE items prior to movement. 8. If item is unknown the item will remain in place until positively identified. 9. Do not use earth moving machinery within 12" of a subsurface OE item. 10. Excavation and trenching will comply with WP/SSHP and 29 CFR 1926.. 9. Only qualified /licensed personnel will operate heavy equipment.	SUXOS, SSO, UXO Tech IIIs, and UXO Tech IIs	5

OE REMOVAL OPERATIONS (SURFACE CLEARANCE OPERATION)

IDENTIFY RISK (HAZARD DESCRIPTION)	PRE-RAC (ASSESS RISK)	EFFECT OF THE RISK	IMPLEMENT CONTROLS (RECOMMENDED ACTIONS)	RESPONSIBLE PARTY	POST-RAC RISK ASSESSMENT
lips, Trips, & Falls	III/C 4	Minor injuries, broken bones, cuts and scratches.	1. Clear walkways and work areas of equipment, tools, vegetation, excavated materials, and debris. 2. Mark, identify, or barricade other obstructions and/or fall hazards.	SSO	5
landling Heavy Objects	III/D 5	Strain lower back, muscle strains, crushed hands and feet.	1. Observe Proper lifting techniques. 2. Obey sensible lifting limits. 3. Use mechanical lifting equipment to move large, awkward loads.	All personnel	5
harp Objects	III/C 4	Lacerations, loss of finger/limbs.	1. Wear cut resistant work gloves when possibility of lacerations to hands.	SSO, UXO Tech IIIs, all personnel	5
igh Noise Levels	III/D 5	Loss of hearing.	1. Use hearing protection when exposed to excessive noise levels (greater than 85 dBA over an 8-hour TWA) based on noise monitoring.	SSO, UXO Tech III	5
otential OE	I/B 1	Detonation	1. Mark and report all UXO located. 2. Mag area prior to driving stakes into the ground. 3. Follow WP/SSHP and other safety standards. 4. Do not move ICM. 5. Review all known ordnance data especially M39 and BLU-26/B data. **See Appendix D** 6. Teams separated by a minimum of 200 feet when performing UXO operations. 7. Use magnetometers when ground surface is obstructed. 8. Only necessary personnel will be in the exclusion zone. 9. Only qualified UXO personnel conduct surface sweep operations in the ICM area.	SUXOS, SSO, UXO Tech IIIs, and UXO Tech II	I/D 3
eat Stress	III/D 5	Heat Exhaustion/Stroke	1. Wear proper clothing. 2. Take appropriate weather protection measures. 3. Review SSHP on signs, symptoms, and first aid procedures.	SSO & UXO Tech III	5
agnetometer Operations	III/D 5	Repetitive motion	1. Use wrist supports while using the magnetometers.	SSO & UXO Tech III	5

APPENDIX C

Fragment Distance Calculations

JOLIET ARMY AMMUNITION PLANT
WILMINGTON, ILLINOIS

Public Withdrawal Distance (PWD)
Joliet AAP
17 August 1999

MUNITION: M39 submunition
REQUESTED BY: Patti Berry
PREPARED BY: Michelle Crull, PhD, PE

This form shows calculated distances only. It does not constitute approval. Concurrence of CEHNC-OE-S is required to determine the applicable distance for a specific site.

In accordance with (IAW) OE Center of Expertise Interim Guidance Document 98-08, use of the range to no more than 1 hazardous fragment/600 sq ft as the PWD for accidental detonations requires written justification, a risk analysis, calculation of this distance by CEHNC-ED-CS-S, and concurrence of CEHNC-OE-S.

ACCIDENTAL DETONATIONS

Maximum Fragment Range = 364 ft
Range to No More Than 1 Hazardous Fragment/600 sq ft = N/A ft
Range to 0.9 psi Overpressure = 20 ft

IAW OE Center of Expertise Interim Guidance Document 98-08, the PWD for intentional detonations may not be less than the default distance provided in DoD 6055.9-STD or the maximum fragment range or the K328 overpressure distance.

INTENTIONAL DETONATIONS

Maximum Fragment Range = 364 ft
K328 Overpressure Range = 130 ft

The primary fragmentation characteristics used in the calculation of the values listed above were computed IAW CEHNC-ED-CS-S-98-1. The maximum fragment range was calculated using the maximum weight fragment and the initial velocity from these characteristics in the computer software TRAJ. The range to no more than 1 hazardous fragment/600 sq ft was calculated IAW CEHNC-ED-CS-S-98-2.

TEAM SEPARATION DISTANCE

In accordance with the memorandum for US Army South dated 4 May 1999 from DACS-SF, the minimum team separation distance will be the largest of the following:

Public Withdrawal Distance (PWD)
Joliet AAP
17 August 1999

- 200 ft
- the K50 distance plus a 50% safety factor = 28 ft
- the maximum fragment throw distance with the potential for skin penetration plus a 50% safety factor = 146 ft

Therefore, the **team separation distance is 200 ft.**

SIGNATURES:

Michelle Crull 8/17/99
Subject Matter Expert

William H. Zehrt Jr. 17 AUG 99
CEHNC-ED-CS-S Branch Chief

Public Withdrawal Distance (PWD)
Joliet AAP
17 August 1999

MUNITION: BLU 26b
REQUESTED BY: Patti Berry
PREPARED BY: Michelle Crull, PhD, PE

This form shows calculated distances only. It does not constitute approval. Concurrence of CEHNC-OE-S is required to determine the applicable distance for a specific site.

In lieu of munition specific calculations, default values in accordance with DoD 6055.9-STD, Chapter 5, paragraph E.4 will be used for PWD and PSD.

Default PWD = 2500 ft
Default PSD = 2500 ft

TEAM SEPARATION DISTANCE (TSD)

K 50 = 31 ft (85 grams of cyclotol)
Default team separation distance = 200 ft

TSD = 200 ft

SIGNATURES:

Michelle Crull 8/24/99
Subject Matter Expert

William H. Zehnder Jr. 24 Aug 99
CEHNC-ED-CS-S Branch Chief

Public Withdrawal Distance (PWD)
Joliet AAP
24 August 1999

MUNITION: 40 mm M433 HEDP
REQUESTED BY: Patti Berry
PREPARED BY: Michelle Crull, PhD, PE

This form shows calculated distances only. It does not constitute approval. Concurrence of CEHNC-OE-S is required to determine the applicable distance for a specific site.

In accordance with (IAW) OE Center of Expertise Interim Guidance Document 98-08, use of the range to no more than 1 hazardous fragment/600 sq ft as the PWD for accidental detonations requires written justification, a risk analysis, calculation of this distance by CEHNC-ED-CS-S, and concurrence of CEHNC-OE-S.

ACCIDENTAL DETONATIONS

Maximum Fragment Range = 305 ft
Range to No More Than 1 Hazardous Fragment/600 sq ft = N/A ft
Range to 0.9 psi Overpressure = 25 ft

IAW OE Center of Expertise Interim Guidance Document 98-08, the PWD for intentional detonations may not be less than the default distance provided in DoD 6055.9-STD or the maximum fragment range or the K328 overpressure distance.

INTENTIONAL DETONATIONS

Maximum Fragment Range = 305 ft
K328 Overpressure Range = 167 ft

The primary fragmentation characteristics used in the calculation of the values listed above were computed IAW CEHNC-ED-CS-S-98-1. The maximum fragment range was calculated using the maximum weight fragment and the initial velocity from these characteristics in the computer software TRAJ. The range to no more than 1 hazardous fragment/600 sq ft was calculated IAW CEHNC-ED-CS-S-98-2.

SIGNATURES:

Michelle Crull 8/24/99
Subject Matter Expert

William H. Zehrt Jr. 24 AUG 99
CEHNC-ED-CS-S Branch Chief

APPENDIX D

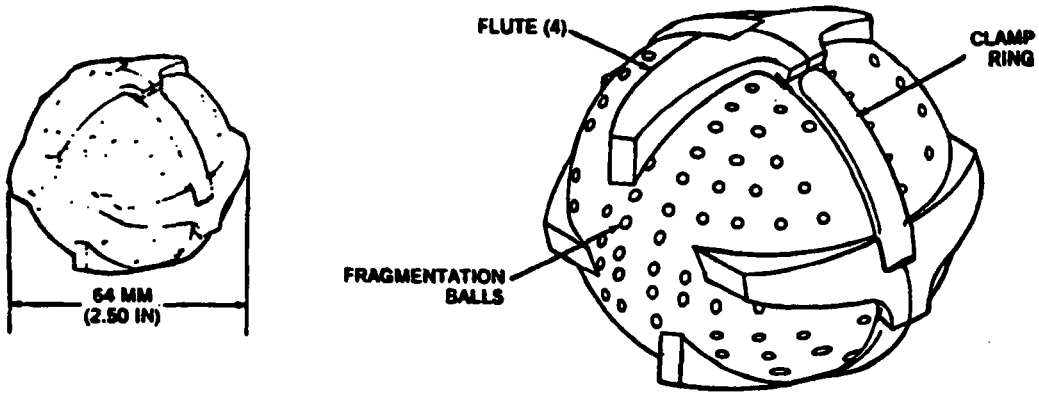
Submunition Data

JOLIET ARMY AMMUNITION PLANT
WILMINGTON, ILLINOIS

Assume all BLU-26/B and M39 are live.

Do not handle or otherwise disturb any BLU-26/B or M39.

Blow-in-place all BLU-26/B and M39.



BLU-26/B, BLU-26 (T-1)/B, BLU-36/B, BLU-36 (T-1)/B AND BLU-59/B BOMBS

Table 1. (U) Fuze/Bomb Combinations.

	Fuze			
Bomb	M219	M219E1	M218	M224
BLU-26/B	x	x		
BLU-26(T-1)/B	x			
BLU-36/B			x	
BLU-36(T-1)/B			x	
BLU-59/B				x
BLU-63/B		x		
BLU-63(T-1)/B		x		
BLU-63A/B		x		
BLU-86/B				x
BLU-86(T-1)/B				x
BLU-86A/B				x

has two slots cut into the lower portion. A safety strap, which also has a slot in each end, fits around the bomb body and under the fuze assembly lever. Two projections on the wind tab fit through the slots of the fuze assembly lever and into each of the slots of the safety strap. The wind tab and safety strap hold the fuze assembly lever in place when the safety pin is removed prior to insertion of the bomb into the dispenser.

13–1.2 HAZARDOUS COMPONENTS.

Filler	Approx 2 pound white phosphorous
Detonator assembly	28 grains RDX and lead azide
Delay charge	20 grains
Primer M42	0.35 grain

13–1.3 FUNCTIONING. The bombs are loaded into the dispenser bomb base first. As the bombs leave the dispenser tube, air flow forces the wind tab up, disengaging it from the fuze assembly lever and safety strap. As the wind tab and safety strap are released, spring tension of the fuze assembly striker forces the fuze assembly lever up and off the fuze assembly. Removal of the lever allows the striker to impinge on the percussion primer and the pyrotechnic delay is started. After a 4–5 second delay, the detonator fires and dispenses the WP filler.

13–1.4 SAFETY PRECAUTIONS. General safety precautions regarding the approach, attack, and disposal of WP filled bursting munitions must be observed.

13–2 HIGH-EXPLOSIVE BOMB BLU-26/B WITH FUZE M219 OR M219E1, HIGH-EXPLOSIVE BOMB BLU-36/B WITH FUZE M218, AND HIGH-EXPLOSIVE BOMB BLU-59/B WITH FUZE XM224

Bomb BLU-26/B with fuze M219 or M219E1, bomb Blu-36/B with fuze M218, and bomb BLU-59/B with fuze XM224 are covered in this paragraph.

13–2.1 IDENTIFICATION.

13–2.1.1 TYPE.

The bombs BLU-26/B, BLU-36/B, and BLU-59/B (figure 13–4) are small, spherical shaped, high-explosive, internally fuzed, fragmentation-type submunitions that are dispensed from the bomb dispensers shown in table 13–1.

a. The BLU-26/B is fuzed with the centrifugally armed, impact fired fuze M219 or M219E1.

b. The BLU-36/B is fuzed with the centrifugally armed, random built-in delay fuze M218.

c. The BLU-59/B is fuzed with the centrifugally armed, random built-in delay fuze XM224.

13–2.1.2 PAINTING AND MARKING.

The bomb bodies are painted olive drab, and are unmarked.

13–2.1.3 FITTINGS AND FEATURES.

a. Externally the bombs are identical. Inter-

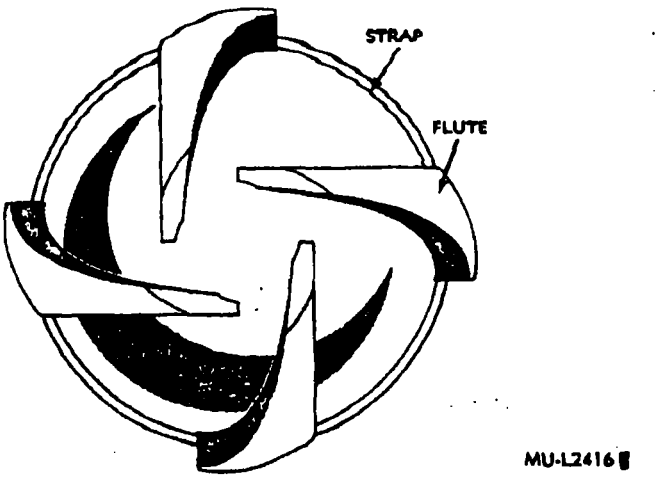


Figure 13–4 Bomb BLU–26/B, BLU–36/B, or BLU–59/B—External View

Table 13-1. Dispensing Systems for Bombs BLU-26/B, BLU-36/B, and BLU-59/B

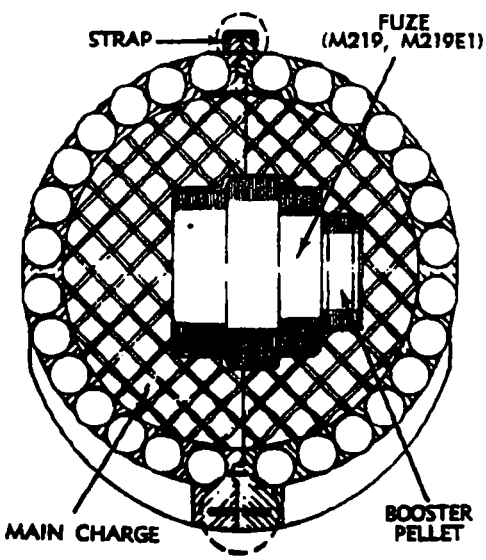
System	Dispenser designation	Payload	
		Designation	Quantity
CBU-24/B	SUU-30/B	BLU-26/B	670
CBU-24/B (Mod)	SUU-30/B (Mod)	BLU-26/B	670
CBU-24A/B	SUU-30A/B	BLU-26/B	670
CBU-24B/B	SUU-30B/B	BLU-26/B	670
CBU-24C/B	SUU-30C/B	BLU-26/B	640
CBU-49/B (Mod)	SUU-30/B (Mod)	BLU-59/B	670
CBU-49A/B	SUU-30A/B	BLU-59/B	670
CBU-49B/B	SUU-30B/B	BLU-59/B	670
CBU-49C/B	SUU-30C/B	BLU-59/B	640
CBU-29/B (Mod)	SUU-30/B (Mod)	BLU-36/B	670
CBU-29A/B	SUU-30A/B	BLU-36/B	670
CBU-29B/B	SUU-30B/B	BLU-36/B	670
CBU-29C/B	SUU-30C/B	BLU-36/B	640
ADU-272A/B		BLU-26/B	177*
ADU-272B/B		BLU-26/B	177*
ADU-285A/B		BLU-36/B	177*
ADU-285B/B		BLU-36/B	177*

* Each bomb cluster.

nally they differ in their fuzing. Each bomb (figures 13-5 and 13-6) is a fluted sphere, 2¾ inches at the flute, and 0.92 pound in weight. A clamp ring encircles the sphere and holds the two hemispheres together.

b. The bomb fuzes are mounted internally and are contained in a stepped cylindrical case. Externally the fuzes are similar in appearance. The fuze M219 has a dimple in the center of the case; the fuze M219E1 has a pimple in the center of the case; and the M218 and XM224 fuze cases are smooth. The configuration and general arrangement of fuzes M219 and M219E1 are shown in figures 13-6.1 and 13-6.2. A general arrangement and cross-section of fuzes M218 and XM224 are shown in figures 13-6.3 and 13-6.4.

c. No external features are provided to indicate if the bombs are armed or unarmed when found outside of their dispenser.



MU-L2418-A

Figure 13-5 Bomb BLU-26/B—Cross Section

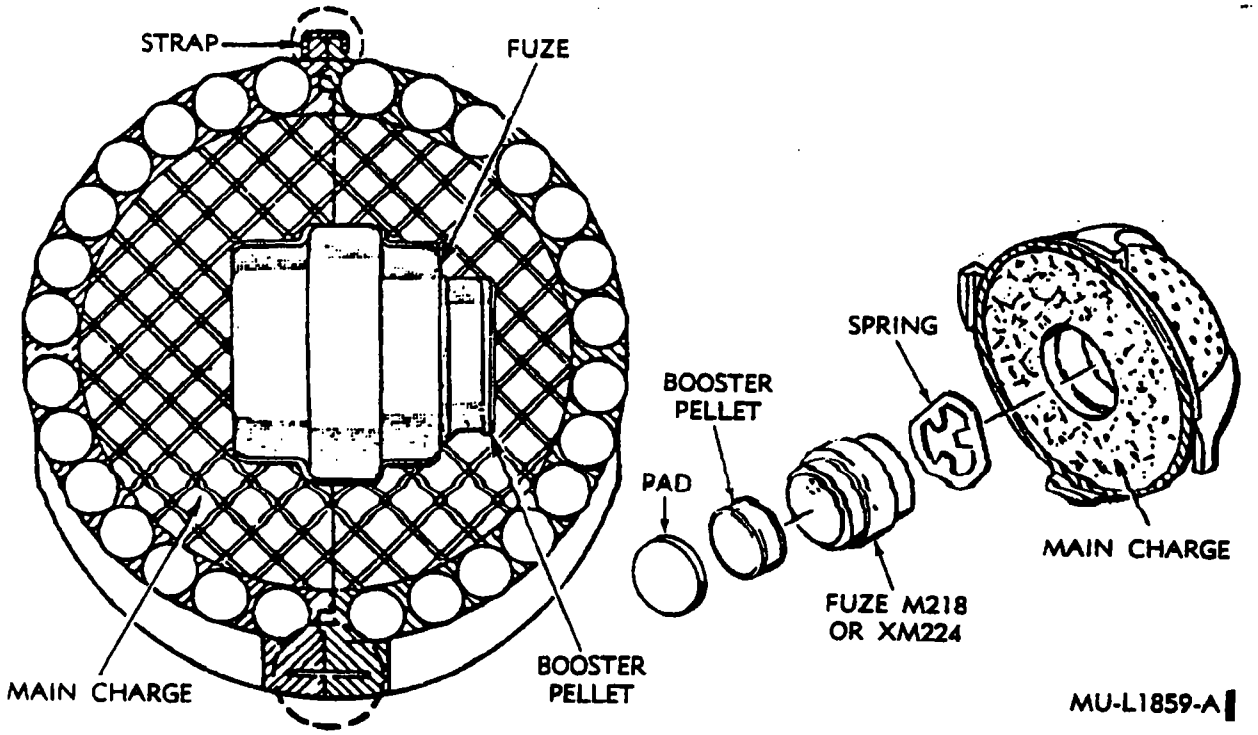


Figure 13-6 Bomb BLU-36/B or BLU-59/B—Cross Section

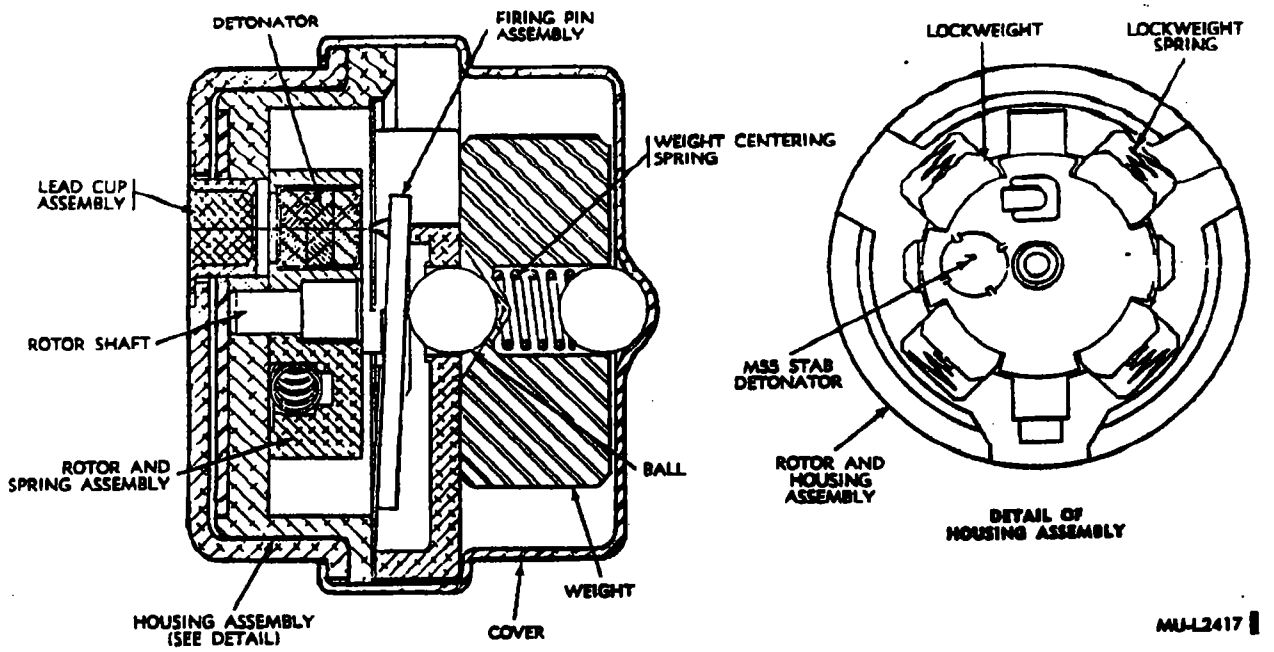


Figure 13-6.1 Fuze M219E1—Cross Section

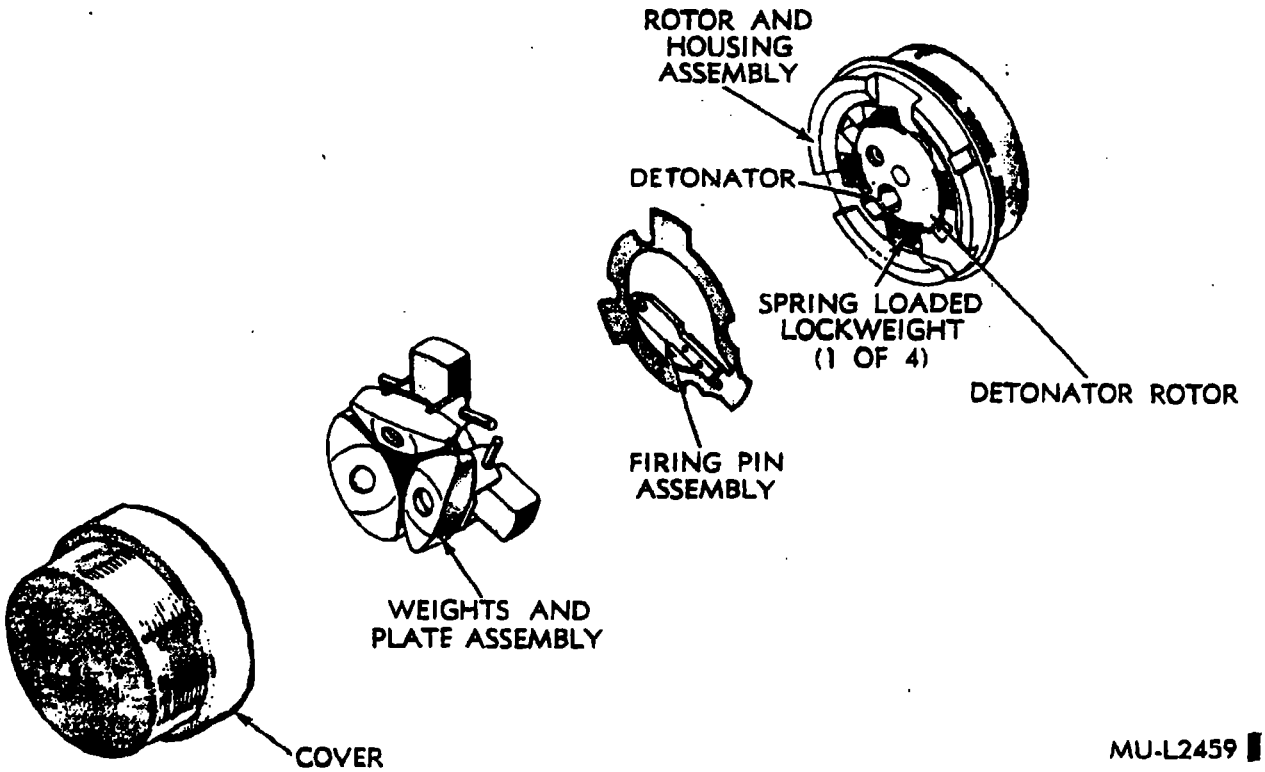


Figure 13-6.2 Fuze M219—Exploded View

d. Fuze safety in the bombs BLU-26/B, BLU-36/B, and BLU-59/B is accomplished by an out-of-line detonator rotor which is held by four spring-loaded lockweights.

13-2.1.4 WEIGHTS. The bombs weigh approximately 1 pound.

13-2.1.5 MATERIALS.

a. The bomb body is made of die-cast aluminum. Steel balls, embedded in the body, provide fragmentation.

b. The stepped cylindrical fuze housing is made of steel and aluminum.

13-2.2 HAZARDOUS COMPONENTS.

The bombs BLU-26/B, BLU-36/B, and BLU-59/B contain approximately 0.186 pound of explosives. Each consists of approximately 81 grams of cyclotol or composition B (main hemispherical charge) and a booster containing approximately 1.4 grams of RDX or PBX.

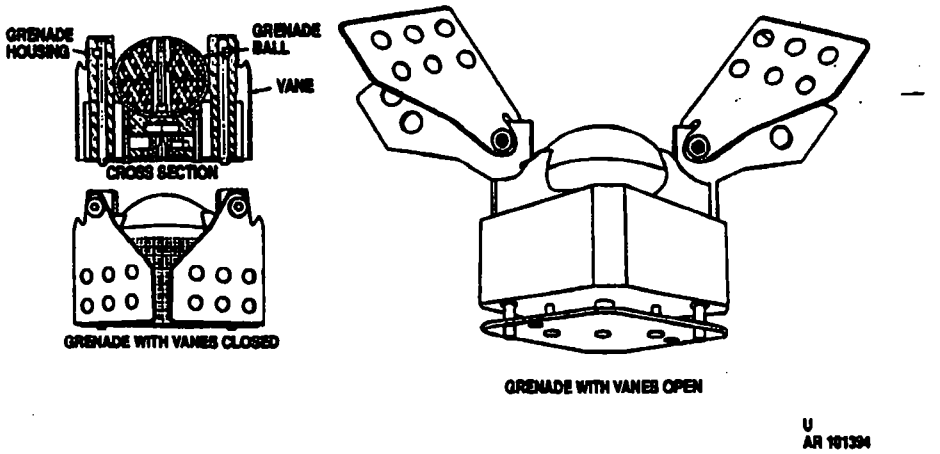
13-2.3 FUNCTIONING.

a. Bomb BLU-26/B.

(1) Fuze M219.

(a) Prior to arming, the detonator rotor is held in the out-of-line position by four spring-loaded lockweights which fit into slots of the detonator rotor. In addition, the firing pin extends into the lock safe hole of the detonator rotor and is held in that position by three hammerweights which force the firing hammer against the leaf spring of the firing pin.

GRENADE: GENERAL PURPOSE, M39



Type Classification:

Use:

To provide improved antipersonnel capability when loaded in 105mm cartridge M444.

Description:

The grenade M39 is an airburst munition which is expelled from the projectile body in flight. Upon surface impact, the explosive components are ejected upward for airburst. The grenade consists of a housing assembly, two vanes which extend in flight, pivoted on two D-shaped sear pins, a striker plate with firing pin, two striker plate guide rods which interlock the sear pins, ejection charge, delay detonator, and a two-piece steel ball filled with Composition A5. There are 18 grenades in the M444 cartridge.

Classification:

Standard A.

Tabulated Data:

Explosive	23.55 g Comp A5

Functioning:

When each grenade M39 is expelled from the projectile body, the vanes open and orient the grenade by interaction of the air stream.

The D-shaped sear pins rotate with the vanes, and free the striker plate guide rods which allow the spring to extend the striker plate.

This action withdraws the firing pin from the rotor and a spring forces the rotor into a position where the primer is aligned with the ejection charge and the delay detonator. The grenade is now armed.

The vanes are held open by the air stream and striker plate guide rods.

When the grenade impacts, the firing pin is driven into the primer which initiates the ejection charge.

The ejection charge initiates the delay detonator and propels the steel ball upward.

The delay detonator is assembled with a delay element designed to detonate the steel ball approximately 4 to 6 feet above impact surface.

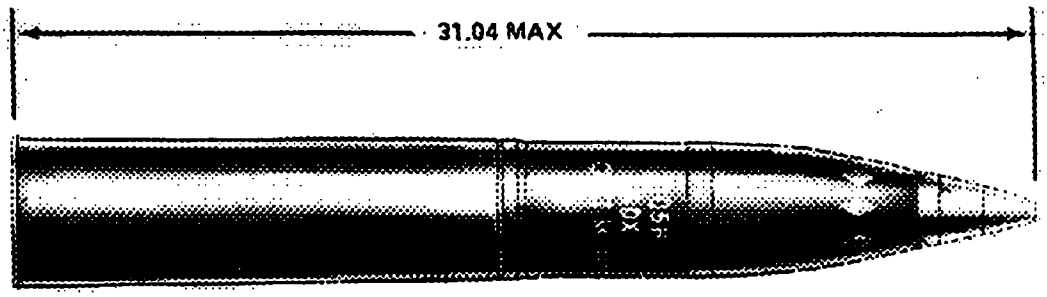
Drawing:

F8864945

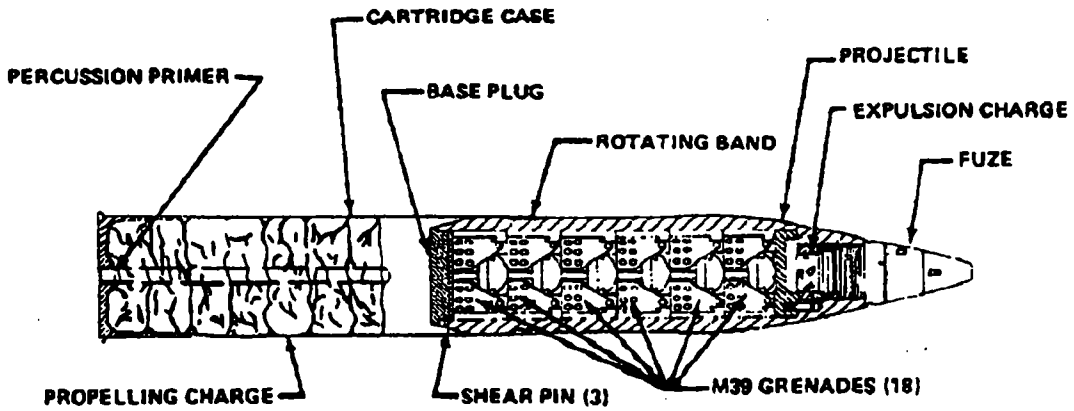
Reference:

TM 9-1300-251-20

CARTRIDGE, 105-MILLIMETER: HE, M444



AR199432



AR199431

Type Classification:

Std OTCM 37803 dtd 1961.

Use:

This cartridge is used to deliver a concentration of antipersonnel grenades.

Description:

The complete round consists of a projectile, a modified fuze, MTSQ, M548 or MT, M565, and a cartridge case. The projectile contains six layers of grenades with three grenades in each layer. The grenades are contained by a base plug attached to the projectile with three shear pins. A modified mechanical time and superquick or mechanical time fuze is installed in the nose of the projectile, and may be set to function at any time between 2 and 100 seconds. The modified fuzes incorporate an expulsion charge and are not interchangeable with unmodified fuzes of the same model. The cartridge case contains a percussion primer and a propelling charge divided in increments to permit adjustment for the desired firing charge. The lip of the cartridge case is a free fit over the base of the projectile.

Functioning:

When the primer is detonated by the firing pin of the weapon, the flash from the primer ignites the propelling charge, producing gases which propel the projectile from the barrel of the weapon. The rifling in the barrel imparts spin to the projectile, stabilizing it in flight. The fuze, having been set to function at a predetermined time in flight, initiates the expulsion charge, ejecting the entire grenade load from the rear of the projectile. Centrifugal force disperses the grenades radially from the projectile line-of-flight. The M39 grenade is an airburst submissile which is expelled from its housing on impact and projected upward to burst at 4 to 6 feet above the ground.

Tabulated Data:

Complete round:
- Type ---------- HE
- Weight ---------- 42.0 lb
- Length ---------- 31.04 in.
- Cannon used with ---------- M2A1, M2A2, M49, M103, M137, and M137E1

Projectile:
- Body material ---------- Forged steel
- Color ---------- Olive drab w/yellow diamonds and markings

Filler and weight:
- Number of grenades, M39 -- 18
- Explosive, Comp A5, each grenade ---------- 23.55 grams
- Explosive, Comp. A5, each projectile ---------- 0.93 lb
- Fuze ---------- MT, M565 (modified) or MTSQ, M548 (modified)

Cartridge Case:

Model	Mat'l	Wt (lb) (approx)
M14	Brass	5.9
M14B1	Steel, Drawn	5.4
M14B3	Steel, 5 pc spiral wrap	4.7
M14B4	Steel, 3 pc spiral wrap	4.7

Propelling charge:
- Model ---------- M67

Components:

Increment No.	Prop Comp & Type	Web Size in. approx	Wt Oz approx	Perf.
1	M1, Type II	0.014	8.6	Single
2	M1, Type II	0.014	1.4	Single
3	M1, Type I	0.026	2.5	Multi
4	M1, Type I	0.026	3.8	Multi
5	M1, Type I	0.026	5.8	Multi
6	M1, Type I	0.026	8.8	Multi
7	M1, Type I	0.026	14.3	Multi

Weight, Total Increments 1-7 ---------- 2.83 lb

Percussion primer assembly:

	M28A2	M28B2
Primer	M61	M61
Black powder	Cl 1, Spec MIL-P-223	Cl 1, Spec MIL-P-223
Weight (lb)	(Note B)	(Note B)
(primer)	0.00014	0.00014
(BP)	0.043	0.043
Body	Brass, Type 1	Steel, Type 2

Performance:

Using M52, M52A1 and M101/M101A1 howitzers:

Charge	Muzzle Velocity (fps)	(mps)	Maximum Range (m)	(yd)
1	650	198.1	3510	3840
2	710	216.4	4110	4495
3	780	237.7	4860	5315
4	875	266.7	5950	6505
5	1020	310.9	7650	8370
6	1235	376.4	9380	10,260
7	1550	472.4	11,270	12,330

- Maximum range ---------- 11,270 m, 12,330 yd
- Muzzle velocity ---------- 472.4 m, 1550 fps

Using M102 and M108 howitzers:

Charge	Muzzle Velocity (fps)	(mps)	Maximum Range (m)	(yd)
1	673	205	3700	4040
2	732	223	4300	4700
3	810	247	5200	5690
4	912	278	6300	6890
5	1066	325	8100	8500
6	1289	393	9600	10,500
7	1621	494	11,500	12,590

- Maximum range ---------- 11,500 m, 12,590 yd
- Muzzle velocity ---------- 494 m, 1621 fps

Temperature Limits:

Firing:
- Lower limit ---------- -40°F (-40°C)
- Upper limit ---------- +125°F (+52°C)

Storage:
- Lower limit ---------- -65°F (-53.8°C)
- Upper limit ---------- +165°F (73.9°C)

*Packing ---------- 1 round in fiber container; 2 containers in wooden box

APPENDIX E

ICM DIG PROCEDURES

JOLIET ARMY AMMUNIITON PLANT
WILMINGTON, ILLINOIS

Dig Procedures for Anomaly Excavation in ICM areas

Reference. US Army Engineering and Support Center, Huntsville Basic Safety Concepts and Considerations for Ordnance and Explosives Operations, 22 May 2000

Reference Can be viewed at the following address:
http://www.hnd.usace.army.mil/oew/policy/IntGuidRegs/igd00-03.pdf

Paragraph 6-1.a. of the reference states "The usual method for uncovering buried UXO is to excavate by hand. Hand excavation is the most reliable method for uncovering UXO, but unless the UXO is very near the surface, hand excavation exposes more people to the hazard of detonation for a longer period of time than any other method. Hand excavation will be accomplished only by UXO qualified personnel."

Paragraph 6-1.b. of the reference states "Earth moving machinery (EMM) may be used to excavate buried UXO, if the UXO is estimated to be deeper than 12 inches. EMM shall not be used to excavate within 12 inches of an UXO. When excavation gets within approximately 12 inches of an UXO, hand excavation shall be used to uncover the UXO."

Background. By their nature, UXO operations/anomaly excavation are hazardous, and certain calculated risks must be taken; ingenuity, judgement, common sense, and above all the mastery of explosive ordnance disposal (EOD) techniques and observance of EOD principles will determine success or failure. Our UXO technicians must be alert at all times and be in observance of EOD safety precautions. EOD/UXO personnel are the most experienced and best qualified to perform these operations.

Specific Procedures for Anomaly Excavation.

a. Do not dig directly on top of the anomaly. Start all excavations from the side of the anomaly. Carefully dig from the side until identification is made.
b. Clear debris/dirt from subsurface anomaly only enough to permit identification of the anomaly and to apply the necessary UXO procedure.
c. All submunitions will be blown in place.
d. Move with slow deliberate motions; avoid abrupt moves.
e. Permit no metal to metal contact with UXO.
f. Avoid impacting, jarring, or striking UXO.
g. Do not subject UXO to shock, rough handling, heat, or any other force.
h. Observe electromagnetic radiation (EMR) precautions.
i. Use plastic or wooden hand tools when digging within 3 inches of the anomaly.

HQDA LTR 385-00-1

DACS-SF (5 May 2000)

Expires 4 May 2002

SUBJECT: Improved Conventional Munitions and Submunitions

SEE DISTRIBUTION

1. Purpose. This letter --

a. Restricts the use of improved conventional munitions (ICMs) and submunitions.

b. Restricts the maintenance, characterization, and clearance of ranges and other areas that contain, or are suspected to contain, ICMs and submunitions.

c. Provides minimum requirements for the control of hazards associated with the maintenance, characterization, and clearance of ranges and other areas that contain, or are suspected to contain, ICMs and submunitions.

This letter does not address non-ICM/submunition unexploded ordnance, which is addressed in reference "b."

2. Applicability. This letter applies to Active Army, Army National Guard, U.S. Army Reserve, Army civilian, Army contractors, and other Services using ranges controlled by the U.S. Army, in CONUS and OCONUS.

3. Proponent. The proponent of this letter is the Chief of Staff, Army. The Chief of Staff, Army has the authority to approve exceptions to this letter that are consistent with

controlling law and regulation. The Chief of Staff, Army may delegate the approval authority, in writing, to the Director of Army Safety.

4. References.

a. HQDA (DAMO-TRO) message 151835Z APR 96, subject: Ammunition Prohibited from Use during Training.

b. HQDA Numbered Letter 385-98-1, subject: Explosives Safety Policy for Real Property Containing Conventional Ordnance and Explosives.

c. AR 75-15, Responsibilities and Procedures for Explosive Ordnance.

d. AR 210-21, Army Ranges and Training Land Program.

e. AR 385-10, Army Safety Program.

f. AR 385-40, Accident Reporting and Records.

g. AR 385-63, Policy and Procedures for Firing Ammunition for Training, Target Practice, and Combat.

h. AR 385-64, U.S. Army Explosives Safety Program.

i. DA Pam 385-64, Ammunition and Explosives Safety Standards.

j. FM 21-16, Unexploded Ordnance (UXO) Procedures.

k. DoD 6055.9-STD, DOD Ammunition and Explosives Safety Standards.

l. DOD Policy to Implement EPA's Military Munitions Rule, 1 Jul 98.

5. Explanation of abbreviations and terms.

a. Characterization - the process of scanning (visually and through the use of electromagnetic detection devices) the surface or subsurface of an area to determine locations, types, depths, extent, and density of ICMs and submunitions.

b. Clearance - the identification, removal, and disposal of ordnance and explosives.

c. Improved conventional munitions - munitions characterized by the delivery of two or more antipersonnel, antimateriel, or antiarmor submunitions by a parent munition.

d. Range maintenance - maneuver damage repair, repair of environmental damage to ranges and training facilities, and training area reconfiguration.

e. Submunition - any munition that, to perform its task, separates from a parent munition.

f. Surface danger zone (SDZ) - the ground and airspace designated within the training complex (to include associated safety areas) for vertical and lateral containment of projectiles, fragments, debris, and components resulting from the firing, launching, or detonation of weapon systems to include explosives and demolitions.

6. Responsibilities.

a. The Assistant Secretary of the Army (Installation and Environment) (ASA(I&E)) is responsible for establishing overall Army environment, safety, and occupational health policy. The ASA(I&E) will exercise oversight of all aspects of environment, safety, and occupational health statutory compliance. These responsibilities are carried out through the Deputy Assistant Secretary of the Army (Environment, Safety and Occupational Health).

b. The Director of Army Safety (DASAF), Office of the Chief of Staff, U.S. Army, administers and directs the Army safety program as specified in AR 385-10. The DASAF is responsible for --

(1) Establishing risk assessment criteria for ICM and submunition clearance activities.

(2) Establishing, with the Director of Training (DAMO-TR), Office of the Deputy Chief of Staff for Operations and Plans (ODCSOPS), policy on the restriction of ICMs and submunitions.

(3) Coordinating with appropriate Army Staff elements and Major Commands (MACOMs) and reviewing requests for waivers to the Army prohibition on maintenance, characterization, or clearance of ranges or other areas containing ICMs and submunitions.

(4) Providing joint, with the ODCSOPS (DAMO-TR), approval of waivers to the Army prohibition on maintenance, characterization, or clearance of ranges or other areas containing ICMs or submunitions.

c. The Deputy Chief for Operations and Plans (DCSOPS) is responsible for --

(1) Developing policy for training ranges and other training facilities required to support training (AR 210-21).

(2) Reviewing requests for waivers to the Army prohibition on maintenance, characterization, or clearance of ranges or other areas containing ICMs or submunitions and providing joint (with the DASAF) approval for waivers to the Army prohibition.

d. The Judge Advocate General (TJAG) is responsible for providing advice on statutory and regulatory requirements affecting ordnance and explosives clearance activities.

e. The Deputy Chief of Staff for Logistics (DCSLOG) is responsible for --

(1) Developing policy and guidance for the Army explosive ordnance disposal (EOD) program.

(2) Reviewing, and providing a position on, requests for waivers to the Army prohibition on maintenance, characterization, or clearance of ranges or other areas containing ICMs or submunitions.

f. The Assistant Chief of Staff for Installation Management (ACSIM) is responsible for providing guidance on the application of environmental policy for ordnance and explosives clearance plans and procedures.

g. The U.S. Army Technical Center for Explosives Safety (USATCES) is responsible for --

(1) Supporting ODASAF in evaluating requests for waivers to the Army prohibition on maintenance, characterization, or clearance of ranges or other areas containing ICMs or submunitions.

(2) Providing guidance on historical records searches to determine past usage of ICMs or submunitions.

(3) Maintaining an inventory of Army property and Formerly Used Defense sites (FUDS) containing ICMs and submunitions.

h. Commanders with responsibility over ranges or other areas known or suspected of containing ICMs or submunitions will --

(1) Ensure ODCSOPS (DAMO-TR), ODASAF, ODCSLOG (DALO-AMA) and USATCES are informed of any ranges or other areas known or suspected of containing ICMs or submunitions.

(2) Ensure ranges or other areas known or suspected of containing ICMs or submunitions are clearly marked and access to these areas is restricted and controlled.

(3) Prohibit all activities on ranges or other areas known or suspected of containing ICMs or submunitions until a waiver, approved by the DASAF and the DCSOPS (DAMO-TR), is obtained.

(4) Follow the procedures contained in this document for requesting waivers to the prohibition on maintenance, characterization, or clearance of ranges or other areas known or suspected of containing ICMs or submunitions.

7. Policy.

a. The firing, dropping, or disposing of ICMs or submunitions for training and demonstration by Army units or other Services, to include foreign national units, on Army ranges or other areas controlled by the Army is prohibited. This prohibition does not include ICM or submunition proof testing or testing, for intelligence purposes, of foreign munitions that contain submunitions. However, when such tests are performed, the use of submunitions will be both limited to the minimum number required and restricted to specifically designated target or impact areas.

b. The designation of areas for ICM or submunition proof testing or testing, for intelligence purposes, of foreign munitions that contain submunitions requires the approval of the MACOM Commanding General.

(1) The MACOM shall notify the ODASAF, USATCES, ODCSLOG (DAMO-AMA), and OACSIM of all areas so designated.

(2) Areas so designated shall be limited to ICM or submunition proof testing or testing, for intelligence purposes, of foreign munitions that contain submunitions; all other uses will be prohibited.

(3) A complete inventory of all ammunition and explosives tested in such areas shall be maintained. The inventory will include the type, full nomenclature, and number, of ICMs or submunitions tested; the date of the test; and the agency conducting the test.

(4) Installations with ICM or submunition test ranges shall develop procedures to ensure that entry into test areas in which ICMs or submunitions have been fired is restricted and access is strictly controlled and to ensure the clearance of the area following testing.

c. Ranges or other areas known or suspected of containing ICMs or submunitions will be clearly marked to identify the hazard and access shall be restricted. If the area known or suspected of containing ICMs or submunitions is a subset of a larger area known not to contain ICMs or submunitions, access to the larger (non-ICM/submunition) area may be granted by the installation Commander under the following conditions (these are in addition to other range entry or UXO safety requirements):

(1) there is a compelling need for personnel to enter the larger area;
(2) there are no activities taking place in the restricted (ICM/submunition) area;
(3) the area known or suspected of containing ICMs or submunitions is clearly marked, access to this area is restricted, and all personnel authorized to enter the non-ICM/submunition area are provided an explosives safety briefing that identifies the types of ICMs and submunitions that could be encountered and action that should be taken if they discover ICMs or submunitions; and
(4) entry into the larger area is coordinated with range and safety personnel.

d. Before access is granted to range impact areas, the installation range operations office will determine, to the extent possible based on range records and procedures, whether the range contains or is suspected of containing, ICMs or submunitions. Access to areas containing or suspected of containing ICMs or submunitions is prohibited unless permitted under a waiver approved in accordance with paragraph 8. In addition, Range Operations, in coordination with installation safety and EOD representatives, will determine, and monitor implementation of, safety controls required for personnel access. Personnel permitted to enter any area containing or suspected of containing ICMs or submunitions will be fully apprised of the potential dangers and the safeguards to be exercised. When necessary, personnel will have the appropriate escorted.

e. Ranges or other areas that contain, or are suspected to contain, ICMs or submunitions will not be entered by anyone (including Government military or civilian personnel, military EOD personnel, or contractor personnel for range maintenance, characterization, or clearance activities) without a waiver approved in accordance with paragraph 8.

f. The suspected presence of ICMs or submunitions on Army ranges or other areas will be reported immediately through command channels to the DCSOPS (DAMO-TR), ODASAF, ODCSLOG (DALO-AMA), and USATCES. At a minimum, the report will include location, type of ICM or submunition suspected, the boundaries (by

coordinates) of the area suspected to contain ICMs or submunitions, the suspected source (e.g., weapon system and event in which the ICM or submunitions were most likely used), the date of discovery, a point of contact, and, if available, digital pictures of the discovered item. Local supporting EOD units should be notified.

g. There may be situations that present a compelling need to clear ICMs or submunitions from a range or other area, or to enter, for purposes of range maintenance, areas containing or suspected of containing ICMs or submunitions. In such situations, a waiver to the prohibition on maintenance, characterization, or clearance of ranges or other areas containing ICMs or submunitions will be considered on a case-by-case basis. Waivers will only be approved when the increased explosives safety risk associated with exposure to ICMs or submunitions is fully justified (e.g., the presence of ICMs or submunitions poses an unacceptable, uncontrolled, unavoidable threat to DoD personnel or members of the public or when ICM or submunition clearance or range maintenance is required as a prerequisite to a mandated transfer of real property).

h. Maintenance, characterization, and clearance on ranges or other areas involving munitions that are not considered ICMs or submunitions but that have sensitive mechanisms for initiating the explosives firing mechanism (e.g., M83 4 pound fragmentation "Butterfly" bomblet or the M54 series 4 pound incendiary bomb) are not addressed by this policy. However, plans for maintenance, characterization, or clearance of such munitions can be evaluated at HQDA (ODASAF).

i. In the event emergency destruction is required of an ICM or submunition located outside of a range (or other area associated with ICMs or submunitions), emergency destruction by Army EOD units may be authorized, without HQDA approval, as specified in reference "l."

