Non-Stockpile Chemical Warfare Materiel Removal Action at Site 8

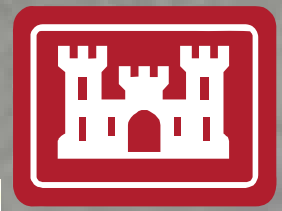
Former Camp Sibert Alabama

Chemical Warfare Materiel (CWM) Removal Action Objectives

- Address all CWM, ordnance debris, and explosives hazards at Site 8
- Maintain safety throughout the project for the benefit of the public and project staff
- Maintain quality control and documentation of the removal action to ensure a complete and defensible end product
- Involve the stakeholders in the process, resulting in a mutually acceptable solution and end product

Participants

- U.S. Army Corps of Engineers, Mobile District (CESAM)
- U.S. Army Engineering & Support Center, Huntsville (USAESCH)
- Edgewood Chemical Biological Center (ECBC)
- U.S. Army 22^{d} Chemical Battalion
- Parsons
- USA Environmental (USAE)
- STL and GPL Laboratories
- Anniston EMS
- Gadsden Regional Medical Center
- SAIC
- Local Fire/Police
- Other Support Agencies and Vendors



PARSONS

Location

- Camp Sibert was a 37,000-acre installation located in northeast Alabama.

History

- Camp Sibert was established in the spring of 1942 for use as a RTC for the U.S. Army CWS.
- The existing RTC moved from Edgewood Maryland to Camp Sibert in the summer of 1942.
- By the fall of 1942, a UTC was added as a second command.

History

- While at Camp Sibert, units and individuals trained in basic military training.

History

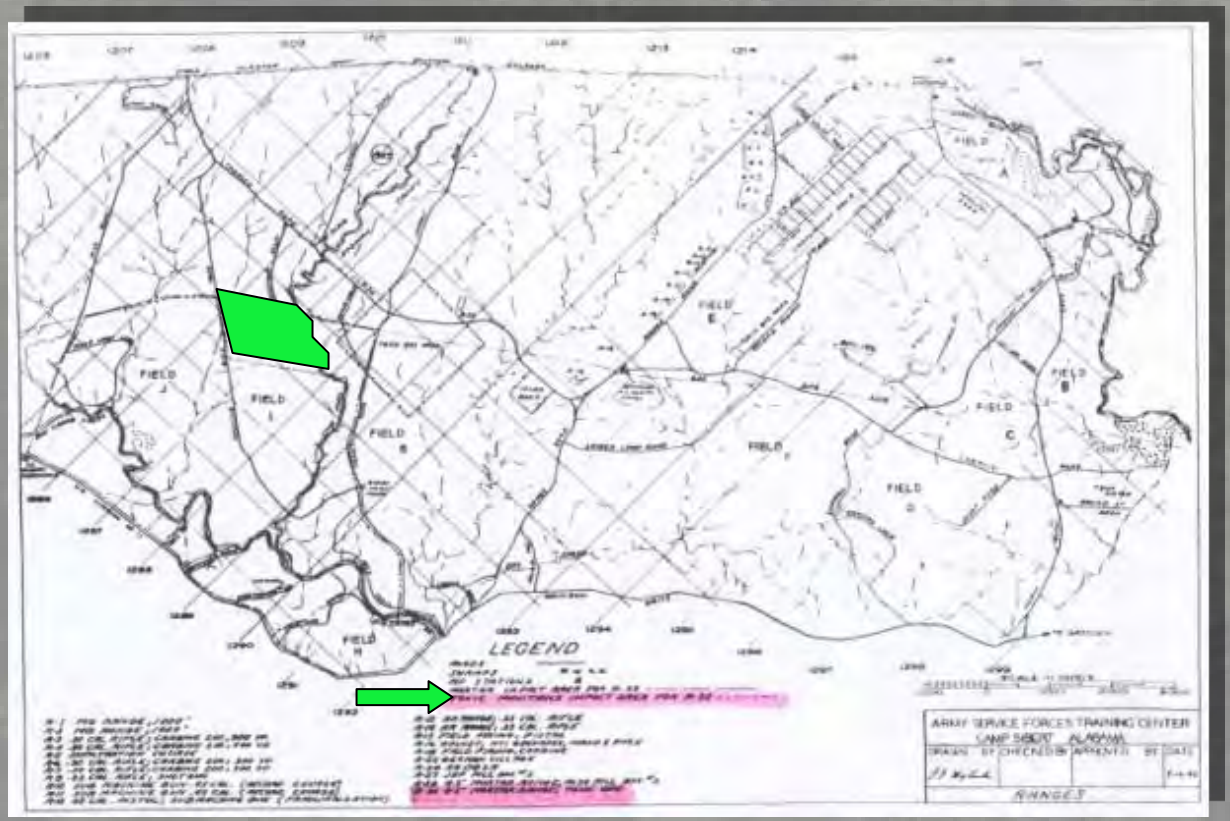
- While at Camp Sibert, units and individuals also trained in the use of chemical weapons, decontamination procedures, and smoke operations.

