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PREFACE

This manual is designed to provide comprehensive cost management procedures for use by the Environmental Protection Agency (EPA) at removal actions authorized under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, or Superfund). Specifically, this document should be used by the On-Scene Coordinator (OSC) and other on-site personnel designated by the OSC when performing cost management activities at a Superfund removal site.

The policies and procedures established in this document are intended solely for the guidance of government personnel. They are not intended, and cannot be relied upon, to create any rights, substantive or procedural, enforceable by any party in litigation with the United States. The Agency reserves the right to act at variance with these policies and procedures and to change them at any time without public notice.

This manual supersedes cost control procedures detailed in the January 1985 Removal Cost Management Manual. The guidelines and procedures presented herein reflect CERCLA policy and guidelines under the:

- Delegations 14-1-A, 14-1-B, and 14-2 or delegation of removal authority to Regional Administrators, February 1987; and
- National Hazardous Substances Pollution Contingency Plan (NCP), November 1985;
- Superfund Removal Procedures - Revision #3, 1987;
- ERCS Contract Users' Manual, October 1987.

Supplemental information can be found in these documents and in those on the List of References at the end of this manual. Revisions of these documents may change policies and procedures outlined in this manual.

Questions, comments, and recommendations are welcomed regarding the Removal Cost Management Manual and should be forwarded to the EPA task monitor for cost management:

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LIST OF EXHIBITS

LIST OF ACRONYMS

AA/ OSWER	Assistant Administrator for the Office of Solid Waste and Emergency Response, EPA
ATSDR	Agency for Toxic Substances and Disease Registry
CDC	Centers for Disease Control
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. 9601 et. seq., 26 U.S.C. 4611, 4612, 4661, 4662, 4671, and 4672.
CLP	National Contract Laboratory Program
CA	Cooperative Agreement
DPO	Deputy Project Officer, EPA
EE/CA	Engineering Evaluation/Cost Analysis
ERCS	Emergency Response Cleanup Services
ERD	Emergency Response Division, Office of Emergency and Remedial Response
EPA	United States Environmental Protection Agency
ERT	Environmental Response Team
FEMA	Federal Emergency Management Agency
FIT	Field Investigation Team
FMD	Financial Management Division, EPA
FMS	Financial Management System
HMIRTP	Hazardous Materials Incident Response Training Program
HQ	EPA Headquarters, Washington, DC
IAG	Interagency Agreement
IOL	Incident Obligation Log
LDR	Land Disposal Restrictions, 40 CFR 260
MOU	Memorandum of Understanding
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NRT	National Response Team

LIST OF ACRONYMS
(continued)

OERR	Office of Emergency and Remedial Response
OSC	On-Scene Coordinator
OSWER	Office of Solid Waste and Emergency Response, EPA
PCMD	Procurement and Contracts Management Division
POLREP	Pollution Report
RA	Regional Administrator, EPA
RCMS	Removal Cost Management System
RCRA	Resource Conservation and Recovery Act, 42 U.S.C. 6901 et. seq.
REAC	Response Engineering Analytical Contract
RRT	Regional Response Team, EPA
SARA	Superfund Amendments and Reauthorization Act of 1986 (PL 99-499)
TAT	Technical Assistance Team
USCG	United States Coast Guard

CHAPTER 1:

INTRODUCTION

The purpose of this manual is to outline a comprehensive cost management system for use by the U.S. Environmental Protection Agency (EPA) at removal actions authorized under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). This system requires that specific on-site and off-site cost information be documented, while offering flexibility to the On-Scene Coordinator (OSC) in documentation techniques. This manual modifies and updates cost management procedures detailed in the January, 1985, Removal Cost Management Manual.

1.1 REMOVAL COST MANAGEMENT

Cost management refers to the process of planning the costs of site objectives, and tracking and controlling costs to ensure they are commensurate with accomplishments. Cost management also involves documenting the planning and monitoring of all relevant activities in a legally defensible manner.

The purpose of cost management at a CERCLA removal action is to ensure that public funds are expended responsibly while threats to public health, welfare, and the environment are mitigated in a manner that is consistent with CERCLA (as amended) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). In addition, conscientious cost management strengthens the Federal government's claims when seeking

reimbursement from responsible parties (RPs) for response costs incurred during Federal-lead CERCLA removals.

Ultimately, the On-Scene Coordinator (OSC) is responsible for ensuring that removal costs are managed and documented adequately. As the primary Federal decision-makers, OSCs are often summoned to justify actions taken and funds expended under their command. Therefore, it is essential that OSCs implement a program that ensures that resources are used effectively and efficiently and that adequate documentation exists to substantiate removal decision-making and expenditures.

