# CHAPTER 9
# ENGINEERING EVALUATION/COST ANALYSIS

## 9-1. Introduction.

a. This chapter presents an overview of the EE/CA phase of an OE response action. An EE/CA must be completed for all NTCRAs, as required by the NCP. The OE Design Center is responsible for executing the EE/CA phase.

b. The purpose of the EE/CA is to identify the most appropriate response action to address an OE risk at a project site. The determination of the recommended response alternative occurs following the completion of a site characterization, risk assessment of OE hazards present at the site, and evaluation of potential response alternatives. The data generated to support the selection of a response alternative is presented in an EE/CA report. The components of the EE/CA phase are illustrated in Figure 9-1 and explained in paragraphs 9-2 through 9-8 of this chapter.

c. If an imminent hazard is discovered during the EE/CA phase, a TCRA may be initiated. Upon completion of the TCRA, the NTCRA process will resume. The TCRA process is discussed in Chapter 5.

## 9-2. EE/CA Reconnaissance.

a. Overview. EE/CA Reconnaissance (RECON) is an optional task within the EE/CA phase. If implemented, the RECON task is the first element of the EE/CA phase. The decision to implement the RECON task is made by the OE project team on a project-by-project basis following an evaluation of the site-specific data gathered during the PAE and SI phases. The government or its A-E may complete the RECON task.

b. Objectives.

(1) The objectives of the RECON task are to:

(a) Build upon site-specific data gathered during the PAE and SI phases.

(b) Gather detailed information that can be used by the OE project team to refine the SOW and IGE for the subsequent EE/CA investigation.

(c) Determine whether the OE response should proceed directly to a removal action.

(d) Reduce the study areas or modified sector approaches for the EE/CA investigation.