History

- Camp Sibert was operational from 1942 until 1945.
- The installation provided the opportunity for large scale, live agent training that had previously been unavailable.

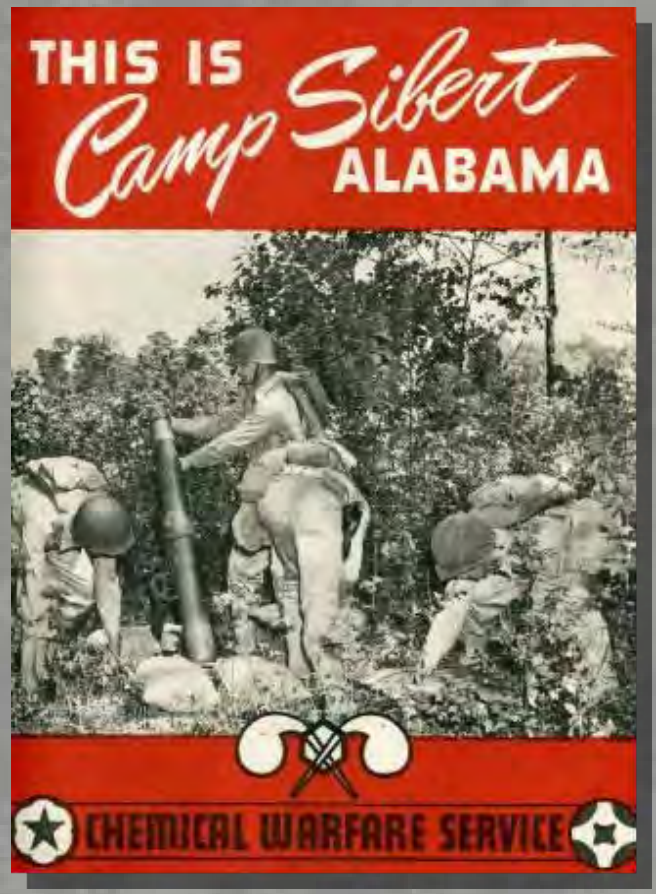
History

- During a historical records search of Camp Sibert, a 1945 range map was found that outlined the locations of most of the ranges.
- The map showed the impact area for Range 30. The area was denoted as the “Toxic Munitions Impact Area.”



