Closed Castner Firing Range Remedial Investigation

Technical Project Planning (TPP) Meeting #2

11 February 2015

9:00 AM – 1:00 PM

Meeting Agenda

- Meeting Goals and Objectives
- Project Stakeholder Review
- Military Munitions Response Program (MMRP) / Remedial Investigation (RI) Objectives
- Closed Castner Firing Range Overview
- Review of Technical Project Planning (TPP) Meeting #1
- RI Quality Assurance Project Plan and Upcoming Field Work
  - Munitions and Explosives of Concern (MEC) Investigation
  - Munitions Constituents (MC) Investigation
- RI Report
- Schedule
- Questions and Follow-Up Items

Safety

- Explosives safety is the ***paramount*** priority during a munitions response.
- The golden rule of explosive safety is to "limit the exposure to a
  - ***minimum*** number of persons,
  - for a ***minimum*** time,
  - to the ***minimum*** amount of military munitions consistent with safe and efficient operations."

PIKA ARCADIS

Meeting Goals

- Review the MMRP and RI project objectives
- Review and confirm TPP Meeting #1 conclusions
- Present the technical approach documented in the Quality Assurance Project Plan (QAPP)
- Confirm regulatory concurrence with investigation approach
- Obtain stakeholder input on plan
- Initiate field investigation

PIKA ARCADIS

Army Project Team Members

USACE Tulsa District	
Rick Smith, PE, PMP	Project Manager
Frank Roepke	Technical Manager
US Army Environmental Command	
Bob Rowden	Environmental Restoration Manager
Fort Bliss – Directorate of Public Works, Environmental Division	
Sylvia Waggoner	Chief, Compliance Branch
Isaac Trejo	Environmental Protection Specialist
Ron Baca	Installation Restoration Program (IRP) Manager
Donita Kelly	Public Affairs
USACE Fort Worth District	
Eric Kirwan	Project Geophysicist
Jackie Smith	Ordnance and Explosives Safety Specialist

PIKA ARCADIS

Regulatory Stakeholders

TCEQ	
Allan Posnick	TCEQ
Joseph Miller	TCEQ – Regional Office

USEPA	
Dr. Carlos Rincon	USEPA Region 6

Additional Stakeholders

- **Border Patrol**
- **Castner Heights Neighborhood Association**
- **Chihuahuan Desert Education Coalition**
- **City of El Paso**
- **Comanche Nation**
- **El Paso County**
- **El Paso Districts**
- **El Paso Water Utilities**
- **Elpasonaturally**
- **Franklin Mountains Wilderness Coalition**
- **Franklin Mountains State Park**
- **Fort Bliss Restoration Advisory Board**
- **Frontera Land Alliance**
- **Kiowa Tribe of Oklahoma**
- **Mescalero Apache Tribe**
- **Pueblo of Isleta**
- **Senators, Congressmen, and Congressional Candidates**
- **Sierra Club**
- **Texas Department of Transportation**
- **Texas Parks and Wildlife**
- **University of Texas at El Paso**
- **Ysleta Del Sur Pueblo**

PIKA ARCADIS

PIKA-ARCADIS JV Team

PIKA-ARCADIS JV	
Mike Madl, PMP	Project Manager
Aakash Gupta, CHMM, PMP	Deputy Project Manager
Garett Ferguson, PG	Deputy Project Manager
Sarah Alder-Schaller, PE	Regulatory Specialist
Steve Stacy, PG	Geophysicist / Senior Scientist
Glenn Hoeger	Risk Assessor
John Sparks, PE	Quality Management
Sarosh Manekshaw, CIH	Corporate Safety Manager
Shawn Corcoran	Senior UXO Technical Specialist
Shahrukh Kanga, CHMM, PMP	Program Officer

