

**APPENDIX M
TPP MEETING 1**

**TPP MEMORANDUM
REMEDIAL INVESTIGATION / FEASIBILITY STUDY
FORMER CAMP MAXEY
TEXAS**

Remedial Investigation / Feasibility Study
Former Camp Maxey, Texas

Technical Project Planning Meeting
12 June 2008



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FUDS Program

- **Formerly Used Defense Sites (FUDS)**
FUDS are properties that were formerly owned, leased, possessed by, or otherwise under the operational control of the DoD or military prior to 1986.



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Munitions and Explosives of Concern (MEC)

The focus is to minimize the safety hazards from MEC remaining at this FUDS site.

MEC and UXO:

- MEC consists of munitions and explosives, including fired and/or discarded items, explosive filler, etc.
- UXO is defined as *unexploded ordnance*
- UXO is a *subset of MEC*



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Stakeholder Involvement

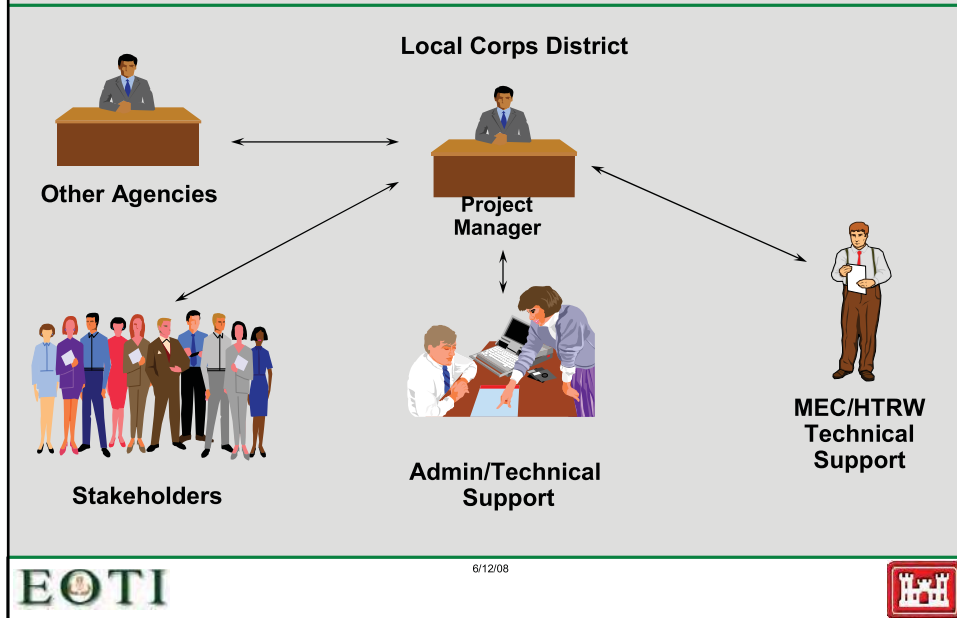
- Stakeholders provide input throughout the project
 - Voice community concerns
 - Participate in Technical Project Planning process
 - Review and give input on draft decision documents



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Project Team Composition



Investigation

Remedial Investigation/Feasibility Study (RI/FS) Process

- Remedial Investigation
 - Conduct Field Investigation
 - Perform Data Analysis
 - Characterize Site
 - Conduct Human Health and Ecological Risk Assessment
 - Human Health
 - Ecological
 - Prepare RI Report
 - Transition to Feasibility Study

Investigation

Remedial Investigation/Feasibility Study (RI/FS) Process

- Feasibility Study

- Establish Remedial Action Objectives
- Develop General Response Actions (NDAI, IC's, Surface Removal, etc.)
- Identify and Screen Technologies and Options (review of specific alternatives within each technology family)
- Individual Analysis of Alternatives Against 9 Evaluation Criteria
- Identify ARARs
- Comparative Analysis of Alternatives
- Feasibility Study Report



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Response Action

- Implementation of selected responses
 - Further investigation
 - Institutional controls
 - Surface removals
 - Subsurface removals
 - No further action
- Recurring reviews
- DoD maintains continuing responsibility



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Data Quality Objective Development Process

1. *State the Problem*
2. Identify the Decision
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7. Optimize the Design for Obtaining Data



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Site Chronology

- From 1942 to 1945, Camp Maxey was a United States Army post utilized for training infantry in World War II (WWII). Following the conclusion of the war, the facility was inactivated in October 1945, and was declared surplus in 1947.
- Land was conveyed to the state of Texas and sold to private owners. Later, some of the land was returned to the ownership of the federal government for construction of the Pat Mayse Dam on Sanders Creek.
- Currently, the installation is used by the State of Texas for a National Guard post, 7,468 acres are occupied by Pat Mayse Lake, over 20,000 acres surrounding the lake are occupied by a USACE-flood control and recreation area and a State of Texas Wildlife Management Area, and the remaining portion of the former camp lands are now privately owned and are used for residential, agricultural, and recreational activities.



