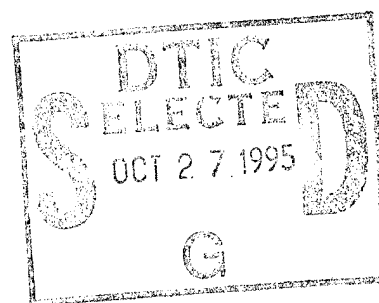


NAVAL POSTGRADUATE SCHOOL MONTEREY, CALIFORNIA



THESIS

THE ALLOCATION OF CONTRACTOR ENVIRONMENTAL REMEDIATION COSTS TO DEPARTMENT OF DEFENSE CONTRACTS

by

Stephen R. Shapro

June 1995

Principal Advisor:

Mark W. Stone

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**THE ALLOCATION OF CONTRACTOR ENVIRONMENTAL
REMEDATION COSTS TO DEPARTMENT OF DEFENSE
CONTRACTS**

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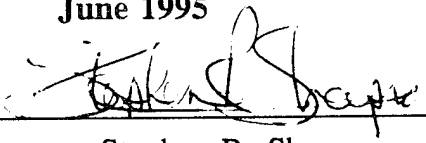
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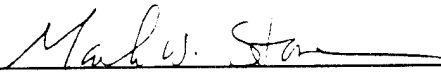
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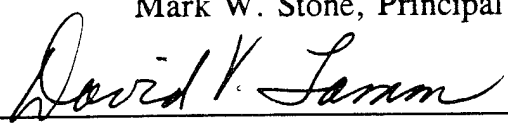
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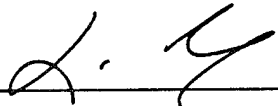
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ABSTRACT

This thesis investigates the allocation of environmental remediation costs to Department of Defense (DOD) contracts. Environmental remediation costs are incurred in the current period to cleanup contamination resulting from the performance of work in the past. Consequently, there is little direct beneficial or causal relationship between DOD's current contracts and the costs incurred. Yet, the manner in which remediation costs are allocated will substantially determine who pays for the rising costs of yesterday's contamination. Background material is presented to illustrate Government cost accounting practices and DOD guidance on environmental costs. Research material was obtained from the Congress, the General Accounting Office, DOD, defense contractors and industry associations. The research concludes that none of the current allocation methods are consistently fair and equitable. Any reimbursement for DOD's share of cleanup costs should be made independently of the contract cost accounting system.

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I. INTRODUCTION

A. THE COST OF CLEANING UP THE ENVIRONMENT

Defense contractors are incurring costs to remediate environmental contamination that occurred as a result of working on both defense and non-defense contracts. The actual work that generated the contamination has often been completed for years. Any defense contracts that might have been associated with the contamination are closed out and filed away in some dusty alcove years ago. Consequently, today's remediation costs for yesterday's contamination cannot be assigned to current contracts on the basis of a direct causal or beneficial relationship. The cause of the contamination was work that is done. The contract that benefited by being able to dispose of contaminants in a less costly fashion than would have been the case today is complete. Yet, if the contractor is to recover the remediation costs, the only method for recovery is allocation to current business, which includes defense contracts. A fair and equitable method is required to allocate remediation costs to contracts that did not cause or benefit from the contaminating activity.

The issue of how environmental remediation costs should be allocated is more than a technical question for accountants. Approximately \$135 billion is spent each year on environmental compliance and cleanup [Ref. 1, p. 11]. Similarly, a Harvard Business Review article cites a 1991 survey of several hundred top managers who expect environmental costs to double as a percentage of sales over the next decade [Ref. 2, p. 46]. The same article states that total annualized environmental costs will grow from .8% of Gross Domestic Product (GDP) to 2.3% of GDP over the next decade.

Defense contractors' environmental costs are also rising. The GAO states that ten defense contractors, who were surveyed

for a 1992 report, had incurred a cumulative \$300 million for investigation and initial cleanup costs [Ref. 3, p. 2]. Based on partial projections the same companies expect future cleanup costs to reach \$1.1 billion. The Congressional Budget Office reports that potential cost growth of environmental cleanup efforts is one of the key weaknesses in the Clinton Administration Defense Plan; they believe that additional costs for base and facilities cleanup could exceed \$4 billion per year over the next five years [Ref. 4, p. 16].

There is little doubt that the relative importance of environmental remediation costs in proportion to other costs will increase. The significant question relative to these rising environmental costs is, "Who will pay?" This question assumes even greater importance as Government's and industry's ability to pay is diminished.

Normally, contractor costs are recovered when the customer pays for the goods or services rendered at the price agreed upon in the contract. The Government, however, imposes restrictions on what costs may be used as a basis for negotiating contract price or will be reimbursed in certain types of contracts. Before a cost is considered allowable, it must be allocable. Allocability either requires a minimal causal or beneficial relationship between the cost objectives and the cost incurred or an assumption that the costs are necessary for overall operation of the business. Given the tenuous relationship between the remediation costs incurred to cleanup old contamination and current contracts, it is no wonder that the allocation issue is fraught with uncertainty. The uncertainty is compounded as remediation costs continue to rise.

Ultimately, how environmental remediation costs are allocated or are not allocated to defense contracts will substantially determine who will bear the costs of cleaning up the environment at contractor facilities.

B. AREA OF RESEARCH

This thesis investigates the allocation of environmental remediation costs, which were incurred by contractors to cleanup prior contamination, to current Department of Defense contracts.

1. Primary Question

The primary question this thesis attempts to answer is: What are feasible methods for allocating environmental remediation costs to Department of Defense contracts in a fair and equitable manner?

2. Subsidiary Questions

To answer the primary question addressed above, the following subsidiary questions are addressed:

1. What is the current guidance for the allocation of environmental remediation costs?
2. What other methods were considered while the current guidance was being developed?
3. What are the advantages and disadvantages of each allocation method?
4. What allocation methods are actually being used by defense contractors and allowed by Contracting Officers?
5. Is additional guidance regarding the allocation of environmental remediation costs required by contracting officers?

C. SCOPE

This thesis is primarily concerned with the allocation of environmental remediation costs. Compliance costs are not addressed.

Environmental costs generally include two broad types of costs, compliance and remediation [Ref. 5, p. 2]. Compliance costs are incurred to comply with Federal, state or local laws

and regulations. Compliance costs are incurred in the current period and are either expensed immediately or capitalized and amortized over future periods. Irrespective of the mechanics of how the actual costs are treated, they are recognized as benefitting current and future business. There is little dissention that otherwise allowable compliance costs should be allocated to current contracts in accordance with contractors' approved cost accounting systems.

In direct contrast, remediation costs, interchangeably referred to as cleanup costs, are incurred in the present period to clean up contamination that resulted from earlier work [Ref. 5, p. 1]. Some of the work may have been for commercial contracts. Some portion may have been for Department of Defense (DOD) contracts. Any associated contracts were likely closed out long before the current period. There is, consequently, no direct causal and beneficial relationship between the costs incurred and current contracts that can be used as a vehicle to allocate the remediation costs. This lack of direct relationship between costs incurred and current contracts complicates the issue of how such remediation costs should be allocated, if at all.

Given the lack of a clear causal and beneficial relationship between the incurred remediation costs and a current cost objective, a number of different allocation methods have been developed and used by contracting officers. A GAO report, has commented on this variable treatment of environmental cleanup costs, including cost allocation, by contract administrators [Ref. 6, p. 1]. This variability also provides the primary impetus to this thesis and resulted in the inclusion of the following material:

1. A review of cost accounting principles relevant to the allocation of environmental remediation costs.
2. A review and discussion of current DOD guidance

regarding the allocation of contractor cleanup costs to DOD contracts.

3. An investigation and explanation of allocation methods being used by contracting officers based on research, informal surveys and interviews.

4. An evaluation of the various allocation methods including a discussion of the amount of information needed to implement each method, affects on overhead rates, repercussions to a declining DOD budget and consequences to a contractor attempting to enter a commercial marketplace.

5. An investigation of whether or not additional guidance regarding the allocation of remediation costs is required by DOD contracting officers.

D. METHODOLOGY

This thesis uses a variety of references to gain historical and current information regarding the allocation of remediation costs to DOD contracts. This section briefly describes those methods.

An initial survey of the Defense Logistics Studies Information Exchange (DLSIE) and the Defense Technical Information Center (DTIC) resulted in the generation of extensive bibliographies. From the bibliographies, specific references were selected to provide the necessary background information. Additionally, a thorough search was conducted on the INTERNET at a number of GOPHER servers and World Wide Web dedicated to environmental topics.

The next step was to determine current environmental cost guidance and begin identifying allocation methods actually being used. Phone interviews were conducted with personnel in policy positions at the following organizations: Defense Contract Management Command (DCMC), Defense Contract Audit Agency (DCAA), Office of Federal Procurement Policy (OFPP) and the Cost Accounting Standards Board (CASB). Following the first set of interviews, more detailed operational information

was obtained by phone interviews with field personnel in DCMC and the DCAA. Specifically, each of the Corporate Administrative Contracting Officers (CACO) associated with DCMC's Environmental Initiatives Task Force Pilot Cost Allowance Program (Pilot Program) was interviewed. Additionally, personnel at the Aerospace Industries Association (AIA) and Price-Waterhouse, an accounting firm that deals with Government contract issues, were interviewed.

Following the interviews, an informal survey was used to gather information about actual cost allocation methods from 50 DCMC activities: Defense Plant Representative Offices (DPRO) and Defense Contract Management Area Operations (DCMAO) offices. The survey presented a hypothetical situation involving environmental remediation costs followed by five possible allocation methods, which were based on the previous interviews. The survey respondents were requested to select the best allocation method for three scenarios. Finally, the respondents were asked whether or not they believed that an environmental Cost Principle is needed.

Throughout this study, it is assumed that the reader is familiar with Federal contracting concepts, basic cost accounting, Cost Principles and the Cost Accounting Standards (CAS).

E. BENEFITS OF RESEARCH

This thesis will primarily benefit those who develop contract accounting policies for environmental remediation costs and those who implement them. Given the growing importance of such costs, it has the potential to benefit a growing population of vitally concerned contracting personnel. Benefitting organizations include both DCMC and the major procuring systems commands within DOD in addition to other agencies such as the Department of Energy (DOE) or the National Aeronautics and Space Administration (NASA) where

environmental costs are also an urgent concern.

This thesis is a systematic analysis of how cleanup costs could be allocated and the associated consequence of each method. Coupled with the information obtained from the informal survey, it provides the basis for a conceptual framework that may be used to apply the different methods when warranted by differing circumstances.

F. ORGANIZATION OF RESEARCH

This section describes the organization and format of the thesis.

Chapter II is a summary of cost accounting theory and practices as they apply to the allocation of costs to Government contracts. This material serves as the foundation for the discussion of the various cost allocation methods discussed later in the thesis.

In Chapter III, the development of current DOD guidance regarding the allocation of remediation costs is discussed. This chapter serves as the starting point for the discussion of the alternative methods encountered during the interviews and as a result of the informal survey.

Chapter IV is a discussion of the alternate cleanup cost allocation methods. It describes the actual mechanisms of each method and associated issues.

In Chapter V, the results of the informal survey are presented and discussed.

Chapter VI is an analysis and evaluation of the allocation methods. It includes a discussion of the amount of information needed to implement each method, affects on overhead rates, repercussions to a declining DOD budget and consequences to a contractor attempting to enter a commercial marketplace.

Chapter VII consists of independent conclusions drawn from the researcher's analysis. In particular, the current

policy of continuing to allocate remediation costs to indirect cost pools is questioned. The research questions are answered and a number of specific recommendations regarding the treatment of environmental remediation costs are presented.

II. THE ALLOCATION OF INDIRECT COSTS

In this chapter, those elements of cost accounting theory pertinent to the allocation of indirect costs are reviewed with particular emphasis on what constitutes a fair or equitable allocation. Next, the allocation of indirect costs to Government contracts is examined. Finally, a number of the problems associated with indirect cost allocations are highlighted. The material in this chapter serves as a foundation for the discussion of the various methods used to allocate environmental remediation costs.

A. COST ALLOCATION

Data about the resources expended by an organization to achieve its goals are gathered in a cost accounting system. The costs are measured, allotted to accounting periods and assigned to cost objectives [Ref. 7, p. 412]. Cost objectives, in turn, are physical or organizational entities about which cost related information is needed: a product line, department, process, or, in the case of Government contracting, a contract. When a cost can be feasibly linked to a single cost objective, the cost is directly assigned. When the cost is not uniquely attributable to a single cost objective, the cost is accumulated in an indirect cost pool for subsequent allocation across an appropriate base. This chapter deals with the allocation of such indirect costs because most environmental cleanup costs incurred today by Government contractors cannot be directly linked with a single contract.

1. Reasons for Allocating Costs

Indirect costs are allocated to cost objectives for a number of reasons. Managers allocate costs to estimate the consequences of decisions. Costs may be allocated in a certain manner to elicit desired behaviors from managers and to

evaluate their performance. Costs may also be allocated to provide guidance for product pricing. [Ref. 8, p. 3; Ref. 9, p. 17; and Ref. 10, p. 8]

In addition to self-imposed reasons for cost allocations, there are a number of externally imposed requirements. A company must periodically prepare financial statements for external reporting; asset values and operating expenses must be determined. Regulated utilities must allocate costs to ensure that cost recovery does not adversely affect social welfare. Finally, companies that deal with Government contracts may be required to allocate costs to provide a basis for cost reimbursement or for price negotiations. [Ref. 9, p. 22]

When establishing a cost allocation method, the objective of the allocation will determine how two major issues are addressed. First, the number and type of cost pools that should be used to accumulate the indirect costs must be determined. Secondly, the base over which the costs should be allocated to the cost objective must be designated. If the cost accounting system is intended only to provide a few external financial statements, the number of cost pools may be limited and the allocation base may be chosen more for convenience or simplicity over other factors. Conversely, a firm that requires detailed cost information to implement a fiercely competitive pricing strategy may establish multiple cost pools and attempt to establish allocation bases that reflect a relationship between the costs incurred and the cost objectives. [Ref. 8, p. 12]

For the purpose of this thesis, the primary objective of cost allocation is to provide a basis for cost reimbursement and the negotiation of contract price in Government contracting. In the next section, criteria that should be considered when selecting an allocation method for this objective are discussed.

