# Work Plan

## Contained Burn Chamber

**For:**

Camp Minden M6 Destruction
Camp Minden
1600 Java Road
Minden, Louisiana 71055-7924

**Prepared By:**

Explosive Service International

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Revision 6

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| Acronym | Description |
|---|---|
| ATFE | Alcohol Tabacco Firearms and Explosives |
| ARARs | Applicable or Relevant and Appropriate Requirements |
| CBI | Clean Burning Igniter |
| CCTV | Closed Circuit Television |
| CPT | Comprehensive Performance Test |
| CBC | Contained Burn Chamber |
| CEMS | Continuous Emission Monitoring System |
| DOD | Department of Defense |
| DOT | Department of Transportation |
| DRE | Destruction Removal Efficiency |
| DNT | Dinitrotoluene |
| EDE | El Dorado Engineering, Inc. |
| EPA | Environmental Protection Agency |
| ESI | Explosive Service International, Inc. |
| FFF | Fire Fighting Foam |
| GC/MS | Gas Chromatography/Mass Spectroscopy |
| HASP | Health and Safety Plan |
| JSA | Job Safety Analysis |
| LP | Liquid Propane |
| LDEQ | Louisiana Department of Environmental Quality |
| LSP | Louisiana State Police |
| LEL | Lower Explosive Limit |
| MSA | Material Staging Area |
| PM | Particulate Matter |
| PPE | Personal Protective Equipment |
| PID | Photoionization Detector |
| PAS | Pollution Abatement System |
| POHC | Principal Organic Hazard Compounds |
| PLC | Process Logic Controller |
| QA | Quality Assurance |
| QAPP | Quality Assurance Project Plan |
| QAQC | Quality Assurance Quality Control |
| QASP | Quality Assurance Sampling Plan |
| RCRA | Resource Conservation Recovery Act |
| RECAP | Risk Evaluation Corrective Action Program |
| SVOC | Semi-volatile Organic Compounds |
| TAV | Technical Assistance Visit |
| TTC | Thermal Treatment Chamber |
| TCLP | Toxicity Characteristic Leaching Procedure |
| USDOT | United States Department of Transportation |
| USEPA | United States Environmental Protection Agency |
| UTV | Universal Terrain Vehicle |
| VOC | Volatile Organic Compounds |

## **Explosive Service International (ESI) Operational Work Plan and Technical** Approach

ESI has developed these operational plans, technical approaches, and related required resources based upon extensive review and planning for material removal, transportation, staging, and Contained Burn Chamber (CBC) destruction of materials. Consideration for community and worker safety and health, throughput capacity, emissions, destruction removal efficiency, and minimization of waste (volume reduction) are all paramount in this work plan and use of the Contained Burn Chamber as the selected technology for destruction of M6 and other explosives material.

The ESI Work Plan and operations will be conducted in accordance with applicable ~~all~~ Federal & State Laws and Regulations, policies, guidance and requirements, and relevant technical DOD reference documents. ESI also has independent knowledge and experience within this ESI team relating to destruction, storage and handling of M-6 propellant as well as other explosives. ESI has also considered the following key assumptions and points of understanding in developing this Operational Work Plan and Technical Approach:

- Health and safety for ESI workers, other Camp Minden personnel, and the public is of the utmost importance;
- Minimum safe separation distances from DOD 4145.26-M will be used based on inhabited buildings, public roadways and on-site destruction operations. These minimum safe separation distances are based on maximum amounts of material to be staged and destroyed of in Area-I at the Contained Burn Chamber, Staging Area, related ESI workers, Camp Minden personnel, and the pubic IAW DOD standards;
- Air quality monitoring for emissions will comply with all EPA/LDEQ requirements and will be collected, analyzed, and reported as required by both contract and statute;
- ESI will monitor and sample daily during the initial acceptance testing (CPT) in the community for the constituents identified in EPA's Baseline Quality Assurance Sampling Plan for air and soil. After completion of the initial acceptance testing, ESI will monitor and sample weekly in the community for these same constituents for air until the completion of the project.
- ESI has developed an initial Magazine Prioritization Plan and will update and maintain this magazine priority plan to address present and ongoing material stability conditions in the ninety (90) magazines;

- Applicable DOT regulations and Camp Minden policies for transportation of material will be complied with on this project; with exception of shipping papers. Any deviations from the regulations or policies will be requested in writing and approved prior to implementation at Camp Minden;
- "ONLY" properly licensed, trained and experienced personnel will be permitted to work on this ESI team. All ESI explosively trained personnel have undergone a criminal background check and drug screening prior to working on this project. ESI and all of its employees will comply with LSP and ATFE and any other regulatory authorities conducting random inspections at the site and other locations owned/operated by ESI. The ESI HSE Manager will ensure that all ESI personnel licensing remains current for the duration of this project;
- Supporting Plans will be submitted and maintained in support of this project to include:
    - Health and Safety Plan
    - Spill and Emergency Response Plan (to include catastrophic auto-ignition in a magazine)
    - Storm Water Pollution Prevention Plan
    - Quality Assurance Project Plan (QAPP)
    - Quality Assurance Sampling Plan (QASP)
    - Safety Site Plan
    - Continuous Emissions Monitoring System (CEMS) Performance Evaluation Plan
    - Startup, Shutdown, & Malfunction Plan
    - Comprehensive Performance Test Plan including a QAPP for the test
    - Operation, Maintenance Corrective Measures Plan to include Bag House Corrective Measures and Continuous Monitoring System (CMS) performance evaluation plan
    - Emergency Safety Valve Operating Plan
    - Waste Management Plan
    - Post Removal Site Control Plan
- Under separate submission, ESI will prepare and submit for review Standard Operating Procedures (SOPs) with step by step details explaining how all essential activities will be performed.

- ESI will maintain a clean and orderly work site by daily management of inert wastes and disposing of it accordingly. ESI will utilize recycling or reuse for wastes where practical and minimize waste for landfill to maximum extent possible;
- For the duration of the project ESI will maintain a secured work facility. These security requirements are essential to success and will be strictly adhered to in an effort to control and safeguard any material and protect the public. When normal operations are not underway, all gates will be locked and secure. Once work operations conclude each day in the magazine area, all magazines shall remain secure and locked until the following day. ESI will maintain a central magazine key control and log to track checkout of magazine keys. Only the Material Removal and Transportation Supervisor and the Project Manager will have keys to the explosives magazines;
- ESI will use only Area-I as depicted in Figure 2 for a material destruction. No other sites on Camp Minden will be used to conduct material destruction operations;
- ESI will comply with applicable Camp Minden Installation policies for the duration of this project;
- ESI has received a copy of the "Settlement Agreement" and will ensure any ESI subcontractor has been provided a copy from the LMD;
- ESI will insure strict adherence to the descriptions and procedures for soil, groundwater, and surface water sampling and air monitoring before and after removal actions as outlined in the QAPP when submitted. Amendments to these documents will be confirmed prior to implementation;
- ESI will strictly control access of personnel and materials into Area I and will minimize exposure based on safe and efficient operations. ESI personnel access to the materials and ESI's daily work activities will not be restricted or interrupted in any way and areas to be utilized by ESI inside Camp Minden will be available for the duration of the material removal action;
- Storage conditions inside several of the magazines are in poor condition and a Magazine Prioritization Plan will be maintained throughout the project duration;
- ESI plans to use daylight hours for material removal due to the lack of lighting in magazines. There will be no daily time restrictions on transportation of the propellants to the on-site destruction area; however, for off-site recycling and/or disposal of inert materials must comply with Camp Minden established policies and hours of operation.

- ESI will monitor for severe weather conditions and other weather conditions such as temperature, wind speed, wind direction, and relative humidity and will take appropriate personnel protection measures such as safe work shutdown and personnel evacuation when required;
- ESI will conduct an operational readiness test on the Contained Burn Chamber to demonstrate capability and readiness to begin operations. During this time period, ESI will conduct pre-operational checkout and testing of equipment and procedures, establish safe operating limits of the CBC by testing to 125%, establish safe burning depths for M6 and CBI, and establish maximum credible events for ESI operations (where undetermined a worst case of Hazard Division 1.1 will be assumed and used); Demolition, decontamination or removal of existing structures is not required, except as detailed in ESI's site restoration/ demobilization phase;
- ESI plans to use Area-I for the material destruction operations and Area-I will be available and suitable for use;
- Roads into and out of the Area-I designated destruction site will require spot improvements to handle the increased amount of ESI on-site operational traffic anticipated;
- Utilities will be available in Area-I as needed (water, septic and electrical); and
- Fire response will be coordinated with and provided by the local fire emergency departments with a documented Memorandum of Understanding IAW DOD 4145.26-M, Chapter 1.5.1.4.

ESI has been approved to locate the Contained Burn Chamber, (CBC), at the old incinerator site on Camp Minden referred to as Area-I. Considerable planning went into choosing this location with the benefits of using Area-I as follows:

- The relatively remote location on Camp Minden will not impact other on-going base operations or civilian contractors work.
- No temporary or permanent road closures other than the roadway leading to Area-I.
- Smaller environmental footprint on Camp Minden.
- Existing perimeter fence provides additional security for safe work operations.
- Existing roadways within Area-I fence provide access to site.

ESI will erect a temporary sixty (60) foot by one hundred twenty (120) foot open sided building on the Northern most portion inside the fence of Area-I. This temporary structure will provide an all-weather work site and greatly enhance ESI's overall destruction efficiency. Lighting will be installed outside and inside of the structure to provide a means for safe work during night operations.

### 1.1 Community Relations

ESI will not develop a Community Involvement Plan directly, but will support the LMD with the requested documentation and information required to support a community involvement plan for the duration of the project. LMD will approve and release information provided by ESI about the destruction operations at Camp Minden. ESI agrees to participate in community meetings as required to support LMD regarding this destruction project.

### 1.2 Key Personnel

**Key Personnel**

| Name | Title | Email | Mobile Phone |
|---|---|---|---|
| Billy Poe | Technical Advisor | bpoe@explosiveserviceintl.com | (225) 603-8984 |
| Jason Poe | Project/Program Manager | jpoe@explosiveserviceintl.com | (225) 247-1771 |
| Dean Schellhase | Dep. Project/Program Manager | dean@explosiveserviceintl.com | (225) 439-8482 |
| Matt Sallinger | Project Manager | masallinger@banderaresources.com | (713) 502-6706 |
| Richard Crain | Material Disposal Supervisor | rcroost@bellsouth.net | (318) 729-5225 |
| Frank Czjakowski | Material Removal/ Transport Supervisor | frank.czjakowski@gmail.com | (813) 404-3730 |
| Ken Williams | Safety Manager | kenyonwilliams.safetypro@yahoo.com | (918) 841-7109 |
| Mike Hebert | Environmental Compliance Manager | mhebert@semsinc.net | (225) 924-2002 |
| ESI Corporate Office | | (225) 275-2152 | |

## Scope of Work

The scope of work for this project will involve removal of the Hazard Division 1.3 propellant materials (M-6 and CBI) from the magazines, on-site destruction of the materials by thermal treatment in a CBC and off-site disposal or recycle/reuse of any remaining inert residual ash materials and inert related packaging materials. Burning the propellant materials in an engineered Contained Burn Chamber that includes a pollution abatement system was selected as the best possible alternative to open burning based on a variety of factors including worker safety, emissions, operational efficiencies and considerations for other ongoing activities at Camp Minden. The specific work tasks that will be performed to successfully complete this project will include the following:

Phase 1 – Mobilization and Site Preparation

Task 1 – Pre-Mobilization Activities including Permitting, Licensing, Ordering, Training and Reporting

Task 2—Mobilization and Site Setup to include Environmental, Site Work, Facility Construction, and Magazine Assessment and Prioritization

Task 3 – Comprehensive Performance Test

Phase 2 – Removal and Destruction Operations

Task 1—Removal of Propellant Materials from Magazines and Transport to On-site Destruction Area

Task 2—On-Site Destruction of Propellant Materials

Task 3—Removal of Recycle/Reuse Materials

Phase 3 - Site Restoration and Demobilization

Task 1 – Environmental and Site Recovery and Restoration

Task 2—Final Reporting and Project Closeout

## Phase 1 – Mobilization and Site Preparation

ESI will immediately align all assets to execute the mobilization and site preparation as outlined in Phase 1 (Mobilization and Site Preparation). Immediately, ESI will prepare and submit for approval the pre-activity sampling plan to LDEQ in order to determine background concentration of each expected constituent in compliance with RECAP. A quick turnaround on this is important to allow us to begin site preparation accordingly to support ESI's plan.

ESI will also submit the ESI Health and Safety Plan for LMD and EPA review and comments. Again a quick turnaround is important to allow us to know there is team agreement on the plan and begin preparation of the ESI explosives safety site plan, ESI worker training materials and schedule, and preparation of ESI Standard Operating Procedures (SOPs) to be used for conducting daily material removal, transportation, staging, and material destruction operations.

ESI and El Dorado Engineering, (EDE), will immediately begin mobilization from their respective bases to be on site at the appointed date and time permitted. Due to the relative close proximity of Ray Bell Construction to this site, mobilization of personnel and most equipment will be well underway on Day 1. Additionally, with Ray Bell Construction having a local office

near the site; the needed personnel and immediate equipment to support this project are readily available.

The extensive site preparation work necessary for setting up the entire Destruction Site in Area-I will require several weeks to complete. Thus, ESI/ El Dorado Engineering will immediately begin site work and construction related to developing the destruction site while the fabricated equipment such as the CBC is constructed. The component with the longest lead time for fabrication, delivery, and installation is the CBC. LMD was approved to spend additional money to expedite the fabrication and delivery of the chamber. It will be fabricated off-site, delivered and installed within twenty (23) weeks from placement of order.

A major priority of this project is to assess the stability of the materials in the magazines, their associated risk and priority for removal. Therefore, a separate ESI team will evaluate each magazine at least quarterly and update the ESI Magazine Prioritization Plan appropriately. ESI will handle M6 and CBI to the minimum extent possible to insure the stacks are and remain stable and personnel exposure to M6 and CBI is minimized throughout the destruction process. There will be no idle time during Phase 1 mobilization operations. Prior to any site work ESI will call to locate underground utility lines so that these are marked in the destruction site at Area-I. In Louisiana the underground utility locate number is 811 or (800) 272-3020.

