Closed Castner Firing Range Remedial Investigation

Technical Project Planning (TPP) Meeting #4

07 November 2017

9:00 AM – 11:00 AM

Meeting Agenda

- Remedial Investigation (RI) Project Objectives
- Review of Technical Project Planning (TPP) Meeting #3
- RI Report Findings & Recommendations
  - Munitions and Explosives of Concern (MEC) & Munitions Constituents (MC) Investigation Results
  - MEC and MC Risk
- Next Steps for Castner Range
- Questions

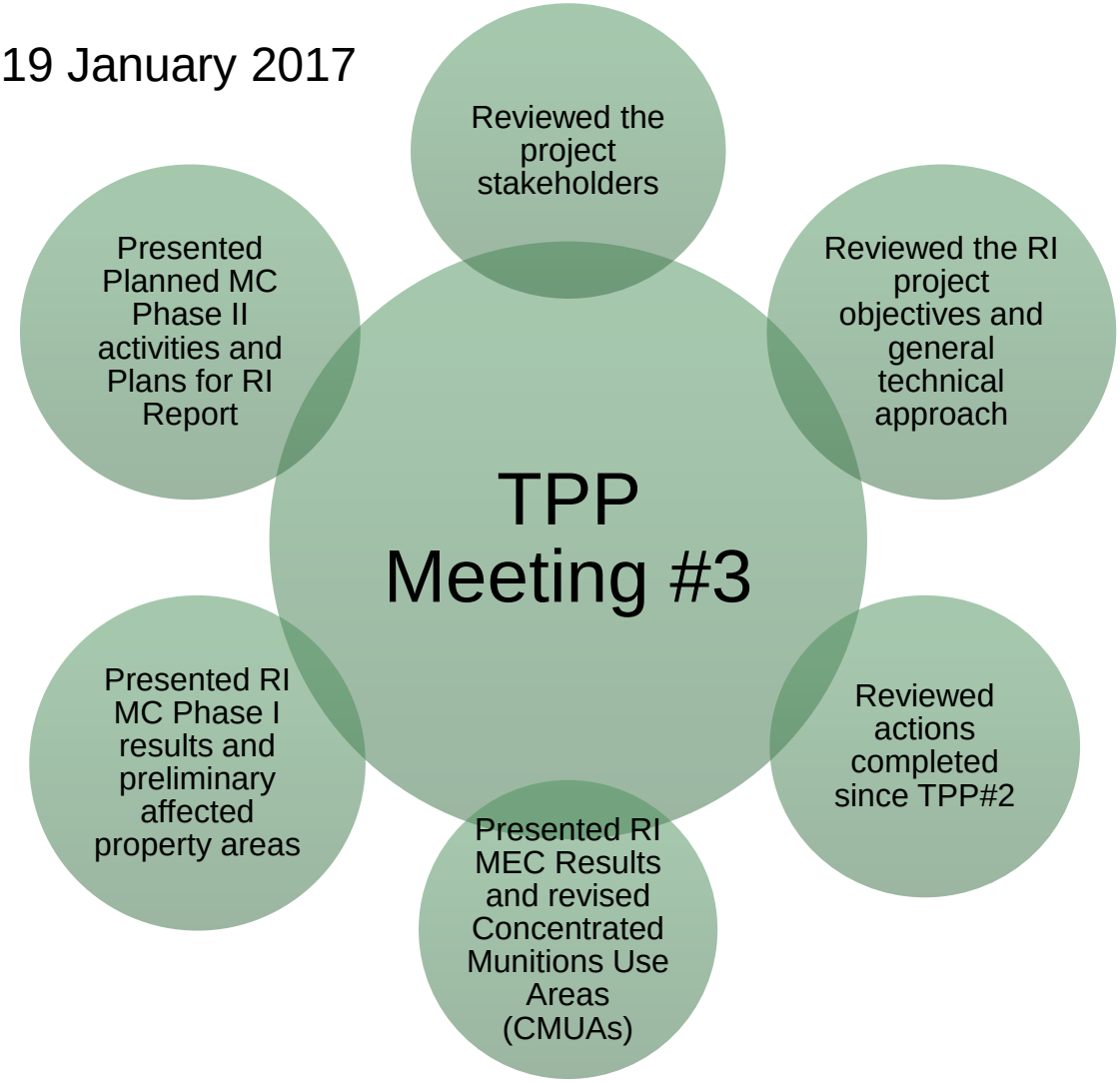
Safety Moment

RI Project Objectives

- Overall Goal:
  - Gather sufficient information to determine the nature and extent of MEC / MC and assess potential risks / hazards at the Closed Castner Firing Range Munitions Response Site (MRS)
- RI Objectives:
  - Conduct RI field investigation to characterize the Closed Castner Firing Range
    - Determine the type (nature), density and distribution (extent) of MEC
    - Determine the concentrations and extent of MC
  - Assess potential risks/hazards to human health, safety and the environment
  - Ensure sufficient data collected to develop remedial alternatives for Feasibility Study phase

Review of TPP Meeting #3

Meeting held 19 January 2017



Field Work as of TPP3

100% Complete

- ✓ Instrument Assisted Visual Surveys in Mountains
- ✓ Analog Mag and Dig Transects in Moderate Terrain
- ✓ Wide Area Assessment Transect Investigation
- ✓ New DGM Grids

MEC Investigation

- ✓ Incremental Sampling Methodology (ISM) Soil Samples
- ✓ Berm Samples
- ✓ Sediment Samples
- ✓ Surface Water Samples
- ✓ Demolition Shot Samples

MC Phase I Investigation

To Be Conducted

- ➢ ISM Step Out Samples for Delineation
- ➢ Step-Out Berm Samples
- ➢ Step-Out Sediment Samples for Delineation
- ➢ Subsurface Soil Boring Samples

