

Implementation of Technical Project Planning (TPP)  
For Ordnance and Explosives (OE)  
Formerly Used Defense Sites (FUDS) Projects

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**NOTE:** *All example formats provided may be modified to fit the needs of the project team, but all elements of the TPP process must be documented.*

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CHAPTER 1  
INTRODUCTION

1-1. PURPOSE: To provide information on the implementation of TPP during OE FUDS project work, particularly during the EE/CA stage. The use of TPP fulfills the CERCLA, HQUSACE and EPA requirements to use a systematic planning process.

1-2. APPLICABILITY: This guidance applies to all USACE commands having responsibility for performing OE response actions. Use of the principles of TPP is mandatory for all OE project work whenever decisions are to be made regarding future response actions.

1-3. REFERENCES:

a. 10 U.S.C. 2701, Defense Environmental Restoration Program.

b. EP 1110-1-18, Ordnance and Explosives Response, 24 April 2000.

c. EP 1110-3-8, Public Participation in DERP FUDS, 1 December 1999.

d. EM 200-1-2, Technical Project Planning (TPP) Process, 31 August 1998.

e. EM 1110-1-4009, Engineering and Design, Ordnance and Explosives Response, 23 June 2000.

1-4. Distribution. Approved for public release; distribution is unlimited.

1-5. Policy. It is the policy of the USACE to produce products and services that fully meet the customer's expectations of quality, timeliness and cost effectiveness. All OE Response procedures must be formulated to ensure harmony with the USACE Strategic Vision and should be in concert with activities presented in other USACE guidance. The USACE Project Manager must ensure that quality objectives are clearly articulated and that the Technical Project Planning (TPP) team understands the essential professional standards, laws, and regulations that

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must be incorporated into the project. Health and safety requirements and considerations will not be compromised for any reason during OE Response actions.

1-6. Responsibilities. It is the responsibility of all USACE and contractor personnel involved with OE response projects to safely execute them in accordance with applicable laws, regulations and approved work plans and procedures.

1-7. Terms and definitions. Approved definitions for OE response projects are provided in reference 1-3b.

1-8. General TPP Process. This procedure assumes the reader has some understanding of the TPP process and EM 200-1-2 (reference 1-3d). The TPP process is divided into four phases. These phases are:

- a. Phase I - Identify Current Project (see Chapter 2)
- b. Phase II - Determine Data Needs (see Chapter 3)
- c. Phase III - Develop Data Collection Options (see Chapter 4)
- d. Phase IV - Finalize Data Collection Program (see Chapter 5)

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CHAPTER 2  
PHASE I - IDENTIFY CURRENT PROJECT

2-1. Overview: The first step in the TPP process is to identify the current project stage. This, typically, means ASR, PA/SI, EE/CA, RA, Recurring Review, etc. This is also the time to begin identifying constraints and dependencies and their potential effects on anticipated site activities. These should at least include consideration of administrative, technical, legal, and regulatory issues. Phase I of the TPP process includes the following 6 steps, which are clarified below; Identifying TPP Team Members, Preparing a team information package, Identifying customer goals, gathering existing site data, identifying a site approach and completing phase I activities.

2-2. Identify TPP Team Members: TPP Team Members should be identified. The TPP team is a multi-disciplinary team consisting of the Decision Maker, Customer, Regulators, Stakeholders, and the USACE Project Team.

a. Decision Makers - For FUDS, the ultimate decision maker is the USACE District or Major Subordinate Command (MSC) commander, who is represented on the USACE Project Team, by the project manager. This does not mean that the project manager has the authority to supersede the OE Response process and organizational responsibilities as documented in ER 1110-1-8153, EP 1110-1-18, and this Interim Guidance.

b. Customer - All TPP team members and landowners are considered customers. Each customer, or TPP team member, has input into the project planning and decision making process. The USACE project manager must consider their input.

c. Regulators - Federal, State, Local regulators and Native American and Indian Tribal Nations are key members of the TPP team. Their input is required prior to any government decision (*"decision" as used here, means the decision documented in the Action Memorandum*). Their concerns should be understood, documented, and addressed. The Decision Maker is responsible for ensuring regulator concerns are adequately addressed and should explain the reasoning for agreement or disagreement with

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regulator concerns. Project decisions do not require regulator approval, however, every attempt should be made to gain acceptance regarding the project goals and approach.

d. Stakeholders - Stakeholders are those who may have an interest in the site activities and site closeout including property owners, Restoration Advisory Boards, and other individuals and interest groups.

e. USACE Project Team - The USACE project team is comprised of the appropriate USACE technical and project management personnel and the contractor(s) who will be supporting the project and/or performing the work.