As the cost manager at a CERCLA-funded removal action, the OSC plans the activities and costs to derive the project ceiling and then tracks these costs as the removal action progresses. The OSC is also responsible for documentation.

This manual identifies tools the OSC may use to manage costs effectively. The cost management system provides a means of financial quality assurance during a removal action. Quality assurance is the process of management review and oversight at the planning, implementation, and completion stages of a project. Cost projection, daily cost tracking, and cost documentation all provide mechanisms to substantiate removal decision-making and expenditures.

This manual offers guidance to OSCs on developing a comprehensive cost management system. Each chapter addresses one of the major elements of an effective cost management system. Chapter 2, Cost Projection, describes a method for reasonably forecasting the costs of a removal. This will aid the OSC in avoiding cost overruns and delays associated with seeking increases to the approved project cost ceiling. Chapter 3, Cost Control, explores ways to control on-site costs through general cost planning, cost tracking, monitoring contractor efforts, and verifying contractor charges. Chapter 4, Cost Recovery, describes the OSC's role in maintaining legally defensible records that can serve, when needed, to support cost recovery actions against responsible parties. Finally, Chapter 5, Cost Documentation, provides suggestions on how to document costs so

that the information necessary for cost projection, cost control, and cost recovery is recorded in an easily accessible manner. A list of references and appendices is also provided as support material to the cost management system.

1.2 APPROACH TO COST MANAGEMENT

A basic tenet of removal cost management is that costs can be managed and documented most effectively from the removal site command post. Costs are best controlled and documented as they occur. The primary responsibility for cost management rests with the OSC.

Given the rapid response time required at most CERCLA removal actions, the demands on the OSC's time and attention are great. It is understood that the OSC alone will not be able to carry out all cost management responsibilities, and therefore will delegate certain duties to other on-site and off-site personnel. The Regional Administrative Support Unit will assist the OSC with cost management and documentation responsibilities at removal actions. The cost management scheme outlined in this manual, therefore, strives to achieve effective cost management without excessive paperwork and duplication of effort.

The success of the cost management approach is largely dependent on detailed documentation of on-scene activities and costs. This approach emphasizes the specific information necessary for effective cost management, rather than the specific form for recording such information. As a result, particular attention should be given to Chapter 5, which outlines the information that must be provided by the OSC for each removal action. This information is required, and the OSC will be held responsible for ensuring that the information is recorded in an easily retrievable and coherent manner. To help OSCs develop cost documentation suited to their needs, Chapter 5 outlines various documentation tools available to the OSC for fulfilling each information requirement. The cost documentation approach described herein provides the OSC with the necessary

flexibility to take into account site-specific conditions and personal management style when documenting costs. The specific types of information that must be recorded is consistent for all removal actions, but the OSC may use any form or combination of forms to document the required information. Of the documentation tools described in Chapter 5, only the Contractor Cost Report (EPA Form 1900-55) is required. In addition, each piece of recorded information must be filed in an organized manner for future reference. A standardized site file kit has been developed for this purpose (see Section 5.4).

1.3 CHANGES IN THE CURRENT EDITION

The manual has been revised to account for changes in the Superfund legislation (specifically, SARA); regulations, policies, and procedures stemming from that legislation; and the new contracts awarded for Emergency Response Cleanup Services (ERCS) and the Technical Assistance Teams (TAT).

The changes set forth in SARA may significantly affect the complexity, duration, and cost of a removal action. These changes include the increase in the statutory limit on the duration of a removal; the requirement to ensure that actions are consistent and contribute to the efficient performance of long-term remedial actions; the increase in the statutory ceiling to $2 million; and the encouragement of the use of alternative technologies and more "permanent" solutions. The cost management procedures of this manual have been revised to account for the coordination, documentation, and in-depth preparation associated with these new or expanded tasks.

In this edition of the manual, significant changes have been made to the methodology for cost projection, especially in the areas of Regional and Headquarters indirect costs. Chapter 3, on cost control, has been modified to help OSCs understand the cost implications of the new ERCS contracts. Methods of tracking site costs have been improved to help the OSC monitor the project ceiling more closely. The documentation procedures in

Chapter 5 have also been modified, and the appendices have been updated with current information.

1.4 USING THE MANUAL WITH RCMS

This manual is being released in coordination with Version 3.0 of the Removal Cost Management System (RCMS) software. The software is designed for on-site use, and automates some of the concepts of cost management described in this manual. It also ensures that costing methods are applied consistently throughout the removal program.