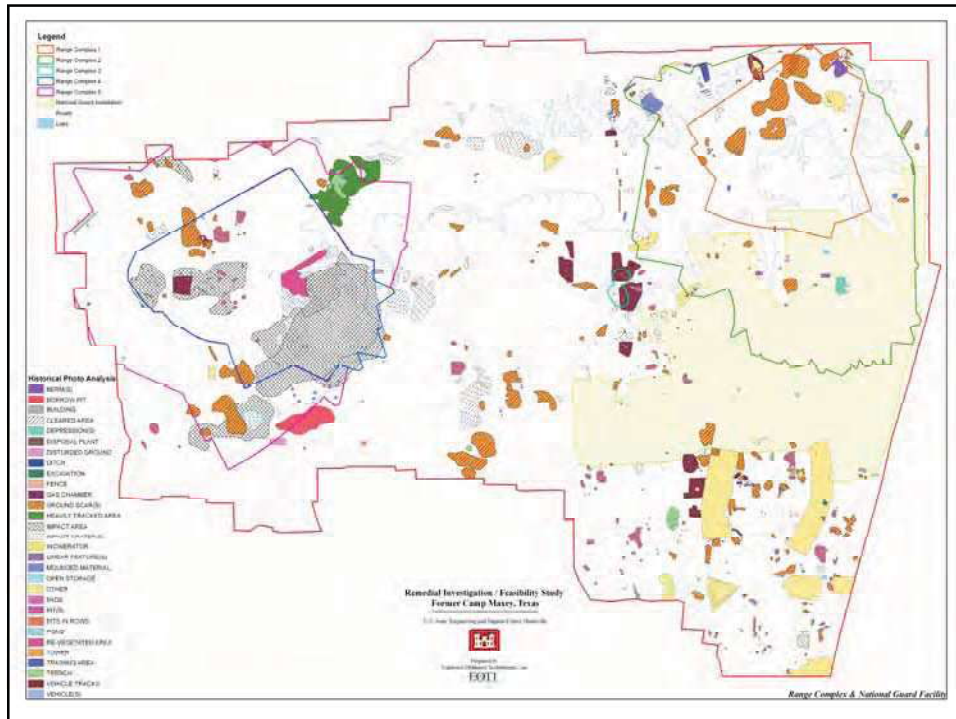
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Anticipated Ordnance

- 37 mm Projectile
- 57 mm Projectile
- 60 mm Mortar Projectile
- 75 mm Projectile
- 81 mm Mortar Projectile
- 2.36" Rocket
- 90 mm Projectile
- 105 mm Projectile
- 155 mm Frag



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Project Objective/Decisions

Objective:

Obtain government acceptance of a Decision Document.

Decisions:

- Further investigation
- Institutional controls
- Surface removals
- Subsurface removals
- No further action



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Performance Work Statement

Task Number and Description

- 1 – Technical Project Planning (TPP)
- 2 – Work Plan
- 3 - Geographical Information System (GIS)
- 5 – Remedial Investigation (RI) Report
- 6 – Feasibility Study (FS) Report
- 7 – Proposed Plan
- 8 – Decision Document
- 9 – Community Relations Support
- 10 – Public Involvement Plan
- 11 – Administrative Record
- 12 – Environmental Sampling and Chemical Analysis



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Project Schedule Highlights

2008

- TPP Meeting 2 September 4
- TPP Meeting 3 November 21
- Public Meeting 1 November 21

2009

- Work Plan Finalized February
- Environmental Sampling March
- RI Report Finalized August
- FS Report Finalized October
- Public Meeting 2 November
- Proposed Plan Review November
- Decision Document December



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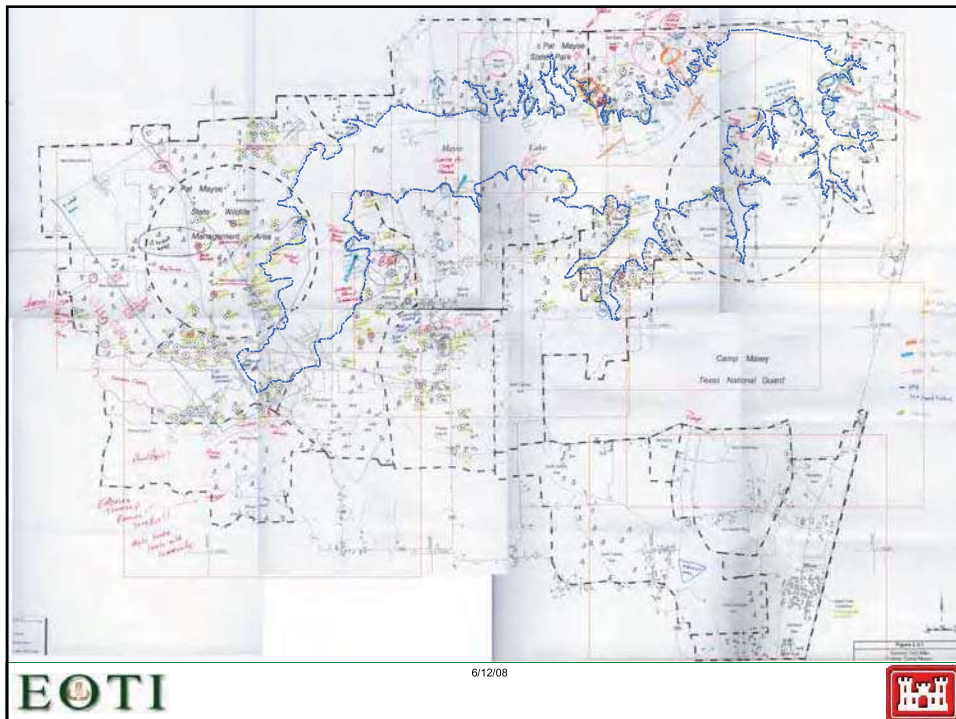