B. COST ALLOCATION CRITERIA

Given the objective of a cost allocation, a number of criteria should be considered when determining an actual allocation method. Although a contractor working on Government contracts must use an allocation method that complies with the Cost Accounting Standards (CAS), if CAS applies, and Generally Accepted Accounting Principles (GAAP), many of these same criteria are implicit in the CAS and GAAP. In particular, the requirement for a fair or equitable allocation permeates all discussions of cost allocation in Government contracting. [Ref. 8, p. 12 and Ref. 9, p. 41]

Key to the concept of fairness or equity is the idea of "Having the qualities of impartiality and honesty... Evenhanded; equal as between conflicting interests." [Ref. 11, pp. 632 and 713] The desire for evenhanded and impartial cost accounting methods is manifested in an appeal for uniformity, consistency, and verifiability [Ref. 7, p. 412]. Each of the criteria discussed below is an attempt to establish an allocation rule that can be applied in different circumstances to allocate costs in a consistent and uniform fashion without prejudice to either party, fairly and equitably.

1. Benefit

Benefit has been proposed as a criterion to guide cost allocations because of the implications of fairness [Ref. 9, p. 41]. This criterion rests on the assumption that indirect costs should be allocated to the extent that they benefit the cost objective. An allocation base is selected that apportions the costs to the extent of the beneficial relationship. The cost pools are constructed to include only those cost elements that benefit the cost objective in the specified manner. Other costs will be excluded. For example: the cost of utilities may be accumulated in a factory facilities overhead pool and allocated to cost objectives on the basis of square footage.

Although the cost of a factory supervisor's salary also benefits the cost objective, it will be accumulated in another pool because square footage does not adequately reflect the nature of the beneficial relationship.

The establishment of a cost allocation method on the basis of benefit depends upon the exercise of human judgment. A number of assumptions must be made regarding the underlying nature of the beneficial relationship: these assumptions will vary from situation to situation. Additionally, as one author points out, benefit, as an operational criterion, "...becomes increasingly difficult to apply as the services become more remote from the cost objectives." [Ref. 8, p. 13] It may be simple to obtain agreement on the method to allocate the utility costs in the above example, but the issue of allocating a remote corporate headquarter's staff costs on a beneficial basis is more difficult.

2. Cause

This criterion rests on the premise that costs should be allocated to cost objectives on the basis of the factors that caused the costs to be incurred [Ref. 8, p. 13]. For example, by assuming that the need for repairs is caused by machine usage, repair costs could be accumulated in an indirect cost pool and allocated on the basis of machine-hours used per cost objective. Cause, like benefit, has been a traditional criterion for cost allocation because its apparent consistency and verifiability convey implications of fairness [Ref. 9, p. 43]. Note, however, that like benefit, cause as a criterion becomes more difficult to apply as the cost objective becomes more remote from the cost.

3. Neutrality

To ensure that an allocation method does not generate misleading information that results in inappropriate decisions, cost allocations should be made in such a way that their affect on decision making is neutral. The criterion of

neutrality is often a constraint when a cost allocation method used for one objective is applied to another. [Ref. 8]

For example, assume that a simple cost allocation method has been developed to provide external financial reports. In this example, supervisorial salaries, among other costs, are accumulated in an indirect cost pool and allocated to cost objectives on the basis of machine-hour usage. If the same cost accounting system were then used to make decisions about pricing or resource use, the decision would be erroneously biased towards a less capital intensive alternative. The allocation base results in capital intensive cost objectives attracting a disproportionate share of the overhead; a poor decision could be the result.

Neutrality as a criterion becomes relevant to Government contracting when a cost allocation method distorts the cost of a contract or program relative to others. Program managers and others exercising program oversight could arrive at erroneous conclusions if the cost allocation method is not neutral.

4. Independence of Cost Objectives

Concern for independence of cost objectives grows from a desire to ensure that costs resulting from the actions of one cost objective do not affect the costs allocated to another [Ref. 9, p. 15]. For example, assume that a centrally provided service represents a substantial fixed cost that is allocated across a measure of each department's usage. If one department decides to obtain the service elsewhere, the remaining departments will be allocated a greater amount in spite of no action on their part.

5. Ability to Bear

Ability to bear is a last resort method used to allocate costs when nothing better can be found [Ref. 8, p. 15]. Absent a more obvious causal or beneficial relationship and given a need to fully allocate costs, costs are allocated in proportion to the cost objective's relative size. For example,

costs may be allocated across a base made up of sales revenue or total cost input.

6. Fairness or Equity

Fairness or equity are often cited as criteria to be considered when allocating costs in Government contracting [Ref. 8, p. 12 and Ref 9, p. 41]. As already discussed, the benefit and cause criteria convey connotations of fairness. The ability to bear also implies fairness as a criterion; if no better method can be found, that which is best able to bear the costs, bears the most. It is at least consistent, uniform and verifiable. Neutrality and independence of cost objectives also connote fairness or equity in the sense that the allocation method should be impartial and free of favoritism.

A number of efforts have been made to quantify the concept of fairness or equity as a means of choosing between cost allocation methods.

a. The Impersonality Criterion

This criterion proposes that method A is more fair than method B if the expected value of method A to a cost objective for which an allocation method has not been determined is greater than the expected value of B [Ref. 12, p. 86].¹ For example, assume that the cost allocations in Table 1 could be made to similar cost objectives in companies one through three under alternative methods A through E.

A notional fourth company, examining the data, would attempt to calculate the costs that might be allocated under Methods A through E. Given equal probabilities, the expected cost allocation under Method B would be \$345; under Method E it would be \$430. Since the lowest cost allocation translates

¹ The discussion in the reference concerns a corporate division as the specific cost objective. For the purpose of the thesis, this has been adapted for a more generic discussion. This comment also applies to the discussion of the Minimax Criterion and the Grading Principle.

to the highest expected value, Method A at \$323 would be considered the most fair per this criterion.

	Meth A	Meth B	Meth C	Meth D	Meth E
#1 Co.	\$350	\$400	\$250	\$380	\$500
#2 Co.	\$230	\$420	\$540	\$320	\$510
#3 Co.	\$390	\$215	\$615	\$370	\$280
Exp. Values	\$323	\$345	\$468	\$357	\$430

Table 1. Expected Value of Allocation Methods A through E

b. Minimax Criterion

This criterion involves maximizing the minimum benefit obtained by any one cost objective [Ref. 12, p. 87]. This approach is essentially a "minimax" criterion where the maximum allocation to any given cost objective is minimized. In the example used above, Method D would be considered the most fair since \$380 is the lowest maximum.

c. The Grading Principles

The grading principle assumes that allocation method A is more fair than method B if either of the following two conditions are met:

1. Every cost objective prefers its allocation under Method A over its allocation under Method B.
2. Every cost objective prefers its allocation under Method A over that obtained by any other cost objective under Method B. [Ref. 12, p. 85]

A higher preference for a method is associated with a lower allocated cost. In the example used above, Method B is more fair than Method E because a lower allocation results

for each cost objective when Method B is applied. Note that Method A is not more fair than Method B per the Suppes' Grading Principles since cost objective three will be allocated a higher cost.

The criteria discussed attempt to add quantitative indicators of fairness or equity to evaluate cost allocation methods. For any of the three criterion to result in the selection of a more fair allocation method, however, the individual methods themselves must be fair or equitable. The quantitative criterion are a means to evaluate competing methods for fairness or equity. If the methods themselves are not fair in the sense that they are not consistent, uniform and verifiable, then the three quantitative criteria are useless.

Although the application of the three criteria to the example resulted in three disparate results, they are additional tools with which to appraise a given cost allocation method and provide insights into its consequence.

In the next section, the allocation of indirect costs to Government contracts is discussed.

C. THE ALLOCATION OF COSTS TO GOVERNMENT CONTRACTS

Cost allocation guidance for defense contractors is delineated in Cost Accounting Standards (CAS) for those contractors who are CAS covered. Allocation as a prerequisite for cost allowability is discussed in the FAR at Part 31. Following a discussion of the FAR provisions, CAS 418, Allocation of Direct and Indirect Costs; CAS 403, Allocation of Home Office Expenses to Segments; and CAS 410, Allocation of Business Unit General and Administrative Expenses to Final Cost Objectives, are examined.

As the requirements are discussed, it is important for the reader to be reminded that the FAR and CAS are not imposing a specific cost accounting system on contractors.

Rather, the intent is to achieve a fair and equitable allocation; one that is consistent, uniform and verifiable. [Ref. 7, p. 413]

1. Cost Allocation in the FAR

The FAR defines a direct cost as one that can be specifically identified or traced to a contract. Direct costs are nearly always directly charged. The only exception is when insignificant amounts, which if treated as indirect costs, do not materially affect the result. An indirect cost is then defined as those remaining costs that cannot be directly identified to a single, final cost objective. This includes costs that are identifiable to multiple final cost objectives or an intermediate cost objective. [Ref. 13]

Indirect costs are accumulated in indirect pools. The groupings are determined so that a common bases can be selected that allocates the costs "...on the basis of the benefits accruing to the several cost objectives." [Ref. 13] The number of indirect cost pools and the allocation base are determined by the contractor provided that they meet this general guidance. Additionally, the FAR permits a contractor to further simplify the allocation method if it can be shown that fewer pools and bases result in essentially the same outcome. [Ref. 13]

For a cost to be allowable, as when determining total contract cost for cost reimbursement contracts or for price negotiations, a number of factors must be considered. Allocability is one those factors.² For a cost to be allowable, it must be allocable.

A cost is considered to be allocable if it is assignable to one or more cost objectives on the basis of relative

² The other factors that must be considered include reasonableness, CAS (if applicable), Generally Accepted Accounting Principles (GAAP), the FAR Cost Principles and terms of the contract itself.

benefit received or some other equitable relationship [Ref. 13]. Three specific standards are delineated:

First, a cost is considered to be allocable if it is specifically incurred for a contract. A direct cost is directly assigned to a contract provided that it is otherwise allowable (i.e. reasonable, per CAS or GAAP, not excluded by the contract or not specifically unallowable in the Cost Principles). [Ref. 13]

Second, a cost is also considered to be allocable if it benefits more than one cost objective and can be distributed to all of them in proportion to the benefit received [Ref. 13]. This permits the contractor to allocate otherwise allowable indirect costs to multiple objectives across an appropriate and mutually beneficial base.

The last standard departs from the others' use of benefit as the underlying allocation criterion and is actually based on the ability to bear. An otherwise allowable cost is considered to be allocable if it is required for the overall operation of the business. It is not necessary to establish a direct relationship to any particular cost objective. Such costs are generally allocated across a base that represents the aggregate of the contractor's business, such as total sales or total cost input. [Ref. 13]

Three of the CAS standards that are relevant to the discussion of how environmental remediation costs are allocated are discussed next.

2. Cost Accounting Standard 418: The Allocation of Direct and Indirect Costs

CAS 418 amplifies the FAR guidance regarding the allocation of indirect costs. It is more specific with regard to the two key issues that must be addressed when determining any cost allocation method: the nature of the cost pools and the allocation base. CAS 418 specifies, for example, that indirect costs should be accumulated in homogeneous cost

pools. The requirement for homogeneity, in turn, is satisfied if: "(1) the major activities in the pool have similar beneficial/causal relationships to cost objectives; or (2) separate allocations of costs of dissimilar activities would not result in substantially different amounts." [Ref. 14] Note that in addition to using the criterion of benefit, CAS 418 also mentions cause as a criterion. Cause is not mentioned in the FAR Cost Principle.

CAS 418 is also more precise than the FAR about the allocation base that should be used to allocate indirect costs. A cost pool that contains significant amounts of direct labor or direct material should be allocated over a base "...representative of the activity being managed." [Ref. 14] CAS 418 goes on to require that if the costs in the pool are primarily related to materials management, the allocation base should be direct materials. If the pool consists of facilities related costs, machine hours is proposed as being a more representative allocation base. In the event that neither material nor facilities costs predominate, labor hours or dollars should be used as an allocation base. These requirements are intended to ensure that overhead allocations are not distributed by an inappropriate base. [Ref. 14]

Indirect costs are allocated per CAS 418 if there is a beneficial or causal relationship to the cost objective. In the event that such a relationship is not present, but the cost is necessary for the overall operation of the company, it may be allocated by CAS 403 to a business unit, if applicable, and CAS 410 to the final cost objectives.

3. CAS 403: The Allocation of Home Office Expenses to Segments

CAS 403 covers the allocation of home office expenses to business units under its control. The expenses include costs incurred and accumulated at the home office for the benefit of multiple units.

There are essentially three categories of home office expenses. The first is costs that are incurred for a specific business unit and are allocated to that unit. [Ref. 15]

Costs, such as centralized services, that are incurred for a number of business units and whose relationship can be defined by an unbiased measure are grouped together in homogeneous pools. The costs are then allocated to the business units "...on the most objective basis available." [Ref 15] For example, the cost for a central payments function might be accumulated in a single pool and allocated to the various business units on the basis of the number of invoices processed.

The first two categories of cost are allocated in accordance with CAS 403 on the basis of benefit or cause. The last category is based on an ability to bear criterion.