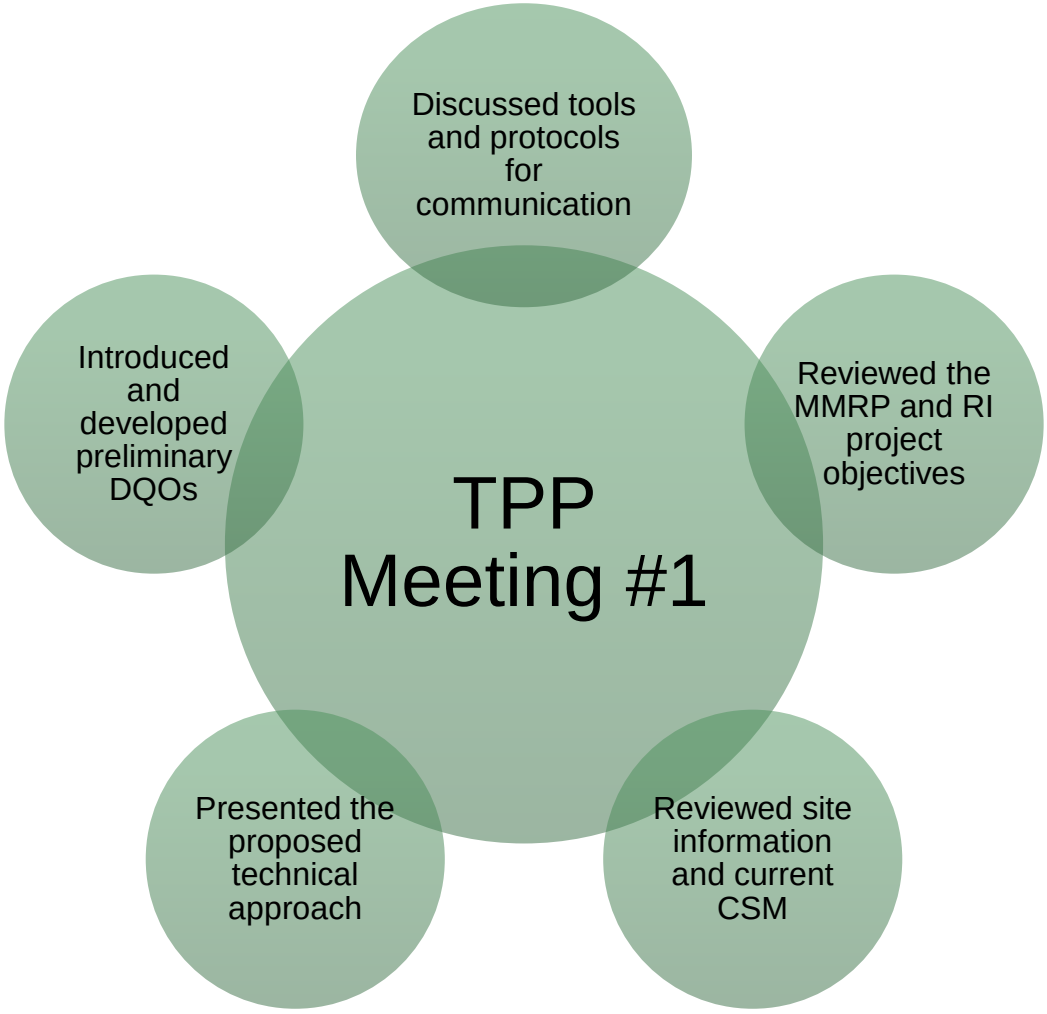
Key Definitions

- MEC – Munitions and Explosives of Concern
  - Includes unexploded ordnance (UXO), discarded military munitions (DMM), or munitions constituents (MC) present in high enough concentrations to pose an explosive hazard
- MC – Munitions Constituents
  - Materials from UXO, DMM, or other military munitions, including explosive and non-explosive materials, and emission, degradation, or breakdown elements of such ordnance or munitions
- MRS – Munitions Response Site
  - Any area on a defense site that is known or suspected to contain MEC

Key Definitions

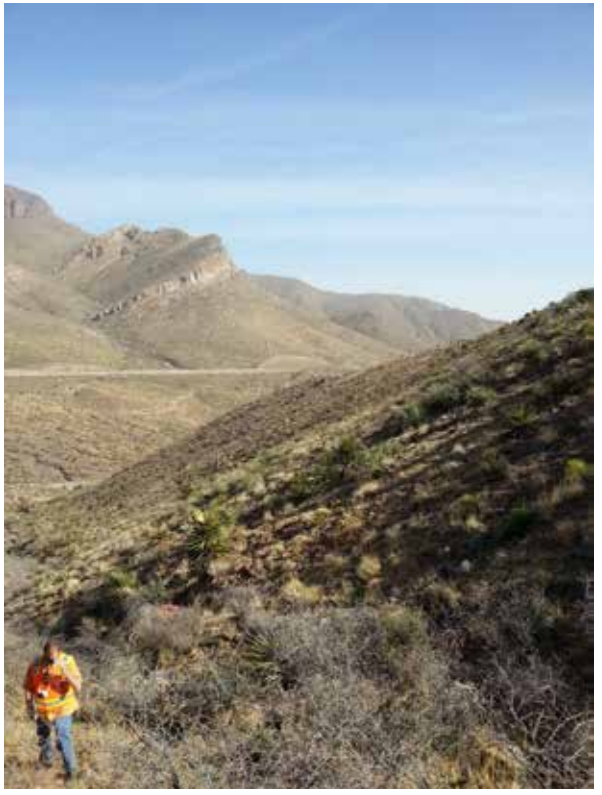
- CMUA – Concentrated Munitions Use Area
  - MRSs or areas within MRSs where there is a high likelihood of finding UXO or DMM and that have a high amount of munitions debris (MD)
    - Most commonly target areas on ranges
    - Also include explosion sites, open burn/open detonation (OB/OD) areas, and large disposal sites
- NCMUA – Non-Concentrated Munitions Use Area
  - Areas where there is a low amount of MD and UXO due to limited historical munitions use and fragmentation

Review of TPP Meeting #1



Actions Completed Since TPP 1

- Presented project at February 2014 RAB Meeting
- Prepared Explosives Site Plan
  - Currently in Army / DoD review
- Completed Community Relations Plan
- Conducted assessment of high slope areas and ability to conduct visual survey
  - Maximum slope that can be safely investigated is 35%
- Developed QAPP



PIKA ARCADIS

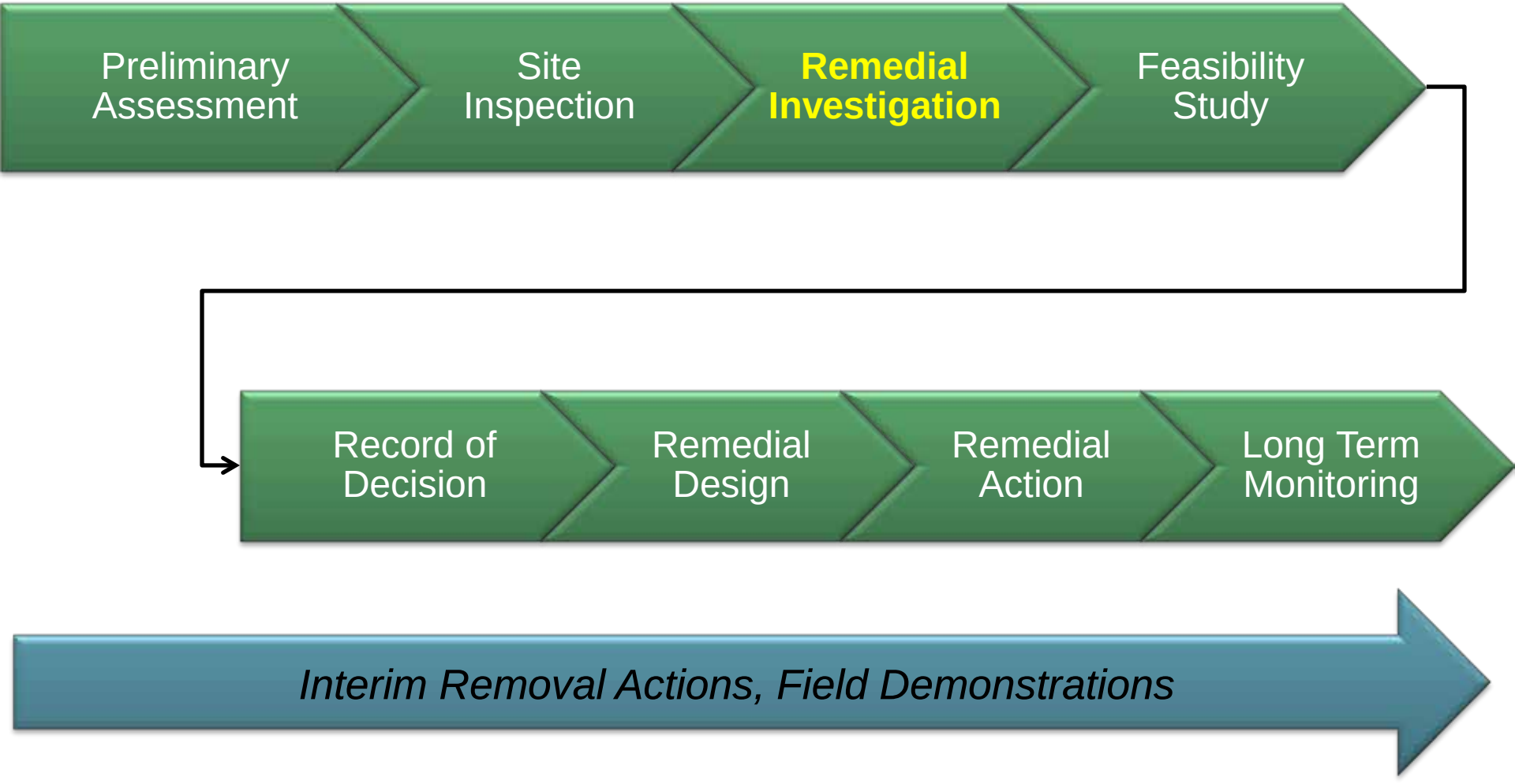
What is the MMRP?