ESI personnel and equipment will begin site preparation (primarily for constructing the Destruction Site) which will include the needed road repairs, engineering site work, removal of vegetation if needed, and the construction of the Destruction Site. The specifics for the components of the Destruction Site in Area-I are as follows:

**ESI Range Control Center** – will be modular space temporary building and associated parking area near the intersection of Java Rd. and Area-I paved road. Ray Bell Construction will perform the engineering site work installing an all-weather surface (limestone) for the placement of modular space. Once installed the occupancy permit will be obtained, utilities, phone and data supplied. ESI will install a weather station and close circuit video surveillance system with cameras positioned at the Area-I destruction site. ESI will install a secured access gate at this location to control access to the destruction site at Area-I.

**Access Roads and Work Areas** – create all-weather access roads and working areas designated on the site map using suitable backfill and coarse rock/limestone. Once the destruction site is complete, all of the roads leading to the various magazine areas will be inspected and improved if needed to allow for access with ESI's designated tractor/van trailers.

**Contained Burn Chamber** – engineer the working surface to include drainage and all-weather roads using suitable backfill and coarse rock/limestone. Construct a suitable engineered concrete foundation for erection of the Controlled Burn Chamber, pollution abatement system, support structure, eyewashes (2), and associated piping and controls. Install the windsock to determine wind direction.

**Material Staging Area (MSA)** - erect a temporary sixty (60) by one hundred twenty (120) foot engineered roof inside the Northwestern corner of the fenced area at Area-I. ESI will form and pour a concrete working surface under the engineered roof suitable for all material handling operations. Under the erected roof ESI will install the fabricated material handling equipment to include the receiving hopper, transfer bins and certified scales along with positioning the appropriate roll-off containers. Remaining specialized forklifts will be delivered as well as any fixed equipment. ESI will install lighting, an early warning lightning strike detection system, close circuit video surveillance, eyewash, and conduct a full operational checklist before commissioning.

**Control Room and Motor Control Center** – install a temporary modular space building with associated equipment (controls, CCTV, and motor control equipment) as required to operate the CBC and Pollution Abatement System.

**Explosive Storage Magazine Area** – prepare an all-weather surface for placement of two (2) temporary eight (8) by eight (8) foot explosive magazines. Construct a roof over the area outside of the magazine and install a grounded work bench.

**Aqueous Ammonia Storage Area** - establish an aqueous ammonia (Ammonium Hydroxide) storage site to include installing a 10,000 gallon vertical storage tank with containment on a reinforced concrete slab. The storage tank will have the appropriate fill and feed lines associated with supplying the aqueous ammonia to the pollution abatement system.

**Fuel Area** – establish the fuel storage area and associated spill containment with all-weather working surface. It is important to position any refueling operations a minimum of 100 feet from the MSA. This area will be located outside the existing Area-I fence near the entry gate and consist of one 500 gallon diesel storage tank and one 500 gallon gasoline storage tank.

At the same time ESI personnel will be conducting the remaining activities to insure that materials and equipment arrive in support of the mobilization efforts as well as preparation for Phase 2.

- Complete and submit the ESI explosives safety site plan (to include lightning protection requirements).

- Conduct a magazine assessment to amend prioritization for destruction.
- Compile all personnel certifications including training and licensing.
- Prepare and submit any other related technical documents and reports, as required.
- Procure all equipment, fixed, mobile, tools and consumables.
- Establish utilities, sewer, water, electricity, natural gas, and data.
- Install all appropriate warning signs to delineate all safety aspects related to the project and delineate established transportation routes.
- Develop Standard Operating Procedures (SOPs) which will be followed by ESI technicians conducting operations.

The assets (personnel and equipment) involved in the initial mobilization, as well as the actual conduct of the site preparation activities, are geared to support the overall project productivity and safety goals. Furthermore, this phase of the project will insure adequate support and setup to enable the timely, efficient and safe operations required for Phase 2 project tasks of removing the material from the magazines, transporting these to the destruction site and the final destruction of the materials.

### 1.2 Site Specific Training

Prior to beginning destruction activities, ESI personnel will have task and site specific training consistent will all Standard Operating Parameters (SOPs). Site specific training will cover all aspects of the required job tasks associated with the destruction activity. ESI personnel who will be participating in on-site operations will have the following training and certifications:

- Personnel handling explosives will be licensed by Louisiana State Police as Explosives Handlers (8 hour course).
- Personnel responsible for initiating burns will have Louisiana State Police Explosive Blaster's license (16 hour course).
- DOD 4145.26-M - DOD Contractor's Safety Manual For Ammunition and Explosives*
- DOD 5100.76 - Safeguarding Sensitive Conventional Arms, Ammunition, and Explosives (AA&E)*
- LAC Title 55 Chapter 15 – Public Safety – Explosives Code*

- 49 CFR 172 Subpart A Through Subpart G – USDOT HAZMAT for purposes of transportation *
- 27 CFR Part 555 - Bureau of Alcohol, Tobacco, Firearms, and Explosives - Commerce in Explosives*
- LAC Title 33 Part V – Hazardous Waste - **
- 29 CFR 1910 – OHSA Occupational Safety and Health Standards**

- 29 CFR 1910. 146 Confined Space Entry training for entry into either the Contained Burn Chamber and Pollution Control Equipment**
- 29 CFR 1910.147 Lock-Out/Tag-Out training for work on either the Contained Burn Chamber and Pollution Control Equipment**
  - Personnel operating forklifts and heavy equipment will have the appropriate licenses and certifications to operate the specified equipment (29CFR part 1926).
  - Emergency contact information is provided in Appendix F. ESI personnel will be trained on emergency contact and response procedures.**
  - ESI personnel will be trained on and comply with LMD Policy Number 4, Subject: Restricted Access, dated 10 Sep 14.**
  - ESI personnel will be trained on and comply with LMD Policy Number 7, Subject: Fire Hydrants, dated 1 Jan 15.**
  - ESI personnel will be trained on and comply with LMD Policy Number 8, Subject: Camp Minden Badging Procedure, dated 1 Jan 15.**
  - ESI personnel will be trained on and comply with LMD Policy Number 9, Subject: Explosive Operations, dated 1 Jan 15.**
  - ESI personnel will be trained on and comply with LMD Policy Number 11, Subject: Foreign Visitor Access Policy, dated 26 Jan 05.**
  - ESI personnel will be trained on and comply with LMD Policy Number 14, Subject: Explosive Safety Restrictions, dated 1 Jan 15.**
  - ESI personnel will be trained on and comply with LMD Policy Number 18, Subject: Severe Weather, dated 1 Jan 15.**
  - ESI personnel will be trained on and comply with LMD Policy Number 20, Subject: Energetics Incidence Reporting Requirements, dated 1 Jan 15.**

- ESI personnel will be trained on and comply with LMD Policy Number 23, Subject: Explosive Safety, dated 1 Jan 15.**
- ESI personnel will be trained on and comply with LMD Policy Number 29, Subject: Railroad Safety Policy, dated 1 Jan 15.**
- ESI personnel will be trained on and comply with LMD Policy Number 34, Subject: Testing and/or Burning Activities, dated 1 Jan 15.**
- ESI personnel will be trained on and comply with LMD Policy Number 35, Subject: Emergency Response, dated 1 Jan 15.**

  * This training will be done by ESI Health & Safety Officer as part of a 16-hour course.

  ** This training will be done by ESI Health & Safety Officer as part of an 8-hour course.

Additional on-site training, such as confined space entry, lock-out/tag-out, severe weather hazards, first aid, heat stress, cold exposure, emergency response, hot work permit process, smoking policy, company dress and demeanor policy, safe vehicle operations, fire extinguisher use, and site biological hazards, will be covered in daily safety tool box meetings.

### 1.3 Personnel

In support of the work required for Phase 1, ESI along with Ray Bell Construction will mobilize personnel to operate the required heavy equipment needed in support of this phase of the project. All of the needed heavy equipment to support the construction will be delivered to the site and inspected a minimum of three (3) days prior to actual site work

At the same time that ESI is mobilizing and building the site, the following equipment and supplies will have been ordered with enough lead time such that these will be on-site.

### 1.4 Equipment

1 - LP Low Mast 360° Rotating Fork Forklifts (for material removal inside magazines) with DOD compliant spark arrestor

2 – Low Mast 6,000 lb. Forklift with DOD compliant spark arrestor for MSA

1 -All-Terrain Forklift with DOD compliant spark arrestor for loading material for transport at magazines

1 - Range Control Modular Space

1 - Ottawa Terminal Tractor (Material Transport)

3 – Curtain Side Trailers for material transportation

5 - Portable Toilets

3 - Hand-wash Stations (1 each at the Break Area, Magazine Area, and Material Staging)

3 – Eyewash Stations (CBC, Pollution Control Equipment, and Staging Area)

2 - MultiRae Units (magazine interior air monitoring)

1 - Skid-Steer (road repair and needed maintenance at magazines or at the Destruction Site)

9 - Steel burn trays (for use within CBC)

Transfer Bins for net explosive weight

1 – Control Room with associated controls and equipment

1 - Crew Cab Universal Terrain Vehicle (UTV)

1 – All-Terrain Vehicle

2 - Type II Licensed Explosive Magazines

2 - Type III Explosive Magazines (day boxes) and blasting equipment

1 -Portable generator

1 - Portable welding machine

4 - Backpack fire-fighting sprayers with FFF fire-fighting foam

12 - Class III portable fire extinguishers

Safety equipment and supplies (PPE, gloves and face shields)

1 - Portable Weather Station (to be installed at Range Control Facility)

5 - Lightning Detectors

2 – Temperature Gun

Final mobilization activities to be completed in Phase 1 will include installing one (1) early warning lightning detection system and weather station at the Area-I Destruction Site. Also ESI will provide lightning strike detectors on the Ottawa terminal tractor, the Magazine Team, the Material Staging Team and Destruction Unit Team.

The magazine team will have their tool kits completed and inventoried to include all PPE, tools and equipment detailed in the magazine removal and transportation section. ESI will stage and prepare the necessary magazine team's equipment (LP 360° rotating-fork forklifts, All-Terrain forklift and team P/U Truck & tools, PPE, temperature gun, and MultiRae Air Monitor). Curtain-side trailers will be staged as needed at the highest priority magazines in preparation for commencement of removal activity as soon as the destruction site is inspected and commissioned for operation.

### 1.5 Air Modeling

ESI will perform air emissions modeling analyses using the PAS to evaluate fence-line concentration of gaseous emissions. Input parameters such as source location, emission rates, meteorological data, and emission point parameters are necessary to model air emissions and ESI will:

a) Obtain and process 5 years of representative meteorological data
b) Incorporate building dimensions into the analysis and conduct building downwash
c) Calculations using the Building Profile Input Program with PRIME algorithms (BPIPPRIME) software
d) Develop fence line and grid model receptors and process with AERMOD's terrain preprocessing software AERMET to assign terrain information to each receptor point
e) Complete AERMOD runs for a unitized emission rate scenario and, if needed, separate 1-hour SO2 and NO2 model runs

Air modeling deliverables will include the following:

1) A modeling protocol for submittal to the regulatory agency
2) Electronic files with all modeling data and results (modeling file)
3) Modeling methodology (report)
4) Receptor grid with graphic (report)
5) Meteorological data
6) Modeling results and concentration graphics (report)

The results of the modeled concentrations will be provided in a table as part of the modeling report, comparing the ambient concentration with and without background concentrations to the NAAQS. Hazardous air pollutants (HAP) values will be displayed as stand-alone concentrations. Contour plots will be provided, indicating the location of the maximum concentrations and a concentration gradient over the entire receptor grid.

Modeling results will include a summary of the modeling methodology, a table of model concentrations with and without background concentrations, concentration contour plots, and electronic files containing AERMOD input and output data, building and downwash files, and meteorological data.

### 1.6 Waste Feed Stream Analysis

Prior to conducting the comprehensive performance test and feeding M6 and CBI to the CBC, ESI will obtain analysis of each waste feed stream to the unit to insure compliance with the limits applicable or relevant and appropriate requirements (ARARs) feed rate limits. In addition to the M6 and CBI analysis, ESI will submit for analysis samples of all associated packaging (cardboard boxes & drums, plastic bags, super sacks) that might have to be introduced into the CBC due to safety and handling concerns. The laboratory analysis will determine the chemical composition of the material for the pollutants of concern consisting of Chlorine, Mercury, Cadmium, Lead, Arsenic, Beryllium, Chromium, Cobalt, Manganese, and Nickel. ESI will develop and implement a feed stream analysis plan and record it in the operating record.

### 1.7 Upgrade of Pollution Abatement System Equipment

The Contained Burned System will have the capability to comply with the applicable elements of the EPA Final ARARs. ESI upgraded the originally designed pollution abatement equipment to allow for additional control and reduction of stack oxygen percentage. This was required to eliminate the risk due to the added oxygen correction requirement in the ARARs. Upgrades to the equipment include:

- Upsized Burner and Fuel Train
- Distributed Exhaust Inlet (High Temperature Ceramic)
- Additional Process Oxygen Monitor
- Combustion Air Supply Variable Frequency Drive
- Associated wiring and controls hardware

### 1.8 Comprehensive Performance Test – Stack Monitoring

The details of the Comprehensive Performance Test (CPT) will be covered in great detail in ESI's Comprehensive Performance Test Plan under separate submittal. ESI's initial CPT is part of the initial acceptance testing consistent with State and Federal Regulations. Stack sampling will consist of three (3) replicate samples during operations of the CBC at the full production rate. This scope includes the required replicate testing of one worst-case operating condition (with packaging). Recognizing the known poor storage conditions and associated safety concerns of

the material; it is likely that throughout the course of the project it will be necessary to introduce packaging with material to the CBC. A complete and separate CPT will also be conducted with the required replicate testing of one "normal" operating condition (without packaging) at full production rate.

Once mobilized to the site, ESI will conduct two independent CPT's on the stack emissions; one with the packaging referred to as "worse case" and one without any packaging representing "normal" operations. Measurement of speciated principal organic hazardous constituents (POHC) will also be performed, which would include sampling for 2,4-dinitrotoluene, 2,6-dintrotoluene, dibutylpthalate, and diphenylamine. Stack testing will include the parameters and methods listed in the following table:

| PARAMETER | METHODOLOGY | COMMENTS |
|---|---|---|
| Gas Velocity | EPA Methods 1 & 2 | Performance Specification 6 |
| Gas Composition | EPA Method 3 | Orsat analysis |
| Oxygen | EPA Method 3A | Performance Specification 3 |
| Moisture Content | EPA Method 4 | Back-half of Method 5 |
| Particulate Matter | EPA Method 5 | Filterable PM |
| Particulate Matter | EPA Method 202 | Condensable PM |
| Sulfur Dioxide | EPA Method 6C | Western Research 921 |
| Oxides of Nitrogen | EPA Method 7E | Performance Specification 2 |
| Carbon Monoxide | EPA Method 10 | Performance Specification 4B |
| Methane and Ethane | EPA Method 18 | Gas chromatography |
| Volatile Organic Compounds | EPA Method 0030 | Performance Specification 8 |
| Dioxins/Furans | EPA Method 0023A | GC/MS Analysis |
| Semivolatile Organics | SW-846, Method 0010 | 2,4-Dinitrotoluene, 2,6-Dintrotoluene, Diphenylamine, and Dibutylphthalate |

### 1.9 Expedited Turnaround of Partial CPT

EPA has required a complete report on the analytical results from the stack test samples for VOC and SVOC to be reviewed prior to commencing destruction of the M6 and CBI materials.