Costs that cannot be identified to a specific business unit, but were incurred for overall management of the company are termed residual expenses [Ref. 15]. Such residual expenses are allocated on the basis of a formula which uses payroll, operating revenue and the net book value of tangible capital to create a base that is a measure of the unit's business activity [Ref. 15]. The larger business units, consequently, are allocated the larger share of the residual costs.

CAS 403 permits a special allocation of home office expenses to particular segments in the event that their benefit from the expense pool differs significantly from the benefits accruing to other segments [Ref. 15].

4. CAS 410: Allocation of Business Unit General and Administrative Expenses to Final Cost Objectives

General and Administrative (G&A) expenses are residual costs in the sense that they are left over after all other costs, whether direct or indirect, have been allocated on a causal or beneficial basis. G&A includes expenses that are incurred for the general management and administration of the

business unit as a whole and have no directly measurable relationship to a cost objective. Also, home office expenses that were allocated to the business unit per CAS 403 are accumulated in the G&A cost pool. [Ref. 7]

CAS 410 specifies that one of the following allocation bases will be used: total cost input, value added cost input or a single cost element input, whichever is the most appropriate [Ref. 16]. Total cost input is the total cost of production. For example: total cost input might include direct labor, direct material engineering overhead and factory overhead. Value added cost input is the total cost of production less material and subcontract costs. A single-element cost inputs include direct labor hours or dollars.

The base that most accurately reflects the total activity of the business unit would be selected. [Ref. 16] For example, since a value added cost input base excludes subcontract costs, contracts with little subcontracted activity would be allocated a disproportionate share of the G&A pool.

CAS 410 also permits a special allocation of expenses that would normally be considered G&A to a cost objective. This is permitted when the benefits accruing to the contract from the G&A expense are significantly different than those accruing to other cost objectives. [Ref. 16]

CAS 410 is a mechanism by which costs that are necessary for the overall operation of the business unit, but are not related in a beneficial or causal way, can be allocated equitably to the various cost objectives. Each of the cost input bases defined in CAS 410 results in G&A being allocated on the basis of an ability to bear. Contracts with greater production costs, for example, will attract more G&A.

CAS, incorporated in the FAR as Appendix B, offer detailed allocation guidance in the interest of uniformity and verifiability. Based on the criteria of benefit, cause and ability to bear, they seek to institute a fair or equitable

allocation of costs.

In the next section, a number of issues surrounding the allocation of costs are highlighted.

D. COST ALLOCATION ISSUES

In this section a number of issues affecting the allocation of indirect costs as they pertain to remediation costs are examined.

1. The Arbitrary Nature of Cost Allocation Methods

Much of the literature on cost allocation is concerned with either proving or disputing that indirect cost allocations are arbitrary and should be avoided [Ref. 8, p. 9; Ref. 9, p. 9; and Ref. 10, p. 1]. One author summarizing the arguments against allocations writes:

...cost allocations are arbitrary because they are necessarily made on the basis of someone's judgment as to how they should be made and not on the basis of some logical analysis of the scientific evidence. They are incorrigible... because they can be neither proved correct nor rejected as incorrect. [Ref 8, p. 10]

Primarily based on economic arguments, this assertion refutes the need for allocations to make resource decisions. Many contend that cost allocations, being arbitrary in nature, will actually result in managers making suboptimal decisions. [Ref. 9, p. 22]

There are, however, other reasons for allocating costs. In the case of Government contracting, allowable costs are fully allocated to contracts to permit cost reimbursement and price negotiation as an element of public policy, to establish a fair and reasonable price. Given this objective for the cost allocation, the methods developed to implement the public policy should be consistent, uniform and verifiable. One author has pointed out that "...fairness is pursued with the understanding that adding the objective to cost allocation

considerations can cause welfare losses in the system." [Ref 9, p. 23] The same author urges explicit recognition of the fact that when political, administrative or behavioral factors operate to determine allocations in a regulatory setting, the resultant method "...will not likely reflect economic issues." [Ref. 7, p. 31]

The cost allocation methods delineated in the FAR and the CAS were developed to institute the socioeconomic policy of fairness and equity in Government contracting. If the same cost allocation methods are used to implement another dissimilar public policy goal, such as environmental cleanup, conflict could result.

2. Cost and Benefit

Benefit and cause appear to be mirror images of a single relationship between a cost and a cost objective [Ref. 8]. The cost objective causes the costs; the cost objective benefits from the costs incurred. This reciprocal relationship, however, has not always been universally accepted as the following case will exemplify.

Lockheed Aircraft Corporation paid property taxes on commercial inventories and, although Government inventories were exempt from the taxes, allocated them to all contracts, commercial and Government alike. The Government argued that since the Government contracts did not cause the taxes, they should be allocated only to commercial contracts. Lockheed responded by claiming that the "...tax funded public services were provided uniformly to the corporation and to its employees and, thus, that all work benefited proportionately from those public services and the tax paid to support them." [Ref. 8, p. 14] In this case, the Court of Claims accepted Lockheed's argument. [Ref. 8, p. 14]

Cause and benefit are not interchangeable terms. In the case of environmental remediation costs it will be seen that current contracts, while not causing yesterday's

contamination, may benefit from the cleanup in the same sense that Lockheed's contracts benefited from tax funded public services.

3. Input Substitution

William P. Rogerson [Ref. 18, p. 692] explains how two features of Government contracting may provide incentives for contractors to engage in inefficient input substitution. Input substitution involves replacing one input, such as capital, with another, such as direct labor.

First, many large dollar value defense contracts are negotiated procurements. The contract prices are cost based, either directly as in a cost-reimbursable contract or indirectly as in the case of a fixed-price arrangement that uses negotiated overhead rates. For a dollar increase in allowable costs, contract price often rises proportionately. The actual amount will depend upon the fee or profit structure of the contract and the competition in the procurement: more competitors seeking the same contract will likely reduce the contract price's sensitivity to cost increases. In contrast, the price of commercial items made by the same company will be determined competitively. A dollar increase in costs may have no bearing on market price in a competitive market. [Ref. 18, p. 672]

Secondly, a significant portion of contractor costs are not directly assigned to contracts; rather, they are accumulated in indirect cost pools for subsequent allocation. Many of the indirect costs are allocated across a direct labor base or a base containing direct labor as an element.

Due to the first feature, a contractor would like to assign more of its costs to the well-funded, Government procurements, particularly sole source, where a dollar increase in cost will most likely result in near equal increase in price. The second feature, the magnitude of costs indirectly allocated, provides the mechanism. A contractor can

increase the amount of overhead allocated to a contract by increasing the amount of direct labor used. As a result, a contractor has an incentive to substitute direct labor for other inputs on contracts when the price is sensitive to cost increases. [Ref. 18, p. 677]

Rogerson [Ref. 18, p. 677] addresses the two following input substitutions: direct labor for capital and direct labor for material. In the first case, there is an incentive to undercapitalize Government contracts that are cost sensitive and to overcapitalize products that are exposed to competition. Rogerson [Ref. 18, p. 686] cites evidence that defense production is undercapitalized as proof of this assertion.

In the second case, there is an incentive to retain production in-house to increase direct labor rather than to subcontract for non-competitive Government contracts. The use of in-house labor results in additional overhead being shifted to the Government contracts. To substantiate this point, he argues that, "A considerable amount of the DOD's cost-monitoring activity is devoted to reviewing the adequacy of firms' make-or-buy decisions." [Ref. 18, p. 688]

The incentive effect does not require the contractor to engage in untruthful or illegal activities. The contractor spends all that is charged as costs. The additional profit results because these costs are shifted to contracts where price will change proportionately with costs. [Ref. 18, p. 672]

Rogerson [Ref. 18, p. 688] believes that as long as the two features creating the incentive to substitute inputs exists, contractors will engage in behaviors that result in overhead being shifted to Government contracts. He urges more Government efforts to directly assign costs to eliminate the incentives. As an alternative to directly assigning more contract costs, Rogerson suggests that the Government should

negotiate payments for joint costs, such as G&A, on a firm-wide basis. [Ref. 18, p. 688]

Accepting that current cost allocation methods result in incentives to substitute inputs, the addition of a sizeable cost element to indirect cost pools, such as environmental remediation costs, would amplify the effect.

In this chapter, elements of cost accounting theory relevant to the allocation problem were reviewed. Next, the allocation of indirect costs to Government contracts was discussed. Finally, a number of issues related to cost allocation with the potential to effect the allocation of remediation costs were highlighted.

In the next chapter, specific Department of Defense guidance on the allocation of environmental remediation costs are examined.

III. ENVIRONMENTAL REMEDIATION COST GUIDANCE

This chapter examines the development of current Department of Defense guidance regarding the allocation of environmental remediation costs.

A. DRAFT ENVIRONMENTAL COST PRINCIPLE

The late 1980s saw a general increase in the visibility of environmental remediation costs as an issue among contract administrators and resulted in requests from the field for guidance [Ref. 19]. In particular, the Air Force requested the development of a cost principle to guide contracting officers on claims for reimbursement of cleanup costs [Ref. 6, p. 2]. A working group was formed to develop a cost principle for eventual inclusion in the FAR [Ref. 19]; a first draft was completed in 1989 [Ref. 6, p. 7].

Controversy over the proposed cost principle resulted in a number of differing drafts that reflected contrasting approaches. Two major issues precluded agreement. The first dealt with the fundamental question of when, if ever, environmental costs should be allowed. On one extreme, draft proposals limited allowability of environmental costs, including compliance and remediation, to those incurred at Government-owned, contractor-operated (GOCO) facilities. Conversely, other drafts incorporated the allowability of all environmental costs provided that there was no indication of contractor wrongdoing. [Ref. 6, p. 7]

The second issue precluding agreement was dissension over the basic requirement for a cost principle. Issuance of a draft in 1990 was delayed when the Navy and Army argued that there was no need for an environmental cost principle. The two Services maintained that the general criteria for cost allowability set forth in the FAR at 31-201.1, reasonableness, allocability and not otherwise unallowable, were adequate. [Ref. 20]

In December 1991, a draft of an environmental cost principle was completed by the working group and cleared by the Defense Acquisition Regulatory (DAR) Council. While the draft was being considered in the Civilian Agency Acquisition Council (CAAC), a copy was printed in the Federal Contracts Report [Ref. 20]. The resulting fire storm [Ref. 19] and a moratorium on Federal regulations announced by President Bush in his February 1992 State of the Union address precluded further action [Ref. 6, p. 7]. Consequently, the draft principle was never formally proposed or published in the Federal Register [Ref. 21].

The December 1991 draft distinguished between compliance and cleanup costs. Compliance costs would have been allowable except when they resulted from contractor wrongdoing involving violation of law, regulation or a compliance agreement [Ref. 20]. Costs incurred by the contractor to correct or cleanup damage caused by its own action or inaction, however, would have been generally unallowable except when the contractor was able to demonstrate that four additional conditions were satisfied [Ref. 20]:

1. Performance of a Government contract must have contributed to the environmental damage being remediated.
2. When the damage was created, the contractor was conducting business in compliance with then-existing regulations, laws, permits and agreements.
3. The contractor reacted promptly to minimize the damage and the costs of cleanup.
4. The contractor exhausted or actively pursued all available sources, such as insurance or third parties, to defray the costs.

The same conditions for allowability applied even if a prior owner of the property had caused the environmental damage and the current owner was required to remediate it [Ref. 20]. For example, if the prior owner had contaminated

the property and had violated discharge permits or had not performed Government contracts, the cleanup costs would be unallowable. This last stipulation would have been particularly significant to some contractors in the Northeast. A number of contractor plants are located on sites that were used for textile production in the 19th century. A byproduct of the textile manufacturing process was coal-tar residues. Today, the current owners are being required by state and Federal agencies to remediate the 100 year old residues. Many of the costs would have been expressly unallowable per the proposed cost principle unless the contractor could prove a connection to an old Government contract, perhaps one for the manufacture of Civil War uniforms. [Ref. 22]

Although the December 1991 draft addressed a number of issues pertaining to environmental cost allowability, it did not deal specifically with the allocability of environmental cleanup costs. A contracting officer in search of guidance was still faced with determining how to best allocate the costs of cleaning up contamination from yesterday's business to today's contracts.

As stated earlier, the draft cost proposal elicited a variety of responses. A Federal Contracts Report article [Ref. 20] stated that copies of the December 1991 draft were floated to a number of industry associations, which generally supported the draft. The article reported that "...industry has called existing regulatory coverage of environmental costs 'woefully inadequate,' and has urged the government to promulgate a cost principle making such costs clearly allowable." [Ref. 20] This researcher found, however, that the conditional allowability of remediation costs was referred to as a "presumption of wrongdoing" by at least one industry association [Ref. 23]. The requirement to prove that remediation costs were not the result of wrongdoing and were legitimate costs was not viewed favorably. Apparently,

industry wanted a clarifying cost principle only if it made environmental costs generally allowable.

Evidently, the National Aeronautics and Space Administration (NASA) and the General Services Administration (GSA) had reservations about the proposed cost principle that reflected budgetary concerns [Ref. 20]. If so, this could indicate that these organizations believed that the proposed cost principle would result in too large a share of the remediation burden being borne by the Government in general and their programs in particular. It is then ironic that the next guidance on environmental costs provided to contracting personnel by the Director of Defense Procurement removed the conditional allowability and was actually based on the assumption that environmental costs should be treated as normal costs of doing business.

B. 1992 ENVIRONMENTAL COST GUIDANCE

On 14 October 1992, the DOD Director of Defense Procurement and DCAA released jointly developed guidance on how environmental costs should be treated under current cost principles and the Cost Accounting Standards [Ref. 24]. This guidance remains effective today and has been incorporated nearly verbatim into DCAA's audit manual [Ref. 25]. The guidance is based on the premise that, "Environmental costs are normal costs of doing business and are generally allowable costs if reasonable and allocable." [Ref. 24, p. 4] The "normal cost of doing business" premise is supplemented by the additional proviso that environmental costs are unallowable if the contractor was guilty of wrongdoing. [Ref. 24, p. 4]

The 1992 Guidance addresses a number of issues. The sections of the guidance relevant to a discussion of the allocability issue are reviewed next.