The cost projection module of RCMS should be used with Chapter 2 of this manual; the RCMS software will guide the user through the same step by step process as this manual, and provide speed, accuracy, and flexibility during cost projection. Chapter 3 of this manual explains the procedures associated with tracking the costs of a removal action on a daily basis. Use of the RCMS should greatly increase the efficiency and accuracy of on-site cost tracking. The 1900-55 module has been developed to accommodate the provisions of all ERCS contracts and provides for daily tracking of cleanup contractor costs. The Daily Cost Summary module provides for a daily accounting of all major cost components incurred at removal actions. The Site Summary module can provide valuable information on the individual cost components of the removal action. An added feature of the RCMS is the ability to view cost information in a format similar to the ERCS contractor invoices. This feature should prove valuable to the OSC in reconciling contractor invoices.

The OSC or designated cost manager is encouraged to become familiar with the RCMS software and RCMS User's Guide, and to learn to use the software in conjunction with the procedures of this manual. EPA provides training for both cost management and use of the RCMS.

CHAPTER 2:

COST PROJECTION

An OSC must be able to forecast costs in anticipation of initial and ongoing funding needs. With the exception of classic emergency situations, detailed below, the OSC must estimate the total project cost in order to request approval for initiation of the removal action and sufficient funds for the completion of the action.

2.1 COST PROJECTION AND THE ACTION MEMO PROJECT CEILING

The EPA Regional Administrator (RA) or Assistant Administrator (AA) of the Office of Solid Waste and Emergency Response (OSWER) or other officials with delegated authority in accordance with delegations 14-1-A, 14-2-B, 14-3, and 8-33, will determine whether to approve a removal action under CERCLA based on information provided in an Action Memorandum prepared by the OSC (see Appendices A and B). A more detailed discussion of preparation of the Action Memorandum can be found in Section III-C-3 of the Superfund Removal Procedures Manual (Revision #3). An important element of the Action Memo is the OSC's projection of the total project cost. This chapter provides guidance in projecting the cost of the removal action by estimating the costs of individual elements of the project.

In certain emergency situations, the urgency of the need for threat abatement will not allow time to calculate project costs before beginning the removal action. Where OSCs have been delegated authority to obligate up to $50,000 to initiate removal actions, the Superfund Removal Procedures Manual (Revision 3) requires the OSC to document the decision

in an Action Memo within 24 hours of initiating action, whether or not the project will require further funding. The Action Memo will include a statement of costs already obligated, and an estimate of any additional costs. Section III-C-9 of the Superfund Removal Procedures gives further guidance on use of the $50,000 authority.

2.1.1 The Project Ceiling

Once approved, the cost projection specified in the Action Memo becomes the formal project ceiling. The project ceiling, which must also be included in a request for a ceiling increase or request for exemption to the 12-month/2 million dollar limits, may not be exceeded without written approval of the RA or AA (or appropriate delegated official), depending on the ceiling amount. The process of requesting an increase in the project ceiling (see Appendix D) requires approval of a ceiling increase request Action Memorandum which includes a formal justification, as discussed in the Superfund Removal Procedures Manual. Until a ceiling increase is authorized, and further funds are approved, no additional funds may be spent at a site. Response teams may be demobilized if a ceiling increase is not authorized. Consequently, delay of the project will probably increase its cost (because of the demobilization and remobilization of response teams) and may have harmful effects on health and the environment. The costs associated with down-time will also be difficult to justify during cost recovery litigation. In order to avoid delays and excessive costs, it is crucial that the OSC properly and accurately estimate the costs of the removal action.

2.1.2 Policy Regarding Investigatory and Enforcement Costs

The Superfund Removal Procedures (Section III-C-4) states that the cost of all investigatory and enforcement (104(b) studies) activities is exempt from the $2 million statutory ceiling and the overall project ceiling. After a removal action begins,

however, it can be difficult to keep separate on-site accounts for investigatory or enforcement-related activities.

In recognition of the difficulty of maintaining separate cost accounts for enforcement and investigatory activities, the removal program has adopted the policy that all on-site costs that are 1) directed by the OSC, 2) performed by the cleanup contractor, and 3) initiated after approval of the Action Memorandum are to be counted as response costs, and therefore are considered part of the project cost ceiling. Categories included in the project ceiling are:

- Extramural costs (e.g., cleanup contractor, subcontractor, waste transportation and disposal, other federal agency costs, TAT and other support contractors)
- Intramural (EPA) costs, both direct and indirect, including labor and other costs, incurred on site, in the Region, and at Headquarters.

Note, however, that investigative activities or 104(b) studies which take place before on-site cleanup begins, such as the Preliminary Assessment, will not be included in the project ceiling. The Engineering Evaluation/Cost Analysis (EE/CA) is an example of a 104(b) activity which is specifically exempt from the project ceiling. Even if the EE/CA is performed after the removal begins, it will have its own Approval Memorandum and project ceiling (see Appendix F). Any costs associated with these activities (including sampling or analytical costs, and intramural or extramural labor hours used to gather information) are not to be included in the project ceiling for the removal action.