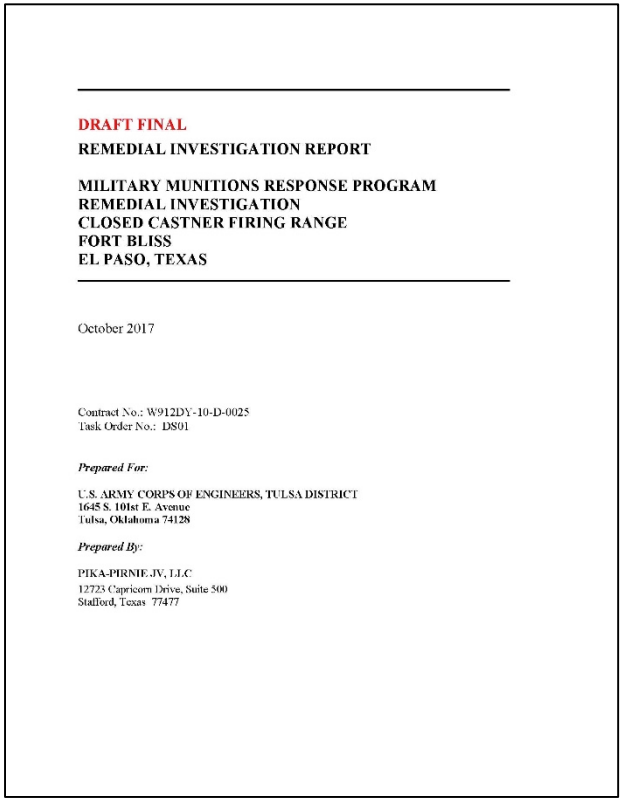
MC Phase II Investigation

Actions Completed Since TPP 3

- Phase II of the MC Investigation (January - March 2017)
- RI Status Presentation at Restoration Advisory Board Meeting (28 March 2017)
- MC Risk Assessments
- MEC Hazard Assessment (HA) and Munitions Response Site Prioritization Protocol (MRSPP) Update
- Draft RI Report Preparation
- Draft Final RI Report Preparation and Submittal to TCEQ for Review

RI Report Purpose

- Document and evaluate data (both MEC and MC findings)
- Update Conceptual Site Model (CSM)
- Report on nature and extent of MEC and MC
- Prepare Human Health Risk Assessment and Screening-Level Ecological Risk Assessment
- Prepare MEC Hazard Assessment, update MRSPP



DRAFT FINAL

REMEDIAL INVESTIGATION REPORT

MILITARY MUNITIONS RESPONSE PROGRAM
REMEDIAL INVESTIGATION
CLOSED CASTNER FIRING RANGE
FORT BLISS
EL PASO, TEXAS

October 2017

Contract No.: W912DY-10-D-0025
Task Order No.: DS01

Prepared For:

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Conclusions of the RI Report provide the foundation to develop remedial alternatives during a future Feasibility Study

MEC Investigation Plan

- Sufficient existing data to:
  - Define boundary CMUAs (*i.e.*, potential target areas) in eastern side of MRS
  - Show that CMUAs were delineated to an accuracy of +/- 250 ft
  - Characterize nature and extent of MEC within CMUAs
- Phased field investigation to close remaining data gaps:
  - Define boundary of CMUAs, if any, in steep areas within western side of MRS
  - Verify that MEC density throughout MRS outside of CMUAs is < 0.1 MEC/acre to a 95% confidence level
  - Assess migration potential of MEC (and MC) from higher to lower elevation areas

MEC Investigation Summary

Data Type	Planned		Actual	
	units	acres	units	acres
Visual Survey	29.3 miles	70.4	31.7 miles	76.8
Statistical Requirement To Complete Delineation:				
Wide Area Assessment (WAA) Transects	1750 100-ft segments	16.1	1750	16.1
Digital Geophysical Mapping (DGM) Grids	22 grids	5.1	30 grids	6.7
Analog Transects	452 100-ft segments	4.2	456 100-ft segments	5.2
Total Acres		**25.4**		**28.0**

Intrusive Investigation

DGM Data Collection

Analog "mag and dig"

MEC Investigation Results

- No CMUAs found in mountainous areas
- MEC density in non-CMUAs (NCMUA) is 0.119 MEC/acre
  - RI sampling goal (null hypothesis): determine to 95% confidence level if there are less than 0.1 MEC/acre in NCMUAs
  - Null hypothesis rejected; MEC density is simply greater than anticipated outside CMUAs
- CMUA boundary adjustments required
- MEC transport observed in arroyos

MC Investigation Plan

- Define vertical and horizontal extent in soil, surface water, and groundwater (if necessary)
- Demonstrate that Soil-to-Groundwater Pathway is incomplete
- Identify Protective Concentration Level (PCL) Exceedance Zones

MC Investigation Summary

Sample Type[1]	Initial Phase		Step Out
	Planned	Actual	
Area Wide Soil by ISM	149	149	45
Berms (Soil)	60	60	15
Arroyo (Soil)	50	52	24
Surface Water –Seeps	18	6	0
Surface Water –Arroyos	12	0[2]	0
Vertical Delineation – Soil	45	12	0
Groundwater (if needed)	3	0	0
Demolition Shots (Soil)	7 ISM 3 Discrete	6 ISM 0 Discrete	0

