



DERP FORUM

Achieving Greater Success Through Strong Partnerships

November 14-17, 2023 • Kansas City, MO

Land Use Controls (LUCs)

Military Munitions Response Program Track Session

16 Nov 2023



DERP FORUM

Achieving Greater Success Through Strong Partnerships

November 14-17, 2023 • Kansas City, MO

Military Munitions Response Program (MMRP) Land Use Controls (LUCs)

- Welcome
- Goals
- Introductions
 - Co-Chairs
 - Speakers
 - Panel
- Overview
- Presentations
- Discussion, Q&A



DERP FORUM

Achieving Greater Success Through Strong Partnerships

November 14-17, 2023 • Kansas City, MO

Goals

- Overall purpose: Discussion forum to address some challenges, data/information sharing requirements, and questions which arise over **Land Use Controls and their long-term implementation**, especially as they pertain to sites accessible to the public.
 - **Overview** of lifecycle considerations associated with implementation of LUCs.
 - **Case study** of the Chocolate Mountain Aerial Gunnery Range (CMAGR) land transfer and Bradshaw Trail public land use.
 - **Discussion** to address identified challenges and opportunities to facilitate effective future uses of LUCs.



DERP FORUM

Achieving Greater Success Through Strong Partnerships

November 14-17, 2023 • Kansas City, MO

Introductions

- Co-Chairs
 - Ian Thompson
 - HQMC/MCICOM Enviro Restoration PM
 - Dominique Forrester
 - Federal Facilities Unit Lead, California
Department of Toxic Substances Control



DERP FORUM

Achieving Greater Success Through Strong Partnerships

November 14-17, 2023 • Kansas City, MO

Introductions

- Presentations/Speakers
 - Overview- Ian Thompson
 - State LUC Coordination and Oversight
 - Lynne Baumgras - Sr. Engineering Geologist, California Department of Toxic Substances Control
 - Land Use Control Implementation Plans
 - James Salisbury - Environmental and Munitions Center of Expertise, EM CX
 - CMAGR Case Study
 - Allison Cantu, NAVFAC SW ER Program Manager



DERP FORUM

Achieving Greater Success Through Strong Partnerships

November 14-17, 2023 • Kansas City, MO

Introductions

Panel members

- James Salisbury, USACE Environmental and Munitions Center of Expertise (EM CX)
- Lynne Baumgras - Sr. Engineering Geologist, California Department of Toxic Substances Control
- Allison Cantu- NAVFAC SW ER Program Manager
- Bobby Templin - Hazardous Materials Management Program Leader, Bureau of Land Management Headquarters
- Walter Christensen - Environmental Dir., Natural Resources and Environmental Affairs, U.S. Marine Corps Quantico Environmental Director



DERP FORUM

Achieving Greater Success Through Strong Partnerships

November 14-17, 2023 • Kansas City, MO

Land Use Controls (LUCs) Overview

Ian Thompson, HQMC



DERP FORUM

Achieving Greater Success Through Strong Partnerships

November 14-17, 2023 • Kansas City, MO

LUC Overview

- High to low
- Definitions
- Cleanup process
- Risk management considerations
- Applications

LUC Overview

- General- Various controls applied to land for numerous purposes, to include risk mitigation. In context of cleanup, per EPA:
- Land Use Controls (LUCs) may consist of **non-engineered instruments**, such as administrative and legal controls or **engineered** and physical barriers, such as fences and security guards. LUCs help to **minimize the potential for exposure to contamination and/or protect the integrity of a response action** and are typically designed to work by **limiting land and/or resource use or by providing information that helps modify or guide human behavior at a site.**
 - What
- LUCs may be used when contamination is first discovered, when remedies are ongoing and **when residual contamination remains onsite at a level that does not allow for unrestricted use and unlimited exposure** after cleanup. The National Contingency Plan (NCP) emphasizes that LUCs are meant to supplement engineering controls and that LUCs should rarely be the sole remedy at a site.
 - When

- Land Use Controls- restrict of use of land
 - Reduce risk by reducing access or exposure to hazards
 - Engineered
 - caps, fences, restrictive or reactive barriers
 - Non-engineered
 - Administrative and legal controls, informational methods
- Institutional Controls
 - *The federal facility program may also use the term Institutional Controls (ICs).
 - proprietary or governmental
 - modify or guide human behavior at a site

