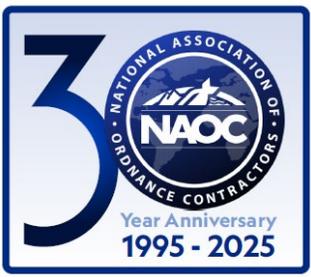


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M2S2-NAOC Remedial Designs and MMRP

Case Study: Former Camp Claiborne MRS-05
Data Gap Remedial Design



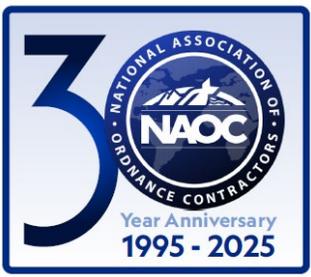
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Agenda

- Project Description
- Prior removals/investigations and completed CERCLA Phases
- Remedial Action Objectives
- Selected Remedy Components
- Principal Study Questions
- Key RD Scoping Elements
- RD Results
- Questions



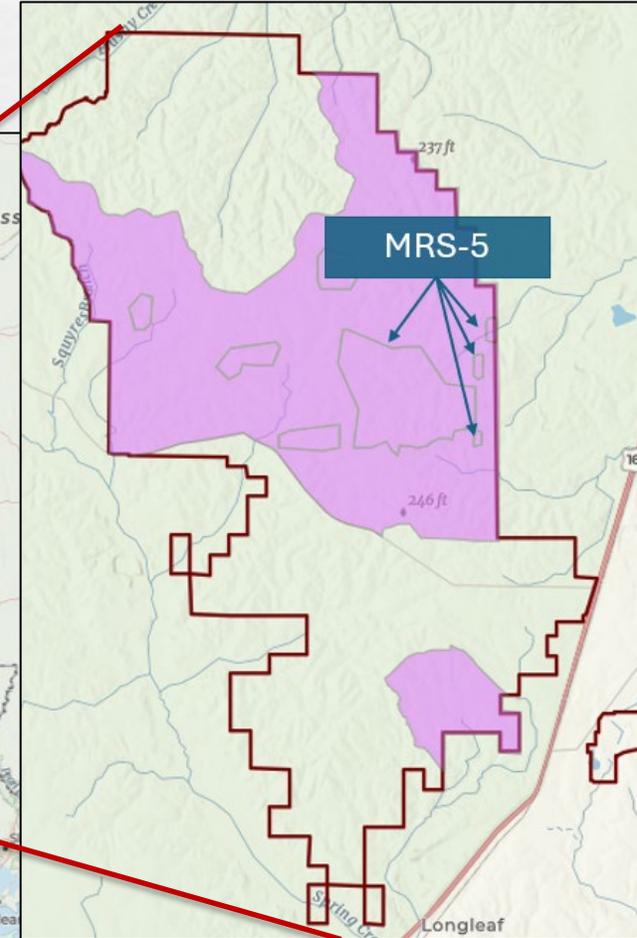
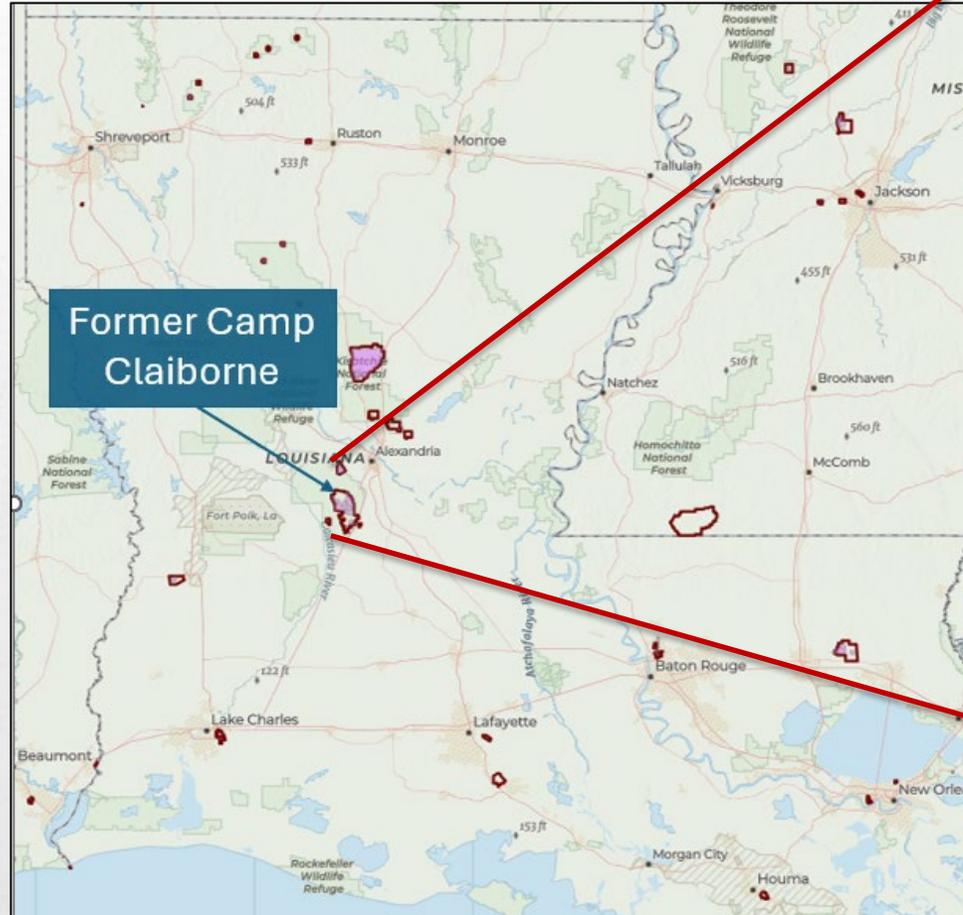
Source: A Camera Trip Through Camp Claiborne, Public Relations Office of Camp Claiborne and the Signal Corps, The Ullman Company, Brooklyn, New York.