8. Waivers.

a. Requests for waivers may be submitted by the Installation, Activity, or U.S. Army Corps of Engineers District Commander with responsibility for the proposed activity. The waivers will be forwarded (four copies) through command channels (approval at each level of command is required) to the ODASAF.

b. Requests for waivers will include the following information, in the following order.

(1) The purpose and scope of the proposed activities to be conducted under the waiver.

(2) The name and location of the areas in which the proposed activities (i.e., maintenance, characterization, or clearance) will be conducted. Provide maps --

(a) showing the regional location of the site;
(b) showing the boundaries of the area(s) for which the waiver is requested;
(c) showing, for Army-controlled property to be released outside DoD, the boundaries of the parcels to be released and listing the anticipated reuse of each parcel and any land use restrictions to be placed on the property (plans for the release of such property must be submitted for review and approved by the Department of Defense Explosives Safety Board (DDESB));
(d) listing, for property not under DoD control (such as FUDS), the past and current use and, if known, the anticipated reuse of each area to undergo clearance and any existing land use restrictions applicable to the property.
(e) listing the planned clearance depths and provides site-specific data to support the depth of clearance determination.

(3) Alternatives to the proposed activities specified in (1), above, and justification for selection of the proposed activities over these alternatives.

(4) A description of the use of the site that led to presence of ICMs or submunitions. This description can consist of extracts from Inventory Project Reports, Preliminary Assessments, Historical Records Searches, Archive Search Reports, site inspections, safety surveys, Engineering Evaluations/Cost Analyses, or other appropriate sources.

(5) Characterization of the terrain - with regard to soil, topography, and vegetation factors that may impact ordnance and explosives detection and recovery - for areas for which the waiver is requested. Delineate terrain characterization on site maps.

(6) Detailed information with regard to known or suspected ICMs and submunitions in areas for which the waiver is requested. This information should identify the type, location, depth, and density of ICMs and submunition and should be annotated on a site map.

(7) Information with regards to known or suspected unexploded ordnance (non-ICM/submunition) in areas for which the waiver is requested. This information should identify the type, location, depth, and density of such unexploded ordnance and should be annotated on a site map.

(8) A description of technology and methods to be used to detect, recover, and destroy recovered unexploded ordnance, including ICMs and submunitions. When describing the technology and methods, address capabilities and limitations (to include those imposed by terrain and soil type) and provide a statement specifying the smallest

item the equipment is capable of detecting at the detection depth.

(9) The number, composition, training, experience, and certifications of supervisors and members of the work teams that will be within the areas for which the waiver is requested.

(10) An in-depth explosives safety risk analysis detailing the hazards of, and safety controls (including personal protective equipment) for, the proposed activities. Specific attention will be paid to the types, quantities, and locations of ICMs and submunitions potentially encountered (based on site- and munition-specific activities, hazards, and controls). The risk assessment will be approved at the appropriate level within the requestor's chain of command.

(11) Quantity-distance (Q-D) maps for each area for which the waiver is requested. (Scaled maps of 1 inch equals not more than 400 feet are preferred; a larger scale is acceptable if distances can be shown with accuracy. If unscaled maps are used, then the maps must label distances). Maps will indicate the following--

(a) The area exclusion zone, the SDZ used to separate work teams, and the SDZ to be employed in destruction of ICMs and submunitions. Identify every inhabited building, occupied area, and public traffic route inside the exclusion zone or SDZs and describe measures to be taken to eliminate or minimize risk for exposures within the exclusion zone and SDZs.

(b) The location of magazines for the storage of demolition explosives and recovered ordnance and explosives.

(12) Summarize EOD, Technical Escort Unit (TEU), and contractor support. When military EOD units are involved in the range clearance activities, their portion of the operational plan will be approved by the EOD unit's chain of command.

(13) A description of quality control and quality assurance procedures, standards, and pass/fail criteria.

c. Whenever possible, waiver requests should be submitted at least sixty days prior to the date for which initiation of the proposed activities is requested. Coordination with the ODASAF or the ODCSOPS (DAMO-TR) prior to initiating the waiver request is recommended.

d. The ODASAF will coordinate the request for waiver with the HQDA ICM Working Group (ODASAF, ODCSLOG, and ODCSOPS) and others as required. Approval, if granted, will be provided jointly by the DASAF and ODCSOPS (DAMO-TR).

e. If, after initiating activities under a waiver, any of the following conditions occur, activities shall be stopped and the commander will submit, using the procedures prescribed in paragraph 8a, an amended request for waiver. Commanders should coordinate with the ODASAF or the ODCSOPS (DAMO-TR) to determine if, based on the scope of the change in conditions, approval of the amendment can be expedited.

(1) ICMs or submunitions of a type not specified in the current approval are encountered. The amended request for waiver will update information affected by the change. At the minimum, the amended request for waiver will update, or indicate no change to, the information required in paragraphs 8b(2)(d), 8b(6), and 8b(8)-(11).

(2) Additional areas require maintenance, characterization, or clearance. The amended request for waiver will specify the reason for the change and update information affected by the change. At the minimum, the amended request for waiver will update, or indicate no change to, the information required in paragraphs 8b(2)-(7) and 8b(11). (Work may continue in areas as approved in the initial waiver provided safety distances are not encroached.)

(3) The scope of work or work techniques change. The amended request for waiver will specify the reason for the change and update information affected by the change. At the minimum, the amended request for waiver will update, or indicate no change to, the information required in paragraphs 8b(1)-(3) and 8b(8)-(13).

(4) The number or composition of the characterization teams, clearance teams, or EOD, TEU, or contractor support changes. The amended request for waiver will specify the reason for the change and update information affected by the change. At the minimum, the amended requestfor waiver will specify the reason for change and update the information required in paragraphs 8b(9) and 8b(12).

9. Hazard control requirements for maintenance, characterization, or clearance of ranges or other areas.

a. Operations will be conducted in a manner that exposes the minimum number of people to the smallest quantity of explosives for the shortest period of time.

b. All work activities will be coordinated with and have the approval of all levels of commands and all Services involved.

c. All work activities will be conducted in accordance with the controls outlined in

approved ordnance and explosives safety and health planning documents (e.g., explosives safety risk analyses, hazard analyses, and site safety and health plans).

d. Only qualified UXO personnel may enter and conduct maintenance, characterization, or clearance in areas containing, or suspected of containing, ICMs or submunitions. Qualified UXO personnel are defined as U.S citizens who meet the following requirements:

(1) Graduated from the U.S. Army Bomb Disposal School, Aberdeen Proving Ground, MD; the U.S. Naval EOD School, Indian Head, MD; the U.S. Naval EOD School, Eglin AFB, FL; the EOD Assistant Course, Redstone Arsenal, AL; the EOD Assistant Course, Elgin AFB, FL; or a DOD-certified UXO qualification course.

(2) Have more than five years combined active duty military EOD and contractor UXO experience.

e. The qualified UXO personnel involved in maintenance, characterization, or clearance of ranges or other areas containing, or suspected of containing, ICMs or submunitions will receive training in the hazards of the specific ICM or submunition specified in the waiver request and the procedures to control those hazards.

f. Minimum team separation distance (to protect against unintentional detonation) will be based on the maximum credible event. If the maximum credible event is the unintentional detonation of a submunition, the team separation distance will be the largest of the following:

(1) 200 ft.
(2) The distance $D = KW^{1/3}$, using K = 50, plus a 50% safety factor.
(3) The maximum fragment throw distance with the potential for resulting in skin penetration or an impact energy of 58 ft-lbs (whichever criteria is appropriate for the munition under consideration), plus a 50% safety factor. Maximum fragment throw distance with the potential for resulting in skin penetration will be calculated in accordance with the procedure outlined in the appendix to this letter.

g. Whenever possible, ICMs or submunitions encountered will not be contacted or touched, but will be blown-in-place. Prior to destruction, all personnel will be removed, at a minimum, beyond the specified destruction SDZ. The SDZ for blow-in-place locations will be determined using distances described in paragraph 5-7c(2)(b) of DA Pam 385-64 or provided by DDESB-approved reduction methods or engineering controls.

h. Any explosive-related incident involving injury to personnel will be immediately reported in accordance with AR 385-40. Upon the occurrence of such an incident, activities will be stopped until a review and validation of procedures has been completed and approved by the Commander with responsibility for the activities.

i. The ODASAF and the ODCSOPS (DAMO-TR) will be notified, in writing, upon conclusion of work activities. This notification will include an after-action report detailing the type and number of ICMs and submunitions recovered; the location, depth, and areal dispertion of the ICMs and submunitions; the disposition of the ICMs and submunitions; and any safety concerns associated with the work activity.

(DACS-SF)

Louis Caldera
Secretary of the Army

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Appendix

Department of Defense Explosives Safety Board Approved Procedures for Calculation of Skin Penetration for Improved Conventional Munition and Submunition Team Separation Distance

The following procedure has been approved by the Department of Defense Explosives Safety Board for calculating maximum fragment throw distance with the potential for resulting in skin penetration.

From the Walker-Duncan Model, $p = \frac{1}{1+e^{-(a-b*x)}}$ (1)

where:

p = probability of skin penetration

a and b are empirically-fitted constants

$$x = \ln\left(\frac{m * v^2}{A}\right) \quad (2)$$

m and A are fragment mass and cross-sectional area (in units of gm and cm^2) and depend on the specific submunition

v, velocity in m/s

Using p = 0.5, $v = 130\sqrt{\frac{A}{m}}$ (3)

Use equation (4) to determine the team separation distance for which the fragment velocity equals that of equation (3).

$$v = v_o * e^{-(12k_v R_f)} \quad (4)$$

where v_o = initial (maximum) fragment velocity

R_f = standoff distance

W_f = fragment weight

Amendment to Request for Waiver to the Army Prohibition on Characterizing, Maintaining, & Clearing Areas of Ranges Containing Submunitions or Improved Conventional Munitions for Joliet Army Ammunition Plant Ordnance Removal Action and Site Characterization Load, Assemble and Pack facility Sites L2, L3, L11, L16, L21, and L34

JOLIET ARMY AMMUNITIOIN PLANT
WILMINGTON, ILLINOIS

May 2006

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1.0 PURPOSE AND SCOPE

1.1 General

This amendment to ICM/Submunition waiver request was prepared by the U.S. Army Engineering and Support Center, Huntsville (USAESCH) to address the Ordnance Removal Action (RA) and Site Characterization (SC) activities that will be conducted at sites L2 and L3 of the Joliet Army Ammunition Plant (JAAP) located outside Wilmington, Illinois. The U.S. Army Industrial Operations Command (IOC) requested the activities and are funding this action under their Industrial Lease Program.

1.2 JAAP Facility History

For JAAP facility history, please refer to the specific information contained in the *Request for Waiver to the Army Prohibition on Characterizing, Maintaining, & Clearing Areas of Ranges Containing Submunitions or Improved Conventional Munitions for Joliet Army Ammunition Plant Ordnance Removal Action and Site Characterization Load, Assemble and Pack Facility Sites L2, L3, L11, L16, L21, and L34; Joliet Army Ammunition Plant, Wilmington, Illinois, 13 August 1999.*

2.0 REASON FOR REQUESTING WAIVER

This amendment waiver is requested due to a change in work techniques to be performed during RA activities at sites L2 and L3 (See paragraph, 9.2 5). Sites L2 and L3 are suspected to be contaminated with BLU-26/B submunitions. We request this waiver be approved for both sites. Both sites L2 and L3 will ultimately be turned over to the United States Department of Agriculture for recreational use.

3.0 NAME AND LOCATIONS OF AREAS

The JAAP is a former U.S. Army munitions facility located on approximately 23,542 acres in Will County, Illinois (see Figure 1 of Appendix A). For additional information, please refer to the specific information contained in *Request for Waiver to the Army Prohibition on Characterizing, Maintaining, & Clearing Areas of Ranges Containing Submunitions or Improved Conventional Munitions for Joliet Army Ammunition Plant Ordnance Removal Action and Site Characterization Load, Assemble and Pack Facility Sites L2, L3, L11, L16, L21, and L34; Joliet Army Ammunition Plant, Wilmington, Illinois, 13 August 1999.* The facility has two

distinct operational areas divided by State Route 53: the approximate 14 square mile explosives manufacturing (MFG) area west of Route 53; and the approximate 22 square mile Load-Assemble-Pack (LAP) area east of Route 53 contains both sites L2 and L3.

A regional map showing the regional location of the JAAP within the state of Illinois is presented in Figure 1 of Appendix A

An overall site map is presented in Figure 2 of Appendix A. This figure shows the RA/SC sites and the magazine storage area.

Planned land uses for the JAAP sites include the assignment of sites L2 and L3 to the U.S. Department of Agriculture for future recreational use.

Site	Size	Use	Depth of Clearance	RA or SC
L2	29ac	Explosive Burning Ground	Depth*	RA
L2	27ac	200' Perimeter	1'	RA
L3	15ac	Demo Ground	Depth*	RA
L3	24ac	200' Perimeter	1'	RA

*Remediation activities will continue until magnetic anomalies are no longer detected.

4.0 ALTERNATIVES TO PROPOSED ACTIVITIES.

The activities proposed in Section 2.0, lists the additional activities that will be required when the Explosive Safety Submission (ESS) is approved. The proposed removal alternatives are selected on the default clearance depths specified in DOD 6055.9 STD for the anticipated future land use. The proposed characterization alternatives will be used to justify future removal alternatives, if necessary.

5.0 DESCRIPTION OF THE USES OF THE SITES THAT LED TO THE PRESENCE OF ICM/SUBMUNITIONS

The data presented below was obtained during previous archival searches performed in support of past remedial investigations, feasibility studies, and remedial designs. A brief description of why submunitions are believed or known to exist at the sites is also presented. The actual types

of Ordnance and Explosives (OE) contamination associated with each RA and SC site is presented in Table I of this waiver request.

1. Site L2: Site L2 is the former explosives burning grounds where ordnance, explosives and small munitions were burned on six gravel pads and three popping furnaces. The popping furnaces were used for the burning of small munitions. This site is suspected of containing BLU-26/B's.

2. Site L3: Former JAAP personnel and aerial photographs indicate that L3 was used for the burning of combustible refuse and munitions crates. However, soil sampling within this site has identified soils and ground water contaminated with explosives and heavy metals, indicating the potential for former OE burning and disposal. This site is suspected of containing BLU-26/B's.

5.1 Archival Search Data

Table 1 presents a listing of the munitions and components manufactured or handled within the L2 and L3 areas at the JAAP. This table was created from a similar table presented in the JAAP Environmental Baseline Statement for Transfer (EBST) generated for the U.S. Army by a contractor. Table 1 below is a compilation of the munitions and components that were either manufactured, handled, stored, tested, etc. at each of the RA or SC sites addressed by this submission.

TABLE 1: MUNITIONS/COMPONENTS MANUFACTURED/HANDLED

MUNITION/COMPONENT	AREA(S)	COMMENT
Large Caliber Munitions		
155mm, Shrapnel (MK I)	L2/3	
Medium Caliber Munitions		
90mm, HE-T (M7 I E 1)	L2/3	
75mm APC-T (M6 I A 1) w/fuze BD (M66A 1)	L2/3	
37mm, TP (M63 Mod 1)	L2/3	

MUNITION/COMPONENT	AREA(S)	COMMENT
Mines		
Mine, Antitank (M4)	L2/3	
Mine, Antitank NM (M5)	L2, L3,	
Dispensers and Submunitions		
BLU-26/B	***L2/3***	
Fuzes		
Fuze, MT (M43A3 and M43A4)	L 2/3	
Fuze, BD (M66, M66A I and M68)	2/3	
Fuze, Proximity (M517) arming mechanism	L2	Destroyed in popping furnace
Fuze, Antitank Mine (M 1, M 1 A1, M I A2 and M5)	L2/3	
Fuze, Antitank Mine NM, Practice T-3131)	L2/3	
Primers and Boosters		
Primer (M1A2)	L2/3	
Primer, Percussion (M22A2)	L /3	
Primer (M28A2&3, M3 I A2, M40A 1, M46-49)	L2	
MUNITION/COMPONENT	**AREA(S)**	**COMMENT**
Mortars and Rockets		
81 mm Mortar, BE w/o fuze	L2/3	Loaded (L9), tested and reworked
4.5 inch Rocket (m 16)	L2/3	
Adapter and Booster (MKIII AM2)	L2/3	

6.0 CHARACTERIZATION OF TERRAIN

(Delineated on the site maps included in Appendix A, For additional information, the reader is directed to the specific *Request for Waiver to the Army Prohibition on Characterizing, Maintaining, & Clearing Areas of Ranges Containing Submunitions or Improved Conventional Munitions for Joliet Army Ammunition Plant Ordnance Removal Action and Site Characterization Load, Assemble and Pack Facility Sites L2, L3, L11, L16, L21, and L34; Joliet Army Ammunition Plant, Wilmington, Illinois, 13 August 1999*)

Generally the areas are flat or mounded from previous demolitions operations. Vegetation is either sparse or grass covered. Site L3 contains a creek.

7.0 ORDNANCE AND EXPLOSIVES CHARACTERIZATION (OTHER THAN ICM/SUBMUNITIONS)

Table 1 above identifies ordnance used at the areas addressed in the amendment waiver request. Sites L2 and L3, are suspected of containing submunitions. Concentrations or depths of ordnance are not known.

7.1 Soil Sampling

While explosive contamination was located in soil and ground water samples taken from all of the RA and SC sites addressed by this waiver request, none of the samples have indicated the presence of explosive soils within the sites addressed by this amendment waiver request.

8.0 ORDNANCE AND EXPLOSIVES CHARACTERIZATION (ICM/SUBMUNITIONS)

Table 1 above identifies ordnance used at sites L2 and L3 addressed in this amendment waiver request. Both L2 and L3 are suspected of containing submunitions. Concentrations or depths of ICM/submunition are not known.

9.0 CLEARANCE TECHNIQUES

9.1 Introduction

This section presents information concerning removal of OE from the various sites at JAAP. Included are discussions of the methods of detection, capabilities/limitation of the method, the process that will be used to determine that ordnance scrap is free of explosive hazards, and the deposition of the ordnance scrap removed from the site, or generated by the clearance activities. The procedures included in this section will directly apply to each of the OE removal sites addressed by this amendment waiver request. Additionally, the OE investigation and disposal procedures referenced will also be used for the OE sampling and characterization operations at sites L2 and L3.

9.2 OE Detection and Removal

UXO personnel will use the Schonstedt GA-52Cx Heliflux magnetometer (52 CX) for the location of ferrous anomalies and the Whites Spectrum XLT (XLT) to locate non-ferrous anomalies. The depth of detection for a given item is dependent upon the size and orientation of the target item, as well as the characteristics of the soil. Prior to the use of both the 52 CX and the XLT at the JAAP facility, a test plot will be established for testing these instruments and the geophysical surveying and mapping (GS&M) equipment. This test plot will be established using inert OE items buried at the depths specified by the USAESCH in the SOW. Both the 52 CX and the XLT are capable of detecting the BLU-26/B at one foot. Daily response checks using the test plot will be documented by the UXOQCS who will ensure site personnel adjust and response check the instruments IAW this plan and the manufacturer's instructions. If an instrument does not respond correctly, and field maintenance fails to correct the problem, that instrument will be tagged as inoperable and removed from service. Replacement equipment will be tested in the same manner as outlined above.

The use of the detection technologies presented may be limited in their application to the explosives removal sites due to the degree of vegetation growth within some of the sites. Therefore, vegetation removal/burning will be conducted as needed by the OE removal teams. It is anticipated that some degree of vegetation removal will be required within each grid. **Grass and brush will be burned if at all possible in any site suspected of containing BLU-26/B's**; otherwise, vegetation will be removed to within six inches of the surface and tree limbs will be removed to a height of six feet to allow for the effective application of the detection technologies. No trees greater than three inches in diameter will be cut down without the prior approval of the USAESCH. UXO encountered during vegetation removal will be flagged with two-crossed red pin flags, and numbers reported to the SUXOS.

Once vegetation has been removed/burned from the project grids, it is not anticipated that there will be any further limitations of the OE detection methods or technologies aside from the potential for surface clutter to hinder the efficient use of the 52 CX or the XLT in the former burn sites. **Additionally, since demilitarization took place at the sites, submunitions can be expected (due to burial) at depths deeper than detectable.** If this is the case, as determined

by the SUXOS, a surface clearance will first be conducted at the effected explosives removal sites.

Once all site preparations have been completed within each site, the 52 CXs and XLTs will be used to locate anomalies within the grid. Each grid within each site identified for OE removal shall be swept using the procedures listed below. Each of the two OE removal teams will report directly to the SUXOS and will maintain a log of its activities.

1) Search Lanes. Each 100 by 100-foot grid will be subdivided into individual search lanes. These lanes will be five foot wide paths adjacent to each other, running parallel to the north/south boundary line of the grid. Search lanes will be laid out using pre-marked base lines with cones or twine laid between the base line marks to form the lanes.

2) Grid Search. Search personnel will start at one end of each lane and will move forward toward the opposing base line. During the forward movement, the detection instrument will be moved from one side of the lane to the other, with the forward movement and the swing of the magnetometer performed at a pace that ensures complete searching of the lane while also ensuring that the instrument is able to appropriately respond to subsurface anomalies.

3) Excavation of Flagged Items. Surface and near-surface anomalies may be excavated using small hand tools such as a hand trowel. **Extreme care will be taken to avoid striking the anomaly. When within 3" of the anomaly the hand trowel must be used. Digging directly above the anomaly is not permitted - dig to the side of the anomaly then over to the anomaly.** For a subsurface anomaly source that lies more deeply buried, excavation using hand shovels or earth moving machinery (EMM) will be conducted. If EMM is needed, the SUXOS will coordinate its acquisition and use by each investigation team. Whether EMM (operated by UXO-qualified personnel, A UXO Technician (UXO Tech) II with over five years experience is required at JOAAP) or manual digging tools are used, the earth overburden will be removed in one-foot lifts. The location of the anomaly will be redefined after each one-foot lift, and when the excavation is believed to be within one foot of the source, explorative excavation will be

conducted using hand tools only. This process will continue until the source of the anomaly has been uncovered or until directed to stop by the USAESCH Safety Specialist. Excavation with EMM will be conducted IAW applicable USACE regulations.

4) Anomaly Identification. The UXO Tech who located the item will conduct the initial anomaly identification. Once identified by the first UXO Tech, a second UXO Tech III will verify the identity, condition and hazards of the item. Those items that are fuzed, unsafe to move, or are submunitions will be marked with crossed red pin flags and disposed of daily by BIP. Those items that are positively identified as being unfuzed and safe to move may be removed from the excavation, transported to a consolidated disposal area located within the grid, and disposed of at the end of the day. **Any BLU-26B or any explosive component of a BLU-26B regardless of condition will only be blown in place (BIP) or remotely removed as stated in paragraph 5 below.** The BIPs or consolidated shots will be conducted before the team leaves the grid, or at the end of each day, whichever comes first. Those items that are identified as being non-hazardous ordnance scrap or scrap will be removed and segregated.

5) Mechanical Screening. Based upon the geophysical surveys conducted during historical site characterization activities, MEC items are suspected to exist at Site L2 in sufficient quantity and density to warrant the implementation of MEC screening activities during the removal action. A surface clearance will be conducted prior to mechanical screening operations beginning. Due to the possibility of encountering BLU-26s all operators must be protected from blast and fragments during mechanical soil screening and soil removal operations. If mechanical soil screening and soil removal operations are within the MSD of 492 feet then they must have K24 (14 feet) and shielding (IAW Table 6-1) during mechanical soil screening and soil removal if the operations are conducted concurrently. Anyone within the MSD of either operation will be provided K24 and shielding protection. Areas requiring screening will be removed in 1-foot lifts. An armored bulldozer or suitable substitute will be used to remove the soil in 1-foot lifts and placed into a stockpile. The area will then be checked with magnetometers to confirm if additional anomalies are detected. This will continue until magnetic anomalies are no

longer detected. Hazards associated with mechanically screening explosive (energetically unstable) contaminated soils are considered negligible because contaminant levels are not anticipated to exceed the 100,000 mg/kg threshold for explosive soils.

During implementation a separate area for mechanical screening for MEC will be established at Site L2 during clearance activities. The location of the mechanical screen will be within the site boundaries of Sites L2 to maintain the required MSD for the MGFD during operations. The mechanical screening area will be located a minimum of 50 feet from the excavation area. Soil excavated at the site will be loaded into hauling vehicles for transport to the mechanical screening area. Excavated material will either be direct loaded into the screening bin, or stockpiled near the screening operation if the bin is full to capacity.

OE-related soil and debris will be dumped into the screening bin and will fall through the screens inside that separate the soils and fines from the larger metal scrap. The earth moving equipment (bulldozer and excavator) used for this operation will be sufficiently armored to protect workers from blast and fragmentation hazards during an unintentional detonation. Equipment operators will remain inside the armored equipment at all times while earth-moving activities are being conducted. Minimum thickness of materials for potential use as fragmentation protection are provided in Table 6-1 below.

TABLE 6-1: POTENTIAL MATERIALS AND THICKNESS FOR FRAGMENTATION PROTECTION DURING MECHANICAL SCREENING OPERATIONS

MATERIAL	MINIMUM THICKNESS (INCHES)
4000 psi Concrete	2.05
Mild Steel	0.38
Hard Steel	0.31
Aluminum	0.85
LEXAN	3.06
Plexi-glass	1.79
Bullet Resistant Glass	1.33

Mechanical screening unit and engineering controls for fragmentation protection will be selected at the time of construction, with inspection and approval by the SUXOS prior to implementation.

The mechanical screen will be fitted with screen-sieve diameters small enough to totally eliminate the possibility of a BLU-26 passing through to the conveyor system. The diameter of the BLU-26 is 2.5 inches. The mechanical screen will be fitted with a series of screen-sieve diameters:

- 4-inch screen will be utilized to remove larger rocks, sod and debris.
- 2-inch screen will be utilized to remove shells, casings and other material. It is anticipated that any BLU-26 will be removed at this diameter screen-sieve
- 0.75-inch screen will be utilized to remove intact fuzes and smaller ordnance components that may be present in the soil.

No workers will be within the MSD of the mechanical screening unit while the unit is operating, except for the operator of the excavator loading the hopper. The only operators within the MSD will be the operators of the shielded earth moving equipment. The material separated on the screen will be gravity-fed down a chute and onto a conveyor belt, where the debris will be allowed to fall to the ground. After a pre-determined amount of soil has piled up, the screen loading operation will stop and the material will be spread out by an armored backhoe/excavator. A qualified UXO person, using a magnetometer, will search for any MEC that may be mixed with other material potentially presenting an explosive hazard (MPPEH). At this time a qualified UXO Technician will examine the screen for a potential stuck/lodged ICM. Oversized items such as clumps of grass that come off the screen will be spread out by a backhoe/excavator and a magnetometer will be used to locate MEC items. The remaining non-MEC scrap metal will be removed using a bar type magnet attached to a backhoe/excavator. Material potentially presenting an explosive hazard will be inspected and certified as explosives free. The inert munition debris will be placed into a bin and stored with other munitions debris metal. Eventually this material will go through a demilitarization process prior to being sent to an appropriate disposal facility.

If a live MEC round is stuck/lodged on the conveyor, it will be examined by UXO-qualified personnel for identity and condition. If it is acceptable to move, it will be removed in accordance with procedures established in the appropriate tech data for item identified and taken to a location at the site designated by the SUXOS for immediate detonation.

If an MEC item is deemed unacceptable to move or an ICM is located (an ICM will only be moved by remote means and K24 and shielding provided), all personnel will leave the conveyor line. UXO-qualified personnel will properly dislodge and transport the item (with approval of the OESS) from the conveyor by remote means (such as attaching a length of rope to the ICM with expandable foam or other suitable material). The length of rope will be at minimum 14 feet (K24) preferably longer. The rope will be attached to the backhoe/excavator that will pull the ICM to a predetermined location. The item will be remotely pulled to a location where it can be blown in place in accordance with established procedures.

All personnel not associated with the BIP operation will evacuate to a distance of at least 492 feet during the disposal.

After the UXO-qualified sorter has inspected the separated material for explosive residue, the UXO-qualified sorters will separate metal and non-metal scrap. Other metal site debris will be accumulated and sent to an appropriate recycling/disposal facility.

The disposal method for MEC and non-MEC items derived from screening operations is described in Section 9.3

9.3 OE Demolition

Reader see specific information contained in *Request for Waiver to the Army Prohibition on Characterizing, Maintaining, & Clearing Areas of Ranges Containing Submunitions or Improved Conventional Munitions for Joliet Army Ammunition Plant Ordnance Removal Action and Site Characterization Load, Assemble and Pack Facility Sites L2, L3, L11, L16, L21, and L34; Joliet Army Ammunition Plant, Wilmington, Illinois, 13 August 1999)*

10. NUMBER, COMPOSITION, TRAINING AND CERTIFICATION OF WORK

TEAMS

The number, composition, training and certification of the site personnel will be in accordance with Memorandum, DACS-SF, 30 Mar 2004, subject: *Improved Conventional Munitions and Submunitions* and DID OE-025.02*: Personnel Work Standards.* A maximum of 7 UXO qualified personnel, to include the supervisor, will comprise the team. The minimum team separation distance for all teams is the greater of 200 feet or the K50 distance of the most probable munition for the OE area. Additionally, the USAESCH Safety Specialist and the either contractor QCS or SSHO or Senior UXO Supervisor may be within the exclusion zone for a maximum of 9 UXO qualified personnel. For this operation a UXO qualified personnel will be a UXO tech II with a minimum of five years experience. Non-UXO qualified personnel will not be allowed in ICM/submunitions areas during UXO operations.

11. RISK ANALYSIS (SEE APPENDIX B)

Reader see specific information contained in *Request for Waiver to the Army Prohibition on Characterizing, Maintaining, & Clearing Areas of Ranges Containing Submunitions or Improved Conventional Munitions for Joliet Army Ammunition Plant Ordnance Removal Action and Site Characterization Load, Assemble and Pack Facility Sites L2, L3, L11, L16, L21, and L34; Joliet Army Ammunition Plant, Wilmington, Illinois, 13 August 1999)*

12. QUANTITY - DISTANCE

Reader see specific information contained in *Request for Waiver to the Army Prohibition on Characterizing, Maintaining, & Clearing Areas of Ranges Containing Submunitions or Improved Conventional Munitions for Joliet Army Ammunition Plant Ordnance Removal Action and Site Characterization Load, Assemble and Pack Facility Sites L2, L3, L11, L16, L21, and L34; Joliet Army Ammunition Plant, Wilmington, Illinois, 13 August 1999)*

13. TECHNICAL SUPPORT

The sub-contractor for this is project currently under a selection process. All on-site UXO qualified personnel will meet the training and experience requirements required by the USAESCH.

No chemical warfare materials (CWM) are suspected at any of the RA or SC sites. Additionally,

UXO qualified personnel will positively identify all OE items prior to the item being moved or destroyed. If suspected CWM is found, or if an OE item cannot be positively identified, the USAESCH Safety Specialist will request military support from the Technical Escort Unit or the 788th Ordnance Company (EOD), Fort McCoy, Wisconsin.

14. QUALITY ASSURANCE/QUALITY CONTROL

Reader see specific information contained in *Request for Waiver to the Army Prohibition on Characterizing, Maintaining, & Clearing Areas of Ranges Containing Submunitions or Improved Conventional Munitions for Joliet Army Ammunition Plant Ordnance Removal Action and Site Characterization Load, Assemble and Pack Facility Sites L2, L3, L11, L16, L21, and L34; Joliet Army Ammunition Plant, Wilmington, Illinois, 13 August 1999)*

Appendix E: Log of MEC Items Located at the L2-L3 Extended Buffer Area

GRID / ORDNANCE TRACKING LOG

Joliet Army Ammunition Plant
Contract Number: DACA87-97-D-0005
Ordnance Removal Action and Site Characterization

Grid Number	Date Grubbed	Date Cleared	Contacts or Digs	Qty	Item ID, "M" No. If Available	Condition	Filler	X (Feet)	Y (Feet)	Depth Inches	Soil Type	OE Scrap	#'s Other	Demo Date	QC Date	QA Date
L-2 Geo	3/27/2001	4/10/2001		3	M-48 Fuzes	Unknown	HE			0	Loam			4/26/2001	N/A	N/A
				6	M-66 Base Fuze	Unknown	HE			0				4/26/2001		
				3	40mm n/fuze	Unknown	HE			0				4/26/2001		
				17	75mm Boosters	Empty				0				4/26/2001	Demil	
				2	81mm Fuze	Unknown	HE			0				4/26/2001		
L-2 G/Dig	3/27/2001	4/30/2001	110	1	M-66 Base Fuze	Unknown	HE	1048844.24	1712326.53	3	Loam	76	90	4/26/2001	4/30/2001	N/A
				1	M-66 Base Fuze	Unknown	HE	1048863.1	1712138.26	1				4/26/2001		
				1	Booster B/Fuze	Unknown	HE	1048988.95	1712301.36	6				4/26/2001		
				3	M-66 Base Fuze	Unknown	HE	1048974.02	1712330.96	6				4/26/2001		
				6	M-66 Base Fuze	Unknown	HE	104878.92	1712469.14	6				4/26/2001		
				2	Booster B/Fuze	Unknown	HE	1048741.37	1712626.22	12				4/26/2001		
				4	Booster B/Fuze	Unknown	HE	1048830.97	1712268.56	48				4/26/2001		
				2	M-48 Fuzes	Unknown	HE	1048805.06	1712053.5	6				4/26/2001		
				2	M-48 Fuzes	Unknown	HE	1048608.42	1712094.21	10				4/26/2001		
				1	M-4 Mine	Empty		1048739.47	1711868.91	10						
				1	M-66 Base Fuze	Unknown	HE	1048535.2	1712520.91	6				4/26/2001		
				1	M-66 Base Fuze	Unknown	HE	1048535.2	1712520.91	8				4/26/2001		
				1	M-66 Base Fuze	Unknown	HE	1048535.2	1712520.91	9				4/26/2001		
				1	M-66 Base Fuze	Unknown	HE	1048535.2	1712520.91	10				4/26/2001		
				1	M-66 Base Fuze	Unknown	HE	1048535.2	1712520.91	11				4/26/2001		
				1	M-66 Base Fuze	Unknown	HE	1048535.2	1712520.91	11				4/26/2001		
				1	M-66 Base Fuze	Unknown	HE	1048697.55	1712522.77	4				4/26/2001		
				1	M-66 Base Fuze	Unknown	HE	1048697.55	1712522.77	10				4/26/2001		
				1	M-66 Base Fuze	Unknown	HE	104913.72	1712487.73	4				4/26/2001		
				1	M-66 Base Fuze	Unknown	HE	1049019.83	1711806.58	4				4/26/2001		
				1	M-66 Base Fuze	Empty		1048725.71	1711762.07	30						
				1	M-66 Base Fuze	Empty		1048352.34	1711537.55	8						
				1	M-66 Base Fuze	Empty		1048352.34	1711537.55	8						
				1	M-66 Base Fuze	Empty		1048352.34	1711537.55	8						
				1	M-66 Base Fuze	Empty		1048404.53	1712142.48	8						
				1	M-66 Base Fuze	Empty		1048404.53	1712142.48	8						
				1	M-66 Base Fuze	Empty		1048404.53	1712142.48	8						
				1	M-66 Base Fuze	Empty		1048725.71	1711762.07	30						
				1	M-66 Base Fuze	Unknown	HE	104833.9	17120003.75	12				4/26/2001		
				1	M-66 Base Fuze	Empty		1048649.91	1712090.65	6						
				1	M-66 Base Fuze	Unknown	HE	1048781.92	1712469.14	6				4/26/2001		
				1	M-66 Base Fuze	Unknown	HE	1048781.92	1712469.14	6				4/26/2001		
				1	Booster B/Fuze	Unknown	HE	1048535.2	1712520.91	6				4/26/2001		

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Joliet Army Ammunition Plant
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Grid Number	Date Grubbed	Date Cleared	Contacts or Digs	Qty	Item ID, "M" No. If Available	Condition	Filler	X (Feet)	Y (Feet)	Depth Inches	Soil Type	OE Scrap	#'s Other	Demo Date	QC Date	QA Date
				1	Booster B/Fuze	Unknown	HE	1048535.2	1712520.91	7				4/26/2001		
				1	Booster B/Fuze	Unknown	HE	1048535.2	1712520.91	9				4/26/2001		
				1	Booster B/Fuze	Unknown	HE	1048535.2	1712520.91	9				4/26/2001		
				1	Booster B/Fuze	Unknown	HE	1048535.2	1712520.91	10				4/26/2001		
				1	Booster B/Fuze	Unknown	HE	1048535.2	1712520.91	10				4/26/2001		
				1	Booster B/Fuze	Unknown	HE	1048535.2	1712520.91	11				4/26/2001		
				1	Booster B/Fuze	Unknown	HE	1048535.2	1712520.91	11				4/26/2001		
				1	Booster B/Fuze	Unknown	HE	1048535.2	1712520.91	11				4/26/2001		
				1	Booster B/Fuze	Unknown	HE	1048535.2	1712520.91	11				4/26/2001		
				1	Booster B/Fuze	Unknown	HE	1048535.2	1712520.91	12				4/26/2001		
				1	Booster B/Fuze	Unknown	HE	1048535.2	1712520.91	12				4/26/2001		
				1	Booster B/Fuze	Unknown	HE	1048535.2	1712520.91	12				4/26/2001		
				1	Booster B/Fuze	Unknown	HE	1048535.2	1712520.91	12				4/26/2001		
				1	Booster B/Fuze	Unknown	HE	1048535.2	1712520.91	12				4/26/2001		
				1	Booster B/Fuze	Unknown	HE	1049036.08	1711804.14	5				4/26/2001		
				3	Booster B/Fuze	Unknown	HE	1048623.12	1712082.71	3				4/26/2001		
				2	Booster B/Fuze	Unknown	HE	1048267.2	1711638.62	14				4/26/2001		
				11	Booster B/Fuze	Unknown	HE	1048856.81	1712040.51	6				4/26/2001		
				1	PD Fuze	Unknown	HE	1048376.09	1711362.75	12				4/26/2001		
				1	Mech Time Fuze	Unknown	HE	104899.4.0	1711700.87	4				4/26/2001		
				1	Fuze	Unknown	HE	1048679.31	1712185.68	6				4/26/2001		
				1	75mm	Empty		1048447.98	1711797.07	2						
				1	75mm f/booster	Unknown	HE	1049036.08	1711804.15	4				4/26/2001		
				2	40mm cart	Empty		1048168.79	1711572.18	15						
				2	75mm Boosters	Empty		1048168.79	1711572.18	12						
				2	M-48 Fuzes	Unknown	HE	1048168.79	1711572.18	36				5/3/2001		
				2	Fuzes Unknow	Unknown	HE	1048168.79	1711572.18	36				5/3/2001		
				1	M376 Elec. Fuze	Unknown	HE	1048168.79	1711572.18	36				5/3/2001		
				3	M-48 Fuzes	Empty		1048623.12	1712082.71	3						
				3	Booster B/Fuze	Empty		1048352.34	1711537.55	8						
				4	Booster Cups	Empty		1048356.71	1712134.09	12						
				1	M-48 Fuzes	Unknown	HE	1048168.79	1711572.18	48				5/3/2001		
				1	M-48 Fuzes	Unknown	HE	1048168.79	1711572.18	48				5/3/2001		
				1	N/Fuze	Unknown	HE	1048168.79	1711572.18	48				5/3/2001		
				1	N/Fuze	Unknown	HE	1048168.79	1711572.18	48				5/3/2001		
				1	M-376 Elec. Fuze	Unknown	HE	1048168.79	1711572.18	48				5/3/2001		
				1	75mm Boosters	Empty		1049036.08	1711804.15	4						
				1	75mm Boosters	Empty		1049036.08	1711804.15	4						
L-3 Geo	4/10/2001	4/25/2001		1	M-5 Mine	Empty				0	Loam	10	0		N/A	N/A
				1	57mm	Empty				0						
				1	40mm shotgun	Empty				0						
				1	MT Fuze	Empty				0						
L-3 G/Dig	4/10/2001	5/2/2001	120	1	M-T83 PD Fuze	Unknown	HE	1047347.605	1710145.085	6	Loam	101	190	5/3/2001	5/2/2001	N/A
				1	M-T83 PD Fuze	Unknown	HE	1047347.605	1710145.085	8				5/3/2001		

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				1	M-T83 PD Fuze	Unknown	HE	1047347.605	1710145.085	8				5/3/2001		
				1	M-T83 PD Fuze	Unknown	HE	1047347.605	1710145.085	9				5/3/2001		
				1	M-T83 PD Fuze	Unknown	HE	1047347.605	1710145.085	10				5/3/2001		
				1	M-T83 PD Fuze	Unknown	HE	1047347.605	1710145.085	14				5/3/2001		
				1	M-T83 PD Fuze	Unknown	HE	1047347.605	1710145.085	15				5/3/2001		
				1	M-T83 PD Fuze	Unknown	HE	1047347.605	1710145.085	17				5/3/2001		
				1	M-T83 PD Fuze	Unknown	HE	1047347.605	1710145.085	18				5/3/2001		
				1	M-T83 PD Fuze	Unknown	HE	1047347.605	1710145.085	18				5/3/2001		
				1	M-T83 PD Fuze	Unknown	HE	1047347.605	1710145.085	19				5/3/2001		
				1	M-T83 PD Fuze	Unknown	HE	1047347.605	1710145.085	20				5/3/2001		
				1	M-T83 PD Fuze	Unknown	HE	1047347.605	1710145.085	21				5/3/2001		
				1	M-T83 PD Fuze	Unknown	HE	1047347.605	1710145.085	22				5/3/2001		
				1	M-T83 PD Fuze	Unknown	HE	1047347.605	1710145.085	23				5/3/2001		
				1	M-T83 PD Fuze	Unknown	HE	1047347.605	1710145.085	25				5/3/2001		
				1	M-T83 PD Fuze	Unknown	HE	1047347.605	1710145.085	25				5/3/2001		
				1	M-T83 PD Fuze	Unknown	HE	1047347.605	1710145.085	26				5/3/2001		
				1	M-T83 PD Fuze	Unknown	HE	1047347.605	1710145.085	28				5/3/2001		
				1	M-T83 PD Fuze	Unknown	HE	1047347.605	1710145.085	29				5/3/2001		
				1	M-T83 PD Fuze	Unknown	HE	1047347.605	1710145.085	30				5/3/2001		
				1	M-T83 PD Fuze	Unknown	HE	1047347.605	1710145.085	30				5/3/2001		
				1	M-T83 PD Fuze	Unknown	HE	1047347.605	1710145.085	31				5/3/2001		
				1	M-T83 PD Fuze	Unknown	HE	1047347.605	1710145.085	33				5/3/2001		
				1	M-T83 PD Fuze	Unknown	HE	1047347.605	1710145.085	34				5/3/2001		
				1	M-T83 PD Fuze	Unknown	HE	1047347.605	1710145.085	36				5/3/2001		
				1	M-T83 PD Fuze	Unknown	HE	1047347.605	1710145.085	36				5/3/2001		
				1	57mm	Empty		1047347.605	1710145.085	28						
				1	40mm Ball	Unknown	HE	1047003.94	1710322.433	4				5/3/2001		
				1	155mm, M1	Empty		1047347.605	1710145.085	36						
				1	155mm, M1	Empty		1047347.605	1710145.085	36						
				1	155mm, M1	Empty		1047347.605	1710145.085	36						
				1	155mm, APHE	Empty		1047347.605	1710145.085	24						
				1	3.5" Rkt Warhead	Unknown	HE	104236.095	1709871.557	2				5/3/2001		
				1	105mm	Unknown	HE	1047319.087	1709877.767	6				5/3/2001		
L-11 Geo	4/4/2001	4/18/2001		0							Loam					
L-11 G/Dig	4/4/2001	5/2/2001	70	1	40mm	Unknown	HE	1053897.16	1702504.05	6	Loam	0	70	4/26/2001	5/1/2001	N/A
L-11A1	5/15/2001	****	231	1	40mm	Unknown	HE	43	100	3	Loam	10	1	5/16/2001	N/A	N/A
				1	Rifle Grenade	Unknown	HE	148	85	18				5/16/2001		
				1	Rifle Grenade	Unknown	HE	148	85	20				5/16/2001		
				1	Rifle Grenade	Unknown	HE	148	85	24				5/16/2001		
				1	81mm Mortar	Unknown	HE	178	83	18				5/17/2001		
L-16A1	4/25/2001	****	2362	1	M-48 Fuzes	Empty		191	196	10	Loam	292	89		N/A	N/A
				1	M-48 Fuzes	Empty		182	141	12						

GRID / ORDNANCE TRACKING LOG

Joliet Army Ammunition Plant
Contract Number: DACA87-97-D-0005
Ordnance Removal Action and Site Characterization

Grid Number	Date Grubbed	Date Cleared	Contacts or Digs	Qty	Item ID, "M" No. If Available	Condition	Filler	X (Feet)	Y (Feet)	Depth Inches	Soil Type	OE Scrap	#'s Other	Demo Date	QC Date	QA Date
				1	M-48 Fuzes	Empty		195	62	12						
				1	M-48 Fuzes	Empty		147	145	8						
				1	M-48 Fuzes	Empty		116	200	8						
				1	M-48 Fuzes	Empty		118	74	8						
				1	M-48 Fuzes	Empty		118	21	8						
				1	M-48 Fuzes	Empty		105	75	8						
				1	M-48 Fuzes	Empty		97	97	8						
				1	M-48 Fuzes	Empty		92	81	2						
				1	M-48 Fuzes	Empty		92	143	4						
				1	M-48 Fuzes	Empty		85	95	6						
				1	M-48 Fuzes	Empty		82	135	6						
				1	M-48 Fuzes	Empty		87	32	7						
				1	M-48 Fuzes	Empty		83	65	82						
				1	M-48 Fuzes	Empty		77	101	10						
				1	M-48 Fuzes	Empty		72	100	6						
				1	M-48 Fuzes	Empty		73	100	8						
				1	M-48 Fuzes	Empty		70	190	16						
				1	M-48 Fuzes	Empty		71	150	15						
				1	M-48 Fuzes	Empty		66	168	8						
				1	M-48 Fuzes	Empty		60	65	6						
				1	M-48 Fuzes	Empty		59	66	6						
				1	M-48 Fuzes	Empty		69	110	12						
				1	M-48 Fuzes	Empty		66	105	8						
				1	M-48 Fuzes	Empty		69	103	10						
				1	M-48 Fuzes	Empty		61	81	4						
				1	M-48 Fuzes	Empty		61	81	6						
				1	M-48 Fuzes	Empty		60	95	4						
				1	M-48 Fuzes	Empty		97	100	14						
				1	M-48 Fuzes	Empty		65	100	4						
				1	M-48 Fuzes	Empty		69	105	8						
				1	M-48 Fuzes	Empty		65	10	6						
				1	M-48 Fuzes	Empty		65	102	6						
				1	M-48 Fuzes	Empty		62	155	10						
				1	M-48 Fuzes	Empty		54	175	6						
				1	M-48 Fuzes	Empty		57	110	6						
				1	M-48 Fuzes	Empty		50	92	6						
				1	M-48 Fuzes	Unknown	HE	76	178	6				5/3/2001		
				1	M-48 Fuzes	Unknown	HE	114	105	10				5/3/2001		
				1	M-48 Fuzes	Unknown	HE	117	125	8				5/3/2001		
				1	M-48 Fuzes	Empty		50	55	5						
				1	M-48 Fuzes	Empty		51	40	3						
				1	M-48 Fuzes	Empty		52	35	5						
				1	M-48 Fuzes	Empty		50	33	4						
				1	M-48 Fuzes	Empty		49	15	6						