ESI provided cost and will have to expedite both the air sample analysis and analytical reporting on the "normal" operating condition at the full production rate in an effort to minimize this unintended delay. Therefore, ESI will conduct the CPT under "normal" operating conditions first and collect and expedite the VOC and SVOC samples to the designated approved laboratory. After receipt of these partial analytical results the stack testing company will validate and expedite submittal of a report to include VOC/SVOC and the calculated destruction removal efficiency, DRE.

Normal turnaround time for the lab is 28 calendar days for these two methods. The 3 calendar day expedited turnaround time was agreed upon and is based upon sample receipt at the laboratory and associated additional costs based on 3 runs. Please note that the laboratory turnaround time is dependent upon scheduling and current capacity at the time of sample receipt.

Similar to the analytical turnaround, the report turnaround is dependent upon scheduling and current capacity at the time of analytical report receipt. ESI's typical report turn is ~14-days from receipt of all analytical data. It again was agreed to pay to expedite the report turn from the stack monitoring vendor to as fast as 7-days upon analytical receipt (includes generation and all QA review). After this report is generated it will immediately be submitted to LMD for review by both State and Federal Regulators. There will be operational downtime during this unplanned requirement from the EPA.

## Phase 2 - Removal and Destruction Operations

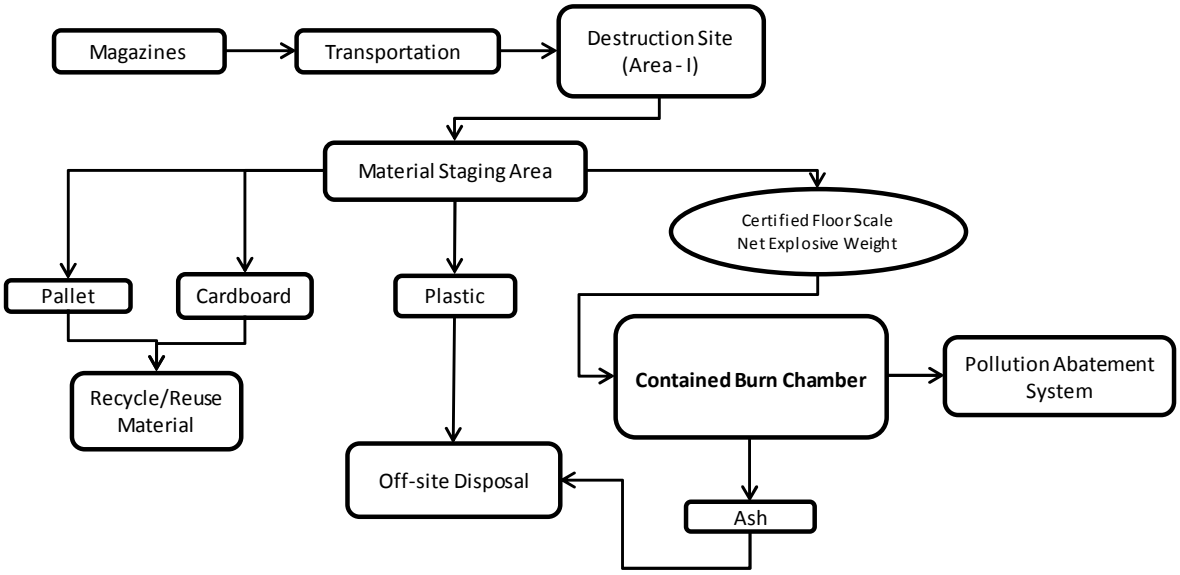
The goals of this phase of the project are centered on the safest and most efficient removal of the materials from the magazines through final destruction at the destruction site located at Area-I. Safety is paramount for any project and this is especially so for this project due to the nature of the material and the resultant explosive hazard.

### 1.10 Continuous Emission Monitoring System

A continuous emissions monitoring system (CEMS) will also be utilized to continuously monitor stack emissions, as required by the ARAR's. ESI will continuously monitor at the stack for CO, Total Hydrocarbons, NOx, O2, and stack gas flow rate. This system will include initial calibration and verification checks as well as daily automated calibration checks. It will remain operational throughout the duration of the project.

### 1.11 Quarterly Stack Emission Monitoring

Quarterly Stack Emission Monitoring for VOC's and SVOC's will be conducted throughout the duration of the project as required by the final EPA and State ARAR's. Additionally, dioxin and furan will be monitored semi-annually as required by the final ARAR's in conjunction with the corresponding quarterly sample event. The details of the specific sampling will be covered in greater detail in the Quality Assurance Sampling Plan under separate submittal.




**Overall Process Flow**

ESI plans to remove the materials with specialized handling equipment from the magazines and transport the material in curtain-side trailers with a specialized Ottawa terminal type tractor capable of making quick connect and disconnect to multiple trailers. Once loaded, manifested and secured the tractor trailer will deliver the materials to the CBC Destruction Site located at Area-I and position the trailer at the MSA.

The MSA will separate the packaging material and place the propellant materials into twenty-five cubic foot volume transfer bins designed to handle a pre-determined amount of material. The filled transfer bin will be weighed on a heavy duty floor scale to determine net explosive weight.

The contents of one transfer bin will be placed in one cold burn tray for processing in the Contained Burn Chamber. This process will be repeated throughout the 24 hour operating period. The weigh tickets from the individual transfer bins will be tallied, retained and reported according to the respective destruction events.

***Net explosive weight = material + hopper weight – tare weight of hopper***

The packaging waste will be segregated at the MSA-Inside Area-I and the cardboard and pallets collected for recycle/reuse while the plastic materials collected and profiled for off-site disposal. Packaging materials will be inspected and certified as inert prior to release for recycle/reuse. The residual ash from the treatment of the materials is not expected to exceed 0.2% by volume and will reside inside the floor of the CBC before being removed for profiling and disposal. The residual ash will be inspected and certified as inert prior to release for disposal.

### 1.12 Rate Controlling/Limiting Concerns

**Specialized Equipment**

Using specialized equipment such as the 360° rotating fork forklift, ESI will be able to safely remove shifted pallets from the top of stacks inside the magazine. ESI will use multiple curtain-side trailers and one (1) Ottawa-type terminal tractors capable of quickly coupling to these trailers in minutes. These tractors have a door in the rear of the cab allowing the driver to connect the air hoses without exiting the cab and actuate the fifth wheel coupler from within the cab. This approach is used in terminals moving multiple trailers throughout the day quickly and efficiently.

At the MSA ESI will erect a temporary building 60’ wide and 120’ long to keep personnel out of the weather as they un-package the materials. ESI will use a designed receiving hopper with the flexibility to receive the various packaging configurations from super-sacks to boxes.

ESI’s transfer bins which are center-flow containers are the most efficient, versatile containers available to transport and dispense granular/pelletized materials. The smooth, funnel-shaped interior has a 35° angle for efficient flow of the M-6 & CBI contents. Their design allows for complete empting of the contents in the tray at the CBC. Each transfer bin has a cover and can contain up to twenty-five cubic feet of net explosive. ESI will only fill each bin to 880 lbs. to satisfy filling one burn tray capacity.

ESI will use ergonomically engineered equipment like the spring loaded 360° rotating pallet leveler to assist the workers unloading boxes. Also, ESI will reduce fatigue on our workers from handling the numerous cardboard drums by using a station that allows for easy dumping of the material into the receiving hopper. Super sacks will be lifted over the receiving hopper and the bottom funnel opened to empty the contents. By separating the package material from the propellant materials at the MSA ESI will never clutter the CBC area and will not need to

transport the packaging more than a few feet to prepare for inspection and off-site reuse/recycle or disposal.

**Resource Alignment**

Throughout the removal and destruction actions ESI will continually monitor the efficiency of the four (4) major tasks to include the removal from the magazines, transport, material staging and preparation, and destruction. ESI will move equipment and personnel to address any rate limiting or controlling task.

**Destruction Methodology -** Clean Burning Igniter (CBI) – to initiate M-6

As part of ESIs' daily destruction process, ESI will use existing, good Clean Burning Ignitor, (CBI) from magazines for thermal boosters to initiate each burn event in the Contained Burn Chamber destruction unit. CBI is much cleaner burning than black powder, normally used to initiate destruction operations. Using good CBI from magazines in this manner will reduce the number of CBI burn events because ESI will use CBI throughout the destruction process of M-6 and minimize the additional black powder use and handling. ESI realizes that a significant amount of the CBI is designated as a priority for destruction relating to the most recent Army TAV report; however, the uncompromised volume of CBI remaining will be used for initiation at the CBC.

### 1.13 Primary Exposure Pathways

This section characterizes the various pathways (i.e., environmental media) that may be impacted by M6 demilitarization operations at Camp Minden. This section also provides an evaluation of the likelihood of and/or expected degree of impact for each pathway described, in order to assess the amounts of contaminants that may reach receptors.

**Soil Pathway**

There are no anticipated releases to soil from operations at the destruction site. The Contained Burn Chamber will be loaded in a covered area over a concrete pad. Sealed collection drums will be used in the PAS under the cyclone and the baghouse, again over a concrete pad. No dumping of drums into other containers is required. These drums will be profiled and disposed accordingly off-site conforming to all regulatory requirements. El Dorado Engineering's experience in destruction of M-6 through thermal treatment done both domestically and internationally resulted in only small amounts of M-6 ash remaining (~0.2% by volume) after treatment. In every case the analytical results of this ash were Non-Hazardous and suitable for

landfill. Operational procedures are detailed in Phase 2 discussion. As described, by design there is no release to soil from destruction operations.

**Soil-to-Groundwater Pathway**

The potential for the constituents of concern to reach groundwater is negligible.

**Groundwater Pathway**

Because there are no constituents of concern released to the soil, there is no anticipated potential for pollutants to migrate to the groundwater.

**Surface Water Pathway**

Because there are no constituents of concern released to the soil, there is no anticipated potential for pollutants to be carried through runoff to surface water bodies.

**Air Pathway**

During operations, constituents of concern enter directly into the air emission pollution abatement system. The Air Pollution Abatement System (PAS) employs Best Available Control Technology (BACT), as described in detail in the technical proposal. The air emissions, by design, incorporate BACT to keep potential discharge minimal, well below regulatory standards and limits for population exposure.

### 1.14 Environmental Performance Standards

Performance standards will be established and maintained for the protection of human health and the environment from activities at the facility. The following sections explain the performance standards.

**Performance Standards for Protection of Surface Water, Wetlands, and Soil Surfaces**

The CBC facility is designed to eliminate any direct releases to surface water, wetlands, and soil at the site. Therefore, performance standards for protection of surface water, wetlands, and soils are not relevant. However, due to expressed concerns, ESI will perform the following testing in support of this project consistent with the Applicable or Relevant and Appropriate Requirements (ARARs).

**On-site Soil**

Soil samples will be collected and analyzed in Area I before any operation begins and after completion of all destruction activities. Using dedicated stainless steel scoops; soil will be

collected and submitted in dedicated sample containers and placed on ice prior to shipping to the designated laboratory. Soil samples will be analyzed for:

- VOCs by SW-846 Method 5035/8260
- SVOCs including explosive residues by SW-846 Method 8270C
- Dioxin/Furans (PCDD/PCDF) bySW-846 Method 1613B
- TCLP Metals by SW-846 Method 1311
- pH by SW-846 Method 9040

**On-site Groundwater**

ESI will advance six (6) boreholes to a maximum depth of 50 feet below ground surface (bgs) completed with 2-inch permanent monitoring wells around the perimeter of the operational area. These wells will be sampled before the destruction of propellant begins (baseline) and every 3 months after that for the duration of the project. Upon completion of all destruction activities related to the project; one final sampling event will be conducted for project completion. These samples will be analyzed for volatiles and semi-volatile compounds to include 2,4-dinitrotoluene, 2,6-dintrotoluene, dibutylpthalate, and diphenylamine. Upon project completion, monitoring wells will be plugged and abandoned in accordance with LDEQ and LDNR guidelines and each location will be restored back to the original condition.

**Surface Water**

Sampling the surface water will be conducted by collecting samples up-gradient, down-gradient and the source point introduction to the closest surface water source, Clarks Bayou. A sampling event will be conducted prior to any site work at the Destruction Site (Area- I) and again upon completion of all destruction activity related to the project. Each location will be sampled for both water and surface sediment. Following receipt of surface water and sediment analytical data, a Surface Water and Sediment Monitoring Report summarizing the sampling event and findings will be prepared.

Water and Sediment samples will be analyzed for:

- VOCs by SW-846 Method 5035/8260
- SVOCs including explosive residues by SW-846 Method 8270C

### 1.15 Performance Standards for Protection of the Atmosphere - Community Monitoring

ESI will monitor and sample daily during the initial acceptance testing (CPT) in the community for the constituents identified in EPA's Baseline Quality Assurance Sampling Plan for Air and Soil. After completion of the initial acceptance testing ESI will monitor and sample weekly in the community for these same constituents for Air until the completion of the project.

**Air-** ESI agreed to provide 4 monitoring and sampling locations; Up-wind and Down-wind of the source point (Area I), another near the fence line of the Camp Minden boundary and one at a designated community location. Exact locations will be selected after a site visit/assessment is conducted and in conjunction with the regulatory agencies. All sampling and monitoring equipment will be trailer mounted and will be able to be relocated if necessary.

Continuous ambient air monitoring will be conducted 24/7 for the duration of the project. Analytical sampling for each specific analyte will be conducted once a week for the duration of the project. Dioxin and Furan analyte sampling will be conducted before destruction operations begin, every six months, and after all destruction of the material is completed. The only time instruments will be offline is for maintenance and/or calibration. Daily, on-site personnel will staff the monitoring equipment, conduct maintenance, calibration, and manage data collection and reporting in support of the project.