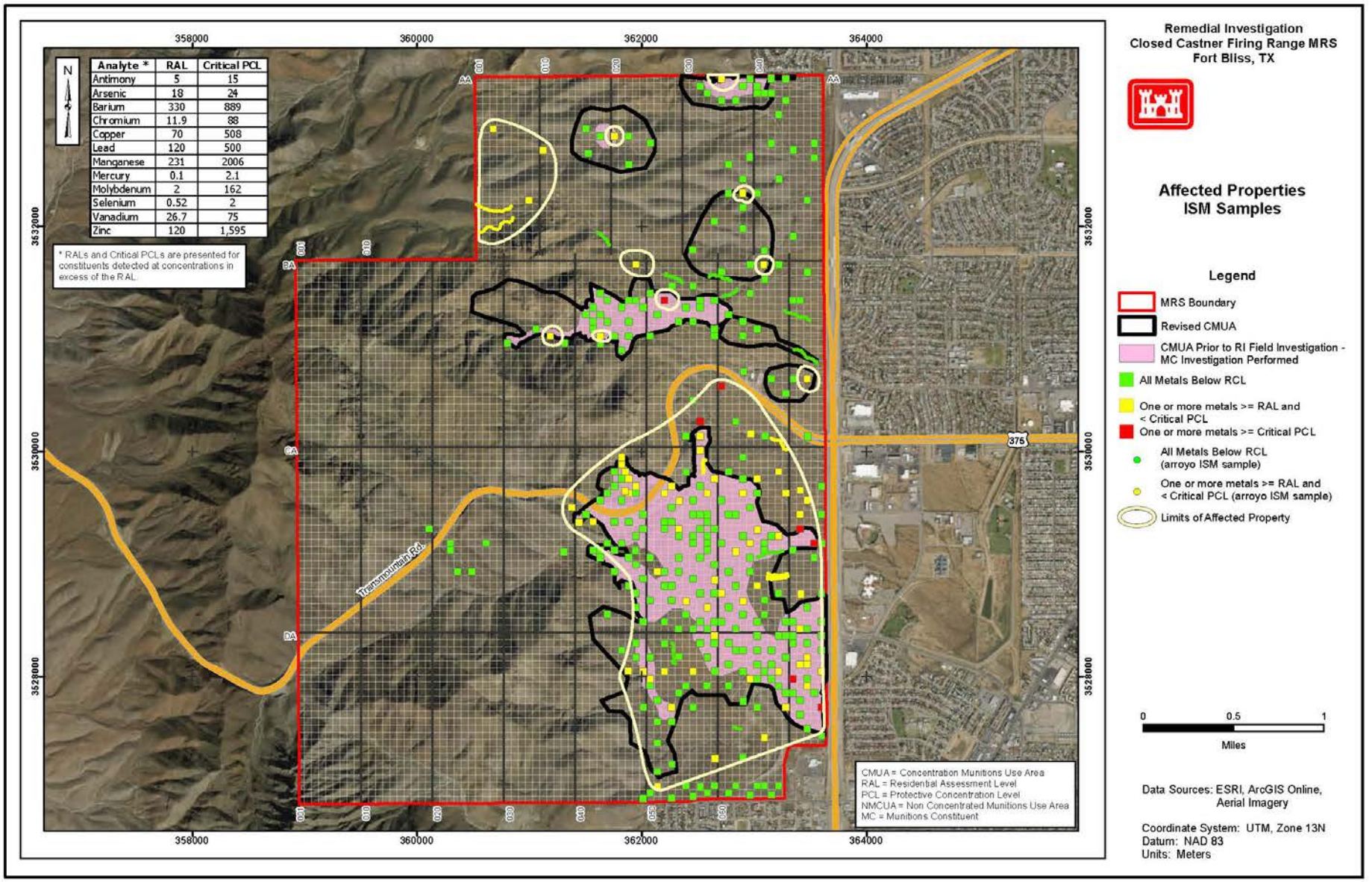
[1]Primary sample numbers provided
[2]No surface water present 48 hours after rainfall