2.2 PROJECTING THE COST OF A REMOVAL

This chapter presents an approach for scoping a removal action and for preparing cost projections (see Exhibit 2-1). The first part of the process deals with developing the scope of work for the project. The second part explains how to estimate costs for the project. These eleven components of cost projection are presented as sequential steps. It is not necessary to follow this sequence, as long as all the

EXHIBIT 2-1
COMPONENTS OF COST PROJECTION

Scoping the Project:

1
Identify objectives of the removal action

2
Develop the scope of work

3
Develop a time frame for the project

4
Identify equipment and personnel requirements

5
Select appropriate contracting mechanism

Projecting Initial Cost:

Extramural

6
Determine cleanup contractor costs, including subcontractors, waste transportation and disposal, and a contingency

7
Determine TAT, external laboratory costs, and other support contractor costs

8
Subtotal extramural costs, apply 15% contingency

Intramural

9
Determine EPA direct costs

10
Determine EPA indirect costs

11
Calculate the project ceiling

components are included in the cost projection process. It is also possible to perform some steps simultaneously.

These procedures are used to create a cost projection for an initial Action Memorandum; they are also to be used to project costs for a ceiling increase request (See Appendix D). When requesting a ceiling increase, the scoping and costing methods outlined below are applied to the remaining portion of work to be done, not to the entire project.

2.2.1 Scoping the Project

The Preliminary Assessment is generally performed prior to writing the Action Memorandum, with the exception of removals that are classical emergencies or require the use of the $50,000 emergency authority. The Preliminary Assessment is considered a 104(b) investigation; therefore, costs incurred are exempt from the project ceiling. During the Preliminary Assessment, (as explained in Section III-C-3 of the Superfund Removal Procedures), the following information will be obtained:

- the location of the emergency or release, the extent of contamination, the population at risk, and all available details of the situation that will define the objectives of the removal action;
- the immediacy and significance of the threat to public health and/or the environment, as well as the precautions that must be taken for the safety of response personnel; and
- the existence of a non-Federal party(s) (such as State or local personnel, or the responsible party) to undertake a proper response.

Once it is determined that a removal action is needed, the OSC is then ready to use this information and begin the procedure for developing the cost projection.

In order to determine the scope of the project, it is necessary to identify the objectives of the removal action, define the scope of work, develop a project time frame, identify equipment and personnel needs, and select the appropriate contracting mechanism.

1: Objectives of the removal action. Using the data obtained during the Preliminary Assessment, the OSC must define the objectives of the removal action. These objectives should identify what kind of action will be taken at the site and the extent of the planned cleanup. All concerned parties (e.g., participating State agencies and the potentially responsible parties) should understand the objectives and limitations of the removal action before an action is initiated.

2: Scope of work. After the objectives of the removal action have been defined, the OSC must develop the scope of work and determine specific tasks that must be performed. Because there may be significant gaps in the available information at this early stage, the OSC must make assumptions about the nature and extent of the tasks at hand (e.g., the number of drums that must be overpacked, staged, and removed from the site or the dimensions of a containment pond that should be constructed). Given the limited information available, OSCs must use their professional judgment to make the best possible estimate of the scope of work necessary to abate a release or threat of release. The OSC may request assistance from the TAT or ERT and their contractors, as well as discuss the anticipated scope of work with other OSCs. In order to avoid a potential conflict of interest, the scope of work should not be developed by (or with the assistance of) the cleanup contractor.

3: Time frame for the project. Estimation of the time frame for the project is linked in some instances with the scope of work. The larger the scope of work, the more time will be needed for the removal. On the other hand, if a site requires a rapid removal action, the scope of work is likely to be correspondingly smaller.

The project time frame can determine whether daily, weekly, or monthly ERCS equipment rates are used to calculate costs. Because monthly rates can provide a substantial savings for long-term projects, accurate projections of project length are an important

budget consideration. Past experience, discussions with other OSCs who have worked in similar situations, and OSC reports from other sites are probably the three best sources of information for determining the amount of time needed to complete a project. Site conditions (e.g., hazards, weather, and mobility of heavy equipment) have an important bearing on determining the length of the operation. The projected time frame should include the estimated turnaround time for sample analysis, and time for coordinating subcontractors such as those used for transportation and disposal. Transportation and disposal of wastes can extend the length of a project significantly. Time must also be allowed for the temporary off-site storage of materials before ultimate disposal, and for mobilization, decontamination, and demobilization during the project.