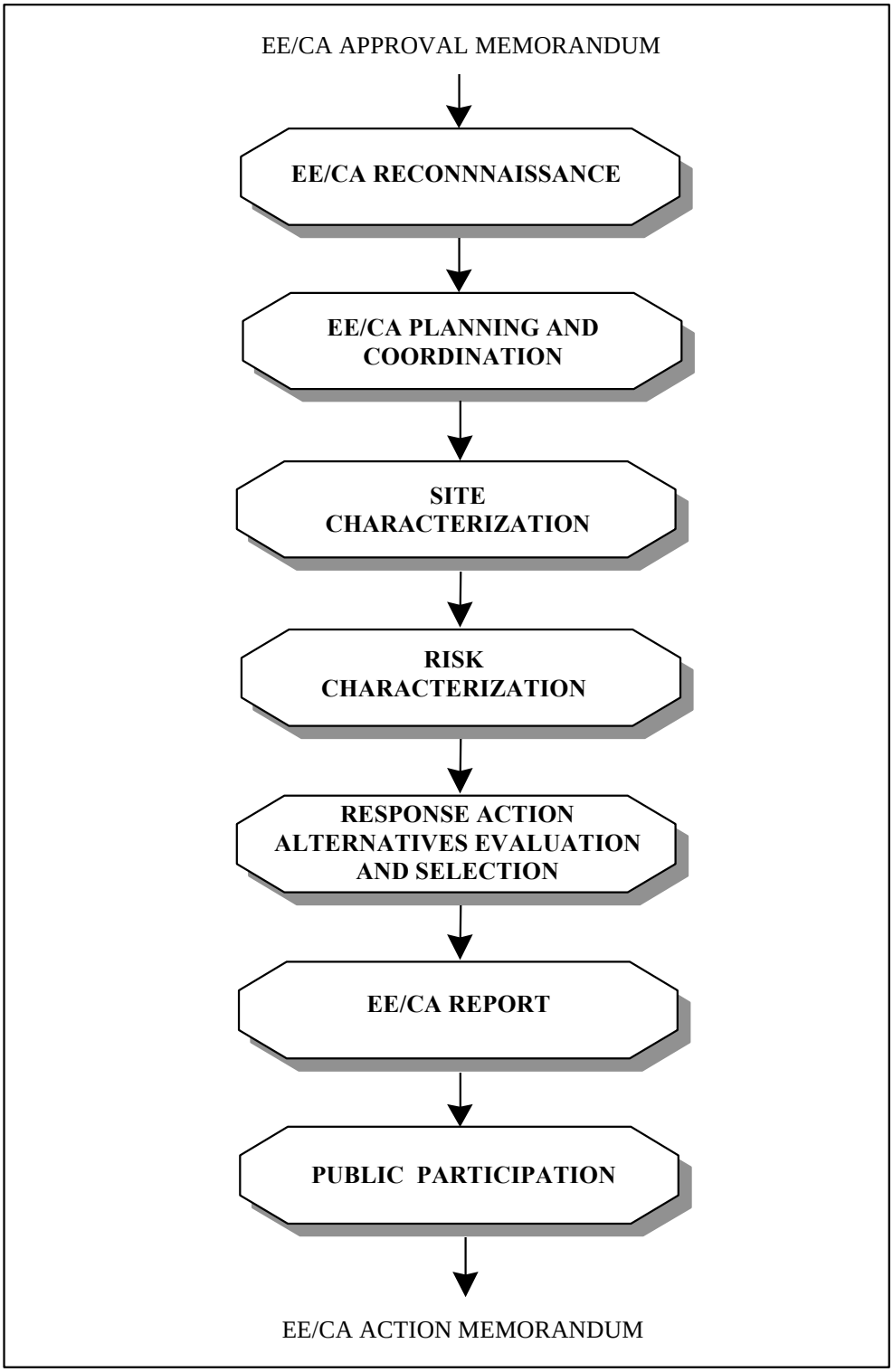


Figure 9-1. EE/CA Process

(e) Reduce the cost and time required to conduct the EE/CA through the implementation of sound engineering methods.

(2) These objectives may be achieved by:

(a) Obtaining additional historical and site-specific data to determine the nature and scope of the EE/CA site investigation. The data collected during the RECON task should be suitable for incorporation into the Geographic Information System (GIS).

(b) Defining the geographical extent of the ordnance contamination at the site through the use of aerial photography and a GIS.

(c) Determining the best type of OE detection equipment to use at a site during the EE/CA site characterization.

(d) Determining the best field methodology for completing the EE/CA phase.

c. RECON Elements. The RECON task consists of six sub-elements: Work Plan/ASSHP; Analysis of the ASR; Spatial Analysis (Aerial Survey); Ground Reconnaissance; Technology Evaluation; and Analysis Report and Data Archive. These sub-elements are illustrated in Figure 9-2 and discussed in the following paragraphs.

(1) Work Plan/ASSHP.

(a) The OE Design Center is responsible for executing the Work Plan. The Work Plan will be submitted to the district for review and written concurrence or non-concurrence. The OE MCX will monitor the Work Plan.

(b) Since RECON activities will be non-intrusive and anomaly avoidance techniques will be implemented, an ASSHP will be prepared in accordance with the guidance provided in Chapter 20.

(2) Analysis of the ASR. The OE project team will build upon existing ASR data and any subsequent data; for example, local law enforcement or EOD records. The data will be converted into a spatially coincident digital format. This conversion of data will allow the historical and site information to be used throughout the project.

(3) Spatial Analysis (Aerial Survey). The OE project team will complete a detailed analysis of spatial data. Spatial analysis may provide information to assist in making valid decisions regarding predicted areas of interest at the site by differentiating potentially contaminated areas from uncontaminated areas. This is accomplished through spatial analysis of the ASR data and, if necessary, by completing an aerial survey of the site. The aerial survey may be either specifically flown for the project or a recent aerial survey may be obtained from a local