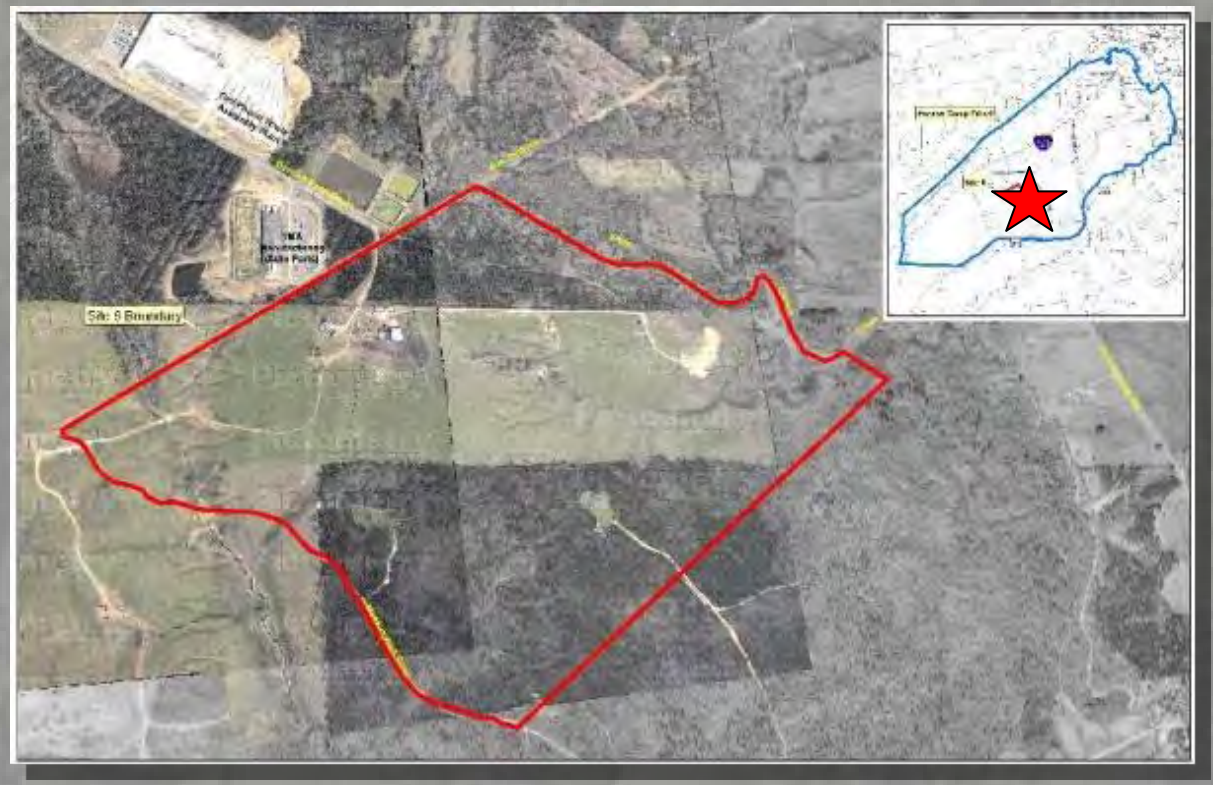
History

- The location of Range 30 was not shown on the map; however, Range 30 was labeled as the ‘4.2” Mortar Range, Toxic Gas.’
- The 4.2” chemical mortar was the heavy weapon of choice at Camp Sibert. Although it was originally designed to deliver chemical agents and smoke, it was also adapted to fire HE rounds.
- Based on the 1945 range map, the impact area for Range 30 was only suspected to contain toxic munitions.



History

- The 375-acre former Toxic Munitions Impact Area was given the name Site 8 in the ASR.
- Site 8 is located in the southwest-central area of the former Camp Sibert.
- Bounded by a natural gas pipeline on the northwest, Little Canoe Creek on the northeast, and a former road on the southwest.



History

- In 1996 and 1997, the central portion of Site 8 was cleared for grazing by the current property owner

- During clearing, the property owner found large amounts of thin-walled scrap and base plates associated with 4.2-inch chemical mortars

History

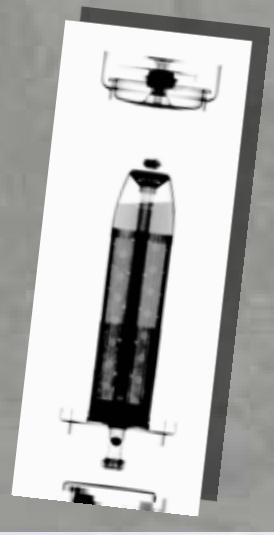
- Industrial development has been encroaching on Site 8 since 1998
  - Three wastewater treatment lagoons constructed in 1998
  - YMA constructed in 2000
  - Thomas & Betts constructed in 2000

Previous Investigations

- Phase I CWM Engineering Evaluation/Cost Analysis (EE/CA)
  - 2000 Meandering Path Geophysical Investigation
    - Covered 5.7 acres and identified 532 anomalies

Previous Investigations

- Phase I CWM Engineering Evaluation/Cost Analysis (EE/CA)
  - 2002 Intrusive Investigation
    - 71st anomaly investigated determined to be a 4.2” chemical mortar with phosgene fill
    - Setup explosive destruction system (EDS) and neutralized the round

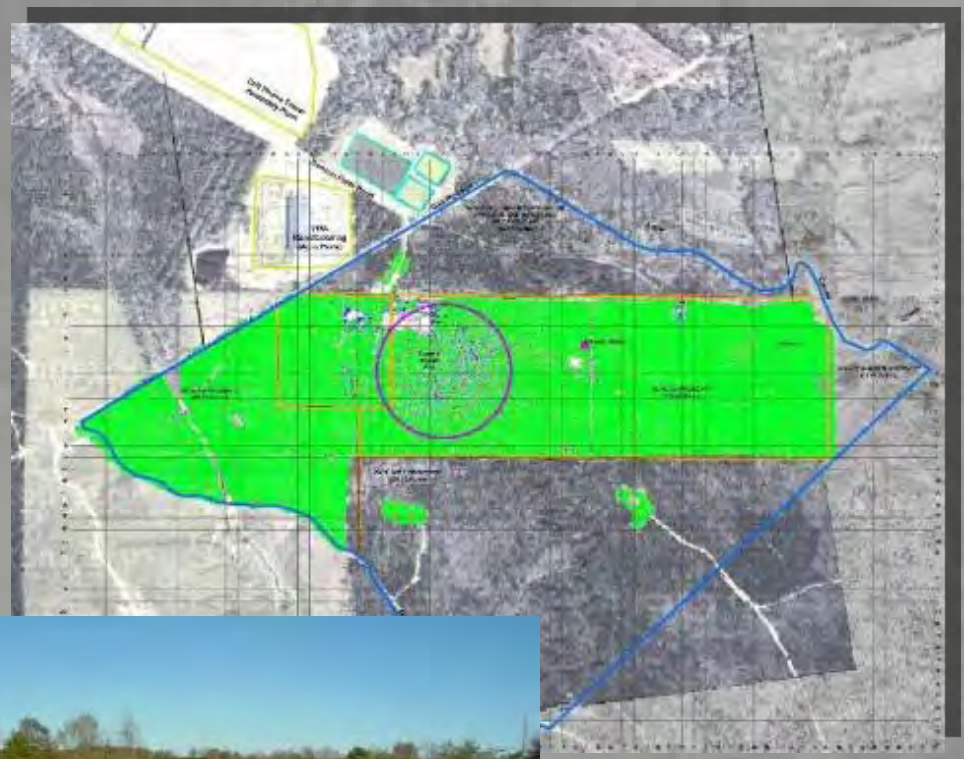


Previous Investigations

- Phase I CWM Engineering Evaluation/Cost Analysis (EE/CA)
  - 2005 Surface Debris Removal
    - Reduce intrusive effort by eliminating anomalies and save over a million dollars
    - Covered approximately 140 acres
    - 934 pieces (2,642 lbs) of 4.2” chemical mortar debris recovered
    - 230 lbs of cultural debris collected