ESI will be using the same equipment and analytes as the EPA used to conduct the baseline sampling; which include the following:

| Pieces | Equipment | Analyte |
|---|---|---|
| 4 | PUF Sampler | Analytical Dioxins, Furans, SVOCs |
| 4 | Summa Canister | Analytical for VOCs |
| 4 | BGI PQ200 | Particulate PM 2.5 and 10 |
| 4 | MetOne BAM 1020 | Real-Time Particulate PM 2.5 and 10 |
| 4 | Thermo 42i | Real-Time NOx |
| 4 | Thermo 43i | Real-Time SO2 |
| 4 | Thermo 48iTLE | Real-Time CO |
| 4 | Teledyne 360E | Real-Time CO2 |
| 1 | Meteorological Station | Temperature, Barometric Pressure, Wind Direction & Speed |

**Soil** –Grab soil samples will be collected at the surface (0 to 1 inch) at the selected air monitoring location before destruction activity and upon completion of all disposal activity. Using dedicated stainless steel scoops; soil will be collected and submitted in dedicated sample containers and placed on ice prior to shipping to the designated laboratory. Soil samples will be analyzed for:

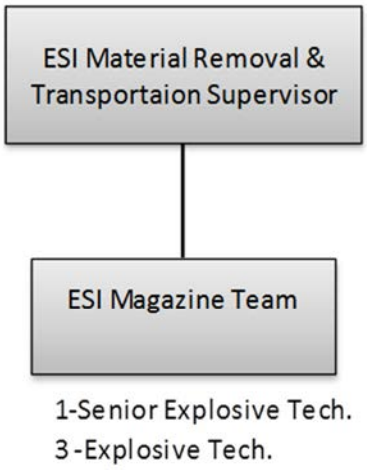
- VOCs by SW-846 Method 5035/8260
- SVOCs including explosive residues by SW-846 Method 8270C
- Dioxin/Furans (PCDD/PCDF) by SW-846 Method 8290A
- TCLP Metals by SW-846 Method 1311
- pH by SW-846 Method 9040

## Magazine Approach

### Personnel

ESI has spent significant time and effort developing safe procedures for removal of the hazardous materials namely M-6 propellant and Clean Burning Igniter (CBI). ESI's approach is designed to minimize personnel exposure while maximizing efficiency of material removal.

The magazine team under the supervision of the Material Removal Supervisor will consist of a four (4) man team as follows:




**Magazine Removal Team**

***Senior Explosive Technician*** with experience providing supervision of all activity at magazine to include assessment of material stability and movement activity throughout the removal

process. Responsible for the documentation of materials removed from magazine, security, implementing task specific job safety analysis, (JSA).

***Three (3) Explosive Technician /Forklift Operators*** licensed as an explosive handlers with experience handling explosives and operating a forklift. One assigned to remove material inside the magazine, another to load the curtain-side trailers outside, and one to secure the load and assist the removal.

This Magazine Team, (MT), will focus on removal of material from the highest priority magazines designated in ESI's Magazine Prioritization Plan, (MPP). The MT will have the most experience personnel in their intended roles. This approach will support sustained flow of material to the destruction site ensuring ESI's destruction goals are maintained. Flexibility of the team to work together to address critical magazine conditions uncovered throughout the process will be vital to ESI's safe and successful completion of this task. The controlling factor on ESI's processing rate remains the feed rate capacity to the CBC. Therefore, ESI is confident that this one magazine team will be able to sufficiently supply enough material to the MSA during daylight hours to maintain maximum productivity throughout the destruction activities. ESI explosives technicians will be cross trained for potential cross utilization to cover absences of various ESI personnel. If ESI has new hires due to personnel losses or additional workload, the new ESI employees will be required to take the same mandatory training that existing ESI personnel completed.

**Equipment:**

The magazine team will have specialized equipment to ensure the safe and efficient removal of the various material packaging types. ESI will stage curtain-side enclosed trailers at each working magazine along with a Tele-Handler forklift for loading. Inside the magazine, the team will use a DOD compliant propane powered 360° rotating fork, low-mast forklift capable of reaching the highest pallet of material.

Inside Magazine

LP- Low Mast 360° Rotating Fork Forklift with DOD

Outside Magazine

8-Ton Tele-Handler All-Terrain Forklift with DOD

## Magazine Equipment

**Procedure**

***Step 1*** - ESI Magazine Team moves to highest priority magazine for initial entry inspection. Tool kit includes soft bristle broom, natural bristle brush, plastic non-static or metal non-sparking dust pan, empty drum or box container, mop and plastic bucket, non-static tape, plastic wrap, plastic scoops, empty drums and super sacks, MultiRae meter, temperature gun, portable fire extinguishers (2), wasp spray, first aid kit, ratchet straps, and orange cones. PPE includes 100% cotton coveralls, cotton undergarments, hard hats, steel toed shoes, safety glasses/face shields, and leather gloves.

***Step 2*** - Place orange cones and signage in road to identify magazine work in progress.

***Step 3*** - Inspect magazine roof vent and make sure it is open. Use caution in walking up magazine cover to inspect roof vent. Watch for venomous snakes, scorpions, spiders, and wasps and use wasp spray if needed.

***Step 4*** - Inspect magazine apron and outside access for any loose material. Collect any loose material on ground into a lined cardboard drum container for transport to Destruction Site.

***Step 5*** - Once outside of the magazine is cleared of any loose material, inspect the magazine door and door frame for any wasps, spiders, scorpions, or snakes and remove if needed.

***Step 6*** - Unlock and open magazine door. Use caution to avoid muscle strain or pinching body parts in door. Watch for scorpions, spiders, wasps, and snakes around door and door frame and remove if needed.

***Step 7*** - Monitor oxygen level with MultiRae PID device equipped with the following sensors: Lower Explosive Limit (LEL); Oxygen ($O_2$); Carbon Monoxide (CO); Nitric Oxide (NO); and, Nitrogen Dioxide ($NO_2$). Air monitoring logs will be maintained throughout the day, before and during the time that the crews are working. The air monitoring and magazine unloading activities will comply with the site specific HASP and will address all chemical exposure concerns and the resulting PELs/TWA as follows (i.e., meeting the most stringent exposure limit set by either OSHA or NIOSH):

| | |
|---|---|
| Nitric Oxide: | 25 ppm (both OSHA and NIOSH) |
| Nitrogen Dioxide: | 1 ppm by NIOSH |
| Oxygen: | 19.5%-20.5% (OSHA) |

Carbon monoxide: 35 ppm (NIOSH)

Lower Explosive Limit: 10% of the LEL is considered safe working conditions (NIOSH)

Randomly sample M6 material packaging with temperature gun for any “hot spots”.

***Step 8*** - Place fire extinguishers (2) in safe accessible location. Inspect magazine floor for loose material and collect any loose material in lined cardboard drum for transport to the Destruction Site. NEVER FIGHT EXPLOSIVE FIRES.

***Step 9*** - Inspect magazine material storage conditions and develop plan for addressing crushed containers or leaning stacks. Manually apply ratchet straps as needed to secure crushed containers or leaning stacks.

***Step 10*** - Once magazine material removal plan is executed, the Magazine Team will begin working to remove all crushed containers or leaning stacks.

***Step 11*** - Obtain LP forklift to begin container removal. Caution: Operate forklift inside magazine only as needed to remove containers. There will be a “no idle policy" enforced inside the magazine. Periodically sample oxygen and carbon monoxide using the MultiRae meter while operating the forklift inside the magazine and stop operations if safe levels are exceeded.

***Step 12*** - Move any good containers needed for safe access to magazine apron or outside doorway for placement on trailer to transport to Area-I Destruction Site. Operating philosophy for the material removal team will be if material containers are moved, the material containers will be placed on trailer for transport to the Destruction Site.

***Step 13*** - Inspect each container and pallet for integrity to be transported without leaking.

***Step 14*** - The All-Terrain forklift will operate outside the magazine and will move material containers from the apron to the trailer.

***Step 15*** - When leaking or damaged material containers are identified, the Magazine Team will assess for corrective action following a decision priority as follows:

a) Clean up any loose spilled material with soft bristle broom and plastic dust pan. Repair the broken or damaged container with tape and plastic.

b) If the container damage is beyond repair, use a good over pack container such as the super sack to contain the damaged container.

***Step 16*** - If the container cannot be repaired or over packed, then the team will temporarily patch or repair the container leak with tape and plastic and move the container outside the magazine. The damaged container will be moved onto the magazine apron and the magazine

door will be closed and secured with the crew all outside them per DOD 4145.26-M. The material will then be transferred into a lined cardboard drum or super sack using non-sparking scoops until complete. The original packaging will be transported to the Destruction Site for profiling for off-site disposal.

***Step 17*** -Inspect the repaired/over packed/transfer container for structural integrity and have the container moved by forklift to the trailer for transport to the Area-I Destruction Site.

***Step 18*** The Magazine Team will then begin inspection and removal of good containers for transport to the Area-I Destruction Site.

***Step 19*** - When a magazine is clear of all containers, ESI will conduct a final clean-up to include sweeping the magazine floor using soft bristle broom and plastic dust pan and collecting any loose material. Any loose materials will be placed in a lined cardboard drum and transported to the Area-I Destruction Site for destruction. A final outside inspection will be conducted for any loose material and if found it too will be placed in a lined cardboard drum for transport to the Destruction Site.

***Step 20*** - Based on a visual inspection for removal of all explosives residue, the ESI Health and Safety Manager will then call the designated State of Louisiana, Military Department POC for a final magazine inspection and approval to close out. Upon acceptance, ESI will issue a certificate of closure for the magazine and return custody back to the Louisiana Military Department.

***Notes:***

a. If lightning evacuation is directed, all ESI magazine team personnel will evacuate immediately to the ESI Range Control Center until an all clear is given.

b. If any unusual condition or near miss accident occurs, the ESI Project Manager and ESI Health and Safety Manager will be notified immediately.

c. Any ESI personnel have the authority to issue a stop work order and the ESI Project Manager and ESI Health and Safety Manager will be notified immediately for assessment of conditions.

d. No matches, lighters, or any other flame or heat producing devices will be taken into the Magazine Areas without a “hot work” permit issued by the ESI Health and Safety Manager. At no time will smoking be conducted in any area other than a designated smoking area.

e. Any accident or injury will be initially treated with first aid by ESI team members. The ESI Project Manager and ESI Health and Safety Manager will be notified immediately for contacting Emergency Response.

### 1.16 Compromised Magazine Approach – Leaning/ Fallen

ESI is very familiar with the conditions of the materials in the magazines and has developed an approach consistent with all State and Federal regulations including DOD 4145.26-M. ESI's approach is to have our most experienced personnel assigned to the Magazine Team to address the compromised magazines. Only ESI personnel directly involved with the operation will be inside the magazine during stabilization operations. Only one leaning or fallen stack will be addressed at a time

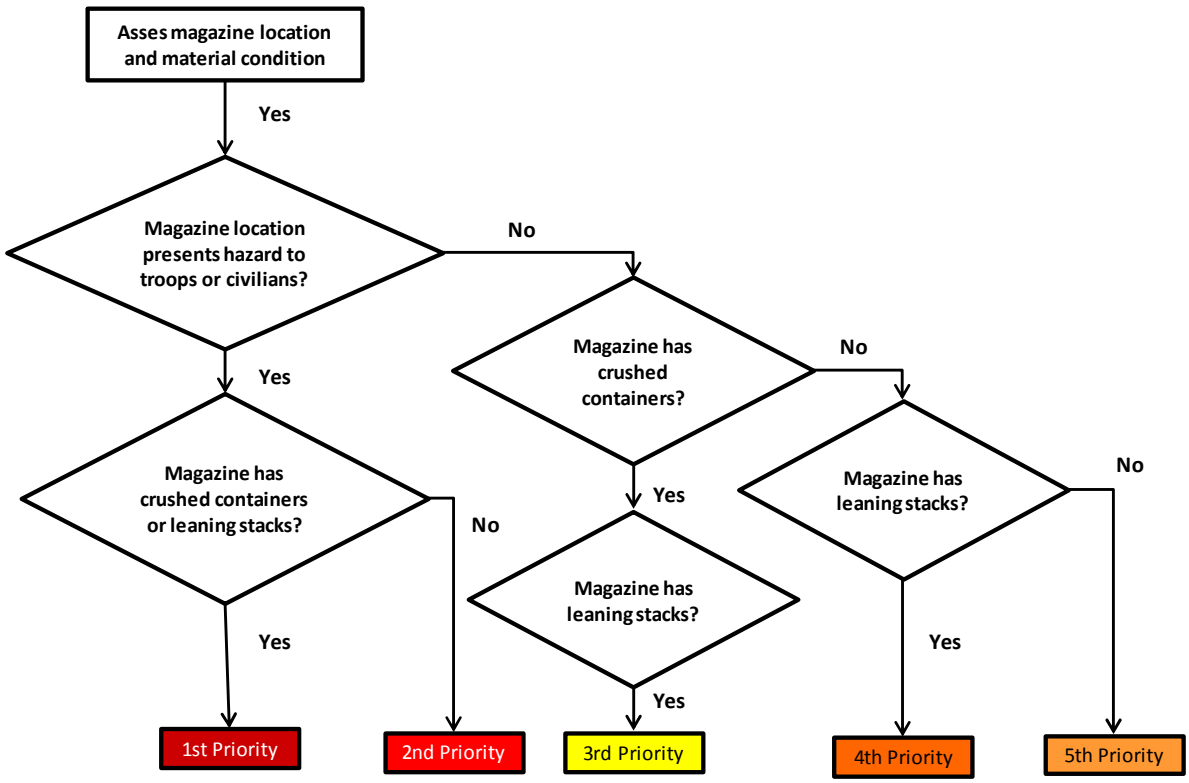
**Leaning / Falling**

Many pallets of material are stacked four (4) and even five (5) high exceeding ATFE, LSP and DOD magazine storage regulations/requirements. This creates a hazardous working environment and poses imminent danger to personnel requiring great care to safely remove. During ESI clean-up and stack stabilization operations, only the minimum number of ESI personnel directly required for safe operations will be in and around the magazine during these operations.

- Manually apply ratchet straps as needed to secure crushed containers or leaning stacks to allow for safe removal of the top pallet using the 360° rotating-fork forklift.
- Move the pallet outside to the apron for loading on the trailer.
- Repeat the process and remove the ratchet straps accordingly as the threat is reduced for falling.

## 1.17 Magazine Prioritization

ESI has developed the following Magazine Prioritization Plan and approach based on the physical stability in the storage magazines and proximity to military or commercial operations. This decision matrix will be employed throughout the length of the contract to insure the highest degree of safety.