ISM Sampling

Berm Sampling

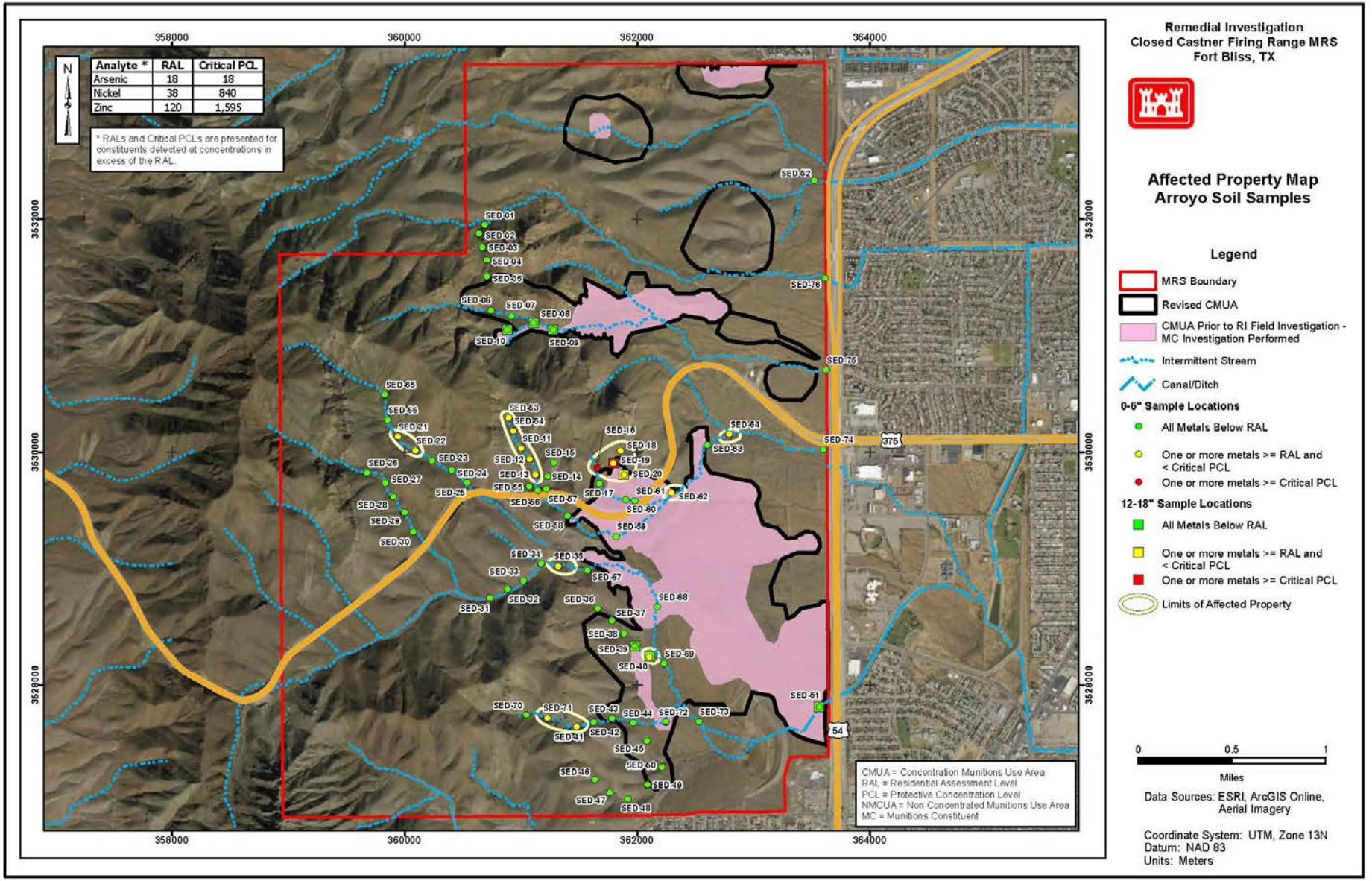
Vertical Delineation

ISM Delineation Results - Metals



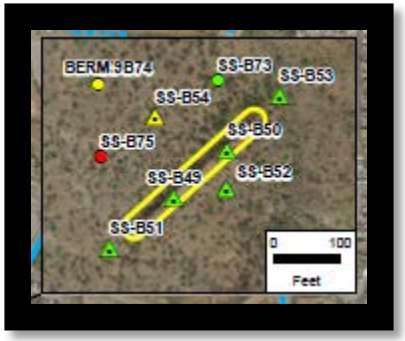
Analyte *	RAL	Critical PCL
Antimony	5	15
Arsenic	18	24
Barium	330	889
Chromium	11.9	88
Copper	70	508
Lead	120	500
Manganese	231	2006
Mercury	0.1	2.1
Molybdenum	2	162
Selenium	0.52	2
Vanadium	26.7	75
Zinc	120	1,595

Arroyo Soil Delineation Results

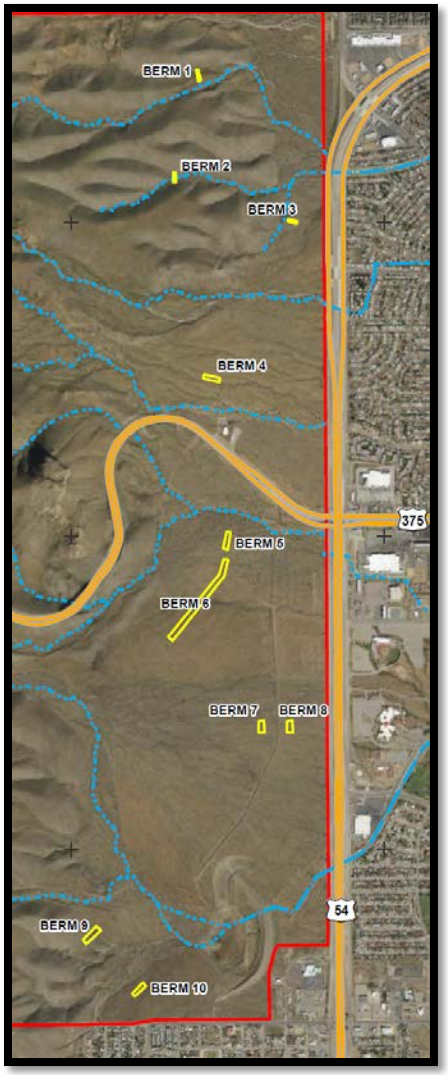


Berm Sampling Results

- Discrete samples collected from material within berms and soils around perimeters of berms
- At some berm locations, concentrations increased with distance from berm:



- MC attributed to complex-wide range activities (not berm release). Therefore:
  - Delineation to RALs using discrete samples around berms was discontinued
  - No Affected Properties were identified using discrete data from berms
- Only Berms 7 and 8 likely used as backstops