4: Equipment and personnel needs. The OSC must examine the equipment and personnel needs and availability required to accomplish the objectives of the removal. Having identified the need for a specific expertise from TAT, for example, the OSC will need to determine the availability of that expertise. If it is not available, then alternative arrangements to obtain that expertise must be identified. An OSC should consider the following factors when determining the type and quantity of equipment and personnel necessary to perform the tasks of the removal:

- o availability of Federal personnel and government-owned equipment;
- o availability and expertise of TAT personnel (e.g., chemist, engineer);
- o specific personnel requirements from the cleanup contractor;
- o availability of a contractor to provide alternative technology (e.g., potassium polyethylene glycol (KPEG), incineration);
- o availability of contractor specialized equipment (e.g., drum grapplers, portable effluent treatment systems);
- o safety requirements that limit the use of personnel and/or equipment;
- o mobilization, decontamination, and demobilization procedures needed;
- o necessary waste transportation and disposal operations;

- Federal, State, and local permits necessary to complete the project in recognition of applicable, relevant and appropriate regulation (ARARs);
- local ordinances that require fire, police, or other site security measures;
- physical site security requirements.

Often equipment and services are more readily available or cost less when procured from other government agencies (Federal, state, or local). Section 3.1.1 offers suggestions on locating such equipment and services.

5: Appropriate cleanup contract. The information on objectives, scope, time frame, and personnel requirements gathered in Steps 1-4 will define the parameters necessary for an appropriate and efficient response. The OSC should then use these parameters as decision criteria for selecting an appropriate cleanup contractor from a list of Emergency Response Cleanup Services (ERCS) contractors.

EPA is improving and expanding the nature and number of cleanup contracts. As of the publication date of this manual, three different types of cleanup contracts are available in some Regions: Zone ERCS contracts, Regional ERCS contracts, and site-specific contracts. Selection and initiation of the appropriate contract type will be specific to the type of incident as well as the exigencies of the situation. The ERCS Contracts Users' Manual provides specific guidance on selecting the appropriate cleanup contractor; however, the OSC should be familiar with the relative costs of using each of the different types of cleanup contractors available. The OSC should coordinate with Contracting Officers at Headquarters or in the Region to determine which contracts and contractors are available. Through the selection of a contractor, the OSC will have new options for improving cleanup capability and the cost efficiency of a removal. Section 3.1.2 provides further clarification of the cost implications of ERCS contractor selection.

Zone ERCS Contracts: The United States is divided into four Zones where each Zone is covered by a separate Zone ERCS contract. The Zone contracts may be used when response initiation time is extremely limited or a unique service provided by that company is needed. Only the Zone contracts will provide guaranteed response time within 24 hours or less. A total of seven Zones are planned.

Regional ERCS Contracts: These contracts will differ from the Zone contracts by requiring less stringent and less comprehensive emergency response cleanup services in less urgent time frames. The geographic coverage of a Regional contract will be smaller than that of a Zone contract.

Site-Specific Contracts: These contracts will be awarded on a limited or full and open competition basis depending on the time available prior to initiation of a response. The Emergency Response Division (ERD) and the Procurement and Contracts Management Division (PCMD) are currently coordinating efforts to provide each Region with a source list of prequalified firms. When it becomes apparent that a site-specific cleanup contract may be useful for the removal action, the OSC should contact the contracting office to determine whether the prequalified competition process is appropriate for completing work at the site. If nine months or more are available, the contract should be offered on a basis of full and open competition. The forthcoming Alternative Technology Guidance discusses the use of site-specific contracts to obtain contractors using available alternative technologies.

Removal Program Land Disposal Restrictions (LDR) Implementation Guidance requires OSCs to implement LDR treatment standards for all "California List" wastes, including PCBs, to the degree practicable. The Administrative Guidance for Removal Program Use of Alternatives to Land Disposal (OSWER Directive #9380.2-1) offers guidance on contracting for alternative means of disposal:

If an alternative technology is selected as the removal action option, a decision must be made whether to use an existing ERCS contract, or to competitively or non-competitively award a separate contract. Among the factors which should be assessed when making this decision are: the urgency of the acquisition, the adequacy of specifications, the number and identity of potential contractors for the option selected, and whether a particular contracting approach offers administrative or cost savings. The Procurement and Contracts Management Division (PCMD) can assist in making this decision.

The alternative technology guidance explains the appropriate process to use for identifying types of technologies and the Headquarters approval officials for use of those technologies (depending on the type of contract and the amount, concurrences from ERD and PCMD may be necessary).