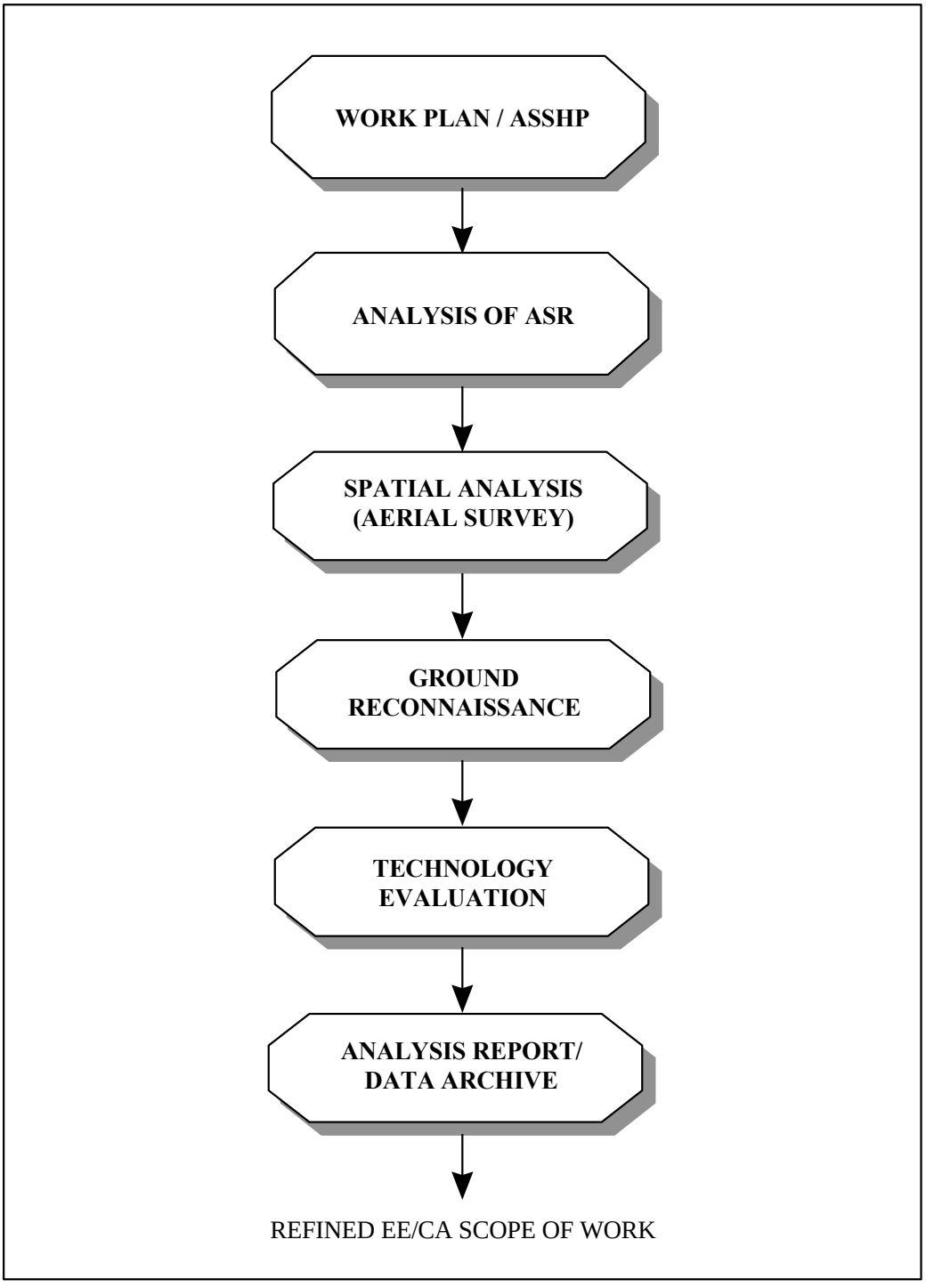


Figure 9-2. EE/CA Reconnaissance Process

air survey company. The aerial survey should be current so that all improvements are shown and must also meet established OE Design Center requirements for aerial mapping.

(4) Ground Reconnaissance.

(a) The OE project team will conduct a ground reconnaissance (ground RECON) to verify the results of the spatial analysis. During the ground RECON, the OE project team (which will include an OE Safety Specialist) will look for evidence of OE contamination such as changes in vegetation, soil characteristics, and ground scars. A ROE may be required prior to the ground RECON.

(b) If no evidence of OE contamination is found, then NDAI will be recommended. If OE that may present an imminent danger to the public is found at a site, USAESCH must be contacted by phone to discuss interim actions. USAESCH should coordinate with local law enforcement officials to secure the site and ensure that the local EOD unit has been contacted. USAESCH will then coordinate with EOD and may provide an OE Safety Specialist to assess the risks and recommend a course of action.

(5) Technology Evaluation.

(a) The purpose of the technology evaluation is to determine which OE detection instrument is most appropriate for a specific site within a reasonable cost. During this task, various OE detection instruments will be evaluated by establishing a test grid.

(b) The location of the test grid will be based upon ASR information, visual review, and a sweep with an ordnance detector. The test grid will then be seeded with representative inert OE items within the range of depths that the ordnance is expected to be found at the site. When the test grid is established on a property, a ROE may be required. ROE requirements are discussed in Chapter 3.

(6) Analysis Report and Data Archive. The results of the ASR analysis, spatial analysis, ground RECON, and technology evaluation will be compiled into an Analysis Report and Data Archive. The OE project team will use this information to:

(a) Develop the EE/CA SOW.