**Magazine Priority Decision Matrix**

During Phase 1 (Mobilization and Site Preparation) ESI's team will conduct another assessment and update the magazine prioritization plan accordingly. ESI will also conduct periodic (at least quarterly) assessment of the storage magazines throughout the duration of the contract and amend the prioritization plan accordingly. The specific metrics and assessment process will be detailed in an ESI SOP which will be reviewed by others as required. ESI will notify the Louisiana Military Department of any amendments to the plan. ESI's Material Removal and Transportation Supervisor will be responsible for maintaining and reviewing daily with the project team. This magazine prioritization plan will be evergreen in that it will be continually amended to address priority hazards as they change throughout the course of the project.

In developing the initial proposed ESI magazine priority plan, ESI used the LMD magazine material condition assessment provided and have now included the recent DOD Technical Assistance Visit (TAV) conducted in December 2014. ESI has prioritized the CBI in Magazine 2471 in the #1 priority group and will assess the other magazines with M6 exposed to high humidity conditions for increased priority. Specifically, materials identified as stored outside, exposed to the elements, will be the placed in Priority 1 for destruction. Recognizing the DOD TAV recommended prioritizing super sacks, then drums, and lastly boxes; ESI has incorporated this within the Magazine Priority Categories 3 through 5. ESI did not use this within Magazine Priority Categories 1 and 2 because safety of the personnel and magazines due to magazine quantity distance violations and proximity of personnel exposure to Area L-4 takes priority for destruction of materials in magazines identified in ESI's Category 1 and 2.

### 1.18 Magazine Site Security

All magazine keys will be in the sole possession of ESI's Material Removal and Transportation Supervisor (Magazine Site Supervisor). The designated magazines for that day's work will be opened by the Magazine Site Supervisor. At the conclusion of all work activity in the magazines, the keys will be secured overnight in the ESI Range Control Building near the Destruction Site. During material removal operations the roadway will be blocked and signage posted signifying a restricted area on either side of the magazine being worked. At no time will magazines be left unattended while unlocked.

### 1.19 Transportation Approach

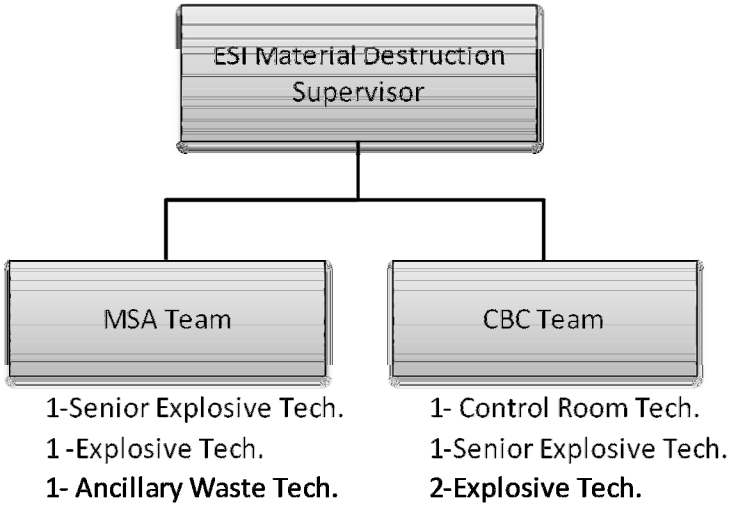
ESI's approach to transporting the materials from the magazines was designed around the most efficient equipment available using only DOT compliant and properly licensed/ endorsed drivers. ESI will require the use the DD Form 626 for documenting and recording operator daily serviceability inspections of transport vehicles and equipment and this will be a requirement in the ESI Transportation SOP. All transportation related operations will be in accordance with 49 CFR regarding the transportation of hazardous material. Understanding that multiple magazines will be unloaded daily supplying material to the destruction site; it was imperative that flexibility meet efficiency. Three (3) curtain-side enclosed trailers will be utilized to transport material. These curtain-side

trailers provide a secure all-weather means to transport the various forms of packaging associated with the materials. Empty trailers will be staged at each magazine while the Ottawa terminal tractor transports full trailers to the destruction site. Again, this tractor is unique in that it can quickly couple and uncouple from a trailer in minutes allowing us the flexibility needed for this project. Throughout the day the Ottawa tractor will be dispatched as needed to pick-up and deliver full and empty curtain-side trailers. Trailers coming from the magazine area in route to the destruction site will be manifested documenting the magazine number, type of package and quantity. This document will be retained as a record of the material removed from each individual magazine. This information is for accountability to document how much material was actually removed from each magazine throughout the course of the destruction activity. It is not intended for verification of invoicing. Net explosive weight used for invoicing purposes will be determined at the Area-I destruction site using a certified scale.

A designated and pre-determined route for material transportation will be strictly adhered to from each magazine area to the destruction site. This route will be reviewed and agreed upon with LMD prior to beginning the removal and destruction process.

### 1.20 Destruction Site Team

The destruction site will consist of two separate teams working simultaneously **24 hours/day seven (7) days per week.** ESI management will remain aware of and vigilant for worker fatigue. The ESI Safety and Health Manager is directly responsible to monitoring for operator error, mistakes, short cuts, or fatigue symptoms. If ESI worker fatigue is observed or considered to be an issue, the ESI Safety and Health Manager is responsible to alert the ESI Project Manager for action such as ESI worker time off, rest, change of position, or other compensatory measures. One team, referred to as the MSA team will prepare the materials for destruction. The other team, referred to as the destruction team will be responsible for loading and operating the CBC. All of these personnel will report to the material destruction supervisor who is ultimately responsible for all activity at the Area-I destruction site.




**Destruction Site Team**

**Material Staging Team**

***Senior Explosive Technician*** with experience providing supervision of all activity at MSA to include assessment of material stability and movement activity throughout the preparation process. Responsible for the documentation of materials received at MSA as well as the net explosive weight determination, and implementing task specific job safety analysis, (JSA).

***One (1) Explosive Technician /Forklift Operator*** licensed as an explosive handlers with experience handling explosives and operating a forklift. He will be assigned to remove material from the curtain-side trailers and prepare it for separation from packaging.

***One (1) Ancillary Waste Technician*** with experience operating a forklift responsible for proper segregation of packaging waste in preparation for off-site disposal or recycle/reuse.

**Contained Burned Team**

***Control Room Technician*** with experience operating process equipment responsible for operating the contained burn and pollution abatement system. Technician will have received formal training on all specifics of the CBC process and be capable of troubleshooting and resolving any process related alarms.

***Senior Explosive Technician*** with experience supervising all activity at the CBC to included loading and removal of the burn trays, cooling and ash removal, CBC initiation and PAS operation, maintenance and malfunction. Responsibilities include monitoring and implementing task specific job safety analysis, (JSA).

***Two (2) Explosive Technicians*** licensed as explosive handlers with experience handling explosives and operating a forklift. They will be assigned all tasks associated with transporting, loading, and preparing the material for the CBC.

Staffing plans will be continuously reviewed throughout the destruction processing stage with a focus on safety and operational effectiveness. The goal of this review is to limit the staffing in the MSA and CBC areas while maintaining maximum effective throughput.

### 1.21 Material Staging Area (MSA)

ESI will erect a covered MSA on the northern most portion of Area-I with an all-weather concrete working surface. This will greatly enhance the safety and efficiency of the destruction process. ESI will limit access to the minimum number of personnel and minimum amount of material essential for safe and efficient operations. ESI will be able to safely segregate the materials from packaging and prepare the propellant material for destruction. ESI will be able to limit excess waste handling and determine net explosive weights as required for invoicing.

This all-weather staging area also allows us to use the existing roads within the fenced area of Area-I. ESI considered a lightning protection system (LPS) for the MSA, however this is a temporary (<1 year) operation which is to be removed after less than one year of operation. A permanent installation of a lightning protection system which has to be installed, tested, and maintained for this temporary (<1 year) MSA operation is not justified. In lieu of a permanent LPS, ESI will use an effective lightning warning system and personnel evacuation to Inhabited Building Distance detailed in an ESI SOP to meet DOD lightning protection requirements. In short, once the material is segregated and weighed it will be sent for destruction in pre-weighed and measured bins for direct introduction to the CBC destruction unit. The benefits of using this MSA are:

- Centralized packaging material removal under covered area
- Flexible to accommodate the variety of package configurations (Super-sack, Drum, Box)
- Allows for extremely accurate calculation of net explosive weight through the certified platform scale as described below
- Allows for waste and recycle materials to be processed during inclement weather condition
- Serves as central point for recycle/reuse material minimizing handling in which ESI will use DODI 4140.62 Management and Disposition of Materials Potentially Presenting an

Explosives Hazard requirements detailed in an ESI SOP for determining material which can be recycled/released for public use.

- Larger volumes of material can be safely handled by equipment rather than personnel.

ESI will erect an all-weather sixty (60) by one hundred twenty (120) foot structure to be removed at the conclusion of the project. This covered structure has fourteen (14) foot vertical sides and a peak height of twenty (20) feet to accommodate the material handling equipment such as forklifts, roll-off dumpsters, reuse-recycle equipment, and certified platform scales.


**Example of Temporary Industrial Structure**

The material destruction supervisor will oversee all tasks associated with the destruction site to include the MSA and the destruction unit. The MSA team will be led by a Senior Explosive Technician following these sequences of events in preparing the material for destruction:

1. Explosive technicians will inspect the material (M-6 & CBI) once the curtain-side trailer is staged.
2. The explosive technician will direct the forklift operator to remove the palletized materials from the trailer and transport them under the covered material staging structure.
3. Once under the covered structure, the material staging team will remove the packaging from the cardboard boxes, drums and super-sacks. The receiving hopper is designed to accept material at three separate un-packing stations, super-sacks, drums and boxes.
4. The forklifts will place pallets of material by category onto the correct un-packing station and remove the packaging to the recycling/waste area.

5. Each un-packing station will use appropriate grounding and bonding techniques on personnel/hoppers/transfer bins to reduce potential for static generation, static build-up, and static discharge in the proximity of material being handled.

**Super-sack station:**

a) A forklift will place a palletized super-sack near the designated receiving hopper for the banding and top tray to be removed and the super-sack to be inspected.

b) Explosive technicians will connect the choker straps on the forklift to the super-sack and position over the receiving hopper to allow access to the funnel sewn into the super-sack. The super-sack funnel is designed to restrict the flow and prevent the uncontrolled release of material.

c) Explosive technicians will complete the empting of the super-sack into the receiving hopper.

d) Once empty, explosive technicians will remove the super-sack from the choker strap on the forklift and invert the sack inside out to verify that it is completely empty. Additional visual inspection will be conducted to comply with DOD regulations ensuring that a 200% inspection is completed on each super-sack package.

e) Each super-sack package will be removed and stored in a roll-off container awaiting profiling and off-site disposal.

f) Explosive technicians will remove the remaining exterior packaging and pallet to the appropriate recycle/reuse container.

**Box Station:**

A critical component for the box station is the PalletPal 360™. It is a spring actuated level loader which makes unloading pallets of boxes faster, safer and easier. It uses a system of springs and shock absorbers to lower and raise loads as boxes are removed from pallets. A turntable allows nearside unloading of pallet loads up to 4,500 lbs.

a) All pallets containing boxes are designed to be placed on the spring actuated level loaders maintaining a working height of approximately forty-two (42) inches, specifically designed to minimize worker fatigue and prevent injury.

b) The box station will be positioned next to the receiving hopper.

c) A forklift will place a full pallet of thirty-six (36) boxes onto the level loaders which are staffed by two explosive technicians. This level loader will automatically adjust to keep the boxes at the most efficient working height.

d) The boxes will be separated and the material will be placed into the receiving hopper.

e) Anti-static bags from each box will be inverted to insure complete removal of material and undergo a 200% DOD compliant inspection before being removed for storage prior to profiling and off-site disposal.

f) Pallets and cardboard will be removed to a designated area destined for off-site reuse/recycle.

**Cardboard Drum Station:**

a) Explosive technicians will un-package the upper pallet, remove vertical banding straps and the cardboard drum lid, placing the anti-static bag around the top of each cardboard drum.

b) Using the specially designed drum area near the receiving hopper the technician will rotate the drum to slowly empty the material into the receiving hopper.

c) The emptied cardboard drums will be returned to their original up-right position and the anti-static bag removed from each cardboard drum ensuring all material is placed into the receiving hopper. All anti-static bags will be fully inverted and inspected according to DOD regulations consistent with 200% inspection prior to removal for profiling and off-site disposal.

d) Pallets, cardboard drum and metal band will be removed to a designated area destined for off-site reuse/recycle.

**Receiving Hopper:**

A receiving hopper capable of accepting material from all three variations of packaging configurations will be located under the covered material staging area. All components will be bonded and grounded in accordance with DOD standards. The receiving hopper will be the transition point for the net material to fill the transfer bins which will be weighed on a certified platform scale prior to movement to the CBC for destruction.

**Transfer Bin:**

ESI's transfer bins are center-flow containers that are the most efficient, versatile containers available to transport and dispense granular/pelletized materials. The smooth, funnel-shaped interior has a 35° angle for efficient flow of the M-6 & CBI contents into the burn trays for the CBC destruction unit. They are designed to completely empty all contents. ESI's approach is to use these transfer bins to maintain a continuous flow of material into burn trays for destruction in the CBC. ESI will ground and bond transfer bins while product is being poured or while loaded and stationary awaiting transportation to reduce the potential for static generation, static build-up, and static discharge in the proximity of material being handled or awaiting transportation for destruction.

**Transfer Bin**

**Features and Benefits:**

- Side access door allows one person to control the flow and safely remove all or part of the contents
- Tight-fitting lid provides extra protection against contaminants
- Strong, reinforcing crossbars evenly distribute load
- Latches lock ring securely to the base
- Solid oak base rails provide added traction for forklift tines
- Structural foam molded HDPE construction resists impact
- Will not rust, peel or splinter
- Use with temperatures of -20˚ to 120˚ F

**Certified Floor Scales with Printable weigh ticket:**

Two (2) floor scales in accordance with - National Type Evaluation Program (NTEP) approved and certified for verification of quantities [reference National Institute of Standards and Technology (NIST), Handbook 44 Specifications and Tolerances and Handbook 130 – Uniform Weights and Measures], will be used to obtain net explosive weights for invoicing.

These certified low profile floor scales measure six (6) foot by six (6) foot and have the capacity to weigh up to 10,000 lbs. The scales will generate both a printed weight ticket with digital back-up. A close circuit camera will record these two (2) scales for further verification of material weighing.