2-3. Prepare a team information package including (this information is prepared by the USACE Project Team):

a. Team members - List team members by name and their role for the project.

b. TPP Team goals for the project.

c. USACE Project Team schedule and budget.

d. All correspondence to/from regulators, including an index of the project file or administrative record, if available.

e. Existing site data, Inventory Project Report (INPR), Archive Search Reports (ASR), photographs, illustrations etc.

2-4. Identify Customer's (TPP Team) Goals: Identifying TPP Team goals is critical within the TPP process to ensure appropriate planning activities. Goals are defined by current and future land use, regulatory compliance, and budget and schedule requirements and limitations. For example, a typical EE/CA goal might be to understand the impact that the presence of OE has at the site and to identify appropriate response actions to reduce and/or manage the risk of ordnance and explosives that allows for reasonable public use of the site.

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2-5. Gather Existing Site Data: Gather existing site data to begin identifying potential areas of concern. As the project progresses and more data is gathered, some areas may be dropped from the list and designated as No Further DOD Action Indicated (NDAI) or remain areas of concern requiring further characterization and/or response actions.

2-6. Identify Site Approach: Perform the following TPP activities to identify a site approach and be better prepared to manage and consider the effects of outside constraints and proposed changes to the data collection programs. See Appendix A.

- ✓ Develop a preliminary conceptual site model (CSM).
- ✓ Develop and document project objectives.
- ✓ Document regulator and stakeholder concerns/input.
- ✓ Document potential decisions that will be made.
- ✓ Document the stages of the project to be completed before Site Closeout.

a. Develop Preliminary Conceptual Site Model (CSM): A review of existing site data (i.e., the ASR and other data available) should be thorough enough to develop a preliminary conceptual site model (CSM). A CSM can be a written and/or pictorial representation, such as a map with overlays, of the site showing the relationship between the former military use of the site, current and proposed future land use, ways in which people may encounter OE, and environmental features that may have an impact on proposed site activities and/or decisions. See Appendix B for a sample of a written CSM. The preliminary CSM should be used as a tool to communicate current site conditions to project team members, regulators and stakeholders, and to identify data gaps for the development of data collection methods to be implemented during the EE/CA. The CSM should be updated as new information about the site becomes available. CSMs can then be compared to show site conditions as they evolve with the addition of new information. The CSM is critical to understanding the site and in beginning to answer the following questions:

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- ✓ What are the existing concerns at the site?
  - Is there OE present?
  - Is there access?
  - What is human behavior/use of the site?
  - What are the environmental and physical conditions?
- ✓ Is there a reasonable expectation of benefit to the stakeholders and taxpayers?

NOTE: Detailed information on developing a CSM will be documented in an Engineering Pamphlet to be issued at a later date. For further guidance on CSM's contact the OE MCX.

b. Develop and Document Project Objectives: Project objectives are site issues to be addressed and resolved at the site. Project objectives must be documented to focus the team's thinking toward a specific set of concerns that can be addressed through the planning and completion of a specific project stage. The first project stage may be the EE/CA and this will have specific objectives as shown below. However, the team should consider if there are activities that could be conducted during the EE/CA that will support the objectives of future project stages such as development and approval of the Explosive Safety Submission, conducting a Removal Action or HTRW project. During the EE/CA, typical project objectives may include:

- ✓ Understanding and addressing public concerns/input.
- ✓ Understanding and addressing regulator concerns/input.
- ✓ Determining:
  - Physical nature of the site.
  - Regulatory framework.
  - Nature and extent of OE.
  - Demographics and land use.
- ✓ Updating and revising the CSM.
- ✓ Conducting a risk assessment.
- ✓ Obtaining a signed Action Memorandum.

c. Document Regulator and stakeholder Concerns/input: It is essential to document regulator and stakeholder concerns/input so they may be adequately addressed during the site characterization, decision and removal processes.