Previous Investigations

- 2008 Non Time-Critical Removal Action
- 2005-2006 Non Time-Critical Removal Action
- 2002 Geophysical Prove-Out
- 2000 Non Time-Critical Removal Action
- 2000 Engineering Evaluation / Cost Analysis
- 1997 Surface and Subsurface Ordnance and Explosive (OE) Survey and Sampling
- 1997 Time-Critical Removal Action
- 1994 Archive Search Report
- 1990s Military Explosive Ordnance Demolition (EOD) Team Dispatched
- 1980s Military EOD Team Dispatched
- 1965 Military EOD Team Dispatched

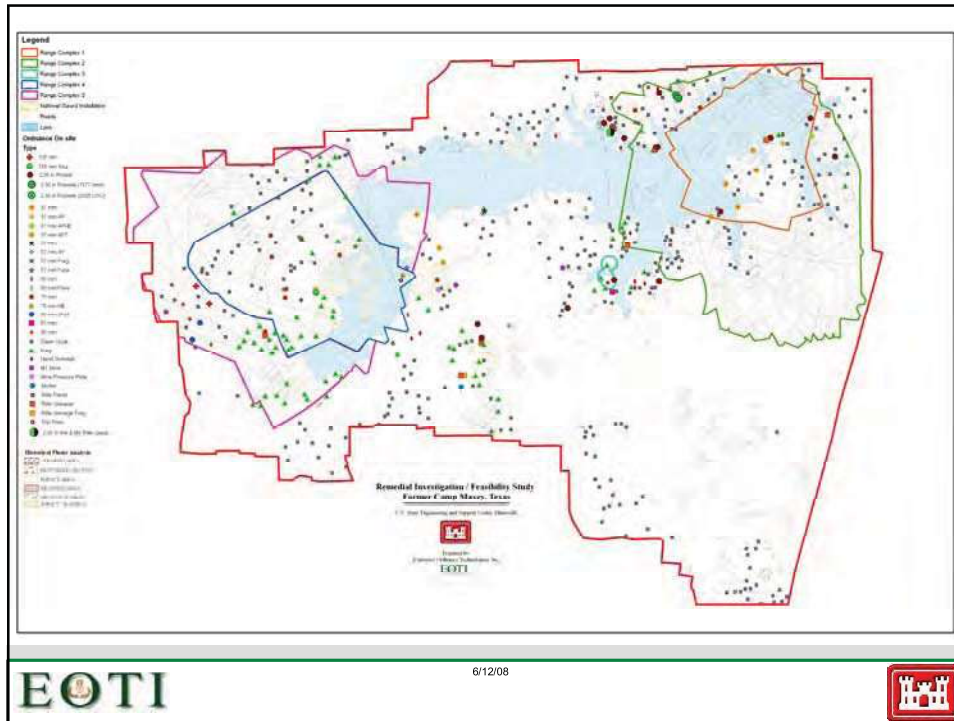


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Possible Data Gaps - Geophysical

- 115 acres surveyed in 1999
- Typical Geophysical Surveying Requirements (EM 1110-1-4009)

Sector Size, Acres	Basic Minimum Area Investigated	Recommended Minimum Area Investigated
< 50	5.0%	7.5%
51 - 100	3.0%	4.5%
101 - 150	2.0%	3.0 %
151 - 1000	1.0%	1.5%
> 1000	0.5%	0.75%

ACRES	0.5%	.75%
41,128 (total area)	= 206	309 acres
34,958 (w/o TNG)	= 175	263 acres
26,422 (Including excluded Sectors - 2000 EE/CA)	= 132	199 acres
23,384 (Sectors included 2000 EE/CA)	= 117	176 acres



Possible Data Gaps Geophysical (con't)

