Explosives Safety Submission (ESS)

U.S. Air Force Environment, Safety, and Occupational Health Symposium

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Presented by:

Ben Redmond

Agenda

- **Why do we need an ESS?**
- **What Type of ESS do we need?**
- **What MMRP Projects need an ESS?**
- **When don’t we need an ESS?**
- **Key Guidance Documents**
- **ESS Review Process**
- **Amendments & Corrections to an ESS**
- **ESS Format**
- **Summary**

Why Do We Need an ESS?

- **Purpose of the ESS is to ensure all applicable DOD and Department of the Air Force Explosives Safety Standards are applied during a Military Munitions Response Program (MMRP) Response Action**
- **The ESS must be consistent with the scope of work, work plans, and decision documents.**

What Type of ESS do we need?

- **Four different types of ESS**
  - **ESS prepared as part of a response action that involves physical removal of munitions and explosives of concern (MEC)**
  - **ESS prepared as part of a response action when recommended response alternative is Institutional/Engineering Controls**
  - **ESS prepared as part of response action when recommended response is No Department of Defense Action Indicated (NDAI)**
  - **ESS prepared for a Time Critical Removal Action (TCRA)**
- **ESS must be approved prior to the initiation of intrusive operations and recovery of MEC.**

What MMRP Projects Need an ESS?

- **ESS is required for MMRP actions at the following types of properties:**
  - **Formerly Used Defense Sites (FUDS)**
  - **Base Realignment After Closure (BRAC)**
  - **Transferring Excess property other then BRAC**
  - **Installation Restoration Program (IRP) sites**
  - **Projects located off-post areas near active installations. For example, areas that contain munitions unintentionally fired off post.**

When Don't We Need an ESS?

- **ESS is not required for emergency MEC removal actions (e.g., Explosive Ordnance Disposal (EOD))**
- **ESS is not required for range clearance operations conducted on active and inactive ranges that reside on DOD property**
- **ESS is not required for *site characterization activities conducted on MMRP sites.**
- **ESS is not required for standby construction activities**

***Future change to DOD policy is likely to require a ESS for site characterization activities**

Key Guidance Documents For ESS

- **DOD 6055.9-STD, DOD Ammunition and Explosives Safety Standards, Chapter 12 – Real Property Contaminated with Ammunition, Explosives or Chemical Agents**
- **Department of Defense Explosives Safety Board (DDESB): "Memorandum Guidance for Clearance Plans" dated January 1998 Air Force Manual 91-201, Explosives safety Standards, Chapter 6 – Real Property Contaminated with Ammunition and Explosives**
- **Air Force Manual (AFM) 91-201 Explosives Safety Standards**
- **Air Force Instruction 90-901, Operational Risk Management**
- **Air Force Pamphlet 90-902, Operational Risk Management Guidelines and Tools**

ESS Review Process

- **Local command (usually supported by a contractor) prepare**
- **Submit to Major Command**
- **Submit to Air Force Safety Center**
- **Submit to DDESB**

Note: Expect approval process to take between six and nine months

Changes to an ESS

- **Required if the hazards, risks, or explosives safety controls change based on actual conditions encountered**
- **Change effected by either an Amendment or a Correction**

Amendment to ESS

- **Required for changes regarding the assumed or known explosives hazards or any proposed changes in work activities or safety controls that can potentially effect worker or public safety**
- **Requires approval through same process followed for original ESS**
  - **For change that specifies less restrictive requirements approval must be granted before implementation**
  - **For changes more restrictive implementation will be effected immediately pending approval**

Amendment to ESS (Con't)

- **Example changes that require an amendment to the ESS**
  - **Change in planned reuse of the property changes the clearance depth**
  - **Change in clearance depth changes the planned reuse**
  - **Change in land restrictions**
  - **Estimated MEC depth changes, causing a change in the clearance depth (MEC is consistently found at less than the estimated depths and a reduced depth is desired).**
  - **Clearance depth changes from below the frost line to above the frost line**
  - **Property owners or stakeholders cause a decrease in the area to be cleared at a FUDS (e.g.., right of entry denied)**
  - **Incorporation of new or modified engineering controls not included in the approved ESS**
  - **Change in Quantity Distance (QD) arcs.**
  - **New magazine storage area or demolition ground is established**