(b) Develop EE/CA planning documents (i.e., Work Plan, SSHP).

(c) Provide evidence that, in some cases, the OE response should proceed directly into a removal action without further study. If the removal action will be conducted with a planning period of less than six months, the Action Memorandum must be published within 60 days of initiating the removal action. A 30 day public review period is also required. Any information gathered during this response action should be incorporated into the EE/CA document.

9-3. EE/CA Planning and Coordination. The EE/CA planning and coordination process includes the preparation of the EE/CA SOW, IGE, and schedule; completion of a site visit; preparation and approval of all required planning documentation; and fulfillment of the project management, regulatory, real estate, and public participation requirements.

a. Preparation of the EE/CA SOW. The site-specific data gathered during the PAE, SI, and RECON (if implemented) is used to prepare the EE/CA SOW. The OE project team will manage the preparation of the SOW and ensure that all applicable technical disciplines are appropriately involved. Since safety is a primary concern during OE response projects, the EE/CA SOW must be closely coordinated with the project OE Safety Specialist. Additionally, the OE MCX may be consulted to provide the appropriate statements concerning the background or authority for the task order's award. An example EE/CA SOW is provided on the OE MCX website at http:\\www.hnd.usace.army.mil\oew.

b. Preparation of the IGE. The IGE for an EE/CA will be prepared in accordance with the guidance provided in Chapter 3.

c. Site Visit.

(1) General. If the EE/CA A-E performed the RECON task, then a site visit should not be necessary. However, if a RECON was not included in the A-E's SOW, then the EE/CA A-E will conduct a site visit.

(2) Site Visit SOW. The site visit may be authorized as either a purchase order or as the first task of an incrementally funded contract. Sample SOWs for the stand-alone site visit and the site visit included as a task in a larger task order are found on the OE MCX website at http:\\www.hnd.usace.army.mil\oew.

(3) Purpose. The purpose of the site visit is to provide the A-E with the opportunity to gather pertinent information for use in preparing the Work Plan and other planning documents. The information collected from the site visit allows the A-E to gain a better understanding of the nature and extent of OE contamination and verify the locations of the proposed areas of interest. This information, which is instrumental in planning the EE/CA, includes:

(a) Site features, such as terrain, access, and amount of brush clearance required.

(b) Location of/coordination with nearest hospital.

(c) Location of/coordination with nearest fire station.

(d) Coordination with local airport/Federal Aviation Administration representatives.

(e) Coordination with local police, sheriff, and/or military police to assess security.

(f) Fencing requirements for explosives storage magazines.

(g) Location for support zone and explosive storage magazines.

(h) Logistical coordination for lodging, equipment and vehicle rental, office space, explosives dealers, etc.

(i) Coordination with Range Control, Defense Reutilization Management Office, Ammunition Supply Point, and Post Provost Marshall, if applicable.

(4) Site Visit Requirements. The following paragraphs present requirements that should be fulfilled for the site visit:

(a) Prior to the site visit, the A-E will be provided with copies of the ASR and any other site-specific information for review.

(b) An ASSHP will be prepared in accordance with the guidance provided in Chapter 20.

(c) Generally, no more than three A-E personnel are required to participate. One A-E participant must be a PM and one must be a qualified Senior UXO Supervisor.

(d) Since the site visit will be non-intrusive and anomaly avoidance techniques will be implemented, site visit participants are not required to have Hazardous Waste Operations (HAZWOPER) training.

(e) The district will coordinate with the property owner/operator prior to the site visit if a ROE is required.

(f) A site visit for a typical project should take no longer than five days, including travel time.

d. Preparation of Contractor Planning Documents.

(1) Work Plan.

(a) A site-specific Work Plan is required for all EE/CA projects. The Work Plan documents the methodology that will be used to complete the EE/CA. Following the site visit, the Work Plan will be developed in accordance with the SOW. An example of the contents for an EE/CA Work Plan is provided in Table 9.1. Additional information on the EE/CA Work Plan requirements is provided in the OE MCX DID OE-001, “Work Plan”, which is located on the OE MCX website at http://www.hnd.usace.army.mil/oew.