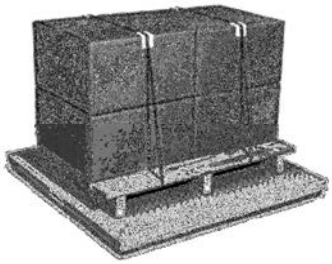
**Net Explosive Material Weight Approach**

ESI will report the net explosive weights destroyed on a daily basis to the Louisiana Military Department Project Coordinator. Net weights of material destroyed (without packaging and pallets) will be determined using the following process.

At the MSA inside the Destruction Site at Area-I, material either M-6 propellant or Clean Burning Igniter (CBI), will be carefully transferred from the storage container (super sack, box or drum) into a receiving hopper. This receiving hopper will be used to transfer the target amount of material into one transfer bin. The empty pallets and packaging are inspected and stored in designated areas and/or containers pending final disposition.

The transfer bins are placed one at a time onto a certified floor scale, calibrated in accordance with manufacturer instructions, large enough to hold the bin while their weight is tarred using

the scale controls. The resulting weight (tare weight) prior to loading material will be zero (0) lbs. The final weight on the certified low profile floor scale will represent the weight of the material (net weight). The net weight of the material is electronically recorded; a weight ticket is produced showing the weight, date and other information. This information is incorporated into a report that is presented to the Louisiana Military Department Project Coordinator. The data will also be compiled into monthly reports and into the final report once all activities have been completed. Additionally, a closed circuit video camera system will record the weighing process for additional verification.



**Certified Scale**

The transfer, collection and loading process is continued through the day to sustain feed to the CBC destruction unit. Transfer bins will be used to fill burn trays slated for introduction to the CBC.

## House Keeping

ESI will conduct site clean-up actions on a daily basis to reduce the environmental footprint at the Area-I Destruction Site. Any loose material spilled on the concrete floor will be swept up using non-sparking tools and placed in the receiving hopper for addition to the CBC for destruction. As a result of this project, recycle/reusable waste will be accumulated each day during normal work operations. This material includes cardboard boxes, drums, super sacks, shrink wrap, metal banding straps and pallets. ESI's covered MSA is specifically engineered to account for these waste items. As waste is generated, it will be removed to the correct designated location where it will be inspected, segregated, and placed in roll-off bins for off-site disposal or recycle/reuse. This process will provide for a cleaner working environment at the site, as well as, increase the overall efficiency on a daily basis.

## Off-site Shipments

All off-site shipments of any materials will be characterized for RCRA hazardous waste designation; and those materials that are designated as RCRA hazardous waste will be

accompanied by a RCRA manifest at all time during transport off-site. All off-site shipments will only be transported by transporters with active EPA identification numbers, in DOT and ATFE approved vehicles and containers using proper manifesting.

### 1.22 Contained Burn Chamber Procedure

One transfer bin (Center-flow hopper) containing 880 lbs. of material will be used to fill one "cold" tray. Prior to transferring any of the material the explosive technician will verify the temperature of the tray to be less than 200°F. Also, this explosive technician will make sure that the tray is grounded and bonded prior to preparing to transfer the material. Once the tray temperature and bonding/grounding are verified then the technician will position one full transfer bin over the middle of the tray no more than one foot above the lip of the tray. The bottom chute on the transfer bin will be opened gradually releasing the material into the burn tray.

The empty the transfer bin will be removed, and then the technician will use a non-sparking rake to level out the material in the burn tray. The burn tray will then be disconnected from the grounding/bonding and prepared for introduction to the CBC.

1. LIVE BURN TRAY PLACEMENT
    a. Forklift will position burn tray on support shelf (ensuring that the tray is never raised above safe operating height) of the CBC.
    b. Once the burn tray is placed onto the shelf technicians will place the thermal initiator onto the tray
    c. The technician will connect the thermal initiator wires to termination points on the CBC; (the ignition circuit remains both unarmed and open at this stage with a redundant series of interlocks) ignition circuit interlocks include:
        - autoclave door interlock: the ignition circuit cannot be armed or physically completed until the autoclave door is in the closed and locked position
        - PLC interlocks: the ignition circuit can only be armed at the control room, once the PLC confirms that all critical operating conditions are satisfied (autoclave door position, autoclave door locked, PAS system parameters within limits, chamber temperature and pressure within limits)
        - Key switch: the circuit can only be armed by the operator key switch after the control room operator verifies that all personnel are clear and when the above conditions are satisfied

- Timer interlock: a 30 second timer is activated when the ignition circuit is armed, which resets and disarms the circuit, if the control room operator does not initiate the firing current within this time period

d. E-stop interlock: An E-stop interlock disables the ignition circuit if any in a series of E-stops is activated at any time throughout this process

e. Technicians will report to the control room with the arming key, which has been in their possession throughout the CBC loading process and controls the control room arming sequence. This CBC loading and arming procedure, along with safety controls, will be detailed in an ESI SOP for review by others as appropriate. The ESI Safety and Health Manager and ESI Supervisors will routinely review and inspect this critical operation for ESI operator compliance and any potential human errors.

2. REMOTE LOADING SEQUENCE

a. Control room technician will verify that the CBC Area-I is clear through visual observation as well as through video monitor.

b. Control room technician will start the loading sequence remotely with an electronic PLC command, the following sequence will occur

- The loading shelf will move forward on the trolley system to place the tray inside the thermal treatment chamber (TTC)
- The autoclave door will lock in place, which seals the chamber and completes the ignition circuit
- The Process Logic Controller (PLC) will verify that the chamber is sealed

3. ARMING SEQUENCE

a. Control room technician will check and arm the ignition circuit

- Continuity of the electric ignition system is verified remotely by the operator via the PLC
- The PLC will automatically verify that all systems are functioning correctly
- The operator will arm the ignition circuit by key switch
- A warning horn/light will activate automatically
- The ignition circuit arming is on a safety timer

4. IGNITION/BURN SEQUENCE

a. Control room technician will remotely ignite the batch via command to the firing control panel

- Burning of propellant will occur inside the thermal treatment chamber
    1. PLC monitors burn conditions and alerts control room technician to any anomalies

2. PLC indicates when the burn cycle is complete
3. PLC verifies that pollution abatement system is functioning properly and TTC gases are ready to be treated through the pollution abatement system

5. TTC VENT and GAS SCRUBBING SEQUENCE
    a. Control room technician begins vent cycle via command on the PLC control panel
    b. TTC vent valve opens and meters gas flow to the pollution abatement system (PAS)
        - Gases are drawn through the pollution abatement system and out the stack by the induced draft fan (this maintains a negative pressure throughout the PAS, downstream of the TTC, which prevents leakage of untreated emissions)
        - Operating conditions throughout the pollution control system are continuously monitored by the PLC (if a fault occurs the vent valve closes to stop release of any emissions)
        - When the pressure in the TTC is below atmospheric the PLC notifies the control room technician that the venting cycle is complete and the loading door can be opened
6. REMOTE UNLOADING CYCLE
    a. Control room technician unlocks and opens the loading door via command to the PLC control panel
        - Autoclave Door Unlocks (an interlock prevents this from happening if there is any positive pressure in the chamber)
        - Loading shelf retracts from chamber which allows the technician to confirm empty burn tray condition via CCTV
    b. Control room technician gives all clear for personnel to approach the loading system.
    c. This CBC all clear procedure, along with safety controls, will be detailed in an ESI SOP for review by others as appropriate. The ESI Safety and Health Manager and ESI Supervisors will routinely review and inspect this critical operation for ESI operator compliance and any potential human errors.
7. POST BURN INSPECTION AND TRAY REMOVAL
    a. Technicians inspect and unload the empty burn tray via forklift and place the tray at the designated cooling area underneath the covered loading area at the CBC. The trays will be placed in specific cooling staging locations and rotate throughout the project to ensure cool trays are used for loading.
    b. Technicians verify that the loading shelf temperature is below a safe limit, with an IR Temperature gun.

## Confined Space Entry

Confined space entry is not required during normal operations. If it is required for personnel to enter the thermal treatment chamber or pollution control equipment for inspections or maintenance, a formal confined space entry procedure will be strictly followed. This will include door watch and air monitoring to allow entry by the operator in to the chamber through the 6 foot diameter loading doorway.

## Lock out/ Tag Out

The system is equipped with disconnect switches for all powered equipment to allow operators to perform lock out/tag out before performing maintenance on any powered equipment. This also includes the ability to block and lock out/tag out the fuel train to the afterburner.

## Ash Handling

The design of the CBC is engineered to produce minimal ash (<0.2% by volume) which will be collected for profiling and off-site disposal. At the completion of a burn cycle the tray will be blown out with compressed air to remove residual ash from the tray to inside the chamber floor. If any ash remains in the tray it will be removed to a covered "cooling" area where the ash will be collected. The ash will be placed into a suitable covered container, sampled and profiled for disposal. Most of the ash will be collected inside the thermal treatment chamber. It is expected that removal of ash from the thermal treatment chamber will only be required once at the completion of the project. This ash will be removed using an industrial vacuum equipped with an extension wand to allow cleanout to be performed without personnel entry. This ash material will undergo hazardous waste determination classification to ascertain if the residues will be managed as RCRA hazardous waste or not. Based on ESI's experience this ash is expected to be classified as Non-Hazardous and suitable for landfill.

All ash collected in the PAS is automatically collected into sealed drum containers for subsequent characterization and disposal. Operators will monitor the ash level in these drums and when a drum is more than 75% full it will be sealed and replaced by an empty drum. Based on experience the drums will likely only require replacement every 1-3 months. Material from the full drum will undergo the hazardous waste determination classification as discussed above and is expected to be non-hazardous waste.

## Reports

ESI will submit a written progress report to the LMD concerning actions undertaken pursuant to the implementation of the contract resulting from this contract the 18th day after the date of

receipt of EPA's approval of the Work Plan and thereafter, every 21st day after the original report until issuance of Notice of Completion of Work or Final Acceptance, unless otherwise directed in writing by the OSC. These reports shall describe all significant developments during the preceding period, including the actions performed and any problems encountered, analytical data received during the reporting period, and the developments anticipated during the next reporting period, including a schedule of actions to be performed, anticipated problems, and planned resolutions of past or anticipated problems.

ESI will maintain and provide a daily progress report that includes metrics, such as amount/volume/weight of material destroyed during that day, total volume/weight of material destroyed, total magazines completed, system key operating parameters, community and stack emission monitoring results, and health and safety concerns. Monthly in progress review meetings will be conducted to measure disposal progress.

### 1.23 Emergency Response and Evacuation Plan

ESI will prepare all employees for handling emergencies and for safe site evacuation if needed. Based on the nature of work, this is a crucial component for all ESI employees. While the ESI goal for the duration of this project is "Zero" accidents and/or emergencies, ESI cannot control every condition and must be prepared to respond and evacuate the work sites if emergency conditions arise.

During Phase 1 (Mobilization and Site Preparation) ESI will:

- Conduct training for emergency response and evacuation to include the Camp Minden emergency evacuation procedures, as well as the lightning evacuation requirements of DOD 4145.26-M, C3.7.
- Conduct and document emergency response and evacuation procedures for its employees involved with this project during the training.
- Develop an SOP which covers the lightning protection process, safe distances, and time requirements for safe shutdown of Magazine, Transportation, Material Staging, and Destruction Unit operations pursuant to DOD 4145.26-M, C3.7.2..
- Conduct and assess an ESI site wide emergency response drill and adjust ESI's SOP accordingly.

ESI's plan for this project includes emergency response and site evacuation that are simple and easy to understand for all ESI employees. The ESI Range Control Facility will be the central key

facility for all ESI functions to start and end each day. It will also be ESI's central personnel evacuation control point for emergencies and site evacuation.

The ESI Health and Safety Manager, as well as the other ESI Managers, will advise the ESI Project Manager on emergencies and site evacuation, however the ESI Project Manager is the single authority to call for a site wide evacuation and all ESI personnel will report to the ESI Range Control Facility for accountability and further instructions. This allows us to know that all ESI personnel are accounted for and insures any further instructions on evacuation come directly from the ESI Project Manager at the time of the emergency.

ESI's primary communication with each Magazine Team, Truck Driver, and the Destruction Site Area personnel will be two way radios. The radio communications will be tested each morning at each site. If site evacuation is required, this will be directed by the ESI Project Manager via the two way radios. At the time of an emergency event, all ESI personnel will be directed to evacuate their work sites (Magazine Area, Trucks & Destruction Site) and proceed immediately to the ESI Range Control Facility. The only exception is loaded trucks in route to the Area-I Destruction Site.

In the event of lost communication between sites at the time of an evacuation order, ESI will send a messenger to direct personnel evacuation to the ESI Range Control Facility.

During ESI's daily Job Safety meetings, employees will be notified of pending weather and advised of the daily operations according to the local weather forecast. In addition, the ESI Health and Safety Manager will have the responsibility of monitoring the weather station at the ESI Range Control Facility; as well as, local weather forecasts, monitoring lightning strike software, and using a hand held lightning warning instrument to collect data for advising the ESI Project Manager. The ESI Health and Safety Manager will be responsible for monitoring severe weather and advising the ESI Project Manager when to initiate safe shutdown and evacuation procedures. The Area-I Destruction Site, whenever possible, will be alerted 60 minutes prior to adverse weather approaching. As required, the Area-I Destruction Site will then stop loading and will attempt to follow safe shutdown procedures and safely initiate any material already loaded in the CBC destruction unit.

All ESI personnel will receive training on first aid and initial fire extinguisher use to handle initial response to small fires such as vegetation, forklift, tractor or combustible material not involving explosives material. If explosives material is involved in a fire, employees will be trained to evacuate to a safe distance and communicate the conditions via two way radio. NEVER FIGHT FIRES INVOLVING EXPLOSIVES.

In the event of an accident, ESI personnel will render aid and then call via two way radio to the ESI Range Control Facility for emergency response. The ESI Health and Safety Manager will be responsible for establishing and updating the emergency call list in the HASP and ESI Range Control facility. ESI will have a designated POC in the ESI Range Control Facility operating the two way radio as central communications and will be assigned to contact emergency responders. The ESI Health and Safety Manager and ESI Project Manager will serve as a back-up to call for emergency responders.

If sufficient time for a safe evacuation to the ESI Range Control Facility does not exist, then employees will be trained to radio the Range Control Facility of their location. Employees should shelter in a vehicle in the event of an electrical storm or move to a ditch or depression away from trees if a tornado or high winds present an immediate danger.

**Inclement Weather**

During the pre-work safety meeting weather conditions will be reviewed each day. The magazine team will be equipped with a lightning strike detector meter capable of detecting lightning within 40 miles. Additional details are found in our Health and Safety Plan, (HASP). All work will cease during inclement weather where the potential for lightning strike is prevalent.