Correction to ESS

- **Corrections are changes that do not have the potential to affect worker or public safety.**
- **Corrections are typically administrative changes.**
- **Corrections do not require the entire approval process, routing to higher-level offices is for information only**

ESS Format

- **Format for ESS is described in Department of Defense Explosives Safety Board (DDESB): Memorandum Guidance for Clearance Plans" dated January 1998**
- **U.S. Army Corps of Engineers Engineering Pamphlet (EP) 385-1-95b, Explosives Safety Submission dated 298 March 2003 is an excellent reference**

ESS Format is being revised and will be included in the revision to DOD 6055.9-STD expected to be published by 3rd Quarter FY-07.

ESS Format

- **Introduction – site history and any other pertinent details**
- **Reason for MEC – brief description of why MEC exists**
- **Maps:**
  - **Regional Map**
  - **Site Map**
  - **Q-D maps**
  - **Soil Sampling Maps**

ESS Format - Maps

- **Site Map**
  - **MEC areas covered by the submission**
  - **MEC removal depth for each MEC area**
  - **Location of an magazines**
  - **Location of any planned or established demolition areas**
  - **Existing or planned use of each MEC area after clearance**

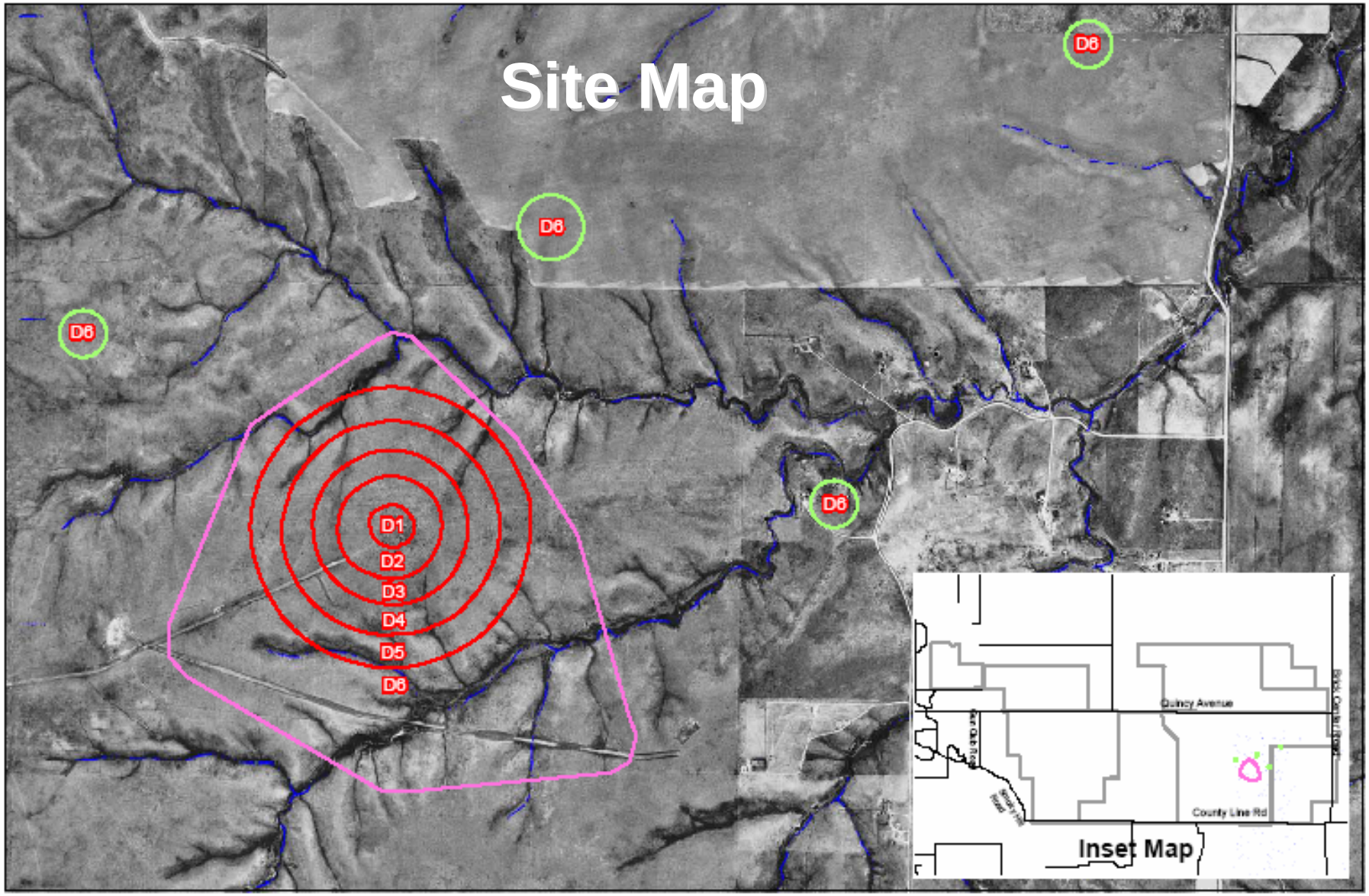
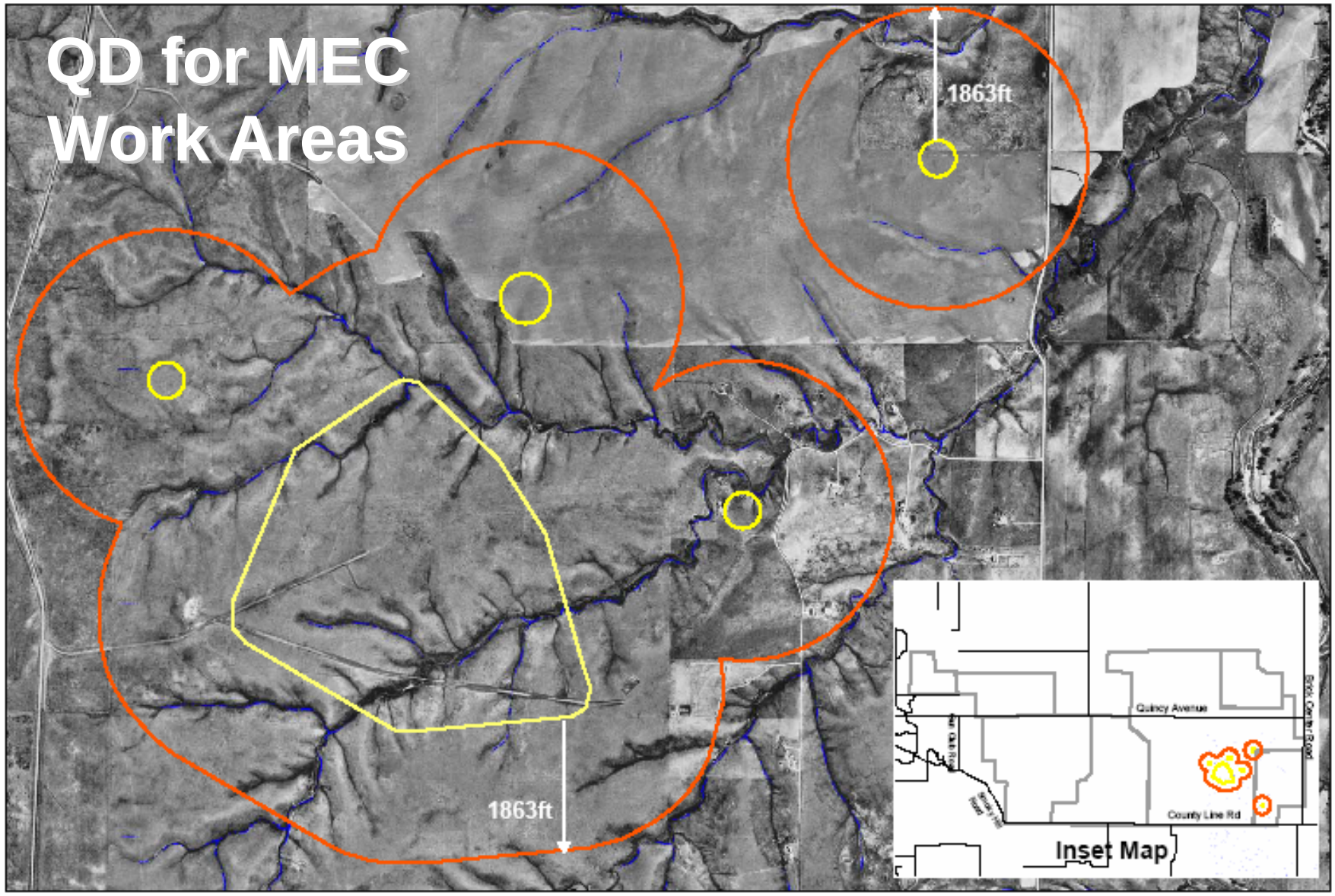