Table 9.1
EE/CA Work Plan Outline

| Chapter | Title |
|---|---|
| Cover Page | |
| Table of Contents | |
| 1 | Introduction |
| 2 | Site Description |
| 3 | Project Management |
| 4 | Overall Approach to OE EE/CA |
| 5 | Scope of Work By Task |
| 6 | Site Characterization Planning and Operations |
| 7 | OE Planning and Operations |
| 8 | Site Safety and Health Plan |
| 9 | Environmental Protection Plan |
| 10 | Data Management Plan |
| 11 | Quality Control |
| 12 | References |
| Appendices | |

(b) The OE Design Center executes the Work Plan. The district is responsible for reviewing the Work Plan and providing comment and written concurrence or non-concurrence. The OE MCX monitors the Work Plan.

(c) When review of the draft document is completed, the government will provide comments to the A-E for incorporation into the final document. A minimum turnaround is expected, and the final document will be back-checked for adequate revisions. Once the draft comments are incorporated, the document may be sent to regulators or other stakeholders for review and comment.

(d) Following the approval of the Work Plan from the OE Design Center and the CO, and if other prerequisite documents are approved, a Notice-to-Proceed will be issued.

(e) The Work Plan will be placed in the Administrative Record for the project. The PM and project team members should also maintain a current copy of the Work Plan.

(f) Any changes to the approved Work Plan will be reviewed by the OE project team and approved by the OE Design Center and CO prior to implementation. Changes to the Work Plan should be incorporated within 21 days.

(2) SSHP. As a part of the Work Plan, the A-E will also prepare a SSHP in accordance with the guidance provided in Chapter 20.

(3) Environmental Protection Plan.

(a) The A-E will prepare an Environmental Protection Plan as a part of the Work Plan. This plan should include an assessment of ARARs, which must be identified during the EE/CA planning process. ARARs are defined in paragraph 1-3g of this pamphlet.

(b) ARARs are identified on a chemical-specific, location-specific, and action-specific basis. ARARs require an analysis for applicability, relevance, and appropriateness. First, the determination is made whether a requirement is applicable. If it is not applicable, then a determination is made whether it is both relevant and appropriate. When this analysis concludes that a requirement is both relevant and appropriate, then the requirement must be complied with to the same extent as if it were an applicable requirement.

(c) Non-promulgated advisories or guidance documents issued by Federal or state governments do not have the status of potential ARARs. However, these “to be considered” criteria may be used in determining the necessary level of cleanup for human safety and protection of the environment.

(4) Real Estate and Regulatory Requirements. During the EE/CA planning and coordination process, the PM must ensure that all applicable real estate and regulatory requirements, as discussed in Chapter 3, have been satisfied. The PM should also ensure that the public involvement requirements discussed in Chapter 4 have been satisfied. Additionally, the applicable safety and training requirements, as specified in Chapters 20 and 24 respectively, must be fulfilled. The PM may also consider the establishment of an Anomaly Review Board (ARB). ARBs are only used in exceptional circumstances (e.g., an ARB may be used during an EE/CA investigation at a highly contaminated site in a heavily urbanized area). Information on ARB procedures is provided in Appendix E.

9-4. Site Characterization.

a. Overview.

(1) The purpose of an OE site characterization is to obtain surface and subsurface OE data to characterize the site and to generate recommendations for the proposed OE response action. This characterization should include data from any OE that has been located and/or disposed of by EOD or local law enforcement. Potential sources for this data include the ASR, EOD records, or local law enforcement records. The following types of data should be collected:

(a) Type(s) of OE.

(b) Location of OE.

(c) Density of OE.

(d) Penetration Depth.

(2) The components of the site characterization phase include:

(a) Implementation of the sampling methodology.

(b) OE Detection Instrument Testing, if not completed during the RECON task.

(c) Area preparation.

(d) Field sampling.

b. Statistical Tools. During an EE/CA site characterization, the following statistical tools may be used to collect site-specific data: SiteStats/GridStats or UXO Calculator. Contact the OE MCX for additional detail on these statistical tools.

(1) SiteStats/GridStats. SiteStats may be used during sampling efforts to aid in establishing the boundaries of contaminated areas and estimating the density of contamination within an area. SiteStats provides for sequential sampling procedures and a statistical determination of sampling termination points. SiteStats accepts a small amount of uncertainty in characterizing individual subareas (grids) in exchange for a much greater understanding of the contamination of the overall site. GridStats provides a statistical sampling methodology for estimation of ordnance contamination density within individual grids.