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Addressing their concerns/input does not necessarily mean all concerns will be acted on, however, the USACE Project Team must document the reasoning for their decisions. Regulator and stakeholder concerns/input must be seriously considered.

d. Document Potential Decisions to be Made: Document the alternatives that will be considered based on information gathered through the EE/CA process. Each potential area of concern should be considered separately. For example, if an area has no historical or aerial photographic evidence to indicate the presence of OE, and a ground recon also shows no indication of OE, then the most likely decision will be NDAI for that area. Typically alternatives are one, or a combination, of the following:

- ✓ NDAI (No DOD Action Indicated)
- ✓ Surface Clearance with Institutional Controls (IC)
- ✓ Subsurface Clearance with Institutional Controls (IC)
- ✓ Institutional Controls (IC)
- ✓ Construction Support

e. Document Stages of the Project:  
These can be considered as the milestones of the project in order to get to site-closeout. (*Site-closeout for OE projects is considered to be that point when physical removal is completed and/or institutional controls are implemented and the project enters the recurring review process.*) Typical project stages are:

- ✓ ASR
- ✓ PA/SI
- ✓ EE/CA
- ✓ TCRA (if required)
- ✓ Action Memorandum
- ✓ Explosives Safety Submission
- ✓ Removal Action
- ✓ Residual Risk Management Plan

2-7. Complete Phase I: Prepare a Phase I Memorandum for Record (MFR), Appendix A, to document the team's findings and decisions during Phase I.

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The team information package, the preliminary CSM and the project objectives should be listed as components of the MFR. The MFR should be coordinated with the TPP team and clearly document the:

- ✓ Current project.
- ✓ Project objectives within the context of the current project stage.
- ✓ Customer's goals.
- ✓ Site constraints and dependencies.

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CHAPTER 3  
PHASE II - DETERMINE DATA NEEDS

3-1. Overview: The second step in the TPP process is evaluating existing site data, determining the data needed to make appropriate and supportable decisions about the site, and identifying methods for collecting that data. Each of these is discussed below.

NOTE: Determination of data needs must consider customer goals and project objectives as developed in previous TPP phases.

3-2. Evaluate Usability of Existing Data: Before defining data needs for the project, the team should evaluate the usability of existing data. Existing data may be suitable for qualitative and quantitative uses. The team must be aware that some existing data may be of an unacceptable quality for one use, but of acceptable quality for another use. For example, a site reconnaissance may be enough to indicate a removal action is required in a given area; however, it may not provide enough information to evaluate the costs of conducting that removal action. More data may be required to develop accurate cost estimates for planning purposes.

3-3 Define Data Needs:

a. The team must identify the specific data that needs to be collected in order to support the potential decisions to be made. Data needs should be documented for each area of concern, see Appendix C. The team should:

- ✓ Consider the consequences of incorrect decisions or decision errors.
- ✓ Consider how much data is required and what it will be used for.
- ✓ Consider data collection approaches, including field screening approaches.
- ✓ Consider the cost of additional data collection in dollars and time; and then
- ✓ Decide how data needs can be balanced within project cost and schedule constraints.

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b. There are four general data sets required for fully understanding the OE problem at any given site and to analyze potential response alternatives. These are:

- ✓ Physical Nature of the Site - The natural, environmental and manmade features of a site that may affect, or be affected by, the use, detection, recovery or disposal of OE.
- ✓ Nature and Extent of OE - The distribution, density, characteristics and changes of OE at the site.
- ✓ Regulatory Framework - The laws, regulations, guidance and principles that affect the use, detection, recovery or disposal of OE at a site (includes understanding the requirements for Explosives Safety Submissions). This includes an institutional analysis to determine the mission, authority and willingness of local agencies to support institutional controls.
- ✓ Demographics and Land Use - The distribution, density, characteristics and changes of the human population and their effects on the way land is used at the site.