1. Normal Business Expense

The guidance addresses costs incurred to prevent environmental contamination and those incurred to clean up prior contamination: compliance and remediation costs. Directly associated costs such as legal expenses are also included as environmental costs by the guidance. Such compliance, remediation or directly associated costs are normal business expenses to the extent that, "...an ordinary, reasonable, prudent businessperson would incur in the course of conducting a competitive for-profit enterprise." [Ref. 24, p. 4]

Not all normal business expenses, however, are allowable for Government contract costing: the tests of reasonableness, not specifically unallowable and allocability to a Government contract must also be met. [Ref. 26]

2. Reasonableness

In the discussion of environmental costs, the test of reasonableness is dual faceted. First, the actual costs themselves must be reasonable: "...consistent with the methods employed and the actions expected of an ordinary, reasonable, prudent businessperson performing non-Government contracts in a competitive marketplace." [Ref. 24, p. 4] Secondly, the circumstances of the cleanup costs must be examined for reasonableness to ensure that the contractor is not reimbursed for contamination that should have been avoided. Costs due to contractor delay in taking actions to mitigate the contamination after its discovery, even if there is no formal citation, are unallowable. [Ref. 24, p. 5]

For example: the cost of a site survey may be reasonable in the sense that the cost is not inconsistent with that paid by other businesses in similar circumstances and that it was a necessary survey given the scenario. If, however, the contamination problem creating the need for such a survey was compounded by contractor inaction, some of the costs may be

unreasonable in the second sense and thus unallowable.

Remediation costs that are the result of the contractor violating the law, regulations or permits, or disregarding warnings for the potential of contamination, are considered unreasonable and are, consequently, unallowable. [Ref. 24, p. 5]

For example: if the contractor's discharge permit limits the concentration of lead in its waste water to 5 parts-per-million (ppm) and the measured amount is 50 ppm, any resultant remediation costs would be unallowable.

3. Not Specifically Unallowable

The second test associated with allowability excludes costs that are specifically unallowable. Generally, such costs are delineated in the Cost Principles, Part 31 of the FAR. Examples include costs of alcoholic beverages, bad debt expenses and most advertising. Also, specific costs may be unallowable due to the terms and conditions of a particular contract. [Ref. 13]

4. Allocability

As discussed in the previous chapter, a cost is allocable to a Government contract if it is assignable to one or more cost objectives on "...the basis of relative benefit received or other equitable relationship." [Ref. 13]. A cost is allocable if one of the three following conditions is satisfied: [Ref. 13]

1. The cost is incurred specifically for a contract as in the case of a direct cost such as Factory Labor or Material.
2. The cost benefits more than one contract and is distributed to them in proportion to the benefit received across some allocation base. For example, utilities expenses may be incorporated in a Factory Overhead cost pool that is allocated over a Direct Factory Labor Hours base.
3. Some costs are not directly linked to any one cost

objective, but are necessary for the operation of the business as a whole. Generally, such costs are accumulated in a General and Administrative (G&A) cost pool and allocated over a total cost input base.

The 1992 Guidance bases the allocation of remediation costs on the last condition: costs necessary for the overall operation of the business. The guidance goes on to state that such remediation costs are generally period costs that should be allocated to the business segment associated with the contamination in accordance with CAS 403. The business unit "...should in turn allocate the cost to contracts as part of the segment residual G&A costs under CAS 410." [Ref. 24, p. 5]

An example will depict the implications of the guidance to the extent of the discussion.

Assume that \$15 million in environmental survey costs have been incurred by a contractor's business unit to date. Assume also that the costs are reasonable and otherwise allowable. The costs will be accumulated in a G&A cost pool and allocated across total cost input. The Government will pay in proportion to its share of the total cost input. If Government contracts make up 50% of total production costs, the Government will pay 50% of the remediation costs through the G&A rates. Note that the share the Government pays is not based to any extent upon its participation in the generation of the contamination requiring remediation. It is conceivable that a single DOD contract resulted in 100% of the contamination: the Government would, consequently, not be paying in proportion to its participation. Conversely, the contractor's civilian business could have been the source of the contamination: the Government would then be paying more than its fair share.

Since the 1992 Guidance refers to cleanup costs as a normal business expense, no mention is made of Government participation in the contamination. The proposed Cost

Principle, conversely, linked reimbursement to participation.

A number of related issues also discussed in the 1992 Guidance affect the relatively simple allocation scenario presented thus far. These issues are discussed next.

5. Issues Related to Allocation

A number of environmental cost issues addressed in the 1992 Guidance are related to the allocation issue. They include: Costs from a Contractor's Previous Site, Capitalization of Environmental Costs, Responsibility for Clean Up as a Potentially Responsible Party, and Insurance Recoverability.

a. Costs from a Contractor's Previous Site

The 1992 Guidance regarding closed sites is predicated on the assumption that the business segment and its associated operations, irrespective of physical location, is the unit to which remediation costs are allocated. In the event that costs are incurred to remediate a site that a business unit previously occupied, the cleanup costs are to be transferred to the site where the work was moved. If the business segment is closed and no work remains in the company, the guidance states that such costs would not generally be allocable to other segments of the business. The guidance continues, however, to state that the circumstances of each case involving a closed segment must be reviewed to determine the exact cost allocation method to be used. Depending upon those circumstances, the costs may be allocated as residual home office costs per CAS 403, allocated directly to other segments or treated as an adjustment to the extraordinary costs of closing down the business segment. [Ref. 24, p. 5]

The complexity of this issue is demonstrated by a case involving Lockheed. Groundwater contamination was discovered at its Burbank, California site in 1980. While remediation was in progress, the business unit and associated operations that caused the contamination were moved to Georgia. In response to

Air Force concerns that the business units remaining at the Burbank site would bear a disproportionate share of the cleanup costs and suffer higher overhead rates, the ACO and Lockheed negotiated an arrangement whereby the remediation costs would be spread across the entire Lockheed company and allocated per CAS 403 as residual corporate costs. DCAA questioned the arrangement because the costs were allocated on an ability to bear basis rather than to the business unit(s) associated with the costs by benefit or cause. DCAA indicated that the costs should be borne by the business unit transferred to Georgia or by the those remaining in Burbank, not spread across the entire company. If the business unit and associated operations had been discontinued, the Contracting Officer and Lockheed would have been able to make a better case for a corporate-wide allocation. [Ref. 6, p. 31]

b. Capitalization of Remediation Costs

Environmental remediation costs are generally period costs to be expensed in the current period. A number of exceptions are noted in the 1992 Guidance. [Ref. 24, p. 3]

First, if a cost constitutes an improvement and exceeds the capitalization threshold, it must be capitalized. The cost is generally considered an improvement if it improved the site in comparison to its condition at the time of purchase. For example, assume that a company acquires a property contaminated by a previous owner for \$5 million. Cleanup costs of \$10 million are incurred for groundwater remediation. The costs would be capitalized as an improvement and added to the book value of the land for a total of \$15 million. In this example, the contractor would not recover costs until the property was eventually sold. [Ref. 24, p. 4]

Second, remediation costs incurred to cleanup a property held for sale will be capitalized if they are realizable from the transaction. For example, if \$10 million is incurred to remediate a property with a book value of \$5

million and a market value of \$20 million, the remediation costs would be capitalized and recovered upon completion of the sale. In the event that the remediation costs were not realizable, as in the case of a \$5 million sale price, the costs would be expensed in the current period. Note that any unrealizable costs that result in an improvement must still be capitalized. [Ref. 24, p. 4]

Generally, remediation costs are current period expenses unless they represent improvements or are incurred to prepare a property for sell.

c. Cleanup Involving Third Parties

The 1992 Guidance refers to all third parties responsible for contamination at a site as Potentially Responsible Parties (PRP). PRP, however, is a term of law associated with the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), generally known as Superfund. The term actually refers to a party that is financially liable under CERCLA for remediation at specific sites designated by the Environmental Protection Agency (EPA) on the National Priorities List (Superfund List). Any number of companies may be responsible for contamination at a given site, but under the joint and several liability provisions of CERCLA, any one may be held fully liable for all cleanup costs. CERCLA then provides a framework for the paying company to obtain compensation from other PRPs that contributed to the contamination. [Ref. 24, p. 7 and Ref. 28, p. 4]

Third parties contributing to contamination at a defense contractor's site may indeed be PRPs if the site is on the Superfund List. If not, they are merely a third party contaminator. The 1992 Guidance makes reference, however, only to PRPs and, if literally interpreted, could be construed to apply only to contractors remediating Superfund sites.

The guidance essentially states that allowable remediation costs include only that portion of the total

incurred to cleanup contamination for which the contractor was directly responsible. The contractor is responsible for obtaining compensation from other PRPs for remediation costs incurred to clean up their share of the contamination. [Ref. 24, p. 7]

In the event that the contractor is unable to collect from a PRP, the amount, including associated collection and legal costs, is considered to be "...in their essential nature, a bad debt" and, consequently is unallowable. [Ref. 24, p. 7]

An example depicts the implications of the guidance. Assume that a company, under EPA order, expends \$10 million to remediate a Superfund site. EPA determined that the company contributed to 25% of the contamination and that a now defunct corporation with no successors generated the remainder. Unable to collect from the out-of-business corporation, the company would find that \$7.5 million of its remediation costs, an otherwise normal business expense, are unallowable.

d. Insurance Recovery

The 1992 Guidance states that, "The insurance industry does not currently consider environmental contamination as an insurable risk (at reasonable cost) in most circumstances." [Ref. 24, p. 7] Policies written before the exclusion of environmental contamination as an insurable risk, however, may be sources of coverage for environmental damage and sources of funds for remediation. In the event that such policies result in insurance recoveries, the amounts are to be applied as credits against any allowable remediation costs. [Ref. 24, p. 7]

The guidance points out that some of the contaminating events that generated the remediation costs may be covered under older policies that lacked specific environmental damage exclusions. Most insurance companies are contesting the claims, however, and payments, often only

partial settlements, are made after lengthy negotiations or expensive court battles. The guidance states that the Government should inquire into the possibility of insurance recovery and, if feasible, should insist that the contractor pursue it with due diligence. [Ref. 24, p. 7]

Insurance recovery is also mentioned as an appropriate subject for advance agreements due to their contingent nature. The Contracting Officer would prefer to negotiate environmental costs net of insurance recovery. Given the uncertainty associated with recovery, the insurance policies and procedures for the application of future credits should be addressed in advance agreements. [Ref. 24, p. 7]

After the 1992 Guidance was promulgated, a report [Ref. 6] entitled "Environmental Cleanup: Observations on the Consistency of Reimbursements to DOD Contractors" was published by the GAO. The report, dated 22 October 1992, contained four examples of how contractors' claims for cleanup costs were dealt with in different ways by different Contracting Officers. The report stated that:

DOD's reimbursement to contractors in these cases occurred in different ways, with reimbursement decisions varying widely. Contractors were reimbursed through overhead in prime contracts, subcontracts, and a negotiated settlement. Decisions on reimbursement varied from complete denial to reimbursement in proportion to the government's share of company business. [Ref. 6, p. 1]

The inconsistency was attributed to a lack of specific guidance on the treatment of environmental costs [Ref. 6, p. 2]. This desire for consistency manifested in the GAO report contributed to the creation of DCMC's Environmental Initiatives Task Force Cost Allowance Program (Pilot Program) [Ref. 29].

C. 1994 SUPPLEMENTAL ENVIRONMENTAL COST GUIDANCE

As part of the Pilot program, teams of contract administration and audit personnel were formed at five Defense Plant Representative Offices (DPRO) located in five contractor facilities. The teams were chartered to, "...capture best practices and ensure consistent application of existing regulations and guidelines." [Ref. 29] The lessons learned would then be incorporated into future guidance. Additionally, the pilot program was intended to identify information and methods that could be used by a Contracting Officer faced with a decision regarding the allowability of specific environmental costs.

A number of questions regarding interpretation and application of the 1992 Guidance were raised by the Pilot Program teams. On 13 April 1994, supplemental guidance was released jointly by DCMC and DCAA. A number of key issues addressed in the supplemental guidance that bear on cleanup cost allocation are discussed next.

1. Capitalization

The 1994 Guidance clarified a number of questions regarding capitalization of remediation costs.

The supplemental guidance reinforced the notion that remediation costs incurred to cleanup property that was not contaminated when acquired should be expensed in the current period. The guidance also pointed out, however, that property and equipment, even if purchased or constructed to remediate a site, perhaps a pumping station or filtration unit, should be capitalized if the capitalization threshold is exceeded and depreciated over future periods. [Ref. 30, p. 1]

Another key issue regarding capitalization of remediation costs was highlighted in the 1994 Guidance: remediation costs incurred to cleanup property that was contaminated by a prior owner are to be capitalized. This point was made to ensure

that the Government did not accept as current period costs expenditures that improve the contractor's assets. The guidance reinforces the consequences to the contractor: "The costs would not be amortized over future periods since land is not a depreciable asset." [Ref. 30, p. 3]

Finally, if costs were incurred to cleanup a property held for sale because of a regulatory agency order or the land is unsafe in its present condition, they are to be expensed in the current period. This is true even if the costs are realizable from the sale. The 1994 Guidance continued by pointing out that if the costs resulting from the regulatory order or improving the safety exceeded the capitalization threshold or was an improvement, they should be capitalized. [Ref. 30, p. 5]

2. Potentially Responsible Parties

The 1994 Guidance modified the guidance regarding PRPs in cases where the PRP is no longer in business and a successor company has not assumed its liabilities. The 1992 Guidance treated uncollectible amounts as unallowable bad debts [Ref. 24, p. 7]. Based on a Director of Defense Procurement decision that reversed this policy, the 1994 Guidance stated that amounts uncollectible from out-of-business PRPs were not to be construed as bad debts since there was no company from which to recover [Ref. 30, p. 5] Although, not explicitly stated, the reader of the guidance is left to reasonably assume that such uncollectible amounts are now allowable provided that they are not otherwise or specifically unallowable and are allocable.