(2) UXO Calculator. The UXO Calculator is a statistical model for determining the amount of UXO in a sector. The UXO Calculator assumes homogeneous OE contamination within an identified area. It is used to determine statistical confidence intervals for UXO density and to perform statistical tests concerning UXO densities.

c. OE Detection Instrument Testing. OE detection instruments should be field tested prior to each project to ensure their applicability to the unique geographical characteristics of the site. If the RECON task is included in the EE/CA process, the OE detection instrument with the best documented performance for reasonable cost should be selected for the EE/CA field investigation. If the RECON task was not included in the EE/CA process, then the A-E should complete OE detection instrument testing as part of the initial field effort. The procedures for OE detection instrument testing are described in Chapter 21.

d. Area Preparation. Area preparation includes the identification and marking of geophysical sampling grids and the removal of sufficient vegetation and other obstacles which may restrict sampling efforts.

(1) Location Surveys and Mapping. Location surveys and mapping will be performed by the A-E to establish the boundaries of the areas under investigation. The procedures to be used in the execution of location surveys and mapping are discussed in Chapter 21.

(2) Brush Clearance.

(a) Prior to conducting any field sampling, brush clearance may be required. The purpose of brush clearance is to remove sufficient vegetative growth from the areas to be investigated in order to effectively locate, investigate, and remove subsurface anomalies.

(b) The vegetation removal techniques used must be coordinated with the district environmental staff and documented in the Work Plan. A UXO Technician II must always escort the brush clearing crew in areas not previously cleared of OE. The safety requirements listed in EM 385-1-1 must be followed. Personal Protective Equipment (PPE) will be provided to the brush clearance crew and used as required for protection. All brush clearance personnel must be trained in the safe operation of the equipment and have obtained site-specific safety training in accordance with Chapter 24.

e. Field Sampling. During the field sampling task, surface and subsurface sampling are conducted to obtain the data necessary to conduct an accurate EE/CA investigation.

(1) Surface Sampling. Surface sampling is conducted by UXO personnel. The UXO personnel will visually inspect the site investigation area; identify grids; mark any located UXO; and record UXO type, location, density, and level of hazard.

(2) Subsurface Sampling.

(a) Prior to the subsurface sampling effort, the A-E will perform a geophysical survey to locate subsurface anomalies. The procedures for conducting OE detection surveys are discussed in Chapter 21. OE or suspected OE identified by the OE sampling protocol will be intrusively

investigated. Only approved UXO personnel will perform intrusive operations. OE removal actions will proceed in accordance with 29 CFR 1926, Subpart P.

(b) Once an OE item has been exposed, it will be inspected, identified, and transported to a designated area for cataloging and eventual disposal. If an OE item cannot be safely moved to an alternate location for destruction, it will be blown-in-place.

(c) If a subsurface anomaly is removed, then the excavated location will be rechecked with a magnetometer or other ordnance detector. Upon completion of the recheck, if the location does not produce another anomaly, then the excavated area will be backfilled. If an OE item is recovered from the area, the location will be marked and the item disposed of in accordance with approved project procedures.

(d) Evacuations are sometimes necessary when conducting intrusive investigations to minimize the risk of the operation. An exclusion zone distance is calculated to ensure that all non-essential personnel are outside of that distance during the conduct of the excavation. The exclusion zone distance may be reduced by implementing engineering controls. The use of engineering controls is discussed in Chapter 21.

(e) There are several other considerations which must be accounted for during the intrusive investigation, including: explosives storage, engineering controls, exclusion zone management, disposal and transportation of OE, and quality assurance. These topics are discussed in detail in later chapters of this pamphlet.

9-5. Institutional Analysis.

a. Purpose. An institutional analysis should be conducted to show what opportunities exist to implement an institutional control program at a specific site. The institutional analysis also identifies the existence of any local, state, federal, or private agencies that may be available to assist in the implementation or maintenance of the institutional controls program. An institutional analysis is necessary in order to evaluate whether institutional controls are viable at a particular site as a stand-alone response action or as a supplement to other cleanup activities. The institutional analysis will also aid in developing the most effective institutional control program, if it is selected as the response alternative or as part of a response alternative.

b. Components.

(1) There are five elements of an institutional analysis which should be evaluated for each local, state, federal or private agency that may be able to assist in the implementation or monitoring of a proposed institutional controls program. These elements include:

(a) Jurisdiction of the agency.

(b) Authority exercised by the agency within its jurisdiction.

(c) Mission of the agency.

(d) Capability of the agency.

(e) Desire of the agency to implement the institutional control being considered.