In the event of sever inclement weather during the transportation from L-1, L-2 or L-3 magazine areas the truck will park at the dock area in L-2. The driver will immediately secure the truck, lock the gate and be transported with the magazine team to the range control facility until an all clear is sounded. If sever inclement weather happens while transporting from the L-4 magazine area then the driver will secure the truck inside the fenced area at L-4 at the greatest available distance from stored "full" magazines as possible. The driver again will immediately evacuate the area to the Range Control facility and await an all clear before returning to the truck.

**Road Closures**

One of the advantages of using Area-I for the material destruction site is that there is no required road closures needed which would impact other contractor activity or base operations. During Phase I (Mobilization & Site Preparation), ESI will erect a steel gate on the road to Area-I near the intersection with Java road. This gate will control access to the ESI Destruction Site inside Area-I and will be positioned near the ESI Range Control Facility. All

traffic entering the "Destruction Site" at Area-I will be required to come through this gate and report in to "ESI Range Control Facility" located just inside the gate.

This greatly enhances the security of the destruction operation and does not impact normal operations at Camp Minden outside of Area-I. It minimizes the impact of this project to other contractors and the LMD on Camp Minden. Also, it eliminates the unnecessary closure and opening of roadways through the day and provided 100% security and limited site access required during material destruction operations.

**ESI Communication Plan**

Two-way radio will be the primary means of communication between ESI work sites and personnel. As a back-up means of communication, ESI will use cell phones for select management and supervisory personnel, portable air horns for evacuation notification, and red flag for burning operations in progress. The thermal initiators are electrically initiated so radio frequency measures will be taken as specified in ESI SOPs when the thermal initiators are being transported or handled by ESI personnel.

## Phase 3 - Site Restoration and Demobilization

### 1.24 Environmental and Site Recovery and Restoration

ESI will submit a Post-Removal Site Control and Implementation Plan specifying the objectives, implementation, monitoring, inspection, reporting, remediation, and restoration. This plan will be subject to the Louisiana Military Department, and USEPA approval. The plan will follow all key environmental and compliance considerations including those associated with the Louisiana Department of Environmental Quality (LDEQ) Risk Evaluation-Corrective Action Program (RECAP).

As required by LAC 33:V.3507 (Closure Performance Standard), upon completion of the treatment of all materials, ESI will identify and clean up any releases (of hazardous waste, hazardous waste constituents, leachate, contaminated rainfall, or waste decomposition products), to the soil, groundwater, or surface water from equipment, handled products, and stored/treated waste. To satisfy the closure requirement ESI will demonstrate compliance with applicable closure performance standards or alternative risk-assessment-based closure in accordance with LAC 33:I.Chapter 13 (LA RECAP) to include:

1. Determining the baseline concentration of each expected constituent in all medias for later comparison to applicable closure performance standards or alternate risk-assessment-based closure standard (RECAP).
2. Developing a sampling plan to be followed after all destructive treatment activities conclude to determine whether a release occurred. ESI will set action levels above which will be considered a release and what remedial actions; if any, will be taken in response to a demonstrated release.

ESI will implement this plan and conduct Post-Removal Site Control activities until such time as the Louisiana Military Department and the USEPA determines that no further Post-Removal Site Recovery and Restoration is necessary. ESI will provide the Louisiana Military Department and the USEPA with documentation of all Post-Removal Site Recovery and Restoration measures.

Once all material identified by the Military Department, State of Louisiana (Military Department) has been removed and properly destroyed through on-site thermal destruction treatment and off-site waste disposal of inert packaging, ESI will begin the project closeout process. This will include:

- Removal of all equipment and material mobilized, installed and utilized to complete the project;
- Restoration of the areas in accordance with the requirements of the Military Department and,
- Submittal of a Project Report.

The closeout process will begin with the final removal of any remaining packaging (super sacks, cardboard boxes, metal drums, fiber drums, pallets, shrink wrap, and any other associated materials) derived from the material removal process, as well as the removal of any remaining ash derived from the burning of the material. Removal of this material and waste will follow the procedures as ESI established, initiated and followed, as well as approved by the Louisiana Military Department and the USEPA at the beginning of the project. In removing this material and waste, ESI will perform hazardous waste characterization and disposal of all waste in accordance with State and Federal solid and hazardous waste regulations. All off-site transportation of hazardous waste will be performed in conformance with the USEPA Resource Conservation and Recovery Act (RCRA) and U.S. Department of Transportation (USDOT) requirements. Items no longer required including: heavy equipment, storage containers, receiving hoppers, transfer bins and burn trays will be cleaned of any trace of material or waste and inspected and certified as inert before removal from the site and facility.

Areas around the storage magazines will be inspected for damage (rutting, etc.) and will be compared to photos and notes made prior to any removal efforts were initiated. Any inconsistencies, deficiencies or issues not present before the removal process began will be corrected in an effort to return the magazine areas to a level consistent with its original condition. These final inspections will occur during the life of the project as magazines have been emptied, cleaned, inspected, returned to the Military Department and accepted by the Military Department as clean.

ESI will restore the Area-I Destruction Site to a level consistent with its original condition unless otherwise directed by the Military Department. This will start with the removal of the destruction unit, concrete and crushed rock area pad, any residues from the M6 and CBI munitions, other solid waste generated during the project (super sacks, cardboard boxes, metal drums, fiber drums, pallets, shrink wrap, ash and other associated materials), equipment, and any other ignitable materials. Once this step is complete post-removal sampling will be completed per the site Quality Assurance Sampling Plan, (QASP), following all quality control procedures set forth in the site Quality Assurance Project Plan (QAPP), as well as the Post-Removal Site Control and Implementation Plan. All of these plans will be submitted for review and approval as required by the contract.

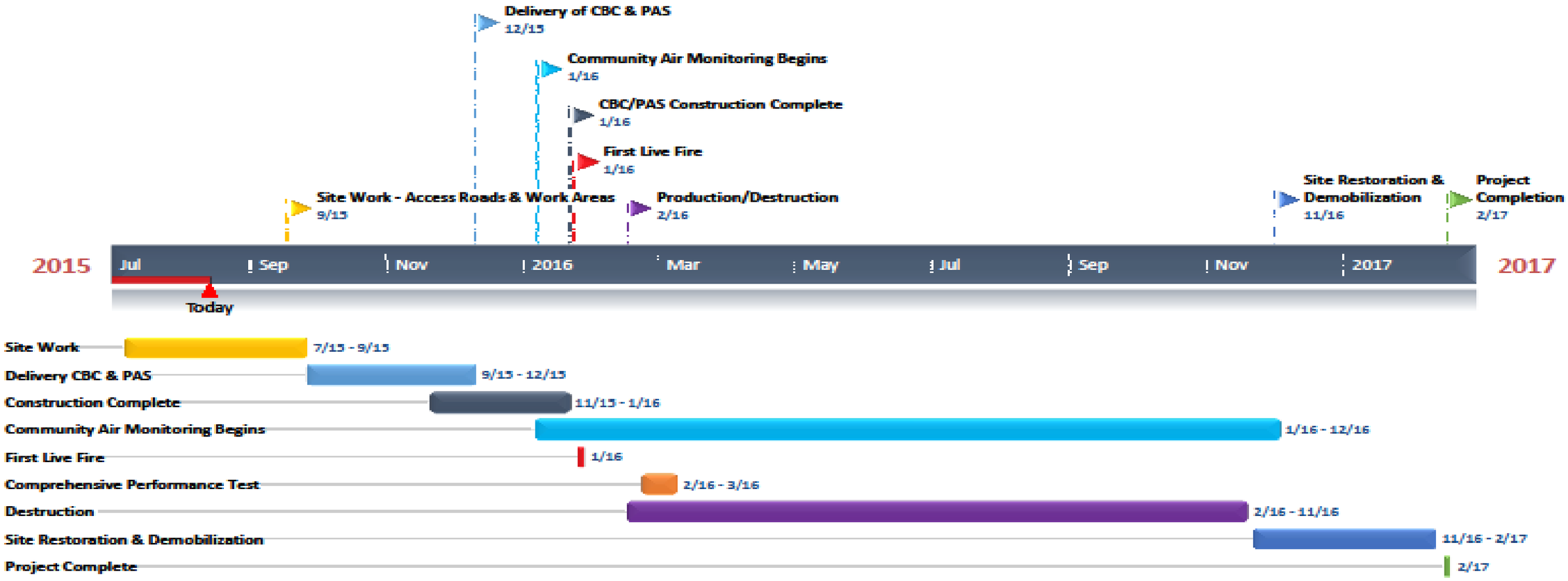
### 1.25 Final Report and Project Closeout

ESI will provide a document as a final report within fifteen (15) days after the completion of all work required by the Military Department. This Final Report will be provided to the Military Department for submittal to the USEPA for USEPA review and approval, and will summarize the removal operation and the actions taken to comply with the implementation of the contract. The final report will conform to the OSC Report requirements of the National Contingency Plan (Title 40 Protection of the Environment, Part 300 National Oil and Hazardous Substances Pollution Contingency Plan, §300.165 OSC reports).

The plan will detail the actions taken by ESI to remove and destroy all the material identified by the Military Department. The report will include quantities and types of materials removed off-site as well as destroyed of on-site through treatment, details of removal and destruction options considered for those materials, a listing of the ultimate disposition and destination of those materials, analytical results of all sampling and analyses performed, certificates of destruction listing quantity and type of material destroyed, and appendices containing all

relevant documentation generated during the removal action (manifests, invoices, bills of lading, contracts, permits, QAQC reporting, inspection reports, Health & Safety reports, etc…).

## SCHEDULE


Delivery of CBC & PAS
12/15
Community Air Monitoring Begins
1/16
CBC/PAS Construction Complete
1/16
First Live Fire
1/16
Site Work - Access Roads & Work Areas
9/15
Production/Destruction
2/16
Site Restoration & Demobilization
11/16
Project Completion
2/17
2015
Jul
Sep
Nov
2016
Mar
May
Jul
Sep
Nov
2017
2017
Today
Site Work
7/15 - 9/15
Delivery CBC & PAS
9/15 - 12/15
Construction Complete
11/15 - 1/16
Community Air Monitoring Begins
1/16 - 12/16
First Live Fire
1/16
Comprehensive Performance Test
2/16 - 3/16
Destruction
2/16 - 11/16
Site Restoration & Demobilization
11/16 - 2/17
Project Complete
2/17