2.2.2 Projecting Costs

Because of the likelihood of increased complexity of removal actions (due to legislative and regulatory requirements discussed in Section 1.3), direct and indirect costs of removal actions are likely to increase. The coordination, documentation, and in-depth preparation associated with the land disposal restrictions (LDR or land ban), and longer removals, for example, also require that cost estimates now include the necessary additional technical and administrative support hours used or charged in the Region and Headquarters. Cost recovery efforts for sites addressed early in the removal program indicate that EPA intramural direct and indirect costs were heavily underestimated. Estimates for costs related to these tasks need to be included in the cost projection.

Note that calculations in steps 6 - 11 are presented for explanatory purposes. Once estimates of hours and other costs have been made and entered into the computer, the RCMS software will perform the necessary calculations.

Extramural Costs

6: Cleanup contractor, subcontractor, waste transportation, and disposal costs. This step includes the majority of the extramural cleanup costs at a removal action, including: ERCS, IAGs, CAs, letter contracts, notices to proceed, and a 10-20% contingency of the above costs.

The price list for the ERCS contractor selected in Step 5 is the major source of information for obtaining rates for the various cleanup personnel and equipment identified in Step 4. When appropriate, it is important to include per diem expenses when estimating the labor costs for the cleanup contractor. The new ERCS contracts now allow for more items which are reimbursed at cost, as well as more "no charge" items. These new terms should reduce the cost for some commonly used equipment and therefore reduce the project ceiling. The OSC should become familiar with the terms of all cleanup contracts as they are awarded. If more information or clarification is needed, the OSC should contact the ERCS Deputy Project Officer (DPO), the Regional Contract Officer (if available), or the Contract Officer at Headquarters. For items not covered by the ERCS price list, the OSC can refer to standard construction cost information manuals, commercial price lists obtained from other contractors, product literature, the handbooks listed in Section 2.3, and past OSC reports for cost information. Section 3.1 of this manual offers suggestions and guidance for identifying supplies and services at lower than commercial costs.

Waste transportation and disposal costs may be difficult to estimate if these rates have not been negotiated in the cleanup contracts. If these rates are not available through the ERCS contract, the OSC may use past OSC reports or request TAT assistance to prepare preliminary estimates. If past OSC reports are used, an inflation factor should be used. It is not possible for this manual to provide a universally accurate factor to account for inflation because transportation and disposal costs have escalated dramatically in the last few years. The OSC may use TAT assistance to contact disposal

facilities at the time the costs are being estimated. Also, discussing potential expenses with other OSCs, especially if they have had experience with similar situations in the past, may be very helpful in estimating costs.

In addition to the expenses listed above, there are many other extramural costs which may affect the total project ceiling, including:

- o services of other Federal agencies (e.g., U.S. Coast Guard or Federal Emergency Management Agency);
- o State and local agency services obtained by letter contract;
- o cooperative agreements with State agencies; and
- o other anticipated external costs such as utilities, materials, and right-of-way payments.

The OSC should make specific estimates for any "other cost" that can be anticipated.

To allow for unforeseen cleanup contractor expenses that may arise during a removal (e.g., discovery of additional hazardous substances, delays resulting from poor weather conditions, equipment failure, or increased disposal costs due to market and regulatory compliance changes), a contingency allowance of 10 - 20 percent should be added to the cleanup contractor cost estimate. The specific percentage rate used for the contingency allowance must be determined on a site-by-site basis, depending on the degree of uncertainty surrounding the cost estimate, and the particular conditions at each site.

7: TAT and other support contractors. Estimate the number of TAT hours needed to complete the project. These hours should include off-site as well as on-site hours. Note that the hours charged to the site during a Preliminary Assessment (or other 104(b) study) to generate data for an EE/CA, and during PRP (Potentially Responsible Party) monitoring activities, are considered investigatory and enforcement costs, and are not charged against the total project ceiling. Each TAT Professional Level (PL) has an averaged regional rate. This rate is available through the TAT Leader or the TAT Zone

Program Management Office (ZPMO). Multiply the number of hours times the appropriate PL rate. Then add an allowance for hotel, per diem, rental car, and other estimated expenses, which are available through the TAT Leader or lead TAT member for a project.

To cover administrative costs of the TAT program, an administrative multiplier, which includes overhead expenses, is applied towards all TAT expenses. This factor, available through the TAT Leader or ZPMO, is multiplied by the sum of the personnel and expense amounts listed above, to estimate total TAT expenses for the removal action.

Analytical services may be obtained through the following mechanisms: TAT Analytical TDDs, Contract Laboratory Program (CLP), or Regional laboratories. TAT will be able to provide an estimate of the cost of a specialized quick turnaround analysis. Instructions for estimating CLP costs are found in Appendix H. Regional laboratory costs are considered intramural direct expenditures and are estimated in Step 10. All laboratory estimates should include costs of sample extraction, analysis, data validation, data reduction, and quality control.