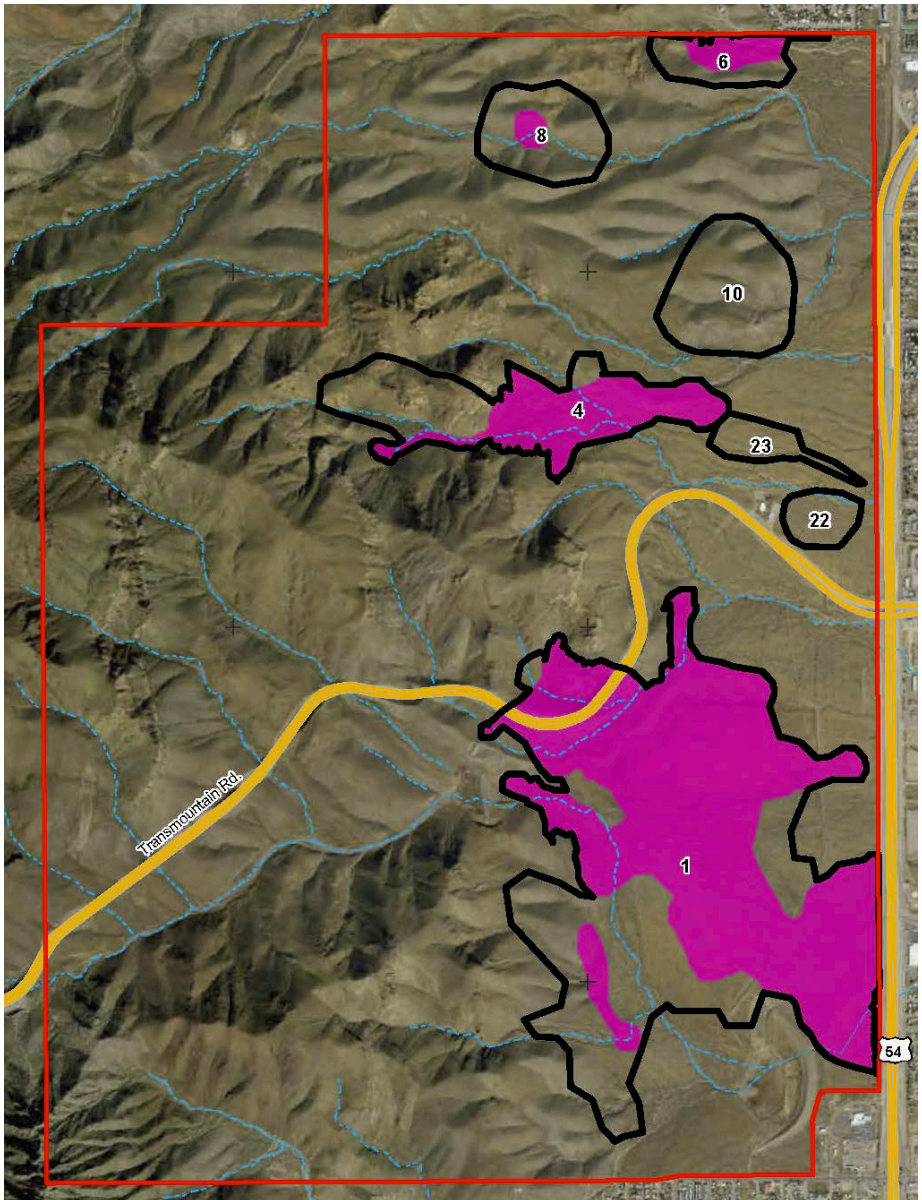
Other MC Results

- Surface Water
  - 6 samples collected from seeps
  - No PCL exceedances
- Subsurface Soil
  - 3 borings, 12 samples
  - No PCL exceedances
  - Vertical delineation achieved in deep boring
  - Top of bedrock tagged – 29.5 feet
  - No perched groundwater present
- Groundwater
  - Not Encountered
  - Soil-to-groundwater pathway is incomplete

Break

CSM Updates

1. Revision to CMUA Boundaries
   - Expanded 4 CMUAs and added 3 new CMUAs
   - Potential CMUA #21 determined to be an NCMUA
2. Confirmation of MEC / MD transport in arroyos
3. PCL Exceedance (PCLE) Zones for MC identified in surface soil
4. MC Soil to Groundwater Pathway is incomplete
   - No shallow groundwater