3-4. How Much Data is Needed: Generally, only that data needed to support potential decisions, project objectives and site-closeout should be gathered. However, to satisfy other desires and potential future actions (i.e., HTRW project), it may be possible and appropriate to gather other data as determined by the TPP Team. All requirements should be labeled as a basic data need, an optimal data need, or an excessive data need. See reference 1-3d for general explanations of basic, optimal and excessive data needs. There may be six basic questions to answer in determining the amount of data you need to collect:

- ✓ How much data do I need to determine an area warrants NDAI?
- ✓ How much data do I need to determine an area requires a Removal Action (RA)?
- ✓ How much data do I need to determine an area requires further investigation/characterization?
- ✓ How much data do I need to develop a realistic cost estimate to conduct required removal actions?
- ✓ How much data do I need to gain regulator and stakeholder concurrence with potential decisions to be made?
- ✓ How much data do I need to develop an institutional control plan?

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**NOTE:** *It is critical to document the data needs and tie those needs directly to specific project objectives. If data cannot be tied directly to an objective, then do not waste project resources to collect it. Although not directly related to this particular project phase, it may be beneficial to collect certain data now to support some future needs of the site, i.e., conducting field screening for explosives in soil for potential HTRW project work.*

3-5. Determine Data Collection Approaches: Data collection methods and strategies should be documented in a way similar to that shown in Appendix C. There are numerous resources/methods to gather data, some are:

- ✓ Historical documents.
- ✓ Personal interviews.
- ✓ Aerial Photographic Analysis.
- ✓ Geophysical Mapping.
- ✓ Ground Reconnaissance.
- ✓ Anomaly Investigations.

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CHAPTER 4  
PHASE III - Develop Data Collection Options

4-1. The third step in the TPP process is to develop and document the field methods to be used based on a review of all the information gathered in Phase I and II.

4-2. The project team must decide what tools are most appropriate in determining data collection methods at a site. One of the major considerations in this decision should be ensuring the health and safety of personnel during data collection at the site. It is critical to fully understand the intent of the methods and tools selected, their limitations, and to communicate precisely how any resulting data will be incorporated into the decision making process.

4-3. It is important the team understands that tools (i.e., Gridstats/Sitestats, UXO Calculator, OE Risk Impact Analysis (OERIA), Response Alternatives Evaluation (RAE) etc.) do not "make the decision", but do provide data to support potential decisions. Reference 1-3e provides engineering and design requirements that should be addressed while planning an OE response project.

4-4. Consideration should also be given to how data will be handled and where and in what format the data will be stored.

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CHAPTER 5  
PHASE IV - Finalize Data Collection Program

5-1. The final step of the TPP process is to finalize and document the data collection options and decisions. The team will now prepare Data Quality Objective (DQO) statements. These are project specific statements that describe the intended data use(s), the data need requirements, and the means to achieve acceptable data quality for the intended use(s). DQO's can be summarized in text format or in a format similar to that shown in Appendix D. When data collection efforts are complete, each DQO should be evaluated to assure the objective was met.

5-2. By definition, DQOs are "qualitative and quantitative statements derived from the DQO (in our case TPP) process that clarify study objectives, define the appropriate type of data, and specify the tolerable levels of potential decision errors that will be used as the basis for establishing the quality and quantity of data needed to support decisions."

5-3. DQOs produced through the TPP process meet EPA's definition of a DQO.