Site 8 CWM Removal Action

- Towed array survey conducted from November 2005 – January 2006
- Survey covered all the cleared areas of Site 8 (135 acres)
- Approximately 10,400 anomalies identified with a threshold of 5 mV or greater



Site 8 CWM Removal Action

- Site setup
  - Develop site layout
  - Equipment arrival
  - Construct the following areas:
    - Command Post (CP)
    - Personnel Decontamination Station (PDS)
    - Break/Change out area
    - ECBC and TE locations
    - Parking lot
    - Drum staging area
    - Storage structures
    - Staging areas

Site 8 CWM Removal Action

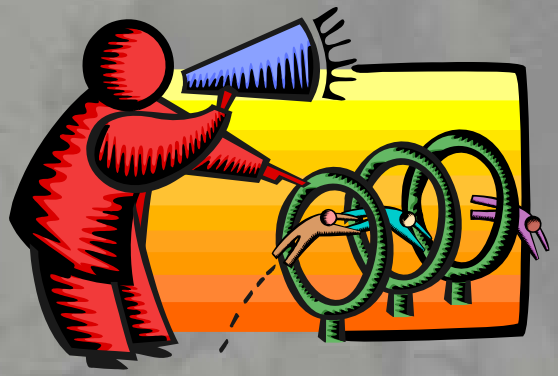
- Training field crews
  - Equipment placement and usage
  - Investigation approaches
  - Radio communications
  - PDS operations
  - Emergency response
  - Item assessment, packaging, and transport





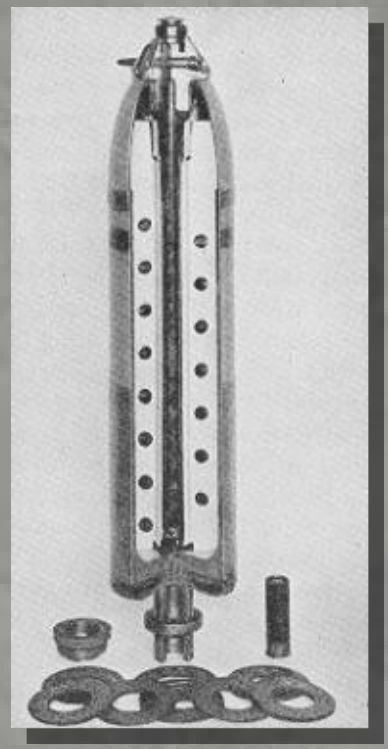

Site 8 CWM Removal Action

- Tabletop exercise
- Department of the Army Pre-Operational survey



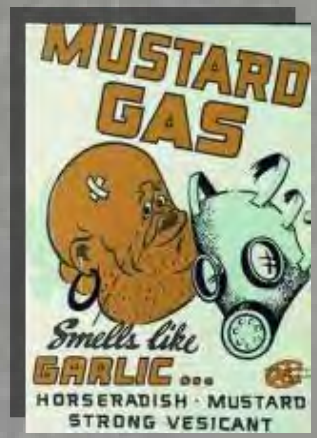
Site 8 CWM Removal Action

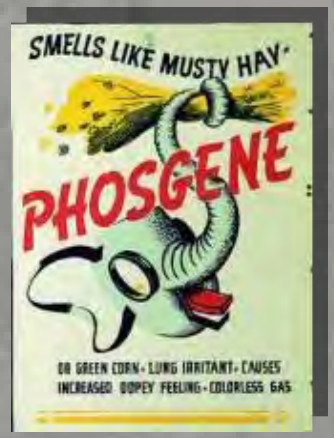
- Establishing an Exclusion Zones (EZ)
  - 4.2” Chemical Mortar (M2/M2A1)
    - Fuze (M8)
    - Burster (M14)
      - 0.143 lbs tetryl
    - Hazardous Fragment Distance (HFD)
      - 143 feet
    - Maximum Credible Event (MCE):
      - Instantaneous release of 6.25 lbs from phosgene (CG) filled round