GRID / ORDNANCE TRACKING LOG

Joliet Army Ammunition Plant
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Ordnance Removal Action and Site Characterization

Grid Number	Date Grubbed	Date Cleared	Contacts or Digs	Qty	Item ID, "M" No. If Available	Condition	Filler	X (Feet)	Y (Feet)	Depth Inches	Soil Type	OE Scrap	#'s Other	Demo Date	QC Date	QA Date
				1	M-48 Fuzes	Empty		53	10	6						
				1	M-48 Fuzes	Empty		59	165	10						
				1	M-48 Fuzes	Empty		45	42	6						
				1	M-48 Fuzes	Empty		46	66	6						
				1	M-48 Fuzes	Empty		39	150	6						
				1	M-48 Fuzes	Empty		35	115	5						
				1	M-48 Fuzes	Empty		35	95	6						
				1	M-48 Fuzes	Empty		42	65	4						
				1	M-48 Fuzes	Empty		45	67	10						
				1	M-48 Fuzes	Empty		36	33	6						
				1	Fuze Booster	Unknown	HE	56	125	14				5/3/2001		
				1	Fuze Booster	Unknown	HE	71	133	18				5/3/2001		
				1	Fuze Booster	Unknown	HE	22	170	10				5/3/2001		
				1	Fuze Booster	Unknown	HE	23	88	4				5/3/2001		
				1	Fuze Booster	Unknown	HE	15	95	2				5/3/2001		
				1	Fuze Booster	Unknown	HE	22	84	2				5/3/2001		
				1	Fuze Booster	Unknown	HE	30	78	4				5/3/2001		
				1	Fuze Booster	Unknown	HE	4	75	6				5/3/2001		
				1	Fuze Booster	Unknown	HE	25	95	8				5/3/2001		
				1	Fuze Booster	Unknown	HE	25	95	10				5/3/2001		
				1	Fuze Booster	Unknown	HE	25	95	11				5/3/2001		
				1	Fuze Booster	Unknown	HE	25	95	14				5/3/2001		
				1	Fuze Booster	Unknown	HE	25	95	16				5/3/2001		
				1	Fuze Booster	Unknown	HE	25	95	17				5/3/2001		
				1	Fuze Booster	Unknown	HE	25	95	18				5/3/2001		
				1	Fuze Booster	Unknown	HE	36	70	4				5/3/2001		
				1	Fuze Booster	Unknown	HE	30	69	5				5/3/2001		
				1	M-48 Fuzes	Unknown	HE	1	88	6				5/3/2001		
				1	M-48 Fuzes	Empty		44	140	14						
				1	M-48 Fuzes	Empty		26	53	4						
				1	M-48 Fuzes	Empty		38	78	6						
				1	M-48 Fuzes	Empty		6	55	10						
				1	M-48 Fuzes	Empty		18	85	4						
				1	M-48 Fuzes	Empty		18	88	6						
				1	M-48 Fuzes	Empty		3	78	6						
				1	M-48 Fuzes	Empty		50	81	4						
				1	M-48 Fuzes	Empty		4	50	4						
				1	M-48 Fuzes	Empty		8	91	4						
				1	M-48 Fuzes	Empty		7	84	4						
				1	M-48 Fuzes	Empty		33	75	6						
				1	M-48 Fuzes	Empty		60	70	4						
				1	M-48 Fuzes	Empty		70	119	6						
				1	M-48 Fuzes	Empty		12	18	6						
				1	M-48 Fuzes	Empty		13	40	4						

GRID / ORDNANCE TRACKING LOG

Joliet Army Ammunition Plant
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Ordnance Removal Action and Site Characterization

Grid Number	Date Grubbed	Date Cleared	Contacts or Digs	Qty	Item ID, "M" No. If Available	Condition	Filler	X (Feet)	Y (Feet)	Depth Inches	Soil Type	OE Scrap	#'s Other	Demo Date	QC Date	QA Date
				1	M-48 Fuzes	Empty		11	41	5						
				1	M-48 Fuzes	Empty		26	175	12						
				1	M-48 Fuzes	Unknown	HE	17	179	12				5/10/2001		
				1	M-48 Fuzes	Unknown	HE	45	85	8				5/10/2001		
				1	M-48 Fuzes	Unknown	HE	52	77	10				5/10/2001		
				1	M-48 Fuzes	Unknown	HE	4	105	5				5/10/2001		
				1	M-48 Fuzes	Unknown	HE	2	110	2				5/10/2001		
				1	M-48 Fuzes	Empty		26	175	12						
				1	M-48 Fuzes	Empty		48	131	8						
				1	M-48 Fuzes	Empty		43	117	2						
				1	M-48 Fuzes	Empty		38	105	5						
				1	M-48 Fuzes	Empty		33	106	4						
				1	M-48 Fuzes	Empty		30	107	3						
				1	M-48 Fuzes	Empty		17	70	4						
				1	M-48 Fuzes	Empty		18	62	2						
				1	M-48 Fuzes	Empty		21	11	5						
				1	M-48 Fuzes	Empty		17	181	12						
L-21A1A	4/9/2001	4/19/2001	2024	0							Loam	0	287		4/19/2001	#######
L-21 B1A	4/19/2001	5/22/2001	3880	1	37mm	Empty		117	171	14	Loam	110	360		5/22/2001	#######
				1	37mm	Empty		117	171	19						
				1	37mm	Empty		117	171	21						
				1	37mm	Empty		117	171	24						
				1	37mm	Empty		117	171	30						
				1	37mm	Empty		117	171	33						
				1	37mm	Empty		103	155	25						
				1	37mm	Empty		103	155	25						
				1	37mm	Empty		103	155	25						
				1	37mm	Empty		103	155	25						
				1	37mm	Empty		103	155	25						
				1	37mm	Empty		103	155	25						
				1	37mm	Empty		103	155	25						
				1	37mm	Empty		103	155	25						
				1	37mm	Empty		103	155	25						
				1	37mm	Empty		103	155	25						
				1	37mm	Empty		103	155	25						
				1	37mm	Empty		103	155	25						
				1	37mm	Empty		103	155	25						
				1	37mm	Empty		103	155	25						
				1	37mm	Empty		103	155	25						
				1	37mm	Empty		103	155	25						
				1	37mm	Empty		103	155	30						
				1	37mm	Empty		103	155	30						
				1	37mm	Empty		103	155	30						
				1	37mm	Unknown	APT	103	155	30				5/23/2001		
				1	37mm	Unknown	APT	103	155	30				5/23/2001		
				1	37mm	Unknown	APT	103	155	30				5/23/2001		
				1	37mm	Unknown	APT	103	155	30				5/23/2001		
				1	37mm	Unknown	APT	103	155	30				5/23/2001		
				1	37mm	Unknown	APT	103	155	30				5/23/2001		

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Grid Number	Date Grubbed	Date Cleared	Contacts or Digs	Qty	Item ID, "M" No. If Available	Condition	Filler	X (Feet)	Y (Feet)	Depth Inches	Soil Type	OE Scrap	#'s Other	Demo Date	QC Date	QA Date
				1	37mm	Unknown	APT	103	155	30				5/23/2001		
				1	37mm	Unknown	APT	103	155	30				5/23/2001		
				1	37mm	Unknown	APT	103	155	30				5/23/2001		
				1	37mm	Unknown	APT	103	155	30				5/23/2001		
				1	37mm	Unknown	APT	103	155	30				5/23/2001		
				1	37mm	Unknown	APT	103	155	30				5/23/2001		
				1	37mm	Unknown	APT	103	155	30				5/23/2001		
				1	37mm	Unknown	APT	103	155	30				5/23/2001		
				1	37mm	Unknown	APT	103	155	30				5/23/2001		
				1	37mm	Unknown	APT	103	155	30				5/23/2001		
				1	37mm	Unknown	APT	103	155	30				5/23/2001		
				1	37mm	Unknown	APT	103	155	30				5/23/2001		
				1	37mm	Unknown	APT	103	155	30				5/23/2001		
				1	37mm	Unknown	APT	103	155	35				5/23/2001		
				1	37mm	Unknown	APT	103	155	35				5/23/2001		
				1	37mm	Unknown	APT	103	155	35				5/23/2001		
				1	37mm	Unknown	APT	103	155	35				5/23/2001		
				1	37mm	Unknown	APT	103	155	35				5/23/2001		
				1	37mm	Unknown	APT	103	155	35				5/23/2001		
				1	37mm	Unknown	APT	103	155	35				5/23/2001		
				1	37mm	Unknown	APT	103	155	35				5/23/2001		
				1	37mm	Unknown	APT	103	155	35				5/23/2001		
				1	37mm	Unknown	APT	103	155	35				5/23/2001		
				1	37mm	Unknown	APT	103	155	35				5/23/2001		
				1	37mm	Unknown	APT	103	155	35				5/23/2001		
				1	37mm	Unknown	APT	103	155	35				5/23/2001		
				1	37mm	Unknown	APT	103	155	35				5/23/2001		
				1	37mm	Unknown	APT	103	155	35				5/23/2001		
				1	37mm	Unknown	APT	103	155	35				5/23/2001		
				1	37mm	Unknown	APT	103	155	35				5/23/2001		
				1	37mm	Unknown	APT	103	155	35				5/23/2001		
				1	37mm	Unknown	APT	103	155	35				5/23/2001		
				1	37mm	Unknown	APT	103	155	42				5/23/2001		
				1	37mm	Unknown	APT	103	155	42				5/23/2001		
				1	37mm	Unknown	APT	103	155	42				5/23/2001		
				1	37mm	Unknown	APT	103	155	42				5/23/2001		
				1	37mm	Unknown	APT	103	155	42				5/23/2001		
				1	37mm	Unknown	APT	103	155	42				5/23/2001		
				1	37mm	Unknown	APT	103	155	42				5/23/2001		
				1	37mm	Unknown	APT	103	155	42				5/23/2001		
				1	37mm	Unknown	APT	103	155	42				5/23/2001		
				1	37mm	Unknown	APT	103	155	42				5/23/2001		
				1	37mm	Unknown	APT	103	155	42				5/23/2001		
				1	37mm	Unknown	APT	103	155	42				5/23/2001		
				1	37mm	Unknown	APT	103	155	42				5/23/2001		

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Grid Number	Date Grubbed	Date Cleared	Contacts or Digs	Qty	Item ID, "M" No. If Available	Condition	Filler	X (Feet)	Y (Feet)	Depth Inches	Soil Type	OE Scrap	#'s Other	Demo Date	QC Date	QA Date
				1	37mm	Unknown	APT	103	155	42				5/23/2001		
				1	37mm	Unknown	APT	103	155	42				5/23/2001		
				1	37mm	Empty		103	155	42						
				1	37mm	Empty		103	155	42						
				1	37mm	Empty		103	155	42						
				1	37mm	Empty		103	155	42						
				1	37mm	Empty		103	155	42						
				1	37mm	Empty		103	155	42						
				1	37mm	Empty		103	155	42						
				1	37mm	Empty		103	155	42						
				1	37mm	Empty		103	155	48						
				1	37mm	Empty		103	155	48						
				1	37mm	Empty		103	155	48						
				1	37mm	Empty		103	155	48						
				1	37mm	Empty		103	155	48						
				1	37mm	Empty		103	155	48						
				1	37mm	Empty		103	155	48						
				1	37mm	Empty		103	155	48						
				1	37mm	Empty		103	155	48						
				1	37mm	Empty		103	155	48						
				1	37mm	Empty		103	155	48						
				1	37mm	Empty		103	155	48						
				1	37mm	Empty		103	155	48						
				1	37mm	Empty		103	155	48						
				1	37mm	Empty		103	155	48						
				1	37mm	Empty		103	155	48						
L-34 A1	4/16/2001	5/16/2001	175	0							Loam	0	200		5/21/2001	#######
L-34 B1	4/16/2001	5/16/2001	255	0							Loam	0	90		5/21/2001	#######
L-34 C1	4/11/2001	****	445	0							Loam	0	180		N/A	N/A
L-34 C4	4/18/2001	****	30	0							Loam	0	10		N/A	N/A
L-34 D1	4/16/2001	****	300	0							Loam	0	200		N/A	N/A
L-34 D3	4/19/2001	****	35	0							Loam	50	80		N/A	N/A
L-34 D4	4/19/2001	****	55	0							Loam	22	55		N/A	N/A
L-34 E1	4/17/2001	****	360	1	M-5 Mine	Empty		98	196	0	Loam	4	145		N/A	N/A
L-34 E3	4/18/2001	****	30	9	M-5 Mine	Empty				0	Loam	100	55		N/A	N/A
				1	Base Fuze	Unknown	HE	4	18	12				5/10/2001		
				1	Base Fuze	Empty		150	18	18						
				1	Nose Fuze	Empty		88	19	24						
L-34 E4	4/18/2001	****	15	1	M-5 Glass Mine	Empty		37	5	36	Loam	70	20		N/A	N/A
				1	M-5 Glass Mine	Empty		42	31	30						
	Date Grubbed	Date Cleared	Contacts or Digs	Qty	Item ID, "M" No. If Available	Condition	Filler	X (Feet)	Y (Feet)	Depth Inches	Soil Type	OE Scrap Pounds	#'s Other Material	Demo Date	QC Date	QA Date
TOTAL:	**20**	**10**	**10497**	**409**					**AVG**	**19.00**		**845**	**2122**		**7**	**4**

**** Grid L-16A1A sifting ops. Grids: L34-D3, L-34E3, L34-C4 L-34D4, L-34E4are random digs in the grids. Waiting future instructions. Grids: L34E1 will require heavy equipment. L-34C1 and L-34D1 waiting asbestos abatement. L-11A1 was not complete (demob). 3 grids not QA'd only QC'd are the 300 (EM-61) digs on L-2, L-3 and L-11.

L2 MEC Log
MKM Engineers
2007 Removal Action

Count	#items listed on Grid Sheet	Grid #	Date Recovered	Item Description	N Coordinate (deg,min,sec)	E Coordinate (deg,min,sec)	Move / BIP	Disposition/ Destroyed	Date Disposed/ Destroyed
1		L2-K-1-1	5/6/2007	T-83 FUZE	41.22.038	088.06.064	Move	Destroyed	28-Jun-07
2		L2-K-1-2	5/6/2007	M-54 PT/PD	41.22.027	088.06.064	Move	Destroyed	28-Jun-07
3		L2-K-1-3	5/6/2007	M-54 PT/PD	41.22.026	088.06.068	Move	Destroyed	28-Jun-07
4		L2-K-1-4	5/6/2007	M-54 PT/PD	41.22.030	088.06.067	Move	Destroyed	28-Jun-07
5		L2-K-2-1	5/6/2007	Mk 3 Booster	41.22.023	088.06.044	Move	Destroyed	28-Jun-07
6		L2-K-2-2	5/6/2007	Mk 3 Booster	41.22.039	088.06.045	Move	Destroyed	28-Jun-07
7		L2-K-2-3	5/6/2007	Mk 3 Booster	41.22.038	088.06.053	Move	Destroyed	28-Jun-07
8		L2-J-2-1	5/7/2007	M43 MT FUZE	41.22.013	088.06.050	Move	Destroyed	28-Jun-07
9		L2-J-2-2	5/7/2007	Mk 3 Booster	41.22.012	088.06.049	Move	Destroyed	28-Jun-07
10		L2-J-2-3	5/7/2007	M43 MT FUZE	41.22.019	088.06.047	Move	Destroyed	28-Jun-07
11		L2-J-3-1	5/7/2007	M43 MT FUZE	41.22.015	088.06.035	Move	Destroyed	28-Jun-07
12		L2-G-14-1	5/14/2007	MK3 BOOSTER	41.21.950	088.05.785	Move	Destroyed	6-Jun-07
13		L2-G-14-2	5/14/2007	MK3 BOOSTER	41.21.977	088.05.781	Move	Destroyed	6-Jun-07
14		L2-J-15-1	5/21/2007	T-83 FUZE	41.222.008	088.05.761	Move	Destroyed	6-Jun-07
15		L2-F-13-1	5/23/2007	MK3 BOOSTER	41.21.942	088.05.815	Move	Destroyed	6-Jun-07
16		L2-F-13-2	5/23/2007	MK3 BOOSTER	41.21.944	088.05.811	Move	Destroyed	6-Jun-07
17		L2-F-13-3	5/23/2007	M66 BOOSTER	41.21.945	088.05.809	Move	Destroyed	6-Jun-07
18		L2-F-13-4	5/23/2007	MK3 BOOSTER	41.21.953	088.05.800	Move	Destroyed	6-Jun-07
19		L2-F-13-5	5/23/2007	CAST EXPLOSIVE	41.21.954	088.05.810	Move	Destroyed	6-Jun-07
20		L2-F-13-6	5/23/2007	M66 BOOSTER	41.21.953	088.05.809	Move	Destroyed	6-Jun-07
21		L2-F-13-7	5/23/2007	MK3 BOOSTER	41.21.955	088.05.805	Move	Destroyed	6-Jun-07
22		L2-F-13-8	5/23/2007	MK3 BOOSTER	41.21.857	088.05.805	Move	Destroyed	6-Jun-07
23		L2-F-14-1	5/23/2007	MK3 BOOSTER	41.21.954	088.05.792	Move	Destroyed	6-Jun-07
24		L2-F-14-2	5/23/2007	MK3 BOOSTER	41.21.954	088.05.792	Move	Destroyed	6-Jun-07
25		L2-G-15-1	5/24/2007	MK3 BOOSTER	41.21.964	088.05.780	Move	Destroyed	6-Jun-07
26		L2-G-15-2	5/24/2007	MK3 BOOSTER	41.21.955	088.05.776	Move	Destroyed	6-Jun-07
27		L2-H-14-1	5/24/2007	MK3 BOOSTER	41.21.976	088.05.794	Move	Destroyed	6-Jun-07
28		L2-H-14-2	5/24/2007	M66 BOOSTER	41.21.976	088.05.796	Move	Destroyed	6-Jun-07
29		L2-H-15-1	5/24/2007	MK3 BOOSTER	41.21.980	088.05.776	Move	Destroyed	6-Jun-07
30		L2-O-12-1	5/30/2007	MK3 BOOSTER	41.22.101	088.05.821	Move	Destroyed	6-Jun-07
31		L2-O-12-2	5/30/2007	M66 BOOSTER	41.22.096	088.05.825	Move	Destroyed	6-Jun-07
32		L2-O-14-1	5/31/2007	MK3 BOOSTER	41.22.099	088.05.789	Move	Destroyed	6-Jun-07
33		L2-O-14-2	5/31/2007	MK3 BOOSTER	41.22.101	088.05.791	Move	Destroyed	6-Jun-07
34		L2-O-14-3	5/31/2007	M66 BOOSTER	41.22.104	088.05.791	Move	Destroyed	6-Jun-07
35		L2-O-13-1	6/1/2007	MK3 BOOSTER	41.22.106	088.05.818	Move	Destroyed	6-Jun-07
36		L2-O-13-2	6/1/2007	M66 BOOSTER	41.22.106	088.05.814	Move	Destroyed	6-Jun-07
37		L2-O-13-3	6/1/2007	MK3 BOOSTER	41.22.109	088.05.814	Move	Destroyed	6-Jun-07
38		L2-O-13-4	6/1/2007	M66 BOOSTER	41.22.104	088.05.816	Move	Destroyed	6-Jun-07
39		L2-I-2-1	6/11/2007	M 43 MT Fuze	41.21.998	088.06.040	Move	Destroyed	28-Jun-07
40		L2I-2-2	6/11/2007	T83	41.21.999	088.06.046	Move	Destroyed	28-Jun-07
41		L2-L-2-1	6/13/2007	T83	41.22.048	088.06.056	Move	Destroyed	28-Jun-07
42		L2-L-2-2	6/13/2007	T83	41.22.051	088.06.054	Move	Destroyed	28-Jun-07
43		L2-L-2-3	6/13/2007	T83	41.22.052	088.06.051	Move	Destroyed	28-Jun-07
44		L2-L-2-4	6/13/2007	MK3 Booster	41.22.053	088.06.051	Move	Destroyed	28-Jun-07
45		L2-L-2-5	6/13/2007	T83	41.22.054	088.06.053	Move	Destroyed	28-Jun-07
46		L2-L-2-6	6/13/2007	T83	41.22.057	088.06.057	Move	Destroyed	28-Jun-07
47		L2-L-2-7	6/13/2007	T83	41.22.057	088.06.061	Move	Destroyed	28-Jun-07
48		L2-M-2-1	6/13/2007	T83	41.22.062	088.06.050	Move	Destroyed	28-Jun-07
49		L2-M-2-2	6/13/2007	T83	41.22.065	088.06.049	Move	Destroyed	28-Jun-07
50		L2-M-2-3	6/13/2007	MK3 Booster	41.22.063	088.06.048	Move	Destroyed	28-Jun-07
51		L2-M-3-1	6/19/2007	MK3	41.22.070	088.06.036	Move	Destroyed	28-Jun-07
52		L2-M-3-10	6/19/2007	T83	41.22.071	088.06.023	Move	Destroyed	28-Jun-07
53		L2-M-3-11	6/19/2007	MK3	41.22.071	088.06.022	Move	Destroyed	28-Jun-07
54		L2-M-3-12	6/19/2007	MK3	41.22.071	088.06.021	Move	Destroyed	28-Jun-07
55		L2-M-3-13	6/19/2007	M54	41.22.070	088.06.021	Move	Destroyed	28-Jun-07
56		L2-M-3-14	6/19/2007	T83	41.22.071	088.06.020	Move	Destroyed	28-Jun-07
57		L2-M-3-15	6/19/2007	MK3	41.22.070	088.06.018	Move	Destroyed	28-Jun-07
58		L2-M-3-16	6/19/2007	MK3	41.22.068	088.06.018	Move	Destroyed	28-Jun-07
59		L2-M-3-17	6/19/2007	MK3	41.22.069	088.06.031	Move	Destroyed	28-Jun-07
60		L2-M-3-18	6/19/2007	T83	41.22.073	088.06.033	Move	Destroyed	28-Jun-07
61		L2-M-3-19	6/19/2007	MK3	41.22.072	088.06.032	Move	Destroyed	28-Jun-07
62		L2-M-3-2	6/19/2007	MK3	41.22.072	088.06.033	Move	Destroyed	28-Jun-07
63		L2-M-3-20	6/19/2007	T83	41.22.071	088.06.032	Move	Destroyed	28-Jun-07
64		L2-M-3-21	6/19/2007	MK3	41.22.069	088.06.034	Move	Destroyed	28-Jun-07
65		L2-M-3-22	6/19/2007	MK3	41.22.066	088.06.030	Move	Destroyed	28-Jun-07

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Count	#items listed on Grid Sheet	Grid #	Date Recovered	Item Description	N Coordinate (deg,min,sec)	E Coordinate (deg,min,sec)	Move / BIP	Disposition/ Destroyed	Date Disposed/ Destroyed
66		L2-M-3-3	6/19/2007	M54	41.22.069	088.06.033	Move	Destroyed	28-Jun-07
67		L2-M-3-4	6/19/2007	T83	41.22.069	088.06.028	Move	Destroyed	28-Jun-07
68		L2-M-3-5	6/19/2007	MK3	41.22.069	088.06.027	Move	Destroyed	28-Jun-07
69		L2-M-3-6	6/19/2007	T83	41.22.066	088.06.026	Move	Destroyed	28-Jun-07
70		L2-M-3-7	6/19/2007	MK3	41.22.069	088.06.025	Move	Destroyed	28-Jun-07
71		L2-M-3-8	6/19/2007	T83	41.22.071	088.06.024	Move	Destroyed	28-Jun-07
72		L2-M-3-9	6/19/2007	M54	41.22.069	088.06.023	Move	Destroyed	28-Jun-07
73		L2-M-4-1	6/19/2007	T83	41.22.074	088.06.012	Move	Destroyed	28-Jun-07
74		L2-M-4-10	6/19/2007	T83	41.22.074	088.06.012	Move	Destroyed	28-Jun-07
75		L2-M-4-11	6/19/2007	T83	41.22.074	088.06.012	Move	Destroyed	28-Jun-07
76		L2-M-4-12	6/19/2007	MK3	41.22.074	088.06.012	Move	Destroyed	28-Jun-07
77		L2-M-4-13	6/19/2007	MK3	41.22.074	088.06.012	Move	Destroyed	28-Jun-07
78		L2-M-4-14	6/19/2007	MK3	41.22.074	088.06.012	Move	Destroyed	28-Jun-07
79		L2-M-4-2	6/19/2007	T83	41.22.074	088.06.012	Move	Destroyed	28-Jun-07
80		L2-M-4-3	6/19/2007	T83	41.22.074	088.06.012	Move	Destroyed	28-Jun-07
81		L2-M-4-4	6/19/2007	T83	41.22.074	088.06.012	Move	Destroyed	28-Jun-07
82		L2-M-4-5	6/19/2007	T83	41.21.649	088.06.255	Move	Destroyed	28-Jun-07
83		L2-M-4-6	6/19/2007	T83	41.22.074	088.06.012	Move	Destroyed	28-Jun-07
84		L2-M-4-7	6/19/2007	T83	41.22.074	088.06.012	Move	Destroyed	28-Jun-07
85		L2-M-4-8	6/19/2007	T83	41.22.074	088.06.012	Move	Destroyed	28-Jun-07
86		L2-M-4-9	6/19/2007	T83	41.22.074	088.06.012	Move	Destroyed	28-Jun-07
87		L2-G-3-1	6/21/2007	M90 PD FUZE	41.22.961	088.06.033	Move	Destroyed	28-Jun-07
88		L2-G-3-2	6/21/2007	M90 PD Fuze	41.22.972	088.06.036	Move	Destroyed	28-Jun-07
89		L2-G-3-3	6/21/2007	M90 PD Fuze	41.22.972	088.06.037	Move	Destroyed	28-Jun-07
90		L2-G-3-4	6/21/2007	M90 PD Fuze	41.22.972	088.06.037	Move	Destroyed	28-Jun-07
91		L2-H-3-1	6/21/2007	M90 PD FUZE	41.21.955	088.06.024	Move	Destroyed	28-Jun-07
92		L2-H-3-2	6/21/2007	MK3	41.21.985	088.06.031	Move	Destroyed	28-Jun-07
93		L2-H-3-3	6/21/2007	M90 PD FUZE	41.21.986	088.06.035	Move	Destroyed	28-Jun-07
94		L2-A-3-1	6/27/2007	MK3	41.21.885	088.06.044	Move	Destroyed	28-Jun-07
95		L2-A-3-2	6/27/2007	MK3	41.21.873	088.06.039	Move	Destroyed	28-Jun-07
96		L2-F-12-1	6/28/2007	T83	41.21.576	088.05.506	Move	Destroyed	28-Jun-07
97		L2-F-12-2	6/28/2007	T83	41.21.574	088.05.502	Move	Destroyed	28-Jun-07
98		L2-F-12-3	6/28/2007	T83	41.21.573	088.05.500	Move	Destroyed	28-Jun-07
99		L2-B-1-1	7/2/2007	T83	41.21.887	088.06.064	Move	Destroyed	8-Aug-07
100		L2-B-1-2	7/2/2007	T83	41.21.892	088.06.067	Move	Destroyed	8-Aug-07
101		L2-B-2-1	7/2/2007	MK3	41.21.886	088.06.059	Move	Destroyed	8-Aug-07
102		L2-B-2-10	7/2/2007	MK3	41.21.890	088.06.049	Move	Destroyed	8-Aug-07
103		L2-B-2-11	7/2/2007	MK3	41.21.887	088.06.048	Move	Destroyed	8-Aug-07
104		L2-B-2-12	7/2/2007	MK3	41.21.886	088.06.048	Move	Destroyed	8-Aug-07
105		L2-B-2-13	7/2/2007	MK3	41.21.889	088.06.046	Move	Destroyed	8-Aug-07
106		L2-B-2-14	7/2/2007	MK3	41.21.888	088.06.043	Move	Destroyed	8-Aug-07
107		L2-B-2-15	7/2/2007	MK3	41.21.889	088.06.042	Move	Destroyed	8-Aug-07
108		L2-B-2-16	7/2/2007	T83	41.21.885	088.06.042	Move	Destroyed	8-Aug-07
109		L2-B-2-2	7/2/2007	T83	41.21.887	088.06.057	Move	Destroyed	8-Aug-07
110		L2-B-2-3	7/2/2007	M66	41.21.888	088.06.056	Move	Destroyed	8-Aug-07
111		L2-B-2-4	7/2/2007	MK3	41.21.890	088.06.055	Move	Destroyed	8-Aug-07
112		L2-B-2-5	7/2/2007	MK3	41.21.891	088.06.056	Move	Destroyed	8-Aug-07
113		L2-B-2-6	7/2/2007	MK3	41.21.890	088.06.052	Move	Destroyed	8-Aug-07
114		L2-B-2-7	7/2/2007	MK3	41.21.890	088.06.051	Move	Destroyed	8-Aug-07
115		L2-B-2-8	7/2/2007	MK3	41.21.890	088.06.050	Move	Destroyed	8-Aug-07
116		L2-B-2-9	7/2/2007	MK3	41.21.890	088.06.049	Move	Destroyed	8-Aug-07
117		L2-C-2-1	7/3/2007	T83	41.21.906	088.06.063	Move	Destroyed	8-Aug-07
118		L2-C-2-2	7/3/2007	T83	41.21.902	088.06.057	Move	Destroyed	8-Aug-07
119		L2-C-2-3	7/3/2007	MK3	41.21.905	088.06.049	Move	Destroyed	8-Aug-07
120		L2-C-2-4	7/3/2007	M43 MT	41.21.911	088.06.046	Move	Destroyed	8-Aug-07
121		L2-F-11-1	7/3/2007	M66	41.21.575	088.05.508	Move	Destroyed	8-Aug-07
122		L2-F-11-2	7/3/2007	M66	41.21.575	088.05.514	Move	Destroyed	8-Aug-07
123		L2-F-11-3	7/3/2007	M66	41.21.575	088.05.515	Move	Destroyed	8-Aug-07
124		L2-F-11-4	7/3/2007	M66	41.21.575	088.05.513	Move	Destroyed	8-Aug-07
125		L2-C-3-1	7/4/2007	MK3	41.21.544	088.06.026	Move	Destroyed	8-Aug-07
126		L2-C-3-2	7/4/2007	T83	41.21.542	088.06.025	Move	Destroyed	8-Aug-07
127		L2-C-3-3	7/4/2007	M564 MT	41.21.537	088.06.537	Move	Destroyed	8-Aug-07
128		L2-C-3-4	7/4/2007	M564 MT	41.21.535	088.06.020	Move	Destroyed	8-Aug-07
129		L2-D-2-1	7/9/2007	T83	41.21.920	088.06.045	Move	Destroyed	8-Aug-07
130		L2-Q-11-1	7/9/2007	M66	41.22.105	088.05.502	Move	Destroyed	8-Aug-07
131		L2-Q-11-2	7/9/2007	M66	41.22.089	088.05.517	Move	Destroyed	8-Aug-07
132		L2-Q-12-1	7/9/2007	M66	41.22.078	088.05.499	Move	Destroyed	8-Aug-07

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Count	#Items listed on Grid Sheet	Grid #	Date Recovered	Item Description	N Coordinate (deg,min,sec)	E Coordinate (deg,min,sec)	Move / BIP	Disposition/ Destroyed	Date Disposed/ Destroyed
133		L2-Q-12-2	7/9/2007	M66	41.22.085	088.05.509	Move	Destroyed	8-Aug-07
134		L2-S-12-1	7/11/2007	M256	41.22.079	088.05.509	Move	Destroyed	8-Aug-07
135		L2-E-1-1	7/12/2007	MK3	41.21.927	088.06.070	Move	Destroyed	8-Aug-07
136		L2-E-1-2	7/12/2007	MK3	41.21.938	088.06.078	Move	Destroyed	8-Aug-07
137		L2-R-10-1	7/12/2007	M66	41.22.091	088.05.557	Move	Destroyed	8-Aug-07
138		L2-R-10-2	7/12/2007	M66	41.22.103	088.05.504	Move	Destroyed	8-Aug-07
139		L2-R-10-3	7/12/2007	M66	41.22.086	088.06.524	Move	Destroyed	8-Aug-07
140		L2-R-10-4	7/12/2007	M66	41.22.090	088.05.530	Move	Destroyed	8-Aug-07
141		L2-R-10-5	7/12/2007	M66	41.22.085	088.05.521	Move	Destroyed	8-Aug-07
142		L2-R-10-6	7/12/2007	M66	41.22.086	088.05.524	Move	Destroyed	8-Aug-07
143		L2-E-2-1	7/18/2007	T83	41.21.936	088.06.048	Move	Destroyed	8-Aug-07
144		L2-E-2-2	7/18/2007	MK3	41.21.941	088.06.052	Move	Destroyed	8-Aug-07
145		L2-S-7-1	7/18/2007	T83	41.22.094	088.05.555	Move	Destroyed	8-Aug-07
146		L2-R-7-1	7/19/2007	T83	41.21.088	088.05.571	Move	Destroyed	8-Aug-07
147		L2-C-6-1	7/23/2007	T83	41.21.546	088.05.580	Move	Destroyed	8-Aug-07
148		L2-G-7-1	7/25/2007	M66	41.21.576	088.05.563	Move	Destroyed	8-Aug-07
149		L2-H-2-1	7/26/2007	M90 PD FUZE	41.21.977	088.06.058	Move	Destroyed	8-Aug-07
150		L2-H-2-2	7/26/2007	M90 PD FUZE	41.21.982	088.06.063	Move	Destroyed	8-Aug-07
151		L2-H-2-3	7/26/2007	M90 PD FUZE	41.21.983	088.06.063	Move	Destroyed	8-Aug-07
152		L2-H-2-4	7/26/2007	M90 PD FUZE	41.21.988	088.06.046	Move	Destroyed	8-Aug-07
153		L2-G-2-1	7/31/2007	MK3	41.21.968	088.06.054	Move	Destroyed	8-Aug-07
154		L2-G-2-2	7/31/2007	M90 PD FUZE	41.21.960	088.06.054	Move	Destroyed	8-Aug-07
155		L2-D11-1	8/10/2007	MK3 BOOSTER	41.21.926	088.05.863	Move	Destroyed	29-Aug-07
156		L2-N3-1	8/10/2007	T83 FUZE	41.22.075	088.06.026	Move	Destroyed	29-Aug-07
157		L2-N3-10	8/10/2007	M43 MT FUZE	41.22.083.	088.06.023	Move	Destroyed	29-Aug-07
158		L2-N3-11	8/10/2007	M66 FUZE	41.21.084	088.06.022	Move	Destroyed	29-Aug-07
159		L2-N3-12	8/10/2007	T83 FUZE	41.22.080	088.06.024	Move	Destroyed	29-Aug-07
160		L2-N3-13	8/10/2007	M66 FUZE	41.22.080	088.06.020	Move	Destroyed	29-Aug-07
161		L2-N3-14	8/10/2007	T83 FUZE	41.22.077	088.06.021	Move	Destroyed	29-Aug-07
162		L2-N3-15	8/10/2007	T83 FUZE	41.22.077	088.06.019	Move	Destroyed	29-Aug-07
163		L2-N3-16	8/10/2007	MK3 BOOSTER	41.22.077	088.06.018	Move	Destroyed	29-Aug-07
164		L2-N3-17	8/10/2007	T83 FUZE	41.22.077	088.06.017	Move	Destroyed	29-Aug-07
165		L2-N3-18	8/10/2007	T83 FUZE	41.22.079	088.06.018	Move	Destroyed	29-Aug-07
166		L2-N3-19	8/10/2007	T83 FUZE	41.22.078	088.06.020	Move	Destroyed	29-Aug-07
167		L2-N3-2	8/10/2007	MK3 BOOSTER	41.22.077	088.06.033	Move	Destroyed	29-Aug-07
168		L2-N3-20	8/10/2007	MK3 BOOSTER	41.22.083	088.06.021	Move	Destroyed	29-Aug-07
169		L2-N3-21	8/10/2007	M43 MT FUZE	41.22.088	088.06.023	Move	Destroyed	29-Aug-07
170		L2-N3-22	8/10/2007	T83 FUZE	41.22.089	088.06.016	Move	Destroyed	29-Aug-07
171		L2-N3-3	8/10/2007	MK3 BOOSTER	41.22.078	088.06.029	Move	Destroyed	29-Aug-07
172		L2-N3-4	8/10/2007	MK3 BOOSTER	41.22.080	088.06.028	Move	Destroyed	29-Aug-07
173		L2-N3-5	8/10/2007	M66 FUZE	41.22.081	088.06.031	Move	Destroyed	29-Aug-07
174		L2-N3-6	8/10/2007	MK3 BOOSTER	41.22.080	088.06.030	Move	Destroyed	29-Aug-07
175		L2-N3-7	8/10/2007	MK3 BOOSTER	41.22.082	088.06.030	Move	Destroyed	29-Aug-07
176		L2-N3-8	8/10/2007	MK3 BOOSTER	41.22.083	088.06.028	Move	Destroyed	29-Aug-07
177		L2-N3-9	8/10/2007	T83 FUZE	41.22.082	088.06.027	Move	Destroyed	29-Aug-07
178		L2-P5-1	8/10/2007	MK3 BOOSTER	41.22.131	088.05.994	Move	Destroyed	29-Aug-07
179		L2-P5-2	8/10/2007	T83 FUZE	41.22.117	088.05.994	Move	Destroyed	29-Aug-07
180		L2-Q5-1	8/10/2007	MK3 BOOSTER	41.22.123	088.05.975	Move	Destroyed	29-Aug-07
181		L2-Q6-1	8/10/2007	T83 FUZE	41.22.141	088.05.997	Move	Destroyed	29-Aug-07
182		L2-R6-1	8/10/2007	T83 FUZE	41.22.149	088.05.955	Move	Destroyed	29-Aug-07
183		L2-R6-2	8/10/2007	T83 FUZE	41.22.150	088.05.962	Move	Destroyed	29-Aug-07
184		L2-R6-3	8/10/2007	T83 FUZE	41.22.150	088.05.967	Move	Destroyed	29-Aug-07
185		L2-E12-1	8/14/2007	M66 BASE FUZE	41.21.932	088.05.841	Move	Destroyed	29-Aug-07
186		L2-E12-2	8/14/2007	M66 BASE FUZE	41.21.935	088.05.833	Move	Destroyed	29-Aug-07
187		L2-B4-1	8/15/2007	MK3 BOOSTER	41.21.53	088.06.01	Move	Destroyed	29-Aug-07
188		L2-O4-1	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
189		L2-O4-10	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
190		L2-O4-11	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
191		L2-O4-12	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
192		L2-O4-13	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
193		L2-O4-14	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
194		L2-O4-15	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
195		L2-O4-16	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
196		L2-O4-17	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
197		L2-O4-18	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
198		L2-O4-19	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
199		L2-O4-2	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07

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MKM Engineers
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Count	#Items listed on Grid Sheet	Grid #	Date Recovered	Item Description	N Coordinate (deg,min,sec)	E Coordinate (deg,min,sec)	Move / BIP	Disposition/ Destroyed	Date Disposed/ Destroyed
200		L2-O4-20	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
201		L2-O4-21	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
202		L2-O4-22	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
203		L2-O4-23	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
204		L2-O4-24	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
205		L2-O4-25	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
206		L2-O4-26	8/15/2007	M66 NOSE FUZE	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
207		L2-O4-27	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
208		L2-O4-28	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
209		L2-O4-29	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
210		L2-O4-3	8/15/2007	M54 NOSE FUZE	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
211		L2-O4-30	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
212		L2-O4-31	8/15/2007	T83 NOSE FUZE	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
213		L2-O4-32	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
214		L2-O4-33	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
215		L2-O4-34	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
216		L2-O4-35	8/15/2007	T83 NOSE FUZE	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
217		L2-O4-36	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
218		L2-O4-37	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
219		L2-O4-38	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
220		L2-O4-39	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
221		L2-O4-4	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
222		L2-O4-40	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
223		L2-O4-41	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
224		L2-O4-42	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
225		L2-O4-43	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
226		L2-O4-44	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
227		L2-O4-45	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
228		L2-O4-46	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
229		L2-O4-47	8/15/2007	T83 NOSE FUZE	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
230		L2-O4-48	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
231		L2-O4-49	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
232		L2-O4-5	8/15/2007	M54 NOSE FUZE	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
233		L2-O4-50	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
234		L2-O4-51	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
235		L2-O4-52	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
236		L2-O4-53	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
237		L2-O4-54	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
238		L2-O4-55	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
239		L2-O4-56	8/15/2007	M66 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
240		L2-O4-57	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
241		L2-O4-6	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
242		L2-O4-7	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
243		L2-O4-8	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
244		L2-O4-9	8/15/2007	MK3 BOOSTER	42.22.05	088.06.00	Move	Destroyed	29-Aug-07
245		L2-P4-1	8/15/2007	T83 NOSE FUZE	41.22.06	088.05.059	Move	Destroyed	29-Aug-07
246		L2-P4-2	8/15/2007	T83 NOSE FUZE	41.22.07	088.05.059	Move	Destroyed	29-Aug-07
247		L2-P4-3	8/15/2007	M66 BOOSTER	41.22.07	088.05.059	Move	Destroyed	29-Aug-07
248		L2-D-10-1	8/16/2007	M66	41.21.924	088.05.876	Move	Destroyed	29-Aug-07
249		L2-D-10-2	8/16/2007	M66	41.21.924	088.05.876	Move	Destroyed	29-Aug-07
250		L2-D-10-3	8/16/2007	M66	41.21.924	088.05.876	Move	Destroyed	29-Aug-07
251		L2-D-10-4	8/16/2007	M66	41.21.924	088.05.876	Move	Destroyed	29-Aug-07
252		L2-D-10-5	8/16/2007	MK3	41.21.924	088.05.876	Move	Destroyed	29-Aug-07
253		L2-D-10-6	8/16/2007	MK3	41.21.924	088.05.876	Move	Destroyed	29-Aug-07
254		L2-D-10-7	8/16/2007	MK3	41.21.924	088.05.876	Move	Destroyed	29-Aug-07
255		L2-E-10-1	8/16/2007	M66	41.21.935	088.05.878	Move	Destroyed	29-Aug-07
256		L2-E-10-10	8/16/2007	MK3	41.21.935	088.05.878	Move	Destroyed	29-Aug-07
257		L2-E-10-11	8/16/2007	MK3	41.21.935	088.05.878	Move	Destroyed	29-Aug-07
258		L2-E-10-12	8/16/2007	PD FUZE	41.21.935	088.05.878	Move	Destroyed	29-Aug-07
259		L2-E-10-13	8/16/2007	PD FUZE	41.21.935	088.05.878	Move	Destroyed	29-Aug-07
260		L2-E-10-2	8/16/2007	M66	41.21.935	088.05.878	Move	Destroyed	29-Aug-07
261		L2-E-10-3	8/16/2007	M66	41.21.935	088.05.878	Move	Destroyed	29-Aug-07
262		L2-E-10-4	8/16/2007	M66	41.21.935	088.05.878	Move	Destroyed	29-Aug-07
263		L2-E-10-5	8/16/2007	MK3	41.21.935	088.05.878	Move	Destroyed	29-Aug-07
264		L2-E-10-6	8/16/2007	MK3	41.21.935	088.05.878	Move	Destroyed	29-Aug-07
265		L2-E-10-7	8/16/2007	MK3	41.21.935	088.05.878	Move	Destroyed	29-Aug-07
266		L2-E-10-8	8/16/2007	MK3	41.21.935	088.05.878	Move	Destroyed	29-Aug-07

L2 MEC Log
MKM Engineers
2007 Removal Action

Count	#items listed on Grid Sheet	Grid #	Date Recovered	Item Description	N Coordinate (deg,min,sec)	E Coordinate (deg,min,sec)	Move / BIP	Disposition/ Destroyed	Date Disposed/ Destroyed
267		L2-E-10-9	8/16/2007	MK3	41.21.935	088.05.878	Move	Destroyed	29-Aug-07
268		L2-E11-1	8/16/2007	M66 BOOSTER	41.21.927	088.05.864	Move	Destroyed	29-Aug-07
269		L2-E11-10	8/16/2007	M66 BOOSTER	41.21.931	088.06.863	Move	Destroyed	29-Aug-07
270		L2-E11-11	8/16/2007	T83 NOSE FUZE	41.21.928	088.06.863	Move	Destroyed	29-Aug-07
271		L2-E11-12	8/16/2007	T-83 NOSE FUZE	41.21.929	088.05.864	Move	Destroyed	29-Aug-07
272		L2-E11-13	8/16/2007	MK 3 BOOSTER	41.21.931	088.05.865	Move	Destroyed	29-Aug-07
273		L2-E11-14	8/16/2007	MK3 BOOSTER	41.21.934	088.05.867	Move	Destroyed	29-Aug-07
274		L2-E11-15	8/16/2007	M66 BOOSTER	41.21.934	088.05.867	Move	Destroyed	29-Aug-07
275		L2-E11-16	8/16/2007	M66 BOOSTER	41.21.935	088.05.865	Move	Destroyed	29-Aug-07
276		L2-E11-17	8/16/2007	MK3 BOOSTER	41.21.939	088.05.861	Move	Destroyed	29-Aug-07
277		L2-E11-2	8/16/2007	M66 BOOSTER	41.21.927	088.05.864	Move	Destroyed	29-Aug-07
278		L2-E11-3	8/16/2007	MK3 BOOSTER	41.21.928	088.05.860	Move	Destroyed	29-Aug-07
279		L2-E11-4	8/16/2007	M66 BOOSTER	41.21.928	088.05.861	Move	Destroyed	29-Aug-07
280		L2-E11-5	8/16/2007	M66 BOOSTER	41.21.926	088.05.867	Move	Destroyed	29-Aug-07
281		L2-E11-6	8/16/2007	M66 BOOSTER	41.21.927	088.05.865	Move	Destroyed	29-Aug-07
282		L2-E11-7	8/16/2007	MK3 BOOSTER	41.21.931	088.05.854	Move	Destroyed	29-Aug-07
283		L2-E11-8	8/16/2007	MK3 BOOSTER	41.21.930	088.06.863	Move	Destroyed	29-Aug-07
284		L2-E11-9	8/16/2007	MK3 BOOSTER	41.21.931	088.06.863	Move	Destroyed	29-Aug-07
285		L2-A-5-1	8/21/2007	M503 20mm FUZE	41.21.526	088.05.879	Move	Destroyed	29-Aug-07
286		L2-B-5-1	8/21/2007	MK3	41.21.529	088.05.594	Move	Destroyed	29-Aug-07