The 1994 Guidance did not change with regard to the unallowability of costs from PRPs that remain in business. The contractor is still required to pursue recovery through the CERCLA mechanisms for Superfund sites or by arbitration and legal proceedings from third party contaminators. [Ref. 30, p. 7]

Given the significant difference in the treatment of costs for remediating contamination caused by the contractor versus contamination caused by another PRP, it is not surprising that the guidance addresses the calculation of the contractor's share of the allowable cleanup costs in some detail.

The 1994 Guidance states that the method used to determine a contractor's share of the contamination will depend upon the circumstances and the amount of information available. In any case, the Contracting Officer making the decision regarding the costs will require additional technical assistance. [Ref. 30, p. 9]

It may be possible to associate a contaminant with a particular process, which in turn was used by only one of the PRPs. This procedure was referred to as technical fingerprinting in some of the interviews [Ref. 31 and 32]. As an example: assume that 25% of remediation costs were incurred to cleanup heavy metal in the groundwater. The heavy metal contamination was the result of a single process used exclusively by another PRP. Thus, 25% of the cleanup costs are attributable to the other PRP and are unallowable costs for the contractor.

In the event that technical fingerprinting is unsuccessful due to a lack of information, the relative shares of the total cleanup responsibility would be based on another basis, such as the time period a PRP occupied a site. In the event of simultaneous occupancy, square footage occupied might provide a reasonable base to determine responsibility for cleanup. [Ref. 33]

The 1994 Guidance continued to refer to all third party contaminators as PRPs and referred only to situations involving CERCLA and EPA mandated cleanups. Remediation ordered by state or local authorities was not specifically discussed. [Ref. 30, p. 7]

3. Allocation of Cleanup Costs

The 1992 Guidance stated that current period cleanup costs are allocated to Government contracts through the G&A pool in accordance with CAS 410. The 1994 Guidance added that such costs may be allocated by means of another indirect cost pool provided that the costs can be allocated in reasonable proportion to some causal or beneficial relationship to the cost objective per CAS 418. The 1994 Guidance continues by pointing out that this test will not be satisfied in most cases involving remediation costs since they are incurred in the current period to cleanup contamination that resulted from prior period work [Ref. 30, p. 10]. If, however, the product causing the contamination is still being manufactured, CAS 418 could be used to allocate the associated cleanup costs through an overhead pool. As was pointed out in one interview, this would be the case particularly if a commercial product's manufacture had caused the contamination [Ref 34].

As a related note, use of the current DOD Weighted Guidelines will result in environmental costs being used to calculate profit if they are allocated via an overhead pool other than G&A. As a result, a larger fee or profit will result for a given contract when the cleanup costs are allocated by other than G&A.

D. ENVIRONMENTAL INITIATIVES TASK FORCE COST ALLOWANCE PROGRAM (PILOT PROGRAM)

As was mentioned previously, DCMC initiated a Pilot Program in March 1993 to capture best practices, to determine methods and information needed by Contracting Officers to make decisions regarding environmental costs and to update current guidance with lessons learned. The Pilot Program was intentionally open ended with no formal completion date "To enhance the learning experience..." and "...allow each team the flexibility to fully explore the issues and methods."

[Ref. 29] A 60 day reporting period was implemented for progress reports.

As of this writing, the five Pilot Program teams have completed their reports and submitted them to DCMC for compilation and review [Ref. 34]. The results were briefed to the Director of Defense Procurement on 1 February 1995 [Ref. 27].

Thirteen major environmental cost issues were addressed in the briefing. DCAA and DCMC had reached agreement on ten of the issues. Among the three issues not agreed upon were treatment of insurance recoveries and bad debt treatment of third party contaminator costs. The Director of Defense Procurement directed the formation of committees to study and resolve the remaining issues. No additional guidance will be promulgated to the Contracting community until agreement is reached. [Ref. 27]

In a related development, the DAR Council was recently tasked with reopening the issue of an environmental Cost Principle. The DAR Council was tasked with answering two questions: Is a Cost Principle needed and what should it include? Due to the DAR Council's current preoccupation with the implementation of the Federal Acquisition Streamlining Act of 1994, it is not expected that it will begin work on an environmental Cost Principle in the near future. [Ref. 19]

In this chapter the development and content of current DOD guidance regarding the allocation of environmental remediation costs was reviewed. This background material permits the reader to understand the issues related to the alternative allocation methods that are examined in the next chapter.

IV. ALLOCATING ENVIRONMENTAL REMEDIATION COSTS

The current guidance on environmental remediation costs rests on the assumption that such costs are normal business expenses. Government participation in the activities that caused the contamination is not mentioned as a prerequisite for allowability. Contracting Officers, tasked with application of the guidance, have interpreted it in a number of ways. The outcome is different allocation methods, each with differing consequences.

This chapter describes a number of allocation methods that are analyzed later in the thesis. Additionally, issues related to the guidance and the methods are addressed.

A. ALTERNATIVE COST ALLOCATION METHODS

The alternative methods are presented in four groups organized by the underlying assumptions.

1. Not Allocating Cleanup Costs

This approach is based on the lack of a beneficial or causal relationship between current contracts and the contamination for which costs are being incurred to remediate. Since no current contracts caused or benefited from the contaminating activity, there is no contractual vehicle through which to equitably allocate the costs. Additionally, the remediation costs themselves actually reflect how much the contractor failed to assess the risk and underpriced the original contract.

When a commercial firm engages in a contractual relationship with another, the price of the contract compensates the firm for risks undertaken. If the contracted process results in contamination, the firm cannot generally go to its customer after the fact to seek additional

compensation.³ *A posteriori*, the original contract was underpriced given the actual risk involved. The analogous view is that the Government, as the customer of a contractor, particularly in the case of a fixed-price agreement, has no responsibility for an *ex post facto* payment to the contractor. [Ref. 35]

A similar argument is based on the idea that Government contracts generally do not direct contamination. Contractor practices caused the contamination. Many of those practices were common and accepted before laws and requirements were changed to reflect a growing understanding of the effects of environmental contamination. Even if the contract included specifications for use of materials and processes that resulted in the contamination, the contractor assumed the risks for doing business a certain way. The Government should not be required to pay. [Ref. 36]

Emphasizing the lack of a beneficial or causal relationship to current contracts, this approach apparently overlooks that the 1992 Guidance, the FAR and CAS 410 all provide a mechanism for allocating such costs. A cost, lacking a beneficial or causal relationship, may be allocated if it is otherwise allowable and two conditions are satisfied.

First, the cost allocation must be equitable: consistent, uniform and verifiable. This condition is not difficult to satisfy by a G&A allocation across a cost input base, for example.

Second, the cost must be necessary for the overall operation of the business. The proponents of an nonallocability approach would, of course, argue that such

³ The customer firm may be held liable as a PRP under CERCLA if considered an arranger. The firm could be an arranger if it provided the material that resulted in the contamination or arranged for its disposal. [Ref. 29]

costs, representing underpriced contracts, are not necessary for operation of the firm today and that the Government should not pay for yesterday's poor business decisions.

The nonallocability approach was mentioned as being the preferred method for dealing with the allocation issue in very few interviews or survey responses. Additionally, the researcher could find no case where it was actually cited as a reason for disallowing or questioning costs. Rather, other concerns, such as insurance indemnity or third party responsibility, were more frequently at issue. Given the clear statement by the Director of Defense Procurement in the 1992 and 1994 Guidance that environmental expenses are normal costs of doing business, the nonallocability approach, although perhaps philosophically defensible, is untenable in implementation.

The next group of allocation methods is based on the contrary assumption that cleanup costs are normal business expenses, necessary for the operation of the firm.

2. Cleanup Costs as Normal Business Expenses

Fundamental to this approach is the idea that cleanup costs are a normal business expense. If reasonable, not specifically unallowable due to contract terms or FAR Part 31, and allocable to a Government contract, they are allowable. In some cases, it may be possible to establish a causal or beneficial link to current contracts. If so, an overhead allocation other than G&A would be used.

a. Overhead Allocation

Although the 1994 Supplemental Guidance permits an allocation per CAS 418, it is unlikely that a beneficial or causal relationship to current cost objectives can be established given the time difference and the unlikelihood that the same product line is being manufactured today.

In the event that an overhead allocation could be substantiated, all otherwise allowable cleanup costs would be

allocated to cost objectives across the appropriate contractor base. For example, if accumulated in a facilities overhead pool, they might be allocated on the basis of square footage.

The only requirement to use an overhead allocation is to show a causal or beneficial relationship to current cost objectives, including Government contracts. No effort is made to establish a relationship between the current allocation and the degree of Government participation in the contracts that caused the contamination.

Also, such an overhead allocation would increase overhead rates and, consequently, profit or fee calculated in accordance with current DOD guidelines.

b. G&A Allocation

Allocability, since there is generally no direct beneficial or causal relationship to a cost objective, generally depends upon whether or not the costs are necessary for operation of the entire business. If the argument for necessity is accepted, the costs may be allocated.

The necessity argument can be expressed in a number of ways. The business and its facility cannot continue operating unless the contamination is remediated; thus, the cleanup costs are necessary to the survival of the organization [Ref. 34]. The costs could also be viewed as the responsibility of a corporate citizen and necessary for continued commercial viability [Ref. 28, p. 52]. In an approach similar to that taken by Lockheed in a case involving commercial inventory taxes, which was discussed in Chapter II, it could be argued that all employees, and consequently, all work benefits from the cleaner environment [Ref. 8, p. 14].

Provided that the necessity argument is accepted, which is likely the case for EPA, court or State mandated cleanups, the guidance indicates that the costs should be allocated. No mention is made of establishing a relationship between the contamination and a Government contract, past or

present.

In a number of interviews, the need to establish a connection between a Government contract and the contamination was described as being irrelevant to the allocation problem given the policy of recognizing cleanup expenses as a normal cost of doing business. For example:

If the remediation costs are a normal cost of doing business, why care about the nexus between a Government contract and pollution today? [Ref. 19]

In accordance with Ms. Spector, its a normal cost of doing business. This means not being entangled in reopening old contracts. Allocate to the current period. [Ref. 27]

The logical result of the guidance, the normal business expense assumption, and the lack of a need to establish a relationship between the contamination is essentially an ability-to-bear allocation method.

If environmental remediation costs of the current period were accumulated in a G&A pool, they would be allocated across a base that represented the total activity of the business unit. For contractors required to comply with CAS 410, one of the three cost input bases would be used: production costs, value added or a single factor cost. Under such an allocation, the contractor is allowed to recover all otherwise allowable cleanup costs on an ability-to-bear basis from the current mix of business. [Refs. 13 and 16]

Costs for equipment or facilities that were capitalized due to exceeding the capitalization threshold would be amortized and expensed through the G&A pool. Again, the cleanup costs would be recovered on an ability-to-bear basis.⁴

⁴ Note that in accordance with the 1992 and 1994 Guidance, all costs that represented improvements would be capitalized and not realized until a sale occurred.

Whether allocated as an overhead or G&A expense, the normal business expense designation of the cleanup costs permits them to be allocated without establishing links to Government contracts that might have contributed to the contamination. The next group of methods is based on attempts to link Government contracts to the contamination as a basis for establishing the Government's fair share of the cleanup costs.

3. Cleanup Costs and the Fair Share⁵

A number of surveys and interviews of Contracting Officers included statements such as, "The Government should pay cleanup costs, but only its fair share." [Refs. 22, 31, 32, and 37] These comments seemed to mirror the testimony of the Under Secretary of Defense (Environmental Security), Ms. Sherri Wasserman, before the House of Representative's Committee on Government Operations:

If environmental damage occurred despite the exercise of due care by a contractor which complied with specific laws and regulations and conducted its business in accordance with standard industry practices, if that contractor spent reasonable amounts in a cost effective manner to remedy environmental damage, and if that contractor has previously sought reimbursement from all contributory sources...it may be that the U.S. Government should pay its fair share, but only its fair share of that contractor's costs. (emphasis added) [Ref. 38]

Yet, the question of paying a fair share is significantly different than paying cleanup costs as a normal business expense if it involves explicit attempts to establish relationships between prior DOD contracts and the contamination.

⁵ Hereafter, DOD contracts will be referred to separately from other Government contracts to emphasize the effects of the alternative methods.

The consequences of the two approaches significantly differ. Under the normal business expense premise, all otherwise allowable cleanup costs are fully allocated. Under the fair share assumption, only those costs incurred to cleanup contamination linked to DOD contracts are allocated. This assumption is more akin to the proposed 1992 environmental cost principle [Ref. 20] than to the promulgated 1992 and 1994 Guidance [Refs. 24 and 30]. Yet, as will be seen, it is the approach favored and apparently implemented by Contracting Officers in the field.

a. Technical Fingerprints

Technical fingerprinting, as used in the interviews, is the establishment of a relationship between specific DOD contracts and the contamination being remediated [Refs. 32 and 37]. A variety of references are examined to determine the likely source of a contaminant: old contracts, internal production records, technical specifications, maintenance records, and supplier purchase orders.