- Addresses munitions-related concerns, including explosive safety, environmental, and health hazards from releases of MEC and MC found on “other than operational ranges” on active installations
- MMRP provides for the investigation and response at sites with MEC, DMM, and/or MC
- MMRP follows CERCLA process (“Superfund”)

More information available at
http://www.asaie.army.mil/Public/ESOH/mmrp.html

PIKA ARCADIS

MMRP Phases


Preliminary Assessment
Site Inspection
Remedial Investigation
Feasibility Study
Record of Decision
Remedial Design
Remedial Action
Long Term Monitoring
Interim Removal Actions, Field Demonstrations

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 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

RCRA Permit Requirements

- Fort Bliss is subject to the requirements of the state's Resource Conservation and Recovery Act (RCRA) permit
  - Closed Castner Firing Range is SWMU #64 and is subject to corrective action
  - RCRA corrective action process is similar to the CERCLA process
- RCRA Facility Investigation performed as Affected Property Assessment under the Texas Risk Reduction Program (TRRP)
  - TRRP establishes risk-based protective concentration levels (PCLs) for MC
  - During RI, substantive requirements of TRRP will be met

Castner Range RI Tasks

Implement TPP Process	
TPP Meeting #1	Complete
TPP Meeting #2	Today
TPP Meetings 3 and 4	Field Work / RI Report
Develop Planning Documents	
MEC / MC QAPP	Final February 2015
APP / SSHP	Final February 2015
ESP	April 2015
Community Relations Support	
Public Meetings	April / May 2015
RAB Meetings	May / June 2015
Community Relations Plan	Complete

PIKA ARCADIS

Castner Range RI Tasks

- Conduct RI Field Activities
  - Visual Survey
  - Analog Geophysics
  - Digital Geophysical Mapping (DGM)
  - MEC Characterization / Identification
  - MC Sampling
- Prepare RI Report
  - Present Findings
  - Update Conceptual Site Model (CSM)
  - Conduct MEC Hazard Assessment
  - Risk Assessments - HHRA and SLERA
  - Update MRSPP
- Maintain Administrative Record

PIKA ARCADIS

Closed Castner Firing Range

Land Use

- Current use: closed military training range
  - undeveloped
  - restricted public access
- Future use not established at this time
  - RI will use the most conservative approach for planning