L3 MEC Log
MKM Engineers
2007 Removal Action

Count	# Items Listed on Grid Sheets	Grid & Item #	Date Recovered	Item Description	N Coordinate (deg,min,sec)	E Coordinate (deg,min,sec)	Move / BIP	Disposition/Destroyed	Date Disposed/Destroyed
1		L3-A10-01	5/24/2007	MK3 BOOSTER	41.21.589	088.06.186	Move	Destroyed	6-Jun-07
2		L3-A10-02	5/24/2007	T-83 FUZE	41.21.591	088.06.183	Move	Destroyed	6-Jun-07
3		L3-A10-03	5/24/2007	MK3 BOOSTER	41.21.597	088.06.178	Move	Destroyed	6-Jun-07
4		L3-A10-04	5/24/2007	T-83 FUZE	41.21.598	088.06.182	Move	Destroyed	6-Jun-07
5		L3-A10-05	5/24/2007	MK3 BOOSTER	41.21.598	088.06.178	Move	Destroyed	6-Jun-07
6		L3-A10-06	5/24/2007	T-83 FUZE	41.21.598	088.06.174	Move	Destroyed	6-Jun-07
7	14	L3-A10-07	5/24/2007	T-83 FUZE	41.21.593	088.06.171	Move	Destroyed	6-Jun-07
8		L3-A10-08	5/24/2007	T-83 FUZE	41.21.603	088.06.169	Move	Destroyed	6-Jun-07
9		L3-A10-09	5/24/2007	T-83 FUZE	41.21.601	088.06.184	Move	Destroyed	6-Jun-07
10		L3-A10-10	5/24/2007	T-83 FUZE	41.21.601	088.06.189	Move	Destroyed	6-Jun-07
11		L3-A10-11	5/24/2007	MK3 BOOSTER	41.21.604	088.06.190	Move	Destroyed	6-Jun-07
12		L3-A10-12	5/24/2007	T-83 FUZE	41.21.601	088.06.189	Move	Destroyed	6-Jun-07
13		L3-A10-13	5/24/2007	T-83 FUZE	41.21.599	088.06.189	Move	Destroyed	6-Jun-07
14		L3-A10-14	5/24/2007	MK3 BOOSTER	41.21.598	088.06.188	Move	Destroyed	6-Jun-07
15		L3-A11-1	5/23/2007	MK3 BOOSTER	41.21.611	088.06.133	Move	Destroyed	6-Jun-07
16		L3-A11-2	5/23/2007	MK3 BOOSTER	41.21.606	088.06.139	Move	Destroyed	6-Jun-07
17	5	L3-A11-3	5/23/2007	T-83 FUZE	41.21.599	088.06.161	Move	Destroyed	6-Jun-07
18		L3-A11-4	5/23/2007	MK3 BOOSTER	41.21.598	088.06.163	Move	Destroyed	6-Jun-07
19		L3-A11-5	5/23/2007	MK3 BOOSTER	41.21.592	088.06.162	Move	Destroyed	6-Jun-07
20		L3-A6-1	5/2/2007	T-83 FUZE	41.21.593	088.06.255	Move	Destroyed	6-Jun-07
21		L3-A6-2	5/2/2007	BOOSTER	41.21.595	088.06.254	Move	Destroyed	6-Jun-07
22		L3-A6-3	5/2/2007	BOOSTER	41.21.598	088.06.253	Move	Destroyed	6-Jun-07
23	7	L3-A6-4	5/2/2007	T-83 FUZE	41.21.610	088.06.256	Move	Destroyed	6-Jun-07
24		L3-A6-5	5/2/2007	T-83 FUZE	41.21.611	088.06.257	Move	Destroyed	6-Jun-07
25		L3-A6-6	5/2/2007	BOOSTER	41.21.606	088.06.255	Move	Destroyed	6-Jun-07
26		L3-A6-7	5/2/2007	T-83 FUZE	41.21.607	088.06.232	Move	Destroyed	6-Jun-07
27		L3-A7-1	5/2/2007	M103 FUZE	41.21.613	088.06.227	Move	Destroyed	6-Jun-07
28		L3-A7-2	5/2/2007	BOOSTER	41.21.596	088.06.243	Move	Destroyed	6-Jun-07
29		L3-A7-3	5/2/2007	T-83 FUZE	41.21.598	088.06.251	Move	Destroyed	6-Jun-07
30		L3-A7-4	5/2/2007	BOOSTER	41.21.600	088.06.248	Move	Destroyed	6-Jun-07
31		L3-A7-5	5/2/2007	T-83 FUZE	41.21.603	088.06.247	Move	Destroyed	6-Jun-07
32		L3-A7-6	5/2/2007	BOOSTER	41.21.605	088.06.252	Move	Destroyed	6-Jun-07
33	13	L3-A7-7	5/2/2007	BOOSTER	41.21.603	088.06.249	Move	Destroyed	6-Jun-07
34		L3-A7-8	5/2/2007	T-83 FUZE	41.21.605	088.06.248	Move	Destroyed	6-Jun-07
35		L3-A7-9	5/2/2007	75mm SHRAPNEL	41.21.597	088.06.246	Move	Destroyed	6-Jun-07
36		L3-A7-10	5/2/2007	T-83 FUZE	41.21.598	088.06.240	Move	Destroyed	6-Jun-07
37		L3-A7-11	5/2/2007	BOOSTER	41.21.596	088.06.244	Move	Destroyed	6-Jun-07
38		L3-A7-12	5/2/2007	BOOSTER	41.21.595	088.06.247	Move	Destroyed	6-Jun-07
39		L3-A7-13	5/2/2007	T-83 FUZE	41.21.598	088.06.232	Move	Destroyed	6-Jun-07
40		L3-A8-01	5/2/2007	T-83 FUZE	41.21.612	088.06.226	Move	Destroyed	6-Jun-07
41		L3-A8-02	5/2/2007	BOOSTER	41.21.613	088.06.225	Move	Destroyed	6-Jun-07
42		L3-A8-03	5/2/2007	T-83 FUZE	41.21.606	088.06.234	Move	Destroyed	6-Jun-07
43		L3-A8-04	5/2/2007	T-83 FUZE	41.21.600	088.06.229	Move	Destroyed	6-Jun-07
44		L3-A8-05	5/2/2007	T-83 FUZE	41.21.602	088.06.228	Move	Destroyed	6-Jun-07
45		L3-A8-06	5/2/2007	T-83 FUZE	41.21.598	088.06.222	Move	Destroyed	6-Jun-07
46		L3-A8-07	5/2/2007	T-83 FUZE	41.21.601	088.06.226	Move	Destroyed	6-Jun-07
47	16	L3-A8-08	5/2/2007	T-83 FUZE	41.21.599	088.06.224	Move	Destroyed	6-Jun-07
48		L3-A8-09	5/2/2007	T-83 FUZE	41.21.600	088.06.222	Move	Destroyed	6-Jun-07
49		L3-A8-10	5/2/2007	T-83 FUZE	41.21.593	088.06.229	Move	Destroyed	6-Jun-07
50		L3-A8-11	5/2/2007	BOOSTER	41.21.592	088.06.230	Move	Destroyed	6-Jun-07
51		L3-A8-12	5/2/2007	T-83 FUZE	41.21.592	088.06.220	Move	Destroyed	6-Jun-07
52		L3-A8-13	5/2/2007	T-83 FUZE	41.21.590	088.06.221	Move	Destroyed	6-Jun-07
53		L3-A8-14	5/2/2007	T-83 FUZE	41.21.597	088.06.215	Move	Destroyed	6-Jun-07
54		L3-A8-15	5/2/2007	T-83 FUZE	41.21.601	088.06.212	Move	Destroyed	6-Jun-07
55		L3-A8-16	5/2/2007	T-83 FUZE	41.21.599	088.06.212	Move	Destroyed	6-Jun-07
56		L3-A9-1	5/24/2007	57mm HEAT	41.21.590	088.06.227	Move	Destroyed	6-Jun-07
57		L3-A9-2	5/24/2007	T-83 FUZE	41.21.588	088.06.201	Move	Destroyed	6-Jun-07
58		L3-A9-3	5/24/2007	T-83 FUZE	41.21.598	088.06.180	Move	Destroyed	6-Jun-07
59	7	L3-A9-4	5/24/2007	M103 FUZE	41.21.593	088.06.194	Move	Destroyed	6-Jun-07
60		L3-A9-5	5/24/2007	T-83 FUZE	41.21.593	088.06.196	Move	Destroyed	6-Jun-07
61		L3-A9-6	5/24/2007	T-83 FUZE	41.21.595	088.06.195	Move	Destroyed	6-Jun-07
62		L3-A9-7	5/24/2007	T-83 FUZE	41.21.595	088.06.209	Move	Destroyed	6-Jun-07

L3 MEC Log
MKM Engineers
2007 Removal Action

Count	# Items Listed on Grid Sheets	Grid & Item #	Date Recovered	Item Description	N Coordinate (deg.min.sec)	E Coordinate (deg.min.sec)	Move / BIP	Disposition/Destroyed	Date Disposed/Destroyed
63		L3-B10-01	5/22/2007	40mm FUZE	41.21.654	088.06.171	Move	Destroyed	6-Jun-07
64		L3-B10-02	5/22/2007	T-83 FUZE	41.21.644	088.06.176	Move	Destroyed	6-Jun-07
65		L3-B10-03	5/22/2007	T-83 FUZE	41.21.641	088.06.178	Move	Destroyed	6-Jun-07
66		L3-B10-04	5/22/2007	T-83 FUZE	41.21.630	088.06.174	Move	Destroyed	6-Jun-07
67		L3-B10-05	5/22/2007	T-83 FUZE	41.21.632	088.06.194	Move	Destroyed	6-Jun-07
68		L3-B10-06	5/22/2007	BLU-32	41.21.622	088.06.183	BIP	Destroyed	6-Jun-07
69		L3-B10-07	5/22/2007	T-83 FUZE	41.21.618	088.06.184	Move	Destroyed	6-Jun-07
70		L3-B10-08	5/22/2007	T-83 FUZE	41.21.623	088.06.182	Move	Destroyed	6-Jun-07
71		L3-B10-09	5/22/2007	T-83 FUZE	41.21.625	088.06.176	Move	Destroyed	6-Jun-07
72		L3-B10-10	5/22/2007	T-83 FUZE	41.21.612	088.06.177	Move	Destroyed	6-Jun-07
73	21	L3-B10-11	5/22/2007	MK3 BOOSTER	41.21.612	088.06.179	Move	Destroyed	6-Jun-07
74		L3-B10-12	5/22/2007	T-83 FUZE	41.21.611	088.06.181	Move	Destroyed	6-Jun-07
75		L3-B10-13	5/22/2007	T-83 FUZE	41.21.618	088.06.178	Move	Destroyed	6-Jun-07
76		L3-B10-14	5/22/2007	T-83 FUZE	41.21.617	088.06.178	Move	Destroyed	6-Jun-07
77		L3-B10-15	5/22/2007	T-83 FUZE	41.21.617	088.06.183	Move	Destroyed	6-Jun-07
78		L3-B10-16	5/22/2007	T-83 FUZE	41.21.611	088.06.190	Move	Destroyed	6-Jun-07
79		L3-B10-17	5/22/2007	T-83 FUZE	41.21.611	088.06.181	Move	Destroyed	6-Jun-07
80		L3-B10-18	5/22/2007	T-83 FUZE	41.21.609	088.06.185	Move	Destroyed	6-Jun-07
81		L3-B10-19	5/22/2007	T-83 FUZE	41.21.605	088.06.188	Move	Destroyed	6-Jun-07
82		L3-B10-20	5/22/2007	T-83 FUZE	41.21.607	088.06.185	Move	Destroyed	6-Jun-07
83		L3-B10-21	5/22/2007	T-83 FUZE	41..21.619	088.06.198	Move	Destroyed	6-Jun-07
84		L3-B11-01	5/23/2007	T-83 FUZE	41.21.625	088.06.167	Move	Destroyed	6-Jun-07
85		L3-B11-02	5/23/2007	T-83 FUZE	41.21.625	088.06.169	Move	Destroyed	6-Jun-07
86		L3-B11-03	5/23/2007	M103 FUZE	41.21.618	088.06.162	Move	Destroyed	6-Jun-07
87		L3-B11-04	5/23/2007	T-83 FUZE	41.21.613	088.06.169	Move	Destroyed	6-Jun-07
88		L3-B11-05	5/23/2007	T-83 FUZE	41.21.612	088.06.166	Move	Destroyed	6-Jun-07
89		L3-B11-06	5/23/2007	T-83 FUZE	41.21.610	088.06.146	Move	Destroyed	6-Jun-07
90		L3-B11-07	5/23/2007	T-83 FUZE	41.21.607	088.06.152	Move	Destroyed	6-Jun-07
91	15	L3-B11-08	5/23/2007	T-83 FUZE	41.21.612	088.06.158	Move	Destroyed	6-Jun-07
92		L3-B11-09	5/23/2007	T-83 FUZE	41.21.611	088.06.156	Move	Destroyed	6-Jun-07
93		L3-B11-10	5/23/2007	T-83 FUZE	41.21.614	088.06.157	Move	Destroyed	6-Jun-07
94		L3-B11-11	5/23/2007	T-83 FUZE	41.21.611	088.06.158	Move	Destroyed	6-Jun-07
95		L3-B11-12	5/23/2007	T-83 FUZE	41.21.606	088.06.159	Move	Destroyed	6-Jun-07
96		L3-B11-13	5/23/2007	MK3 BOOSTER	41.21.603	088.06.159	Move	Destroyed	6-Jun-07
97		L3-B11-14	5/23/2007	T-83 FUZE	41.21.606	088.06.152	Move	Destroyed	6-Jun-07
98		L3-B11-15	5/23/2007	T-83 FUZE	41.21.606	088.06.155	Move	Destroyed	6-Jun-07
99	1	L3-B12-1	5/23/2007	T-83 FUZE	41.21.625	088.05.154	Move	Destroyed	6-Jun-07
100		L3-B6-01	5/3/2007	T-83 FUZE	41.21.611	088.06.259	Move	Destroyed	6-Jun-07
101		L3-B6-02	5/3/2007	T-83 FUZE	41.21.610	088.06.270	Move	Destroyed	6-Jun-07
102		L3-B6-03	5/3/2007	T-83 FUZE	41.21.608	088.06.266	Move	Destroyed	6-Jun-07
103		L3-B6-04	5/3/2007	T-83 FUZE	41.21.608	088.06.264	Move	Destroyed	6-Jun-07
104		L3-B6-05	5/3/2007	T-83 FUZE	41.21.609	088.06.264	Move	Destroyed	6-Jun-07
105		L3-B6-06	5/3/2007	MK 3 BOOSTER	41.21.610	088.06.262	Move	Destroyed	6-Jun-07
106		L3-B6-07	5/3/2007	T-83 FUZE	41.21.619	088.06.262	Move	Destroyed	6-Jun-07
107		L3-B6-08	5/3/2007	T-83 FUZE	41.21.610	088.06.265	Move	Destroyed	6-Jun-07
108		L3-B6-09	5/3/2007	T-83 FUZE	41.21.609	088.06.262	Move	Destroyed	6-Jun-07
109		L3-B6-10	5/3/2007	MK 3 BOOSTER	41.21.613	088.06.260	Move	Destroyed	6-Jun-07
110		L3-B6-11	5/3/2007	T-83 FUZE	41.21.616	088.06.258	Move	Destroyed	6-Jun-07
111		L3-B6-12	5/3/2007	T-83 FUZE	41.21.616	088.06.258	Move	Destroyed	6-Jun-07
112		L3-B6-13	5/3/2007	T-83 FUZE	41.21.612	088.06.263	Move	Destroyed	6-Jun-07
113	28	L3-B6-14	5/3/2007	T-83 FUZE	41.21.613	088.06.264	Move	Destroyed	6-Jun-07
114		L3-B6-15	5/3/2007	MK 3 BOOSTER	41.21.613	088.06.262	Move	Destroyed	6-Jun-07
115		L3-B6-16	5/3/2007	T-83 FUZE	41.21.611	088.06.262	Move	Destroyed	6-Jun-07
116		L3-B6-17	5/3/2007	T-83 FUZE	41.21.607	088.06.265	Move	Destroyed	6-Jun-07
117		L3-B6-18	5/3/2007	T-83 FUZE	41.21.619	088.06.263	Move	Destroyed	6-Jun-07
118		L3-B6-19	5/3/2007	T-83 FUZE	41.21.619	088.06.259	Move	Destroyed	6-Jun-07
119		L3-B6-20	5/3/2007	T-83 FUZE	41.21.617	088.06.262	Move	Destroyed	6-Jun-07
120		L3-B6-21	5/3/2007	T-83 FUZE	41.21.616	088.06.259	Move	Destroyed	6-Jun-07
121		L3-B6-22	5/3/2007	T-83 FUZE	41.21.625	088.06.252	Move	Destroyed	6-Jun-07
122		L3-B6-23	5/3/2007	T-83 FUZE	41.21.620	088.06.262	Move	Destroyed	6-Jun-07
123		L3-B6-24	5/3/2007	T-83 FUZE	41.21.621	088.06.267	Move	Destroyed	6-Jun-07
124		L3-B6-25	5/3/2007	T-83 FUZE	41.21.616	088.06.267	Move	Destroyed	6-Jun-07
125		L3-B6-26	5/3/2007	T-83 FUZE	41.21.617	088.06.269	Move	Destroyed	6-Jun-07
126		L3-B6-27	5/3/2007	T-83 FUZE	41.21.615	088.06.268	Move	Destroyed	6-Jun-07
127		L3-B6-28	5/3/2007	T-83 FUZE	41.21.617	088.06.268	Move	Destroyed	6-Jun-07

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Count	# Items Listed on Grid Sheets	Grid & Item #	Date Recovered	Item Description	N Coordinate (deg,min,sec)	E Coordinate (deg,min,sec)	Move / BIP	Disposition/Destroyed	Date Disposed/Destroyed
128		L3-B7-01	5/7/2007	M66 FUZE	41.21.621	088.06.251	Move	Destroyed	6-Jun-07
129		L3-B7-02	5/7/2007	MK3 BOOSTER	41.21.617	088.06.254	Move	Destroyed	6-Jun-07
130		L3-B7-03	5/7/2007	MK3 BOOSTER	41.21.617	088.06.251	Move	Destroyed	6-Jun-07
131		L3-B7-04	5/7/2007	75mm Shrapnel	41.21.617	088.06.252	Move	Destroyed	6-Jun-07
132		L3-B7-05	5/7/2007	T83 FUZE	41.21.611	088.06.241	Move	Destroyed	6-Jun-07
133		L3-B7-06	5/7/2007	T83 FUZE	41.21.612	088.06.254	Move	Destroyed	6-Jun-07
134		L3-B7-07	5/7/2007	T83 FUZE	41.21.611	088.06.255	Move	Destroyed	6-Jun-07
135		L3-B7-08	5/7/2007	T83 FUZE	41.21.608	088.06.251	Move	Destroyed	6-Jun-07
136		L3-B7-09	5/7/2007	T83 FUZE	41.21.609	088.06.250	Move	Destroyed	6-Jun-07
137		L3-B7-10	5/7/2007	75mm Shrapnel	41.21.612	088.06.248	Move	Destroyed	6-Jun-07
138		L3-B7-11	5/7/2007	MK3 BOOSTER	41.21.628	088.06.246	Move	Destroyed	6-Jun-07
139		L3-B7-12	5/7/2007	T83 FUZE	41.21.624	088.06.246	Move	Destroyed	6-Jun-07
140		L3-B7-13	5/7/2007	T83 FUZE	41.21.619	088.06.247	Move	Destroyed	6-Jun-07
141		L3-B7-14	5/7/2007	T83 FUZE	41.21.617	088.06.243	Move	Destroyed	6-Jun-07
142		L3-B7-15	5/7/2007	T83 FUZE	41.21.620	088.06.237	Move	Destroyed	6-Jun-07
143		L3-B7-16	5/7/2007	T83 FUZE	41.21.626	088.06.241	Move	Destroyed	6-Jun-07
144	34	L3-B7-17	5/7/2007	T83 FUZE	41.21.620	088.06.238	Move	Destroyed	6-Jun-07
145		L3-B7-18	5/7/2007	MK3 BOOSTER	41.21.622	088.06.240	Move	Destroyed	6-Jun-07
146		L3-B7-19	5/7/2007	T83 FUZE	41.21.628	088.06.239	Move	Destroyed	6-Jun-07
147		L3-B7-20	5/7/2007	T83 FUZE	41.21.625	088.06.238	Move	Destroyed	6-Jun-07
148		L3-B7-21	5/7/2007	T83 FUZE	41.21.618	088.06.241	Move	Destroyed	6-Jun-07
149		L3-B7-22	5/7/2007	T83 FUZE	41.21.617	088.06.248	Move	Destroyed	6-Jun-07
150		L3-B7-23	5/7/2007	T83 FUZE	41.21.626	088.06.237	Move	Destroyed	6-Jun-07
151		L3-B7-24	5/7/2007	MK3 BOOSTER	41.21.622	088.06.239	Move	Destroyed	6-Jun-07
152		L3-B7-25	5/7/2007	T83 FUZE	41.21.620	088.06.237	Move	Destroyed	6-Jun-07
153		L3-B7-26	5/7/2007	M103 FUZE	41.21.609	088.06.243	Move	Destroyed	6-Jun-07
154		L3-B7-27	5/7/2007	MK3 BOOSTER	41.21.612	088.06.239	Move	Destroyed	6-Jun-07
155		L3-B7-28	5/7/2007	T83 FUZE	41.21.604	088.06.241	Move	Destroyed	6-Jun-07
156		L3-B7-29	5/7/2007	T83 FUZE	41.21.616	088.06.238	Move	Destroyed	6-Jun-07
157		L3-B7-30	5/7/2007	T83 FUZE	41.21.615	088.06.239	Move	Destroyed	6-Jun-07
158		L3-B7-31	5/7/2007	MK3 BOOSTER	41.21.614	088.06.239	Move	Destroyed	6-Jun-07
159		L3-B7-32	5/7/2007	T83 FUZE	41.21.613	088.06.239	Move	Destroyed	6-Jun-07
160		L3-B7-33	5/7/2007	T83 FUZE	41.21.608	088.06.235	Move	Destroyed	6-Jun-07
161		L3-B7-34	5/7/2007	T83 FUZE	41.21.615	088.06.239	Move	Destroyed	6-Jun-07
162		L3-B8-01	6/12/2007	MK 3 Booster	41.21.605	088.06.223	Move	Destroyed	28-Jun-07
163		L3-B8-02	6/12/2007	T83	41.21.607	088.06.218	Move	Destroyed	28-Jun-07
164		L3-B8-03	6/12/2007	T83	41.21.610	088.06.226	Move	Destroyed	28-Jun-07
165		L3-B8-04	6/12/2007	Booster Cup	41.21.611	088.06.228	Move	Destroyed	28-Jun-07
166		L3-B8-05	6/12/2007	T83	41.21.611	088.06.207	Move	Destroyed	28-Jun-07
167		L3-B8-06	6/12/2007	T83	41.21.601	088.06.214	Move	Destroyed	28-Jun-07
168		L3-B8-07	6/12/2007	Booster Cup	41.21.590	088.06.211	Move	Destroyed	28-Jun-07
169		L3-B8-08	6/12/2007	75 mm Shrapnel	41.21.599	088.06.210	Move	Destroyed	28-Jun-07
170		L3-B8-09	6/12/2007	T83	41.21.617	088.06.207	Move	Destroyed	28-Jun-07
171		L3-B8-10	6/12/2007	T83	41.21.614	088.06.215	Move	Destroyed	28-Jun-07
172	21	L3-B8-11	6/12/2007	T83	41.21.614	088.06.216	Move	Destroyed	28-Jun-07
173		L3-B8-12	6/12/2007	Sup Charge	41.21.615	088.06.214	Move	Destroyed	28-Jun-07
174		L3-B8-13	6/12/2007	40mm Pract	41.21.618	088.06.224	BIP	Destroyed	28-Jun-07
175		L3-B8-14	6/12/2007	T83	41.21.617	088.06.226	Move	Destroyed	28-Jun-07
176		L3-B8-15	6/12/2007	40 mm Fuze	41.21.616	088.06.224	BIP	Destroyed	28-Jun-07
177		L3-B8-16	6/12/2007	T83	41.21.624	088.06.250	Move	Destroyed	28-Jun-07
178		L3-B8-17	6/12/2007	40mm Fuze	41.21.623	088.06.228	BIP	Destroyed	28-Jun-07
179		L3-B8-18	6/12/2007	Booster Cup	41.21.620	088.06.229	Move	Destroyed	28-Jun-07
180		L3-B8-19	6/12/2007	BLU 32	41.21.619	088.06.231	Move	BIP	28-Jun-07
181		L3-B8-20	6/12/2007	T83	41.21.618	088.06.230	Move	Destroyed	28-Jun-07
182		L3-B8-21	6/12/2007	T83	41.21.630	088.06.231	Move	Destroyed	28-Jun-07
183		L3-B9-01	6/11/2007	T83	41.21.604	088.06.263	Move	Destroyed	28-Jun-07
184		L3-B9-02	6/11/2007	T83	41.21.622	088.06.197	Move	Destroyed	28-Jun-07
185		L3-B9-03	6/11/2007	M60 Booster	41.21.616	088.06.209	Move	Destroyed	28-Jun-07
186		L3-B9-04	6/11/2007	T83	41.21.613	088.06.206	Move	Destroyed	28-Jun-07
187		L3-B9-05	6/11/2007	T83	41.21.615	088.06.194	Move	Destroyed	28-Jun-07
188		L3-B9-06	6/11/2007	T83	41.21.610	088.06.193	Move	Destroyed	28-Jun-07
189		L3-B9-07	6/11/2007	T83	41.21.610	088.06.195	Move	Destroyed	28-Jun-07
190		L3-B9-08	6/11/2007	75mm SHRP	41.21.609	088.06.195	Move	Destroyed	28-Jun-07
191	17	L3-B9-09	6/11/2007	T83	41.21.610	088.06.213	Move	Destroyed	28-Jun-07
192		L3-B9-10	6/11/2007	T83	41.21.610	088.06.212	Move	Destroyed	28-Jun-07
193		L3-B9-11	6/11/2007	T83	41.21.609	088.06.202	Move	Destroyed	28-Jun-07
194		L3-B9-12	6/11/2007	T83	41.21.607	088.06.203	Move	Destroyed	28-Jun-07
195		L3-B9-13	6/11/2007	T83	41.21.607	088.06.203	Move	Destroyed	28-Jun-07
196		L3-B9-14	6/11/2007	T83	41.21.606	088.06.205	Move	Destroyed	28-Jun-07
197		L3-B9-15	6/11/2007	75mm SHRP	41.21.604	088.06.200	Move	Destroyed	28-Jun-07
198		L3-B9-16	6/11/2007	75MM HE	41.21.601	088.06.204	Move	Destroyed	28-Jun-07
199		L3-B9-17	6/11/2007	T83	41.21.597	088.06.200	Move	Destroyed	28-Jun-07

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Count	# Items Listed on Grid Sheets	Grid & Item #	Date Recovered	Item Description	N Coordinate (deg,min,sec)	E Coordinate (deg,min,sec)	Move / BIP	Disposition/Destroyed	Date Disposed/Destroyed
200		L3-C10-1	5/21/2007	T-83 FUZE	41.21.636	088.06.170	Move	Destroyed	6-Jun-07
201		L3-C10-2	5/21/2007	T-83 FUZE	41.21.641	088.06.163	Move	Destroyed	6-Jun-07
202		L3-C10-3	5/21/2007	T-83 FUZE	41.21.641	088.06.166	Move	Destroyed	6-Jun-07
203		L3-C10-4	5/21/2007	T-83 FUZE	41.21.640	088.06.163	Move	Destroyed	6-Jun-07
204		L3-C10-5	5/21/2007	M60 BOOSTER	41.21.638	088.06.164	Move	Destroyed	6-Jun-07
205		L3-C10-6	5/21/2007	T-83 FUZE	41.21.635	088.06.165	Move	Destroyed	6-Jun-07
206		L3-C10-7	5/21/2007	T-83 FUZE	41.21.637	088.06.167	Move	Destroyed	6-Jun-07
207		L3-C10-8	5/21/2007	T-83 FUZE	41.21.637	088.06.175	Move	Destroyed	6-Jun-07
208		L3-C10-9	5/21/2007	T-83 FUZE	41.21.632	088.06.180	Move	Destroyed	6-Jun-07
209		L3-C10-10	5/21/2007	40mm FUZE	41.21.636	088.06.194	BIP	Destroyed	6-Jun-07
210		L3-C10-10	5/21/2007	40mm FUZE	41.21.636	088.06.194	BIP	Destroyed	6-Jun-07
211		L3-C10-10	5/21/2007	40mm FUZE	41.21.636	088.06.194	BIP	Destroyed	6-Jun-07
212		L3-C10-10	5/21/2007	40mm FUZE	41.21.636	088.06.194	BIP	Destroyed	6-Jun-07
213		L3-C10-10	5/21/2007	40mm FUZE	41.21.636	088.06.194	BIP	Destroyed	6-Jun-07
214		L3-C10-10	5/21/2007	40mm FUZE	41.21.636	088.06.194	BIP	Destroyed	6-Jun-07
215		L3-C10-10	5/21/2007	40mm FUZE	41.21.636	088.06.194	BIP	Destroyed	6-Jun-07
216		L3-C10-10	5/21/2007	40mm FUZE	41.21.636	088.06.194	BIP	Destroyed	6-Jun-07
217		L3-C10-10	5/21/2007	40mm FUZE	41.21.636	088.06.194	BIP	Destroyed	6-Jun-07
218		L3-C10-10	5/21/2007	40mm FUZE	41.21.636	088.06.194	BIP	Destroyed	6-Jun-07
219		L3-C10-10	5/21/2007	40mm FUZE	41.21.636	088.06.194	BIP	Destroyed	6-Jun-07
220		L3-C10-10	5/21/2007	40mm FUZE	41.21.636	088.06.194	BIP	Destroyed	6-Jun-07
221		L3-C10-10	5/21/2007	40mm FUZE	41.21.636	088.06.194	BIP	Destroyed	6-Jun-07
222		L3-C10-10	5/21/2007	BLU 26	41.21.637	088.06.185	BIP	Destroyed	6-Jun-07
223		L3-C10-10	5/21/2007	BLU 26	41.21.637	088.06.185	BIP	Destroyed	6-Jun-07
224		L3-C10-10	5/21/2007	BLU 26	41.21.637	088.06.185	BIP	Destroyed	6-Jun-07
225		L3-C10-10	5/21/2007	BLU 26	41.21.637	088.06.185	BIP	Destroyed	6-Jun-07
226		L3-C10-10	5/21/2007	BLU 26	41.21.637	088.06.185	BIP	Destroyed	6-Jun-07
227		L3-C10-10	5/21/2007	BLU 26	41.21.637	088.06.185	BIP	Destroyed	6-Jun-07
228		L3-C10-10	5/21/2007	BLU 26	41.21.637	088.06.185	BIP	Destroyed	6-Jun-07
229		L3-C10-10	5/21/2007	BLU 26	41.21.637	088.06.185	BIP	Destroyed	6-Jun-07
230		L3-C10-10	5/21/2007	BLU 26	41.21.637	088.06.185	BIP	Destroyed	6-Jun-07
231		L3-C10-10	5/21/2007	BLU 26	41.21.637	088.06.185	BIP	Destroyed	6-Jun-07
232		L3-C10-10	5/21/2007	BLU 26	41.21.637	088.06.185	BIP	Destroyed	6-Jun-07
233		L3-C10-10	5/21/2007	BLU 26	41.21.637	088.06.185	BIP	Destroyed	6-Jun-07
234		L3-C10-10	5/21/2007	BLU 26	41.21.637	088.06.185	BIP	Destroyed	6-Jun-07
235		L3-C10-10	5/21/2007	BLU 26	41.21.637	088.06.185	BIP	Destroyed	6-Jun-07
236		L3-C10-10	5/21/2007	BLU 26	41.21.637	088.06.185	BIP	Destroyed	6-Jun-07
237		L3-C10-11	5/21/2007	40mm FUZE	41.21.639	088.06.186	BIP	Destroyed	6-Jun-07
238		L3-C10-11	5/21/2007	40mm FUZE	41.21.639	088.06.186	BIP	Destroyed	6-Jun-07
239		L3-C10-11	5/21/2007	40mm FUZE	41.21.639	088.06.186	BIP	Destroyed	6-Jun-07
240	39 (73)	L3-C10-11	5/21/2007	40mm FUZE	41.21.639	088.06.186	BIP	Destroyed	6-Jun-07
241		L3-C10-11	5/21/2007	40mm FUZE	41.21.639	088.06.186	BIP	Destroyed	6-Jun-07
242		L3-C10-12	5/21/2007	BLU-26	41.21.636	088.06.182	BIP	Destroyed	6-Jun-07
243		L3-C10-13	5/21/2007	T-83 FUZE	41.21.635	088.06.181	Move	Destroyed	6-Jun-07
244		L3-C10-14	5/21/2007	T-83 FUZE	41.21.633	088.06.186	Move	Destroyed	6-Jun-07
245		L3-C10-15	5/21/2007	BOOSTER CUP	41.21.634	088.06.185	Move	Destroyed	6-Jun-07
246		L3-C10-16	5/21/2007	BOOSTER CUP	41.21.633	088.06.182	Move	Destroyed	6-Jun-07
247		L3-C10-17	5/21/2007	T-83 FUZE	41.21.625	088.06.183	Move	Destroyed	6-Jun-07
248		L3-C10-18	5/21/2007	T-83 FUZE	41.21.630	088.06.180	Move	Destroyed	6-Jun-07
249		L3-C10-19	5/21/2007	T-83 FUZE	41.21.630	088.06.179	Move	Destroyed	6-Jun-07
250		L3-C10-20	5/21/2007	T-83 FUZE	41.21.630	088.06.180	Move	Destroyed	6-Jun-07
251		L3-C10-21	5/21/2007	75mm SHRAPNEL	41.21.629	088.06.182	Move	Destroyed	6-Jun-07
252		L3-C10-22	5/21/2007	T-83 FUZE	41.21.628	088.06.173	Move	Destroyed	6-Jun-07
253		L3-C10-23	5/21/2007	T-83 FUZE	41.21.626	088.06.174	Move	Destroyed	6-Jun-07
254		L3-C10-24	5/21/2007	T-83 FUZE	41.21.623	088.06.178	Move	Destroyed	6-Jun-07
255		L3-C10-25	5/21/2007	MK3 BOOSTER	41.21.622	088.06.180	Move	Destroyed	6-Jun-07
256		L3-C10-26	5/21/2007	T-83 FUZE	41.21.624	088.06.183	Move	Destroyed	6-Jun-07
257		L3-C10-27	5/21/2007	T-83 FUZE	41.21.627	088.06.183	Move	Destroyed	6-Jun-07
258		L3-C10-28	5/21/2007	T-83 FUZE	41.21.625	088.06.178	Move	Destroyed	6-Jun-07
259		L3-C10-29	5/21/2007	T-83 FUZE	41.21.627	088.06.179	Move	Destroyed	6-Jun-07
260		L3-C10-30	5/21/2007	BOOSTER CUP	41.21.627	088.06.178	Move	Destroyed	6-Jun-07
261		L3-C10-31	5/21/2007	T-83 FUZE	41.21.626	088.06.178	Move	Destroyed	6-Jun-07
262		L3-C10-32	5/21/2007	T-83 FUZE	41.21.626	088.06.179	Move	Destroyed	6-Jun-07
263		L3-C10-33	5/21/2007	T-83 FUZE	41.21.628	088.06.178	Move	Destroyed	6-Jun-07
264		L3-C10-34	5/21/2007	MK3 BOOSTER	41.21.622	088.06.178	Move	Destroyed	6-Jun-07
265		L3-C10-35	5/21/2007	T-83 FUZE	41.21.623	088.06.180	Move	Destroyed	6-Jun-07
266		L3-C10-36	5/21/2007	M51 FUZE	41.21.623	088.06.179	Move	Destroyed	6-Jun-07
267		L3-C10-37	5/21/2007	T-83 FUZE	41.21.617	088.06.170	Move	Destroyed	6-Jun-07
268		L3-C10-38	5/21/2007	T-83 FUZE	41.21.618	088.06.171	Move	Destroyed	6-Jun-07
269		L3-C10-39	5/21/2007	BLU 26	41.21.617	088.06.187	BIP	Destroyed	6-Jun-07
270		L3-C10-39	5/21/2007	BLU 26	41.21.617	088.06.187	BIP	Destroyed	6-Jun-07
271		L3-C10-39	5/21/2007	BLU 26	41.21.617	088.06.187	BIP	Destroyed	6-Jun-07
272		L3-C10-39	5/21/2007	BLU 26	41.21.617	088.06.187	BIP	Destroyed	6-Jun-07
273		L3-C10-39	5/21/2007	40mm Fuze	41.21.617	088.06.187	BIP	Destroyed	6-Jun-07
274		L3-C10-39	5/21/2007	40mm Fuze	41.21.617	088.06.187	BIP	Destroyed	6-Jun-07
275		L3-C10-39	5/21/2007	40mm Fuze	41.21.617	088.06.187	BIP	Destroyed	6-Jun-07
276		L3-C10-39	5/21/2007	40mm Fuze	41.21.617	088.06.187	BIP	Destroyed	6-Jun-07
277		L3-C10-39	5/21/2007	40mm Fuze	41.21.617	088.06.187	BIP	Destroyed	6-Jun-07
278		L3-C10-39	5/21/2007	40mm Fuze	41.21.617	088.06.187	BIP	Destroyed	6-Jun-07
279		L3-C10-39	5/21/2007	40mm Fuze	41.21.617	088.06.187	BIP	Destroyed	6-Jun-07
280		L3-C10-39	5/21/2007	40mm Fuze	41.21.617	088.06.187	BIP	Destroyed	6-Jun-07
281		L3-C10-39	5/21/2007	40mm Fuze	41.21.617	088.06.187	BIP	Destroyed	6-Jun-07

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2007 Removal Action

Count	# Items Listed on Grid Sheets	Grid & Item #	Date Recovered	Item Description	N Coordinate (deg,min,sec)	E Coordinate (deg,min,sec)	Move / BIP	Disposition/Destroyed	Date Disposed/Destroyed
282		L3-C11-01	5/15/2007	T-83 FUZE	41.21.636	088.06.162	Move	Destroyed	6-Jun-07
283		L3-C11-02	5/15/2007	T-83 FUZE	41.21.633	088.06.161	Move	Destroyed	6-Jun-07
284		L3-C11-03	5/15/2007	T-83 FUZE	41.21.631	088.06.159	Move	Destroyed	6-Jun-07
285		L3-C11-04	5/15/2007	T-83 FUZE	41.21.633	088.06.159	Move	Destroyed	6-Jun-07
286		L3-C11-05	5/15/2007	BASE FUZE	41.21.642	088.06.163	Move	Destroyed	6-Jun-07
287		L3-C11-06	5/15/2007	T-83 FUZE	41.21.635	088.06.160	Move	Destroyed	6-Jun-07
288		L3-C11-07	5/15/2007	T-83 FUZE	41.21.634	088.06.159	Move	Destroyed	6-Jun-07
289		L3-C11-08	5/15/2007	MK51 BOOSTER	41.21.634	088.06.160	Move	Destroyed	6-Jun-07
290		L3-C11-09	5/15/2007	T-83 FUZE	41.21.634	088.06.172	Move	Destroyed	6-Jun-07
291		L3-C11-10	5/15/2007	T-83 FUZE	41.21.639	088.06.153	Move	Destroyed	6-Jun-07
292		L3-C11-11	5/15/2007	T-83 FUZE	41.21.636	088.06.145	Move	Destroyed	6-Jun-07
293		L3-C11-12	5/15/2007	MK3 BOOSTER	41.21.643	088.06.148	Move	Destroyed	6-Jun-07
294		L3-C11-13	5/15/2007	T-83 FUZE	41.21.638	088.06.156	Move	Destroyed	6-Jun-07
295		L3-C11-14	5/15/2007	T-83 FUZE	41.21.636	088.06.156	Move	Destroyed	6-Jun-07
296		L3-C11-15	5/15/2007	T-83 FUZE	41.21.629	088.06.160	Move	Destroyed	6-Jun-07
297		L3-C11-16	5/15/2007	T-83 FUZE	41.21.632	088.06.159	Move	Destroyed	6-Jun-07
298	33	L3-C11-17	5/15/2007	T-83 FUZE	41.21.630	088.06.162	Move	Destroyed	6-Jun-07
299		L3-C11-18	5/15/2007	MK3 BOOSTER	41.21.630	088.06.163	Move	Destroyed	6-Jun-07
300		L3-C11-19	5/15/2007	T-83 FUZE	41.21.632	088.06.163	Move	Destroyed	6-Jun-07
301		L3-C11-20	5/15/2007	75mm SHRAPNEL	41.21.630	088.06.167	Move	Destroyed	6-Jun-07
302		L3-C11-21	5/15/2007	T-83 FUZE	41.21.633	088.06.166	Move	Destroyed	6-Jun-07
303		L3-C11-22	5/15/2007	T-83 FUZE	41.21.636	088.06.165	Move	Destroyed	6-Jun-07
304		L3-C11-23	5/15/2007	T-83 FUZE	41.21.621	088.06.148	Move	Destroyed	6-Jun-07
305		L3-C11-24	5/15/2007	MK3 BOOSTER	41.21.633	088.06.160	Move	Destroyed	6-Jun-07
306		L3-C11-25	5/15/2007	MK3 BOOSTER	41.21.628	088.06.155	Move	Destroyed	6-Jun-07
307		L3-C11-26	5/15/2007	T-83 FUZE	41.21.627	088.06.154	Move	Destroyed	6-Jun-07
308		L3-C11-27	5/15/2007	T-83 FUZE	41.21.625	088.06.159	Move	Destroyed	6-Jun-07
309		L3-C11-28	5/15/2007	T-83 FUZE	41.21.625	088.06.161	Move	Destroyed	6-Jun-07
310		L3-C11-29	5/15/2007	T-83 FUZE	41.21.624	088.06.157	Move	Destroyed	6-Jun-07
311		L3-C11-30	5/15/2007	T-83 FUZE	41.21.622	08..06.161	Move	Destroyed	6-Jun-07
312		L3-C11-31	5/15/2007	T-83 FUZE	41.21.624	088.06.161	Move	Destroyed	6-Jun-07
313		L3-C11-32	5/15/2007	T-83 FUZE	41.21.623	088.06.152	Move	Destroyed	6-Jun-07
314		L3-C11-33	5/15/2007	MK3 BOOSTER	41.21.624	088.06.153	Move	Destroyed	6-Jun-07
315		L3-C5-1	5/8/2007	T-83 FUZE	41.21.622	088.06.279	Move	Destroyed	6-Jun-07
316		L3-C5-2	5/8/2007	MK3	41.21.626	088.06.279	Move	Destroyed	6-Jun-07
317		L3-C5-3	5/8/2007	M66	41.21.626	088.06.281	Move	Destroyed	6-Jun-07
318		L3-C5-4	5/8/2007	MK3	41.21.628	088.06.282	Move	Destroyed	6-Jun-07
319		L3-C5-5	5/8/2007	T-83 FUZE	41.21.627	088.06.278	Move	Destroyed	6-Jun-07
320		L3-C5-6	5/8/2007	T-83 FUZE	41.21.632	088.06.282	Move	Destroyed	6-Jun-07
321		L3-C5-7	5/8/2007	T-83 FUZE	41.21.632	088.06.280	Move	Destroyed	6-Jun-07
322		L3-C5-8	5/8/2007	T-83 FUZE	41.21.633	088.06.281	Move	Destroyed	6-Jun-07
323		L3-C5-9	5/8/2007	T-83 FUZE	41.21.631	088.06.281	Move	Destroyed	6-Jun-07
324		L3-C5-10	5/8/2007	T-83 FUZE	41.21.631	088.06.280	Move	Destroyed	6-Jun-07
325		L3-C5-11	5/8/2007	T-83 FUZE	41.21.639	088.06.275	Move	Destroyed	6-Jun-07
326		L3-C5-12	5/8/2007	T-83 FUZE	41.21.637	088.06.281	Move	Destroyed	6-Jun-07
327	26	L3-C5-13	5/8/2007	T-83 FUZE	41.21.636	088.06.276	Move	Destroyed	6-Jun-07
328		L3-C5-14	5/8/2007	T-83 FUZE	41.21.635	088.06.280	Move	Destroyed	6-Jun-07
329		L3-C5-15	5/8/2007	T-83 FUZE	41.21.637	088.06.281	Move	Destroyed	6-Jun-07
330		L3-C5-16	5/8/2007	M66 FUZE	41.21.641	088.06.284	Move	Destroyed	6-Jun-07
331		L3-C5-17	5/8/2007	T-83 FUZE	41.21.638	088.06.284	Move	Destroyed	6-Jun-07
332		L3-C5-18	5/8/2007	T-83 FUZE	41.21.637	088.06.286	Move	Destroyed	6-Jun-07
333		L3-C5-19	5/8/2007	T-83 FUZE	41.21.642	088.06.289	Move	Destroyed	6-Jun-07
334		L3-C5-20	5/8/2007	T-83 FUZE	41.21.639	088.06.289	Move	Destroyed	6-Jun-07
335		L3-C5-21	5/8/2007	T-83 FUZE	41.21.637	088.06.288	Move	Destroyed	6-Jun-07
336		L3-C5-22	5/8/2007	T-83 FUZE	41.21.641	088.06.292	Move	Destroyed	6-Jun-07
337		L3-C5-23	5/8/2007	T-83 FUZE	41.21.638	088.06.288	Move	Destroyed	6-Jun-07
338		L3-C5-24	5/8/2007	T-83 FUZE	41.21.638	088.06.286	Move	Destroyed	6-Jun-07
339		L3-C5-25	5/8/2007	T-83 FUZE	41.21.641	088.06.277	Move	Destroyed	6-Jun-07
340		L3-C5-26	5/8/2007	BOOSTER	41.21.640	088.06.275	Move	Destroyed	6-Jun-07