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Case Study – Former Camp Claiborne MRS-5

- Project Description
 - Former Camp Claiborne MRS-5 is 1,249-acre pre-WWII infantry and air-to-ground practice former range
 - Transferred to USDA for Kisatchie National Forest in 1947
 - Current and Future Land Use: Agroforestry, drinking water wells for municipality, recreational users (50+ miles of UTV and equestrian trails)
 - Tree harvesting and fire fighting currently paused till remedy is in place. Trails and campground still open and well visited.

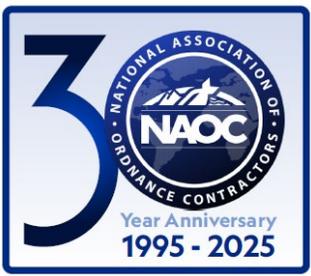




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Case Study – Former Camp Claiborne MRS-5

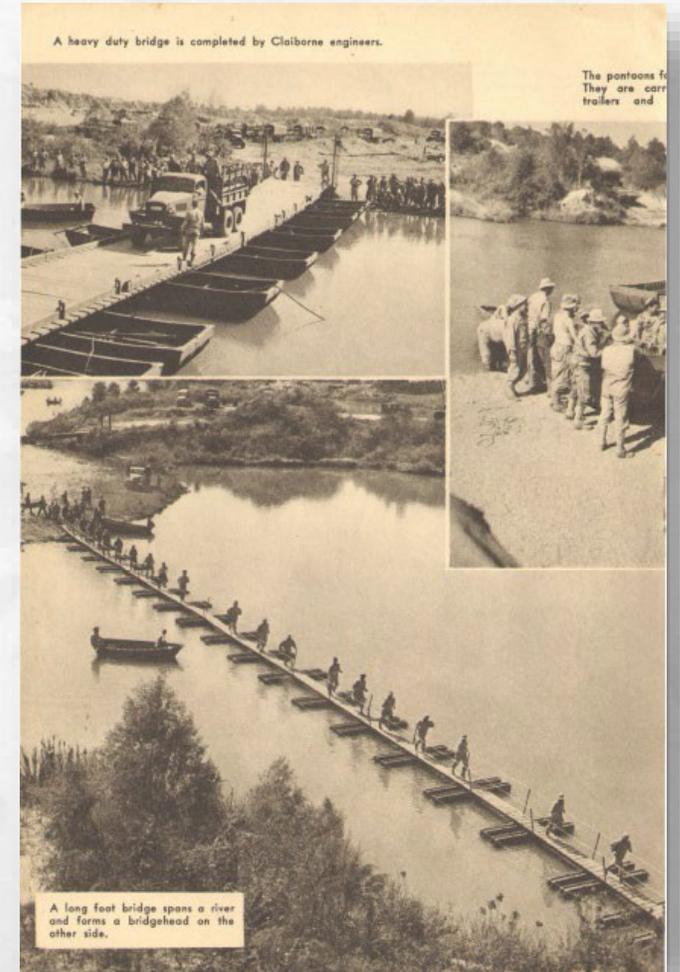
Year	Phase	Description/Objective
1946, 1973, 1975	Range Clearance	Range clearances
1993, 2004	ASR	Determine the types, quantities, and probable locations of ordnance explosive waste through an archives search. The 1993 ASR and 2004 Amendment indicate the potential of conventional ordnance explosive waste.
1995	TCRA	The TCRA was performed in response to the discovery of ordnance by the public near a campsite. The objective was to remove the explosive hazard to the greatest number of people in publicly accessible areas such as roads, trails, and campgrounds, and to characterize the density, distribution, and types of munitions on the site.
1996	EE/CA	The EE/CA determined that additional investigations were needed to characterize MEC and MC contamination at MRS-5, it did provide clarity on less contaminated sites at FCC.
1997–2000	OE Characterization Study	The project objective was to characterize the bombing and gunnery range through investigation of vertical and horizontal locations of MEC within the square area concentric with former target area and 200 randomly spaced 100-by-100-foot grids to 4 feet bgs. Over 24,000 inert 20-mm target practice (TP) MEC items were removed from the area.
2001	Ordnance Investigation and Removal Action	Continuation 1997–2000 OE Characterization Study. A total of 244 grids were surveyed, 45 with the G-858 and 199 with the EM61. Selected anomalies in three noncontiguous grids were excavated to evaluate screening of the 20-mm TP.
2002	Non-Intrusive Field Reconnaissance	A non-intrusive field reconnaissance was conducted with the objective of informing the Technical Project Planning (TPP) workshops and revised Scope of Work to meet all objectives in the most effective and efficient manner for the planned 2002–2003 EE/CA (EODT, 2006).
2002–2003	EE/CA	Approximately 8.5 acres of Analog MEC investigation transects were investigated within the MRS footprint (23.5 miles of transects) and analysis of the historical aerial photographs was completed.
2014	RI/FS	Determined nature and extent of MEC and MC. Field effort was for MC, MEC was characterized via table top. The RI recommended an FS for MEC and no further action for MC (OTIE, 2014b).
2018	DD	Alternative 4 Subsurface Removal with Surface Removal, LUCs and LTM was selected