The purpose of the fingerprinting is to determine what share of the cleanup costs should be allocated to DOD. For example, if the contaminant being remediated is PCB, records would be examined for possible sources. If PCB was used in a sole civilian product manufactured 20 years ago at the facility, the lack of a connection to DOD business and application of the fair share assumption would preclude its allocation. The facts, however, are often more complicated. If the PCB was also used as a weed killer at the facility, DOD contracts benefited in an indirect manner; an argument could be made for a connection and an allocation.

At an FMC site in the San Francisco Bay Area, the majority of the contaminants were technically fingerprinted to specific processes and contracts. Very little commercial work was undertaken at the facility during the period when the contamination occurred so the issue was not clouded by the

possibility of a substantial commercial contribution to the contamination. As a result, the DOD and FMC are negotiating the exact percentage of the estimated \$100 to \$120 million in cleanup costs, of which about one third has been incurred, that will be allocated via G&A. [Ref. 39]

At other contractor sites, the links are not so easily established. In one case, many of the contracts couldn't be found and the contractor engaged the services of attorneys who were tasked with locating appropriate documentation [Ref. 40]. A Contracting Officer working on the Pilot Program pointed out that fingerprinting was not simple: layers upon layers of contamination and many different owners make it difficult to pinpoint the source and the time period [Ref. 27].

As an alternative to technical fingerprinting, where there is inadequate information to assign the sources of the contamination, an alternative method used to establish a fair share is the business mix.

b. The Business Mix

The use of a business mix to determine DOD participation in the events that led to the contamination rests on the assumption that the contamination generated is directly proportional to the dollar value of the business. Such an assumption, given the unavailability of complete information, may be the only alternative as a basis for negotiating costs with the contractor.

For example, if DOD contracts made up 50% of the business unit's cost input or sales during the time when it is believed that the contamination occurred, 50% of the current remediation costs should be allocated to DOD contracts. Although such a method provides a starting point for negotiations, this method is not frequently used to establish DOD's exact fair share. One member of DCAA's Policy and Plans Group stated that she knew of only one case where the cleanup

costs were allocated on a business mix basis [Ref. 33]. One Contracting Officer stated that he would use a business mix approach if technical fingerprinting was infeasible [Ref. 31].

c. The Allocation of the Fair Share

Given that a fair share is established by technical fingerprinting, a business mix approach or some combination of the two, the actual allocation must be determined. Two alternatives were identified during the interviews.

The first method, a factored allocation, is to allow only that percentage of the cleanup costs that represent the DOD's portion to the G&A pool. That portion would then be allocated to current contracts across the contractor's allocation base. In a business unit performing nearly all DOD work, the DOD would pay the bulk of the fair share portion. Conversely, as the amount of commercial or non-DOD work increased, the DOD contracts would bear less of the fair share portion. [Ref. 32]

The second method is essentially a special allocation to DOD contracts [Ref. 32]. CAS 410 permits a special allocation in cases where the benefits accruing to the cost objective from the G&A costs are disproportionate. In such a case, the DOD's fair share portion would be allocated only to current DOD contracts [Ref. 16].

Whether a factored or special allocation is used, spreading out the allocable costs over future periods is also an option [Refs. 40 and 41]. This was specifically mentioned as an alternative when agreement had been reached in the current year on the treatment of cleanup costs incurred over a number of previous years. Such an allocation would minimize the increase in G&A rates and the subsequent effects on DOD budget holders, which would be the case if multiple years cleanup costs were recovered in a single year [Ref. 40].

Fundamental to the previous two groups of allocation methods is the assumption that cleanup cost recovery will be

obtained by means of an allocation through the cost accounting system. The next section deals with possible cost recovery methods that do not make use of a cost allocation.

4. Recovery of Remediation Costs Without a Cost Allocation

At least one Contracting Officer is attempting to combine technical fingerprinting with reimbursement of the contractor independent of a cost allocation. The contractor has engaged a firm of attorneys to search through old records to establish a link between the contaminants and DOD contracts. Once the links have been established, the cost of remediating the portion of the contamination caused by the DOD contracts will be calculated. The total will be segregated on the basis of the Military Department for which the contracts were performed. The Contracting Officer will then seek direct reimbursement from the appropriate Military Department for its fair share of the cleanup costs. [Ref. 40]

The Contracting Officer's rationale for this approach is to avoid skyrocketing overhead rates. If this approach is not acceptable to the Military Departments, he plans to allocate the costs via G&A. [Ref. 40]

A second and similar approach would be to use Public Law 85-804 to grant the contractor extraordinary contractual relief.

a. Public Law 85-804

Public Law 85-804 provides the authority to permit the Government to amend and modify defense related contracts without regard to other provisions of the law. This authority is based on the recognition that in support of the national security, normal contracting laws are sometimes inadequate. Congressional consent is required for all relief granted in excess of \$25 million. [Ref. 42, p. 23-2]

Two forms of relief could apply in the case of environmental cleanup costs. An amendment without

consideration can be made by the Government when an actual or threatened loss of a defense contract will impair the productive capacity of a contractor whose continued operation is essential to the national security [Ref. 43, p. 880]. If the magnitude of the cleanup costs was so great that the contractor's viability was threatened, such an argument could be used. In this case, the Government could grant relief, or payment, for cleanup costs to the fair share level as determined by technical fingerprinting or business mix.

Additional relief has also been granted in cases involving indemnification against unusually hazardous risks [Ref. 42, p. 23-13]. Additional relief has been a basis for indemnity payments under contracts connected with nuclear and missile programs where commercial insurance is either limited or unavailable. [Ref. 43, p. 882] A similar approach could be used to grant relief to contractors that contaminated their facilities because they were working on a Government contract. Today, environmental damage is generally not an insurable risk and, even if it was not specifically excluded in older comprehensive liability policies, recovery through the courts has been difficult and costly [Ref. 24, p. 7]. Using this approach, the contamination would be fingerprinted and Public Law 85-804 would be used as a vehicle to pay the Government's fair share.

A recent GAO report indicates that the Army has in fact used Public Law 85-804 to reimburse a contractor for \$5 million in environmental cleanup costs incurred at an ammunition plant in Wisconsin [Ref. 44]. The relief was granted to ensure that the corporation could continue to produce material deemed necessary for the national defense. In 1992, a Secretary of the Army memorandum of decision authorized inclusion of Public Law 85-804 to indemnify contractors for unusually hazardous risks, including environmental contamination. The Navy continues to indemnify

contractors only in limited circumstances involving low-level radioactive waste, not environmental damage in general. The Air Force does not use Public Law 85-804 to indemnify environmental cleanup. [Ref. 44]

**b. Defense Environmental Restoration Account
(DERA)**

Established in 1984, DERA is a source of funding used to fund remediation under the Defense Environmental Restoration Program (DERP) of Government-owned, contractor operated (GOCO) facilities or sites formally owned or operated by DOD. Many of the formally operated sites date back to the two World Wars and involve the removal of hazardous munitions and contaminants. As of 1989, 8,000 sites at 897 DOD installations had been identified as possibly requiring remediation. Under DERP, a site is assessed and either DOD contracts for remediation or the contractor remediates the site and is reimbursed from DERA. [Ref. 45]

Although DERA funds cannot be used for remediating a contractor owned site, it does provide an example of financing cleanup at a contractor facility independent of a cost allocation.

Four groups of allocation methods have been discussed. In the next section, a number of issues related to cleanup cost allocations are examined.

B. ISSUES ASSOCIATED WITH CLEANUP COST ALLOCATION METHODS

In this section, the issues of insurance recovery, third party contaminators, unused sites and their effects on remediation cost allocations are addressed.

1. Insurance Recovery

The 1992 Guidance on environmental costs pointed out that many earlier policies did not generally exclude environmental cleanup costs and, consequently, are a source of recovery.

Most insurance companies, however, are fighting such claims in the courts and any resultant payments are often based on partial settlements. The guidance states that, "Where a claim is possible and economically feasible, the contractor should pursue it." [Ref. 24, p. 7] The guidance also points out that any insurance recoveries should be applied as credits against allowable cleanup costs. [Ref. 24, p. 7]

The complexity of insurance recovery is daunting. One company with 368 carriers has settled with 56; some cases are in court as long as seven years; and whoever losses, appeals [Ref. 27]. Another company has several hundred sites with several hundred insurers [Ref. 22]. It is no wonder that one Contracting Officer stated that 65% of a contractor's remediation costs were legal expenses [Ref. 40].

The guidance states that the timing and amount of insurance claims for contract costing purposes is a subject of negotiations between the Contracting Officer and the contractor [Ref. 24, p. 4]. One Contracting Officer pointed out that essentially two options were available with regard to timing of the claims. One is to not allow cleanup costs until all recovery efforts have been exhausted. The second option is to allow the remediation costs and ensure that the company diligently pursues recovery. Recoveries would then be credited to the Government. [Ref. 40]

The first alternative is based on FAR 31.205-19(a)(3), which states that actual losses incurred under covered insurance are unallowable. This Cost Principle has been cited by the auditors as a basis for questioning environmental costs in at least one case where there was only a possibility of insurance recovery from a General Comprehensive Liability policy [Ref. 46]. In response to a request for clarification from the auditors, a DCAA letter stated that although explicit insurance coverage had not been established, only unreasonable actions, such as having intended the contamination to occur,

would preclude eventual coverage [Ref. 47]. It was not necessary for definite coverage to be established for the auditors to question the costs.

Because of the FAR provision forbidding covered losses, the second approach would be used where the likelihood of insurance recovery was low. Advance agreements would delineate contractor and DOD responsibilities with respect to contractor recovery efforts and DOD reimbursement in the event of recovery. Advance agreements on insurance credits could also be used to incentivize the contractor to pursue recovery. For example, a 1991 settlement with Aerojet-General Corporation on environmental costs incurred before 1989 included provisions for Aerojet to reimburse DOD 50% of any future insurance recoveries [Ref. 6, p. 18].

Should the Contracting Officer delay agreement on environmental costs pending ultimate insurance recovery, the costs will generally be rolled forward with the intent to incorporate them in the first open, non-negotiated year [Ref. 40]. If such costs are eventually included in the G&A pool, they will most likely inflate G&A rates for the year in question unless, as in the case of FMC, they are amortized over some future period [Ref. 39].

From either a normal business expense or fair share perspective, the possibility of insurance recovery will affect which portion of the otherwise allowable cleanup costs can be allocated in the current period.

2. Third Party Contaminators

At many sites, previous owners or co-occupants contributed to the contamination that is being remediated. Under the joint and several liability provisions of CERCLA, the contractor currently occupying the site can be held entirely liable for the cleanup costs. The 1992 and 1994 Guidance, however, allows only remediation costs incurred to cleanup the contamination caused by the contractor. The

contractor must seek recovery from third party contaminators via the CERCLA mechanism, generally in the courts [Ref. 28, p. 4]. The 1992 Guidance characterized amounts unrecoverable from third parties as bad debts and unallowable [Ref. 24, p. 7]. This prevents DOD from being used as a universal source of cleanup funds, a proverbial deep pocket.

The 1994 Supplemental Guidance modified the bad debt characterization to allow unrecoverable costs if the third party contaminator was out of business and no successor company existed [Ref. 30, p. 8]. As a consequence, contractors whose facilities are located on sites contaminated by nineteenth century textile mills are actually able to recover cleanup costs, as normal business expenses, from DOD contracts. Uncollectible amounts from surviving businesses are still treated as bad debts. As a consequence of this treatment, contractors sometimes seek recourse in litigation to recover cleanup costs from third parties [Ref. 32].

To illustrate this result of treating unrecovered amounts as bad debts, assume that a contractor incurred \$10 million to cleanup a site. A surviving third party was co-located at the site. An independent assessor was able to fingerprint the third party firm's contribution to 60% of the total contamination and determined that \$6 million represented their fair share of the cleanup costs. The contractor and the third party then reached a negotiated settlement for \$4 million. The remaining \$2 million, according to the guidance, is questioned by the auditors as an unallowable bad debt and will not be an allowable cost. If the contractor is to recover the remaining \$2 million, he must generally litigate. [Ref. 32]

The question of third party liability is complicated by capitalization issues. If a site was already contaminated when acquired, the costs incurred by the current owner to cleanup the property may be construed as an improvement to the property. The costs are capitalized and, since the property is

not a depreciable asset, recovery of the costs will generally be delayed until ultimate sale. Even upon sale, the portion attributable to a surviving business will be characterized as a bad debt and unallowable. [Ref. 24, p.7 and Ref. 30, p. 7]

There is, as a result of the bad debt and capitalization provisions, a premium on an ability to fingerprint the contamination to either the current contractor or a third party, whether a prior owner or co-located company. The issue is very relevant to determining which costs will be characterized as unallowable bad debts and which will be allowable; which will be capitalized and which will be expensed in the current period. Given that many of the sites in question have long histories of industrial use, technical fingerprinting of the current contractor's share is often difficult. The question of fingerprinting a third party's contribution certainly complicates the application of a fair share methodology; it was cited as a rationale for treating otherwise allowable cleanup costs as a normal business expense [Ref. 27].

3. Unoccupied Sites

Contractor sites sometimes remain unoccupied pending remediation and sale. Often, the property must be remediated before the property can be sold because of a regulatory agency order or a concern for safety. Such sites are referred to as orphan sites [Ref. 38].

When contamination at a site can be connected to a product line or business unit that survives at another location, the 1992 Guidance requires that the cleanup costs follow the business [Ref. 24, p. 5]. The transferred costs, if otherwise allowable, will be allocated to the business unit's contracts at the new site. In many cases, however, the product line or business unit no longer survives. The associated costs may then be allocated as residual expenses across the entire company per CAS 403 [Ref. 24, p. 5]. This was referred to as

an up-and-down allocation in one interview [Ref. 35].