Sector Number	Sector Description	Approx. Area (Acres)	Number of Grids	Number of UXO Items Found	ACRES		
					Percent Completed	Data Gap 0.05%	Data Gap 0.075%
1	East Impact Area A	N/A	None	N/A	N/A	N/A	N/A
2	East Impact Area B	1,750	38	2	8.72	0.03	4.40
3	East Impact Area C	853	40	4	9.18	-4.92	-2.79
4	East Impact Area D	324	30	1	6.89	-5.27	-4.46
5	East Impact Area E	944	38	1	8.72	-4.00	-1.64
6	West Impact Area A	3,169	47	0	10.79	5.06	12.98
7	West Impact Area B	2,090	45	3	10.33	0.12	5.34
8	West Impact Area C	1,783	41	4	9.41	-0.50	3.96
9	West Impact Area D	582	30	3	6.89	-3.98	-2.52
10	Grenade Area	252	25	0	5.74	-4.48	-3.85
11	Bivouac Area A	1,851	39	0	8.95	0.30	4.93
12	Bivouac Area B	3,627	48	1	11.02	7.12	16.18
13	Bivouac Area C	1,766	19	0	4.36	4.47	8.88
14	North Training Area	1,751	17	0	3.90	4.85	9.23
15	South Training Area	2,642	31	0	7.12	6.09	12.70
16	Gas Chamber	1,307	1	0	0.23	6.31	9.57
TOTAL		26,422	501	19	115.01	17.10	83.15

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Possible Data Gaps – Munitions Constituents

- No Munitions Constituents Data can be identified for the site.

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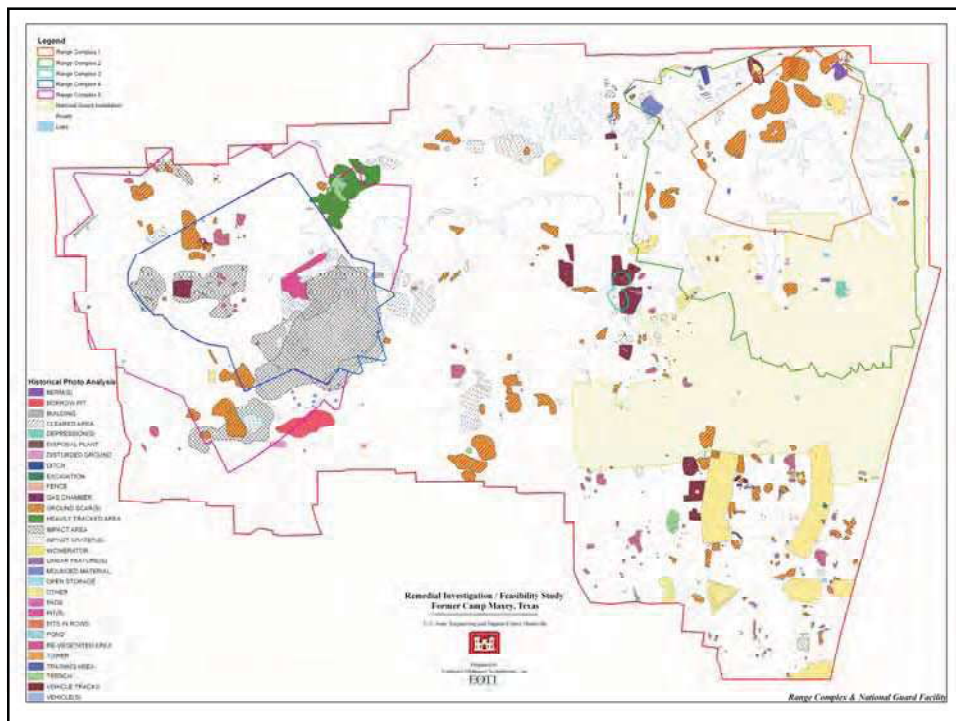


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When to Collect Data

2008

- TPP Meeting 2 September 4
- TPP Meeting 3 November 21
- Public Meeting 1 November 21

2009

- Work Plan Finalized February
- *Field Activities (Characterize Site)* March
- **Environmental Sampling** March
- RI Report Finalized August
- FS Report Finalized October
- Public Meeting 2 November
- Proposed Plan Review November
- Decision Document December



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Constraints on Data Collection

- Hunting Activities
 - Fishing Tournament
 - Rights of Entry
 - Funding
- Comments?



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Geophysical

ACRES		0.5%	.75%
41,128 (total area)	=	206	309 acres
34,958 (w/o TNG)	=	175	263 acres
26,422 (Including excluded Sectors - 2000 EE/CA)	=	132	199 acres
23,384 (Sectors included 2000 EE/CA)	=	117	176 acres

2000 EE/CA						
	Approx. Area (Acres)	Number of Grids	Number of UXO Items Found	ACRES		
				Percent Completed	Data Gap 0.05%	Data Gap 0.075%
TOTAL	26,422	501	19	115.01	17.10	83.15



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Munitions Constituents

- If no information is available about MC contamination, sampling is conducted to determine whether it exists. This type of investigation is typically biased to look at areas where contamination is suspected to be the worst case.
- 100 Samples Funded
 - The majority of these samples will be collected at suspected impact areas, as well as at least 10 random samples from other regions of the site.
 - Each sample will be collected from a 10-meter x 10-meter decision unit, which is comprised of 30 soil increments.