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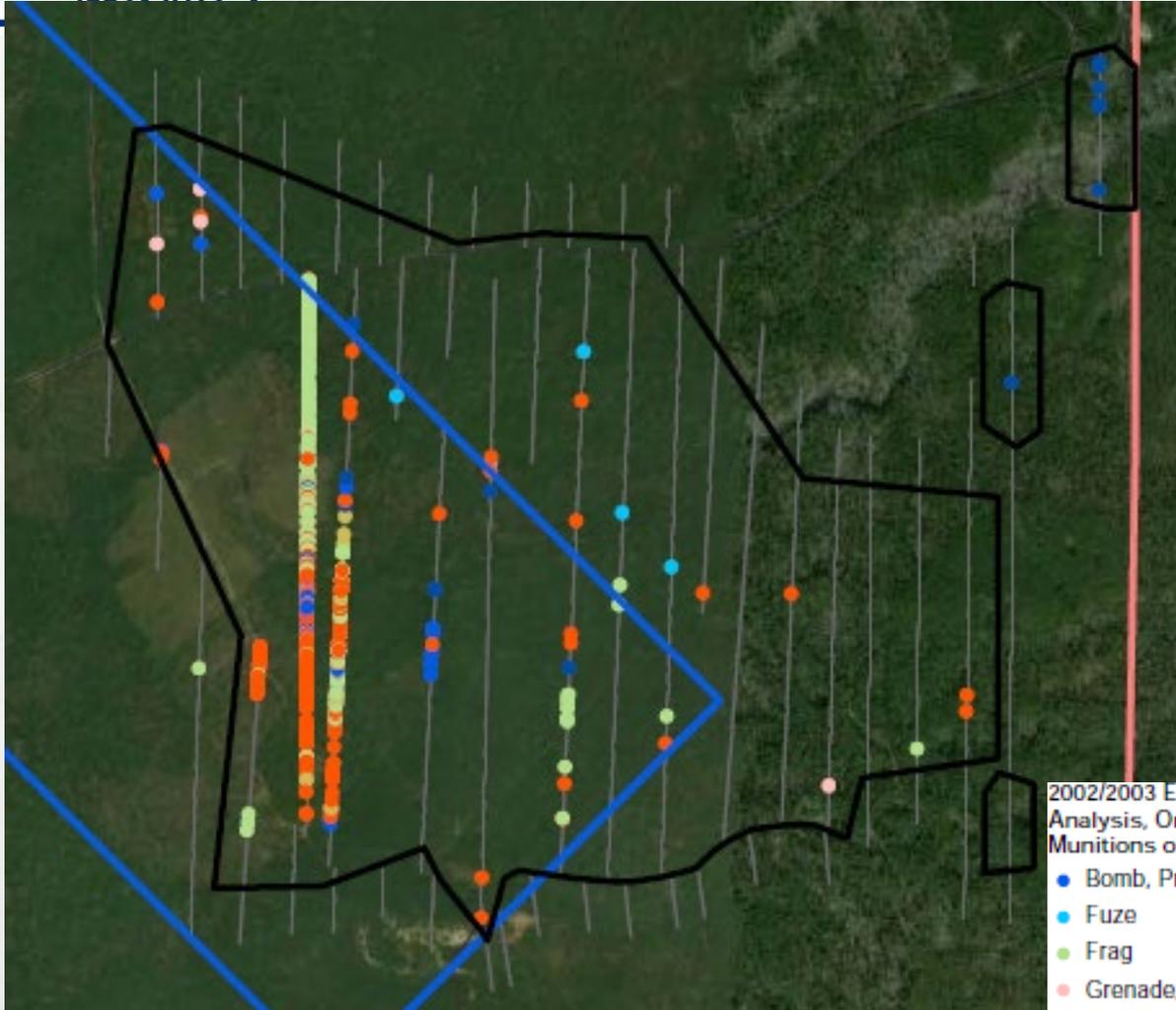
Case Study – Former Camp Claiborne MRS-5

- Remedial Action Objectives
 - Limit exposure for recreational victors and USFS employees to MEC by conducting a surface and subsurface removal to 2' BGS
- Selected Remedy Components
 - MEC Removal using AGC unless another method is warranted or required by site conditions
 - MEC detonated onsite
 - Implement an educational awareness 3Rs program with signs, pamphlets, website, kiosk, and local outreach



Source: A Camera Trip Through Camp Claiborne, Public Relations Office of Camp Claiborne and the Signal Corps, The Ullman Company, Brooklyn, New York.

Case Study – Former Camp Claiborne MRS-5



2002/2003 Engineering Evaluation / Cost Analysis, Ordnance and Explosive Waste Munitions of Explosive Concern

- Bomb, Practice
- Fuze
- Frag
- Grenade, Rifle, Practice/Smoke
- Projectile
- Rocket
- Small Arms

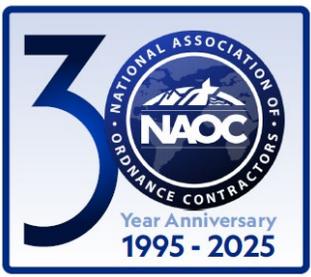
- PDT Challenge
 - No site wide DGM/AGC
 - Mandate to use AGC
 - Excessive amounts of 20mm TPs
 - 1,249-acre property
 - High levels of MEC and MPPEH
- Principal RD Objective
 - Gather data to inform the RA for planning, contractor procurement, stakeholder impact, and effectiveness of AGC to meet the RAO of the selected remedy