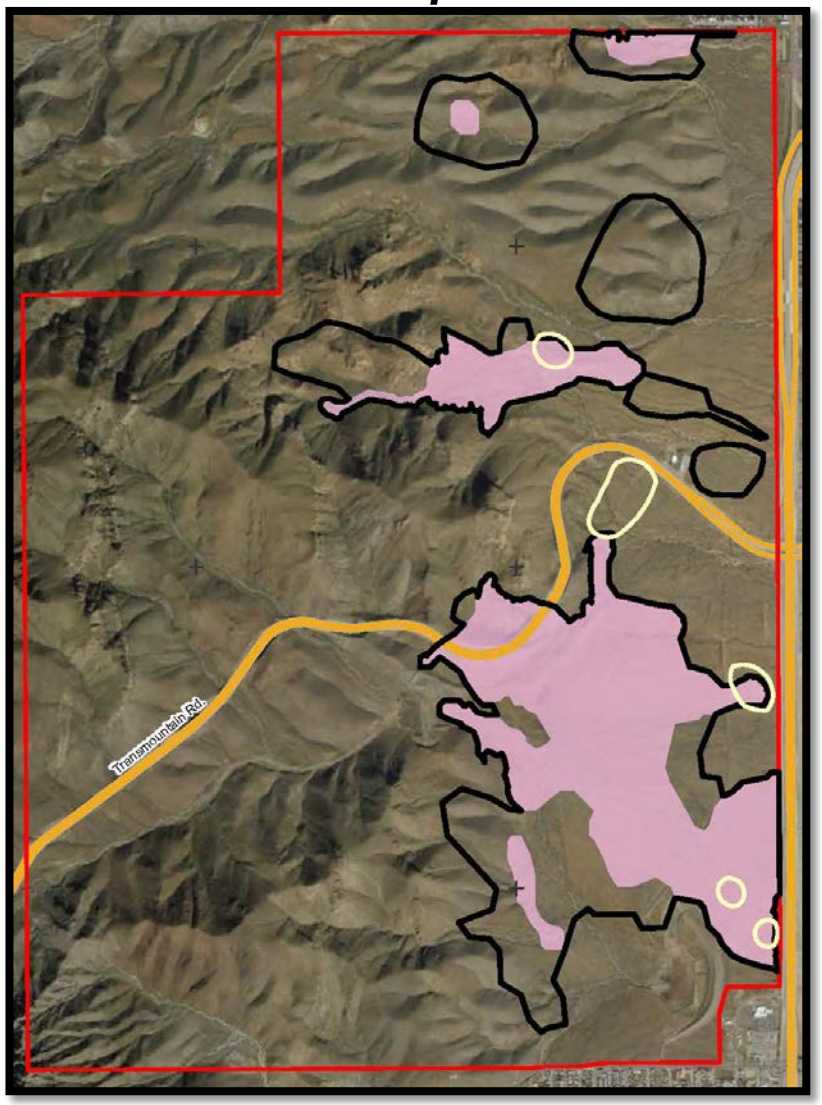
MC PCL Exceedance Zones

PCLE Zones – Portion of site which may require a remedy

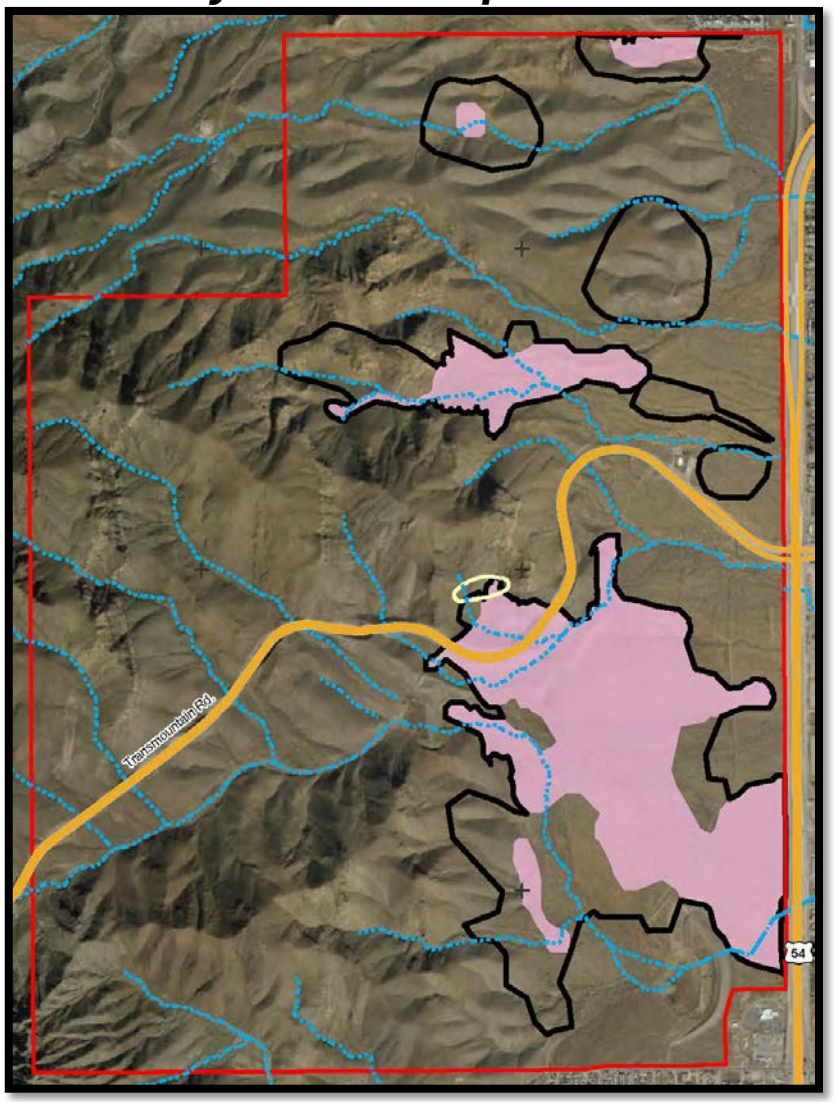
- Identified in surface soil only, for only metallic constituents (arsenic, antimony, and lead)
- 5 PCLE Zones – ISM samples
- 1 PCLE Zone – discrete arroyo soil samples