Also estimate any hours for other support contractors, including the Field Investigation Team (FIT) and the Response Engineering Analytical Contract (REAC).

8: Subtotal of all extramural costs. The next step in the calculation of the project cost is to sum the costs obtained in steps 6 and 7 to obtain the subtotal of extramural costs. To allow for unforeseen or unanticipated expenses, a contingency factor of 15% is applied to the subtotal of the extramural costs.

Exhibit 2-2 summarizes the process of estimating extramural costs.

EXHIBIT 2-2: PROJECTION OF EXTRAMURAL COSTS

Extramural Cleanup Contractor Costs

* Costs of prime ERCS Contractor (Zone contractor, Regional ERCS contractor, or site-specific contractor): personnel, equipment, and materials
* Costs of subcontractors (including waste transportation and disposal)
* Other Federal Agencies (IAGs)
* State and local agencies, through cooperative agreements (CAs) or letter contracts

Support Contractors

* TAT
* REAC, HMIRTP
* CLP
* FIT

Intramural Costs

9: EPA direct costs. An estimate should be made of the costs for EPA labor and other direct costs, both on-site and off-site. Estimates should include hours for (1) the preparation and review of work plans, safety plans, quality assurance project plans, and the OSC Report; (2) data validation/evaluation; and (3) document control. The estimate should also include costs of chemical analyses if Regional laboratories will be used. Regional laboratory costs are estimated with input from the laboratory director; the OSC must be sure to include sufficient hours for data validation, data reduction, and quality control.

To project EPA direct costs, an estimate must first be made of total direct intramural labor hours; this estimate should include an estimate for anticipated hours from Regional personnel (**Total Direct Regional hours**), and personnel outside of the Region (i.e., Headquarters, ERT, or other Regions). Because it is often difficult to estimate hours for Headquarters personnel, the Comptroller's Policy Announcement No. 87-15 states that a reasonable estimate of 10% of the total direct Regional hours should be used. The total number of direct intramural hours (Regional plus outside of the Region) is then multiplied by the average loaded direct labor hour rate (to account for salary and fringe benefits) to estimate intramural direct labor costs. This loaded rate will be provided in the future through the FMD Office or the Superfund Accounting Branch.

A separate estimate must be made for other direct costs (e.g., travel, per diem, and lodging). Exhibit 2-3 lays out an example of the projection of EPA direct costs. Note that demonstrations of calculations are for explanatory purposes only; RCMS will perform all calculations after estimates of hours and other direct costs are entered into the system.

EXHIBIT 2-3: PROJECTION OF EPA DIRECT COSTS

Regional

*	On-site and off-site hours	300
*	Planning, writing, and reviewing reports	60
*	Regional laboratory hours	+ 40
	Total Direct Regional Hours	400

Outside of the Region

*	Assistance from other Regions	0
*	Assistance from ERT	60
*	Headquarters direct hours (Project as 10% of Total Direct Regional Hours)	40
		+
		100

TOTAL EPA DIRECT HOURS:	500
(Hourly Direct Labor Rate)	x $ 30
TOTAL EPA LABOR COSTS	$15,000
Other Direct Costs: (travel, per diem, lodging)	$ 1,000
TOTAL EPA DIRECT COSTS:	$16,000

10: EPA indirect costs. Indirect costs are those costs which are necessary to the operation of the program and support of site cleanup efforts (e.g., management support and overhead costs from the Region and from Headquarters), but cannot be directly identified to the efforts at any one site. A portion of these indirect costs will be charged to each Superfund site, and the OSC must include an estimate of these costs in the cost projection. The Comptroller's Policy Memo No. 87-15 offers instruction on estimating indirect costs. Indirect hours are estimated by multiplying the total direct Regional hours estimated for the site by a precalculated "provisional indirect cost rate." A table of regional rates appears in Appendix H.

For example, if the total direct Regional hours are estimated at 400 (as in Exhibit 2-3), and the provisional indirect cost rate was $60 for the Region, indirect costs for the site would be estimated at (400) x ($60), or $24,000. The total dollar figure represents the estimate of total indirect costs (both Regional and Headquarters) which will be charged to the site. Further explanation of the indirect cost rates can be found in the Superfund Indirect Cost Manual, March 1986.

Estimation of intramural costs (direct and indirect) is summarized in Exhibit 2-4 (Steps 9 and 10).

11: Total project ceiling. The total extramural costs plus the intramural costs (EPA direct and indirect costs) compose the project ceiling. The project ceiling should be the sum of all personnel, equipment, and other costs estimated for the project (Steps 6-11).