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Potential Munitions Constituents (MC)

Target Compound List (TCL) Explosives USEPA Method 8330B	Target Analyte List (TAL) Metals USEPA Method 6010B
1,3,5-TNB	Antimony (Sb)
1,3-DNB	Copper (Cu)
2,4-DNT	Lead (Pb)
2,6-DNT	Zinc (Zn)
2-A-4,6-DNT	Mercury (Hg)
2, 4, 6 Trinitrotoluene (TNT)	
2-NT	
3-NT	
4-A-2,6-DNT	
4-NT	
2,4,6-trinitrophenyl-N-methylnitramine (Tetryl)	
1,3,5,7-tetranitro-1,3,5,7-tetrazocane (HMX)	
3,5-dinitroaniline (3,5-DNA)	
Cyclotrimethylenetrinitramine (RDX)	
Nitroglycerine (NG)	
Pentaerythrite Tetranitrate (PETN)	



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Develop a Decision Rule

- Action Levels:
 - The Geophysical Data Available is:
 1. Adequate
 2. Should be at a basic minimum survey requirement of 0.05%
 3. Should be at a recommended minimum survey requirement of 0.75%
 4. Other suggestions
 - The Munitions Constituents Sampling should be done:
 1. At suspected impact areas, as well as at least 10 random samples from other regions of the site
 2. Other suggestions



Specification of the Estimator

- The planning team determined that.....



Data Quality Objective Development Process

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Specify Limits on Decision Errors

- The acceptance criteria that the collected data will need to achieve in order to minimize the possibility of either making erroneous conclusions or failing to keep uncertainty in estimates to within acceptable levels are....
 - Sources of error (variability)
 - How is total study error controlled?



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Optimize the Design for Obtaining Data

- Anyone else who should be at this meeting / involved?
- Next Meeting:
 - Review the DQO outputs and existing environmental data.
 - Develop general data collection design alternatives.
 - Is optimal sample size selected to satisfy DQOs?



Remember the 3Rs

- **Recognize**
 - Recognize the munition. When you discover a suspicious item or a possible munition, remember that they can be very dangerous. Do not touch, kick, throw something or do anything else to disturb the item. Also, remember that old munitions are sometimes not readily identifiable, and may appear to be any other metallic or rusty item. Use caution, leave it alone and do not touch it.
- **Retreat**
 - Retreat from the munition. If you know or suspect that you have found a possible munition, mark the area with a small item, such as a hat or pen, and immediately walk away on the same path you came in on. Do not run.
- **Report**
 - Report the munition and its location. Report the location of the suspicious item immediately to your local law enforcement officials by dialing 911.



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TECHNICAL PROJECT PLANNING (TPP) MEMORANDUM

For Remedial Investigation / Feasibility Study

Former Camp Maxey, Texas

MEETING MINUTES

DATE: 12 June 2008

LOCATION: Powderly, Texas

TOPIC: TPP Meeting #1 for the Former Camp Maxey

TITLE OF PROGRAM: Military Munitions Response Program (MMRP)

CONTRACT: Contract No. W912DY-04-D-0009; Task Order 0010

DIRECTIVE AGENCY: US Army Corps of Engineers (USACE)-Fort Worth District, Stephen Swint

CO-CHAIRPERSONS/FACILITATOR: EOTI Project Manager, Kathy Rollow

NOTES:

- *This TPP Memorandum is a record of the discussions that took place on the above referenced date about said site.*
- *Approval of this TPP Memorandum does **not** signify agreement with any or all items, only that this is an accurate record of what was discussed.*
- *An US Environmental Protection Agency (EPA) and Texas Commission on Environmental Quality representative were not present at the TPP meeting but were provided all handouts and briefed through conference calls and emails regarding meeting details.*

Introduction

This TPP Memorandum details the events of the Remedial Investigation / Feasibility Study, Former Camp Maxey, Lamar County, Texas TPP meeting held at the Volunteer Fire Department in Powderly, Texas on 12 June 2008. Participants of the meeting included representatives from the USACE (Huntsville and Fort Worth District), Lamar County, the City of Paris, and the EOTI Team (see attendance list). This TPP Memorandum describes the purpose and objectives of the TPP, the meeting attendees, the materials and documentation discussed/reviewed during the TPP, the list of handouts, other TPP documentation, changes/deletions/modifications to the TPP material, and discussion items.