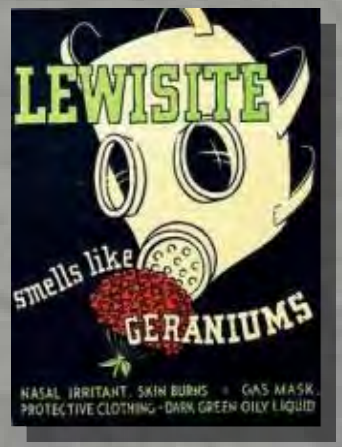


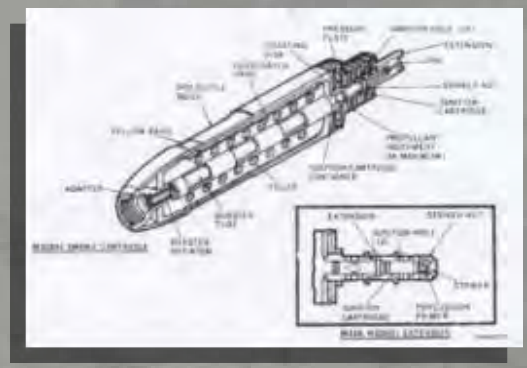
Site 8 CWM Removal Action

- Possible fillers for 4.2-inch chemical mortars:
  - Mustard (H, HS, HD, HT),
  - Lewisite (L),
  - Phosgene (CG),
  - Tearing agents (CNB, CNC, & CNS)
  - White phosphorus (WP & PWP), and
  - Smokes (Sulfur trioxide & chlorosulfonic acid solution [FS])







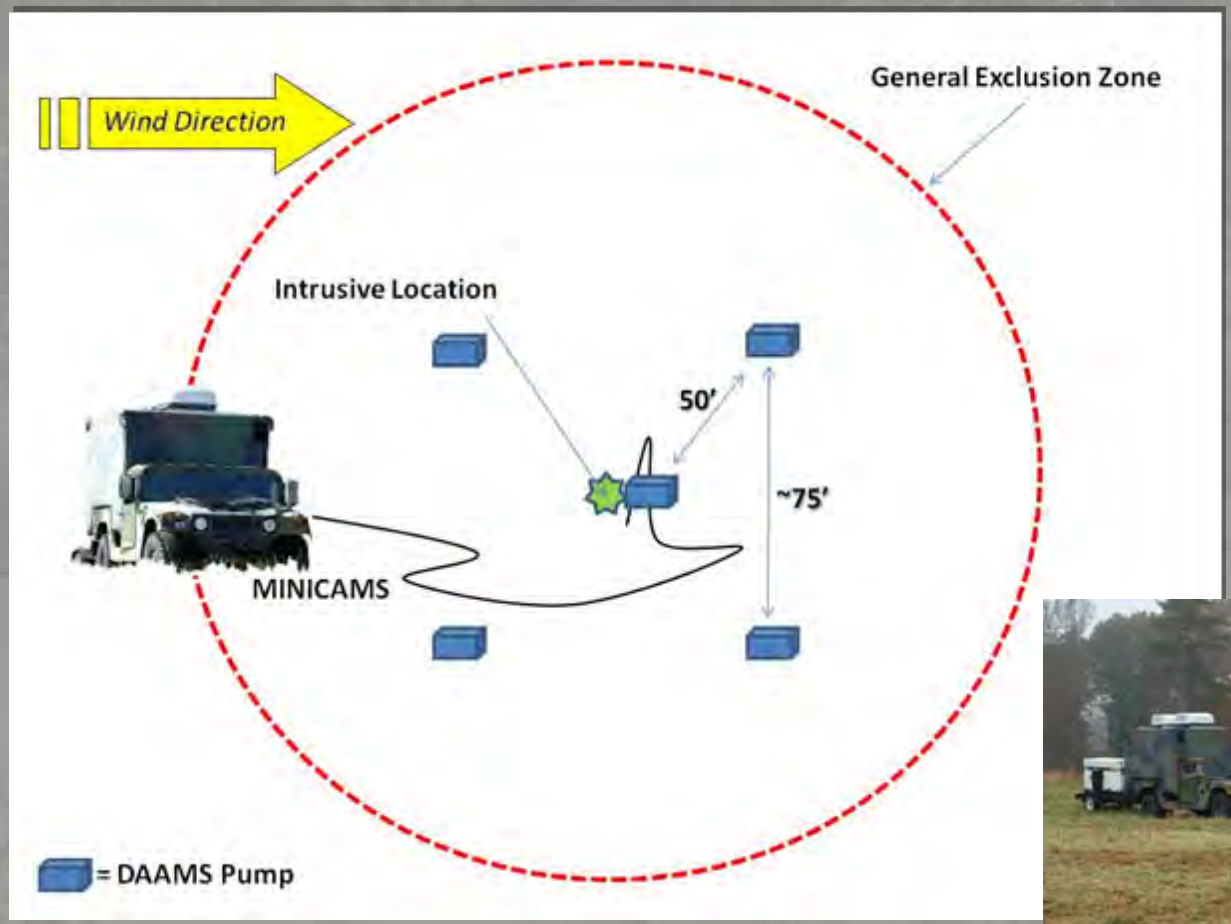


Site 8 CWM Removal Action

- Daily Intrusive Operations
  - Air monitoring for chemical agents and industrial chemicals