Figure 12-2
Sitemap
Former Lowry Bombing and Gunnery Range
Arapahoe County, Colorado

ESS Format – Maps (Con't)

- **Q-D maps**
  - **Each MEC area to be cleared under the ESS**
  - **Location of magazines**
  - **Areas planned or established for intentional detonation**
    - **Exclusion area defined by a public withdrawal distance**
    - **Identify every inhabited building distance (IBD)**
    - **Identify every public transportation route (PTR)**
    - **Describe methods taken to eliminate/minimize risk**

QD for MEC Work Areas



Streams
Estimated Extent of Munitions Response Activity
Exclusion Zone based on 100 lb Bomb GP Mk1

N

0 500 1,000 2,000
Feet

Figure 12-3
Quantity-Distance Map for MEC Work Areas
Arapahoe County, Colorado

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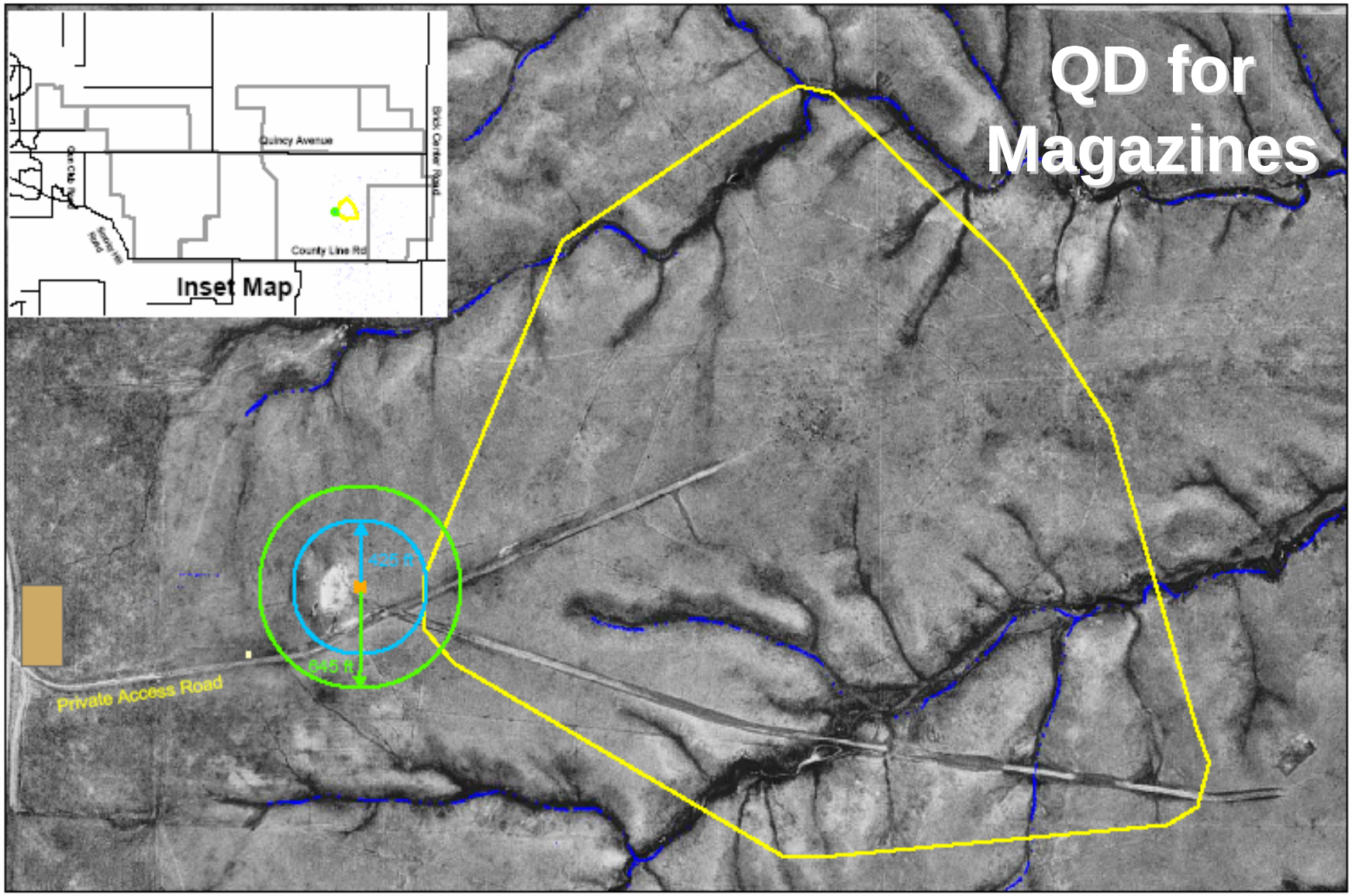