**MAPS**

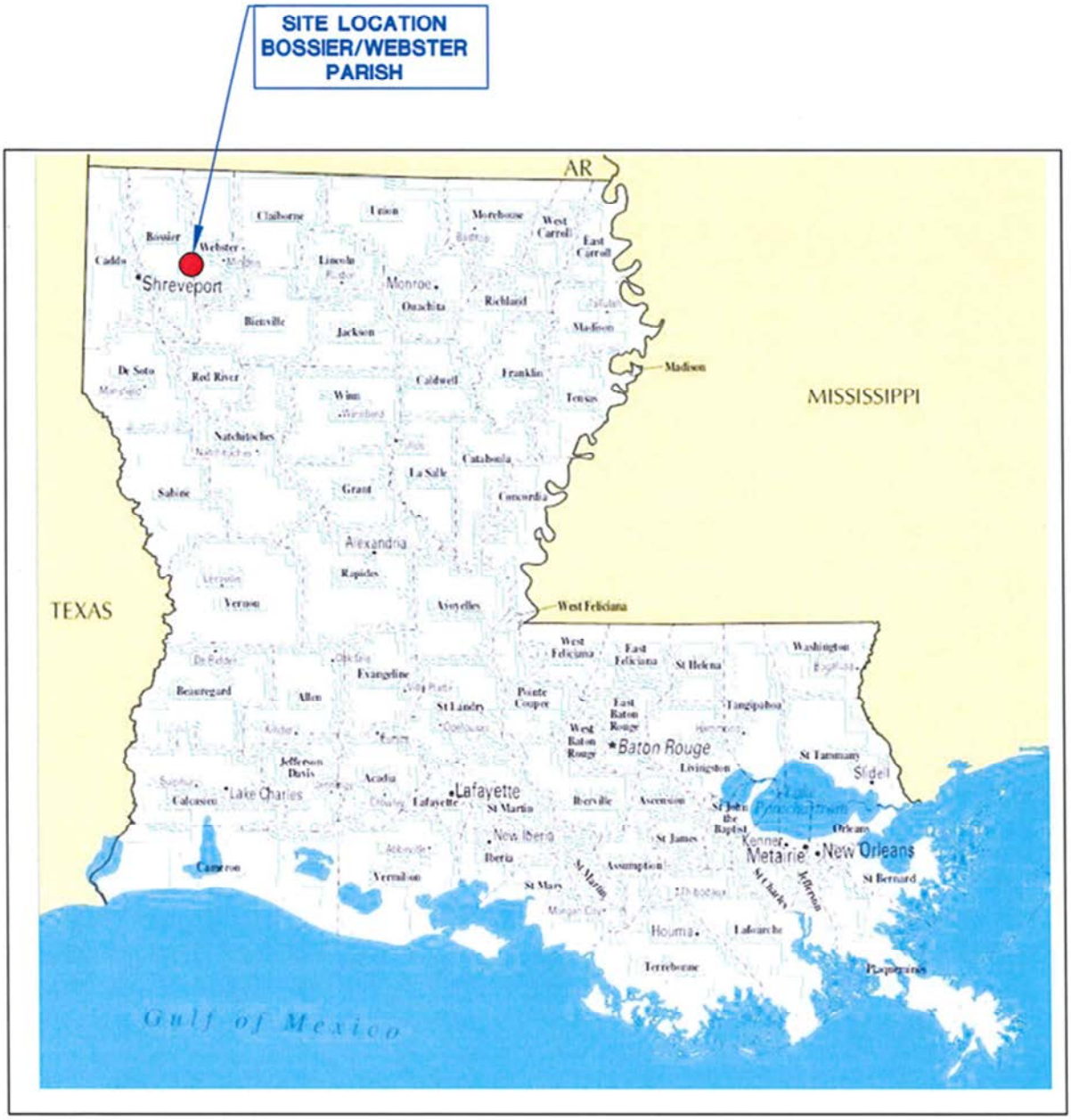



**FIGURE 1**

**SITE LOCATION MAP**

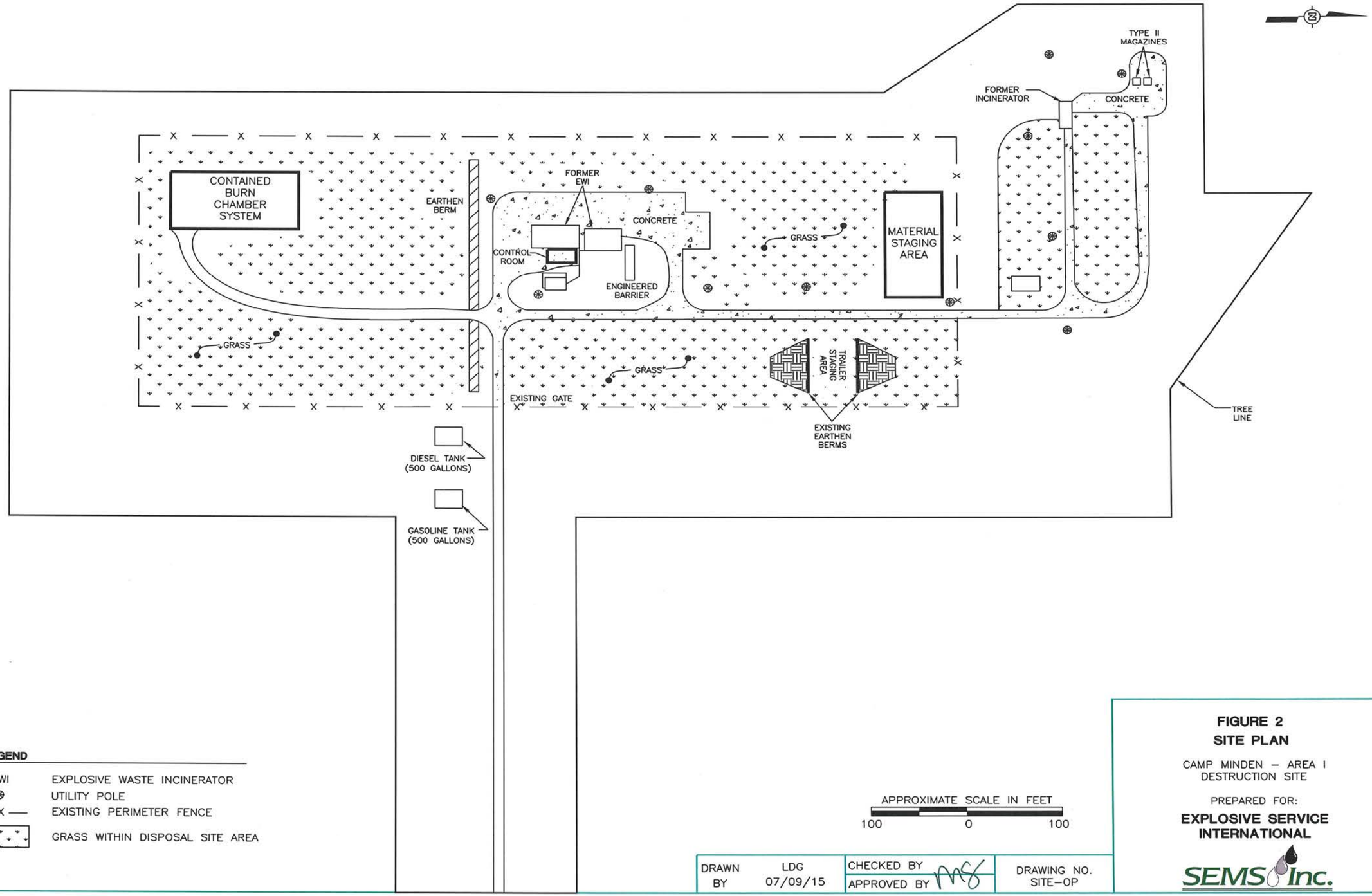
CAMP MINDEN – AREA I
DISPOSAL SITE

PREPARED FOR:

**EXPLOSIVE SERVICE INTERNATIONAL**

SEMS Inc.

| DRAWN BY | LDG | CHECKED BY | | DRAWING # SITE LOC |
|---|---|---|---|---|
| | 07/09/15 | APPROVED BY | | |




**LEGEND**

| | |
|---|---|
| EWI | EXPLOSIVE WASTE INCINERATOR |
| ⊛ | UTILITY POLE |
| — X — | EXISTING PERIMETER FENCE |
| | GRASS WITHIN DISPOSAL SITE AREA |

APPROXIMATE SCALE IN FEET

100 0 100

| | | | |
|---|---|---|---|
| DRAWN BY | LDG 07/09/15 | CHECKED BY<br>APPROVED BY | DRAWING NO. SITE-OP |

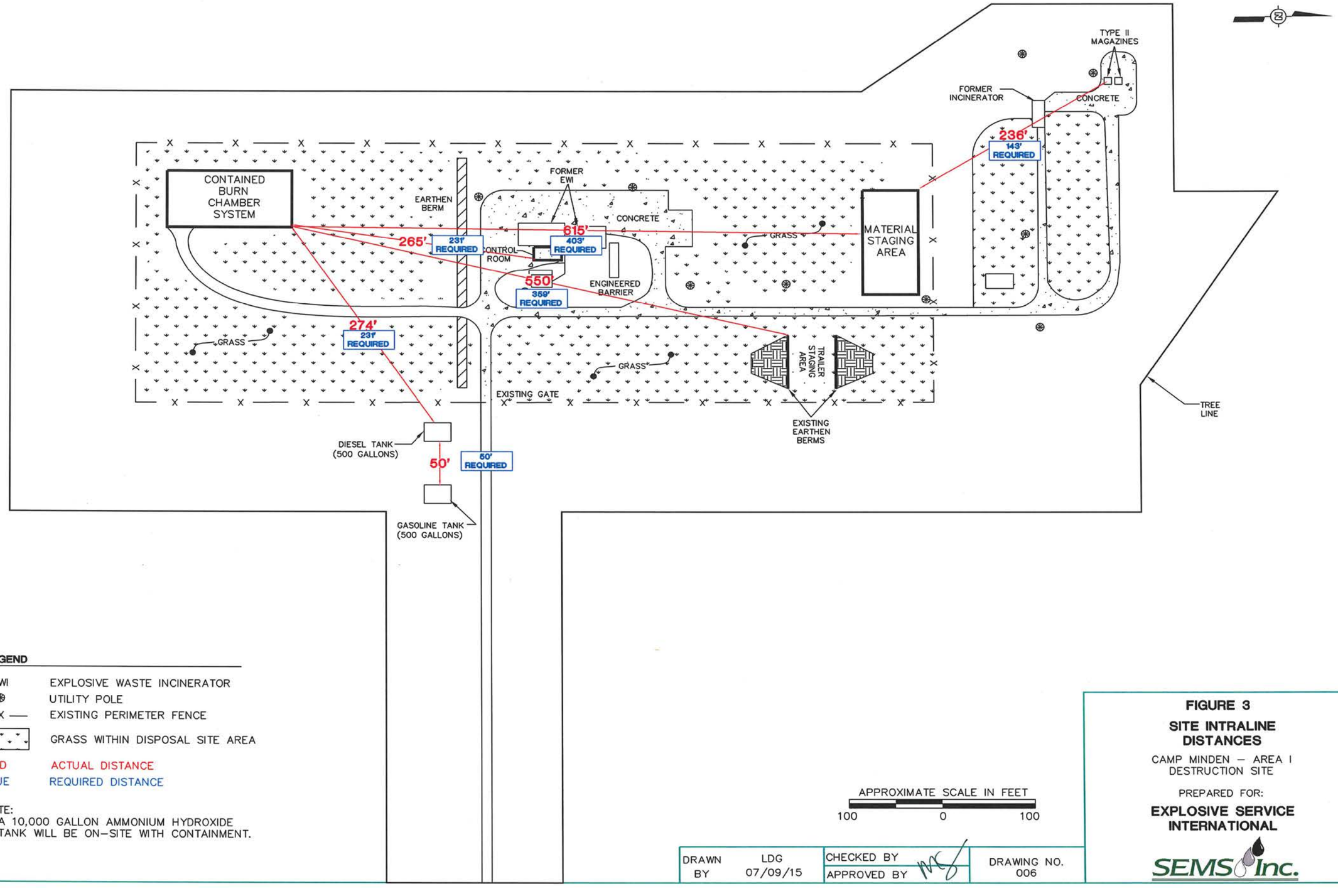
**FIGURE 2**
**SITE PLAN**

CAMP MINDEN – AREA I
DESTRUCTION SITE

PREPARED FOR:

**EXPLOSIVE SERVICE INTERNATIONAL**

SEMS Inc.




**LEGEND**

| | |
|---|---|
| EWI | EXPLOSIVE WASTE INCINERATOR |
| ⊛ | UTILITY POLE |
| —X— | EXISTING PERIMETER FENCE |
| | GRASS WITHIN DISPOSAL SITE AREA |
| RED | ACTUAL DISTANCE |
| BLUE | REQUIRED DISTANCE |

NOTE:
A 10,000 GALLON AMMONIUM HYDROXIDE TANK WILL BE ON-SITE WITH CONTAINMENT.

APPROXIMATE SCALE IN FEET
100 0 100

| | | | |
|---|---|---|---|
| DRAWN BY | LDG 07/09/15 | CHECKED BY<br>APPROVED BY | DRAWING NO. 006 |

**FIGURE 3**

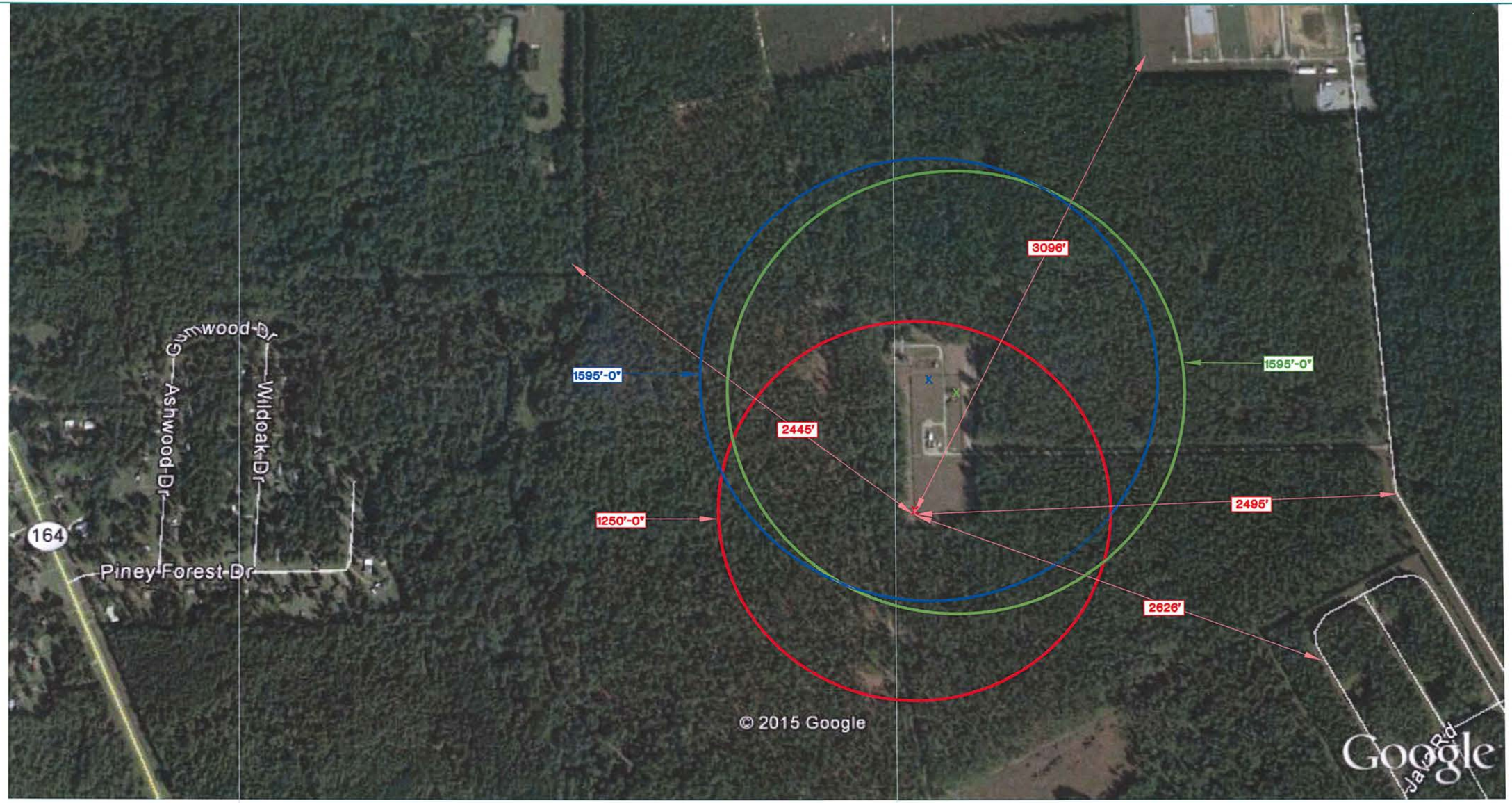
**SITE INTRALINE DISTANCES**

CAMP MINDEN – AREA I DESTRUCTION SITE

PREPARED FOR:

**EXPLOSIVE SERVICE INTERNATIONAL**

SEMS Inc.




NOTE:

1) ARC IN RED FOR 1,250 FOOT INHABITED BUILDING EXPLOSIVE SAFETY ARC. THE ARC IS FROM THE CONTAINED BURN CHAMBER SYSTEM AND IS BASED ON 880 LBS HAZARD DIVISION 1.1 MATERIAL.
2) ARC IN BLUE FOR 1,595 FOOT INHABITED BUILDING EXPLOSIVE SAFETY ARC. THE ARC IS FROM THE MATERIAL STAGING AREA AND IS BASED ON 63,360 LBS HAZARD DIVISION 1.1 MATERIAL. ARC DRAWN FROM THE OUTER MOST POINT OF THE MATERIAL STAGING AREA.
3) ARC IN GREEN FOR 1,595 FOOT INHABITED BUILDING EXPLOSIVE SAFETY ARC. THE ARC IS FROM THE TRAILER STAGING AREA AND IS BASED ON 63,360 LBS HAZARD DIVISION 1.1 MATERIAL. ARC DRAWN FROM THE OUTER MOST POINT OF THE TRAILER STAGING AREA.

| | | | |
|---|---|---|---|
| DRAWN BY | LDG 07/09/15 | CHECKED BY / APPROVED BY | DRAWING NO. 008 |

**FIGURE 4**

**INHABITED BUILDING SAFETY ARCS**

CAMP MINDEN – AREA I DESTRUCTION SITE

PREPARED FOR:

**EXPLOSIVE SERVICE INTERNATIONAL**

SEMS Inc.