(2) Contact the OE MCX for additional information on the application of institutional controls to the EE/CA process.

c. Determination of Existing Institutional Controls. The existence of any current deed restrictions or other type of institutional control that may have been placed on the property in the past as a result of some other activity should be determined. If such restrictions are found to already exist at a site, it may be easier to modify the existing restriction to address the OE risk than to implement an entirely new institutional control.

9-6. Risk Characterization.

a. Purpose. A risk characterization is required as part of the EE/CA process. A risk characterization of an OE site is conducted to determine the level of safety risk that exists at a site as a result of the OE contamination. The risk characterization is a key component in determining the level of removal action necessary to address the safety risk and the basis on which subsequent cost-benefit analyses are conducted in the EE/CA.

b. Types of Risk Characterization Tools. There are two main types of risk characterization tools: qualitative and quantitative. Either type of risk characterization tool may be used, depending upon which most appropriately fulfills project requirements. For additional information on the selection of risk characterization tools, contact the OE MCX.

9-7. Development and Evaluation of Response Action Alternatives.

a. Development of Response Action Alternatives. Once site-specific data has been gathered and analyzed, potential site-specific response action alternatives will be developed. A response action alternative may include physical OE removals, as well as any other alternatives that reduce risk to the public. The alternatives will be developed based on existing site conditions, historic use of the site, the existing or proposed land use, and the extent and depth of OE. Site-specific alternatives must ensure the most effective use of resources, while providing maximum return to the public.

b. Response Action Categories. Response action alternatives are classified into four general categories: No DOD Action Indicated, Institutional Controls, Surface Clearance, and

Subsurface Clearance. A proposed removal action may include a combination of these alternatives.

(1) No DOD Action Indicated. This response action involves the continued use of the site in its current condition. An NDAI may be appropriate if some removal action has already occurred at the site or sector of the site or if the risk evaluation has determined that there is a very low-level of safety risk.

(2) Institutional Controls. Institutional controls may be used either as a stand-alone response action or as a supplement to other cleanup activities in order to address the residual risk that remains at a site after a cleanup has been completed. Institutional controls are a response action alternative used to restrict access to the site. Access can be restricted by imposing administrative restrictions and/or by installing physical barriers. Administrative restrictions could take the form of a deed restriction limiting the future use of the parcel or requiring that precautions be taken during any future construction activities. Physical barriers may involve fencing and posting the area to ensure that the local populace does not enter the property and inadvertently come into contact with OE. Contact the OE MCX for additional information on institutional controls.

(3) OE Surface Clearance. The OE surface clearance alternative includes the investigation and removal of all potentially hazardous OE items to a depth of six inches. An OE surface clearance alternative may be recommended for a site based on the nature and extent of the OE contamination, the current and projected use of the site, and local community and regulatory acceptance of the alternative. An OE surface clearance must be performed by UXO-qualified personnel.

(4) OE Subsurface Clearance.

(a) The subsurface OE clearance alternative includes the investigation and removal of all potentially hazardous OE items to a certain depth at a site. The depth of the OE clearance is based on the nature and extent of the OE contamination, the current and projected use of the site, and local community and regulatory acceptance of the proposed alternative. When there is insufficient data to develop site-specific clearance depths, refer to DOD 6055.9-STD for subsurface clearance default depth. However, it is more cost effective to develop site-specific clearance depths based on current and future use of the site and the actual depth of OE found during the EE/CA investigation.

(b) An OE subsurface clearance is typically conducted using geophysical instruments to map the subsurface conditions and to determine the locations of anomalies that may be buried OE items. Upon completion of the geophysical survey and an analysis of the data, UXO-qualified personnel perform intrusive investigations to determine the nature of the geophysical anomalies.

c. Evaluation of Response Action Alternatives. Once the cleanup objectives have been established for a site, the various response action alternatives developed in the EE/CA must be evaluated in terms of how well they will meet these objectives.

(1) Three general evaluation categories are used to evaluate the proposed response action alternatives: effectiveness, implementability, and cost. The following paragraphs and Table 9.2 provide criteria which should be considered in the evaluation of each response action alternative.

(a) Effectiveness. The effectiveness of each response action alternative is evaluated based on its level of protection of human health and the environment, compliance with ARARs, and its ability to achieve the response action objectives. The effectiveness category is divided into four evaluation criteria:

- Overall Protection to Human Health and the Environment.
- Compliance with ARARs.
- Long-Term Effectiveness.
- Short-Term Effectiveness.