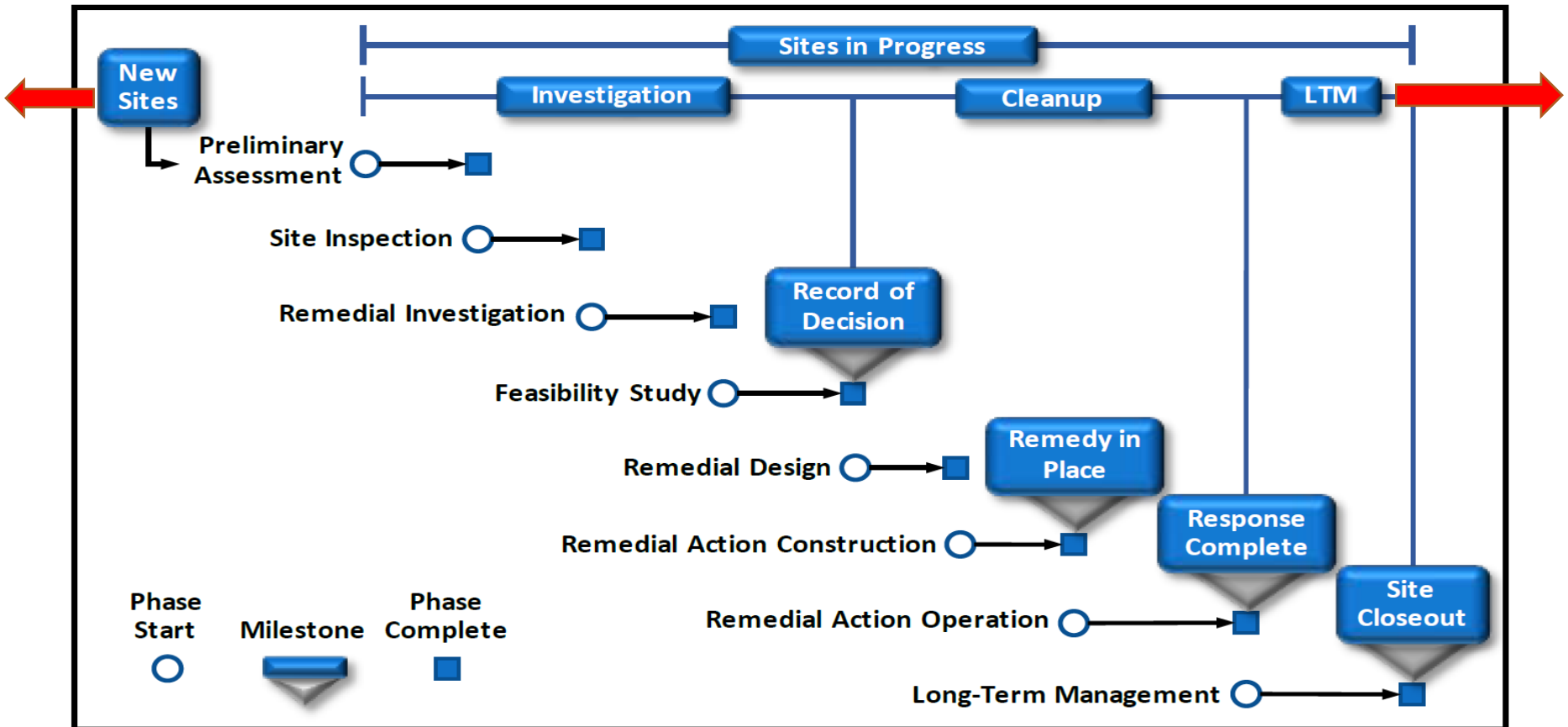
DERP FORUM

Achieving Greater Success Through Strong Partnerships

November 14-17, 2023 • Kansas City, MO

CERCLA Process

- Land Use Controls are continuous through the CERCLA process



LUCs at Federal Facilities

“Unrestricted Use/Unlimited Exposure (UU/UE): The goal of any removal or remedial action is to remove all munitions detected; however, it is generally not feasible to remove 100% of MEC items and determine that a MRS is “clear” for UU/UE due to technical limitations and costs.”