Figure 12-4
Quantity-Distance for Explosives Magazines
Arapahoe County, Colorado

ESS Format – Maps (Con't)

- **Soil Sampling Maps**
  - **MEC areas involving explosives in soil**
  - **Location and depth of sampling points**
  - **Identify field sampling methods used and concentrations of explosives for each sampling point**

ESS Format (Con't)

- **Amount and Type of MEC**
  - **Munition with Greatest Fragment Distance (MGFD)**
  - **Depth of Removal**
- **Start Date – This is the date intrusive activities for recovery of MEC start**
- **Frost line – Depth of frost line for the area**

Removal Depths

- **Establishing the depth:**
  - **Preferred method to establish a removal depth is to estimate MEC depth using site specific information, particularly from surface and intrusive sampling**
  - **Absence of site specific information is to use maximum penetration source document or default table in Chapter 12, DOD 6055.9-STD**

ESS Format (Con't)

- **Clearance Techniques – Techniques used to detect, recover, and destroy MEC**
  - **Describe capabilities and limitations of methods of detection**
    - **Describe selection criteria for technology based on local geology and topography of the site**
    - **Address limitations imposed by terrain, soil type, etc..**
  - **Describe quality assurance/quality control standards and pass/fail criteria**
  - **Describe process that will be used to determine that munitions debris (MD) presents no explosion hazard**
  - **Describe procedures for disposition of MD removed from the site**
- **Alternate Techniques – If on-site method is something other than detonation**

ESS Format (Con't)

- **Quantity Distance**
  - **MEC Areas**
  - **Magazines**
  - **Planned or Established Demolition Areas**
  - **Footprint Areas**
    - **Blow-in-Place**
    - **Collection Points**
    - **In-Grid Consolidated Shots**

ESS Format (Con't)

- **Off Site Disposal**
- **Technical Support**
- **Land Use Restrictions**
- **Public Involvement**
- **After Action Report**

Summary

- **The ESS is a necessary document for MMRP Response Actions that include intrusive activities for MEC.**
- **In the future a ESS will be required when contact with MEC is expected.**