(b) Implementability. The implementability of each response action alternative is evaluated based on the following evaluation criteria including:

- Technical Feasibility.
- Administrative Feasibility.
- Availability of Services and Materials.
- Stakeholder Acceptance.

(c) Cost. The cost of each response action alternative is based on:

- Capital Costs.
- Post Removal Site Control Costs.

d. Comparative Analysis of Response Action Alternatives. Those alternatives which still appear feasible after the evaluation described above are then compared to each other using the same evaluation criteria described above. During this comparative analysis, the alternatives are ranked and the recommended response action alternative is selected.

Table 9.2
Criteria to Be Considered During Evaluation of Response Action Alternatives

| Evaluation Category | Criteria to be Considered |
|---|---|
| Effectiveness | • Protectiveness:<br>– Protective of public health and community<br>– Protective of workers during implementation<br>– Protective of the environment<br>• Complies with ARARS<br>• Long Term Effectiveness<br>• Short Term Effectiveness |
| Implementability | • Technical Feasibility:<br>– Construction and operational considerations<br>– Demonstrated performance/useful life<br>– Adaptable to environmental conditions<br>– Can be implemented in 1 year<br>• Administrative Feasibility:<br>– Permits required<br>– Easements or right-of-ways required<br>– Impact on adjoining property<br>– Ability to impose institutional controls<br>• Availability of Services and Materials:<br>– Equipment<br>– Personnel Services<br>– Outside laboratory testing capacity<br>– Off-site treatment and disposal capacity<br>– Post removal site control<br>• Stakeholder Acceptance |
| Cost | • Capital Cost<br>• Post-removal site control cost |

9-8. EE/CA Report.

a. The EE/CA Report documents the methodologies used during the site characterization and presents the findings of the EE/CA evaluation. The EE/CA Report is a flexible document tailored to the scope, goals, and objectives of the NTCRA process. It should contain only those data necessary to support the selection of a response alternative and future five-year recurring reviews. Existing documentation should be relied on whenever possible. A sample format for an EE/CA Report is presented in Table 9.3.

Table 9.3
EE/CA Report Sample Format

| Chapter | Title |
|---|---|
| Executive Summary | |
| 1 | Introduction |
| 2 | Site Description |
| 3 | Site Characterization |
| 4 | Risk Evaluation |
| 5 | Institutional Analysis |
| 6 | Identification of Response Action Objectives |
| 7 | Identification and Analysis of Response Action Alternatives |
| 8 | Comparative Analysis of Response Action Alternatives |
| 9 | Recommended Response Action Alternative |
| 10 | Recurring Reviews |
| Appendices | |

b. The EE/CA Report is executed and approved by the OE Design Center. The EE/CA Report is reviewed by the district and the OE MCX.

c. ESS Requirement During the EE/CA Process.

(1) An ESS is typically prepared as part of the removal action planning process, as discussed in detail in Chapter 11. However, an ESS is also prepared if the Draft EE/CA Report recommends the response action alternative of either NDAI or Institutional Controls. Examples

of the content and format of an NDAI ESS and Institutional Controls ESS are presented in Appendices F and G, respectively.

(2) Both the NDAI ESS and Institutional Controls ESS must receive concurrence from the US Army Technical Center for Explosives Safety (USATCES) and the Department of Defense Explosives Safety Board (DDESB). Once the ESS has been approved, and all other comments on the Draft EE/CA have been incorporated, the Final EE/CA Report may be prepared.

9-9. EE/CA Public Participation and Approval Process.

a. Once the EE/CA Report has been prepared and reviewed by the OE Design Center, the OE MCX, the district, and other stakeholders, the EE/CA becomes part of the Administrative Record for the site. The EE/CA is made available for public review and comment. A formal 30-day (minimum) public comment period is required, during which time public meetings may be held to discuss the results of the field investigation and the alternative selection process.

b. Upon completion of the public comment period, a responsiveness summary is prepared that discusses any significant public comments received and the actions taken to address those comments. The responsiveness summary becomes part of the Administrative Record.

c. Once the comments received during the public comment period have been incorporated into the EE/CA, the final EE/CA, along with the responsiveness summary, becomes part of the Administrative Record for the site.

d. If OE remains or is suspected to remain after completion of a response action, the property owner(s) will be apprised through the Administrative Record or other written agreements, and all documentation will be annotated accordingly.