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Case Study – Former Camp Claiborne MRS-5

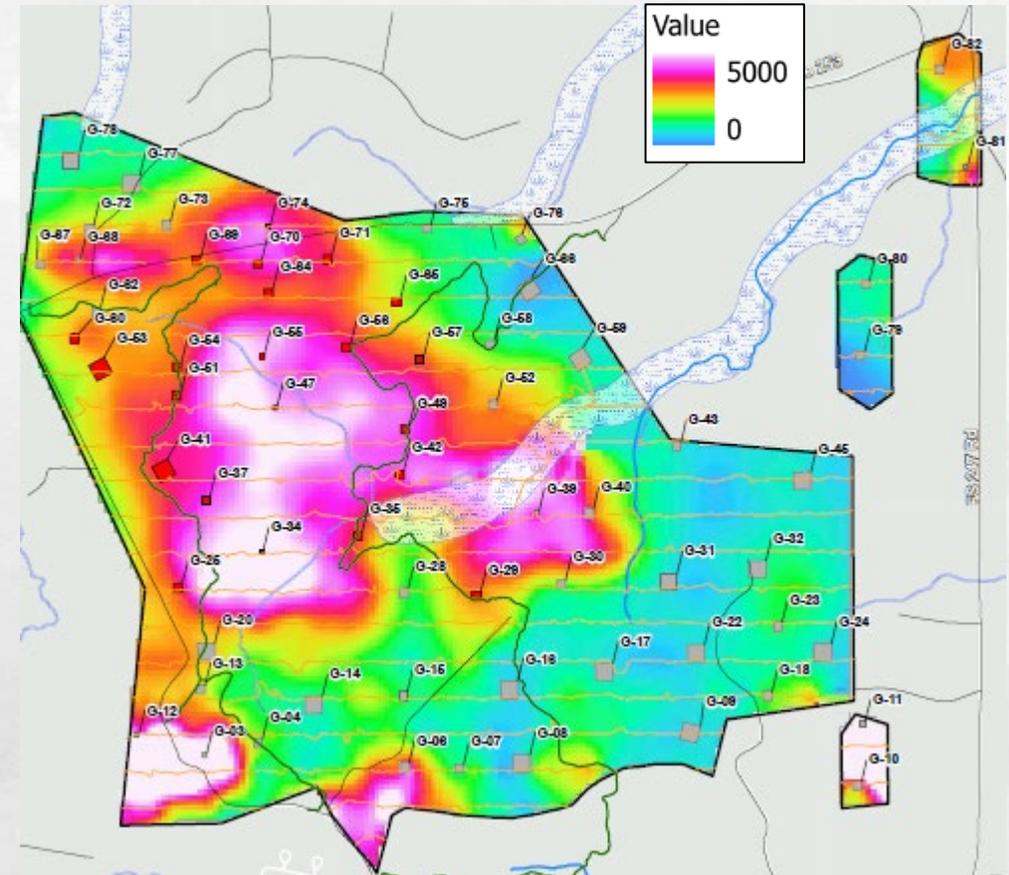
- Principal RD Study Questions
 - Characterize the nature and extent of MEC
 - Evaluate Geophysical methodologies to maximize use of geophysical surveys
 - Identify access-challenged and areas that restrict coverage with digital geophysical sensors
 - Identify and evaluate work processes, technology and safety measures that can be used to overcome access limitations
- Key RD Scope Elements
 - Systematic Planning Process
 - Historical Data Review and Data Gap Analysis
 - MR-QAPP
 - 25 miles of AGC transects and 25 acres of grids
 - Intrusive investigation of 2,500 TOIs with management and disposal of MEC and MPPEH
 - RD Report and RA MR-QAPP Worksheets 10 and 11
 - Consulting Services
 - Cultural Resources

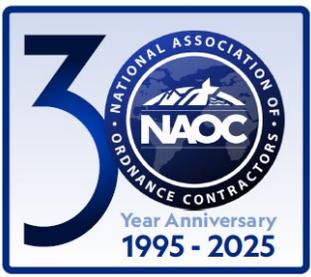


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Case Study – Former Camp Claiborne MRS-5