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Count	# Items Listed on Grid Sheets	Grid & Item #	Date Recovered	Item Description	N Coordinate (deg,min,sec)	E Coordinate (deg,min,sec)	Move / BIP	Disposition/Destroyed	Date Disposed/Destroyed
341		L3-C6-1	5/8/2007	T-83 FUZE	41.21.617	088.06 259	Move	Destroyed	6-Jun-07
342		L3-C6-2	5/8/2007	T-83 FUZE	41.21.617	088.06.259	Move	Destroyed	6-Jun-07
343		L3-C6-3	5/8/2007	T-83 FUZE	41.21.623	088.06.259	Move	Destroyed	6-Jun-07
344		L3-C6-4	5/8/2007	MK 3 BOOSTER	41.21.624	088.06.259	Move	Destroyed	6-Jun-07
345		L3-C6-5	5/8/2007	T-83 FUZE	41.21.625	088.06.263	Move	Destroyed	6-Jun-07
346		L3-C6-6	5/8/2007	MK 3 BOOSTER	41.21.624	088.06.265	Move	Destroyed	6-Jun-07
347		L3-C6-7	5/8/2007	MK3 BOOSTER	41.21.628	088.06.271	Move	Destroyed	6-Jun-07
348		L3-C6-8	5/8/2007	T-83 FUZE	41.21.628	088.06.271	Move	Destroyed	6-Jun-07
349		L3-C6-9	5/8/2007	MK3 BOOSTER	41.21.628	088.06.271	Move	Destroyed	6-Jun-07
350		L3-C6-10	5/8/2007	T-83 FUZE	41.21.625	088.06.273	Move	Destroyed	6-Jun-07
351		L3-C6-11	5/8/2007	T-83 FUZE	41.21.628	088.06.275	Move	Destroyed	6-Jun-07
352		L3-C6-12	5/8/2007	T-83 FUZE	41.21.630	088.06.275	Move	Destroyed	6-Jun-07
353		L3-C6-13	5/8/2007	T-83 FUZE	41.21.627	088.06.274	Move	Destroyed	6-Jun-07
354		L3-C6-14	5/8/2007	MK3 BOOSTER	41.21.629	088.06.274	Move	Destroyed	6-Jun-07
355		L3-C6-15	5/8/2007	MK3 BOOSTER	41.21.628	088.06.274	Move	Destroyed	6-Jun-07
356		L3-C6-16	5/8/2007	MK3 BOOSTER	41.21.629	088.06.273	Move	Destroyed	6-Jun-07
357		L3-C6-17	5/8/2007	T-83 FUZE	41.21.629	088.06.271	Move	Destroyed	6-Jun-07
358		L3-C6-18	5/8/2007	T-83 FUZE	41.21.631	088.06.267	Move	Destroyed	6-Jun-07
359		L3-C6-19	5/8/2007	T-83 FUZE	41.21.632	088.06.266	Move	Destroyed	6-Jun-07
360		L3-C6-20	5/8/2007	T-83 FUZE	41.21.627	088.06.261	Move	Destroyed	6-Jun-07
361		L3-C6-21	5/8/2007	MK3 BOOSTER	41.21.630	088.06.259	Move	Destroyed	6-Jun-07
362		L3-C6-22	5/8/2007	75mm SHRAPNEL	41.21.631	088.06.259	Move	Destroyed	6-Jun-07
363		L3-C6-23	5/8/2007	MK3 BOOSTER	41.21.622	088.06.264	Move	Destroyed	6-Jun-07
364		L3-C6-24	5/8/2007	T-83 FUZE	41.21.627	088.06.264	Move	Destroyed	6-Jun-07
365		L3-C6-25	5/8/2007	T-83 FUZE	41.21.630	088.06.263	Move	Destroyed	6-Jun-07
366		L3-C6-26	5/8/2007	MK3 BOOSTER	41.21.625	088.06.270	Move	Destroyed	6-Jun-07
367		L3-C6-27	5/8/2007	MK3 BOOSTER	41.21.625	088.06.273	Move	Destroyed	6-Jun-07
368		L3-C6-28	5/8/2007	T-83 FUZE	41.21.627	088.06.273	Move	Destroyed	6-Jun-07
369	57	L3-C6-29	5/8/2007	T-83 FUZE	41.21.630	088.06.272	Move	Destroyed	6-Jun-07
370		L3-C6-30	5/8/2007	T-83 FUZE	41.21.632	088.06.275	Move	Destroyed	6-Jun-07
371		L3-C6-31	5/8/2007	MK3 BOOSTER	41.21.639	088.06.275	Move	Destroyed	6-Jun-07
372		L3-C6-32	5/8/2007	T-83 FUZE	41.21.632	088.06.273	Move	Destroyed	6-Jun-07
373		L3-C6-33	5/8/2007	T-83 FUZE	41.21.632	088.06.272	Move	Destroyed	6-Jun-07
374		L3-C6-34	5/8/2007	MK3 BOOSTER	41.21.635	088.06.267	Move	Destroyed	6-Jun-07
375		L3-C6-35	5/8/2007	T-83 FUZE	41.21.637	088.06.266	Move	Destroyed	6-Jun-07
376		L3-C6-36	5/8/2007	MK3 BOOSTER	41.21.638	088.06.260	Move	Destroyed	6-Jun-07
377		L3-C6-37	5/8/2007	T-83 FUZE	41.21.634	088.06.259	Move	Destroyed	6-Jun-07
378		L3-C6-38	5/8/2007	T-83 FUZE	41.21.633	088.06.260	Move	Destroyed	6-Jun-07
379		L3-C6-39	5/8/2007	T-83 FUZE	41.21.633	088.06.258	Move	Destroyed	6-Jun-07
380		L3-C6-40	5/8/2007	T-83 FUZE	41.21.637	088.06.259	Move	Destroyed	6-Jun-07
381		L3-C6-41	5/8/2007	T-83 FUZE	41.21.637	088.06.270	Move	Destroyed	6-Jun-07
382		L3-C6-42	5/8/2007	T-83 FUZE	41.21.638	088.06.271	Move	Destroyed	6-Jun-07
383		L3-C6-43	5/8/2007	T-83 FUZE	41.21.635	088.06.271	Move	Destroyed	6-Jun-07
384		L3-C6-44	5/8/2007	T-83 FUZE	41.21.636	088.06.275	Move	Destroyed	6-Jun-07
385		L3-C6-45	5/8/2007	T-83 FUZE	41.21.637	088.06.274	Move	Destroyed	6-Jun-07
386		L3-C6-46	5/8/2007	T-83 FUZE	41.21.636	088.06.279	Move	Destroyed	6-Jun-07
387		L3-C6-47	5/8/2007	T-83 FUZE	41.21.639	088.06.278	Move	Destroyed	6-Jun-07
388		L3-C6-48	5/8/2007	T-83 FUZE	41.21.638	088.06.271	Move	Destroyed	6-Jun-07
389		L3-C6-49	5/8/2007	T-83 FUZE	41.21.642	088.06.272	Move	Destroyed	6-Jun-07
390		L3-C6-50	5/8/2007	T-83 FUZE	41.21.641	088.06.270	Move	Destroyed	6-Jun-07
391		L3-C6-51	5/8/2007	T-83 FUZE	41.21.641	088.06.271	Move	Destroyed	6-Jun-07
392		L3-C6-52	5/8/2007	T-83 FUZE	41.21.636	088.06.269	Move	Destroyed	6-Jun-07
393		L3-C6-53	5/8/2007	T-83 FUZE	41.21.636	088.06.264	Move	Destroyed	6-Jun-07
394		L3-C6-54	5/8/2007	BMB FUZE	41.21.638	088.06.263	Move	Destroyed	6-Jun-07
395		L3-C6-55	5/8/2007	T-83 FUZE	41.21.639	088.06.261	Move	Destroyed	6-Jun-07
396		L3-C6-56	5/8/2007	T-83 FUZE	41.21.637	088.06.258	Move	Destroyed	6-Jun-07
397		L3-C6-57	5/8/2007	T-83 FUZE	41.21.638	088.06.255	Move	Destroyed	6-Jun-07
398		L3-C7-01	6/13/2007	T83	41.21.654	088.06.245	Move	Destroyed	28-Jun-07
399		L3-C7-02	6/13/2007	T83	41.21.649	088.06.259	Move	Destroyed	28-Jun-07
400		L3-C7-03	6/13/2007	T83	41.21.649	088.06.259	Move	Destroyed	28-Jun-07
401		L3-C7-04	6/13/2007	T83	41.21.624	088.06.249	Move	Destroyed	28-Jun-07
402	10	L3-C7-05	6/13/2007	T83	41.21.630	088.06.253	Move	Destroyed	28-Jun-07
403		L3-C7-06	6/13/2007	T83	41.21.625	088.06.246	Move	Destroyed	28-Jun-07
404		L3-C7-07	6/13/2007	57mm HE	41.21.626	088.06.243	Move	Destroyed	28-Jun-07
405		L3-C7-08	6/13/2007	75mm SHRP	41.21.638	088.06.240	Move	Destroyed	28-Jun-07
406		L3-C7-09	6/13/2007	155mm SHRP	41.21.642	088.06.249	Move	Destroyed	28-Jun-07
407		L3-C7-10	6/13/2007	20mm PROJ	41.21.623	088.06.233	Move	Destroyed	28-Jun-07
408	2	L3-C8-01	6/12/2007	MK3 Booster	41.21.624	088.06.222	Move	Destroyed	28-Jun-07
409		L3-C8-02	6/12/2007	40mm Ball	41.21.625	088.06.231	Move	Destroyed	28-Jun-07
410	1	L3-C12	5/14/2008	T-83 FUZE	41.21.651	088.06.144	Move	Destroyed	6-Jun-07

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Count	# Items Listed on Grid Sheets	Grid & Item #	Date Recovered	Item Description	N Coordinate (deg,min,sec)	E Coordinate (deg,min,sec)	Move / BIP	Disposition/Destroyed	Date Disposed/Destroyed
411		L3-D10-01	5/9/2007	75mm HE	41.21.646	088.06.196	Move	Destroyed	6-Jun-07
412		L3-D10-02	5/9/2007	T-83 FUZE	41.21.654	088.06.184	Move	Destroyed	6-Jun-07
413		L3-D10-03	5/9/2007	T-83 FUZE	41.21.652	088.06.173	Move	Destroyed	6-Jun-07
414		L3-D10-04	5/9/2007	MK3 BOOSTER	41.21.652	088.06.176	Move	Destroyed	6-Jun-07
415		L3-D10-05	5/9/2007	T-83 FUZE	41.21.654	088.06.172	Move	Destroyed	6-Jun-07
416		L3-D10-06	5/9/2007	MK3 BOOSTER	41.21.654	088.06.169	Move	Destroyed	6-Jun-07
417		L3-D10-07	5/9/2007	T-83 FUZE	41.21.652	088.06.171	Move	Destroyed	6-Jun-07
418		L3-D10-08	5/9/2007	T-83 FUZE	41.21.655	088.06.173	Move	Destroyed	6-Jun-07
419		L3-D10-09	5/9/2007	T-83 FUZE	41.21.652	088.06.176	Move	Destroyed	6-Jun-07
420		L3-D10-10	5/9/2007	T-83 FUZE	41.21.652	088.06.177	Move	Destroyed	6-Jun-07
421		L3-D10-11	5/9/2007	T-83 FUZE	41.21.651	088.06.179	Move	Destroyed	6-Jun-07
422		L3-D10-12	5/9/2007	T-83 FUZE	41.21.653	088.06.172	Move	Destroyed	6-Jun-07
423		L3-D10-13	5/9/2007	T-83 FUZE	41.21.653	088.06.175	Move	Destroyed	6-Jun-07
424		L3-D10-14	5/9/2007	MK3 BOOSTER	41.21.652	088.06.175	Move	Destroyed	6-Jun-07
425		L3-D10-15	5/9/2007	T-83 FUZE	41.21.650	088.06.170	Move	Destroyed	6-Jun-07
426		L3-D10-16	5/9/2007	T-83 FUZE	41.21.652	088.06.169	Move	Destroyed	6-Jun-07
427		L3-D10-17	5/9/2007	T-83 FUZE	41.21.647	088.06.176	Move	Destroyed	6-Jun-07
428		L3-D10-18	5/9/2007	T-83 FUZE	41.21.600	088.06.182	Move	Destroyed	6-Jun-07
429		L3-D10-19	5/9/2007	T-83 FUZE	41.21.604	088.06.183	Move	Destroyed	6-Jun-07
430		L3-D10-20	5/9/2007	T-83 FUZE	41.21.623	088.06.178	Move	Destroyed	6-Jun-07
431		L3-D10-21	5/9/2007	T-83 FUZE	41 21.645	088.06.171	Move	Destroyed	6-Jun-07
432		L3-D10-22	5/9/2007	T-83 FUZE	41.21.652	088.06.170	Move	Destroyed	6-Jun-07
433		L3-D10-23	5/9/2007	40mm BOFERS	41.21.653	088.06.172	Move	Destroyed	6-Jun-07
434	47	L3-D10-24	5/9/2007	T-83 FUZE	41.21.648	088.06.175	Move	Destroyed	6-Jun-07
435		L3-D10-25	5/9/2007	T-83 FUZE	41.21.647	088.06.173	Move	Destroyed	6-Jun-07
436		L3-D10-26	5/9/2007	T-83 FUZE	41.21.648	088.06.173	Move	Destroyed	6-Jun-07
437		L3-D10-27	5/9/2007	T-83 FUZE	41.21.645	088.06.178	Move	Destroyed	6-Jun-07
438		L3-D10-28	5/9/2007	MK3 BOOSTER	41.21.646	088.06.177	Move	Destroyed	6-Jun-07
439		L3-D10-29	5/9/2007	T-83 FUZE	41.21.650	088.06.175	Move	Destroyed	6-Jun-07
440		L3-D10-30	5/9/2007	T-83 FUZE	41.21.650	088.06.177	Move	Destroyed	6-Jun-07
441		L3-D10-31	5/9/2007	T-83 FUZE	41.21.650	088.06.179	Move	Destroyed	6-Jun-07
442		L3-D10-32	5/9/2007	T-83 FUZE	41.21.646	088.06.185	Move	Destroyed	6-Jun-07
443		L3-D10-33	5/9/2007	T-83 FUZE	41.21.647	088.06.173	Move	Destroyed	6-Jun-07
444		L3-D10-34	5/9/2007	MK3 BOOSTER	41.21.644	088.06.166	Move	Destroyed	6-Jun-07
445		L3-D10-35	5/9/2007	T-83 FUZE	41.21.651	088.06.173	Move	Destroyed	6-Jun-07
446		L3-D10-36	5/9/2007	T-83 FUZE	41.21.645	088.06.182	Move	Destroyed	6-Jun-07
447		L3-D10-37	5/9/2007	T-83 FUZE	41.21.633	088.06.171	Move	Destroyed	6-Jun-07
448		L3-D10-38	5/9/2007	T-83 FUZE	41.21.644	088.06.178	Move	Destroyed	6-Jun-07
449		L3-D10-39	5/9/2007	T-83 FUZE	41.21.641	088.06.179	Move	Destroyed	6-Jun-07
450		L3-D10-40	5/9/2007	T-83 FUZE	41.21.634	088.06.180	Move	Destroyed	6-Jun-07
451		L3-D10-41	5/9/2007	MK3 BOOSTER	41.21.638	088.06.180	Move	Destroyed	6-Jun-07
452		L3-D10-42	5/9/2007	T-83 FUZE	41.21.639	088.063.176	Move	Destroyed	6-Jun-07
453		L3-D10-43	5/9/2007	T-83 FUZE	41.21.638	088.06.179	Move	Destroyed	6-Jun-07
454		L3-D10-44	5/9/2007	T-83 FUZE	41.21.637	088.06.184	Move	Destroyed	6-Jun-07
455		L3-D10-45	5/9/2007	M66 BASE FUZE	41.21.627	088.06.170	Move	Destroyed	6-Jun-07
456		L3-D10-46	5/9/2007	T-83 FUZE	41.21.631	088.06.172	Move	Destroyed	6-Jun-07
457		L3-D10-47	5/9/2007	T-83 FUZE	41.21.642	088.06.174	Move	Destroyed	6-Jun-07
458		L3-D11-01	5/14/2007	T-83 FUZE	41.21.653	088.06.166	Move	Destroyed	6-Jun-07
459		L3-D11-02	5/14/2007	40mm AA	41 21.657	088.06.167	Move	Destroyed	6-Jun-07
460		L3-D11-03	5/14/2007	T-83 FUZE	41.21.657	088.06.167	Move	Destroyed	6-Jun-07
461		L3-D11-04	5/14/2007	T-83 FUZE	41.21.657	088.06.165	Move	Destroyed	6-Jun-07
462		L3-D11-05	5/14/2007	T-83 FUZE	41.21.654	088.06.166	Move	Destroyed	6-Jun-07
463		L3-D11-06	5/14/2007	T-83 FUZE	41.21.652	088.06.162	Move	Destroyed	6-Jun-07
464		L3-D11-07	5/14/2007	T-83 FUZE	41.21.654	088.06.157	Move	Destroyed	6-Jun-07
465		L3-D11-08	5/14/2007	T-83 FUZE	41.21.652	088.06.153	Move	Destroyed	6-Jun-07
466		L3-D11-09	5/14/2007	T-83 FUZE	41.21.655	088.06.149	Move	Destroyed	6-Jun-07
467		L3-D11-10	5/14/2007	MK3 BOOSTER	41.21.656	088.06.149	Move	Destroyed	6-Jun-07
468		L3-D11-11	5/14/2007	57mm HEAT	41.21.656	088.06.148	Move	Destroyed	6-Jun-07
469		L3-D11-12	5/14/2007	T-83 FUZE	41.21.650	088.06.153	Move	Destroyed	6-Jun-07
470		L3-D11-13	5/14/2007	T-83 FUZE	41.21.652	088.06.152	Move	Destroyed	6-Jun-07
471		L3-D11-14	5/14/2007	T-83 FUZE	41.21.651	088.06.156	Move	Destroyed	6-Jun-07
472		L3-D11-15	5/14/2007	T-83 FUZE	41.21.652	088.06.158	Move	Destroyed	6-Jun-07
473		L3-D11-16	5/14/2007	T-83 FUZE	41.21.654	088.08.162	Move	Destroyed	6-Jun-07
474		L3-D11-17	5/14/2007	T-83 FUZE	41.21.652	088.06.160	Move	Destroyed	6-Jun-07
475	36	L3-D11-18	5/14/2007	T-83 FUZE	41.21.657	088.06.159	Move	Destroyed	6-Jun-07
476		L3-D11-19	5/14/2007	T-83 FUZE	41.21.653	088.063.163	Move	Destroyed	6-Jun-07
477		L3-D11-20	5/14/2007	T-83 FUZE	41.21.651	088.06.162	Move	Destroyed	6-Jun-07
478		L3-D11-21	5/14/2007	T-83 FUZE	41.21.651	088.06.165	Move	Destroyed	6-Jun-07
479		L3-D11-22	5/14/2007	T-83 FUZE	41.21.655	088.06.158	Move	Destroyed	6-Jun-07
480		L3-D11-23	5/14/2007	T-83 FUZE	41.21.649	088.06.152	Move	Destroyed	6-Jun-07
481		L3-D11-24	5/14/2007	T-83 FUZE	41.21.653	088.06.152	Move	Destroyed	6-Jun-07
482		L3-D11-25	5/14/2007	T-83 FUZE	41.21.647	088.06.150	Move	Destroyed	6-Jun-07
483		L3-D11-26	5/14/2007	T-83 FUZE	41.21.640	088.06.145	Move	Destroyed	6-Jun-07
484		L3-D11-27	5/14/2007	T-83 FUZE	41 21.647	088.06.158	Move	Destroyed	6-Jun-07
485		L3-D11-28	5/14/2007	T-83 FUZE	41.21.648	088.06.160	Move	Destroyed	6-Jun-07
486		L3-D11-29	5/14/2007	T-83 FUZE	41.21.645	088.06.162	Move	Destroyed	6-Jun-07
487		L3-D11-30	5/14/2007	T-83 FUZE	41.21.638	088.06.163	Move	Destroyed	6-Jun-07
488		L3-D11-31	5/14/2007	T-83 FUZE	41.21.642	088.06.161	Move	Destroyed	6-Jun-07
489		L3-D11-32	5/14/2007	T-83 FUZE	41.21.640	088.06.155	Move	Destroyed	6-Jun-07
490		L3-D11-33	5/14/2007	T-83 FUZE	41.21.637	088.06.163	Move	Destroyed	6-Jun-07
491		L3-D11-34	5/14/2007	M51 BOOSTER	41.21.640	088.06.164	Move	Destroyed	6-Jun-07
492		L3-D11-35	5/14/2007	T-83 FUZE	41.21.624	088.06.157	Move	Destroyed	6-Jun-07
493		L3-D11-36	5/14/2007	BOOSTER	41.21.636	088.06.166	Move	Destroyed	6-Jun-07
494		L3-D12-1	5/14/2007	T-83 FUZE	41.21.654	088.06.132	Move	Destroyed	6-Jun-07
495		L3-D12-2	5/14/2007	BOOSTER CUP	41.21.650	088.08.139	Move	Destroyed	6-Jun-07
496		L3-D12-3	5/14/2007	BOOSTER CUP	41.21.647	088.06.145	Move	Destroyed	6-Jun-07
497	7	L3-D12-4	5/14/2007	T-83 FUZE	41.21.651	088 06.149	Move	Destroyed	6-Jun-07
498		L3-D12-5	5/14/2007	T-83 FUZE	41..21.654	088.06.146	Move	Destroyed	6-Jun-07
499		L3-D12-6	5/14/2007	T-83 FUZE	41.21.654	088.06.148	Move	Destroyed	6-Jun-07
500		L3-D12-7	5/14/2007	T-83 FUZE	41.21.654	088.06.146	Move	Destroyed	6-Jun-07
501		L3-D4-01	5/9/2007	T-83 FUZE	41.21.643	088.06.301	Move	Destroyed	6-Jun-07
502		L3-D4-02	5/9/2007	T-83 FUZE	41.21.651	088.06.302	Move	Destroyed	6-Jun-07
503		L3-D4-03	5/9/2007	MK3 BOOSTER	41.21.648	088.06.300	Move	Destroyed	6-Jun-07
504		L3-D4-04	5/9/2007	T-83 FUZE	41.21.654	088.06.290	Move	Destroyed	6-Jun-07
505		L3-D4-05	5/9/2007	T-83 FUZE	41.21.651	088.06.292	Move	Destroyed	6-Jun-07
506		L3-D4-06	5/9/2007	MK3 BOOSTER	41.21.650	088.06.294	Move	Destroyed	6-Jun-07
507		L3-D4-07	5/9/2007	T-83 FUZE	41.21.650	088.06.296	Move	Destroyed	6-Jun-07
508		L3-D4-08	5/9/2007	T-83 FUZE	41.21.651	088.06.305	Move	Destroyed	6-Jun-07
509		L3-D4-09	5/9/2007	T-83 FUZE	41.21.662	088.06.310	Move	Destroyed	6-Jun-07
510		L3-D4-10	5/9/2007	T-83 FUZE	41.21.661	088.06.308	Move	Destroyed	6-Jun-07
511		L3-D4-11	5/9/2007	T-83 FUZE	41.21.660	088.06.307	Move	Destroyed	6-Jun-07
512	23	L3-D4-12	5/9/2007	T-83 FUZE	41.21.659	088.063.305	Move	Destroyed	6-Jun-07
513		L3-D4-13	5/9/2007	T-83 FUZE	41.21.658	088.06.299	Move	Destroyed	6-Jun-07
514		L3-D4-14	5/9/2007	T-83 FUZE	41.21.658	088.06.298	Move	Destroyed	6-Jun-07
515		L3-D4-15	5/9/2007	T-83 FUZE	41.21.658	088.06.298	Move	Destroyed	6-Jun-07
516		L3-D4-16	5/9/2007	MK3 BOOSTER	41.21.658	088.06.307	Move	Destroyed	6-Jun-07
517		L3-D4-17	5/9/2007	T-83 FUZE	41.21.656	088.06.305	Move	Destroyed	6-Jun-07
518		L3-D4-18	5/9/2007	T-83 FUZE	41.21.657	088.06.304	Move	Destroyed	6-Jun-07
519		L3-D4-19	5/9/2007	MK3 BOOSTER	41.21.657	088.06.306	Move	Destroyed	6-Jun-07
520		L3-D4-20	5/9/2007	T-83 FUZE	41.21.677	088.06.286	Move	Destroyed	6-Jun-07
521		L3-D4-21	5/9/2007	T-83 FUZE	41.21.666	088.06.305	Move	Destroyed	6-Jun-07
522		L3-D4-22	5/9/2007	T-83 FUZE	41.21.659	088.06.308	Move	Destroyed	6-Jun-07
523		L3-D4-23	5/9/2007	T-83 FUZE	41.21.658	088.06.308	Move	Destroyed	6-Jun-07

L3 MEC Log
MKM Engineers
2007 Removal Action

Count	# Items Listed on Grid Sheets	Grid & Item #	Date Recovered	Item Description	N Coordinate (deg,min,sec)	E Coordinate (deg,min,sec)	Move / BIP	Disposition/Destroyed	Date Disposed/Destroyed
524		L3-D5-01	6/14/2007	T83	41.21.643	088.06.285	Move	Destroyed	28-Jun-07
525		L3-D5-02	6/14/2007	75mm SHRP	41.21.643	088.06.279	Move	Destroyed	28-Jun-07
526		L3-D5-03	6/14/2007	MK 3	41.21.639	088.06.279	Move	Destroyed	28-Jun-07
527		L3-D5-04	6/14/2007	T83	41.21.646	088.06.284	Move	Destroyed	28-Jun-07
528		L3-D5-05	6/14/2007	T83	41.21.648	088.06.281	Move	Destroyed	28-Jun-07
529		L3-D5-06	6/14/2007	T83	41.21.647	88.06.284	Move	Destroyed	28-Jun-07
530		L3-D5-07	6/14/2007	MK 3	41.21.647	088.06.282	Move	Destroyed	28-Jun-07
531		L3-D5-08	6/14/2007	105mm HE	41.21.646	088.06.281	Move	Destroyed	28-Jun-07
532		L3-D5-09	6/14/2007	T83	41.21.646	088.06.277	Move	Destroyed	28-Jun-07
533		L3-D5-10	6/14/2007	MK 3	41.21.646	088.06.279	Move	Destroyed	28-Jun-07
534		L3-D5-11	6/14/2007	75mm SHRP	41.21.648	088.06.281	Move	Destroyed	28-Jun-07
535		L3-D5-12	6/14/2007	T83	41.21.645	88.06.283	Move	Destroyed	28-Jun-07
536		L3-D5-13	6/14/2007	T83	41.21.644	088.06.283	Move	Destroyed	28-Jun-07
537		L3-D5-14	6/14/2007	T83	41.21.650	088.06.283	Move	Destroyed	28-Jun-07
538		L3-D5-15	6/14/2007	T83	41.21.649	088.06.284	Move	Destroyed	28-Jun-07
539		L3-D5-16	6/14/2007	T83	41.21.651	088.06.285	Move	Destroyed	28-Jun-07
540		L3-D5-17	6/14/2007	T83	41.21.644	088.06.289	Move	Destroyed	28-Jun-07
541		L3-D5-18	6/14/2007	75mm SHRP	41.21.644	88.06.288	Move	Destroyed	28-Jun-07
542		L3-D5-19	6/14/2007	T83	41.21.644	088.06.288	Move	Destroyed	28-Jun-07
543		L3-D5-20	6/14/2007	T83	41.21.643	088.06.290	Move	Destroyed	28-Jun-07
544		L3-D5-21	6/14/2007	T83	41.21.639	088.06.290	Move	Destroyed	28-Jun-07
545		L3-D5-22	6/14/2007	T83	41.21.635	088.06.292	Move	Destroyed	28-Jun-07
546		L3-D5-23	6/14/2007	T83	41.21.	088.06.	Move	Destroyed	28-Jun-07
547		L3-D5-24	6/14/2007	T83	41.21.	88.06	Move	Destroyed	28-Jun-07
548		L3-D5-25	6/14/2007	T83	41.21.	088.06.	Move	Destroyed	28-Jun-07
549		L3-D5-26	6/14/2007	T83	41.21.	088.06.	Move	Destroyed	28-Jun-07
550		L3-D5-27	6/14/2007	T83	41.21.	088.06.	Move	Destroyed	28-Jun-07
551		L3-D5-28	6/14/2007	T83	41.21.	088.06.	Move	Destroyed	28-Jun-07
552		L3-D5-29	6/14/2007	M103	41.21.	088.06.	Move	Destroyed	28-Jun-07
553		L3-D5-30	6/14/2007	90MM HE	41.21.	88.06	Move	Destroyed	28-Jun-07
554		L3-D5-31	6/14/2007	T83	41.21.	088.06.	Move	Destroyed	28-Jun-07
555		L3-D5-32	6/14/2007	T83	41.21.	088.06.	Move	Destroyed	28-Jun-07
556		L3-D5-33	6/14/2007	M103	41.21.	088.06.	Move	Destroyed	28-Jun-07
557		L3-D5-34	6/14/2007	T83	41.21.	088.06.	Move	Destroyed	28-Jun-07
558		L3-D5-35	6/14/2007	T83	41.21.	088.06.	Move	Destroyed	28-Jun-07
559		L3-D5-36	6/14/2007	T83	41.21.	88.06	Move	Destroyed	28-Jun-07
560		L3-D5-37	6/14/2007	T83	41.21.	088.06.	Move	Destroyed	28-Jun-07
561	76	L3-D5-38	6/14/2007	MK3	41.21.661	088.06.287	Move	Destroyed	28-Jun-07
562		L3-D5-39	6/14/2007	T83	41.21.645	088.06.281	Move	Destroyed	28-Jun-07
583		L3-D5-40	6/14/2007	T83	41.21.647	088.06.279	Move	Destroyed	28-Jun-07
564		L3-D5-41	6/14/2007	T83	41.21.647	088.06.280	Move	Destroyed	28-Jun-07
565		L3-D5-42	6/14/2007	T83	41.21.647	088.06.282	Move	Destroyed	28-Jun-07
566		L3-D5-43	6/14/2007	T83	41.21.645	088.06.286	Move	Destroyed	28-Jun-07
567		L3-D5-44	6/14/2007	T83	41.21.643	088.06.286	Move	Destroyed	28-Jun-07
568		L3-D5-45	6/14/2007	M103	41.21.646	088.06.286	Move	Destroyed	28-Jun-07
569		L3-D5-46	6/14/2007	T83	41.21.648	088.06.286	Move	Destroyed	28-Jun-07
570		L3-D5-47	6/14/2007	T83	41.21.648	088.06.285	Move	Destroyed	28-Jun-07
571		L3-D5-48	6/14/2007	T83	41.21.655	088.06.291	Move	Destroyed	28-Jun-07
572		L3-D5-49	6/14/2007	T83	41.21.654	088.06.290	Move	Destroyed	28-Jun-07
573		L3-D5-50	6/14/2007	MK3	41.21.653	088.06.291	Move	Destroyed	28-Jun-07
574		L3-D5-51	6/14/2007	T83	41.21.651	088.06.292	Move	Destroyed	28-Jun-07
575		L3-D5-52	6/14/2007	T83	41.21.651	088.06.292	Move	Destroyed	28-Jun-07
576		L3-D5-53	6/14/2007	T83	41.21.651	088.06.293	Move	Destroyed	28-Jun-07
577		L3-D5-54	6/14/2007	T83	41.21.652	088.06.292	Move	Destroyed	28-Jun-07
578		L3-D5-55	6/14/2007	T83	41.21.649	088.06.289	Move	Destroyed	28-Jun-07
579		L3-D5-56	6/14/2007	T83	41.21.649	088.06.290	Move	Destroyed	28-Jun-07
580		L3-D5-57	6/14/2007	PD FUZE	41.21.645	088.06.295	Move	Destroyed	28-Jun-07
581		L3-D5-58	6/14/2007	T83	41.21.648	088.06.288	Move	Destroyed	28-Jun-07
582		L3-D5-59	6/14/2007	T83	41.21.646	088.06.288	Move	Destroyed	28-Jun-07
583		L3-D5-60	6/14/2007	T83	41.21.647	088.06.285	Move	Destroyed	28-Jun-07
584		L3-D5-61	6/14/2007	T83	41.21.650	088.06.284	Move	Destroyed	28-Jun-07
585		L3-D5-62	6/14/2007	T83	41.21.652	088.06.281	Move	Destroyed	28-Jun-07
586		L3-D5-63	6/14/2007	MK3	41.21.649	088.06.281	Move	Destroyed	28-Jun-07
587		L3-D5-64	6/14/2007	T83	41.21.650	088.06.278	Move	Destroyed	28-Jun-07
588		L3-D5-65	6/14/2007	MK3	41.21.650	088.06.277	Move	Destroyed	28-Jun-07
589		L3-D5-66	6/14/2007	M103	41.21.648	088.06.279	Move	Destroyed	28-Jun-07
590		L3-D5-67	6/14/2007	T83	41.21.655	088.06.283	Move	Destroyed	28-Jun-07
591		L3-D5-68	6/14/2007	T83	41.21.653	088.06.288	Move	Destroyed	28-Jun-07
592		L3-D5-69	6/14/2007	T83	41.21.652	088.06.293	Move	Destroyed	28-Jun-07
593		L3-D5-70	6/14/2007	T83	41.21.653	088.06.290	Move	Destroyed	28-Jun-07
594		L3-D5-71	6/14/2007	T83	41.21.651	088.06.292	Move	Destroyed	28-Jun-07
595		L3-D5-72	6/14/2007	T83	41.21.650	088.06.290	Move	Destroyed	28-Jun-07
596		L3-D5-73	6/14/2007	T83	41.21.654	088.06.291	Move	Destroyed	28-Jun-07
597		L3-D5-74	6/14/2007	T83	41.21.655	088.06.294	Move	Destroyed	28-Jun-07
598		L3-D5-75	6/14/2007	T83	41.21.657	088.06.297	Move	Destroyed	28-Jun-07
599		L3-D5-76	6/14/2007	T83	41.21.655	088.06.297	Move	Destroyed	28-Jun-07
600		L3-D6-01	6/14/2008	T83	41.21.634	088.06.275	Move	Destroyed	28-Jun-07
601		L3-D6-02	6/18/2007	MK3	41.21.641	088.06.274	Move	Destroyed	28-Jun-07
602		L3-D6-03	6/18/2007	MK3	41.21.647	088.06.275	Move	Destroyed	28-Jun-07
603		L3-D6-04	6/18/2007	MK3	41.21.645	088.06.275	Move	Destroyed	28-Jun-07
604		L3-D6-05	6/18/2007	T83	41.21.647	088.06.275	Move	Destroyed	28-Jun-07
605		L3-D6-06	6/18/2007	T83	41.21.645	088.06.274	Move	Destroyed	28-Jun-07
606		L3-D6-07	6/18/2007	T83	41.21.651	088.06.273	Move	Destroyed	28-Jun-07
607		L3-D6-08	6/18/2007	T83	41.21.649	088.06.269	Move	Destroyed	28-Jun-07
608		L3-D6-09	6/18/2007	MK3	41.21.654	088.06.268	Move	Destroyed	28-Jun-07
609		L3-D6-10	6/18/2007	T83	41.21.650	088.06.264	Move	Destroyed	28-Jun-07
610		L3-D6-11	6/18/2007	T83	41.21.644	088.06.270	Move	Destroyed	28-Jun-07
611		L3-D6-12	6/18/2007	T83	41.21.647	088.06.267	Move	Destroyed	28-Jun-07
612	25	L3-D6-13	6/18/2007	T83	41.21.643	088.06.272	Move	Destroyed	28-Jun-07
613		L3-D6-14	6/18/2007	T83	41.21.648	088.06.266	Move	Destroyed	28-Jun-07
614		L3-D6-15	6/18/2007	T83	41.21.641	088.06.267	Move	Destroyed	28-Jun-07
615		L3-D6-16	6/18/2007	T83	41.21.640	088.06.268	Move	Destroyed	28-Jun-07
616		L3-D6-17	6/18/2007	T83	41.21.643	088.06.265	Move	Destroyed	28-Jun-07
617		L3-D6-18	6/18/2007	T83	41.21.641	088.06.264	Move	Destroyed	28-Jun-07
618		L3-D6-19	6/18/2007	T83	41.21.642	088.06.265	Move	Destroyed	28-Jun-07
619		L3-D6-20	6/18/2007	T83	41.21.649	088.06.264	Move	Destroyed	28-Jun-07
620		L3-D6-21	6/18/2007	T83	41.21.649	088.06.262	Move	Destroyed	28-Jun-07
621		L3-D6-22	6/18/2007	T83	41.21.651	088.06.260	Move	Destroyed	28-Jun-07
622		L3-D6-23	6/18/2007	T83	41.21.656	088.06.260	Move	Destroyed	28-Jun-07
623		L3-D6-24	6/18/2007	T83	41.21.653	088.06.258	Move	Destroyed	28-Jun-07
624		L3-D6-25	6/18/2007	Booster Cup	41.21.649	088.06.255	Move	Destroyed	28-Jun-07

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Count	# Items Listed on Grid Sheets	Grid & Item #	Date Recovered	Item Description	N Coordinate (deg.min.sec)	E Coordinate (deg.min.sec)	Move / BIP	Disposition/Destroyed	Date Disposed/Destroyed
625		L3-D7-01	6/13/2007	MK3 Booster	41.21.639	088.06.246	Move	Destroyed	28-Jun-07
626	3	L3-D7-02	6/13/2007	MK3 Booster	41.21.638	088.06.244	Move	Destroyed	28-Jun-07
627		L3-D7-03	6/13/2007	MK3 Booster	41.21.644	088.06.249	Move	Destroyed	28-Jun-07
628		L3-E10-01	5/9/2007	MK 3 BOOSTER	41.21.655	088.06.175	Move	Destroyed	6-Jun-07
629		L3-E10-02	5/9/2007	MK 3 BOOSTER	41.21.657	088.06.180	Move	Destroyed	6-Jun-07
630		L3-E10-03	5/9/2007	T-83 FUZE	41.21.658	088.06.158	Move	Destroyed	6-Jun-07
631		L3-E10-04	5/9/2007	T-83 FUZE	41.21.660	088.06.172	Move	Destroyed	6-Jun-07
632		L3-E10-05	5/9/2007	T-83 FUZE	41.21.659	088.06.173	Move	Destroyed	6-Jun-07
633		L3-E10-06	5/9/2007	T-83 FUZE	41.21.657	088.06.170	Move	Destroyed	6-Jun-07
634		L3-E10-07	5/9/2007	T-83 FUZE	41.21.654	088.06.170	Move	Destroyed	6-Jun-07
635		L3-E10-08	5/9/2007	T-83 FUZE	41.21.658	088.06.178	Move	Destroyed	6-Jun-07
636	18	L3-E10-09	5/9/2007	T-83 FUZE	41.21.659	088.06.173	Move	Destroyed	6-Jun-07
637		L3-E10-10	5/9/2007	40mm BOFERS	41..21.659	088.06.174	Move	Destroyed	6-Jun-07
638		L3-E10-11	5/9/2007	T-83 FUZE	41.21.655	088.06.160	Move	Destroyed	6-Jun-07
639		L3-E10-12	5/9/2007	T-83 FUZE	41.21.656	088.06.167	Move	Destroyed	6-Jun-07
640		L3-E10-13	5/9/2007	T-83 FUZE	41.21.656	088.06.168	Move	Destroyed	6-Jun-07
641		L3-E10-14	5/9/2007	T-83 FUZE	41.21.657	088.06.170	Move	Destroyed	6-Jun-07
642		L3-E10-15	5/9/2007	T-83 FUZE	41.21.657	088.06.172	Move	Destroyed	6-Jun-07
643		L3-E10-16	5/9/2007	T-83 FUZE	41.21.653	088.06.173	Move	Destroyed	6-Jun-07
644		L3-E10-17	5/9/2007	T-83 FUZE	41.21.656	088.06.173	Move	Destroyed	6-Jun-07
645		L3-E10-18	5/9/2007	MK 3 BOOSTER	41.21.665	088.06.174	Move	Destroyed	6-Jun-07
646		L3-E11-01	5/8/2007	40mm HE	41.21.649	088.06.164	BIP	Destroyed	6-Jun-07
647		L3-E11-02	5/8/2007	T-83 FUZE	41.21.652	088.06.167	Move	Destroyed	6-Jun-07
648		L3-E11-03	5/8/2007	T-83 FUZE	41.21.656	088.06.170	Move	Destroyed	6-Jun-07
649		L3-E11-04	5/8/2007	T-83 FUZE	41.21.657	088.06.170	Move	Destroyed	6-Jun-07
650		L3-E11-05	5/8/2007	T-83 FUZE	41.21.655	088.06.164	Move	Destroyed	6-Jun-07
651		L3-E11-06	5/8/2007	T-83 FUZE	41.21.655	088.06.164	Move	Destroyed	6-Jun-07
652		L3-E11-07	5/8/2007	T-83 FUZE	41.21.645	088.06.172	Move	Destroyed	6-Jun-07
653		L3-E11-08	5/8/2007	MK3 BOOSTER	41.21.654	088.06.157	Move	Destroyed	6-Jun-07
654		L3-E11-09	5/8/2007	T-83 FUZE	41.21.652	088.06.160	Move	Destroyed	6-Jun-07
655		L3-E11-10	5/8/2007	T-83 FUZE	41.21.656	088.06.161	Move	Destroyed	6-Jun-07
656		L3-E11-11	5/8/2007	T-83 FUZE	41.21.655	088.06.160	Move	Destroyed	6-Jun-07
657		L3-E11-12	5/8/2007	MK3 BOOSTER	41.21.657	088.06.162	Move	Destroyed	6-Jun-07
658		L3-E11-13	5/8/2007	T-83 FUZE	41.21.667	088.06.164	Move	Destroyed	6-Jun-07
659		L3-E11-14	5/8/2007	T-83 FUZE	41.21.657	088.06.160	Move	Destroyed	6-Jun-07
660		L3-E11-15	5/8/2007	T-83 FUZE	41.21.656	088.06.156	Move	Destroyed	6-Jun-07
661		L3-E11-16	5/8/2007	T-83 FUZE	41.21.658	088.06.151	Move	Destroyed	6-Jun-07
662		L3-E11-17	5/8/2007	T-83 FUZE	41.21.659	088.06.151	Move	Destroyed	6-Jun-07
663		L3-E11-18	5/8/2007	T-83 FUZE	41.21.656	088.06.150	Move	Destroyed	6-Jun-07
664		L3-E11-19	5/8/2007	75mm SHRAPNEL	41.21.649	088.06.148	Move	Destroyed	6-Jun-07
665		L3-E11-20	5/8/2007	T-83 FUZE	41.21.653	088.06.150	Move	Destroyed	6-Jun-07
666		L3-E11-21	5/8/2007	T-83 FUZE	41.21.656	088.06.152	Move	Destroyed	6-Jun-07
667		L3-E11-22	5/8/2007	T-83 FUZE	41.21.657	088.06.152	Move	Destroyed	6-Jun-07
668		L3-E11-23	5/8/2007	MK3 BOOSTER	41.21.659	088.06.156	Move	Destroyed	6-Jun-07
669		L3-E11-24	5/8/2007	T-83 FUZE	41.21.657	088.06.158	Move	Destroyed	6-Jun-07
670		L3-E11-25	5/8/2007	T-83 FUZE	41.21.659	088.06.164	Move	Destroyed	6-Jun-07
671		L3-E11-26	5/8/2007	T-83 FUZE	41.21.659	088.06.163	Move	Destroyed	6-Jun-07
672		L3-E11-27	5/8/2007	T-83 FUZE	41.21.661	088.06.166	Move	Destroyed	6-Jun-07
673		L3-E11-28	5/8/2007	T-83 FUZE	41.21.660	088.06.168	Move	Destroyed	6-Jun-07
674		L3-E11-29	5/8/2007	T-83 FUZE	41.21.659	088.06.159	Move	Destroyed	6-Jun-07
675		L3-E11-30	5/8/2007	T-83 FUZE	41.21.664	088.06.161	Move	Destroyed	6-Jun-07
676		L3-E11-31	5/8/2007	T-83 FUZE	41.21.660	088.06.160	Move	Destroyed	6-Jun-07
677		L3-E11-32	5/8/2007	T-83 FUZE	41.21.659	088.06.156	Move	Destroyed	6-Jun-07
678		L3-E11-33	5/8/2007	MK3 BOOSTER	41.21.663	088.06.150	Move	Destroyed	6-Jun-07
679	67	L3-E11-34	5/8/2007	MK3 BOOSTER	41.21.660	088.06.145	Move	Destroyed	6-Jun-07
680		L3-E11-35	5/8/2007	T-83 FUZE	41.21.663	088.06.146	Move	Destroyed	6-Jun-07
681		L3-E11-36	5/8/2007	T-83 FUZE	41.21.662	088.06.147	Move	Destroyed	6-Jun-07
682		L3-E11-37	5/8/2007	T-83 FUZE	41.21.662	088.06.149	Move	Destroyed	6-Jun-07
683		L3-E11-38	5/8/2007	T-83 FUZE	41.21.659	088.06.149	Move	Destroyed	6-Jun-07
684		L3-E11-39	5/8/2007	T-83 FUZE	41.21.660	088.06.147	Move	Destroyed	6-Jun-07
685		L3-E11-40	5/8/2007	T-83 FUZE	41.21.660	088.06.146	Move	Destroyed	6-Jun-07
686		L3-E11-41	5/8/2007	T-83 FUZE	41.21.662	088.06.159	Move	Destroyed	6-Jun-07
687		L3-E11-42	5/8/2007	MK3 BOOSTER	41.21.662	088.06.158	Move	Destroyed	6-Jun-07
688		L3-E11-43	5/8/2007	T-83 FUZE	41.21.668	088.06.157	Move	Destroyed	6-Jun-07
689		L3-E11-44	5/8/2007	T-83 FUZE	41.21.665	088.06.157	Move	Destroyed	6-Jun-07
690		L3-E11-45	5/8/2007	T-83 FUZE	41.21.663	088.06.151	Move	Destroyed	6-Jun-07
691		L3-E11-46	5/8/2007	T-83 FUZE	41.21.665	088.06.152	Move	Destroyed	6-Jun-07
692		L3-E11-47	5/8/2007	T-83 FUZE	41.21.665	088.06.154	Move	Destroyed	6-Jun-07
693		L3-E11-48	5/8/2007	T-83 FUZE	41.21.669	088.06.149	Move	Destroyed	6-Jun-07
694		L3-E11-49	5/8/2007	T-83 FUZE	41.21.670	088.06.148	Move	Destroyed	6-Jun-07
695		L3-E11-50	5/8/2007	T-83 FUZE	41.21.666	088.06.148	Move	Destroyed	6-Jun-07
696		L3-E11-51	5/8/2007	T-83 FUZE	41.21.667	088.06.149	Move	Destroyed	6-Jun-07
697		L3-E11-52	5/8/2007	T-83 FUZE	41.21.670	088.06.149	Move	Destroyed	6-Jun-07
698		L3-E11-53	5/8/2007	M66 FUZE	41.21.672	088.06.149	Move	Destroyed	6-Jun-07
699		L3-E11-54	5/8/2007	T-83 FUZE	41.21.668	088.06.161	Move	Destroyed	6-Jun-07
700		L3-E11-55	5/8/2007	T-83 FUZE	41.21.663	088.06.161	Move	Destroyed	6-Jun-07
701		L3-E11-56	5/8/2007	T-83 FUZE	41.21.664	088.06.161	Move	Destroyed	6-Jun-07
702		L3-E11-57	5/8/2007	MK3 BOOSTER	41.21.668	088.06.156	Move	Destroyed	6-Jun-07
703		L3-E11-58	5/8/2007	T-83 FUZE	41.21.667	088.06.161	Move	Destroyed	6-Jun-07
704		L3-E11-59	5/8/2007	T-83 FUZE	41.21.666	088.06.163	Move	Destroyed	6-Jun-07
705		L3-E11-60	5/8/2007	T-83 FUZE	41.21.671	088.06.164	Move	Destroyed	6-Jun-07
706		L3-E11-61	5/8/2007	T-83 FUZE	41.21.666	088.06.164	Move	Destroyed	6-Jun-07
707		L3-E11-62	5/8/2007	T-83 FUZE	41.21.670	088.06.164	Move	Destroyed	6-Jun-07
708		L3-E11-63	5/8/2007	T-83 FUZE	41.21.684	088.06.145	Move	Destroyed	6-Jun-07
709		L3-E11-64	5/8/2007	T-83 FUZE	41.21.673	088.06.150	Move	Destroyed	6-Jun-07
710		L3-E11-65	5/8/2007	75mm SHRAPNEL	41.21.676	088.06.146	Move	Destroyed	6-Jun-07
711		L3-E11-66	5/8/2007	T-83 FUZE	41.21.665	088.06.157	Move	Destroyed	6-Jun-07
712		L3-E11-67	5/8/2007	T-83 FUZE	41.21.662	088.06.158	Move	Destroyed	6-Jun-07