The issue of costs incurred to remediate an orphan site may be moot, however, if the site has been vacant or idle for some period of time. The 1994 Guidance points out that costs incurred at idle facilities, usually after one year, are unallowable per FAR 31.205-17. Strict application of the idle plant provision has far reaching implications for a contractor with orphan sites that must be remediated prior to sale. The remediation process often takes years to accomplish and if the site is not used for production, it could be construed as idle [Ref. 6, pp. 14, 22 and 28]

The interaction of the insurance, third party and orphan site issues greatly complicate the allocation issue. Faced with a claim for cleanup costs at an orphan site, for example, the Contracting Officer must answer a myriad of questions even if he takes a normal business expense approach and does not require that specific links be established between DOD contracts and the contamination:

- Are the cleanup costs reasonable?
- Was the contamination the result of contractor wrongdoing?
- Is there a possibility of insurance recovery? If so, for what portion of the claimed costs?
- Was the property contaminated when it was acquired? How much? If so, is the prior owner still in business?
- Do the costs represent an improvement? Do they exceed the capitalization threshold?
- Is there a regulatory order to remediate the site? Is it currently unsafe?
- Was the original business unit's work transferred to another site? How much of the contamination was caused by the transferred unit?
- Was the site idle? For how long?

- Did a third party, other than the original owner, contribute to the contamination? How much? Is this third party still in business?

As can be seen from these questions, even a normal business expense approach requires determination of which occupant or owner contributed to how much of the contamination. Use of the fair share approach, however, requires even greater technical information. Essentially, the contribution of every contract and product line to the contamination must be determined so that a fair share can be calculated for DOD and for the contractor's other business.

The apparent dichotomy between the normal business expense approach delineated in the guidance and the fair share approach implemented in the field does not bode well for consistent application of current FAR and CAS provisions. The need to resolve associated issues such as third parties and insurance recovery, which often requires information not available, further compounds the problem. In the next chapter, informal survey results are discussed to highlight the use of alternative methods.

V. INFORMAL SURVEY RESULTS

A questionnaire, which included a hypothetical cost allocation problem, was sent to Contracting Officers and Contract Specialists at 50 DCMAOs and DPROs. The survey was intended to capture a consensus from the respondents of how cleanup costs should be treated in simplified cases not involving insurance recovery, third party contaminators, capitalization issues or contractor wrongdoing. Given three scenarios, the respondents were asked to select the best allocation method from five choices. Additionally, they were asked whether or not they believed that an Environmental Cost Principle is necessary.

A. THE SCENARIOS AND RESPONSES

The initial survey scenario was based on a growing proportion of DOD contracts in a hypothetical firm's business base. The scenario follows:

A major defense contractor incurred \$15 million in environmental survey and monitoring costs while remediating contamination at one of its operating plants. The contamination, which occurred between 1960 and 1975, could have been caused by work on either defense and commercial contracts, or both. Between 1960 to 1975, 20% of the contractor's revenues at the site were from defense contracts; 80% was from commercial work. Today, the contractor's work at the site is 95% defense related.

Five cost allocation methods were listed and the respondent was asked to select the approach that best described how they would allocate the otherwise allowable environmental remediation costs.

The alternative responses were designed to reflect the major groups of cost allocation methods described in Chapter IV. The first alternative was based on the nonallocability

argument; it stated that the cleanup costs were not allocable and thus unallowable.

The second response was an implementation of the fair share approach as determined by technical fingerprinting. The costs would be allocable, but only if a connection was shown to have existed between DOD contracts and the contamination. The amount of the cleanup costs allocated would depend on the DOD fair share.

The third response was also based on the fair share approach, but used the business mix when the contamination occurred to determine DOD's portion. Thus, in the first scenario, DOD would bear 20% of the cleanup costs.

The fourth response was an implementation of the normal business expense approach. The response indicated that the entire \$15 million should be allocated through the G&A pool. Consequently, in the first scenario, DOD contracts would bear about 95% of the cleanup costs in spite of comprising 20% of the firm's business during the period when the contamination occurred.

The last response was based on an up-and-down allocation per CAS 403. This response was intended to permit modification of the scenario to include an orphan site.

The responses to the first scenario are tabulated in Table 2.

ALLOCATION METHOD	%
Costs are unallocable	7.1%
Fair share established by technical fingerprinting	14.3%
Fair share established by business mix	53.6%
Normal business expense	10.7%
Up and down per CAS 403	14.3%

Table 2 Summary of Responses to Scenario 1

Note that the combined total of the fair share approaches was 67.9%. This compares to 10.7% for the normal business expense approach. Given that over 70% of the respondents were Administrative Contracting Officers (CACOs, DACOs and ACOs), the selection of a fair share approach by a two-to-one margin, in spite of the current DOD guidance treatment of cleanup costs as a normal business expense, may be significant.

The second scenario was a reversal of the business mix at the time the contamination occurred and during the current period. Thus, 95% of the work was defense related between 1960 and 1975 and 20% today. This reversal was intended to gauge the consistency of the responses. For example, a respondent may not be as reluctant to use a normal business expense approach when DOD stands to pay significantly less, as in scenario 2, than under a fair share approach.

The responses to the second scenario are tabulated in Table 3.

ALLOCATION METHOD	%
Costs are unallocable	7.1%
Fair share established by technical fingerprinting	17.9%
Fair share established by business mix	46.4%
Normal business expense	14.3%
Up and down per CAS 403	14.3%

Table 3 Summary of Responses to Scenario 2

The respondents were relatively consistent in spite of the scenario change: 64.4% selected a fair share approach and 14.3% the normal business expense treatment.

The final scenario posited that the facility had been closed for 20 years. This change was intended to capture the consequences of an orphan site. The responses to the last

scenario are tabulated in Table 4.

ALLOCATION METHOD	%
Costs are unallocable	14.3%
Fair share established by technical fingerprinting	10.7%
Fair share established by business mix	39.3%
Normal business expense	3.6%
Up and down per CAS 403	32.1%

Table 4 Summary of Responses to Scenario 3

The last scenario was not specific as to whether or not the business unit's work had been transferred to another site. Accordingly, the number of respondents selecting a CAS 403 allocation increased, which is one alternative per the 1992 guidance if no unit within the company is performing the same work today.

The researcher was surprised that more respondents did not select the nonallocability response on the basis that the facility had been shutdown for 20 years and the costs were incurred to remediate an idle facility. Viewed from a fair share perspective, however, it makes sense that DOD should pay for some remediation costs if its contracts, no matter how long ago, contributed to the contamination.

B. THE NEED FOR AN ENVIRONMENTAL COST PRINCIPLE

The respondents were asked if they believed that current guidance is adequate for determining how remediation costs should be allocated or if an Environmental Cost Principle is needed. Of those responding, 82.1% indicated that an Environmental Cost Principle is needed; 17.8% believed that the current guidance is adequate.

C. SURVEY CONCLUSIONS

The researcher believes the following conclusions may be inferred from the informal survey results:

1. There is a preference among those contract administration personnel who responded for a fair share approach to remedial cost allocations.
2. The preference for a fair share approach is relatively consistent.
3. Contract administration personnel who responded believe that an Environmental Cost Principle is needed.

The next chapter analyzes the effects of each allocation method with regard to the amount of information needed to implement each method, effects on overhead rates, repercussions to a declining DOD budget and consequences to a contractor attempting to enter a commercial marketplace.

VI. ANALYSIS OF REMEDIATION COST ALLOCATION METHODS

A number of methods are available to Contracting Officers for allocating environmental remediation costs to DOD contracts. In this chapter, those methods, discussed in the previous two chapters, are analyzed.

The following characteristics of the cost allocation methods are examined:

- The amount of information about the source of the contamination being remediated that is needed to implement each method and the cost that either the Government or the contractor is willing to incur to obtain that information.
- Effects of the allocation methods when the DOD component of a contractor's business base is decreasing or increasing.
- Effects of a contractor's decision to diversify into commercial work.
- Affects on overhead rates.
- Cost allocation criteria including fairness.

Finally, reasons for the divergence between the normal business expense focus of the current guidance and Contracting Officers' fair share applications are discussed.

To illustrate the analysis, the scenario outlined in the informal survey is used to illustrate the relative amounts of information needed to implement each method. Recall that in the scenario, \$15 million in remediation costs were incurred in the current period. The costs are otherwise allowable: they are reasonable, not specifically unallowable per the Cost Principles or contract, and were not incurred due to contractor wrongdoing. The current DOD business base is 95% of the contractor's total cost input. The DOD business base during 1960 to 1975, when the contamination was believed to have occurred, was 20%.

A. INFORMATION REQUIRED TO IMPLEMENT

In this section the relative amount of information regarding the source and timing of the contamination that is being remediated is discussed. Additionally, incentives for both DOD and the contractor to incur additional information costs are addressed.

1. No Allocation

In the event that remediation costs are determined to be nonallocable to current contracts on the basis of no causal or beneficial relationship or because the costs are not necessary for overall operation of the business, very little information regarding the prior contamination is required. The costs, unallowable due to nonallocability, will be eliminated from indirect cost pools and will not be allocated to the various cost objectives.

2. Normal Business Expense

In accordance with the normal business expense method, remediation costs are accumulated in the G&A pool and allocated across the contractor's current total cost input. Conceptually, this method requires very little information about when the contamination occurred or what caused it, other than to establish that the remediation costs were reasonable and not due to contractor wrongdoing. It is not necessary to obtain information to establish a nexus between a prior DOD contract and the contamination being remediated. In the scenario, \$14.25 million of the remediation costs would be allocated to DOD contracts.

Even when a normal business expense approach is used, the presence of third party contaminators immediately complicates the scenario and increases the amount of information needed to implement the method. Enough information must be available to apportion responsibility between the contractor and third parties. The contractor can only recover remediation costs for

contamination that he caused or was caused by a non-surviving third party through an indirect cost allocation. Other third party costs must be recovered through the CERCLA mechanism. In cases where the contractor believes that a surviving third party's share is underestimated, he is likely to incur additional information costs to more accurately fix responsibility.

Some portion of the additional information costs will in turn be reimbursed by the Government. In the case of a cost reimbursement contract, the reimbursement will be via indirect rates applied to allowable direct costs incurred. In the case of a fixed-price contract, the reimbursement will be obtained through negotiated overhead rates. For example: assume that DOD believes 50% of the contamination at the contractor's site was due to a surviving third party. This would result in \$7.5 million being accumulated in the G&A pool and \$7.125 million being ultimately allocated to DOD contracts under a normal business expense approach. If the contractor hires a firm of attorneys for \$1 million who establish third party responsibility at only 25%, \$12.25 million (75% of the \$15 million plus the \$1 million attorney's fees) will be accumulated in the G&A pool and \$11.638 million allocated to DOD contracts. Note that if the third party responsibility had initially been fixed at 25%, only \$10.688 million would have been allocated to DOD contracts. The difference is DOD's portion of the information costs.

3. Business Mix

The business mix method requires that the DOD business base at the time the contamination occurred be used to establish a DOD fair share. This method rests on the assumption that the business mix is somehow proportional to DOD's responsibility for the contamination. In the scenario, \$2.85 million would be allocated to DOD contracts.

Although the task of estimating DOD's share of the

business base in a given year is not difficult, exactly determining the years during which the contamination occurred may be more problematic. For example, if the contamination in the scenario didn't actually occur between 1960 and 1975, but during another period when DOD made up 80% of the business, it may be in the contractor's interest to incur additional information costs to establish exactly when the contamination occurred. Again, as in the case of the normal business expense discussion, DOD will reimburse the contractor for some portion of the additional costs and the contractor may be incentivized to seek additional information for relatively minor changes in the final business mix.

If either DOD or the contractor believes that the business mix is not representative of the DOD's share of the contamination, they might be willing to incur additional costs to use more detailed technical fingerprinting as the basis for a cost allocation.

4. Technical Fingerprinting

Technical Fingerprinting is used to establish the exact relationship between the contamination and prior Government contracts. It may serve as the basis for a fair share allocation or used to justify a direct payment. Technical fingerprinting also requires the most precise information about when and how the contamination occurred. Consequently, the information costs incurred to implement this method are likely to be the highest. It stands to reason that the Government or contractor should not advocate this method unless they believe that the additional information costs incurred are offset by a reduced share of the remediation costs.

On a spectrum of information needed, the No Allocation method and a normal business expense approach without third parties require the least information to implement. At the opposite end of the information spectrum, a technical

fingerprint based allocation requires the most data. The other methods fall between the two extremes.

5. When to Incur Additional Information Costs

When costs should be incurred to obtain additional information regarding the contamination and its relationship to DOD contracts is illustrated next.

DOD's costs (Cd) include information costs incurred internal to DOD (Ig), 95% of the contractor's information costs (Ic) and 95% of the amount accumulated in the G&A cost pool. The 95% is based on DOD making up 95% of the contractor's current total cost input. The amount accumulated in the G&A cost pool is the otherwise allowable costs, (R), times a coefficient that represents the portion of the remediation costs that are allocable to DOD contracts. The coefficient will be referred to as the DOD fingerprint, (s). For a normal business expense approach, the DOD fingerprint is equal to one: all otherwise allowable costs are allocated because no connection between contract and contamination is required. For a business mix or technical fingerprint approach, it will equal the DOD fair share established by either the business mix or technical data. Consequently:

$$Cd = Ig + .95Ic + .95(R*s)$$

It can be shown that for DOD to breakeven on a decision to seek additional information to prove that DOD contracts were not associated with the contamination, the resultant decrease in DOD's fingerprint coefficient must be greater than the following amount:

$$(Ig + .95IC)/.95R$$

This expression reflects what is intuitively obvious: as the information costs incurred go up in proportion to the otherwise allowable remediation costs, the DOD share must decrease more for DOD to breakeven. In the scenario, if each of DOD and the contractor incur \$1 million in information costs, the DOD fingerprint must decrease 13.68% for DOD to

actually incur less costs overall as a result of its decision to seek additional information.⁶

Similarly, the contractor's costs consist of 5% of the information costs plus 5% of the amount accumulated in the G&A pool. Additionally, that portion of remediation costs not reimbursed by DOD, $(1-s)$, must be borne out of pocket. Accordingly:

$$C_c = .05I_c + .05(R*s) + (1-s)*R$$

It can be shown that for the contractor to break even on a decision to seek additional information, the resultant increase in DOD's fingerprint coefficient must exceed the following amount:

$$.05*I_c / .95*R$$

This expression shows that it is to the contractor's advantage to incur additional information costs for very little expected increases in DOD's fingerprint. In the scenario, if each of DOD and the contractor incur \$1 million in information costs, the DOD fair share must increase only .35% for the contractor to incur fewer costs overall as a result of his decision.⁷

If neither the contractor nor DOD believe that incurring additional information costs will result in the fingerprint coefficient increasing or decreasing, the optimal course of

⁶ As the G&A rate decreases (i.e. current DOD business base decreases), the required reduction in the fingerprint coefficient becomes even larger. At a G&A rate of 5% and information costs of \$1 million, s must decrease 260% for DOD to breakeven on a decision to seek additional information.