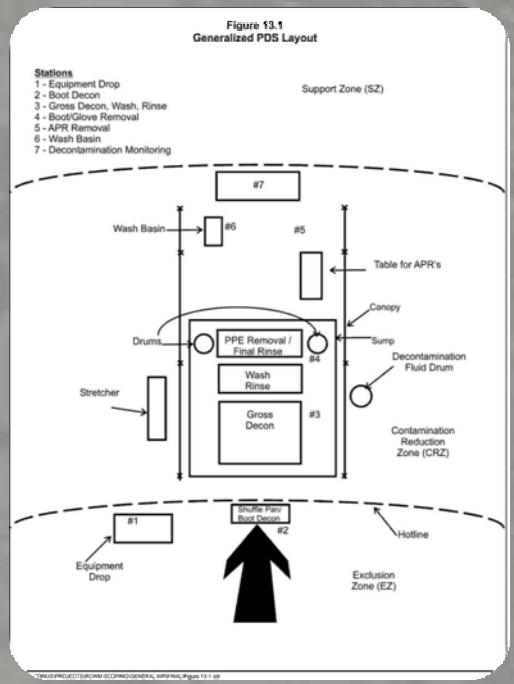
Site 8 CWM Removal Action

- Generalized chemical agent monitoring strategy



Site 8 CWM Removal Action

- Daily Intrusive Operations
  - Personnel Decontamination Station

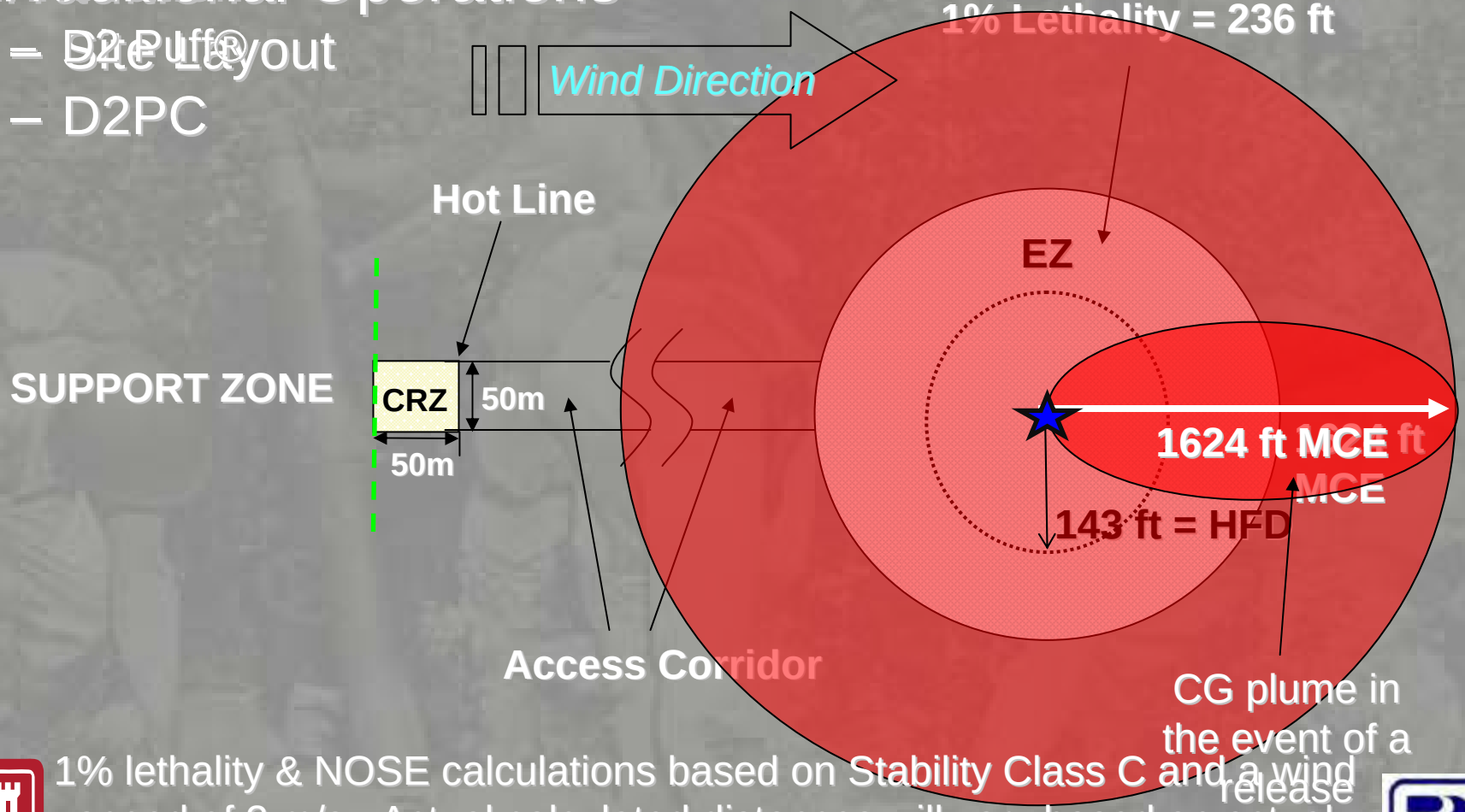


Site 8 CWM Removal Action

- Innovation
  - D2 Puff®
    - Air dispersion modeling
    - Dedicated weather station
    - Integrated with GIS