Large warning sign posted at Castner

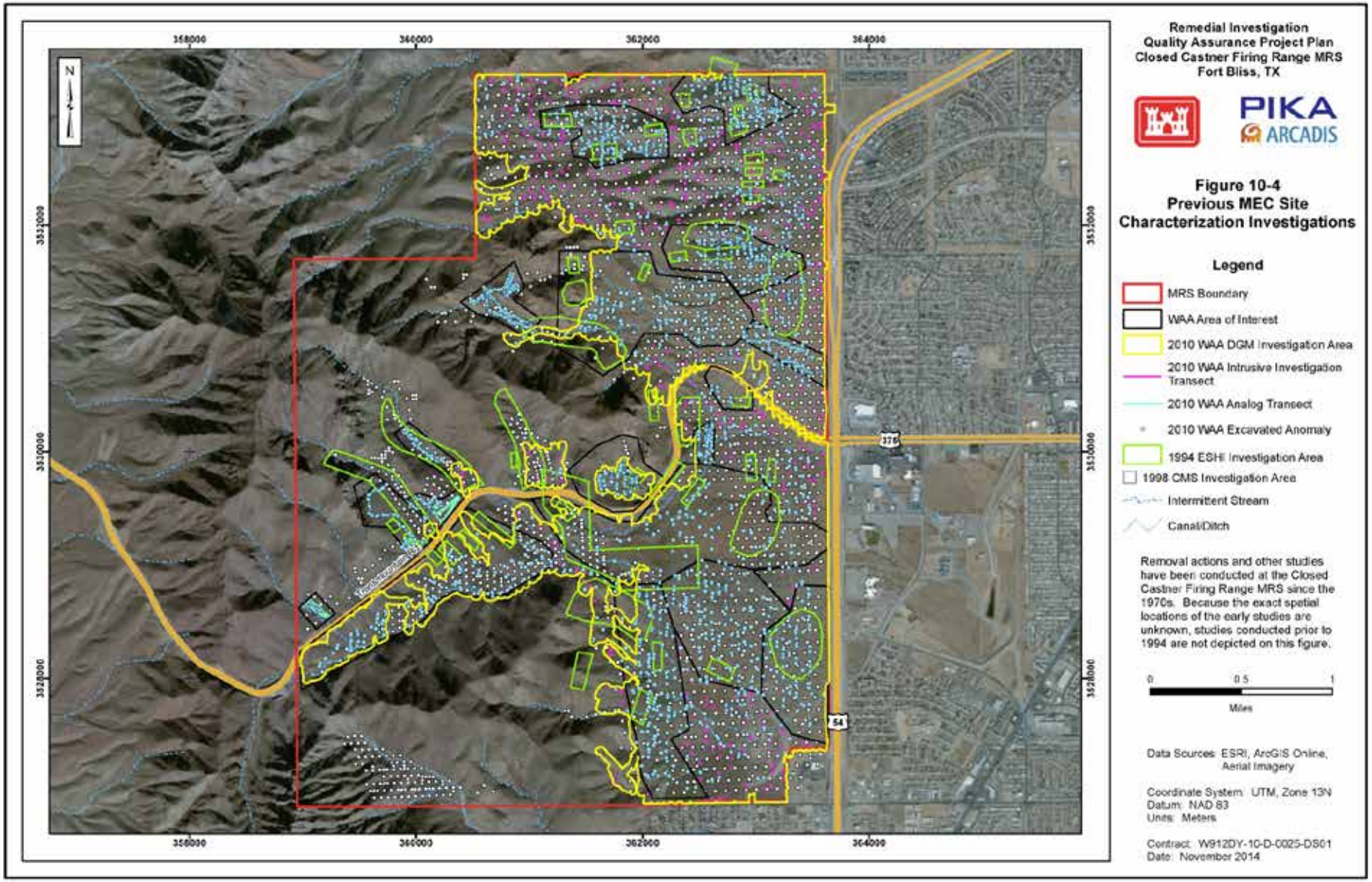
MEC and MC Overview

- MEC / munitions identified at the Castner Range MRS from numerous surface and subsurface investigations
  - Flares
  - Signaling Items
  - Simulators
  - Obscurant Smoke
  - Grenades (hand, rifle, smoke)
  - Small, Medium, and Large Caliber Projectiles (20mm to 155mm)
  - Mortars (3-inch Stokes, 4.2-inch, and 81mm)
  - Rockets (2.36-inch and 3.5-inch)
  - Small Arms
- MC:
  - Metals and limited explosives based on 2013 Incremental Sampling Methodology (ISM) effort
  - Perchlorate also a consideration given use of rockets and OB/OD areas

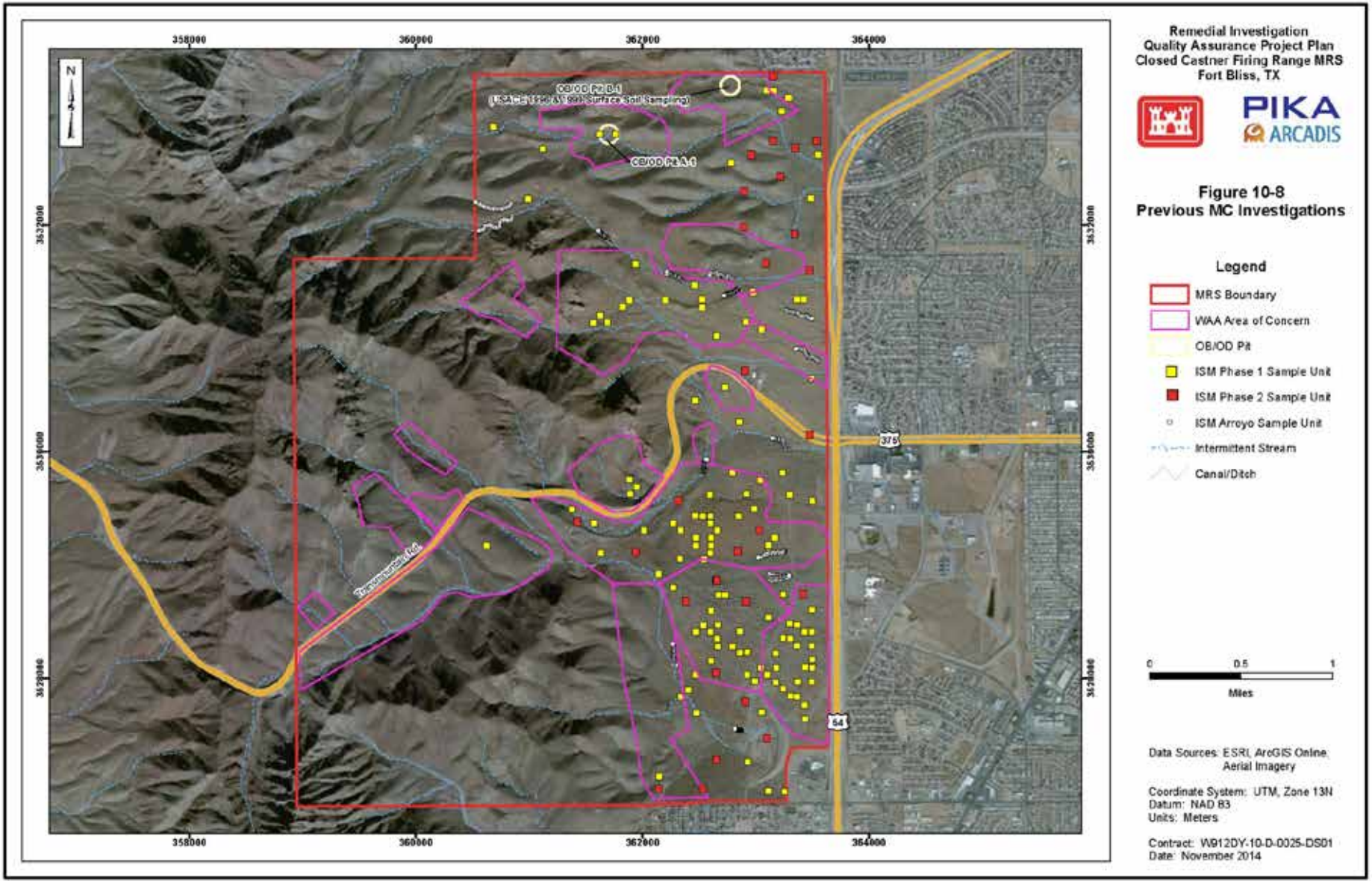
Live 105mm Projectile, M314 Series with Fuze found during January 2004 investigation

PIKA ARCADIS

Previous MEC Investigations



Historical MC Investigations



Wide Area Assessment (WAA)

- Application of several site characterization methodologies to rapidly gather data across a large site

WAA Technologies Evaluated	Useable for RI?
Light detection and ranging (lidar)	ü
Orthophotography	ü
Helicopter-borne magnetometry	X
Man-portable electromagnetic induction (EMI) DGM	ü (slopes < 18%) X (slopes > 18%)
Analog range reconnaissance	ü
Intrusive Investigation	ü

PIKA ARCADIS

General RI Approach / Data Gaps

- Includes MEC and MC investigation
- Evaluate and utilize previous work, especially:
  - 2012 WAA Field Demonstration Report
  - 2013 ISM Field Demonstration Report
- Collect additional MEC and MC data to fill data gaps:
  - Vertical and horizontal extent of MEC and MC
  - MEC density outside identified CMUA
  - Identify additional CMUAs in high slopes, if present
  - Transportation potential of MEC and MC from high to low elevations

Quality Assurance Project Plan

- "Work Plan" for the RI
- Evaluated and defined investigation area
  - Identified the CMUAs, selected areas for further investigation
- Conducted quality review of WAA and concluded data was sufficient to use for the RI for both MEC and MC
- Finalized data quality objectives