TPP Purpose and Objectives

The purpose of the TPP meeting was to provide community leaders, state regulators, and other interested parties/stakeholders with an understanding of the Formerly Used Defense Site (FUDS) program, an overview of the TPP process, and develop draft Data Quality Objectives (DQOs). Meeting objectives included the following:

- Present the problem and identify possible decisions to the community leaders,

Contract No. W912DY-04-D-0009

Task Order 0010

TPP Memorandum – Former Camp Maxey

June 2008

- state regulators, and other interested parties/ stakeholders.
- Obtain feedback and other site specific information from the community leaders, state regulators, and other interested parties/ stakeholders.
- Review the proposed project schedule and eliminate conflicts for the path forward.
- Conduct an Ordnance and Explosive (OE) Safety Review

Attendance List

Name	Title	Company	Phone	Fax	E-Mail
Shannon Barrentine	Assistant for Pete Kampf	Paris Economic Development Corp.	903-784-2501	903-984-2503	pedc@paristexas.com
Teresa Carpenter	Chemist	USACE Huntsville	256-895-1659		Teresa.m.carpenter@usace.army.mil
Crystal Duke	Justice of the Peace	Lamar County	903-249-1990	903-346-3759	cnduke@earthlink.net
David Farmer	Project Manager	EOTI	865-220-8668	865-220-8857	dfarmer@eoti.net
Doug Harris	Director of Utilities	City of Paris	903-784-2464	903-784-4809	dharris@paristexas.gov
Kevin Kear	District 2 City Counsel	City of Paris	903-784-2504		Kevin.Kear@hp.com
Mike Madl	Project Manager	Malcolm Pirnie	713-960-7432	713-840-1207	mmadl@pirnie.com
Priscilla McAnally	Library Director	City of Paris	903-785-8531	903-784-6325	pmcanally@paristexas.com
William Noel	Project Manager	CEHNC-OE-DC	256-895-1933	256-895-1378	william.f.noel@usace.army.mil
Kathy Rollow	Project Manager	EOTI	865-220-8668	865-220-8857	krollow@eoti.net
Stephen Swint	Project Manager	USACE – Fort Worth	817-886-1364		Stephen.swint@usace.army.mil

Materials and Documentation Discussed/Reviewed During TPP

The following documents were discussed during the TPP in order to provide the attendees with a familiarity of the site and a source of background information:

- Aerial Depictions of the Area Designated for Characterization including
 - Range Complex Locations
 - Historical Photo Analysis
 - Ordnance Previously Found on the Site Locations
- Draft Conceptual Site Model

Handouts

The following handouts were distributed to the attendees of the TPP meeting for discussion and are included as attachments to this TPP Memorandum:

- Agenda for TPP (Attachment 1)
- Slide presentation (Attachment 2)
- Attendee Sign-In Sheet

The Agenda set the stage for the meeting and was followed as provided. A copy of the slide presentation prepared and presented by the EOTI Team was provided to the attendees for future reference. At the conclusion of the TPP meeting the project schedule was reviewed and copies of the invitee list were made available.

Changes/Deletions/Modifications

No significant changes, deletions, or modifications were suggested upon among parties in attendance.

Discussion Items

Ms. Kathy Rollow, the Project Manager for the EOTI Team, gave the presentation (TPP Memorandum Attachment 2) and led the discussions that arose throughout. The following is a breakdown of the major discussion topics associated with the Former Camp Maxey:

- Community members expressed a concern about exposure risk on the lake shore during a sever drought and suggested including warnings as part of drought emergency procedures.
- Taking into consideration the various annual activities and events concurring around Pat Mayse Lake, the TPP Members concluded that February would be the least intrusive time to conduct field activities.
- The TPP members concluded that geophysical surveying data for characterization should meet the basic minimum area requirement of 0.5% (one half of one percent). The geophysical surveying data requirement for characterization will be calculated as follows: (total acres – Pat Mayse Lake – Texas National Guard – previously investigated acres = 0.5%) This formula will be used to determine if enough data exist and/or the amount of additional data required.
- The TPP members agreed with conducting triplicate MC sampling at 10% of the total samples. Screening levels will be set at a state base value. If a state base value does not exist, EPA Region 6 will be used. The agreed upon target

compound list is as follows.

Target Compound List (TCL) Explosives USEPA Method 8330B	Target Analyte List (TAL) Metals USEPA Method 6010B
1,3,5-TNB	Antimony (Sb)
1,3-DNB	Copper (Cu)
2,4-DNT	Lead (Pb)
2,6-DNT	Zinc (Zn)
2-A-4,6-DNT	Mercury (Hg)
2, 4, 6 Trinitrotoluene (TNT)	
2-NT	
3-NT	
4-A-2,6-DNT	
4-NT	
2,4,6-trinitrophenyl-N-methylnitramine (Tetryl)	
1,3,5,7-tetranitro-1,3,5,7-tetrazocane (HMX)	
3,5-dinitroaniline (3,5-DNA)	
Cyclotrimethylenetrinitramine (RDX)	
Nitroglycerine (NG)	
Pentaerythrite Tetranitrate (PETN)	

- Community members concluded that Rights of Entry and Funding will be obstacles for conducting this project.
- The EMS Director and Paris Police Chief will be added to the invitee list.
- The next meeting is tentatively scheduled for 8:00 a.m. September 4, 2008 at the Paris Public Library.