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APPENDIX A

<b>Technical Project Planning Phase I MFR Worksheet</b>		
<b>Author(s):</b> Bruce Railey and Gerry Moore		<b>Reviewer:</b>
<b>Latest Revision Date:</b> 12 JUN 00		<b>Review Date:</b>
<b>Location:</b> Shumaker Naval Ammunition Depot, Camden, Arkansas		
<b>Site(s):</b> Former ammunition plants, storage buildings and potential OE hazard areas		
<b>Project:</b> Engineering Evaluation & Cost Analysis and Site Investigation		
(Attach Phase I MFR to PMP)		
<b>TPP Team</b>		<b>EM 200-1-2, Paragraph 1.1.1</b>
<b>Decision Maker</b>	USACE	
<b>Customer</b>	Little Rock District	
<b>Project Manager</b>	Margaret Morehead	
<b>Regulators</b>	EPA Region VI: Bob Wilkinson State of Arkansas: Shannon Miller	
<b>Stakeholders</b>	Shumaker Restoration Advisory Board, Property Owners	
<b>Data Types</b>	<b>Data User</b>	<b>Data Gatherer</b>
<b>Compliance / Regulatory (CR)</b>	CESWL, CESWT, CEHNC, Regulators	Parsons
<b>Demographics/Land Use (LU)</b>	CESWL, CEHNC	Parsons
<b>Site Conditions (SC)</b>	CESWL, CEHNC	Parsons
<b>OE/UXO (UXO)</b>	CEHNC	Parsons / ATI

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<b>CUSTOMER'S GOALS</b>		
<b>EM 200-1-1, Paragraph 1.1.2</b>		
<b>Land Use(s)</b>	<b>Issues and Regulatory Compliance Status</b>	<b>Site-specific Closeout Goal (if applicable)</b>
Site 1, Rocket Range (B) Current: Timber Future: Timber	Former Rocket Test Range, OE scrap, explosives in soil	Land is safe for seasonal hunters and timber growing and harvesting every 20 years
Site 2, Fuze Test Range (A) Current: Industrial Future: Industrial	PRP OB/OD, Former live fire to test rocket fuzes	Land is safe for continued use by property owner
Site 3, Rocket Burn Area Current: Timber/quarry Future: Timber/quarry	DoD OB/OD of excess OE	Land is safe for seasonal hunters and timber growing and harvesting every 20 years
Site 4, TNT Burn Area Current: Timber Future: Timber	DoD OB/OD of TNT and OE components	Land is safe for seasonal hunters and timber growing and harvesting every 20 years
Site 5, Well Disposal Areas Current: Varies(Timber, Industrial) Future: Varies	Inert OE items disposed in existing hand-dug wells at 15 locations	Land is safe for seasonal hunters and timber growing and harvesting every 20 years
Site 6, Buried Drum Area Current: Industrial Future: Industrial	Buried metal drum located ("Depth Charge Casing", dated 1942)	Land is safe for continued use by property owner
Site 7, Rework Area Current: Timber & Industrial Future: Timber & Industrial	Out of specification OE reworked (including steaming of TNT from OE)	Land is safe for continued use by property owner
Site 8, Landfill Area Current: Industrial, Timber Future: Industrial, Timber	DoD used for domestic waste; local municipalities used for domestic waste and storm debris	Land is safe for continued use by property owner and timber growing and harvesting every 20 years
Site 9, TNT Plant Current: Industrial Future: Industrial	PRP, No Current Data Needs	Land is safe for continued use by property owner
Site 10, Motor Loading Plant Current: Industrial Future: Industrial	PRP, No Current Data Needs	Land is safe for continued use by property owner
Site 11, Non-Vegetated Soil Area Current: Industrial Future: Industrial	Magazine used for OE storage, with alterations to building by DoD and small low area with no vegetation	Land is safe for continued use by property owner
Site 12, Sewer/Drainage Lines Current: Industrial Future: Industrial	PRP, No Current Data Needs	Land is safe for continued use by property owner

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<b>CUSTOMER'S GOALS (continued)</b>	<b>EM 200-1-1, Paragraph 1.1.2</b>
Site Closeout Statement	
Land and water are safe for intended use after performing required field activities.	
Customer's Schedule Requirements	
EE/CA Field Investigation and Reporting Concluded: 30 Sept 01	
Customer's Site Budget	
EE/CA Field Investigation and Reporting: \$1.3M	