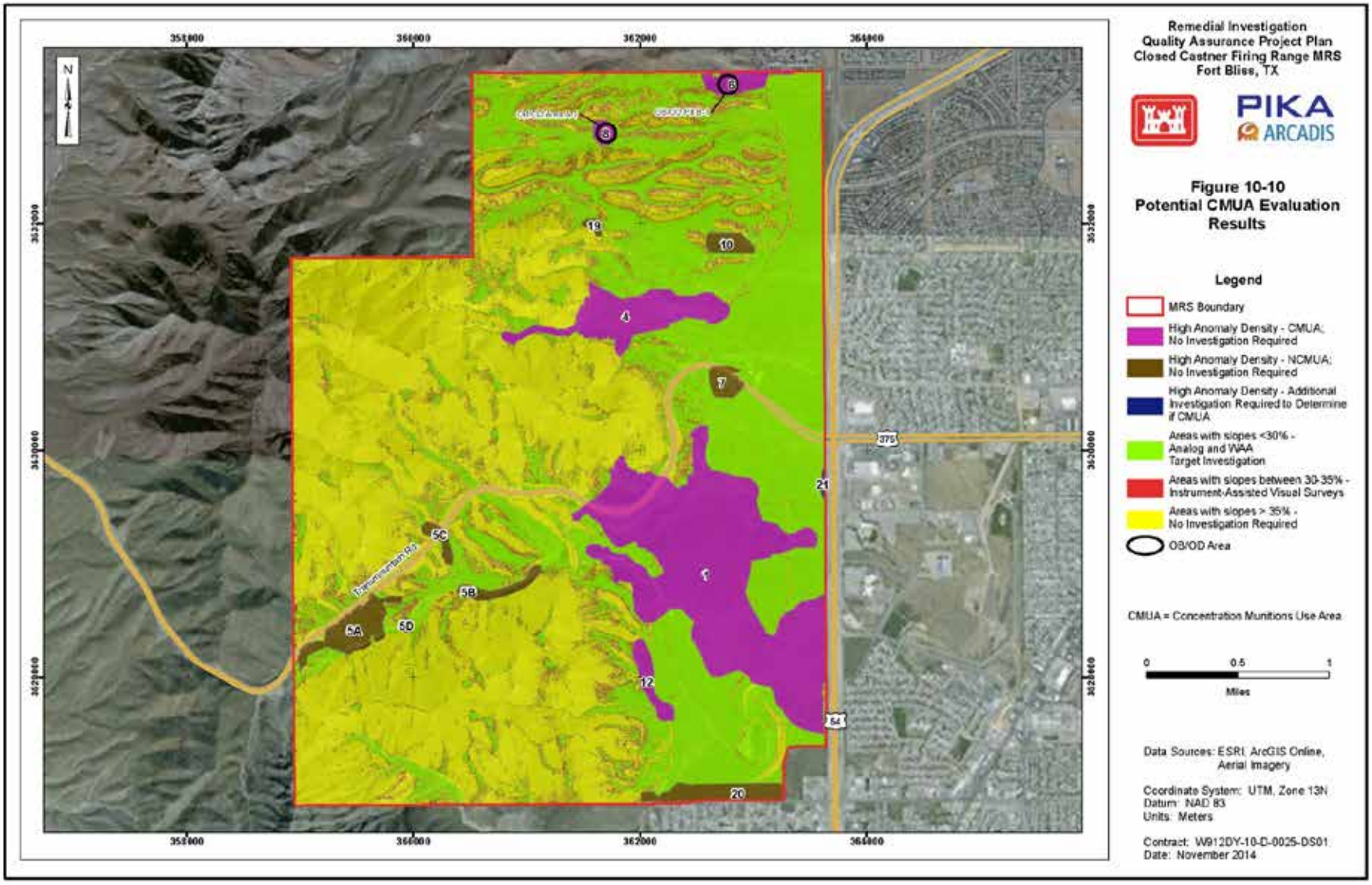
Army and TCEQ have reviewed, provided comments and concur with the overall approach

Quality Assurance Project Plan will be finalized approximately February 2015

RI Technical Approach - MEC

- 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 will 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
  - Migration potential of MEC (and MC) from higher to lower elevation areas

Delineated CMUAs



RI Technical Approach – MEC

- MEC approach uses UXO Estimator to determine statistically valid approaches

- <u>In areas with slopes < 30%:</u>
  - Investigate approximately 25 acres, using three methods:
    - Reacquisition and intrusive investigation of WAA anomalies (~16 acres)
    - Collection of new DGM data, processing, and intrusive investigation (~5 acres)
    - Analog ("mag and dig") transect surveys (~ 4 acres)

- <u>In areas with slopes > 30%:</u>
  - 70 acres via Instrument-assisted visual survey
  - Analog (i.e., "mag and dig") investigation if potential CMUA identified

RI Technical Approach – MEC

- **MEC Phase 1: Instrument Assisted Visual Surveys (areas with slopes > 30%)**
  - Meandering path surveys
  - Handheld GPS and EMI sensor
  - No intrusive investigation

- **MEC Phase 2 (areas with slopes < 30%):**
  - **Phase 2a: Investigation of WAA anomalies**
    - 1750 100-ft transect segments selected
    - Reacquire anomalies with GPS and hand-held EMI sensor (*e.g,.* White's all metals detector)
    - Intrusively investigate with hand tools
    - Record results in tablet PC