-ASTSWMO Remediation and Reuse Federal Facilities
Subgroup May 2020

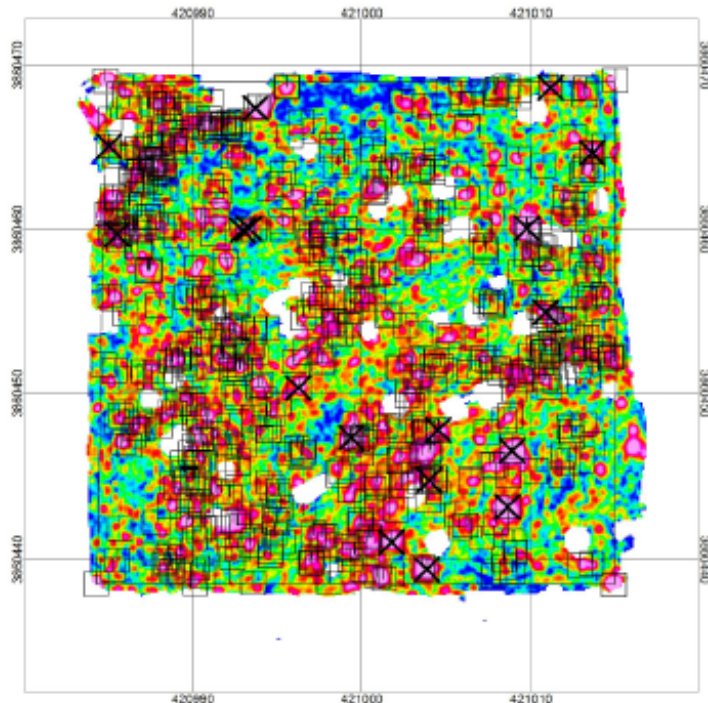
DERP FORUM

Achieving Greater Success Through Strong Partnerships

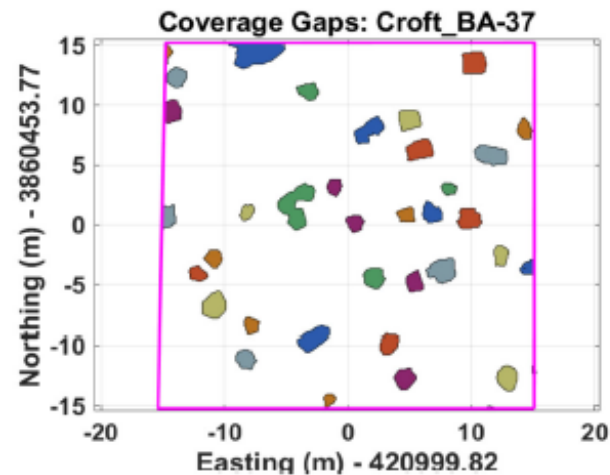
November 14-17, 2023 • Kansas City, MO

Feasibility

Croft Example- Density and Coverage



Detections- 609
TOI- 17
Coverage- 92%



LIDAR mapping using SLAM detection show where munitions were NOT assessed in a vegetated environment, i.e., in a forest/woodland

DoD Advanced Geophysical Classification Program- One Pass Systems, John Jackson, USACE EMCX, 28 February 2023

DERP FORUM

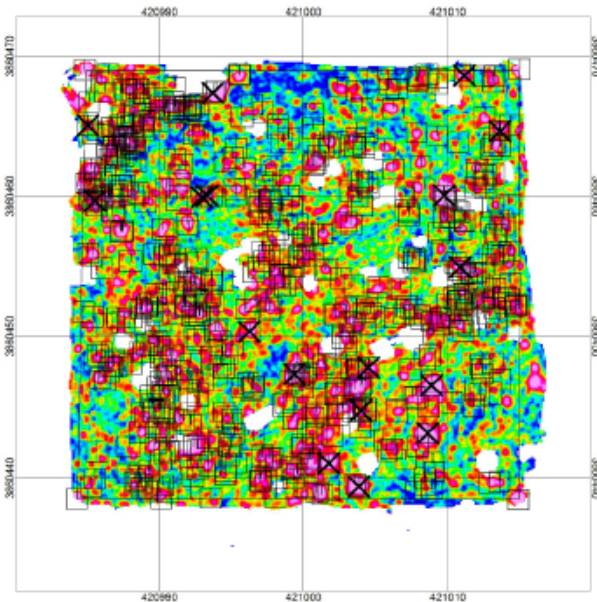
Achieving Greater Success Through Strong Partnerships