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Count	# Items Listed on Grid Sheets	Grid & Item #	Date Recovered	Item Description	N Coordinate (deg,min,sec)	E Coordinate (deg,min,sec)	Move / BIP	Disposition/Destroyed	Date Disposed/Destroyed
713		L3-E12-01	5/7/2007	T83 FUZE	41.21.671	088.06.131	Move	Destroyed	6-Jun-07
714		L3-E12-02	5/7/2007	T83 FUZE	41.21.670	088.06.146	Move	Destroyed	6-Jun-07
715		L3-E12-03	5/7/2007	MK3 BOOSTER	41.21.670	088.06.139	Move	Destroyed	6-Jun-07
716		L3-E12-04	5/7/2007	T-83 FUZE	41.21.665	088.06.139	Move	Destroyed	6-Jun-07
717		L3-E12-05	5/7/2007	T-83 FUZE	41.21.663	088.06.143	Move	Destroyed	6-Jun-07
718	11	L3-E12-06	5/7/2007	T-83 FUZE	41.21.661	088.06.145	Move	Destroyed	6-Jun-07
719		L3-E12-07	5/7/2007	T-83 FUZE	41.21.655	088.06.138	Move	Destroyed	6-Jun-07
720		L3-E12-08	5/7/2007	T-83 FUZE	41.21.639	088.06.136	Move	Destroyed	6-Jun-07
721		L3-E12-09	5/7/2007	T-83 FUZE	41.21.639	088.06.163	Move	Destroyed	6-Jun-07
722		L3-E12-10	5/7/2007	T-83 FUZE	41.21.707	088.06.172	Move	Destroyed	6-Jun-07
723		L3-E12-11	5/7/2007	T-83 FUZE	41.21.628	088.06.150	Move	Destroyed	6-Jun-07
724		L3-E3-01	5/10/2007	T-83 FUZE	41.21.675	088.06.324	Move	Destroyed	6-Jun-07
725		L3-E3-02	5/10/2007	MK3 BOOSTER	41.21.670	088.06.321	Move	Destroyed	6-Jun-07
726		L3-E3-03	5/10/2007	T-83 FUZE	41.21.668	088.06.321	Move	Destroyed	6-Jun-07
727		L3-E3-04	5/10/2007	T-83 FUZE	41.21.667	088.06.322	Move	Destroyed	6-Jun-07
728		L3-E3-05	5/10/2007	T-83 FUZE	41.21.668	088.06.322	Move	Destroyed	6-Jun-07
729		L3-E3-06	5/10/2007	T-83 FUZE	41.21.664	088.06.326	Move	Destroyed	6-Jun-07
730	13	L3-E3-07	5/10/2007	T-83 FUZE	41.21.666	088.06.327	Move	Destroyed	6-Jun-07
731		L3-E3-08	5/10/2007	T-83 FUZE	41.21.667	088.06.328	Move	Destroyed	6-Jun-07
732		L3-E3-09	5/10/2007	T-83 FUZE	41.21.672	088.06.319	Move	Destroyed	6-Jun-07
733		L3-E3-10	5/10/2007	T-83 FUZE	41.21.671	088.06.320	Move	Destroyed	6-Jun-07
734		L3-E3-11	5/10/2007	T-83 FUZE	41.21.671	088.06.320	Move	Destroyed	6-Jun-07
735		L3-E3-12	5/10/2007	T-83 FUZE	41.21.669	088.06.320	Move	Destroyed	6-Jun-07
736		L3-E3-13	5/10/2007	75MM SHRAPNEL	41.21.671	088.06.320	Move	Destroyed	6-Jun-07
737		L3-E4-01	5/10/2007	T-83 FUZE	41.21.656	088.06.296	Move	Destroyed	6-Jun-07
738		L3-E4-02	5/10/2007	T-83 FUZE	41.21.655	088.06.296	Move	Destroyed	6-Jun-07
739		L3-E4-03	5/10/2007	T-83 FUZE	41.21.655	088.06.295	Move	Destroyed	6-Jun-07
740		L3-E4-04	5/10/2007	MK 3 BOOSTER	41.21.657	088.06.292	Move	Destroyed	6-Jun-07
741		L3-E4-05	5/10/2007	T-83 FUZE	41.21.658	088.06.294	Move	Destroyed	6-Jun-07
742		L3-E4-06	5/10/2007	T-83 FUZE	41.21.656	088.06.297	Move	Destroyed	6-Jun-07
743		L3-E4-07	5/10/2007	T-83 FUZE	41.21.661	088.06.297	Move	Destroyed	6-Jun-07
744		L3-E4-08	5/10/2007	T-83 FUZE	41.21.660	088.06.294	Move	Destroyed	6-Jun-07
745		L3-E4-09	5/10/2007	T-83 FUZE	41.21.660	088.06.297	Move	Destroyed	6-Jun-07
746		L3-E4-10	5/10/2007	T-83 FUZE	41.21.654	088.06.303	Move	Destroyed	6-Jun-07
747		L3-E4-11	5/10/2007	T-83 FUZE	41.21.656	088.06.302	Move	Destroyed	6-Jun-07
748		L3-E4-12	5/10/2007	75mm SHRAPNEL	41.21.664	088.06.301	Move	Destroyed	6-Jun-07
749		L3-E4-13	5/10/2007	T-83 FUZE	41.21.660	088.06.303	Move	Destroyed	6-Jun-07
750		L3-E4-14	5/10/2007	T-83 FUZE	41.21.657	088.06.303	Move	Destroyed	6-Jun-07
751		L3-E4-15	5/10/2007	MK3 BOOSTER	41.21.662	088.06.306	Move	Destroyed	6-Jun-07
752		L3-E4-16	5/10/2007	T-83 FUZE	41.21.662	088.06.299	Move	Destroyed	6-Jun-07
753		L3-E4-17	5/10/2007	T-83 FUZE	41.21.663	088.06.300	Move	Destroyed	6-Jun-07
754		L3-E4-18	5/10/2007	T-83 FUZE	41.21.658	088.06.304	Move	Destroyed	6-Jun-07
755		L3-E4-19	5/10/2007	T-83 FUZE	41.21.656	088.06.307	Move	Destroyed	6-Jun-07
756		L3-E4-20	5/10/2007	T-83 FUZE	41.21.657	088.06.312	Move	Destroyed	6-Jun-07
757		L3-E4-21	5/10/2007	T-83 FUZE	41.21.661	088.06.313	Move	Destroyed	6-Jun-07
758		L3-E4-22	5/10/2007	PD FUZE	41.21.661	088.06.312	Move	Destroyed	6-Jun-07
759		L3-E4-23	5/10/2007	T-83 FUZE	41.21.657	088.06.312	Move	Destroyed	6-Jun-07
760		L3-E4-24	5/10/2007	75mm SHRAPNEL	41.21.661	088.06.311	Move	Destroyed	6-Jun-07
761		L3-E4-25	5/10/2007	T-83 FUZE	41.21.654	088.06.315	Move	Destroyed	6-Jun-07
762		L3-E4-26	5/10/2007	T-83 FUZE	41.21.660	088.06.313	Move	Destroyed	6-Jun-07
763		L3-E4-27	5/10/2007	T-83 FUZE	41.21.658	088.06.310	Move	Destroyed	6-Jun-07
764		L3-E4-28	5/10/2007	MK3 BOOSTER	41.21.667	088.06.311	Move	Destroyed	6-Jun-07
765		L3-E4-29	5/10/2007	T-83 FUZE	41.21.662	088.06.313	Move	Destroyed	6-Jun-07
766		L3-E4-30	5/10/2007	T-83 FUZE	41.21.668	088.06.308	Move	Destroyed	6-Jun-07
767		L3-E4-31	5/10/2007	T-83 FUZE	41.21.657	088.06.308	Move	Destroyed	6-Jun-07
768		L3-E4-32	5/10/2007	T-83 FUZE	41.21.675	088.06.304	Move	Destroyed	6-Jun-07
769		L3-E4-33	5/10/2007	T-83 FUZE	41.21.668	088.06.306	Move	Destroyed	6-Jun-07
770		L3-E4-34	5/10/2007	T-83 FUZE	41.21.663	088.06.308	Move	Destroyed	6-Jun-07
771		L3-E4-35	5/10/2007	T-83 FUZE	41.21.665	088.06.303	Move	Destroyed	6-Jun-07
772		L3-E4-36	5/10/2007	T-83 FUZE	41.21.667	088.06.292	Move	Destroyed	6-Jun-07
773	73	L3-E4-37	5/10/2007	T-83 FUZE	41.21.665	088.06.295	Move	Destroyed	6-Jun-07
774		L3-E4-38	5/10/2007	T-83 FUZE	41.21.667	088.06.295	Move	Destroyed	6-Jun-07
775		L3-E4-39	5/10/2007	T-83 FUZE	41.21.666	088.06.299	Move	Destroyed	6-Jun-07
776		L3-E4-40	5/10/2007	T-83 FUZE	41.21.665	088.06.299	Move	Destroyed	6-Jun-07
777		L3-E4-41	5/10/2007	T-83 FUZE	41.21.667	088.06.299	Move	Destroyed	6-Jun-07
778		L3-E4-42	5/10/2007	M103 FUZE	41.21.670	088.06.297	Move	Destroyed	6-Jun-07
779		L3-E4-43	5/10/2007	T-83 FUZE	41.21.675	088.06.298	Move	Destroyed	6-Jun-07
780		L3-E4-44	5/10/2007	T-83 FUZE	41.21.671	088.06.299	Move	Destroyed	6-Jun-07
781		L3-E4-45	5/10/2007	T-83 FUZE	41.21.670	088.06.300	Move	Destroyed	6-Jun-07
782		L3-E4-46	5/10/2007	T-83 FUZE	41.21.670	088.06.299	Move	Destroyed	6-Jun-07
783		L3-E4-47	5/10/2007	T-83 FUZE	41.21.672	088.06.299	Move	Destroyed	6-Jun-07
784		L3-E4-48	5/10/2007	T-83 FUZE	41.21.671	088.06.299	Move	Destroyed	6-Jun-07
785		L3-E4-49	5/10/2007	T-83 FUZE	41.21.671	088.06.301	Move	Destroyed	6-Jun-07
786		L3-E4-50	5/10/2007	T-83 FUZE	41.21.675	088.06.307	Move	Destroyed	6-Jun-07
787		L3-E4-51	5/10/2007	T-83 FUZE	41.21.676	088.06.306	Move	Destroyed	6-Jun-07
788		L3-E4-52	5/10/2007	57mm RR, HE	41.21.671	088.06.310	Move	Destroyed	6-Jun-07
789		L3-E4-53	5/10/2007	T-83 FUZE	41.21.671	088.06.310	Move	Destroyed	6-Jun-07
790		L3-E4-54	5/10/2007	75MM SHRAPNEL	41.21.672	088.06.308	Move	Destroyed	6-Jun-07
791		L3-E4-55	5/10/2007	T-83 FUZE	41.21.673	088.06.308	Move	Destroyed	6-Jun-07
792		L3-E4-56	5/10/2007	75MM SHRAPNEL	41.21.668	088.06.308	Move	Destroyed	6-Jun-07
793		L3-E4-57	5/10/2007	T-83 FUZE	41.21.668	088.06.311	Move	Destroyed	6-Jun-07
794		L3-E4-58	5/10/2007	T-83 FUZE	41.21.670	088.06.309	Move	Destroyed	6-Jun-07
795		L3-E4-59	5/10/2007	PD Fuze	41.21.669	088.06.307	Move	Destroyed	6-Jun-07
796		L3-E4-60	5/10/2007	T-83 FUZE	41.21.671	088.06.308	Move	Destroyed	6-Jun-07
797		L3-E4-61	5/10/2007	T-83 FUZE	41.21.671	088.06.310	Move	Destroyed	6-Jun-07
798		L3-E4-62	5/10/2007	T-83 FUZE	41.21.674	088.06.313	Move	Destroyed	6-Jun-07
799		L3-E4-63	5/10/2007	T-83 FUZE	41.21.675	088.06.315	Move	Destroyed	6-Jun-07
800		L3-E4-64	5/10/2007	MK3 BOOSTER	41.21.674	088.06.317	Move	Destroyed	6-Jun-07
801		L3-E4-65	5/10/2007	T-83 FUZE	41.21.671	088.06.316	Move	Destroyed	6-Jun-07
802		L3-E4-66	5/10/2007	T-83 FUZE	41.21.669	088.06.314	Move	Destroyed	6-Jun-07
803		L3-E4-67	5/10/2007	T-83 FUZE	41.21.668	088.06.313	Move	Destroyed	6-Jun-07
804		L3-E4-68	5/10/2007	T-83 FUZE	41.21.671	088.06.316	Move	Destroyed	6-Jun-07
805		L3-E4-69	5/10/2007	T-83 FUZE	41.21.668	088.06.316	Move	Destroyed	6-Jun-07
806		L3-E4-70	5/10/2007	T-83 FUZE	41.21.669	088.06.318	Move	Destroyed	6-Jun-07
807		L3-E4-71	5/10/2007	T-83 FUZE	41.21.670	088.06.318	Move	Destroyed	6-Jun-07
808		L3-E4-72	5/10/2007	MK3 BOOSTER	41.21.669	088.06.318	Move	Destroyed	6-Jun-07
809		L3-E4-73	5/10/2007	T-83 FUZE	41.21.670	088.06.319	Move	Destroyed	6-Jun-07

L3 MEC Log
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2007 Removal Action

Count	# Items Listed on Grid Sheets	Grid & Item #	Date Recovered	Item Description	N Coordinate (deg,min,sec)	E Coordinate (deg,min,sec)	Move / BIP	Disposition/Destroyed	Date Disposed/Destroyed
810		L3-E5-01	6/20/2007	T83	41.21.658	088.06.275	Move	Destroyed	28-Jun-07
811		L3-E5-02	6/20/2007	75mm SHRP	41.21.663	088.06.279	Move	Destroyed	28-Jun-07
812		L3-E5-03	6/20/2007	T83	41.21.666	088.06.281	Move	Destroyed	28-Jun-07
813		L3-E5-04	6/20/2007	T83	41.21.666	088.06.276	Move	Destroyed	28-Jun-07
814		L3-E5-05	6/20/2007	T83	41.21.666	088.06.276	Move	Destroyed	28-Jun-07
815		L3-E5-06	6/20/2007	T83	41.21.664	088.06.275	Move	Destroyed	28-Jun-07
816		L3-E5-07	6/20/2007	T83	41.21.661	088.06.281	Move	Destroyed	28-Jun-07
817		L3-E5-08	6/20/2007	T83	41.21.657	088.06.281	Move	Destroyed	28-Jun-07
818		L3-E5-09	6/20/2007	T83	41.21.660	088.06.281	Move	Destroyed	28-Jun-07
819		L3-E5-10	6/20/2007.	T83	41.21.658	088.06.283	Move	Destroyed	28-Jun-07
820		L3-E5-11	6/20/2007	T83	41.21.663	088.06.281	Move	Destroyed	28-Jun-07
821		L3-E5-12	6/20/2007	T83	41.21.663	088.06.281	Move	Destroyed	28-Jun-07
822		L3-E5-13	6/20/2007	T83	41.21.669	088.06.280	Move	Destroyed	28-Jun-07
823		L3-E5-14	6/20/2007	T83	41.21.659	088.06.273	Move	Destroyed	28-Jun-07
824		L3-E5-15	6/20/2007	T83	41.21.656	088.06.272	Move	Destroyed	28-Jun-07
825		L3-E5-16	6/20/2007	T83	41.21.657	088.06.271	Move	Destroyed	28-Jun-07
826		L3-E5-17	6/20/2007	T83	41.21.663	088.06.282	Move	Destroyed	28-Jun-07
827		L3-E5-18	6/20/2007	M60 ADP	41.21.665	088.06.281	Move	Destroyed	28-Jun-07
828		L3-E5-19	6/20/2007	T83	41.21.670	088.06.283	Move	Destroyed	28-Jun-07
829		L3-E5-20	6/20/2007	T83	41.21.662	088.06.284	Move	Destroyed	28-Jun-07
830		L3-E5-21	6/20/2007	T83	41.21.662	088.06.285	Move	Destroyed	28-Jun-07
831		L3-E5-22	6/20/2007	T83	41.21.667	088.06.283	Move	Destroyed	28-Jun-07
832		L3-E5-23	6/20/2007	T83	41.21.675	088.06.284	Move	Destroyed	28-Jun-07
833		L3-E5-24	6/20/2007	MK3	41.21.671	088.06.287	Move	Destroyed	28-Jun-07
834		L3-E5-25	6/20/2007	T83	41.21.665	088.06.283	Move	Destroyed	28-Jun-07
835		L3-E5-26	6/20/2007	T83	41.21.661	088.06.285	Move	Destroyed	28-Jun-07
836		L3-E5-27	6/20/2007	T83	41.21.663	088.06.288	Move	Destroyed	28-Jun-07
837		L3-E5-28	6/20/2007	T83	41.21.666	088.06.286	Move	Destroyed	28-Jun-07
838		L3-E5-29	6/20/2007	M60 ADP	41.21.671	088.06.286	Move	Destroyed	28-Jun-07
839		L3-E5-30	6/20/2007	T83	41.21.679	088.06.288	Move	Destroyed	28-Jun-07
840	62	L3-E5-31	6/20/2007	T83	41.21.660	088.06.286	Move	Destroyed	28-Jun-07
841		L3-E5-32	6/20/2007	T83	41.21.659	088.06.287	Move	Destroyed	28-Jun-07
842		L3-E5-33	6/20/2007	75 mm HE	41.21.653	088.06.285	Move	Destroyed	28-Jun-07
843		L3-E5-34	6/20/2007	T83	41.21.657	088.06.287	Move	Destroyed	28-Jun-07
844		L3-E5-35	6/20/2007	Booster Cup	41.21.655	088.06.291	Move	Destroyed	28-Jun-07
845		L3-E5-36	6/20/2007	T83	41.21.661	088.06.294	Move	Destroyed	28-Jun-07
846		L3-E5-37	6/20/2007	T83	41.21.666	088.06.294	Move	Destroyed	28-Jun-07
847		L3-E5-38	6/20/2007	T83	41.21.660	088.06.293	Move	Destroyed	28-Jun-07
848		L3-E5-39	6/20/2007	T83	41.21.663	088.06.293	Move	Destroyed	28-Jun-07
849		L3-E5-40	6/20/2007	T83	41.21.663	088.06.293	Move	Destroyed	28-Jun-07
850		L3-E5-41	6/20/2007	T83	41.21.672	088.06.285	Move	Destroyed	28-Jun-07
851		L3-E5-42	6/20/2007	75mmSHRP	41.21.657	088.06.293	Move	Destroyed	28-Jun-07
852		L3-E5-43	6/20/2007	T83	41.21.656	088.06.294	Move	Destroyed	28-Jun-07
853		L3-E5-44	6/20/2007	T83	41.21.657	088.06.290	Move	Destroyed	28-Jun-07
854		L3-E5-45	6/20/2007	T83	41.21.655	088.06.294	Move	Destroyed	28-Jun-07
855		L3-E5-46	6/20/2007	T83	41.21.659	088.06.293	Move	Destroyed	28-Jun-07
856		L3-E5-47	6/20/2007	MK3	41.21.661	088.06.293	Move	Destroyed	28-Jun-07
857		L3-E5-48	6/20/2007	Booster Cup	41.21.664	088.06.297	Move	Destroyed	28-Jun-07
858		L3-E5-49	6/20/2007	T83	41.21.676	088.06.277	Move	Destroyed	28-Jun-07
859		L3-E5-50	6/20/2007	T83	41.21.668	088.06.294	Move	Destroyed	28-Jun-07
860		L3-E5-51	6/20/2007	M60 ADP	41.21.672	088.06.309	Move	Destroyed	28-Jun-07
861		L3-E5-52	6/20/2007	T83	41.21.670	088.06.304	Move	Destroyed	28-Jun-07
862		L3-E5-53	6/20/2007	T83	41.21.667	088.06.295	Move	Destroyed	28-Jun-07
863		L3-E5-54	6/20/2007	T83	41.21.674	088.06.297	Move	Destroyed	28-Jun-07
864		L3-E5-55	6/20/2007	MK3	41.21.678	088.06.299	Move	Destroyed	28-Jun-07
865		L3-E5-56	6/20/2007	T83	41.21.673	088.06.298	Move	Destroyed	28-Jun-07
866		L3-E5-57	6/20/2007	T83	41.21.667	088.06.296	Move	Destroyed	28-Jun-07
867		L3-E5-58	6/20/2007	T83	41.21.673	088.06.305	Move	Destroyed	28-Jun-07
868		L3-E5-59	6/20/2007	MK3	41.21.669	088.06.303	Move	Destroyed	28-Jun-07
869		L3-E5-60	6/20/2007	T83	41.21.660	088.06.298	Move	Destroyed	28-Jun-07
870		L3-E5-61	6/20/2007	T83	41.21.657	088.06.297	Move	Destroyed	28-Jun-07
871		L3-E5-62	6/20/2007	T83	41.21.656	088.06.297	Move	Destroyed	28-Jun-07
872		L3-E6-1	6/14/2007	T83	41.21.653	088.06.263	Move	Destroyed	28-Jun-07
873		L3-E6-2	6/14/2007	T83	41.21.659	088.06.270	Move	Destroyed	28-Jun-07
874		L3-E6-3	6/14/2007	T83	41.21.657	088.06.274	Move	Destroyed	28-Jun-07
875		L3-E6-4	6/14/2007	T83	41.21.660	088.06.267	Move	Destroyed	28-Jun-07
876	9	L3-E6-5	6/14/2007	T83	41.21.665	088.06.270	Move	Destroyed	28-Jun-07
877		L3-E6-6	6/14/2007	T83	41.21.663	088.06.273	Move	Destroyed	28-Jun-07
878		L3-E6-7	6/14/2007	75mm SHRP	41.21.671	088.06.276	Move	Destroyed	28-Jun-07
879		L3-E6-8	6/14/2007	Booster Cup	41.21.663	088.06.280	Move	Destroyed	28-Jun-07
880		L3-E6-9	6/14/2007	MK3 Booster	41.21.668	08.06.268	Move	Destroyed	28-Jun-07
881	2	L3-F10-1	5/3/2007	T-83 FUZE	41.21.679	088.06.167	Move	Destroyed	6-Jun-07
882		L3-F10-2	5/3/2007	T-83 FUZE	41.21.670	088.06.171	Move	Destroyed	6-Jun-07
883		L3-F11-01	5/7/2007	T-83 FUZE	41.21.681	088.06.162	Move	Destroyed	6-Jun-07
884		L3-F11-02	5/7/2007	T-83 FUZE	41.21.674	088.06.155	Move	Destroyed	6-Jun-07
885		L3-F11-03	5/7/2007	T-83 FUZE	41.21.672	088.06.154	Move	Destroyed	6-Jun-07
886		L3-F11-04	5/7/2007	T-83 FUZE	41.21.672	088.06.151	Move	Destroyed	6-Jun-07
887		L3-F11-05	5/7/2007	MK3 BOOSTER	41.21.671	088.06.160	Move	Destroyed	6-Jun-07
888		L3-F11-06	5/7/2007	T-83 FUZE	41.21.580	088.06.151	Move	Destroyed	6-Jun-07
889		L3-F11-07	5/7/2007	T-83 FUZE	41.21.677	088.06.167	Move	Destroyed	6-Jun-07
890		L3-F11-08	5/7/2007	T-83 FUZE	41.21.677	088.06.152	Move	Destroyed	6-Jun-07
891		L3-F11-09	5/7/2007	90mm HE	41.21.675	88.06.155	Move	Destroyed	6-Jun-07
892		L3-F11-10	5/7/2007	T-83 FUZE	41.21.675	88.06.154	Move	Destroyed	6-Jun-07
893	21	L3-F11-11	5/7/2007	T-83 FUZE	41.21.673	88.06.155	Move	Destroyed	6-Jun-07
894		L3-F11-12	5/7/2007	T-83 FUZE	41.21.674	88.06.147	Move	Destroyed	6-Jun-07
895		L3-F11-13	5/7/2007	T-83 FUZE	41.21.675	88.06.148	Move	Destroyed	6-Jun-07
896		L3-F11-14	5/7/2007	T-83 FUZE	41.21.674	88.06.151	Move	Destroyed	6-Jun-07
897		L3-F11-15	5/7/2007	155mm Nose	41.21.677	88.06.151	Move	Vax Filled no destruction Required	
898		L3-F11-16	5/7/2007	T-83 FUZE	41.21.680	88.06.151	Move	Destroyed	6-Jun-07
899		L3-F11-17	5/7/2007	155mm Nose	41.21.685	88.06.152	Move	Vax Filled no destruction Required	
900		L3-F11-18	5/7/2007	T-83 FUZE	41.21.684	88.06.165	Move	Destroyed	6-Jun-07
901		L3-F11-19	5/7/2007	T-83 FUZE	41.21.684	88.06.153	Move	Destroyed	6-Jun-07
902		L3-F11-20	5/7/2007	40mm HE	41.21.685	88.06.153	Move	Destroyed	6-Jun-07
903		L3-F11-21	5/7/2007	40mm HE	41.21.685	88.06.154	BIP	Destroyed	6-Jun-07
904		L3-F12-01	5/7/2007	T-83 FUZE	41.21.671	88.06.151	Move	Destroyed	6-Jun-07
905		L3-F12-02	5/7/2007	T-83 FUZE	41.21.674	88.06.142	Move	Destroyed	6-Jun-07
906		L3-F12-03	5/7/2007	T-83 FUZE	41.21.689	88.06.142	Move	Destroyed	6-Jun-07
907		L3-F12-04	5/7/2007	T-83 FUZE	41.21.666	88.06.146	Move	Destroyed	6-Jun-07
908		L3-F12-05	5/7/2007	T-83 FUZE	41.21.672	88.06.143	Move	Destroyed	6-Jun-07
909	12	L3-F12-06	5/7/2007	T-83 FUZE	41.21.658	88.06.151	Move	Destroyed	6-Jun-07
910		L3-F12-07	5/7/2007	T-83 FUZE	41.21.675	88.06.141	Move	Destroyed	6-Jun-07
911		L3-F12-08	5/7/2007	T-83 FUZE	41.21.684	088.06.146	Move	Destroyed	6-Jun-07
912		L3-F12-09	5/7/2007	T-83 FUZE	41.21.675	088.06.146	Move	Destroyed	6-Jun-07
913		L3-F12-10	5/7/2007	T-83 FUZE	41.21.676	088.06.139	Move	Destroyed	6-Jun-07
914		L3-F12-11	5/7/2007	T-83 FUZE	41.21.675	088.06.140	Move	Destroyed	6-Jun-07
915		L3-F12-12	5/7/2007	T-83 FUZE	41.21.669	088.06.146	Move	Destroyed	6-Jun-07

L3 MEC Log
MKM Engineers
2007 Removal Action

Count	# Items Listed on Grid Sheets	Grid & Item #	Date Recovered	Item Description	N Coordinate (deg,min,sec)	E Coordinate (deg,min,sec)	Move / BIP	Disposition/Destroyed	Date Disposed/Destroyed
916		L3-F3-01	7/4/2007	T83	41.21.683	088.06.340	Move	Destroyed	8-Aug-07
917		L3-F3-02	7/4/2007	T83	41.21.687	088 06.337	Move	Destroyed	8-Aug-07
918		L3-F3-03	7/4/2007	T83	41.21.682	088.06.310	Move	Destroyed	8-Aug-07
919		L3-F3-04	7/4/2007	T83	41.21.683	088.06.320	Move	Destroyed	8-Aug-07
920		L3-F3-05	7/4/2007	75mm HE	41.21.679	088.06.342	Move	Destroyed	8-Aug-07
921		L3-F3-06	7/4/2007	T83	41.21.696	088.06.328	Move	Destroyed	8-Aug-07
922		L3-F3-07	7/4/2007	T83	41.21.691	088.06.324	Move	Destroyed	8-Aug-07
923		L3-F3-08	7/4/2007	MK3	41.21.683	088.06.329	Move	Destroyed	8-Aug-07
924		L3-F3-09	7/4/2007	T83	41.21.684	088.06.329	Move	Destroyed	8-Aug-07
925		L3-F3-10	7/4/2007	T83	41.21.684	088.06.328	Move	Destroyed	8-Aug-07
926		L3-F3-11	7/4/2007	T83	41.21.684	088.06.328	Move	Destroyed	8-Aug-07
927		L3-F3-12	7/4/2007	T83	41.21.684	088.06.327	Move	Destroyed	8-Aug-07
928		L3-F3-13	7/4/2007	T83	41.21.683	088.06.327	Move	Destroyed	8-Aug-07
929		L3-F3-14	7/4/2007	T83	41.21.680	088.06.325	Move	Destroyed	8-Aug-07
930	28	L3-F3-15	7/4/2007	T83	41.21.681	088.06.325	Move	Destroyed	8-Aug-07
931		L3-F3-16	7/4/2007	T83	41.21.675	088.06.323	Move	Destroyed	8-Aug-07
932		L3-F3-17	7/4/2007	T83	41.21.674	088.06.324	Move	Destroyed	8-Aug-07
933		L3-F3-18	7/4/2007	T83	41.21.683	088.06.319	Move	Destroyed	8-Aug-07
934		L3-F3-19	7/4/2007	T83	41.21.679	088.06.321	Move	Destroyed	8-Aug-07
935		L3-F3-20	7/4/2007	T83	41.21.682	088.06.321	Move	Destroyed	8-Aug-07
936		L3-F3-21	7/4/2007	T83	41.21.688	088.06.326	Move	Destroyed	8-Aug-07
937		L3-F3-22	7/4/2007	T83	41.21.685	088.06.324	Move	Destroyed	8-Aug-07
938		L3-F3-23	7/4/2007	T83	41.21.686	088.06.321	Move	Destroyed	8-Aug-07
939		L3-F3-24	7/4/2007	T83	41.21.688	088.06.320	Move	Destroyed	8-Aug-07
940		L3-F3-25	7/4/2007	T83	41.21.689	088.06.319	Move	Destroyed	8-Aug-07
941		L3-F3-26	7/4/2007	MK3	41.21.682	088.06.319	Move	Destroyed	8-Aug-07
942		L3-F3-27	7/4/2007	T83	088.06.682	088.06.320	Move	Destroyed	8-Aug-07
943		L3-F3-28	7/4/2007	T83	088.06.683	088.06.316	Move	Destroyed	8-Aug-07
944		L3-F4-01	7/9/2007	75mm SHRP	41.21.639	088.06.335	Move	Destroyed	8-Aug-07
945		L3-F4-02	7/9/2007	T83	41.21.642	088.06.333	Move	Destroyed	8-Aug-07
946		L3-F4-03	7/9/2007	T83	41.21.644	088.06.331	Move	Destroyed	8-Aug-07
947		L3-F4-04	7/9/2007	90mm HE	41.21.645	088.06.331	Move	Destroyed	8-Aug-07
948		L3-F4-05	7/9/2007	M103 FUZE	41.21.645	088.06.331	Move	Destroyed	8-Aug-07
949		L3-F4-06	7/9/2007	T83	41.21.645	088.06.332	Move	Destroyed	8-Aug-07
950		L3-F4-07	7/9/2007	75mm SHRP	41.21.688	088.06.316	Move	Destroyed	8-Aug-07
951		L3-F4-08	7/9/2007	T83	41.21.687	088.06.319	Move	Destroyed	8-Aug-07
952		L3-F4-09	7/9/2007	T83	41.21.686	088.06.319	Move	Destroyed	8-Aug-07
953		L3-F4-10	7/9/2007	T83	41.21.685	088.06.317	Move	Destroyed	8-Aug-07
954		L3-F4-11	7/9/2007	M60 BOOSTER	41.21.684	088.06.316	Move	Destroyed	8-Aug-07
955		L3-F4-12	7/9/2007	T83	41.21.678	088.06.317	Move	Destroyed	8-Aug-07
956		L3-F4-13	7/9/2007	T83	41.21.677	088.06.325	Move	Destroyed	8-Aug-07
957		L3-F4-14	7/9/2007	T83	41.21.678	088.06.326	Move	Destroyed	8-Aug-07
958		L3-F4-15	7/9/2007	T83	41.21.676	088.06.323	Move	Destroyed	8-Aug-07
959		L3-F4-16	7/9/2007	75mm SHRP	41.21.676	088.06.322	Move	Destroyed	8-Aug-07
960		L3-F4-17	7/9/2007	T83	41.21.673	088.06.318	Move	Destroyed	8-Aug-07
961		L3-F4-18	7/9/2007	T83	41.21.673	088.06.318	Move	Destroyed	8-Aug-07
962		L3-F4-19	7/9/2007	T83	41.21.673	088.06.319	Move	Destroyed	8-Aug-07
963		L3-F4-20	7/9/2007	T83	41.21.675	088.06.304	Move	Destroyed	8-Aug-07
964		L3-F4-21	7/9/2007	T83	41.22.675	088.05.308	Move	Destroyed	8-Aug-07
965		L3-F4-22	7/9/2007	T83	41.22.676	088.05.311	Move	Destroyed	8-Aug-07
966		L3-F4-23	7/9/2007	T83	41.22.682	088.05.308	Move	Destroyed	8-Aug-07
967		L3-F4-24	7/9/2007	T83	41.22.687	088.05.303	Move	Destroyed	8-Aug-07
968		L3-F4-26	7/9/2007	T83	41.21.683	088.06.312	Move	Destroyed	8-Aug-07
969		L3-F4-27	7/9/2007	T83	41.21.684	088.06.311	Move	Destroyed	8-Aug-07
970		L3-F4-28	7/9/2007	T83	41.21.687	088.06.309	Move	Destroyed	8-Aug-07
971		L3-F4-29	7/9/2007	T83	41.21.687	088.06.309	Move	Destroyed	8-Aug-07
972		L3-F4-30	7/9/2007	T83	41.21.686	088.06.312	Move	Destroyed	8-Aug-07
973		L3-F4-31	7/9/2007	T83	41.21.687	088.06.311	Move	Destroyed	8-Aug-07
974		L3-F4-32	7/9/2007	Booster Cup	41.21.687	088.06.307	Move	Destroyed	8-Aug-07
975		L3-F4-33	7/9/2007	T83	41.21.682	088.06.309	Move	Destroyed	8-Aug-07
976		L3-F4-34	7/9/2007	T83	41.21.681	088.06.309	Move	Destroyed	8-Aug-07
977	67	L3-F4-35	7/9/2007	T83	41.21.680	088.06.309	Move	Destroyed	8-Aug-07
978		L3-F4-36	7/9/2007	T83	41.21.672	088.06.312	Move	Destroyed	8-Aug-07
979		L3-F4-37	7/9/2007	75mm SHRP	41.21.690	088.06.315	Move	Destroyed	8-Aug-07
980		L3-F4-38	7/9/2007	T83	41.21.675	088.06.311	Move	Destroyed	8-Aug-07
981		L3-F4-39	7/9/2007	T83	41.21.677	088.06.3-5	Move	Destroyed	8-Aug-07
982		L3-F4-40	7/9/2007	T83	41.21.680	088.06.307	Move	Destroyed	8-Aug-07
983		L3-F4-41	7/9/2007	T83	41.21.677	088.06.307	Move	Destroyed	8-Aug-07
984		L3-F4-42	7/9/2007	T83	41.21.677	088.06.303	Move	Destroyed	8-Aug-07
985		L3-F4-43	7/9/2007	75mm SHRP	41.21.671	088.06.305	Move	Destroyed	8-Aug-07
986		L3-F4-44	7/9/2007	T83	41.21.677	088.06.307	Move	Destroyed	8-Aug-07
987		L3-F4-45	7/9/2007	T83	41.21.679	088.06.306	Move	Destroyed	8-Aug-07
988		L3-F4-46	7/9/2007	T83	41.21.683	088.06.304	Move	Destroyed	8-Aug-07
989		L3-F4-47	7/9/2007	T83	41.21.683	088.06.305	Move	Destroyed	8-Aug-07
990		L3-F4-48	7/9/2007	T83	41.21.684	088.06.307	Move	Destroyed	8-Aug-07
991		L3-F4-49	7/9/2007	T83	41.21.682	088.06.305	Move	Destroyed	8-Aug-07
992		L3-F4-50	7/9/2007	T83	41.21.687	088.06.302	Move	Destroyed	8-Aug-07
993		L3-F4-51	7/9/2007	T83	41.21.685	088.06.300	Move	Destroyed	8-Aug-07
994		L3-F4-52	7/9/2007	T83	41.21.685	088.06.301	Move	Destroyed	8-Aug-07
995		L3-F4-53	7/9/2007	75mm SHRP	41.21.704	088.06.296	Move	Destroyed	8-Aug-07
996		L3-F4-54	7/9/2007	T83	41.21.675	088.06.302	Move	Destroyed	8-Aug-07
997		L3-F4-55	7/9/2007	T83	41.21.674	088.06.302	Move	Destroyed	8-Aug-07
998		L3-F4-56	7/9/2007	T83	41.21.674	088.06.299	Move	Destroyed	8-Aug-07
999		L3-F4-57	7/9/2007	T83	41.21.676	088.06.300	Move	Destroyed	8-Aug-07
1000		L3-F4-58	7/9/2007	T83	41.21.656	088.06.277	Move	Destroyed	8-Aug-07
1001		L3-F4-59	7/9/2007	T83	41.21.683	088.06.294	Move	Destroyed	8-Aug-07
1002		L3-F4-60	7/9/2007	T83	41.21.686	088.06.293	Move	Destroyed	8-Aug-07
1003		L3-F4-61	7/9/2007	MK3	41.21.689	088.06.298	Move	Destroyed	8-Aug-07
1004		L3-F4-62	7/9/2007	T83	41.21.688	088.06.301	Move	Destroyed	8-Aug-07
1005		L3-F4-63	7/9/2007	T83	41.21.687	088.06.301	Move	Destroyed	8-Aug-07
1006		L3-F4-64	7/9/2007	T83	41.21.686	088.06.302	Move	Destroyed	8-Aug-07
1007		L3-F4-65	7/9/2007	75mmSHRP	41.21.685	088.06.302	Move	Destroyed	8-Aug-07
1008		L3-F4-66	7/9/2007	T83	41.21.685	088.06.301	Move	Destroyed	8-Aug-07
1009		L3-F4-67	7/9/2007	Sup Charge	41.21.689	088.06.299	Move	Destroyed	8-Aug-07

L3 MEC Log
MKM Engineers
2007 Removal Action

Count	# Items Listed on Grid Sheets	Grid & Item #	Date Recovered	Item Description	N Coordinate (deg,min,sec)	E Coordinate (deg,min,sec)	Move / BIP	Disposition/Destroyed	Date Disposed/Destroyed
1010		L3-F5-01	6/19/2007	75mm SHRP	41.21.676	088.06.277	Move	Destroyed	28-Jun-07
1011		L3-F5-02	6/19/2007	T83	41.21.667	088.06.276	Move	Destroyed	28-Jun-07
1012		L3-F5-03	6/19/2007	T83	41.21.676	088.06.276	Move	Destroyed	28-Jun-07
1013		L3-F5-04	6/19/2007	T83	41.21.682	088.06.274	Move	Destroyed	28-Jun-07
1014		L3-F5-05	6/19/2007	T83	41.21.685	088.06.274	Move	Destroyed	28-Jun-07
1015		L3-F5-06	6/19/2007	T83	41.21.678	088.06.276	Move	Destroyed	28-Jun-07
1016		L3-F5-07	6/19/2007	T83	41.21.677	088.06.278	Move	Destroyed	28-Jun-07
1017		L3-F5-08	6/19/2007	MK3	41.21.676	088.06.301	Move	Destroyed	28-Jun-07
1018		L3-F5-09	6/19/2007	T83	41.21.677	088.06.281	Move	Destroyed	28-Jun-07
1019		L3-F5-10	6/19/2007	T83	41.21.677	088.06.279	Move	Destroyed	28-Jun-07
1020		L3-F5-11	6/19/2007	75mm SHRP	41.21.676	088.06.278	Move	Destroyed	28-Jun-07
1021		L3-F5-12	6/19/2007	T83	41.21.676	088.06.278	Move	Destroyed	28-Jun-07
1022		L3-F5-13	6/19/2007	T83	41.21.677	088.06.282	Move	Destroyed	28-Jun-07
1023		L3-F5-14	6/19/2007	T83	41.21.679	088.06.280	Move	Destroyed	28-Jun-07
1024		L3-F5-15	6/19/2007	T83	41.21.679	088.06.280	Move	Destroyed	28-Jun-07
1025		L3-F5-16	6/19/2007	MK3	41.21.677	088.06.284	Move	Destroyed	28-Jun-07
1026		L3-F5-17	6/19/2007	T83	41.21.686	088.06.294	Move	Destroyed	28-Jun-07
1027		L3-F5-18	6/19/2007	T83	41.21.677	088.06.282	Move	Destroyed	28-Jun-07
1028		L3-F5-19	6/19/2007	75mm HE	41.21.673	088.06.285	Move	Destroyed	28-Jun-07
1029		L3-F5-20	6/19/2007	T83	41.21.679	088.06.289	Move	Destroyed	28-Jun-07
1030		L3-F5-21	6/19/2007	T83	41.21.684	088.06.290	Move	Destroyed	28-Jun-07
1031		L3-F5-22	6/19/2007	T83	41.21.683	088.06.285	Move	Destroyed	28-Jun-07
1032		L3-F5-23	6/19/2007	T83	41.21.675	088.06.288	Move	Destroyed	28-Jun-07
1033		L3-F5-24	6/19/2007	T83	41.21.675	088.06.289	Move	Destroyed	28-Jun-07
1034		L3-F5-25	6/19/2007	T83	41.21.675	088.06.289	Move	Destroyed	28-Jun-07
1035		L3-F5-26	6/19/2007	T83	41.21.675	088.06.288	Move	Destroyed	28-Jun-07
1036		L3-F5-27	6/19/2007	T83	41.21.674	088.06.292	Move	Destroyed	28-Jun-07
1037		L3-F5-28	6/19/2007	T83	41.21.672	088.06.290	Move	Destroyed	28-Jun-07
1038		L3-F5-29	6/19/2007	T83	41.21.678	088.06.285	Move	Destroyed	28-Jun-07
1039		L3-F5-30	6/19/2007	75 mm SHRP	41.21.686	088.06.293	Move	Destroyed	28-Jun-07
1040		L3-F5-31	6/19/2007	T83	41.21.686	088.06.293	Move	Destroyed	28-Jun-07
1041		L3-F5-32	6/19/2007	T83	41.21.680	088.06.287	Move	Destroyed	28-Jun-07
1042		L3-F5-33	6/19/2007	T83	41.21.680	088.06.289	Move	Destroyed	28-Jun-07
1043		L3-F5-34	6/19/2007	T83	41.21.676	088.06.297	Move	Destroyed	28-Jun-07
1044		L3-F5-35	6/19/2007	T83	41.21.674	088.06.296	Move	Destroyed	28-Jun-07
1045		L3-F5-36	6/19/2007	T83	41.21.673	088.06.293	Move	Destroyed	28-Jun-07
1046		L3-F5-37	6/19/2007	T83	41.21.678	088.06.291	Move	Destroyed	28-Jun-07
1047		L3-F5-38	6/19/2007	MK3	41.21.676	088.06.292	Move	Destroyed	28-Jun-07
1048	77	L3-F5-39	6/19/2007	T83	41.21.685	088.06.292	Move	Destroyed	28-Jun-07
1049		L3-F5-40	6/19/2007	T83	41.21.684	088.06.291	Move	Destroyed	28-Jun-07
1050		L3-F5-41	6/19/2007	T83	41.21.684	088.06.290	Move	Destroyed	28-Jun-07
1051		L3-F5-42	6/19/2007	T83	41.21.675	088.06.295	Move	Destroyed	28-Jun-07
1052		L3-F5-43	6/19/2007	T83	41 21 676	088.06.297	Move	Destroyed	28-Jun-07
1053		L3-F5-44	6/19/2007	T83	41.21.677	088.06.297	Move	Destroyed	28-Jun-07
1054		L3-F5-45	6/19/2007	T83	41.21	088.06.	Move	Destroyed	28-Jun-07
1055		L3-F5-46	6/19/2007	T83	41.21.	088.06.	Move	Destroyed	28-Jun-07
1056		L3-F5-47	6/19/2007	T83	41.21.	088.06.	Move	Destroyed	28-Jun-07
1057		L3-F5-48	6/19/2007	T83	41.21.	088.06.	Move	Destroyed	28-Jun-07
1058		L3-F5-49	6/19/2007	T83	41.21.	088 06.	Move	Destroyed	28-Jun-07
1059		L3-F5-50	6/19/2007	T83	41.21.	088.06.	Move	Destroyed	28-Jun-07
1060		L3-F5-51	6/19/2007	MT FUZE	41.21.688	088.06.287	Move	Destroyed	28-Jun-07
1061		L3-F5-52	6/19/2007	MK3	41.21.683	088.06.296	Move	Destroyed	28-Jun-07
1062		L3-F5-53	6/19/2007	T83	41.21.681	088.06.294	Move	Destroyed	28-Jun-07
1063		L3-F5-54	6/19/2007	T83	41.21.675	088.06.293	Move	Destroyed	28-Jun-07
1064		L3-F5-55	6/19/2007	57mm HEAT	41.21.681	088.06.295	Move	Destroyed	28-Jun-07
1065		L3-F5-56	6/19/2007	T83	41.21.677	088.06.299	Move	Destroyed	28-Jun-07
1066		L3-F5-57	6/19/2007	T83	41.21.679	088.06.298	Move	Destroyed	28-Jun-07
1067		L3-F5-58	6/19/2007	T83	41.21.683	088.06.295	Move	Destroyed	28-Jun-07
1068		L3-F5-59	6/19/2007	T83	41.21.686	088.06.292	Move	Destroyed	28-Jun-07
1069		L3-F5-60	6/19/2007	75mm HE	41.21.687	088.06.292	Move	Destroyed	28-Jun-07
1070		L3-F5-61	6/19/2007	75mm HE	41.21 674	088.06.295	Move	Destroyed	28-Jun-07
1071		L3-F5-62	6/19/2007	MK3	41.21.673	088.06.298	Move	Destroyed	28-Jun-07
1072		L3-F5-63	6/19/2007	T83	41.21.676	088.06.297	Move	Destroyed	28-Jun-07
1073		L3-F5-64	6/19/2007	T83	41.21.675	088.06.299	Move	Destroyed	28-Jun-07
1074		L3-F5-65	6/19/2007	T83	41.21.677	088.06.297	Move	Destroyed	28-Jun-07
1075		L3-F5-66	6/19/2007	T83	41.21.679	088.06.297	Move	Destroyed	28-Jun-07
1076		L3-F5-67	6/19/2007	T83	41.21.692	088.06.301	Move	Destroyed	28-Jun-07
1077		L3-F5-68	6/19/2007	T83	41.21.692	088.06.296	Move	Destroyed	28-Jun-07
1078		L3-F5-69	6/19/2007	T83	41.21.674	088.06.304	Move	Destroyed	28-Jun-07
1079		L3-F5-70	6/19/2007	T83	41.21.683	088.06.290	Move	Destroyed	28-Jun-07
1080		L3-F5-71	6/19/2007	T83	41.21.690	088.06.292	Move	Destroyed	28-Jun-07
1081		L3-F5-72	6/19/2007	T83	41.21.689	088.06.296	Move	Destroyed	28-Jun-07
1082		L3-F5-73	6/19/2007	T83	41.21.686	088.06.296	Move	Destroyed	28-Jun-07
1083		L3-F5-74	6/19/2007	T83	41.21.689	088.06.293	Move	Destroyed	28-Jun-07
1084		L3-F5-75	6/19/2007	T83	41.21.689	088.06.293	Move	Destroyed	28-Jun-07
1085		L3-F5-76	6/19/2007	T83	41.21.689	088.06.293	Move	Destroyed	28-Jun-07
1086		L3-F5-77	6/19/2007	T83	41.21.696	088.06.290	Move	Destroyed	28-Jun-07
1087	1	L3-F6-1	6/18/2007	T83	41.21.671	088.06.264	Move	Destroyed	28-Jun-07
1088		L3-G10-1	5/2/2007	T-83 FUZE	41.21.706	088.06.179	Move	Destroyed	6-Jun-07
1089		L3-G10-2	5/2/2007	T-83 FUZE	41.21.701	088.06.178	Move	Destroyed	6-Jun-07
1090		L3-G10-3	5/2/2007	T-83 FUZE	41.21.740	088.06.191	Move	Destroyed	6-Jun-07
1091	7	L3-G10-4	5/2/2007	T-83 FUZE	41.21.699	088.06.180	Move	Destroyed	6-Jun-07
1092		L3-G10-5	5/2/2007	40mm FRAG BALL	41.21.697	088.06.177	Move	Destroyed	6-Jun-07
1093		L3-G10-6	5/2/2007	40mm FUZE	41.21.688	088.06.182	Move	Destroyed	6-Jun-07
1094		L3-G10-7	5/2/2007	T-83 FUZE	41.21.686	088.06.179	Move	Destroyed	6-Jun-07
1095		L3-G11-01	5/1/2007	T-83	41.21.689	088.06.151	Move	Destroyed	6-Jun-07
1096		L3-G11-02	5/1/2007	T-83	41.21.690	088.06.161	Move	Destroyed	6-Jun-07
1097		L3-G11-03	5/1/2007	T-83	41.21.701	088.06.165	Move	Destroyed	6-Jun-07
1098		L3-G11-04	5/1/2007	T-83	41.21.663	088.06.169	Move	Destroyed	6-Jun-07
1099		L3-G11-05	5/1/2007	T-83	41.21.689	088.06.171	Move	Destroyed	6-Jun-07
1100	10	L3-G11-06	5/1/2007	T-83	41.21.699	088.06.161	Move	Destroyed	6-Jun-07
1101		L3-G11-07	5/1/2007	T-83	41.21.701	088.06.160	Move	Destroyed	6-Jun-07
1102		L3-G11-08	5/1/2007	T-83	41.21.702	088.06.170	Move	Destroyed	6-Jun-07
1103		L3-G11-09	5/1/2007	T-83	41.21.705	088.06.161	Move	Destroyed	6-Jun-07
1104		L3-G11-10	5/1/2007	T-83	41.21.703	088.06.159	Move	Destroyed	6-Jun-07
1105	2	L3-G12-1	5/1/2007	T-83	41.21.701	088.06.138	Move	Destroyed	6-Jun-07
1106		L3-G12-2	5/1/2007	75mm SHRAPNEL	41.21.697	088.06.139	Move	Destroyed	6-Jun-07