Handheld EMI Sensor

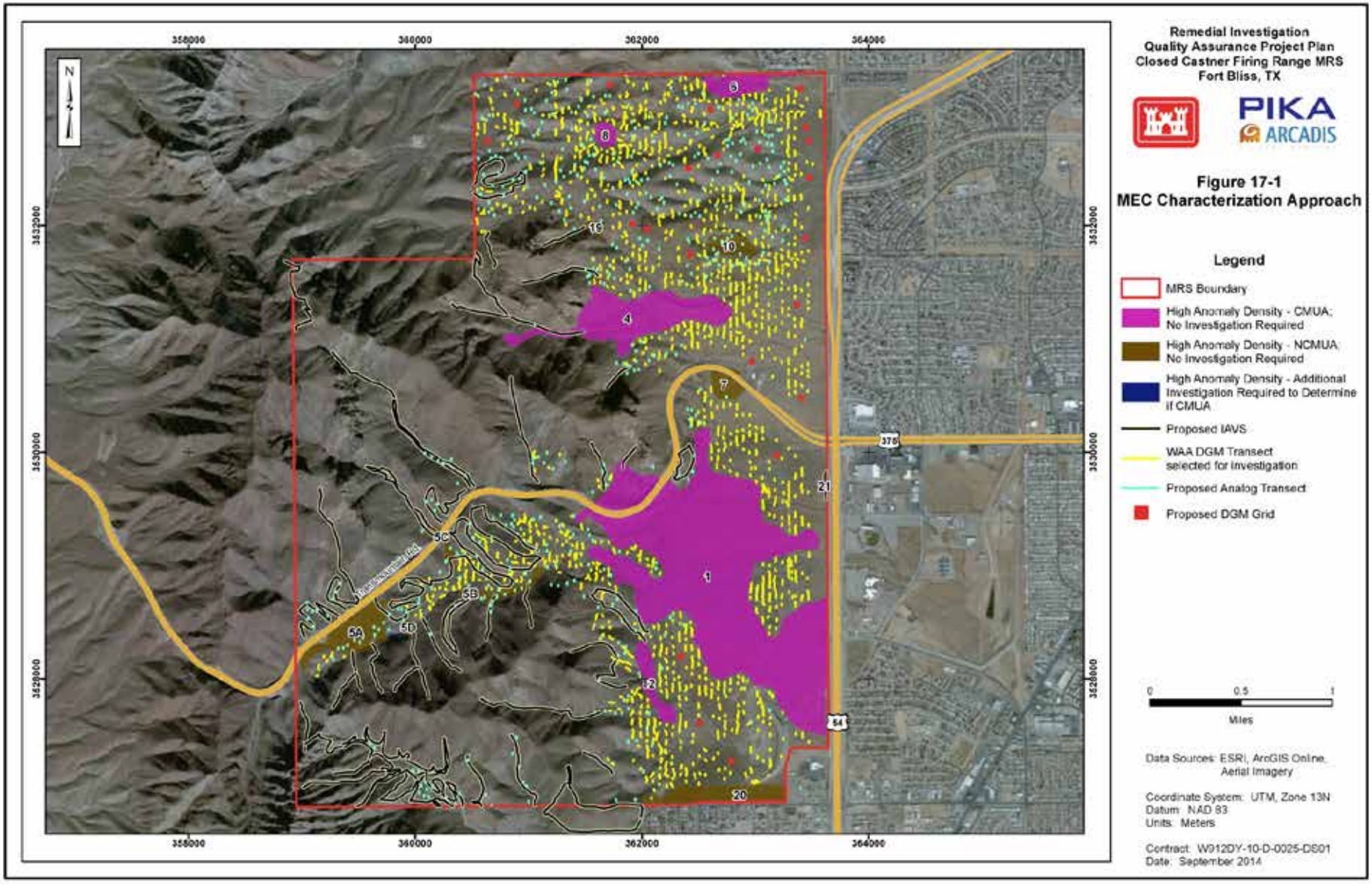
RI Technical Approach – MEC

- **MEC Phase 2 (areas with slopes < 30%):**
  - **Phase 2b: DGM Grids**
    - 22 100’ x 100’ grids (areas with <18% slope)
    - Designed in UXO Estimator
    - EM61-MK2 surveys with RTK DGPS positioning
    - Investigate all anomalies meeting selection criteria with hand tools
    - Record results in tablet PC
  - **Phase 2c: Analog (“mag and dig”) transects**
    - 1,002 randomly placed100-ft transect segments (18% < slopes < 30%)
    - Use hand-held EMI sensor to identify anomalies
    - Intrusively investigate with hand tools
    - Record results in tablet and GPS anomalies

EM61-MK2

PIKA ARCADIS

MEC Investigation Areas



MC RI Program Elements

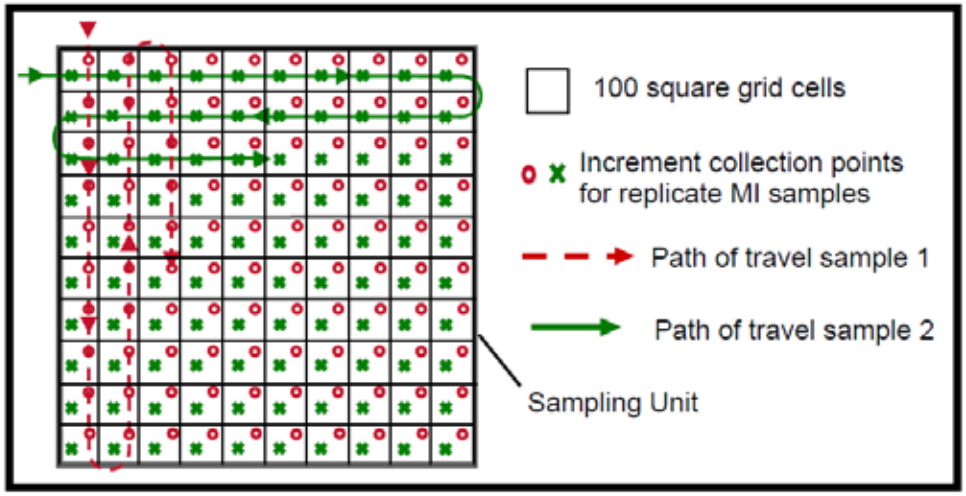
- Elements include:
  - Incremental Sampling Methodology (ISM)
  - Discrete sampling (soil, surface water, sediment)
  - Sampling associated with MEC
- Phased approach to meet TCEQ delineation requirements
- Based on ISM Demonstration Report
  - Lead, copper, zinc primary MC
  - Ecological receptors will likely drive assessment level

MC

- Explosives (USEPA Method 8330B)
  - Materials inside munitions
  - 16 separate constituents including TNT, RDX
- Metals (USEPA Method 6010B)
  - Small arms ammunition, munition casings
  - antimony, arsenic, beryllium, copper, lead, nickel, zinc
- Perchlorate (USEPA Method 6850)
  - Propellant used in rockets

Example of MC deposition

Strengths of ISM vs Discrete Sampling

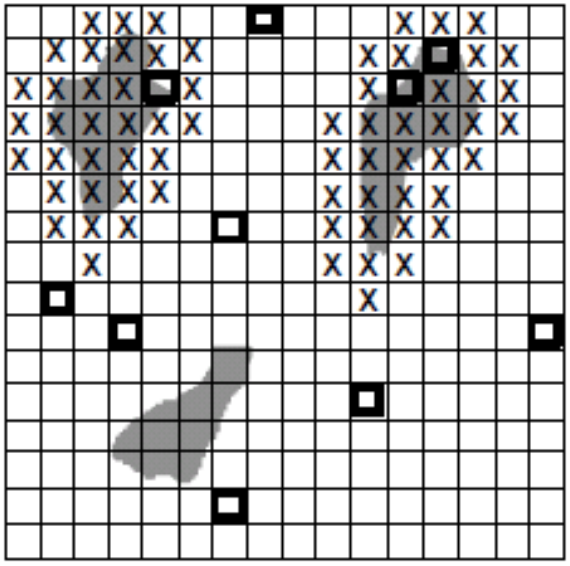


ISM Strengths

- Excellent for large areas with completely unknown impacts
- Yes/No decisions
- Statistically derived, can be brought directly into Risk Assessment