November 14-17, 2023 • Kansas City, MO

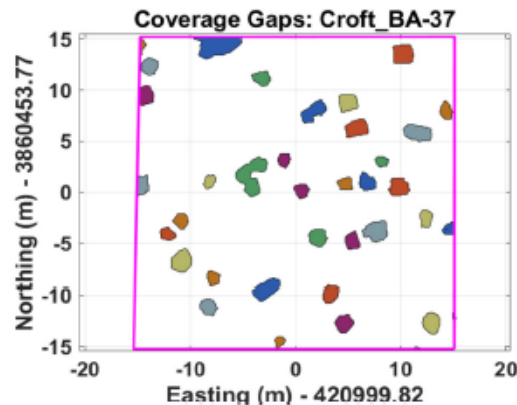
- Even with advanced surveillance systems, many factors contribute to incomplete coverage during investigation and removal actions, lowering clearance certainty.

Feasibility

Croft Example- Density and Coverage



Detections- 609
TOI- 17
Coverage- 92%



LIDAR mapping using SLAM detection show where munitions were NOT assessed in a vegetated environment, i.e., in a forest/woodland

DoD Advanced Geophysical Classification Program- One Pass Systems, John Jackson, USACE EMCX, 28 February 2023



DERP FORUM

Achieving Greater Success Through Strong Partnerships

November 14-17, 2023 • Kansas City, MO

Risk Management Considerations

- Many variables and site-specific considerations
 - Feasibility
 - Difficult technical solutions
 - Economic factors
 - Liability
 - Public Perception
 - Regulatory requirements
 - Health/Safety
 - Environmental
 - Future Land Use
- There are numerous ways to minimize risks at an MR site.
- LUCs are a very important way that we do this.
 - Short and intermediate solutions have required LUCs
 - Long-term solutions often require LUCs



DERP FORUM

Achieving Greater Success Through Strong Partnerships

November 14-17, 2023 • Kansas City, MO

LUCs in the Remedy

DoDM 4715.20: “In the FS, the DoD Component must consider at least three alternatives:

- no action,
- action to remediate the site to a condition that allows unlimited use and unrestricted exposure (UU/UE) condition, and
- action to remediate the site to a protective condition that requires land use restrictions (i.e., **land use controls (LUCs)** or exposure controls).”

“All DDs shall: ...

- 5. Describe the response action in general terms and **specify** the elements of the response action, including **describing LUCs** that were selected as part of the response.
- 6. List the entities responsible for implementing and maintaining the selected response action.