Exhibit 2-5 provides an example of this cost projection method as applied to a hypothetical removal project. Exhibit 2-6 illustrates the funding sources for each of the different costs estimated in the cost projection process.

EXHIBIT 2-4: PROJECTION OF INTRAMURAL COSTS

EPA Direct Costs

* Costs charged by Regional employees (e.g., OSC, section chief, Regional Lab)	400
* Costs charged by EPA employees outside of the Region (i.e., ERT, Headquarters, other Regions)	100
TOTAL EPA DIRECT HOURS	500
(Hourly Direct Labor Rate)	x $ 30
TOTAL EPA LABOR COSTS	$15,000
Other Direct Costs: (travel, per diem, lodging)	$ 1,000
TOTAL EPA DIRECT COSTS:	$16,000

Indirect Cost Formula:

Region-Specific Indirect Cost Rate	x	Estimated Regional Direct Labor Hours	=	Indirect Costs
$60		400 hours		$24,000

TOTAL EPA INDIRECT COSTS	$24,000
TOTAL INTRAMURAL COSTS	**$40,000**

2.3 SOURCES OF COST INFORMATION

OSC reports from previous removals generally contain technical information on field operations, a chronological history of the work completed, and the costs incurred. By reviewing these reports for cost data associated with specific tasks (e.g., staging drums, regrading for surface drainage), information may be obtained to assist with estimating the costs of similar tasks at other removal actions. Cost data should be adjusted for inflation. Although OSC reports may provide a serviceable estimate for cost projection and cost tracking, it is extremely difficult for one information source to provide cost information which is applicable across the country for all types of removal actions.

In addition to the references noted in Step 6, other sources of information include the Removal Tracking System and the Financial Management System. The Handbook for Evaluating Remedial Action Technology Plans (EPA 600/2-83-076) and the Handbook for Remedial Actions at Waste Disposal Sites (EPA 625-6/85/006) may also provide useful technical and cost estimating information for work tasks common to both remedial and removal actions. Regional Coordinators in the Emergency Response Division can also have information about other Regions where similar removal actions may have been conducted.

Transportation and disposal costs are among the most variable costs from site to site. Disposal costs will vary depending on the type and concentration of contaminants as well as the quantity of waste. The OSC, with assistance from TAT, should call the facilities most often used by the Region and obtain estimates for disposal costs. Transportation charges vary depending on the distance of the disposal facility from the site. However, if the OSC knows which facility may be used, then a cost estimate can be determined by multiplying the mileage from the site to the disposal facility by the transportation costs per mile. The OSC should try to be aware of current costs of transportation and disposal services.

EXHIBIT 2-5

REMOVAL PROJECT CEILING ESTIMATE

Extramural Costs

Extramural Cleanup Contractor (*includes ERCS, letter contracts, IAGs, CAs, Regional ERCS, and a contingency contingency can be 10 - 20%)*	$750,000 + $112,500 $862,500	(15% contingency)
TAT Costs	$50,000	
NCLP Analytical Costs	$100,000	
ERT Contract (REAC)	+ $100,000	
Subtotal -- Extramural Costs	$1,112,500	
15% Contingency of Above Costs (round to nearest thousand)	+ $167,000	

TOTAL -- EXTRAMURAL COSTS **$1,279,500**

Intramural Costs

Direct Costs [$30 x 500 labor hours (400 Regional/40 HQ/60 ERT)]	$15,000	
Indirect Costs	$24,000	
Other Direct Costs	+ $1,000	

TOTAL -- INTRAMURAL COSTS **$40,000**

TOTAL REMOVAL PROJECT CEILING ESTIMATE: **$1,319,500**

Indirect Cost Formula:

Region-Specific Indirect Cost Rate	x	Estimated Regional Direct Labor Hours	=	Indirect Costs
$60		400 hours		$24,000

EXHIBIT 2-6

CERCLA REMOVAL RESPONSE COSTS

REGIONAL ALLOWANCE	IAGs* Extramural Cleanup Contractor Costs CAs** - ERCS Delivery Order - Notice to Proceed - Order for Service - Letter Contract (State & Local Government)
HEADQUARTERS BUDGET	Other Extramural Costs - TAT - NCLP - ERT (REAC) - FIT
REGIONAL INTRAMURAL BUDGET	Intramural Costs - Direct Costs# - Indirect Costs
HEADQUARTERS INTRAMURAL BUDGET	# 10% of Intramural Direct Hours - ERT
TOTAL PROJECT CEILING	* IAGs = Interagency Agreements ** CAs = Cooperative Agreements