Discrete Strengths

- Excellent for areas that have known sources of contamination
- Define nature and extent for individual areas in addition to yes/no decision
- Multiple data uses – characterization, risk assessment

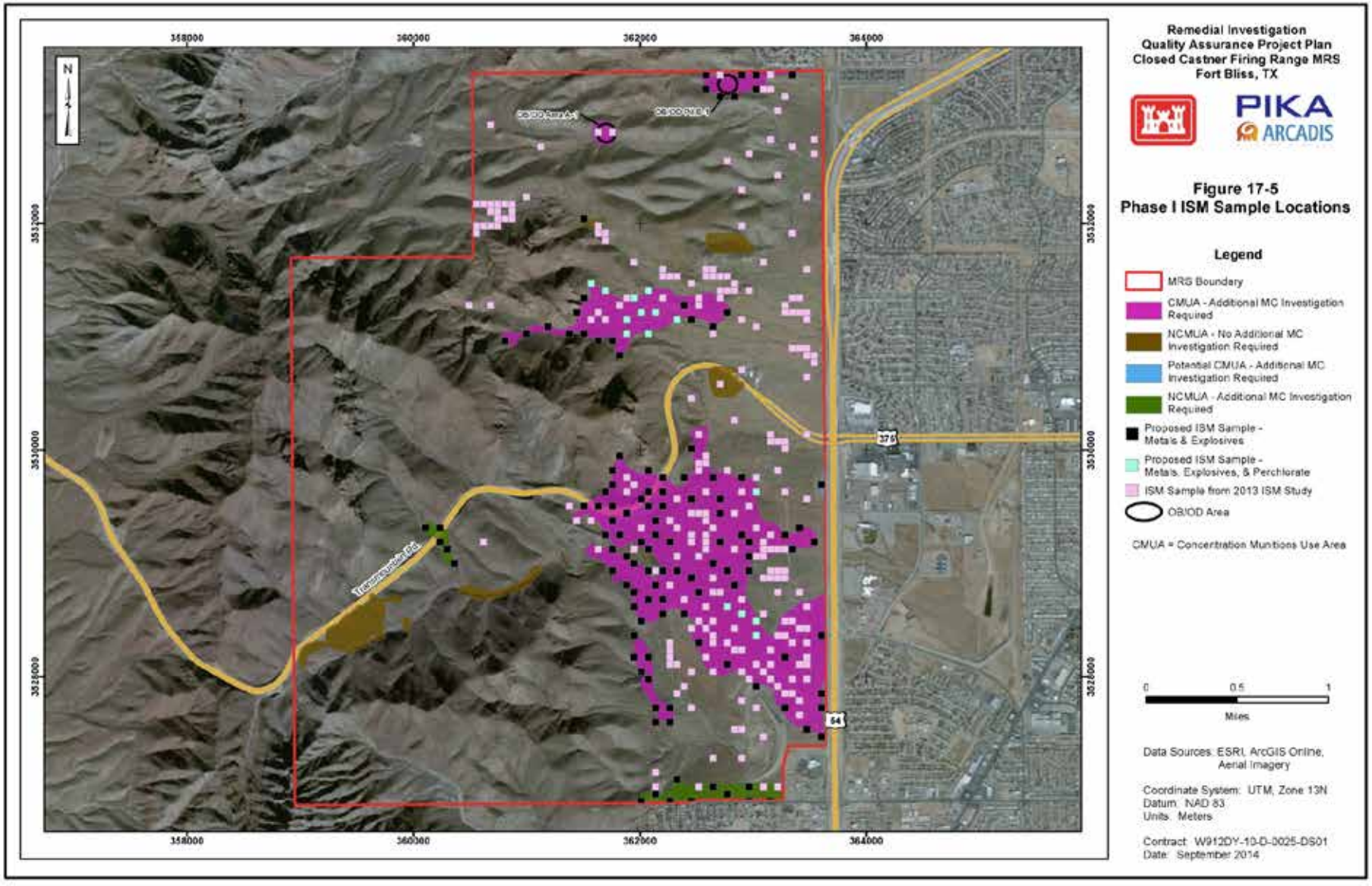


PIKA ARCADIS

MC RI Activities - Phase I

- Area Wide Horizontal Delineation – ISM
  - 149 sample locations, each one a 1-acre decision unit
  - Background conditions for metals using previous ISM field investigation
  - Laboratory analysis of:
    - Explosives, metals – all samples
    - Perchlorate – only samples collected near former rocket ranges
- Backstop berms
  - Identified by Lidar analysis
  - Discrete soil sampling of up to 10 berms
  - 2 samples per berm, three depth intervals (0-1', 1-2', 2-3')
  - 4 samples at base of berm – send for laboratory analysis (metals)