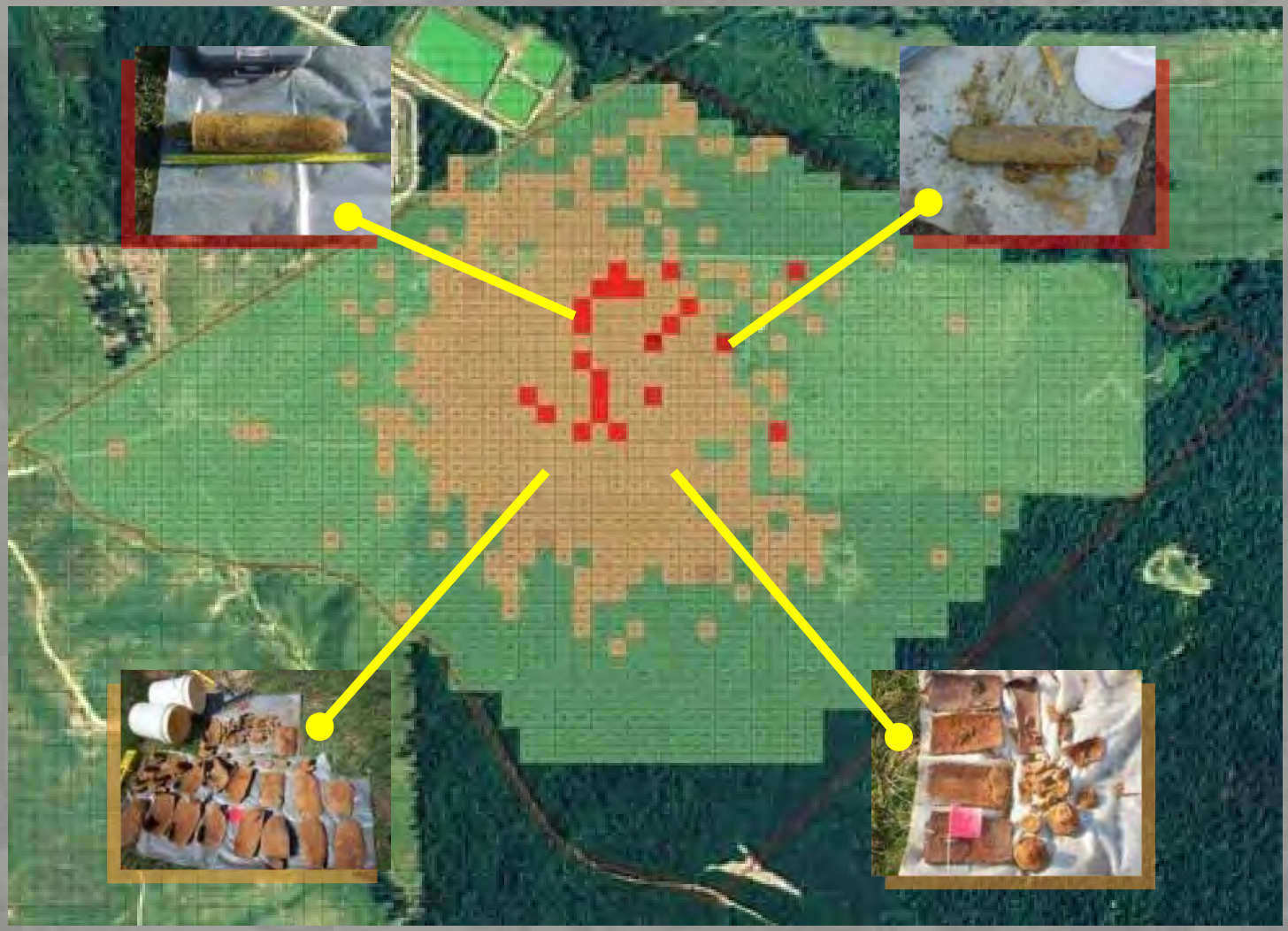
Site 8 CWM Removal Action

- Innovational Operations
  - Site Layout
  - D2PC



1% lethality & NOSE calculations based on Stability Class C and a wind speed of 2 m/s. Actual calculated distances will vary based on actual atmospheric conditions recorded.