L3 MEC Log
MKM Engineers
2007 Removal Action

Count	# Items Listed on Grid Sheets	Grid & Item #	Date Recovered	Item Description	N Coordinate (deg,min,sec)	E Coordinate (deg,min,sec)	Move / BIP	Disposition/Destroyed	Date Disposed/Destroyed
1107		L3-G2-01	7/3/2007	T83	41.21.695	088.06.362	Move	Destroyed	8-Aug-07
1108		L3-G2-02	7/3/2007	T83	41.21.702	088.06.356	Move	Destroyed	8-Aug-07
1109		L3-G2-03	7/3/2007	T83	41.21.709	088.06.353	Move	Destroyed	8-Aug-07
1110		L3-G2-04	7/3/2007	T83	41.21.707	088.06.345	Move	Destroyed	8-Aug-07
1111		L3-G2-05	7/3/2007	T83	41.21.706	088.06.360	Move	Destroyed	8-Aug-07
1112		L3-G2-06	7/3/2007	T83	41.21.705	088.06.361	Move	Destroyed	8-Aug-07
1113		L3-G2-07	7/3/2007	T83	41.21.704	088.06.358	Move	Destroyed	8-Aug-07
1114	16	L3-G2-08	7/3/2007	T83	41.21.702	088.06.340	Move	Destroyed	8-Aug-07
1115		L3-G2-09	7/3/2007	T83	41.21.696	088.06.343	Move	Destroyed	8-Aug-07
1116		L3-G2-10	7/3/2007	T83	41.21.695	088.06.344	Move	Destroyed	8-Aug-07
1117		L3-G2-11	7/3/2007	T83	41.21.697	088.06.3553	Move	Destroyed	8-Aug-07
1118		L3-G2-12	7/3/2007	MK3	41.21.695	088.06.357	Move	Destroyed	8-Aug-07
1119		L3-G2-13	7/3/2007	T83	41.21.693	088.06.351	Move	Destroyed	8-Aug-07
1120		L3-G2-14	7/3/2007	T83	41.21.694	088.06.353	Move	Destroyed	8-Aug-07
1121		L3-G2-15	7/3/2007	T83	41.21.695	088.06.352	Move	Destroyed	8-Aug-07
1122		L3-G2-16	7/3/2007	T83	41.21.696	088.06.353	Move	Destroyed	8-Aug-07
1123		L3-G3-01	7/3/2007	T83	41.21.690	088.06.350	Move	Destroyed	8-Aug-07
1124		L3-G3-02	7/3/2007	T83	41.21.690	088.06.345	Move	Destroyed	8-Aug-07
1125		L3-G3-03	7/3/2007	90mm HE	41.21.690	088.06.344	Move	Destroyed	8-Aug-07
1126		L3-G3-04	7/3/2007	T83	41.21.695	088.06.329	Move	Destroyed	8-Aug-07
1127		L3-G3-05	7/3/2007	M103 Fuze	41.21.697	088.06.331	Move	Destroyed	8-Aug-07
1128	11	L3-G3-06	7/3/2007	T83	41.21.692	088.06.330	Move	Destroyed	8-Aug-07
1129		L3-G3-07	7/3/2007	T83	41.21.697	088.06.325	Move	Destroyed	8-Aug-07
1130		L3-G3-08	7/3/2007	90mm HE	41.21.704	088.06.320	Move	Destroyed	8-Aug-07
1131		L3-G3-09	7/3/2007	T83	41.21.701	088.06.321	Move	Destroyed	8-Aug-07
1132		L3-G3-10	7/3/2007	T83	41.21.697	088.06.322	Move	Destroyed	8-Aug-07
1133		L3-G3-11	7/3/2007	T83	41.21.697	088.06.321	Move	Destroyed	8-Aug-07
1134		L3-G4-01	6/25/2007	T83	41.21.701	088.06.297	Move	Destroyed	28-Jun-07
1135		L3-G4-02	6/25/2007	T83	41.21.694	088.06.295	Move	Destroyed	28-Jun-07
1136		L3-G4-03	6/25/2007	T83	41.21.694	088.06.297	Move	Destroyed	28-Jun-07
1137		L3-G4-04	6/25/2007	T83	41.21.694	088.06.297	Move	Destroyed	28-Jun-07
1138		L3-G4-05	6/25/2007	T83	41.21.693	088.06.297	Move	Destroyed	28-Jun-07
1139		L3-G4-06	6/25/2007	M60	41.21.693	088.06.297	Move	Destroyed	28-Jun-07
1140		L3-G4-07	6/25/2007	T83	41.21.694	088.06.297	Move	Destroyed	28-Jun-07
1141		L3-G4-08	6/25/2007	T83	41.21.697	088.06.297	Move	Destroyed	28-Jun-07
1142		L3-G4-09	6/25/2007	T83	41.21.700	088.06.299	Move	Destroyed	28-Jun-07
1143		L3-G4-10	6/25/2007	M66	41.21.703	088.06.298	Move	Destroyed	28-Jun-07
1144		L3-G4-11	6/25/2007	75mm SHRP	41 21.698	088.06.302	Move	Destroyed	28-Jun-07
1145		L3-G4-12	6/25/2007	T83	41.21.698	088.06.300	Move	Destroyed	28-Jun-07
1146		L3-G4-13	6/25/2007	T83	41.21.695	088.06.299	Move	Destroyed	28-Jun-07
1147		L3-G4-14	6/25/2007	MK3	41.21.697	088.06.298	Move	Destroyed	28-Jun-07
1148		L3-G4-15	6/25/2007	T83	41.21.697	088.06.299	Move	Destroyed	28-Jun-07
1149		L3-G4-16	6/25/2007	T83	41.21.696	088.06.301	Move	Destroyed	28-Jun-07
1150		L3-G4-17	6/25/2007	T83	41.21.694	088.06.300	Move	Destroyed	28-Jun-07
1151		L3-G4-18	6/25/2007	T83	41.21.694	088.06.299	Move	Destroyed	28-Jun-07
1152		L3-G4-19	6/25/2007	MK3	41.21.691	088.06.300	Move	Destroyed	28-Jun-07
1153		L3-G4-20	6/25/2007	T83	41.21.699	088.06.306	Move	Destroyed	28-Jun-07
1154		L3-G4-21	6/25/2007	T83	41.21.694	088.06.305	Move	Destroyed	28-Jun-07
1155		L3-G4-22	6/25/2007	T83	41.21.693	088.06.304	Move	Destroyed	28-Jun-07
1156		L3-G4-23	6/25/2007	T83	41.21.691	088.06.302	Move	Destroyed	28-Jun-07
1157		L3-G4-24	6/25/2007	T83	41.21.695	088.06.308	Move	Destroyed	28-Jun-07
1158		L3-G4-25	6/25/2007	T83	41.21.695	088.06 307	Move	Destroyed	28-Jun-07
1159		L3-G4-26	6/25/2007	T83	41.21.694	088.06.303	Move	Destroyed	28-Jun-07
1160		L3-G4-27	6/25/2007	T83	41.21.694	088.06.302	Move	Destroyed	28-Jun-07
1161		L3-G4-28	6/25/2007	T83	41.21.695	088.06.303	Move	Destroyed	28-Jun-07
1162		L3-G4-29	6/25/2007	T83	41.21.698	088.06.303	Move	Destroyed	28-Jun-07
1163		L3-G4-30	6/25/2007	90mm HE	41.21.698	088.06.304	Move	Destroyed	28-Jun-07
1164		L3-G4-31	6/25/2007	T83	41.21.696	088.06.305	Move	Destroyed	28-Jun-07
1165		L3-G4-32	6/25/2007	T83	41.21.700	088.06.307	Move	Destroyed	28-Jun-07
1166		L3-G4-33	6/25/2007	T83	41.21.701	088.06.303	Move	Destroyed	28-Jun-07
1167	68	L3-G4-34	6/25/2007	75mm SHRP	41.21.699	088.06.303	Move	Destroyed	28-Jun-07
1168		L3-G4-35	6/25/2007	T83	41.21.700	088.06.306	Move	Destroyed	28-Jun-07
1169		L3-G4-36	6/25/2007	T83	41.21.703	088.06.302	Move	Destroyed	28-Jun-07
1170		L3-G4-37	6/25/2007	T83	41.21.692	088.06.307	Move	Destroyed	28-Jun-07
1171		L3-G4-38	6/25/2007	T83	41.21 698	088.06.307	Move	Destroyed	28-Jun-07
1172		L3-G4-39	6/25/2007	T83	41.21.697	088.06.306	Move	Destroyed	28-Jun-07
1173		L3-G4-40	6/25/2007	T83	41.21 702	088.06.307	Move	Destroyed	28-Jun-07
1174		L3-G4-41	6/25/2007	T83	41.21.702	088.06.306	Move	Destroyed	28-Jun-07
1175		L3-G4-42	6/25/2007	T83	41.21.705	088.06.302	Move	Destroyed	28-Jun-07
1176		L3-G4-43	6/25/2007	T83	41.21.704	088.06.3-4	Move	Destroyed	28-Jun-07
1177		L3-G4-44	6/25/2007	T83	41.21.704	088.06.304	Move	Destroyed	28-Jun-07
1178		L3-G4-45	6/25/2007	105mm SALUTE	41.21.704	088.06.308	Move	Destroyed	28-Jun-07
1179		L3-G4-46	6/25/2007	T83	41.21.695	088.06.305	Move	Destroyed	28-Jun-07
1180		L3-G4-47	6/25/2007	T83	41.21.698	088.06.310	Move	Destroyed	28-Jun-07
1181		L3-G4-48	6/25/2007	T83	41.21.693	088.06.309	Move	Destroyed	28-Jun-07
1182		L3-G4-49	6/25/2007	T83	41.21.695	088.06.310	Move	Destroyed	28-Jun-07
1183		L3-G4-50	6/25/2007	T83	41.21.697	088.06.310	Move	Destroyed	28-Jun-07
1184		L3-G4-51	6/25/2007	T83	41.21.701	088.06.312	Move	Destroyed	28-Jun-07
1185		L3-G4-52	6/25/2007	75mm SHRP	41.21.691	088.06.311	Move	Destroyed	28-Jun-07
1186		L3-G4-53	6/25/2007	T83	41.21.689	088.06.311	Move	Destroyed	28-Jun-07
1187		L3-G4-54	6/25/2007	T83	41.21.702	088.06.289	Move	Destroyed	28-Jun-07
1188		L3-G4-55	6/25/2007	M103 BOMB FUZE	41.21.693	088.06.308	Move	Destroyed	28-Jun-07
1189		L3-G4-56	6/25/2007	T83	41.21.695	088.06.311	Move	Destroyed	28-Jun-07
1190		L3-G4-57	6/25/2007	T83	41.21.697	088.06.312	Move	Destroyed	28-Jun-07
1191		L3-G4-58	6/25/2007	T83	41.21.698	088.06.313	Move	Destroyed	28-Jun-07
1192		L3-G4-59	6/25/2007	MK3	41.21.698	088.06.312	Move	Destroyed	28-Jun-07
1193		L3-G4-60	6/25/2007	MK3	41.21.699	088.06.313	Move	Destroyed	28-Jun-07
1194		L3-G4-61	6/25/2007	T83	41.21.696	088.06.312	Move	Destroyed	28-Jun-07
1195		L3-G4-62	6/25/2007	T83	41.21.694	088.06.315	Move	Destroyed	28-Jun-07
1196		L3-G4-63	6/25/2007	75mm HE	41.21.691	088.05.314	Move	Destroyed	28-Jun-07
1197		L3-G4-64	6/25/2007	T83	41.21.685	088.06.319	Move	Destroyed	28-Jun-07
1198		L3-G4-65	6/25/2007	57mm HEAT	41.21.697	088.06.313	Move	Destroyed	28-Jun-07
1199		L3-G4-66	6/25/2007	MK3	41.21.695	088.05.323	Move	Destroyed	28-Jun-07
1200		L3-G4-67	6/25/2007	T83	41.21.692	088.06.319	Move	Destroyed	28-Jun-07
1201		L3-G4-68	6/25/2007	T83	41.21.683	088.06.320	Move	Destroyed	28-Jun-07
1202		L3-G5-01	6/21/2007	T83	41.21.698	088.06. 302	Move	Destroyed	28-Jun-07
1203		L3-G5-02	6/21/2007	T83	41.21.696	088.06.298	Move	Destroyed	28-Jun-07
1204		L3-G5-03	6/21/2007	T83	41.21.695	088.06.297	Move	Destroyed	28-Jun-07
1205	8	L3-G5-04	6/21/2007	T83	41.21.697	088.06.296	Move	Destroyed	28-Jun-07
1206		L3-G5-05	6/21/2007	T83	41.21.695	088.06.295	Move	Destroyed	28-Jun-07
1207		L3-G5-06	6/21/2007	T83	41.21.695	088.06.296	Move	Destroyed	28-Jun-07
1208		L3-G5-07	6/21/2007	T83	41.21.695	088.06.293	Move	Destroyed	28-Jun-07
1209		L3-G5-08	6/21/2007	90mm HE	41.21.689	088.06.296	Move	Destroyed	28-Jun-07
1210		L3-H10-1	4/16/2007	T-83 FUZE	41.21.705	088.06.169	Move	Destroyed	16-May-07
1211		L3-H10-2	4/16/2007	M66 BOOSTER	41.21.707	088.06.168	Move	Destroyed	16-May-07
1212		L3-H10-3	4/16/2007	T-83 FUZE	41.21.706	088.06.170	Move	Destroyed	16-May-07
1213	8	L3-H10-4	4/16/2007	T-83 FUZE	41.21.712	088.06.179	Move	Destroyed	16-May-07
1214		L3-H10-5	4/16/2007	T-83 FUZE	41.21.711	088.06.171	Move	Destroyed	16-May-07
1215		L3-H10-6	4/16/2007	T-83 FUZE	41.21.709	088.06.167	Move	Destroyed	16-May-07
1216		L3-H10-7	4/16/2007	T-83 FUZE	41.21.708	088.06.167	Move	Destroyed	16-May-07
1217		L3-H10-8	4/16/2007	M66 BOOSTER	41.21.715	088.06.160	Move	Destroyed	16-May-07

L3 MEC Log
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Count	# Items Listed on Grid Sheets	Grid & Item #	Date Recovered	Item Description	N Coordinate (deg,min,sec)	E Coordinate (deg,min,sec)	Move / BIP	Disposition/Destroyed	Date Disposed/Destroyed
1218	4	L3-H1-01	7/2/2007	75mm SHRP	41.21.698	088.06.365	Move	Destroyed	8-Aug-07
1219		L3-H1-02	7/2/2007	T83	41.21.722	088.06.375	Move	Destroyed	8-Aug-07
1220		L3-H1-03	7/2/2007	T83	41.21.725	088.06.376	Move	Destroyed	8-Aug-07
1221		L3-H1-04	7/2/2007	T83	41.21.722	088.06.371	Move	Destroyed	8-Aug-07
1222	12	L3-H11-01	5/1/2007	M51 FUZE	41.21.715	088.06.168	Move	Destroyed	6-Jun-07
1223		L3-H11-02	5/1/2007	MK3 BOOSTER	41.21.713	088.06.151	Move	Destroyed	6-Jun-07
1224		L3-H11-03	5/1/2007	155mm NOSE	41.21.712	088.06.161	Move	Destroyed	6-Jun-07
1225		L3-H11-04	5/1/2007	T-83 FUZE	41.21.703	088.06.167	Move	Destroyed	6-Jun-07
1226		L3-H11-05	5/1/2007	T-83 FUZE	41.21.706	088.06.161	Move	Destroyed	6-Jun-07
1227		L3-H11-06	5/1/2007	T-83 FUZE	41.21.704	088.06.163	Move	Destroyed	6-Jun-07
1228		L3-H11-07	5/1/2007	MK3 BOOSTER	41.21.706	088.06.166	Move	Destroyed	6-Jun-07
1229		L3-H11-08	5/1/2007	T-83 FUZE	41.21.709	088.06.166	Move	Destroyed	6-Jun-07
1230		L3-H11-09	5/1/2007	T-83 FUZE	41.21.702	088.06.167	Move	Destroyed	6-Jun-07
1231		L3-H11-10	5/1/2007	MK3 BOOSTER	41.21.705	088.06.149	Move	Destroyed	6-Jun-07
1232		L3-H11-11	5/1/2007	MK3 BOOSTER	41.21.707	088.08.153	Move	Destroyed	6-Jun-07
1233		L3-H11-12	5/1/2007	T-83 FUZE	41.21.681	088.06.166	Move	Destroyed	6-Jun-07
1234	3	L3-H12-1	4/30/2007	T-83	41.21.698	088.05.136	Move	Destroyed	6-Jun-07
1235		L3-H12-2	4/30/2007	SUP CHARGE	41.21.701	088.06.145	Move	Destroyed	6-Jun-07
1236		L3-H12-3	4/30/2007	T-83	41.21.703	088.06.141	Move	Destroyed	6-Jun-07
1237	11	L3-H2-01	6/27/2007	T83	41.21.705	088.06.324	Move	Destroyed	28-Jun-07
1238		L3-H2-02	6/27/2007	T83	41.21.712	088.06.340	Move	Destroyed	28-Jun-07
1239		L3-H2-03	6/27/2007	T83	41.21.706	088.06.345	Move	Destroyed	28-Jun-07
1240		L3-H2-04	6/27/2007	T83	41.21.704	088.06.344	Move	Destroyed	28-Jun-07
1241		L3-H2-05	6/27/2007	T83	41.21.716	088.06.339	Move	Destroyed	28-Jun-07
1242		L3-H2-06	6/27/2007	T83	41.21.711	088.06.351	Move	Destroyed	28-Jun-07
1243		L3-H2-07	6/27/2007	T83	41.21.707	088.06.351	Move	Destroyed	28-Jun-07
1244		L3-H2-08	6/27/2007	MK3	41.21.709	088.06.357	Move	Destroyed	28-Jun-07
1245		L3-H2-09	6/27/2007	T83	41.21.712	088.06.356	Move	Destroyed	28-Jun-07
1246		L3-H2-10	6/27/2007	T83	41.21.720	088.06.352	Move	Destroyed	28-Jun-07
1247		L3-H2-11	6/27/2007	T83	41.21.690	088.06.370	Move	Destroyed	28-Jun-07
1248	15	L3-H3-01	7/2/2007	75mm SHRP	41.21.710	088.06.337	Move	Destroyed	8-Aug-07
1249		L3-H3-02	7/2/2007	T83	41.21.717	088.06.339	Move	Destroyed	8-Aug-07
1250		L3-H3-03	7/2/2007	T83	41.21.719	088.06.337	Move	Destroyed	8-Aug-07
1251		L3-H3-04	7/2/2007	T83	41.21.707	088.06.332	Move	Destroyed	8-Aug-07
1252		L3-H3-05	7/2/2007	MK3	41.21.709	088.06.340	Move	Destroyed	8-Aug-07
1253		L3-H3-06	7/2/2007	T83	41.21.716	088.06.328	Move	Destroyed	8-Aug-07
1254		L3-H3-07	7/2/2007	T83	41.21.716	088.06.328	Move	Destroyed	8-Aug-07
1255		L3-H3-08	7/2/2007	T83	41.21.712	088.06.327	Move	Destroyed	8-Aug-07
1256		L3-H3-09	7/2/2007	75mm SHRP	41.21.708	41.21.328	Move	Destroyed	8-Aug-07
1257		L3-H3-10	7/2/2007	75mm SHRP	41.21.708	41.21.322	Move	Destroyed	8-Aug-07
1258		L3-H3-11	7/2/2007	T83	41.21.717	088.06.328	Move	Destroyed	8-Aug-07
1259		L3-H3-12	7/2/2007	75mm HE	41.21.715	088.06.324	Move	Destroyed	8-Aug-07
1260		L3-H3-13	7/2/2007	T83	41.21.717	088.06.324	Move	Destroyed	8-Aug-07
1261		L3-H3-14	7/2/2007	T83	41.21.7708	088.06.322	Move	Destroyed	8-Aug-07
1262		L3-H3-15	7/2/2007	75mm SHRP	41.21.713	088.06.325	Move	Destroyed	8-Aug-07
1263	4	L3-H4-01	6/26/2007	T83	41.21.704	088.06.310	Move	Destroyed	28-Jun-07
1264		L3-H4-02	6/26/2007	MK3	41.21.704	088.06.310	Move	Destroyed	28-Jun-07
1265		L3-H4-03	6/26/2007	T83	41.21.709	088.06.309	Move	Destroyed	28-Jun-07
1266		L3-H4-04	6/26/2007	MK3	41.21.729	088.06.314	Move	Destroyed	28-Jun-07
1267	10	L3-I10-01	4/26/2007	T-83 FUZE	41.21.719	088.06.204	Move	Destroyed	16-May-07
1268		L3-I10-02	4/26/2007	BASE FUZE	41.21.713	088.06.146	Move	Destroyed	16-May-07
1269		L3-I10-03	4/26/2007	T-83 FUZE	41.21.721	088.06.178	Move	Destroyed	16-May-07
1270		L3-I10-04	4/26/2007	T-83 FUZE	41.21.723	088.06.177	Move	Destroyed	16-May-07
1271		L3-I10-05	4/26/2007	T-83 FUZE	41.21.724	088.06.177	Move	Destroyed	16-May-07
1272		L3-I10-06	4/26/2007	T-83 FUZE	41.21.739	088.06.163	Move	Destroyed	16-May-07
1273		L3-I10-07	4/26/2007	T-83 FUZE	41.21.725	088.06.178	Move	Destroyed	16-May-07
1274		L3-I10-08	4/26/2007	T-83 FUZE	41.21.728	088.06.181	Move	Destroyed	16-May-07
1275		L3-I10-09	4/26/2007	MK3 BOOSTER	41.21.734	088.06.187	Move	Destroyed	16-May-07
1276		L3-I10-10	4/26/2007	T-83 FUZE	41.21.725	088.06.183	Move	Destroyed	16-May-07
1277	13	L3-I11-01	4/30/2007	T-83	41.21.735	088.06.168	Move	Destroyed	6-Jun-07
1278		L3-I11-02	4/30/2007	T-83	41.21.734	088.06.160	Move	Destroyed	6-Jun-07
1279		L3-I11-03	4/30/2007	T-83	41.21.735	088.06.160	Move	Destroyed	6-Jun-07
1280		L3-I11-04	4/30/2007	T-83	41.21.729	088.06.151	Move	Destroyed	6-Jun-07
1281		L3-I11-05	4/30/2007	75mm SHRAPNEL	41.21.731	088.06.159	Move	Destroyed	6-Jun-07
1282		L3-I11-06	4/30/2007	75mm HE	41.21.738	088.06.165	Move	Destroyed	6-Jun-07
1283		L3-I11-07	4/30/2007	T-83	41.21.731	088.06.159	Move	Destroyed	6-Jun-07
1284		L3-I11-08	4/30/2007	T-83	41.21.730	088.06.154	Move	Destroyed	6-Jun-07
1285		L3-I11-09	4/30/2007	T-83	41.21.723	088.06.155	Move	Destroyed	6-Jun-07
1286		L3-I11-10	4/30/2007	MK3 BOOSTER	41.21.724	088.06.152	Move	Destroyed	6-Jun-07
1287		L3-I11-11	4/30/2007	75mm SHRAPNEL	41.21.726	088.06.155	Move	Destroyed	6-Jun-07
1288		L3-I11-12	4/30/2007	T-83	41.21.725	088.06.144	Move	Destroyed	6-Jun-07
1289		L3-I11-13	4/30/2007	T-83	41.21.726	088.06.158	Move	Destroyed	6-Jun-07
1290	13	L3-I1-01	7/9/2007	T83	41.21.742	088.06.370	Move	Destroyed	8-Aug-07
1291		L3-I1-02	7/9/2007	T83	41.21.725	088.06.390	Move	Destroyed	8-Aug-07
1292		L3-I1-03	7/9/2007	T83	41.21.737	088.06.371	Move	Destroyed	8-Aug-07
1293		L3-I1-04	7/9/2007	Booster	41.21.737	088.06.360	Move	Destroyed	8-Aug-07
1294		L3-I1-05	7/9/2007	T83	41.21.731	088.06.373	Move	Destroyed	8-Aug-07
1295		L3-I1-06	7/9/2007	Booster	41.21.732	088.06.381	Move	Destroyed	8-Aug-07
1296		L3-I1-07	7/9/2007	T83	41.21.734	088.06.376	Move	Destroyed	8-Aug-07
1297		L3-I1-08	7/9/2007	T83	41.21.730	088 06.369	Move	Destroyed	8-Aug-07
1298		L3-I1-09	7/9/2007	T83	41.21.730	088.06.369	Move	Destroyed	8-Aug-07
1299		L3-I1-10	7/9/2007	75mm HE	41.21.730	088.06.370	Move	Destroyed	8-Aug-07
1300		L3-I1-11	7/9/2007	T83	41.21.728	088.06.375	Move	Destroyed	8-Aug-07
1301		L3-I1-12	7/9/2007	T83	41.21.728	088.06.375	Move	Destroyed	8-Aug-07
1302		L3-I1-13	7/9/2007	T83	41.21.731	088.06.378	Move	Destroyed	8-Aug-07
1303	5	L3-I2-1	7/2/2007	T83	41.21.739	088.06.359	Move	Destroyed	8-Aug-07
1304		L3-I2-2	7/2/2007	T83	41.21.738	088.06.363	Move	Destroyed	8-Aug-07
1305		L3-I2-3	7/2/2007	MK3	41.21.734	088.06.359	Move	Destroyed	8-Aug-07
1306		L3-I2-4	7/2/2007	T83	41.21.722	088.06.344	Move	Destroyed	8-Aug-07
1307		L3-I2-5	7/2/2007	T83	41.21.724	088.06.343	Move	Destroyed	8-Aug-07
1308	7	L3-I3-1	6/27/2007	T83	41.21.770	088.06.315	Move	Destroyed	28-Jun-07
1309		L3-I3-2	6/27/2007	T83	41.21.723	088.06.340	Move	Destroyed	28-Jun-07
1310		L3-I3-3	6/27/2007	T83	41.21.722	088.06.337	Move	Destroyed	28-Jun-07
1311		L3-I3-4	6/27/2007	T83	41.21.720	088.06.329	Move	Destroyed	28-Jun-07
1312		L3-I3-5	6/27/2007	T83	41.21.721	088.06.328	Move	Destroyed	28-Jun-07
1313		L3-I3-6	6/27/2007	T83	41.21.723	088.06.332	Move	Destroyed	28-Jun-07
1314		L3-I3-7	6/27/2007	T83	41.21.722	088.06.335	Move	Destroyed	28-Jun-07

L3 MEC Log
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Count	# Items Listed on Grid Sheets	Grid & Item #	Date Recovered	Item Description	N Coordinate (deg,min,sec)	E Coordinate (deg,min,sec)	Move / BIP	Disposition/Destroyed	Date Disposed/Destroyed
1315		L3-J10-01	4/25/2007	T-83 FUZE	41.21.756	088.06.167	Move	Destroyed	16-May-07
1316		L3-J10-02	4/25/2007	T-83 FUZE	41.21.754	088.06.174	Move	Destroyed	16-May-07
1317		L3-J10-03	4/25/2007	T-83 FUZE	41.21.755	088.06.172	Move	Destroyed	16-May-07
1318		L3-J10-04	4/25/2007	T-83 FUZE	41.21.751	088.06.172	Move	Destroyed	16-May-07
1319		L3-J10-05	4/25/2007	T-83 FUZE	41.21.751	088.06.171	Move	Destroyed	16-May-07
1320		L3-J10-06	4/25/2007	155mm APERS NOSE	41.21.750	088.06.179	Move	Destroyed	16-May-07
1321		L3-J10-07	4/25/2007	T-83 FUZE	41.21.747	088.06.165	Move	Destroyed	16-May-07
1322		L3-J10-08	4/25/2007	T-83 FUZE	41.21.751	088.06.172	Move	Destroyed	16-May-07
1323		L3-J10-09	4/25/2007	T-83 FUZE	41.21.749	088.06.173	Move	Destroyed	16-May-07
1324		L3-J10-10	4/25/2007	T-83 FUZE	41.21.756	088.06.168	Move	Destroyed	16-May-07
1325		L3-J10-11	4/25/2007	T-83 FUZE	41.21.750	088.06.188	Move	Destroyed	16-May-07
1326		L3-J10-12	4/25/2007	T-83 FUZE	41.21.748	088.06.179	Move	Destroyed	16-May-07
1327		L3-J10-13	4/25/2007	T-83 FUZE	41.21.749	088.06.183	Move	Destroyed	16-May-07
1328		L3-J10-14	4/25/2007	57mm HEAT	41.21.749	088.06.184	Move	Destroyed	16-May-07
1329		L3-J10-15	4/25/2007	155mm APERS NOSE	41.21.748	088.06.187	Move	Destroyed	16-May-07
1330		L3-J10-16	4/25/2007	40mm FRAG BALL	41.21.748	088.06.186	Move	Destroyed	16-May-07
1331		L3-J10-17	4/25/2007	T-83 FUZE	41.21.749	088.06.184	Move	Destroyed	16-May-07
1332		L3-J10-18	4/25/2007	75mm HE	41.21.749	088.06.181	Move	Destroyed	16-May-07
1333	38	L3-J10-19	4/25/2007	T-83 FUZE	41.21.742	088.06.176	Move	Destroyed	16-May-07
1334		L3-J10-20	4/25/2007	T-83 FUZE	41.21.743	088.06.170	Move	Destroyed	16-May-07
1335		L3-J10-21	4/25/2007	T-83 FUZE	41.21.714	088.06.164	Move	Destroyed	16-May-07
1336		L3-J10-22	4/25/2007	T-83 FUZE	41.21.720	088.06.181	Move	Destroyed	16-May-07
1337		L3-J10-23	4/25/2007	T-83 FUZE	41.21.744	088.06.184	Move	Destroyed	16-May-07
1338		L3-J10-24	4/25/2007	T-83 FUZE	41.21.744	088.06.187	Move	Destroyed	16-May-07
1339		L3-J10-25	4/25/2007	MK 3 BOOSTER	41.21.741	088.06.185	Move	Destroyed	16-May-07
1340		L3-J10-26	4/25/2007	T-83 FUZE	41.21.738	088.06.164	Move	Destroyed	16-May-07
1341		L3-J10-27	4/25/2007	T-83 FUZE	41.21.739	088.06.163	Move	Destroyed	16-May-07
1342		L3-J10-28	4/25/2007	T-83 FUZE	41.21.739	088.06.174	Move	Destroyed	16-May-07
1343		L3-J10-29	4/25/2007	T-83 FUZE	41.21.742	088.06.189	Move	Destroyed	16-May-07
1344		L3-J10-30	4/25/2007	T-83 FUZE	41.21.741	088.06.185	Move	Destroyed	16-May-07
1345		L3-J10-31	4/25/2007	T-83 FUZE	41.21.741	088.06.183	Move	Destroyed	16-May-07
1346		L3-J10-32	4/25/2007	T-83 FUZE	41.21.738	088.06.172	Move	Destroyed	16-May-07
1347		L3-J10-33	4/25/2007	T-83 FUZE	41.21.741	088.06.176	Move	Destroyed	16-May-07
1348		L3-J10-34	4/25/2007	T-83 FUZE	41.21.738	088.06.169	Move	Destroyed	16-May-07
1349		L3-J10-35	4/25/2007	T-83 FUZE	41.21.740	088.06.169	Move	Destroyed	16-May-07
1350		L3-J10-36	4/25/2007	90mm HE	41.21.740	088.06.164	Move	Destroyed	16-May-07
1351		L3-J10-37	4/25/2007	90mm HE	41.21.737	088.06.170	Move	Destroyed	16-May-07
1352		L3-J10-38	4/25/2007	T-83 FUZE	41.21.737	088.06.174	Move	Destroyed	16-May-07
1353		L3-J1-01	7/10/2007	T83	41.21.738	088.06.378	Move	Destroyed	8-Aug-07
1354		L3-J1-02	7/10/2007	T83	41.21.756	088.06.371	Move	Destroyed	8-Aug-07
1355		L3-J1-03	7/10/2007	T83	41.21.752	088.06.373	Move	Destroyed	8-Aug-07
1356		L3-J1-04	7/10/2007	T83	41.21.751	088.06.374	Move	Destroyed	8-Aug-07
1357		L3-J1-05	7/10/2007	T83	41.21.753	088.06.373	Move	Destroyed	8-Aug-07
1358		L3-J1-06	7/10/2007	Booster	41.21.755	088.06.366	Move	Destroyed	8-Aug-07
1359		L3-J1-07	7/10/2007	T83	41.21.755	088.06.363	Move	Destroyed	8-Aug-07
1360	15	L3-J1-08	7/10/2007	T83	41.21.753	088.06.362	Move	Destroyed	8-Aug-07
1361		L3-J1-09	7/10/2007	T83	41.21.751	088.06.369	Move	Destroyed	8-Aug-07
1362		L3-J1-10	7/10/2007	T83	41.21.747	088.06.368	Move	Destroyed	8-Aug-07
1363		L3-J1-11	7/10/2007	T83	41.21.746	088.06.368	Move	Destroyed	8-Aug-07
1364		L3-J1-12	7/10/2007	T83	41.21.745	088.06.364	Move	Destroyed	8-Aug-07
1365		L3-J1-13	7/10/2007	T83	41.21.745	088.06.365	Move	Destroyed	8-Aug-07
1366		L3-J1-14	7/10/2007	T83	41.21.744	088.06.365	Move	Destroyed	8-Aug-07
1367		L3-J1-15	7/10/2007	M60 Booster	41.21.741	088.06.363	Move	Destroyed	8-Aug-07
1368		L3-J11-01	4/25/2007	T-83 FUZE	41.21.739	088.06.163	Move	Destroyed	6-Jun-07
1369		L3-J11-02	4/25/2007	T-83 FUZE	41.21.741	088.06.157	Move	Destroyed	6-Jun-07
1370		L3-J11-03	4/25/2007	6 Pound HE	41.21.740	088.06.155	Move	Destroyed	6-Jun-07
1371		L3-J11-04	4/25/2007	T-83 FUZE	41.21.741	088.06.156	Move	Destroyed	6-Jun-07
1372		L3-J11-05	4/25/2007	155mm APERS Nose	41.21.743	088.06.143	Move	Destroyed	6-Jun-07
1373		L3-J11-06	4/25/2007	T-83 FUZE	41.21.740	088.06.165	Move	Destroyed	6-Jun-07
1374		L3-J11-07	4/25/2007	T-83 FUZE	41.21.754	088.06.156	Move	Destroyed	6-Jun-07
1375	16 (38)	L3-J11-08	4/25/2007	T-83 FUZE	41.21.752	088.06.150	Move	Destroyed	16-May-07
1376		L3-J11-09	4/25/2007	T-83 FUZE	41.21.750	088.06.151	Move	Destroyed	16-May-07
1377		L3-J11-10	4/25/2007	T-83 FUZE	41.21.749	088.06.151	Move	Destroyed	16-May-07
1378		L3-J11-11	4/25/2007	T-83 FUZE	41.21.750	088.06.150	Move	Destroyed	16-May-07
1379		L3-J11-12	4/25/2007	T-83 FUZE	41.21.749	088.06.151	Move	Destroyed	16-May-07
1380		L3-J11-13	4/25/2007	155mm APERS NOSE	41.21.764	088.06.151	Move	Destroyed	16-May-07
1381		L3-J11-14	4/25/2007	T-83 FUZE	41.21.753	088.06.151	Move	Destroyed	16-May-07
1382		L3-J11-15	4/25/2007	T-83 FUZE	41.21.751	088.06.152	Move	Destroyed	16-May-07
1383		L3-J11-16	4/25/2007	T-83 FUZE	41.21.757	088.06.180	Move	Destroyed	16-May-07
1384		L3-J2-01	8/1/2007	T83	41.21.750	088.06.356	Move	Destroyed	8-Aug-07
1385		L3-J2-02	8/1/2007	T83	41.21.571	088.06.361	Move	Destroyed	8-Aug-07
1386		L3-J2-03	8/1/2007	T83	41.21.747	088.06.357	Move	Destroyed	8-Aug-07
1387		L3-J2-04	8/1/2007	T83	41.21.745	088.06.359	Move	Destroyed	8-Aug-07
1388		L3-J2-05	8/1/2007	T83	41.21.750	088.06.354	Move	Destroyed	8-Aug-07
1389		L3-J2-06	8/1/2007	T83	41.21.753	088.06.357	Move	Destroyed	8-Aug-07
1390		L3-J2-07	8/1/2007	T83	41.21.753	088.06.353	Move	Destroyed	8-Aug-07
1391		L3-J2-08	8/1/2007	T83	41.21.756	088.06.356	Move	Destroyed	8-Aug-07
1392	18	L3-J2-09	8/1/2007	T83	41.21.756	088.06.358	Move	Destroyed	8-Aug-07
1393		L3-J2-10	8/1/2007	T83	41.21.751	088.06.365	Move	Destroyed	8-Aug-07
1394		L3-J2-11	8/1/2007	T83	41.21.741	088.06.358	Move	Destroyed	8-Aug-07
1395		L3-J2-12	8/1/2007	T83	41.21.742	088.06.357	Move	Destroyed	8-Aug-07
1396		L3-J2-13	8/1/2007	T83	41.21.743	088.06.357	Move	Destroyed	8-Aug-07
1397		L3-J2-14	8/1/2007	T83	41.21.743	088.06.357	Move	Destroyed	8-Aug-07
1398		L3-J2-15	8/1/2007	MK3	41.21.744	088.06.357	Move	Destroyed	8-Aug-07
1399		L3-J2-16	8/1/2007	MK3	41.21.744	088.06.357	Move	Destroyed	8-Aug-07
1400		L3-J2-17	8/1/2007	MK3	41.21.744	088.06.357	Move	Destroyed	8-Aug-07
1401		L3-J2-18	8/1/2007	MK3	41.21.745	088.06.358	Move	Destroyed	8-Aug-07
1402	1	L3-J9-1	4/24/2007	40mm FUZE	41.21.746	088.06.188	Move	Destroyed	16-May-07

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Count	# Items Listed on Grid Sheets	Grid & Item #	Date Recovered	Item Description	N Coordinate (deg,min,sec)	E Coordinate (deg,min,sec)	Move / BIP	Disposition/Destroyed	Date Disposed/Destroyed
1403		L3-K10-01	4/24/2007	T-83 FUZE	41.21.741	088.06.184	Move	Destroyed	16-May-07
1404		L3-K10-02	4/24/2007	T-83 FUZE	41.21.751	088.06.179	Move	Destroyed	16-May-07
1405		L3-K10-03	4/24/2007	105mm SALUTE ROUND	41.21.756	088.06.182	Move	Destroyed	16-May-07
1406		L3-K10-04	4/24/2007	T-83 FUZE	41.21.756	088.06.178	Move	Destroyed	16-May-07
1407		L3-K10-05	4/24/2007	T-83 FUZE	41.21.757	088.06.182	Move	Destroyed	16-May-07
1408		L3-K10-06	4/24/2007	T-83 FUZE	41.21.756	088.06.180	Move	Destroyed	16-May-07
1409		L3-K10-07	4/24/2007	T-83 FUZE	41.21.756	088.06.180	Move	Destroyed	16-May-07
1410		L3-K10-08	4/24/2007	T-83 FUZE	41.21.757	088.06.179	Move	Destroyed	16-May-07
1411		L3-K10-09	4/24/2007	T-83 FUZE	41.21.755	088.06.180	Move	Destroyed	16-May-07
1412		L3-K10-10	4/24/2007	T-83 FUZE	41.21.756	088.06.176	Move	Destroyed	16-May-07
1413		L3-K10-11	4/24/2007	T-83 FUZE	41.21.758	088.06.171	Move	Destroyed	16-May-07
1414		L3-K10-12	4/24/2007	75mm HE	41.21.757	088.06.172	Move	Destroyed	16-May-07
1415		L3-K10-13	4/24/2007	T-83 FUZE	41.21.756	088.06.179	Move	Destroyed	16-May-07
1416		L3-K10-14	4/24/2007	T-83 FUZE	41.21.754	088.06.169	Move	Destroyed	16-May-07
1417		L3-K10-15	4/24/2007	T-83 FUZE	41.21.753	088.06.165	Move	Destroyed	16-May-07
1418		L3-K10-16	4/24/2007	T-83 FUZE	41.21.756	088.06.167	Move	Destroyed	16-May-07
1419		L3-K10-17	4/24/2007	T-83 FUZE	41.21.719	088.06.184	Move	Destroyed	16-May-07
1420		L3-K10-18	4/24/2007	T-83 FUZE	41.21.758	088.06.180	Move	Destroyed	16-May-07
1421		L3-K10-19	4/24/2007	T-83 FUZE	41.21.760	088.06.177	Move	Destroyed	16-May-07
1422		L3-K10-20	4/24/2007	T-83 FUZE	41.21.762	088.06.173	Move	Destroyed	16-May-07
1423		L3-K10-21	4/24/2007	T-83 FUZE	41.21.763	088.06.175	Move	Destroyed	16-May-07
1424		L3-K10-22	4/24/2007	T-83 FUZE	41.21.760	088.06.178	Move	Destroyed	6-Jun-07
1425		L3-K10-23	4/24/2007	M66 FUZE	41.21.761	088.06.166	Move	Destroyed	6-Jun-07
1426	46	L3-K10-24	4/24/2007	T-83 FUZE	41.21.760	088.06.169	Move	Destroyed	6-Jun-07
1427		L3-K10-25	4/24/2007	T-83 FUZE	41.21.763	088.06.170	Move	Destroyed	6-Jun-07
1428		L3-K10-26	4/24/2007	T-83 FUZE	41.21.760	088.06.176	Move	Destroyed	6-Jun-07
1429		L3-K10-27	4/24/2007	T-83 FUZE	41.21.760	088.06.184	Move	Destroyed	6-Jun-07
1430		L3-K10-28	4/24/2007	T-83 FUZE	41.21.746	088.6.164	Move	Destroyed	6-Jun-07
1431		L3-K10-29	4/24/2007	T-83 FUZE	41.21.758	088.06.174	Move	Destroyed	6-Jun-07
1432		L3-K10-30	4/24/2007	MK 3 BOOSTER	41.21.766	088.06.176	Move	Destroyed	6-Jun-07
1433		L3-K10-31	4/24/2007	MK 3 BOOSTER	41.21.758	088.06.167	Move	Destroyed	6-Jun-07
1434		L3-K10-32	4/24/2007	T-83 FUZE	41.21.774	088.06.162	Move	Destroyed	6-Jun-07
1435		L3-K10-33	4/24/2007	T-83 FUZE	41.21.766	088.06.167	Move	Destroyed	6-Jun-07
1436		L3-K10-34	4/24/2007	T-83 FUZE	41.21.763	088.06.183	Move	Destroyed	6-Jun-07
1437		L3-K10-35	4/24/2007	75mm HE	41.21.765	088.06.185	Move	Destroyed	6-Jun-07
1438		L3-K10-36	4/24/2007	T-83 FUZE	41.21.766	088.06.176	Move	Destroyed	6-Jun-07
1439		L3-K10-37	4/24/2007	T-83 FUZE	41.21.768	088.06.171	Move	Destroyed	6-Jun-07
1440		L3-K10-38	4/24/2007	T-83 FUZE	41.21.770	088.06.170	Move	Destroyed	6-Jun-07
1441		L3-K10-39	4/24/2007	T-83 FUZE	41.21.768	088.06.172	Move	Destroyed	6-Jun-07
1442		L3-K10-40	4/24/2007	T-83 FUZE	41.21.766	088.06.180	Move	Destroyed	6-Jun-07
1443		L3-K10-41	4/24/2007	T-83 FUZE	41.21.766	088.06.183	Move	Destroyed	6-Jun-07
1444		L3-K10-42	4/24/2007	T-83 FUZE	41.21.767	088.06.176	Move	Destroyed	6-Jun-07
1445		L3-K10-43	4/24/2007	T-83 FUZE	41.21.770	088.06.167	Move	Destroyed	6-Jun-07
1446		L3-K10-44	4/24/2007	T-83 FUZE	41.21.768	088.06.179	Move	Destroyed	6-Jun-07
1447		L3-K10-45	4/24/2007	4.7" NOSE	41.21.756	088.06.174	Move	Destroyed	6-Jun-07
1448		L3-K10-46	4/24/2007	BOOSTER	41.21.756	088.06.180	Move	Destroyed	6-Jun-07
1449		L3-K11-01	4/23/2007	T-83 FUZE	41.21.762	088.06.149	Move	Destroyed	16-May-07
1450		L3-K11-02	4/23/2007	T-83 FUZE	41.21.763	088.06.147	Move	Destroyed	16-May-07
1451		L3-K11-03	4/23/2007	T-83 FUZE	41.21.765	088.06.156	Move	Destroyed	16-May-07
1452		L3-K11-04	4/23/2007	T-83 FUZE	41.21.764	088.06.161	Move	Destroyed	16-May-07
1453		L3-K11-05	4/23/2007	T-83 FUZE	41.21.766	088.06.162	Move	Destroyed	16-May-07
1454		L3-K11-06	4/23/2007	75mm SHRAPNEL HE	41.21.764	088.06.166	Move	Destroyed	16-May-07
1455		L3-K11-07	4/23/2007	MK3 BOOSTER	41.21.763	088.06.158	Move	Destroyed	16-May-07
1456		L3-K11-08	4/23/2007	MK3 BOOSTER	41.21.762	088.06.146	Move	Destroyed	16-May-07
1457		L3-K11-09	4/23/2007	T-83 FUZE	41.21.762	088.06.151	Move	Destroyed	16-May-07
1458		L3-K11-10	4/23/2007	T-83 FUZE	41.21.764	088.06.153	Move	Destroyed	16-May-07
1459		L3-K11-11	4/23/2007	T-83 FUZE	41.21.767	088.06.157	Move	Destroyed	16-May-07
1460		L3-K11-12	4/23/2007	T-83 FUZE	41.21.766	088.06.167	Move	Destroyed	16-May-07
1461		L3-K11-13	4/23/2007	T-83 FUZE	41.21.765	088.06.165	Move	Destroyed	16-May-07
1462		L3-K11-14	4/23/2007	T-83 FUZE	41.21.765	088.06.166	Move	Destroyed	16-May-07
1463		L3-K11-15	4/23/2007	T-83 FUZE	41.21.768	088.06.157	Move	Destroyed	16-May-07
1464		L3-K11-16	4/23/2007	T-83 FUZE	41.21.768	088.06.157	Move	Destroyed	16-May-07
1465		L3-K11-17	4/23/2007	T-83 FUZE	41.21.765	088.06.154	Move	Destroyed	16-May-07
1466		L3-K11-18	4/23/2007	T-83 FUZE	41.21.772	088.06.156	Move	Destroyed	16-May-07
1467		L3-K11-19	4/23/2007	T-83 FUZE	41.21.767	088.06.154	Move	Destroyed	16-May-07
1468		L3-K11-20	4/23/2007	T-83 FUZE	41.21.764	088.06.151	Move	Destroyed	16-May-07
1469		L3-K11-21	4/23/2007	T-83 FUZE	41.21.761	088.06.154	Move	Destroyed	16-May-07
1470		L3-K11-22	4/23/2007	T-83 FUZE	41.21.758	088.06.144	Move	Destroyed	16-May-07
1471		L3-K11-23	4/23/2007	T-83 FUZE	41.21.770	088.06.146	Move	Destroyed	16-May-07
1472	46	L3-K11-24	4/23/2007	MK3 BOOSTER	41.21.758	088.06.151	Move	Destroyed	16-May-07
1473		L3-K11-25	4/23/2007	T-83 FUZE	41.21.758	088.06.151	Move	Destroyed	16-May-07
1474		L3-K11-26	4/23/2007	T-83 FUZE	41.21.759	088.06.150	Move	Destroyed	16-May-07
1475		L3-K11-27	4/23/2007	T-83 FUZE	41.21.759	088.06.151	Move	Destroyed	16-May-07
1476		L3-K11-28	4/23/2007	T-83 FUZE	41.21.759	088.06.152	Move	Destroyed	16-May-07
1477		L3-K11-29	4/23/2007	T-83 FUZE	41.21.761	088.06.159	Move	Destroyed	16-May-07
1478		L3-K11-30	4/23/2007	T-83 FUZE	41.21.759	088.06.162	Move	Destroyed	16-May-07
1479		L3-K11-31	4/23/2007	75mm AP HE	41.21.759	088.06.163	Move	Destroyed	16-May-07
1480		L3-K11-32	4/23/2007	T-83 FUZE	41.21.758	088.06.161	Move	Destroyed	16-May-07
1481		L3-K11-33	4/23/2007	M66 FUZE	41.21.758	088.06.161	Move	Destroyed	16-May-07
1482		L3-K11-34	4/23/2007	T-83 FUZE	41.21.759	088.06.163	Move	Destroyed	16-May-07
1483		L3-K11-35	4/23/2007	T-83 FUZE	41.21.759	088.06.164	Move	Destroyed	16-May-07
1484		L3-K11-36	4/23/2007	T-83 FUZE	41.21.759	088.06.140	Move	Destroyed	16-May-07
1485		L3-K11-37	4/23/2007	75mm Shrapnel HE	41.21.758	088.06.141	Move	Destroyed	16-May-07
1486		L3-K11-38	4/23/2007	M103 FUZE	41.21.758	088.06.144	Move	Destroyed	16-May-07
1487		L3-K11-39	4/23/2007	57mm HE	41.21.754	088.06.148	Move	Destroyed	16-May-07
1488		L3-K11-40	4/23/2007	T-83 FUZE	41.21.757	088.06.145	Move	Destroyed	16-May-07
1489		L3-K11-41	4/23/2007	T-83 FUZE	41.21.761	088.06.161	Move	Destroyed	16-May-07
1490		L3-K11-42	4/23/2007	T-83 FUZE	41.21.756	088.06.166	Move	Destroyed	16-May-07
1491		L3-K11-43	4/23/2007	4.7" NOSE	41.21.756	088.06.163	Move	Destroyed	16-May-07
1492		L3-K11-44	4/23/2007	T-83 FUZE	41.21.754	088.06.147	Move	Destroyed	16-May-07
1493		L3-K11-45	4/23/2007	T-83 FUZE	41.21.756	088.06.149	Move	Destroyed	16-May-07
1494		L3-K11-46	4/23/2007	T-83 FUZE	41.21.762	088.06.148	Move	Destroyed	16-May-07
1495		L3-K12-01	4/19/2007	T-83 FUZE	41.21.766	088.06.121	Move	Destroyed	16-May-07
1496		L3-K12-02	4/19/2007	MK 3 BOOSTER	41.21.767	088.06.124	Move	Destroyed	16-May-07
1497		L3-K12-03	4/19/2007	T-83 FUZE	41.21.763	088.06.132	Move	Destroyed	16-May-07
1498		L3-K12-04	4/19/2007	T-83 FUZE	41.21.767	088.06.143	Move	Destroyed	16-May-07
1499		L3-K12-05	4/19/2007	90MM HE	41.21.768	088.06.142	Move	Destroyed	16-May-07
1500		L3-K12-06	4/19/2007	T-83 FUZE	41.21.771	088.06.142	Move	Destroyed	16-May-07
1501		L3-K12-07	4/19/2007	T-83 FUZE	41.21.764	088.06.142	Move	Destroyed	16-May-07
1502		L3-K12-08	4/19/2007	T-83 FUZE	41.21.761	088.06.145	Move	Destroyed	16-May-07
1503	18	L3-K12-09	4/19/2007	T-83 FUZE	41.21.757	088.06.140	Move	Destroyed	16-May-07
1504		L3-K12-10	4/19/2007	T-83 FUZE	41.21.759	088.06.133	Move	Destroyed	16-May-07
1505		L3-K12-11	4/19/2007	T-83 FUZE	41.21.763	088.06.125	Move	Destroyed	16-May-07
1506		L3-K12-12	4/19/2007	75MM SHRAPNEL ROUND	41.21.762	088.06.129	Move	Destroyed	16-May-07
1507		L3-K12-13	4/19/2007	T-83 FUZE	41.21.760	088.06.130	Move	Destroyed	16-May-07
1508		L3-K12-14	4/19/2007	T-83 FUZE	41.21.760	088.06.135	Move	Destroyed	16-May-07
1509		L3-K12-15	4/19/2007	T-83 FUZE	41.21.756	088.06.148	Move	Destroyed	16-May-07
1510		L3-K12-16	4/19/2007	T-83 FUZE	41.21.766	088.06.138	Move	Destroyed	16-May-07
1511		L3-K12-17	4/19/2007	T-83 FUZE	41.21.757	088.06.138	Move	Destroyed	16-May-07
1512		L3-K12-18	4/19/2007	T-83 FUZE	41.21.758	088.06.131	Move	Destroyed	16-May-07