MC PCL Exceedance Zones

ISM Samples

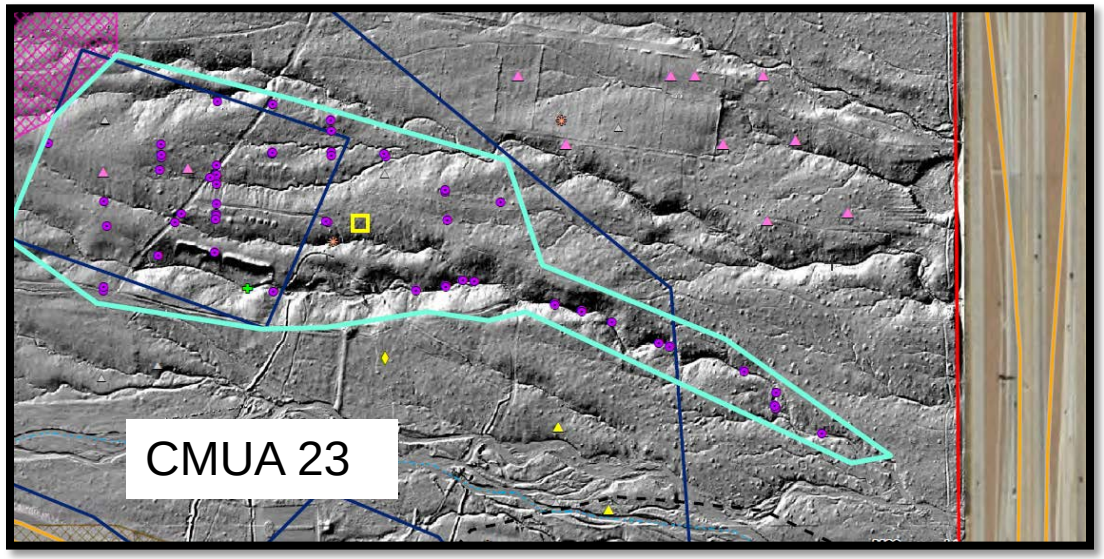


Arroyo Soil Samples



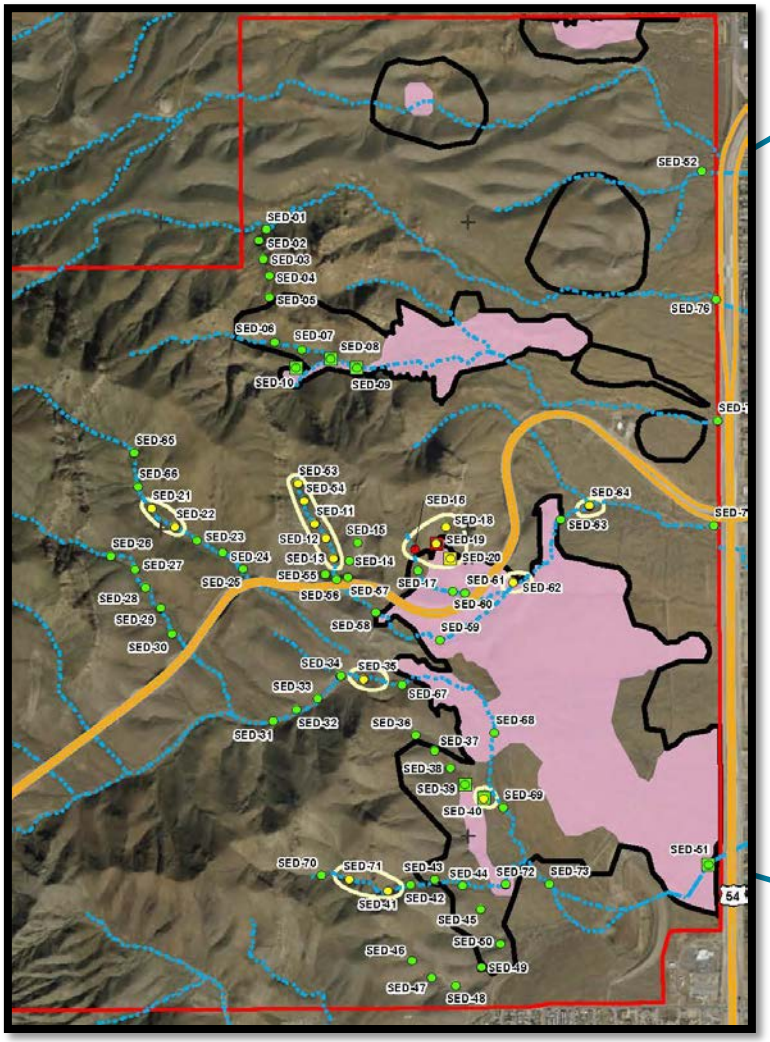
MEC Fate & Transport

- Soil is silty sand with gravel and cobbles
- Topography progresses west to east from mountainous to gently rolling
- Wet/dry erosion transports MEC from higher to lower elevations
- Occurring at CMUA 23; possible at others



MC Fate & Transport

No Off-site Migration of MC



Soil concentrations at MRS boundary below Residential Assessment Levels (RALs)

Baseline Risk Assessment

Human Health Risk Assessment (HHRA)

- Cancer risks acceptable for surface soil (ISM decision units and arroyos) evaluated
- Non-cancer Hazard Index (HI) greater than target HI of 1 for resident:
  - 6 decision units (lead) and 1 arroyo reach (arsenic)
  - Locations correspond to the PCLE Zones identified

Screening-Level Risk Assessment (SLERA)

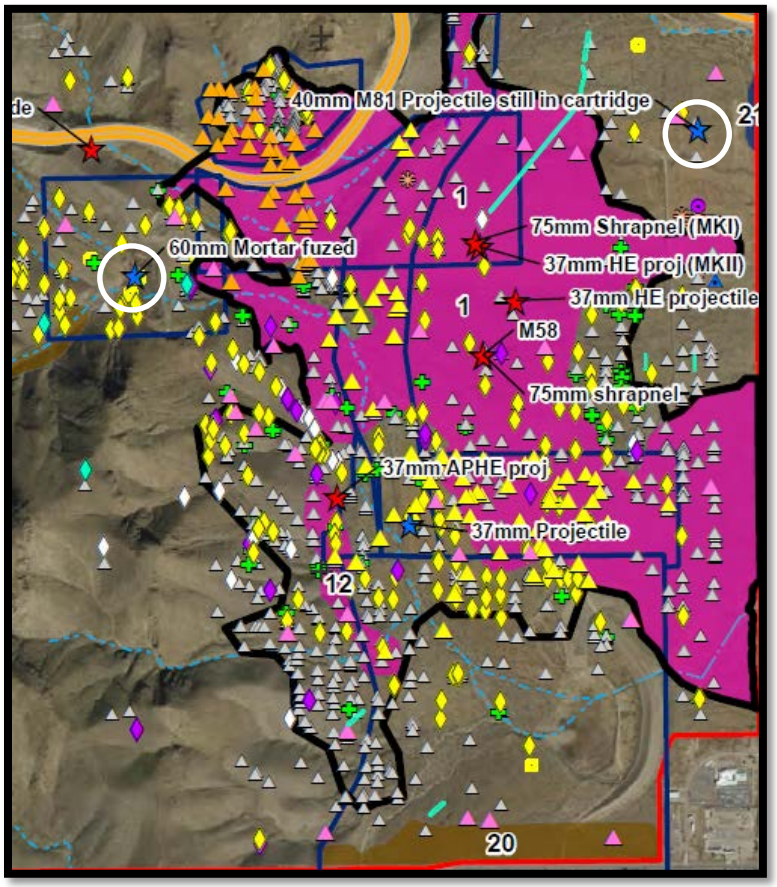
- Tier 1 Ecological Exclusion Checklist completed
  - Triggered requirement to complete a SLERA for MRS
- SLERA calculated ecological risk-based PCLs
  - 6 metals: barium, chromium, manganese, selenium, and zinc
  - Barium only metal for which ecological PCL was critical PCL
  - 2 PCLE zones established for lead based on ecological risk

MEC HA Summary

- Evaluates potential explosive hazard at MRS
- Evaluation included historical site information and all investigations conducted (including RI)
- Qualitative Evaluation
  - Potential MEC exists surface and near surface
  - Associated hazard to human receptors encountering MEC is high
- Quantitative Evaluation
  - MEC HA Score - 895
  - Hazard Level 1 - highest potential explosive hazard condition

MEC Recommendations

- Modify CMUA boundaries as shown previously
  - Remainder of MRS to be treated as background (NCMUA)
- Perform Feasibility Study
  - To support selection of alternatives to mitigate safety risks within CMUAs
  - 2 MEC found in NCMUA area during RI; this area should be included in FS