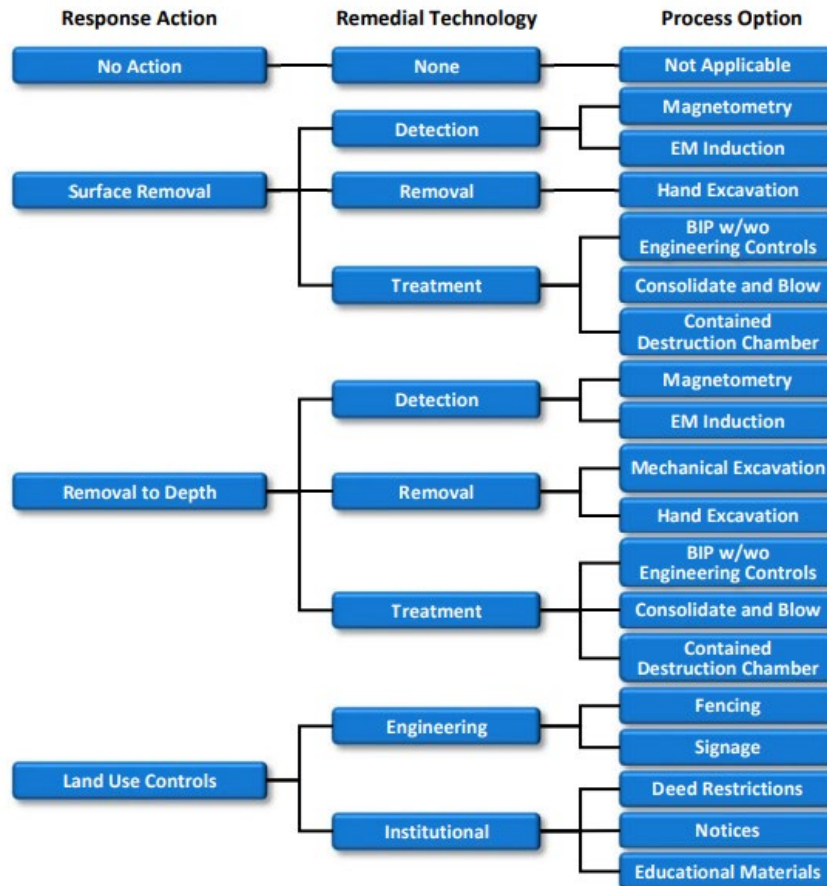
DERP FORUM

Response Options

Achieving Greater Success Through Strong Partnerships

November 14-17, 2023 • Kansas City, MO

Terrestrial Munitions Response Site Remedial Technologies and Process Options



Applicability

- **12.3.3.2 Land Use Controls** LUCs are used primarily to **manage risk** during implementation of a remedy, as well as **residual risk after completion of a remedy**. Unless a UU/UE remedy has been implemented, **some form of LUC is typically required at an MRS to account for residual hazards from undetected MEC/MPPEH** even if an active removal or treatment is conducted. LUCs can be applied at both terrestrial and underwater sites in the form of physical controls (i.e., **engineering** controls) and legal/administrative controls (i.e., **institutional** controls). The cost and feasibility of possible site end states (UU/UE or LUCs) must be considered early in the process, particularly for underwater MRSs. The **remedy for an MRS should focus on the best action that minimizes total life-cycle costs**. -NERP (2018)

Life Cycle Costs

- “minimizes total life-cycle costs”
- Current costs of UU/UE remediation
 - very HIGH, but trending down

VS.

- Cumulative costs of land restrictions, labor, and risks over numerous years AND the cost of future remediation
 - Future remediation may still be required

Future Land Use

- Utility of LUCs
 - Do the LUCs accomplish the required purpose to preserve health and environment?
- Maintenance/administration of LUCs
 - Master Plan
 - DoD, FUDS- transfer to other land holders
 - Covenants/notice of environmental use restrictions
 - GIS/data standards
 - DoD (SDSFIE), Federal, state, business standards



DERP FORUM

Achieving Greater Success Through Strong Partnerships

November 14-17, 2023 • Kansas City, MO

Presentations

- State LUC Coordination and Oversight
- Federal LUC Implementation Plans
- CMAGR Case Study/ Bradshaw Trail



DERP FORUM

Achieving Greater Success Through Strong Partnerships

November 14-17, 2023 • Kansas City, MO

State perspective LUC Coordination and Oversight

Lynne Baumgras - Sr. Engineering Geologist,
California Department of Toxic Substances Control



DERP FORUM

Achieving Greater Success Through Strong Partnerships

November 14-17, 2023 • Kansas City, MO

Federal Facilities Land Use Control Implementation Plans

James Salisbury - Environmental and Munitions
Center of Expertise, EM CX



DERP FORUM

Achieving Greater Success Through Strong Partnerships

November 14-17, 2023 • Kansas City, MO

CMAGR Case Study

Allison Cantu, NAVFAC SW Regional ER Manager



DERP FORUM

Achieving Greater Success Through Strong Partnerships

November 14-17, 2023 • Kansas City, MO

Panel Discussion, Q&A



DERP FORUM

Achieving Greater Success Through Strong Partnerships

November 14-17, 2023 • Kansas City, MO

Questions

- Are indefinite LUCs realistic, or is there an underlying assumption that future remediation will be required?
- Land Use Controls mitigate exposure likelihood, but do not mitigate the severity of the potential MEC which remains. Are depth controls (no digging past 16”) adequate in public areas?
- Are there LUCs that are NOT appropriate for implementation due to their unenforceability?
- We have cases where individuals go “Fishing for MEC” and scrappers who risk themselves to recover high-cost recyclable metals from range and munitions areas. While we stress concepts like Recognize, Retreat, and Report (3Rs), how do we enforce prohibitions against efforts to LOCATE submerged MEC (scanning, detection, excavation) in publicly accessible (but often remote) locations?
- Signs are stolen, shot, defaced, sun-weathered, and may be unsightly. Are signs adequate as Land Use Controls?
- LUCIPs are maintained by the federal land manager but may convey to other governing bodies or private entities. What actions ensure that the LUCs are properly implemented and carried forward in local government records?
- What data is often unavailable from federal government MR sites that is needed to protect public safety? What is the most difficult data to convey adequately to local governments or third parties?
- Private owner transfers: how do you stop OWNERS from digging on their OWN site?



DERP FORUM

Achieving Greater Success Through Strong Partnerships

November 14-17, 2023 • Kansas City, MO

Summary

Thank you for attending.