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IDENTIFY SITE APPROACH		
<b>EXISTING SITE INFORMATION &amp; DATA</b> EM 200-1-2, Paragraph 1.1.3 and 1.2.1		
<b>Attachment(s) to Phase I MFR</b>	<b>Located at Repository</b>	<b>Preliminary Conceptual Site Model</b>
Archive Search Report (ASR)	Yes	No
Site Prioritization Report (SPR)	Yes	Yes
Topographic Engineering Center (TEC) Historical Aerial Photo Analysis	Not Finalized	No
<b>POTENTIAL POINTS OF COMPLIANCE</b> EM 200-1-2, Paragraph 1.2.1.3		
Explosives or Explosives Residuals in Surface Water and Ground Water		
Most Probable Munition for Each Project Site for the Explosive Safety Submission		
<b>MEDIA OF POTENTIAL CONCERN</b> EM 200-1-2, Paragraph 1.2.1.4		
Surface/Near Surface Soil		
Surface Water		
Ground Water		
<b>SITE OBJECTIVES</b> EM 200-1-2, Paragraph 1.2.2		
Site Closeout		
<i>See Attached Worksheets Developed by CEHNC and Parsons</i>		
<b>REGULATOR AND STAKEHOLDER PERSPECTIVES</b> EM 200-1-1, Paragraph 1.2.3		
Regulators	Community Interests	Others
Potential receptors	Land and ground water are safe for intended use	Reporting procedures if suspect UXO found
Ground water impacts		
Phased or Incremental Closeout if possible (e.g. focus any initial reporting of NDAI or RA on Highland Industrial Park)	Local businesses don't suffer because of uncertainty about OE risk	Reporting procedures if suspect HTRW found
	Recurring reviews don't raise question about OE risk every few years	
<b>PROBABLE REMEDIES</b> EM 200-1-2, Paragraph 1.2.4		
Detonations of Suspect UXO as found during investigations and Removal Actions		
Incineration of explosive soil (greater than 10% by weight)		
Treatment of soil, surface and ground water		
<b>EXECUTABLE STAGES TO SITE CLOSEOUT</b> EM 200-1-2, Paragraph 1.2.5		
Engineering Evaluation/Cost Analysis		
Site-Specific Site Investigations (as needed)		
Time-Critical Removal Action (as required)		
Action Memorandum		
Conventional Ordnance Explosive Safety Submission (as needed)		
Removal Actions (as needed)		

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IDENTIFY CURRENT PROJECT		
SITE CONSTRAINTS AND DEPENDENCIES		EM 200-1-2, Paragraph 1.3.1
<u>Administrative Constraints and Dependencies</u>		
Funding		
RAB involvement and notification		
Rights of Entry (ROE)		
<u>Technical Constraints and Dependencies</u>		
Hunting Seasons		
Leaseholder site activities (e.g, Exclusion Zones, Site access)		
<u>Legal and Regulatory Milestones and Requirements</u>		
Consistent with CERCLA and NCP		
Public, stakeholder and Regulatory involvement and review of key documents		
FUDS Funding Limitations		
CURRENT EXECUTABLE STAGE		EM 200-1-2, Paragraph 1.3.3
EE/CA Site Investigation and Development		
<i>See Attached Worksheets Developed by CEHNC and Parsons</i>		
<b>Basic</b> (For Current Projects)	<b>Optimum</b> (For Future Projects)	<b>Excessive</b> (Objectives that do not lead to site closeout)
<i>Varies by Project Site- See Objectives Worksheet</i>	<i>Varies by Project Site- See Objectives Worksheet</i>	<i>Varies by Project Site-See Objectives Worksheet</i>