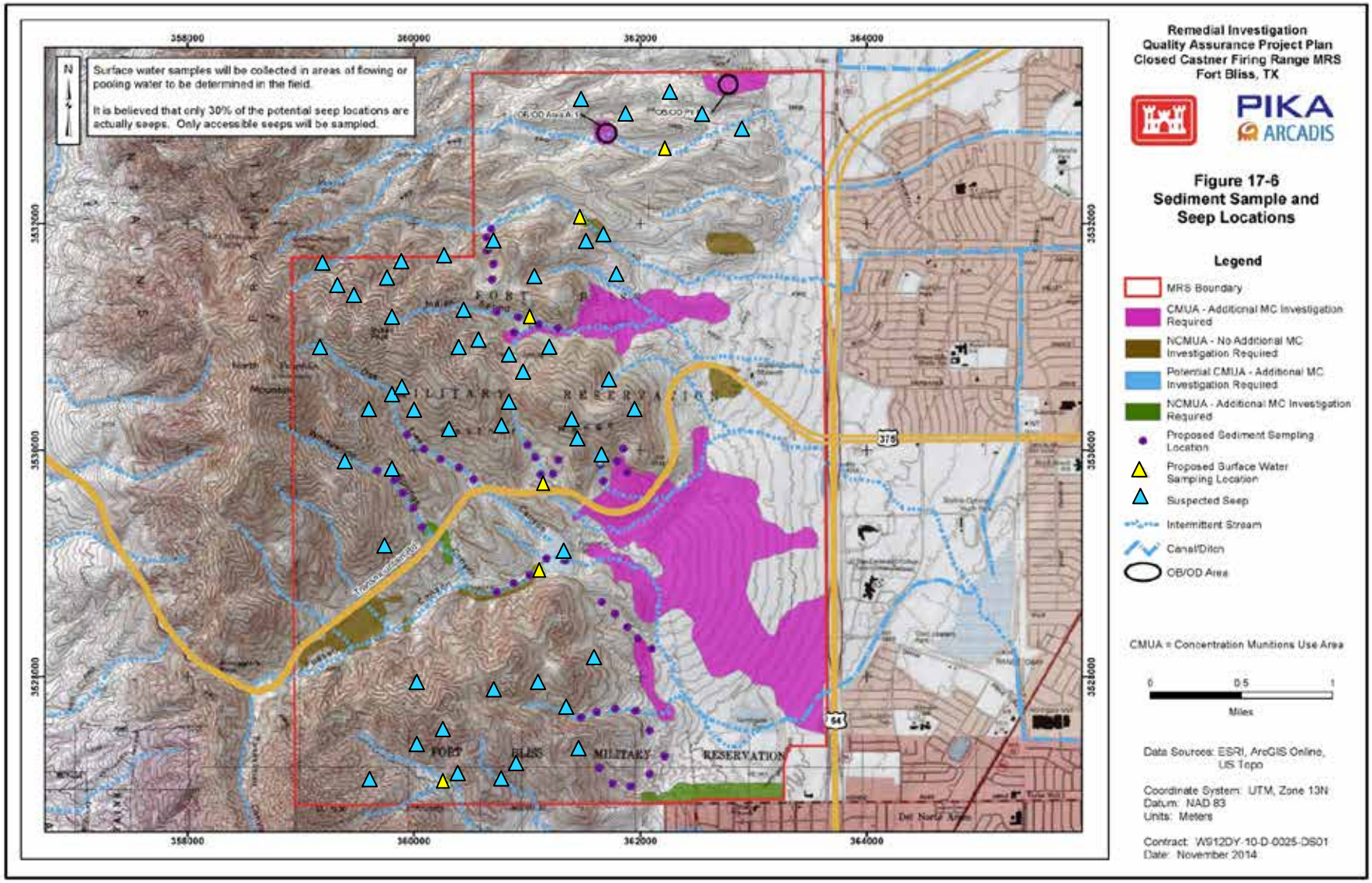
ISM Sampling Locations



MC RI Activities - Phase I

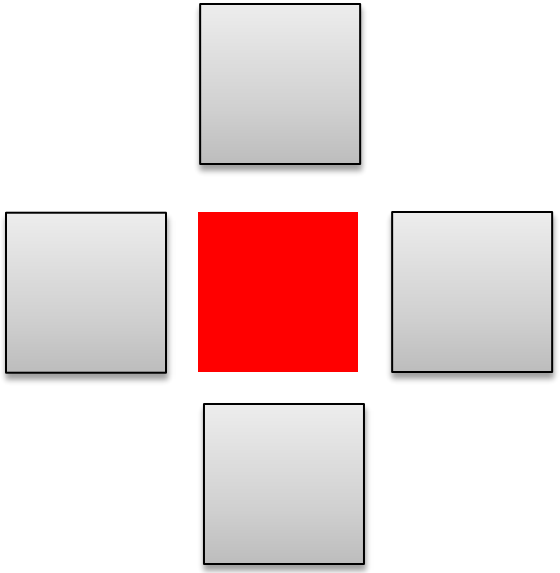
- Arroyo delineation
  - Information on MC transport from steep areas
  - Up to 50 discrete sediment samples in depositional areas
    - Samples collected from 0-6” in depth
    - If located in CMUA, samples collected at 0-6” and 12-18”
    - Analyze for metals
  - Surface water samples
    - Seep sampling – up to 18 locations
    - Surface water samples – up to 24 locations after rain event
    - Samples analyzed for metals
    - Must be conducted within 48 hours of a qualifying rain event

Surface Water and Sediment Sampling Locations



MC RI Activities - Phase II

- If new CMUA identified – collect an ISM sample
- ISM MC exceedances
  - Up to 4 decision units established around PCL exceedances
  - If against MRS boundary, decision unit will be 1/8 size
  - Samples only analyzed for MC that exceeded the PCL
- Arroyo sediment exceedances
  - Delineate scour areas/banks
  - Discrete “step-out” samples
- Second surface water sampling event



MC RI Activities - Phase II

- Vertical delineation
  - Discrete borings on eastern side of MRS
  - Up to 15 soil borings to 20 feet in depth
    - Conducted within decision units located within CMUAs and exhibiting elevated MC concentrations
    - Up to three borings per decision unit, sample 3 depth intervals
- Groundwater assessment (if necessary)
  - Based on vertical delineation
  - Up to three monitoring wells installed and sampled
  - Located near areas with elevated subsurface soil MC concentrations

MC Sampling – MEC Find

- If MEC found during field investigations:
  - One discrete sample collected immediately under or adjacent to MEC items with evidence of contamination (e.g., visual staining or crack/corrosion)
  - Samples analyzed for:
    - Explosives
    - perchlorate (if rocket-based munition)
    - metals (antimony, arsenic, beryllium, copper, lead, nickel and zinc)

Quality Assurance / Quality Control

- Corporate QA/QC
  - Senior Level Review
  - QA/QC reviews as outlined in QAPP
- MEC QC
  - Post-dig QC
  - Instrument test strip (analog) and geophysical systems verification (GSV)
  - QC metrics per DID WERS-004.01
- MC QA/QC
  - Field duplicate samples for discrete and triplicate samples for ISM at 10% per media
  - Matrix Spike / Matrix Spike Duplicate samples
  - Third-Party Data Validation

RI Report

- Document and evaluate data (both MEC and MC findings)
- Update CSM
- Report on nature and extent of MEC and MC
- Prepare HHRA and SLERA
- Prepare MEC Hazard Assessment
- Update MRSPP

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

Upcoming Project Schedule

- Work Plan Finalization: February 2015
- Public Meeting: April / May 2015
- RAB Meeting: May / June 2015
- Field Work: ~ May – December 2015
- TPP Meeting #3: ~ September 2015
- Begin RI Report: November 2015
- TPP Meeting #4: ~ March 2016

TPP Comments

Sylvia A. Waggoner
Chief, Compliance Branch
Directorate of Public Works
Fort Bliss, TX 79916
915-568-7031

Questions?

Other Discussion Topics?

Action Items…