L3 MEC Log
MKM Engineers
2007 Removal Action

Count	# Items Listed on Grid Sheets	Grid & Item #	Date Recovered	Item Description	N Coordinate (deg.min.sec)	E Coordinate (deg.min.sec)	Move / BIP	Disposition/Destroyed	Date Disposed/Destroyed
1513		L3-K13-1	4/19/2007	T-83 FUZE	41.21.766	088.06.122	Move	Destroyed	16-May-07
1514		L3-K13-2	4/19/2007	T-83 FUZE	41.21.758	088.06.113	Move	Destroyed	16-May-07
1515		L3-K13-3	4/19/2007	T-83 FUZE	41.21.763	088.06.097	Move	Destroyed	16-May-07
1516	7	L3-K13-4	4/19/2007	T-83 FUZE	41.21.760	088.06.103	Move	Destroyed	16-May-07
1517		L3-K13-5	4/19/2007	T-83 FUZE	41.21.774	088.06.097	Move	Destroyed	16-May-07
1518		L3-K13-6	4/19/2007	T-83 FUZE	41.21.756	088.06.118	Move	Destroyed	16-May-07
1519		L3-K13-7	4/19/2007	T-83 FUZE	41.21.755	088.06.122	Move	Destroyed	16-May-07
1520		L3-K14-1	4/19/2007	T-83 FUZE	41.21.766	088.06.082	Move	Destroyed	16-May-07
1521		L3-K14-2	4/19/2007	T-83 FUZE	41.21.767	088.06.080	Move	Destroyed	16-May-07
1522		L3-K14-3	4/19/2007	T-83 FUZE	41.21.767	088.06.086	Move	Destroyed	16-May-07
1523	7	L3-K14-4	4/19/2007	T-83 FUZE	41.21.766	088.06.093	Move	Destroyed	16-May-07
1524		L3-K14-5	4/19/2007	T-83 FUZE	41.21.761	088.06.091	Move	Destroyed	16-May-07
1525		L3-K14-6	4/19/2007	T-83 FUZE	41.21.758	088.06.093	Move	Destroyed	16-May-07
1526		L3-K14-7	4/19/2007	T-83 FUZE	41.21.764	088.06.091	Move	Destroyed	16-May-07
1527	2	L3-K1-01	7/10/2007	T83	41.21.763	088.06.367	Move	Destroyed	8-Aug-07
1528		L3-K1-02	7/10/2007	T83	41.21.760	088.06.363	Move	Destroyed	8-Aug-07
1529		L3-K2-01	7/11/2007	T83	41.21.750	088.06.341	Move	Destroyed	8-Aug-07
1530		L3-K2-02	7/11/2007	T83	41.21.753	088.06.339	Move	Destroyed	8-Aug-07
1531		L3-K2-03	7/11/2007	MK3	41.21.753	088.06.342	Move	Destroyed	8-Aug-07
1532		L3-K2-04	7/11/2007	57mm HEAT	41.21.754	088.06.344	Move	Destroyed	8-Aug-07
1533		L3-K2-05	7/11/2007	T83	41.21.761	088.06.351	Move	Destroyed	8-Aug-07
1534		L3-K2-06	7/11/2007	T83	41.21.758	088.06.353	Move	Destroyed	8-Aug-07
1535	14	L3-K2-07	7/11/2007	T83	41.21.761	088.06.347	Move	Destroyed	8-Aug-07
1536		L3-K2-08	7/11/2007	T83	41.21.761	088.06.339	Move	Destroyed	8-Aug-07
1537		L3-K2-09	7/11/2007	T83	41.21.758	088.06.338	Move	Destroyed	8-Aug-07
1538		L3-K2-10	7/11/2007	T83	41.21.763	088.06.351	Move	Destroyed	8-Aug-07
1539		L3-K2-11	7/11/2007	T83	41.21.767	088.06.351	Move	Destroyed	8-Aug-07
1540		L3-K2-12	7/11/2007	T83	41.21.772	088.06.348	Move	Destroyed	8-Aug-07
1541		L3-K2-13	7/11/2007	MK3	41.21.768	088.06.356	Move	Destroyed	8-Aug-07
1542		L3-K2-14	7/11/2007	T83	41.21.770	088.06.341	Move	Destroyed	8-Aug-07
1543	2	L3-K9-1	4/24/2007	T-83 FUZE	41.21.759	088.06.189	Move	Destroyed	16-May-07
1544		L3-K9-2	4/24/2007	T-83 FUZE	41.21.758	088.06.190	Move	Destroyed	16-May-07
1545		L3-L10-01	4/16/2008	40mm TP	41.21.774	088.06.185	Move	Destroyed	16-May-07
1546		L3-L10-02	4/16/2008	Booster	41.21.771	088.06.185	Move	Destroyed	16-May-07
1547		L3-L10-03	4/16/2008	M183 FUZE	41.21.773	088.06.183	Move	Destroyed	16-May-07
1548		L3-L10-04	4/16/2008	M183 FUZE	41.21.780	088.06.183	Move	Destroyed	16-May-07
1549		L3-L10-05	4/16/2008	M183 FUZE	41.21.783	088.06.179	Move	Destroyed	16-May-07
1550		L3-L10-06	4/16/2008	M183 FUZE	41.21.778	088.06.172	Move	Destroyed	16-May-07
1551		L3-L10-07	4/16/2008	M183 FUZE	41.21.771	088.06.172	Move	Destroyed	16-May-07
1552		L3-L10-08	4/16/2008	M183 FUZE	41.21.766	088.06.175	Move	Destroyed	16-May-07
1553		L3-L10-09	4/16/2008	M183 FUZE	41.21.769	088.06.173	Move	Destroyed	16-May-07
1554	19	L3-L10-10	4/16/2008	M183 FUZE	41.21.769	088 06.173	Move	Destroyed	16-May-07
1555		L3-L10-11	4/16/2008	M183 FUZE	41.21.766	088.06.172	Move	Destroyed	16-May-07
1556		L3-L10-12	4/16/2008	M183 FUZE	41.21.772	088.06.172	Move	Destroyed	16-May-07
1557		L3-L10-13	4/16/2008	M183 FUZE	41.21.772	088.06.171	Move	Destroyed	16-May-07
1558		L3-L10-14	4/16/2008	M183 FUZE	41.21.770	088.06.170	Move	Destroyed	16-May-07
1559		L3-L10-15	4/16/2008	M183 FUZE	41.21.779	088.06.172	Move	Destroyed	16-May-07
1560		L3-L10-16	4/16/2008	M183 FUZE	41.21.782	088.06.166	Move	Destroyed	16-May-07
1561		L3-L10-17	4/16/2008	M183 FUZE	41.21.775	088.06.166	Move	Destroyed	16-May-07
1562		L3-L10-18	4/16/2008	M183 FUZE	41.21.772	088.06.166	Move	Destroyed	16-May-07
1563		L3-L10-19	4/16/2008	M183 FUZE	41.21.780	088.06.170	Move	Destroyed	16-May-07
1564		L3-L11-01	4/17/2007	T-83 FUZE	41.21.771	088.06.165	Move	Destroyed	16-May-07
1565		L3-L11-02	4/17/2007	T-83 FUZE	41.21.779	088.06.167	Move	Destroyed	16-May-07
1566		L3-L11-03	4/17/2007	T-83 FUZE	41.21.768	088.06.164	Move	Destroyed	16-May-07
1567		L3-L11-04	4/17/2007	T-83 FUZE	41.21.769	088.06.161	Move	Destroyed	16-May-07
1568		L3-L11-05	4/17/2007	T-83 FUZE	41.21.775	088.06.159	Move	Destroyed	16-May-07
1569		L3-L11-06	4/17/2007	T-83 FUZE	41.21.783	088.06.163	Move	Destroyed	16-May-07
1570		L3-L11-07	4/17/2007	T-83 FUZE	41.21.770	088.06.160	Move	Destroyed	16-May-07
1571		L3-L11-08	4/17/2007	T-83 FUZE	41.21.781	088.06.159	Move	Destroyed	16-May-07
1572		L3-L11-09	4/17/2007	T-83 FUZE	41.21.776	088.06.161	Move	Destroyed	16-May-07
1573		L3-L11-10	4/17/2007	T-83 FUZE	41.21.777	088.06.160	Move	Destroyed	16-May-07
1574		L3-L11-11	4/17/2007	T-83 FUZE	41.21.769	088.06.159	Move	Destroyed	16-May-07
1575		L3-L11-12	4/17/2007	T-83 FUZE	41.21.771	088.06.156	Move	Destroyed	16-May-07
1576		L3-L11-13	4/17/2007	T-83 FUZE	41.21.783	088.06.159	Move	Destroyed	16-May-07
1577	28	L3-L11-14	4/17/2007	T-83 FUZE	41.21.788	088.06.159	Move	Destroyed	16-May-07
1578		L3-L11-15	4/17/2007	T-83 FUZE	41.21.774	088.06.156	Move	Destroyed	16-May-07
1579		L3-L11-16	4/17/2007	T-83 FUZE	41.21.769	088.06.156	Move	Destroyed	16-May-07
1580		L3-L11-17	4/17/2007	T-83 FUZE	41.21.762	088.06.153	Move	Destroyed	16-May-07
1581		L3-L11-18	4/17/2007	BOMB FUZE, TAIL	41.21.771	088.06.216	Move	Destroyed	16-May-07
1582		L3-L11-19	4/17/2007	T-83 FUZE	41.21.772	088.06.144	Move	Destroyed	16-May-07
1583		L3-L11-20	4/17/2007	T-83 FUZE	41.21.780	088.06.152	Move	Destroyed	16-May-07
1584		L3-L11-21	4/17/2007	T-83 FUZE	41.21.785	088.06.152	Move	Destroyed	16-May-07
1585		L3-L11-22	4/17/2007	T-83 FUZE	41.21.783	088.06.151	Move	Destroyed	16-May-07
1586		L3-L11-23	4/17/2007	T-83 FUZE	41.21.780	088.06.153	Move	Destroyed	16-May-07
1587		L3-L11-24	4/17/2007	T-83 FUZE	41.21.765	088.06.148	Move	Destroyed	16-May-07
1588		L3-L11-25	4/17/2007	T-83 FUZE	41.21.772	088.06.148	Move	Destroyed	16-May-07
1589		L3-L11-26	4/17/2007	T-83 FUZE	41.21.769	088.06.138	Move	Destroyed	16-May-07
1590		L3-L11-27	4/17/2007	T-83 FUZE	41.21.770	088.06.145	Move	Destroyed	16-May-07
1591		L3-L11-28	4/17/2007	T-83 FUZE	41.21.769	088.06.145	Move	Destroyed	16-May-07
1592		L3-L12-01	4/17/2007	T-83 FUZE	41.21.781	088.06.137	Move	Destroyed	16-May-07
1593		L3-L12-02	4/17/2007	T-83 FUZE	41.21.774	088.06.141	Move	Destroyed	16-May-07
1594		L3-L12-03	4/17/2007	T-83 FUZE	41.21.775	088.06.140	Move	Destroyed	16-May-07
1595		L3-L12-04	4/17/2007	T-83 FUZE	41.21.779	088.06.140	Move	Destroyed	16-May-07
1596		L3-L12-05	4/17/2007	T-83 FUZE	41.21.769	088.06.143	Move	Destroyed	16-May-07
1597		L3-L12-06	4/17/2007	T-83 FUZE	41.21.780	088.06.137	Move	Destroyed	16-May-07
1598		L3-L12-07	4/17/2007	T-83 FUZE	41.21.776	088.06.135	Move	Destroyed	16-May-07
1599		L3-L12-08	4/17/2007	T-83 FUZE	41.21.776	088.06.133	Move	Destroyed	16-May-07
1600		L3-L12-09	4/17/2007	T-83 FUZE	41.21.777	088.06.134	Move	Destroyed	16-May-07
1601		L3-L12-10	4/17/2007	T-83 FUZE	41.21.783	088.06.138	Move	Destroyed	16-May-07
1602	22	L3-L12-11	4/17/2007	T-83 FUZE	41.21.769	088.06.135	Move	Destroyed	16-May-07
1603		L3-L12-12	4/17/2007	T-83 FUZE	41.21.768	088.06.134	Move	Destroyed	16-May-07
1604		L3-L12-13	4/17/2007	T-83 FUZE	41.21.780	088.06.134	Move	Destroyed	16-May-07
1605		L3-L12-14	4/17/2007	T-83 FUZE	41.21.776	088.06.125	Move	Destroyed	16-May-07
1606		L3-L12-15	4/17/2007	T-83 FUZE	41.21.779	088.06.123	Move	Destroyed	16-May-07
1607		L3-L12-16	4/17/2007	T-83 FUZE	41.21.777	088.06.125	Move	Destroyed	16-May-07
1608		L3-L12-17	4/17/2007	T-83 FUZE	41.21.769	088.06.133	Move	Destroyed	16-May-07
1609		L3-L12-18	4/17/2007	T-83 FUZE	41.21.768	088.06.127	Move	Destroyed	16-May-07
1610		L3-L12-19	4/17/2007	T-83 FUZE	41.21.779	088.06.127	Move	Destroyed	16-May-07
1611		L3-L12-20	4/17/2007	T-83 FUZE	41.21.775	088.06.124	Move	Destroyed	16-May-07
1612		L3-L12-21	4/17/2007	T-83 FUZE	41.21.770	088.06.123	Move	Destroyed	16-May-07
1613		L3-L12-22	4/17/2007	T-83 FUZE	41.21.767	08.06.129	Move	Destroyed	16-May-07

L3 MEC Log
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Count	# Items Listed on Grid Sheets	Grid & Item #	Date Recovered	Item Description	N Coordinate (deg,min,sec)	E Coordinate (deg,min,sec)	Move / BIP	Disposition/Destroyed	Date Disposed/Destroyed
1614		L3-L13-01	4/18/2007	T-83 FUZE	41.21.770	088.06.116	Move	Destroyed	16-May-07
1615		L3-L13-02	4/18/2007	T-83 FUZE	41.21.775	088.06.121	Move	Destroyed	16-May-07
1616		L3-L13-03	4/18/2007	T-83 FUZE	41.21.770	088.06.118	Move	Destroyed	16-May-07
1617		L3-L13-04	4/18/2007	T-83 FUZE	41.21.774	088.06.122	Move	Destroyed	16-May-07
1618		L3-L13-05	4/18/2007	T-83 FUZE	41.21.777	088.06.119	Move	Destroyed	16-May-07
1619		L3-L13-06	4/18/2007	T-83 FUZE	41.21.770	088.06.113	Move	Destroyed	16-May-07
1620		L3-L13-07	4/18/2007	T-83 FUZE	41.21.781	088.06.119	Move	Destroyed	16-May-07
1621		L3-L13-08	4/18/2007	T-83 FUZE	41.21.722	088.06.116	Move	Destroyed	16-May-07
1622	17	L3-L13-09	4/18/2007	T-83 FUZE	41.21.772	088.06.117	Move	Destroyed	16-May-07
1623		L3-L13-10	4/18/2007	T-83 FUZE	41.21.774	088.06.116	Move	Destroyed	16-May-07
1624		L3-L13-11	4/18/2007	T-83 FUZE	41.21.774	088.06.118	Move	Destroyed	16-May-07
1625		L3-L13-12	4/18/2007	T-83 FUZE	41.21.768	088.06.111	Move	Destroyed	16-May-07
1626		L3-L13-13	4/18/2007	T-83 FUZE	41.21.783	088.06.112	Move	Destroyed	16-May-07
1627		L3-L13-14	4/18/2007	T-83 FUZE	41.21.773	088.06.116	Move	Destroyed	16-May-07
1628		L3-L13-15	4/18/2007	T-83 FUZE	41.21.770	088.06.105	Move	Destroyed	16-May-07
1629		L3-L13-16	4/18/2007	T-83 FUZE	41.21.771	088.06.107	Move	Destroyed	16-May-07
1630		L3-L13-17	4/18/2007	75mm HE	41.21.767	088 06.084	Move	Destroyed	16-May-07
1631		L3-L14-01	4/18/2007	MK 4 BOOSTER ADAPTER	41.21.774	088.06.097	Move	Destroyed	16-May-07
1632		L3-L14-02	4/18/2007	T-83 FUZE	41.21.789	088.06.097	Move	Destroyed	16-May-07
1633		L3-L14-03	4/18/2007	M66 FUZE	41.21.778	088.06.086	Move	Destroyed	16-May-07
1634		L3-L14-04	4/18/2007	T-83 FUZE	41.21.783	088.06.085	Move	Destroyed	16-May-07
1635		L3-L14-05	4/18/2007	T-83 FUZE	41.21.767	088.06.089	Move	Destroyed	16-May-07
1636		L3-L14-06	4/18/2007	T-83 FUZE	41.21.774	088.06.088	Move	Destroyed	16-May-07
1637		L3-L14-07	4/18/2007	T-83 FUZE	41.21.782	088.06.087	Move	Destroyed	16-May-07
1638	16 (15)	L3-L14-08	4/18/2007	T-83 FUZE	41.21.780	088.06.085	Move	Destroyed	16-May-07
1639		L3-L14-09	4/18/2007	MK 4 BOOSTER ADAPTER	41.21.770	088.06.080	Move	Destroyed	16-May-07
1640		L3-L14-10	4/18/2007	T-83 FUZE	41.21.773	088.06.103	Move	Destroyed	16-May-07
1641		L3-L14-11	4/18/2007	T-83 FUZE	41.21.776	088.06.082	Move	Destroyed	16-May-07
1642		L3-L14-12	4/18/2007	T-83 FUZE	41.21.780	088.06.086	Move	Destroyed	16-May-07
1643		L3-L14-13	4/18/2007	T-83 FUZE	41.21.779	088.06.079	Move	Destroyed	16-May-07
1644		L3-L14-14	4/18/2007	MK 4 BOOSTER ADAPTER	41.21.771	088.06.081	Move	Destroyed	16-May-07
1645		L3-L14-15	4/18/2007	4.7" NOSE	41.21.783	088.06.080	Move	Destroyed	16-May-07
1646		L3-L14-16	4/18/2007	T-83 FUZE	41.21.781	088.06.075	Move	Destroyed	16-May-07
1647		L3-L15-1	4/19/2007	M66 FUZE	41.21.784	088.06.080	Move	Destroyed	16-May-07
1648		L3-L15-2	4/19/2007	T-83 FUZE	41.21.774	088.06.072	Move	Destroyed	16-May-07
1649		L3-L15-3	4/19/2007	T-83 FUZE	41.21.773	088.06.073	Move	Destroyed	16-May-07
1650	8	L3-L15-4	4/19/2007	T-83 FUZE	41.21.783	088.06.073	Move	Destroyed	16-May-07
1651		L3-L15-5	4/19/2007	T-83 FUZE	41.21.770	088.06.069	Move	Destroyed	16-May-07
1652		L3-L15-6	4/19/2007	4.7" NOSE	41.21.795	088.06.051	Move	Destroyed	16-May-07
1653		L3-L15-7	4/19/2007	T-83 FUZE	41.21.775	088.06.063	Move	Destroyed	16-May-07
1654		L3-L15-8	4/19/2007	T-83 FUZE	41.21.761	088.06.070	Move	Destroyed	16-May-07
1655		L3-L2-1	7/12/2007	MK3	41.21.778	088.06.328	Move	Destroyed	8-Aug-07
1656	4	L3-L2-2	7/12/2007	T83	41.21.772	088.06.343	Move	Destroyed	8-Aug-07
1657		L3-L2-3	7/12/2007	T83	41.21.773	088.06.341	Move	Destroyed	8-Aug-07
1658		L3-L2-4	7/12/2007	T83	41.21.778	088.06.343	Move	Destroyed	8-Aug-07
1659		L3-L3-1	8/9/2008	T83	41.21.785	088.06.340	Move		
1660		L3-L3-2	8/9/2008	T83	41.21.790	088.06.340	Move		
1661		L3-L3-3	8/9/2008	T83	41.21.787	088.06.335	Move		
1662		L3-L3-4	8/9/2008	T83	41.21.786	088.06.339	Move		
1663		L3-L3-5	8/9/2008	T83	41.21.782	088.06.339	Move		
1664		L3-L3-6	8/9/2008	T83	41.21.782	088.06.338	Move		
1665	14	L3-L3-7	8/9/2008	T83	41.21.781	088.06.336	Move		
1666		L3-L3-8	8/9/2008	T83	41.21.780	088.06.336	Move		
1667		L3-L3-9	8/9/2008	T83	41.21.780	088.06.335	Move		
1668		L3-L3-10	8/9/2008	T83	41.21.782	088.06.338	Move		
1669		L3-L3-11	8/9/2008	T83	41.21.781	088.06.338	Move		
1670		L3-L3-12	8/9/2008	T83	41.21.780	088.06.335	Move		
1671		L3-L3-13	8/9/2008	T83	41.21.779	088.06.338	Move		
1672		L3-L3-14	8/9/2008	T83	41.21.778	088.06.339	Move		
1673		L3-M10-01	4/13/2007	M183 FUZE	41.21.783	088.05.168	Move	Destroyed	16-May-07
1674		L3-M10-02	4/13/2007	M183 FUZE	41.21.786	088.05.185	Move	Destroyed	16-May-07
1675	6	L3-M10-03	4/13/2007	M183 FUZE	41.21.787	088.05.187	Move	Destroyed	16-May-07
1676		L3-M10-04	4/13/2007	EXPLOSIVE BOLT	41.21.792	088.06.172	Move	Destroyed	16-May-07
1677		L3-M10-05	4/13/2007	M183 FUZE	41.21.788	088.06.166	Move	Destroyed	16-May-07
1678		L3-M10-06	4/13/2007	40MM TP	41.21.793	088.06.168	Move	Destroyed	16-May-07
1679	2	L3-M11-01	4/12/2007	M183 FUZE	41.21.795	088.06.156	Move	Destroyed	16-May-07
1680		L3-M11-02	4/12/2007	M183 FUZE	41.21.781	088.06.146	Move	Destroyed	16-May-07
1681		L3-M12-01	4/12/2007	M183 FUZE	41.21.789	088.06.137	Move	Destroyed	16-May-07
1682	4	L3-M12-02	4/12/2007	M183 FUZE	41.21.785	088.06.132	Move	Destroyed	16-May-07
1683		L3-M12-03	4/12/2007	M183 FUZE	41.21.788	088.06.136	Move	Destroyed	16-May-07
1684		L3-M12-04	4/12/2007	M183 FUZE	41.21.791	088.06.145	Move	Destroyed	16-May-07
1685		L3-M13-01	4/11/2007	M183 FUZE	41.21.788	088.06.104	Move	Destroyed	16-May-07
1686	3	L3-M13-02	4/11/2007	M183 FUZE	41.21.782	088.06.122	Move	Destroyed	16-May-07
1687		L3-M13-03	4/11/2007	M183 FUZE	41.21.784	088.06.113	Move	Destroyed	16-May-07
1688		L3-M14-1	4/11/2007	75MM SHRAPNEL	41.21.809	088.06.107	Move	Destroyed	16-May-07
1689		L3-M14-2	4/11/2007	M66 BASE FUZE	41.21.786	088.06.095	Move	Destroyed	16-May-07
1690		L3-M14-3	4/11/2007	FUZE DETONATOR	41.21.793	088.06.090	Move	Destroyed	16-May-07
1691		L3-M14-4	4/11/2007	M183 FUZE	41.21.798	088.06.063	Move	Destroyed	16-May-07
1692	9	L3-M14-5	4/11/2007	75MM SHRAPNEL	41.21.786	088.06.096	Move	Destroyed	16-May-07
1693		L3-M14-6	4/11/2007	M183 FUZE	41.21.791	088.06.087	Move	Destroyed	16-May-07
1694		L3-M14-7	4/11/2007	4.7 NOSE ASSY.	41.21.790	088.06.048	Move	Filled with Resin no destruction needed	16-May-07
1695		L3-M14-8	4/11/2007	M183 FUZE	41.21.793	088.06.101	Move	Destroyed	16-May-07
1696		L3-M14-9	4/11/2007	4.7 NOSE ASSY.	41.21.793	088.06.077	Move	Filled with Resin no destruction needed	16-May-07
1697		L3-M15-1	4/10/2007	M183 FUZE	41.21.781	088.06.049	Move	Destroyed	16-May-07
1698		L3-M15-2	4/10/2007	BOMB FUZE	41.21.799	088.06 059	Move	Destroyed	16-May-07
1699		L3-M15-3	4/10/2007	BOMB FUZE	41.21.788	088.06.062	Move	Destroyed	16-May-07
1700		L3-M15-4	4/10/2007	M183 FUZE	41.21.787	088.06.066	Move	Destroyed	16-May-07
1701	9	L3-M15-5	4/10/2007	M183 FUZE	41.21.795	088.06.067	Move	Destroyed	16-May-07
1702		L3-M15-6	4/10/2007	M183 FUZE	41.21.799	088.06.071	Move	Destroyed	16-May-07
1703		L3-M15-7	4/10/2007	FUZE NOSE	41.21.798	088.06.074	Move	Destroyed	16-May-07
1704		L3-M15-8	4/10/2007	M183 FUZE	41.21.782	088.06.070	Move	Destroyed	16-May-07
1705		L3-M15-9	4/10/2007	M66 BASE FUZE	41.21.784	088.06.058	Move	Destroyed	16-May-07
1706	2	L3-M16-1	4/10/2007	M183 FUZE	41.21.787	088.06.040	Move	Destroyed	16-May-07
1707		L3-M16-2	4/10/2007	M183 FUZE	41.21.796	088.06.054	Move	Destroyed	16-May-07
1708		L3-M3-01	8/2/2007	T83	41.21.806	088.06.322	Move	Destroyed	8-Aug-07
1709		L3-M3-02	8/2/2007	T83	41.21.802	088.06.324	Move	Destroyed	8-Aug-07
1710		L3-M3-03	8/2/2007	75mm SHRP	41.21.800	088.06.324	Move	Destroyed	8-Aug-07
1711		L3-M3-04	8/2/2007	T83	41.21.795	088.06.327	Move	Destroyed	8-Aug-07
1712	9	L3-M3-05	8/2/2007	T83	41.21.796	088.06.326	Move	Destroyed	8-Aug-07
1713		L3-M3-06	8/2/2007	T83	41.21.796	088.06.327	Move	Destroyed	8-Aug-07
1714		L3-M3-07	8/2/2007	75mm SHRP	41.21.788	088.06.334	Move	Destroyed	8-Aug-07
1715		L3-M3-08	8/2/2007	T83	41.21.790	088.06.323	Move	Destroyed	8-Aug-07
1716		L3-M3-09	8/2/2007	T83	41.21.790	088.06.323	Move	Destroyed	8-Aug-07

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Count	# Items Listed on Grid Sheets	Grid & Item #	Date Recovered	Item Description	N Coordinate (deg,min,sec)	E Coordinate (deg,min,sec)	Move / BIP	Disposition/Destroyed	Date Disposed/Destroyed
1717	2	L3-M4-01	8/28/2007	T-83 NOSE FUZE	41.21.779	088.06.308	Move	Destroyed	29-Aug-07
1718		L3-M4-02	8/28/2007	T-83 NOSE FUZE	41.21.781	088.06.309	Move	Destroyed	29-Aug-07
1719	5	L3-N14-1	4/9/2007	BOOSTER	41.21.801	088.06.085	Move	Destroyed	16-May-07
1720		L3-N14-2	4/9/2007	M183 FUZE	41.21.813	088.06.078	Move	Destroyed	16-May-07
1721		L3-N14-3	4/9/2007	M183 FUZE	41.21.813	088.06.083	Move	Destroyed	16-May-07
1722		L3-N14-4	4/9/2007	M110 SERIES FUZE	41.21.815	088.06.083	Move	Destroyed	16-May-07
1723		L3-N14-5	4/9/2007	FLASH Tube	41.21.813	088.06.082	Move	Destroyed	16-May-07
1724	11	L3-N15-01	4/9/2007	M183 FUZE	41.21.795	088.06.068	Move	Destroyed	16-May-07
1725		L3-N15-02	4/9/2007	M183 FUZE	41.21.803	088.06.061	Move	Destroyed	16-May-07
1726		L3-N15-03	4/9/2007	M183 FUZE	41.21.803	088.06.061	Move	Destroyed	16-May-07
1727		L3-N15-04	4/9/2007	M183 FUZE	41.21.804	088.06.053	Move	Destroyed	16-May-07
1728		L3-N15-05	4/9/2007	M183 FUZE	41.21.807	088.06.061	Move	Destroyed	16-May-07
1729		L3-N15-06	4/9/2007	FUZE DETONATOR	41.21.818	088.06.060	Move	Destroyed	16-May-07
1730		L3-N15-07	4/9/2007	4.7 NOSE ASSY.	41.21.811	088.06.063	Move	ed with Resin no destruction need	16-May-07
1731		L3-N15-08	4/9/2007	4.7 NOSE ASSY.	41.21.811	088.06.063	Move	ed with Resin no destruction need	16-May-07
1732		L3-N15-09	4/9/2007	M183 FUZE	41.21.809	088.06.066	Move	Destroyed	16-May-07
1733		L3-N15-10	4/9/2007	M183 FUZE	41.21.817	088.06.068	Move	Destroyed	16-May-07
1734		L3-N15-11	4/9/2007	M183 FUZE	41.21.816	088.06.077	Move	Destroyed	16-May-07
1735	4	L3-N16-01	4/5/2007	BOOSTER	41.21.806	088.06.054	Move	Destroyed	16-May-07
1736		L3-N16-02	4/5/2007	M183 FUZE	41.21.809	088.06.053	Move	Destroyed	16-May-07
1737		L3-N16-03	4/5/2007	M183 FUZE	41.21.804	088.06.055	Move	Destroyed	16-May-07
1738		L3-N16-04	4/5/2007	BURSTER TUBE	41.21.835	088.06.056	Move	Destroyed	16-May-07
1739	3	L3-N3-1	7/16/2007	T83	41.21.806	088.06.319	Move	Destroyed	8-Aug-07
1740		L3-N3-2	7/16/2007	T83	41.21.810	088.06.322	Move	Destroyed	8-Aug-07
1741		L3-N3-3	7/16/2007	T83	41.21.816	088.06.321	Move	Destroyed	8-Aug-07
1742	9	L3-N4-1	8/2/2007	T83	41.21.819	088.06.308	Move	Destroyed	8-Aug-07
1743		L3-N4-2	8/2/2007	MK3	41.21.819	088.06.313	Move	Destroyed	8-Aug-07
1744		L3-N4-3	8/2/2007	T83	41.21.816	088.06.315	Move	Destroyed	8-Aug-07
1745		L3-N4-4	8/2/2007	T83	41.21.809	088.06.316	Move	Destroyed	8-Aug-07
1746		L3-N4-5	8/2/2007	MK3	41.21.805	088.06.315	Move	Destroyed	8-Aug-07
1747		L3-N4-6	8/2/2007	T83	41.21.808	088.06.313	Move	Destroyed	8-Aug-07
1748		L3-N4-7	8/2/2007	T83	41.21.812	088.06.318	Move	Destroyed	8-Aug-07
1749		L3-N4-8	8/2/2007	T83	41.21.811	088.06.318	Move	Destroyed	8-Aug-07
1750		L3-N4-9	8/2/2007	T83	41.21.810	088.06.323	Move	Destroyed	8-Aug-07
1751	1	L3-O14-01	4/4/2007	M183 FUZE	41.21.821	088.06.080	Move	Destroyed	16-May-07
1752	6	L3-O15-01	4/5/2007	M183 FUZE	41.21.819	088.06.069	Move	Destroyed	16-May-07
1753		L3-O15-02	4/5/2007	M183 FUZE	41.21.825	088.06.070	Move	Destroyed	16-May-07
1754		L3-O15-03	4/5/2007	M183 FUZE	41.21.830	088.06.030	Move	Destroyed	16-May-07
1755		L3-O15-04	4/5/2007	M183 FUZE	41.21.834	088.06.060	Move	Destroyed	16-May-07
1756		L3-O15-05	4/5/2007	M183 FUZE	41.21.834	088.06.059	Move	Destroyed	16-May-07
1757		L3-O15-06	4/5/2007	BOOSTER	41.21.810	088.06.059	Move	Destroyed	16-May-07
1758	1	L3-O16-01	4/5/2007	BOOSTER	41.21.808	088.06.056	Move	Destroyed	16-May-07
1759	2	L3-O4-1	7/16/2007	T83	41.21.833	088.06.304	Move	Destroyed	8-Aug-07
1760		L3-O4-2	7/16/2007	T83	41.21.821	088.06.300	Move	Destroyed	8-Aug-07
1761	11	L3-O5-01	7/31/2007	T83	41.21.839	088.06.281	Move	Destroyed	8-Aug-07
1762		L3-O5-02	7/31/2007	T83	41.21.837	088.06.283	Move	Destroyed	8-Aug-07
1763		L3-O5-03	7/31/2007	T83	41.21.831	088.06.285	Move	Destroyed	8-Aug-07
1764		L3-O5-04	7/31/2007	90mm HE	41.21.832	088.06.274	Move	Destroyed	8-Aug-07
1765		L3-O5-05	7/31/2007	T83	41.21.833	088.06.275	Move	Destroyed	8-Aug-07
1766		L3-O5-06	7/31/2007	MK3	41.21.834	088.06.275	Move	Destroyed	8-Aug-07
1767		L3-O5-07	7/31/2007	MT FUZE	41.21.833	088.06.285	Move	Destroyed	8-Aug-07
1768		L3-O5-08	7/31/2007	T83	41.21.834	088.06.293	Move	Destroyed	8-Aug-07
1769		L3-O5-09	7/31/2007	MK3	41.21.824	088.06.293	Move	Destroyed	8-Aug-07
1770		L3-O5-10	7/31/2007	T83	41.21.829	088.06.278	Move	Destroyed	8-Aug-07
1771		L3-O5-11	7/31/2007	57mm HEAT	41.21.833	088.06.274	Move	Destroyed	8-Aug-07
1772	1	L3-P14-01	4/4/2007	FUZE PRIMER	41.21.848	088.06.080	Move	Destroyed	16-May-07
1773	2	L3-P15-01	4/4/2007	M183 FUZE	41.21.845	088.06.073	Move	Destroyed	16-May-07
1774		L3-P15-02	4/4/2007	BURSTER TUBE	41.21.843	088.06.073	Move	Destroyed	16-May-07
1775	3	L3-P16-01	4/3/2007	M183 FUZE	41.21.84	088.06.051	Move	Destroyed	16-May-07
1776		L3-P16-02	4/3/2007	BOOSTER	41.21.832	088.06.051	Move	Destroyed	16-May-07
1777		L3-P16-03	4/4/2007	M183 FUZE	41.21.848	088.06.055	Move	Destroyed	16-May-07
1778	1	L3-P5-1	7/18/2007	T83	41.21.859	088.06.271	Move	Destroyed	8-Aug-07
1779	4	L3-Q10-1	4/25/2007	T-83 FUZE	41.21.858	088.06.172	Move	Destroyed	6-Jun-07
1780		L3-Q10-2	4/25/2007	T-83 FUZE	41.21.857	088.06.179	Move	Destroyed	6-Jun-07
1781		L3-Q10-3	4/25/2007	75mm SHRAPNEL	41.21.857	088.06.183	Move	Destroyed	6-Jun-07
1782		L3-Q10-4	4/25/2007	T-83 FUZE	41.21.860	088.06.191	Move	Destroyed	6-Jun-07
1783	2	L3-Q11-1	4/26/2007	T-83 FUZE	41.21.861	088.06.157	Move	Destroyed	16-May-07
1784		L3-Q11-2	4/26/2007	T-83 FUZE	41.21.854	088.06.158	Move	Destroyed	16-May-07
1785	4	L3-Q12-1	4/30/2007	T-83	41.21.864	088.06.131	Move	Destroyed	6-Jun-07
1786		L3-Q12-2	4/30/2007	75mm SHRAPNEL	41.21.863	088.06.132	Move	Destroyed	6-Jun-07
1787		L3-Q12-3	4/30/2007	T-83	41.21.859	088.06.128	Move	Destroyed	6-Jun-07
1788		L3-Q12-4	4/30/2007	T-83	41.21.861	088.06.143	Move	Destroyed	6-Jun-07
1789	4	L3-Q13-1	4/30/2007	T-83	41.21.852	088.06.105	Move	Destroyed	6-Jun-07
1790		L3-Q13-2	4/30/2007	T-83	41.21.855	088.06.105	Move	Destroyed	6-Jun-07
1791		L3-Q13-3	4/30/2007	T-83	41.21.856	088.06.110	Move	Destroyed	6-Jun-07
1792		L3-Q13-4	4/30/2007	M103 FUZE	41.21.859	088.06.124	Move	Destroyed	6-Jun-07
1793	1	L3-Q14-1	5/1/2007	M103 FUZE	41.21.859	088.06.096	Move	Destroyed	6-Jun-07
1794	2	L3-Q15-01	4/2/2007	M183 FUZE	41.21.859	088.06.065	Move	Destroyed	16-May-07
1795		L3-Q15-02	4/2/2007	FLASH TUBE	41.21.866	088.06.062	Move	Destroyed	16-May-07
1796	3	L3-R10-1	4/23/2007	T-83 FUZE	41.21.875	088.06.178	Move	Destroyed	16-May-07
1797		L3-R10-2	4/23/2007	57MM HE	41.21.878	088.06.180	Move	Destroyed	16-May-07
1798		L3-R10-3	4/23/2007	T-83 FUZE	41.21.881	088.06.185	Move	Destroyed	16-May-07
1799	1	L3-R11-1	4/24/2007	M66 BOOSTER	41.21.876	088.06.154	Move	Destroyed	16-May-07
1800	4	L3-R12-1	4/18/2007	M66 BOOSTER	41.21.873	088.06.125	Move	Destroyed	16-May-07
1801		L3-R12-2	4/18/2007	T-83 FUZE	41.21.869	088.06.137	Move	Destroyed	16-May-07
1802		L3-R12-3	4/18/2007	T-83 FUZE	41.21.880	088.06.126	Move	Destroyed	16-May-07
1803		L3-R12-4	4/18/2007	T-83 FUZE	41.21.882	088.06.127	Move	Destroyed	16-May-07
1804	2	L3-R13-1	4/18/2007	T-83 FUZE	41.21.884	088.06.114	Move	Destroyed	16-May-07
1805		L3-R13-2	4/18/2007	T-83 FUZE	41.21.878	088.06.116	Move	Destroyed	16-May-07
1806	1	L3-R14-1	4/17/2007	M66 BOOSTER	41.21.878	088.06.086	Move	Destroyed	6-Jun-07
1807	7	L3-R15-1	4/16/2007	M66 BOOSTER	41.21.874	088.06.064	Move	Destroyed	16-May-07
1808		L3-R15-2	4/16/2007	M66 BOOSTER	41.21.874	088.06.069	Move	Destroyed	16-May-07
1809		L3-R15-3	4/16/2007	DET LEAD	41.21.874	088.06.072	Move	Destroyed	16-May-07
1810		L3-R15-4	4/16/2007	M66 FUZE	41.21.879	088.06.065	Move	Destroyed	16-May-07
1811		L3-R15-5	4/16/2007	T-83 FUZE	41.21.879	088.06.075	Move	Destroyed	16-May-07
1812		L3-R15-6	4/16/2007	FLASH TUBE	41.21.878	088.06.076	Move	Destroyed	16-May-07
1813		L3-R15-7	4/16/2007	M66 BOOSTER	41.21.881	088.06.077	Move	Destroyed	16-May-07
1814	1	L3-R9-1	4/24/2007	T-83 FUZE	41.21.878	088.06.198	Move	Destroyed	6-Jun-07
1815	10	L3-RS-D6-01	6/19/2007	MK3	41.21.654	088.06.283	Move	Destroyed	28-Jun-07
1816		L3-RS-D6-02	6/19/2007	PD Fuze	41.21.648	088.06.267	Move	Destroyed	28-Jun-07
1817		L3-RS-D6-03	6/19/2007	T83	41.21.643	088.06.269	Move	Destroyed	28-Jun-07
1818		L3-RS-D6-04	6/19/2007	T83	41.21.645	088.06.269	Move	Destroyed	28-Jun-07
1819		L3-RS-D6-05	6/19/2007	MK3	41.21.645	088.06.267	Move	Destroyed	28-Jun-07
1820		L3-RS-D6-06	6/19/2007	T83	41.21.639	088.06.263	Move	Destroyed	28-Jun-07
1821		L3-RS-D6-07	6/19/2007	T83	41.21.626	088.06.268	Move	Destroyed	28-Jun-07
1822		L3-RS-D6-08	6/19/2007	MK3	41.21.649	088.06.262	Move	Destroyed	28-Jun-07
1823		L3-RS-D6-09	6/19/2007	40mm FUZE	41.21.655	088.06.258	Move	Destroyed	28-Jun-07
1824		L3-RS-D6-10	6/19/2007	T83	41.21.642	088.06.254	Move	Destroyed	28-Jun-07
1825	1	L3-S11	4/19/2007	PD Fuze	41.21.884	088.06.165	Move	Destroyed	16-May-07

Appendix F: Technical Project Planning 2 Meeting Minutes

August 2004

Military Munitions Response Program Site Inspection
Joliet Army Ammunition Plant, Illinois
TPP 2 Meeting Minutes
4 August 2004

The 4 August 2004 Technical Project Planning (TPP) meeting for the Military Munitions Response Program (MMRP) Site Inspection (SI) for Joliet Army Ammunition Plant (JOAAP), IL was conducted by the United States Army Corps of Engineers (USACE) Omaha District and engineering-environmental Management, Inc. (e^2M) at JOAAP in Wilmington, IL.

Introduction
All TPP meeting attendees provided personal introductions and explained their role as it relates to the project. Please see attached sign-in sheet for attendees contact information.

TPP 2 Briefing
The TPP 2 briefing was given by Todd Wickert of e^2M. Handouts included a copy of the briefing, a list of acronyms, definitions, and a copy of the draft Conceptual Site Model (CSM).

Comments and discussion generated from the briefing are described below.

- Ms. Courtney Ingersoll quickly summarized the data collection effort as depicted in the Historic Records Review (HRR) report. No additional data on L34, L2, and L3 was discovered other than data the entire stakeholder group is already familiar with. Extensive research was conducted for Training Area 7. This research included National Archive research, phone interviews with Fort Leonard Wood, Fort McCoy, the USACE, and on site interviews. No additional information was discovered, therefore the only information we have is the area was used for maneuver training from 1962 – 1994, and only blank ammunitions were used at the site and possibly pyrotechnics. This information was from an interview with the Range Control Officer, Mr. Ed Delelio at Joliet Training Center. He also provided maps of Training Area 7.
- After discussion of the HRR and CSM for Training Area 7, the group agreed there was no substantiated evidence for MEC at the site.
- L2, L3, and L34 groundwater issues were addressed under the Installation Restoration Program (IRP) and a Record of Decision (ROD) is in place for groundwater contamination. Mr. Tom Symalla, AEC surmised any groundwater contamination related to MMRP activities is less significant than the contamination from the production related activities occurring on site at JOAAP, therefore any MMRP groundwater contamination have been addressed under the IRP and the groundwater ROD.
- Next, Mr. Todd Wickert reviewed the history of L2, L3, L34, and Training Area 7. All existing sampling and analysis data and geophysical data were reviewed and analyzed while composing the JOAAP MMRP conceptual site model (CSM).
- Per stakeholders, a ROD is currently awaiting signature at the Pentagon for IRP clean up at sites L2 and L3.

- Mr. John Cataldo, USACE, Omaha then asked about potential future land use of the MMRP sites. Mr. Art Holz, JOAAP Commander's Representative responded:
  - L34 – Area around will be transferred to Midewin Tallgrass Prairie within the next few months and L34, after clean up, will also be turned into the tallgrass prairie. It is possible tilling up to 18" deep will occur in these areas after transfer to get the prairie grass established.
  - L2/L3 – US Forest Service will get this property – possible future use is recreational and will become part of the Midewin Tallgrass Prairie.
  - Training Area 7 – A portion of the site will go to US Department of Agriculture - Forest Service for possible incorporation into the Midewin Tallgrass Prairie and for hunting usage. Another portion will be transferred to the Joliet Industrial Development Authority.
- The group was interested if the performance based contract RFP due out for JOAAP would affect the MMRP SI work at JOAAP. Mr. Symalla will check on this with the AEC.
- The following recommendations were discussed by the stakeholders:
  - L2 – Within the IRP site boundary, HTRW/OE issues will be addressed in the clean up. The stakeholders are concerned about an area offset approximately 200 feet from the IRP site perimeter as UXO has been found in this area. Remedial Investigation sampling and analysis has occurred in this 200 foot perimeter area as well as some geophysical surveying. Based on the extent and availability of current data for this site, no Site Inspection (SI) field work is needed. However, the SI report will delineate the change in boundary of the MMRP site, from the IRP site to the rhomboid shape offset 200 feet from the perimeter of the IRP site.
  - L3 - Within the IRP site boundary, HTRW/OE issues will be addressed in the clean up. The stakeholders are concerned about an area offset approximately 200 feet from the IRP site perimeter as UXO has been found in this area. Remedial Investigation sampling and analysis has occurred in this 200 foot perimeter area as well as some geophysical surveying. Based on the extent and availability of current data for this site, no Site Inspection (SI) field work is needed. However, the SI report will delineate the change in boundary of the MMRP site, from the IRP site to the rhomboid shape offset 200 feet from the perimeter of the IRP site.
  - L34 – HTRW contaminants of concern were detected below action levels and no further HTRW action is necessary at the site. However, UXO is still a concern at the site. Currently there is no fence encompassing the site. The surrounding property will soon be transferred to US Department of Agriculture - Forest Service for inclusion in the Midewin Tallgrass Prairie and will also be open to hunting. The stakeholders are concerned about unlimited public access to the site and are interested in pursuing a time critical removal action with the installation of a fence closing the site off from public access until clean up is complete. Mr. Symalla will check with the AEC Program Manager on the policy regarding a fence installation as a time critical removal action at the site.

- Training Area 7 – Training Area 7 encompasses approximately 450 acres of undeveloped transferred land. As no substantiated evidence of munitions use at the site was uncovered other than an interview, the USEPA regulator suggested a visual inspection site walk be conducted. The installation agreed and suggested the site walk concentrate on the hills and heavy timber areas.

- Meeting concluded at 1615.

Action Items

Item	Responsible Party
Distribution of meeting minutes	Ms. Ingersoll, e^2M
Draft Work Plan for Training Area 7 walk	Mr. Wickert, e^2M
Guidance on Time Critical Removal Action.	Mr. Symalla, AEC
Check on effect of PBC RFP on MMRP SI	Mr. Symalla, AEC