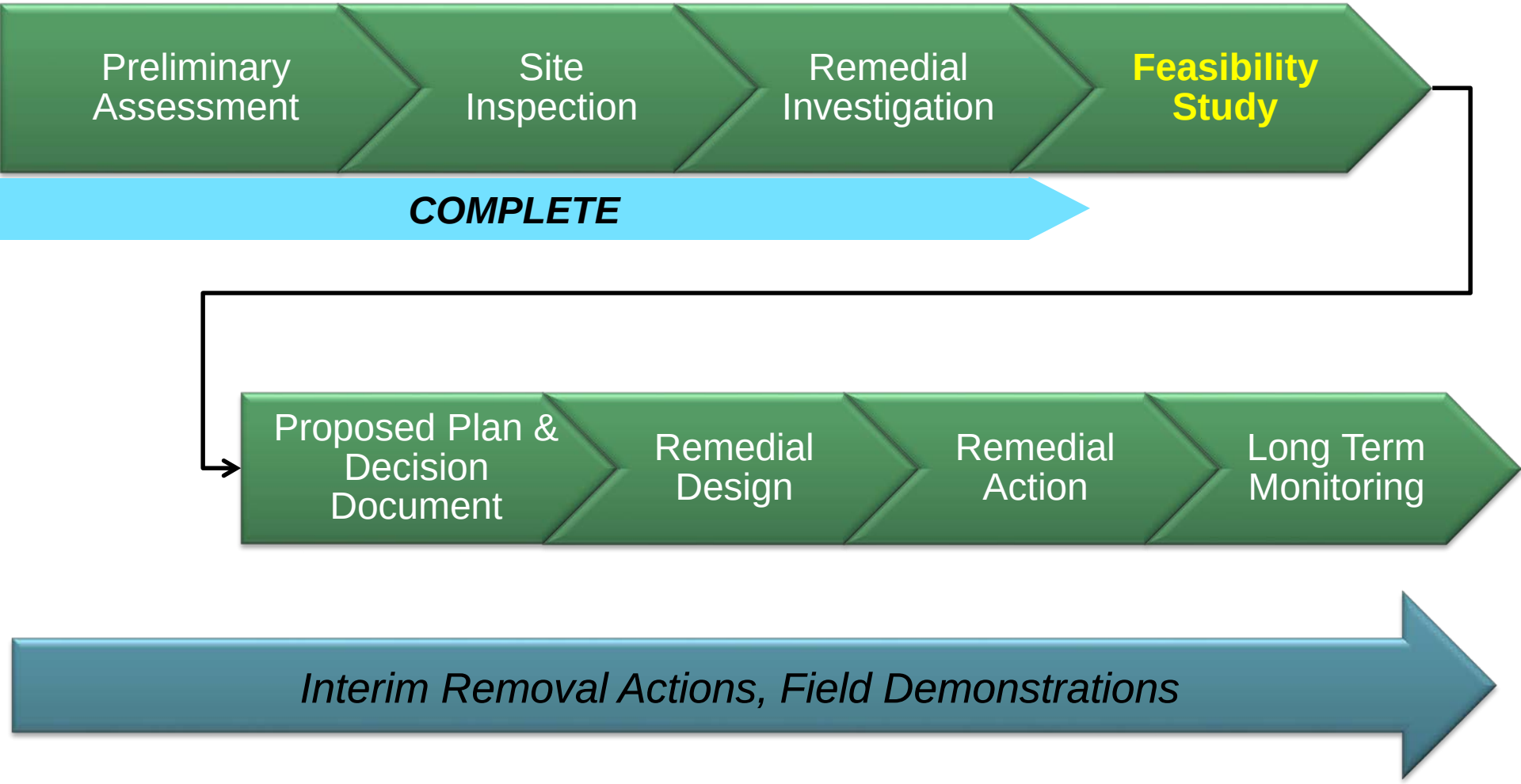


2 MEC items identified within final NCMUA boundary

MC Recommendations

- Based on RI results, potential MC risks exist at:
  - Berms 7 & 8
  - 5 PCLE Zones associated with ISM samples
  - 1 PCLE Zone in Arroyo Reach 3
- Prepare Feasibility Study to identify remedial alternatives to address potential risk due to MC impacts

CERCLA Process: What's Next?



Where Do We Go From Here?

- Army will continue to work with the community and other stakeholders to determine future cleanup goals and remedial actions
- Future actions will be focused on safeguarding areas identified for community access where feasible within Castner Range
- Army will consider the community's interests during the Feasibility Study
- After the Feasibility Study, a proposed remedy will become available for public comment
- After public comments have been reviewed and considered, a decision document will be published marking the official selection of the remedial action
- Army's goal is to complete 1st stages of remedial action by 2023

Feasibility Study

- Develops, screens, and evaluates MEC and MC remedial action alternatives
- Establishes remedial action objectives
- Identifies / screens applicable technologies
- Combines technologies and approaches into remedial alternatives
- Initial remedial alternative screening (effectiveness, implementability, cost)
- Detailed analysis of remedial alternatives

Evaluation Criteria

Threshold Criteria

- Overall protection of human health and the environment
- Compliance with ARARs

Primary Balancing Criteria

- Long-term effectiveness and permanence
- Reduction of toxicity, mobility, or volume
- Short-term effectiveness
- Implementability
- Cost

Modifying Criteria

- State acceptance
- Community acceptance

Possible Approaches

- Evaluate Castner Range in parts
  - MEC: Create a 7000-acre Castner Range Munitions Response Area (MRA); subdivide MRA into component MRSs:
    - By CMUA
    - One NCMUA
    - Arroyos (for MEC migration)
  - MC: Evaluate PCLE zones, Berms 7 and 8
- Possible remedial alternatives:
  - Land Use Controls
  - Surface Clearance
  - Subsurface Clearance
  - Advanced Geophysical Classification Removals
  - Long-Term Monitoring