**US Army Corps
Of Engineers**

Phase I MFR Worksheet

Author(s) EOTI
Latest Revision Date 11/18/2008

Reviewer PDT
Review Date _____

Location: Powderly, Texas

Site: Former Camp Maxey

Project: RI/FS

(Attach Phase I MFR to PMP)

TPP TEAM

EM 200-1-2, Paragraph 1.1.1

Decision Makers	Data Type	Data User	Data Gatherer
Customer: USACE, Huntsville Project Manager: William Noel Regulator(s): TCEQ, EPA Region 6 Stakeholders: Municipality of Paris Texas, Pat Mayse Lake, US Fish and Wildlife Service (USFWS),	Demographics / Land Use	Risk, Responsibility, and Compliance perspectives	EOTI / MP
	Site Conditions	Remedy Perspectives	EOTI / MP
	Munitions and Explosive of Concern (MEC)	Risk and Remedy Perspectives	EOTI
	Munitions Constituents (MC)	Risk and Remedy Perspectives	CESWF, EOTI, MP
	Endangered Species	Risk and Compliance Perspectives	CESWF, EOTI, MP
CUSTOMER'S GOALS			EM 200-1-2, Paragraph 1.1.2
Future Land Use(s) @ Site	Regulatory Compliance Status and Issues		Interim Site Closeout Goal (if applicable)
Sectors	MC/MEC		TBD

Site Closeout Statement		
Substantially reduce safety hazards for humans, the environment, and the anticipated future land use with respect to munitions and explosives of concern (MEC) and munitions constituents (MC).		
Customer's Schedule Requirements		
Remedial Investigation / Feasibility Study (RI/FS) approved decision document by June 2010.		
Customer's Site Budget		
Remedial Investigation / Feasibility Study (RI/FS): Fully Funded		
IDENTIFY SITE APPROACH		
EXISTING SITE INFORMATION AND DATA		EM 200-1-2, Paragraphs 1.1.3 and 1.2.1
Attachment(s) to Phase I MFR	Site Information Repository(ies)	Preliminary Conceptual Site Model
Preliminary Conceptual Site Model	CESFW, Paris Public Library and PIRS Website	Yes
POTENTIAL POINTS OF COMPLIANCE		EM 200-1-2, Paragraph 1.2.1.3
Determination of absence or presence of MEC/MC		
Comparison of MC against background levels.		
MEDIA OF POTENTIAL CONCERN		EM 200-1-2, Paragraph 1.2.1.4
Qualitative review of MEC presence.		
Quantitative screening of MC background levels.		
PROJECT OBJECTIVES		EM 200-1-2, Paragraph 1.2.2
<u>Munitions and Explosive of Concern</u>		
1.1.1.1 State the Problem		
<ul style="list-style-type: none"> • Information regarding the potential distribution of MEC at a site is limited or unavailable. • The MEC site boundaries are unknown relative to the presence of MEC at a site. • The extent and location of field sampling for the identification of the quantity and distribution of MEC is unknown. 		
1.1.1.2 Identify the Decision		
<ul style="list-style-type: none"> • Obtain data regarding the presence of MEC at the site. • Define the site boundaries. • Define the MEC sectors. • Define the locations and the area to be covered during field sampling. 		

1.1.1.3 Identify Inputs to the Decision

- Historical information (e.g., interview records, field notes, aerial photos, maps) regarding potential MEC.
- Observations:
 - Visual field MEC confirmation
 - Type(s) of MEC
 - Location(s) of MEC items
 - Proximity to inhabited locations and structures (public roads, recreation paths, homes, etc.)
 - Accessibility of the site
- The Conceptual Site Model (i.e. historical information {interview records, field notes, aerial photographs, maps}, anticipated MEC type(s), anticipated MEC distribution, terrain and vegetation, current/proposed land use, and natural and cultural boundaries.)
- Statistically calculated MEC densities based on historical use of area, previous MEC investigation and removals, and current field sampling data.
- Present and/or future land use considerations (i.e., site coverage needs).
- Statistical analysis tools.

