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."
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
# Army Project Team Members

**USACE Tulsa District**

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rick Smith, PE, PMP</td>
<td>Project Manager</td>
</tr>
<tr>
<td>Frank Roepke</td>
<td>Technical Manager</td>
</tr>
</tbody>
</table>

**US Army Environmental Command**

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bob Rowden</td>
<td>Environmental Restoration Manager</td>
</tr>
</tbody>
</table>

**Fort Bliss – Directorate of Public Works, Environmental Division**

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sylvia Waggoner</td>
<td>Chief, Compliance Branch</td>
</tr>
<tr>
<td>Isaac Trejo</td>
<td>Environmental Protection Specialist</td>
</tr>
<tr>
<td>Ron Baca</td>
<td>Installation Restoration Program (IRP) Manager</td>
</tr>
<tr>
<td>Donita Kelly</td>
<td>Public Affairs</td>
</tr>
</tbody>
</table>

**USACE Fort Worth District**

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eric Kirwan</td>
<td>Project Geophysicist</td>
</tr>
<tr>
<td>Jackie Smith</td>
<td>Ordnance and Explosives Safety Specialist</td>
</tr>
</tbody>
</table>
### Regulatory Stakeholders

<table>
<thead>
<tr>
<th>TCEQ</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Allan Posnick</td>
<td>TCEQ</td>
</tr>
<tr>
<td>Joseph Miller</td>
<td>TCEQ – Regional Office</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>USEPA</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Carlos Rincon</td>
<td>USEPA Region 6</td>
</tr>
</tbody>
</table>
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 JV Team

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

- Discussed tools and protocols for communication
- Reviewed the MMRP and RI project objectives
- Introduced and developed preliminary DQOs
- Reviewed site information and current CSM
- Presented the proposed technical approach
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
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”)

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

<table>
<thead>
<tr>
<th>Implement TPP Process</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>TPP Meeting #1</td>
<td>Complete</td>
</tr>
<tr>
<td>TPP Meeting #2</td>
<td>Today</td>
</tr>
<tr>
<td>TPP Meetings 3 and 4</td>
<td>Field Work / RI Report</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Develop Planning Documents</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MEC / MC QAPP</td>
<td>Final February 2015</td>
</tr>
<tr>
<td>APP / SSHP</td>
<td>Final February 2015</td>
</tr>
<tr>
<td>ESP</td>
<td>April 2015</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Community Relations Support</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Meetings</td>
<td>April / May 2015</td>
</tr>
<tr>
<td>RAB Meetings</td>
<td>May / June 2015</td>
</tr>
<tr>
<td>Community Relations Plan</td>
<td>Complete</td>
</tr>
</tbody>
</table>
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
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
Previous MEC Investigations
Historical MC Investigations
Wide Area Assessment (WAA)

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

<table>
<thead>
<tr>
<th>WAA Technologies Evaluated</th>
<th>Useable for RI?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Light detection and ranging (lidar)</td>
<td></td>
</tr>
<tr>
<td>Orthophotography</td>
<td></td>
</tr>
<tr>
<td>Helicopter-borne magnetometry</td>
<td>X</td>
</tr>
<tr>
<td>Man-portable electromagnetic induction (EMI) DGM</td>
<td></td>
</tr>
<tr>
<td>Analog range reconnaissance</td>
<td></td>
</tr>
<tr>
<td>Intrusive Investigation</td>
<td></td>
</tr>
</tbody>
</table>
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

• In areas with slopes < 30%:
  • 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)

• In areas with slopes > 30%:
  • 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
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 placed 100-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
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
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…