**Acronyms**

**EM**-Engineer Manual (see [www.usace.army.mil/inet/usace-docs/](http://www.usace.army.mil/inet/usace-docs/))

**NDAI**--No Department of Defense Action Indicated

**RA**--Removal Action

**RAC-JPG**--Risk Assessment Code type impact analysis conducted during EE/CA at Jefferson Proving Ground, Indiana

**TPP**-Technical Project Planning

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APPENDIX B

Site	Acreage	Site Type	Past DoD Activities	OE Related Items Found Since Closure	Post-DoD Land Use and Current Land Use	PRP Involvement	TPP Recommendations Geophysical Investigations	TPP Recommendations Soil & Water Investigations
1. Rocket Test Range	4188	OE	2.75", 5", 11", and 13" Rockets test fired by Navy. Reported that 2.75" rockets were fired as live rounds.	Numerous reports of ordnance found since closure. Sources include interviews with local residents, forestry personnel, ASR field visit, and Parsons EE/CA field visit.	Firing area leased by Marconi, who uses original structures for offices and storage, etc. Remainder of rocket range used only for timber production.	None known, though Marconi conducts ordnance-related activities in firing area.	Impact Zone (1952 aerial photo) is of concern. Will conduct transects to delineate impact zone vs. clear zones, and UXO density profiles. Will conduct grids to define OE density and costing issues.	No soil or water sampling planned.
2. Fuse Test Range	76	OE	2.75", 5", 11", and 13" Rockets test fired by Navy. Included live fuses.	Minor OE related items noted during ASR field visit, possibly post-DoD vintage.	Firing area leased by Marconi, used for OE disposal in several burn pits. Remainder of range used for timber only.	Marconi previously conducted ordnance burning in pits (firing area only).	The 300-ft and 1200-ft target areas are of concern for OE. Will conduct transects across areas to delineate impact zones vs. clear zones. Will conduct grids to define OE density and costing issues.	No soil or water sampling planned.

**Implementation of Technical Project Planning (TPP)  
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APPENDIX C

**PROJECT OBJECTIVES WORKSHEET**

SITE: **Rocket Test Range**  
PROJECT: **Shumaker NAD, Camden, AR**

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Number	Site Objective <sup>a</sup>		Description	Data Collection Methods	Project Objective Classification <sup>e</sup>
	Executable Stage <sup>b</sup>				
	Current	Future			
1	Yes		Delineate OE within impact area	geophysics, GPS and excavations	basic
2	Yes		Define current & Future Land Use	interviews	basic
3	Yes		Impact Analysis / Risk	RAC-JPG	basic
4	Yes		NDAI / RA decision	EE/CA Action Memo	basic

a Refer to EM 200-1-2, Paragraph 1.2.2

b Refer to EM 200-1-2, Paragraph 1.2.5

c For example, Meeting with Customer/stakeholder/Regulator, State Regulation\_\_\_\_,

d Data Needs: **CR**-Compliance/Regulatory, **LU**-Land Use/Demographics, **SC**-Site Conditions, and **UXO**-OE UXO

e Classification of project objectives can only occur after the current project has been identified. Refer to EM 200-1-2, Paragraph 1.3.3.

**Acronyms**

**EM**-Engineer Manual (see [www.usace.army.mil/inet/usace-docs/](http://www.usace.army.mil/inet/usace-docs/))

**NDAI**--No Department of Defense Action Indicated

**RA**--Removal Action

**RAC-JPG**--Risk Assessment Code type impact analysis conducted during EE/CA at Jefferson Proving

**TPP**-Technical Project Planning

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APPENDIX D

DATA QUALITY OBJECTIVE WORKSHEET

Page \_\_\_\_ of \_\_\_\_

SITE: Site 1, Former Rocket Test Range

PROJECT: Former Camp XXX, EE/CA

DQO Statement Number: \_\_XX\_\_

<b>Intended Data Use:</b> (Which project objective(s) will be satisfied?)	To determine if further response actions are required to support a land use of seasonal hunting and timber harvesting. (Objective #1)
<b>Data need requirements:</b> (What data do you need to collect?) see para 3-3	The type, distribution and density of OE on the site.
<b>Is data: basic, optimal, or excessive need?</b> (see para 3-4)	Basic
<i>How much data is enough?</i>	Any presence or evidence of OE either on the surface or subsurface.
<b>How will this data be collected?</b>	Conduct surface search and Geophysical mapping of X% of the area and intrusive investigation of selected anomalies. Process is conducted by qualified and experienced UXO personnel and geophysicists.
Was DQO attained?	Yes
Where is supporting data maintained?	