- RD Results
 - Underestimated MEC and MPPEH contamination resulting in remedy costs being 3x what FS proposed.
 - Cultural and biological resources discovered
 - Identification of ~246 acres of SRA
 - Numerous accessibility and RA execution challenges uncovered
 - Forest fires
 - USFS engagement
 - Local community impacts
 - Crime
 - Flooding
 - Wild horses
 - Recreation users
 - Drinking water wells

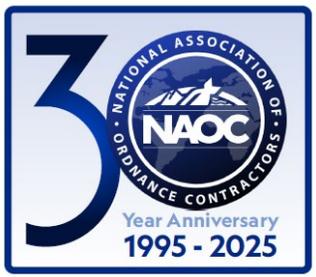




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Thanks

- USACE – RPEC RSC: DJ Myers
- LDEQ – Lisa Pultz
- EPA – Jean Balent
- Jacobs Team



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M2S2-NAOC Remedial Designs and MMRP

Case Study: Fort Huachuca MRS03
Phased RA



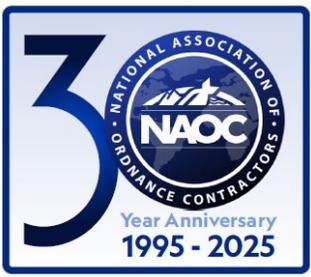
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Agenda

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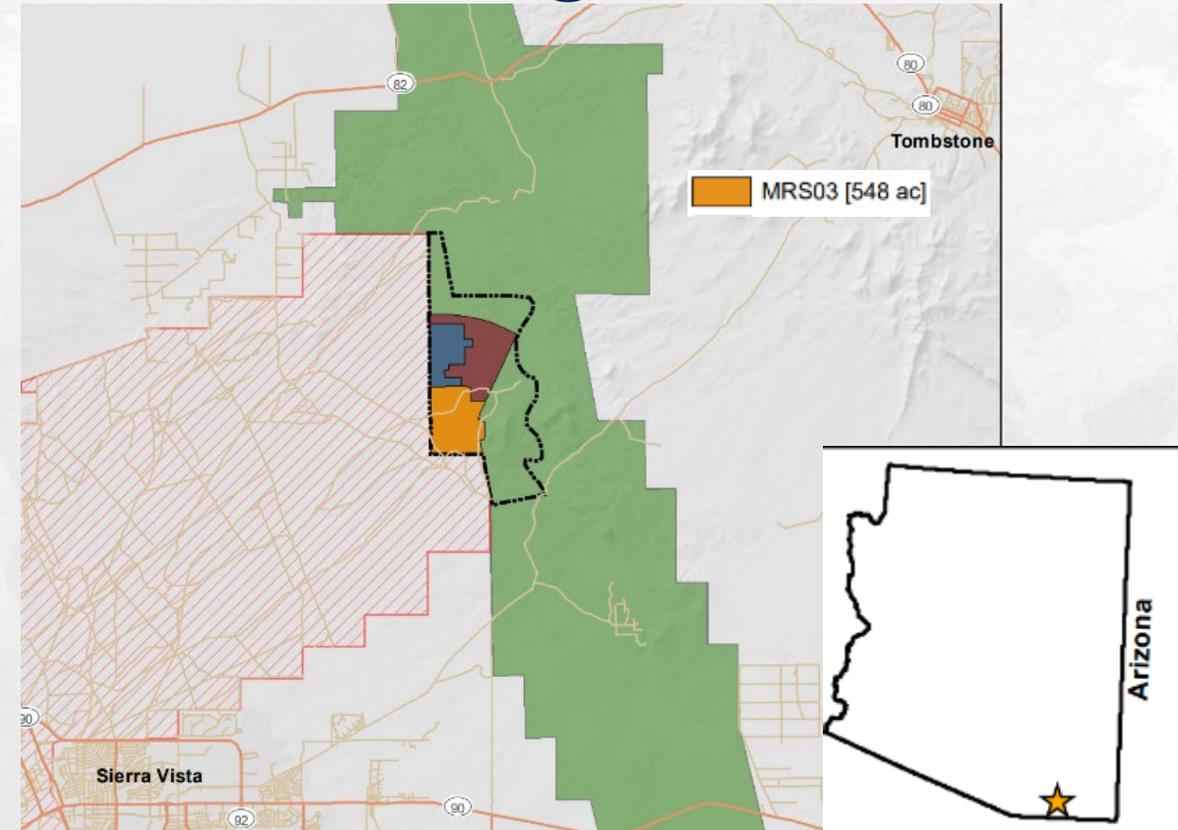
Target practice in the desert. Photo courtesy Arizona Historical Society.