1.1.1.4 Define Boundaries of Study

- Established Sectors from the EE/CA will be utilized to subdivide investigation areas.
- Limited to the ground surface and near surface.
- Exclusive of areas with thick vegetative cover.
- Time frame for collection.
- Spatial boundary based on geophysical equipment capabilities for particular MEC types and site conditions.
- Rights of Entry

1.1.1.5 Develop a Decision Rule

- Sampling should be at a recommended minimum survey requirement of 0.5%
- When reconnaissance indicates evidence of MEC use or proximity to areas of MEC use, field sampling for further characterization of MEC quantities and distribution will be recommended.
- If 1) historical information and 2) field sampling or statistical predictions indicate no evidence of MEC in an area, then the area may be reduced to contain only areas exhibiting evidence of MEC.
- If each sector has an approximately homogeneous MEC density, then the sectors at the site have been defined.
- If a sector is not homogenous with respect to MEC density, then the sector boundary must be redefined.
- If a sampling methodology will provide for sampling of a statistically representative portion of the site, then it will be implemented to define the locations and the area to be covered during field sampling.
- If a sampling methodology does not provide for sampling of a statistically representative portion of the site, it will be revised to do so by sampling design modification, or it will not be implemented.

1.1.1.6 Specify Tolerable Limits of Decision Error

- If all the inputs to the decision rule were performed to the standard of Quality Control/Quality Assurance (QC/QA) procedures as specified in the QAPP and the Work Plan, then the error is within tolerable limits.

1.1.1.7 Optimize the Design for Obtaining Data

- Each Sector will be prioritized systematically based on the recommended minimum survey requirement and statistical probability tools. Transects will be utilized to establish a contamination boundary and possibly reduce the area of interest.

Munition Constituents

State the Problem

- Determine whether MC associated with munitions used during training activities is present in surface soil at the former Camp Maxey
 - Assess concentrations of MC of concern
 - Assess potential exposure of receptors to impacted surface soil
 - Assess other media (dependent on results of surface soil sampling)

Identify the Decision

- Determine the types of MC potentially released to the surface soil as a result of former Camp Maxey activities
- Determine the range of MC concentrations in surface soil samples across the site
- Estimate the spatial extent of MC in surface soil

Identify Inputs to the Decision

- Historical information from previous uses of the site
- Location of MEC and munitions debris identified in previous investigations at the former Camp Maxey
- Location of range structures and other evidence of munitions based on additional MEC characterization/geophysical investigations to be completed in the field
- TRRP Protective Concentration Levels (PCLs) for soil
- Screening-level ecological risk assessment (if required)

Define the Boundaries of the Study

- Overall Camp Maxey boundary; MRS boundaries
- Multi-incremental surface soil samples
 - 10 meter (m) by 10 m sampling decision unit
 - 30 increments collected from top 2 inches of soil
 - 30 m by 30 m decision unit
 - 70 increments collected from top 2 inches of soil
 - 50 m by 50 m decision unit
 - 100 increments collected from top 2 inches of soil
- Decision units based on documentation of previous use and previous investigations/removals
 - MC is expected to be found in the known impact areas (especially areas with visible ground scarring or impact craters)
 - 50 m by 50 m grids to be used for impact areas
 - MC may be present in areas of previous removal actions and potentially areas outside the impact areas due to migration
- Decision units based on the intrinsic geophysical MEC investigation in fixed range locations
 - MC is expected to be found in front of and behind the firing lines, in target areas, and in other identified impact areas
 1. 30 m by 30 m grids to be used around firing lines, 10 m by 10 m grids to be used in target areas, and 50 m by 50 m grids to be used in down range impact areas
 - Surface soil from areas within the fixed ranges with identified MEC will also be sampled for MC

Develop a Decision Rule

- Compare analytical results to background levels (metals) and TRRP Tier 1 Residential PCLs (metals and explosives)
- If there are exceedances, additional samples will be collected to delineate the soil to the appropriate assessment levels
- If vertical delineation is necessary, a more extensive subsurface investigation will be conducted

Specify Tolerable Limits on Decision Errors

- Two possible decision errors for this project:
 - Concluding that the suspect medium (surface soil) within the boundaries of the study is contaminated when it is really not (Type I error)

- Concluding that the soil within the boundaries of the study is not contaminated when it really is (Type II error).
- Type I error is more tolerable; minimize Type II errors

Optimize the Design for Obtaining Data

- Utilize multi-incremental sampling design to assure representativeness of sampling
- Employ judgmental sampling – focus decision unit sampling locations at areas most likely to contain residual MC (firing points, target areas, impact areas)
- Analyze at method quantitation limits (MQLs) that are equal to or lower than PCLs to minimize Type II errors

IDENTIFY SITE APPROACH (continued)

REGULATOR AND STAKEHOLDER PERSPECTIVES

EM 200-1-2, Paragraphs 1.2.3

Regulators	Community Interests	Others

PROBABLE REMEDIES

EM 200-1-2, Paragraph 1.2.4

EXECUTABLE STAGES TO SITE CLOSEOUT

EM 200-1-2, Paragraph 1.2.5

Remedial Investigation / Feasibility Study (RI/FS)
 Proposed Plan
 Decision Document
 Remedial Design (RD)
 Remedial Action (as necessary)
 5-year Review
 Time Critical Removal Action (as required)

IDENTIFY CURRENT PROJECT