Site 8 CWM Removal Action



CWM Removal Action

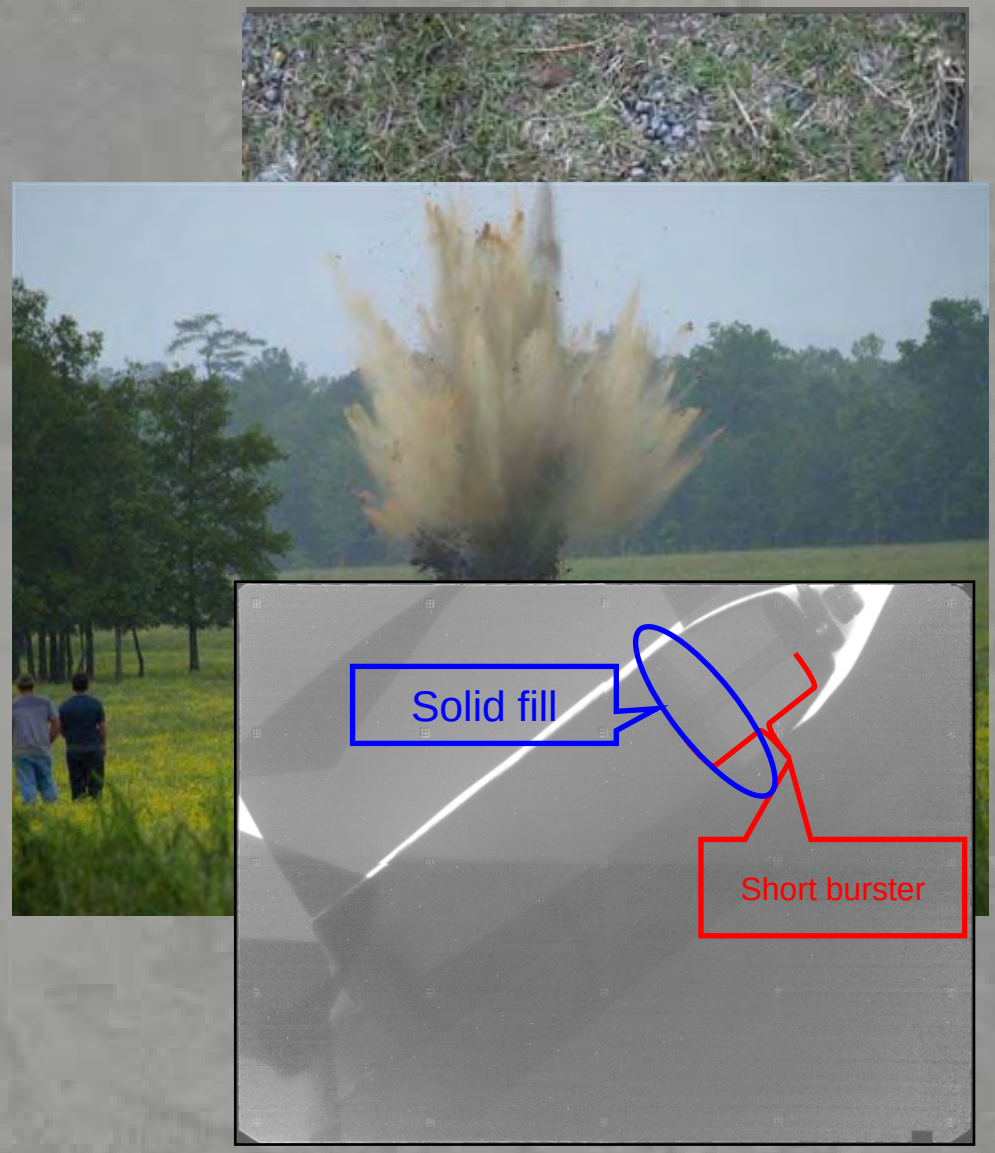
- Quality Assurance
  - Innovation:
    - A research team from Auburn University has modified the Segway® RMP 400 to follow a preprogrammed path autonomously while towing a geophysical sensors.
    - The system consists of two EM61-MK2 sensors mounted on wheels and towed by the modified Segway® RMP 400.
    - The Segway® system was positioned and operated using a GPS system with RTK accuracy.

CWM Removal Action

- Intrusive operations completed on April 23rd, 2009
  - 18,718 anomalies investigated
  - 26,476 pounds of munitions debris recovered
  - 25 liquid filled, 4.2” mortars recovered and stored at the Interim Holding Facility
  - Final disposition of intact rounds is currently underway

CWM Removal Action

- Bonus round
  - In October 2008, someone left a 4.2-inch mortar at the entrance to Site 8.
  - Assessment determined it to be a high explosive 4.2-inch mortar
  - The round was detonated on site on 13 May 2008.



Challenges

- Coordination with Multiple Agencies
  - Nine (9) Separate Government/Contractor Agencies
  - State/County Emergency Management Agencies
  - Alabama Department of Environmental Management
  - Media / General Public
- Coordination/Logistics with Stakeholders
  - Access Restrictions with Stakeholders
  - Surrounding Industry Development

For More Information

Contact the USAESCH at the Address Listed Below

- Contact Email:
  - USAESCH CWM Design Center, CWM Scoping and Security Study Project Manager: Sherri Anderson-Hudgins
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- Website Links:
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