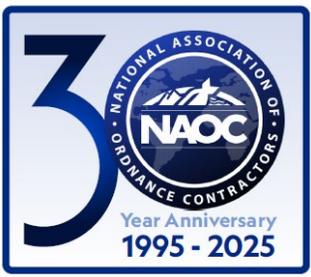


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Case Study – Fort Huachuca, MRS 03, Target Area A

- Project Description
 - Founded in 1877 to protect settlers, cavalry post for WWI, and Infantry traigrn for WWII
 - Former artillery, mortar, and maneuver range
 - MRS03 shares its western boundary with the active Fort Huachuca and is comprised of one contiguous section of 548 acres
 - Current and Future Land Use: Part of U.S. Department of the Interior and managed by BLM as part of the San Pedro Riparian National Conservation Area for recreational use



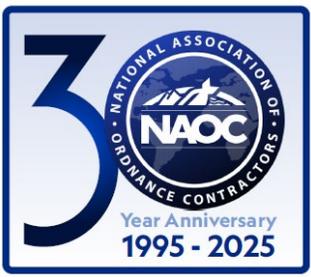


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Case Study – Fort Huachuca, MRS 03, Target Area A

- Remedial Action Objectives
 - Prevent human interaction with surface and subsurface UXO (if present) under current recreational and BLM maintenance activities, to a depth of two feet bgs.
- Selected Remedy Components
 - DGM and Surface/Subsurface Removal of MEC (to a depth of two feet)
 - Institutional Controls
 - Site Specific Educational Awareness 3Rs Program

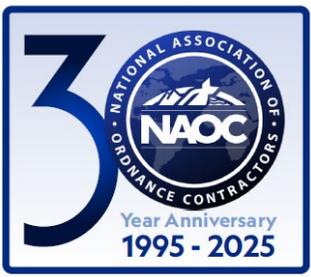




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Case Study – Fort Huachuca, MRS 03, Target Area A

- PDT Challenge
 - Nature and Extent was known but the exact total quantity of TOIs and anomalies and if SRAs are present for RA was unknown.
- Principal Study Questions
 - MEC presents an unacceptable human health risk to human receptors participating in recreational activities and BLM maintenance activities.
 - Collect DGM and AGC survey data to identify subsurface TOIs and anomalies that represent MEC/MPPEH.
- Key Scope Elements
 - MR-QAPP
 - AGC Survey
 - DGM Survey where AGC could not be collected
 - AGC Cue Surveys for Ver/Val digs

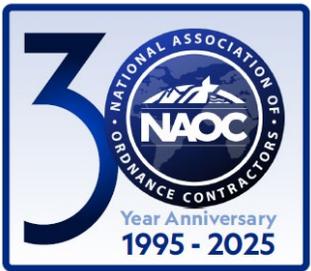


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Case Study – Fort Huachuca, MRS 03, Target Area A

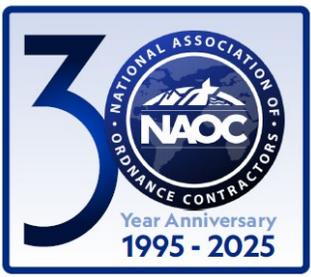
- Phase 1 RA Results
 - AGC Survey
 - 394.4 acres surveyed
 - 356,148 threshold detections
 - 29,514 TOIs
 - 960 Ver/Val AGC Cues (all remained non-TOI)
 - DGM Survey
 - 67.3 acres surveyed
 - 9,684 threshold anomalies
 - No Saturated Responses Areas





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Questions?



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Thanks

- Weston – Ryan Steigerwalt