⁷ As the G&A rate decreases, the DOD fingerprint coefficient must increase more for the contractor to breakeven. Yet, even with a G&A rate of 5%, the DOD share would have to increase by only 6.66% for the contractor to breakeven if it cost \$1 million to obtain the additional information.

action is for neither party to incur additional information costs.

To illustrate this result, Table 5 below shows the costs of the various strategies when neither the contractor nor DOD believe that the fingerprint coefficient is modifiable. The fingerprint coefficient is initially 50% and information costs are fixed at \$1 million for both DOD and the contractor. Neither DOD nor the contractor can do any better by choosing other than to not seek additional information.

Government Cost <i>Contractor Costs</i>	Contractor Seeks Additional Info	Contractor Doesn't Seek Info
DOD Seeks Additional Info	\$9.075 million \$7.925 million	\$8.125 million \$7.875 million
DOD Doesn't Seek Additional Info	\$8.075 million \$7.925 million	\$7.125 million \$7.875 million

Table 5: Contractor and DOD Estimate No Change in Fingerprint Coefficient

If the contractor, however, believes that the additional information will result in even a minor increase in the fingerprint coefficient, as low as .35% in the example, the contractor's dominant strategy is to incur costs for additional information. The additional information costs, for which the contractor ultimately pays only a fraction, are more than offset by the reduction in out of pocket expenses represented by DOD paying more of the allowable remediation costs.

If the contractor incurs additional information costs, it is not to DOD's advantage to follow suit unless it believes that the contractor's gain can be limited sufficiently to offset the additional information costs. Since DOD must achieve a significantly higher reduction in the fingerprint

coefficient, it should not be as willing to incur the additional costs. Otherwise, DOD is merely paying for the contractor's and its own additional information costs.

This result is shown in Table 6. Assume that the contractor, by incurring \$1 million in additional information costs is able to increase the fingerprint coefficient by 10%. DOD, if it also incurs \$1 million in information costs is able to restrict the increase to only 5% when the contractor is also seeking additional data.

Government Cost <i>Contractor Costs</i>	Contractor Seeks Additional Info	Contractor Doesn't Seek Info
DOD Seeks Additional Info	\$9.7875 million \$7.2125 million	\$6.7 million \$9.3 million
DOD Doesn't Seek Additional Info	\$9.5 million \$6.5 million	\$7.125 million \$7.875 million

Table 6: Contractor Estimates an Increase in the Fingerprint Coefficient

If the contractor incurs the \$1 million in additional information costs and DOD follows suit, DOD's costs will be \$275,000 more than if it had not sought additional information, \$9.5 million vs. \$9.875 million. DOD is actually better off in this scenario to do nothing.

Note also that DOD's most favorable outcome, a \$6.7 million cost, is achieved when it seeks additional information and the contractor does not. Since this outcome is also the contractor's worst, the contractor will change strategies and incur additional information costs. In theocratic game terms, the solution to this game is actually in the lower left quadrant.

Although the scenario and strategies are hypothetical,

they reveal that the contractor should be the more likely of the two parties to incur additional information costs if data can be found to justify an increase in DOD's portion. During negotiations, the data obtained by incurring the costs would be used to justify a higher DOD share. Conversely, DOD should be more willing to accept a wider range of DOD shares unless the contractor's position significantly differs from reasonable expectations.

If the reduction in the fingerprint coefficient required to justify incurring additional information costs is so high, Contracting Officers' preferences for fair share based allocation methods, which generally require more detailed data is, at first glance, surprising. This point is addressed in more detail in a later section.

B. DOD BUSINESS BASE CHANGING

In this section, the results of DOD business as a percentage of the contractor's total business base increasing, decreasing or remaining the same since the contamination occurred are discussed.

1. No Allocation

Changes in the business base will have little affect on the costs paid by the contractor and DOD if remediation costs are not allocated to DOD contracts. Similarly, DOD contract costs will not be affected by costs incurred today to clean up yesterday's contamination or by changes in the business mix. Such a non-allocation, if not generally accepted as fair, is certainly neutral and independent.

2. Normal Business Expense Allocation

Since no requirement exists for a connection between a DOD contract and the contamination, the proportion of costs paid by DOD will depend entirely on indirect rates and, in the case of G&A, on the current business mix. In the scenario, \$14.25 million of the costs are paid by DOD because DOD makes

up 95% of the total cost input. If the current DOD percentage of total cost input was only 20%, \$3 million would be paid by DOD.

Such an allocation method could create strong incentives for a contractor seeking sources of financing for remediation efforts at a site previously used for commercial work. DOD work could be re-assigned to a business unit located at a commercial site that was being remediated. DOD contracts would then bear a portion of the remediation costs in proportion to their total cost input. As DOD contractors reorganize their businesses to remain competitive and adapt to defense downsizing, such re-locations are a distinct possibility. Contracting Officers have been advised by the Defense Contract Management Command (DCMC) to consider such possibilities so that DOD does not pay to remediate contamination that was entirely the result of a commercial operation [Ref. 27]. Stated from a slightly different vantage point, a payment for remediation costs is a correction for previous underpricing: if there is a mix of commercial and DOD work, DOD shouldn't necessarily pay for the correction to the underpriced commercial work [Ref. 35]. Such advice is contrary to a strict interpretation of the normal business expense guidance, which treats remediation costs as necessary for overall operation of the business unit. It is, however, tacit recognition that in the interest of fairness and equity, some connection between DOD contracts and the contamination, however remote, must exist for DOD to reimburse the contractor for remediation costs.

3. Business Mix Factored Allocation

Under a business mix approach, the DOD share, determined by the prior DOD business base, would be allocated across current contracts in proportion to the current DOD business base. If DOD business was 20% when the contamination occurred and it is 95% today, \$2.85 million of the \$15 million in

remediation costs would be borne by DOD contracts. Conversely, if the prior DOD business mix was 95% and today it is 20%, \$2.85 million would still be paid by DOD. When the DOD business base decreases, the effect of the factored allocation is to spread the DOD share across the contractor's non-DOD business base. The opposite would be true if the DOD business base had increased: more remediation costs would be borne by DOD contracts.

4. Technical Fingerprinting Factored Allocation

The effects of a changing business base on a technical fingerprinting approach are similar to those of the business mix-based allocation. The DOD fair share, as determined by technical fingerprinting, is allocated across the contractor's current business base. Even if 90% of the contaminants were DOD related, if DOD makes up 20% of the current business today, only \$2.7 million will be borne by DOD contracts. When the DOD business base decreases, the factored allocation dilutes DOD's costs.

A possible consequence of such an allocation method is a reluctance for contractors to locate commercial business at sites previously dedicated to DOD contracts. As DOD contractors lose DOD business during the current downsizing, some are attempting to sell off older properties to reduce overhead costs. Many, however, cannot be sold until they are fully remediated. A number of these same DOD contractors are actively seeking commercial business. To minimize new start up costs and use idle facilities, the contractor might be tempted to locate the new commercial business at a site awaiting remediation. At least one major accounting firm is advising its customers against such a decision because it confuses the issue of responsibility for the contamination [Ref. 48]. Costs incurred to remediate the site would be allocated to any remaining DOD contracts and the contractor's new business. At its inception, the new business would be forced to bear

unwanted overhead. [Ref. 48]

The incentives of a normal business approach and a fair share approach such as technical fingerprinting for a DOD contractor with commercial business can be diametrically opposed. A normal business expense approach creates incentives to co-locate commercial business at the site previously dedicated to DOD work; a fair share approach creates incentives to keep them apart.

C. SPECIAL ALLOCATIONS

The use of a factored allocation tends to distort any beneficial relationship inherent in a fair share approach when the current DOD business base has changed significantly or is not consistent with the technical fingerprint. One alternative is to use a special allocation under CAS 403, CAS 410, and CAS 418. As was discussed in Chapter Two, a special allocation is permitted when the benefits accruing to the contract from the costs are significantly different than those accruing to other cost objectives.

In the case of a special allocation, DOD's fair share of the remediation costs, as determined by a business mix or fingerprint approach, would be allocated only to DOD contracts. In cases where DOD contracts were significantly associated with the contamination, but the DOD business base has decreased, it is in the contractor's interest to seek a special allocation as opposed to a factored allocation. The converse is true when DOD contracts were not associated with the contamination, but the DOD business base has increased.

One possible byproduct of a special allocation is the premium placed on information. For either the contractor or DOD to substantiate a special allocation, specific information about when and how the contamination occurred would be required. As was already pointed out, it is generally more advantageous for the contractor to seek such additional

information since a portion of his additional information costs will be borne by DOD.

D. OVERHEAD RATE EFFECTS

If remediation costs are allocated, irrespective of the method, indirect costs borne by DOD will increase. Overhead or G&A rates will increase as remediation costs are accumulated in indirect cost pools and allocated across the appropriate base. As a result, remediation costs allocated to current DOD programs will increase independent of any decision made by the Program Manager. The magnitude of the costs borne by a program will be determined instead by the magnitude of the otherwise allowable remediation costs and the allocation method used.

Decision makers in the executive and legislative branches use financial data about a program's cost to determine its viability. At each Milestone Review, the Milestone Decision Authority ensures that actual program costs are consistent with Program Baselines, which include cost objectives. A breach in a baseline, such as exceeding a cost goal, attracts significant scrutiny from the Office of the Secretary of Defense and the Congress [Ref. 49]. Yet, it is conceivable, that program costs increase solely because of the allocation of remediation costs, the result of prior years' contamination and a particular allocation method. Subsequent decisions regarding the program based on such allocated costs could be biased unless some means is determined to factor out the effects of the remediation costs.

Allocation of cleanup costs for contractor facilities also results in near invisibility of the costs to decision makers and those exercising oversight. In the Fiscal Year 1996 budget request, the Clinton Administration is asking for \$5 billion to fund cleanup at DOD facilities and to comply with environmental laws [Ref. 50]. The \$5 billion was placed in the budget request in spite of Congressional opposition to funding

non-defense items from the DOD budget [Ref. 50]. Yet, remediation of contractor facilities is being financed through procurement accounts by means of overhead reimbursement. Consequently, more than the explicit appropriation is being spent in the DOD budget to remediate the environment. Since the exact amounts are included in the overhead and G&A rates of thousands of contractors, there is no way to determine actually how much. Donna M. Heivilin, the GAO's Director of Defense Management and NASA issues, when speaking to the House Committee on Government Operations about DOD reimbursement of contractor cleanup costs stated, "DOD doesn't routinely collect data and can't provide Congress an idea of its funding liability in this area." [Ref. 51]

As was discussed in the section on input substitution in Chapter II, the use of indirect cost pools to allocate significant portions of overall contract costs and the cost sensitivity of many DOD contracts creates a number of perverse incentives for the contractor. Because indirect costs generally follow direct labor, DOD contracts tend to favor labor over capital investment. Again, because indirect costs generally follow direct labor, DOD contractors are incentivized when considering make-or-buy decisions to produce in-house. Allocation of additional remediation costs via overhead or G&A would tend to magnify such incentives.

The inclusion of remediation costs in indirect cost rates has also had another unintended consequence: delaying final agreement on overhead rates for contract closeouts [Ref. 52]. Closeouts have assumed greater importance because if contracts are not closed out prior to the appropriation expiring, current year funds must be used to make any final payments. Final overhead rates cannot be negotiated until all associated issues, including responsibility of third party contaminators and insurance recovery, have been resolved. Such delays highlight a lack of consensus among Contracting Officers,

auditors and contractors about how to treat remediation costs. The Director of Operations at one Defense Contract Management Area Operations Office stated that he believed a lack of training in environmental cost issues contributed to the problems in negotiating overhead rates [Ref. 52]. The results of the informal survey where nearly 80% agreed that a Cost Principle is needed are consistent with this statement.

E. DOMINANT CONTRACTOR ALLOCATION METHODS

This section determines if there is an allocation approach that is optimal for the contractor to follow under varying conditions: DOD business base, current and present, and DOD technical fingerprint. The informal survey scenario is revisited to illustrate the analysis.

The costs borne by DOD for a number of different scenarios are tabulated in Table 7. "Prior DOD Base" refers to the DOD business base when the contamination occurred. "Tech FP" indicates the percentage of the remediation costs incurred to cleanup contamination associated with DOD contracts. "Tech. FP, Sp. All." refers to a special allocation to DOD contracts based on technical fingerprinting and "Tech. FP, Fac. All." to a factored allocation based on technical fingerprinting. "Bus. Mix, Sp. All." and "Bus. Mix, Fac. All." refer to a business mix based allocation for both a special and factored allocation. "Normal Bus. Mix" indicates an allocation based on a normal business expense approach. The dollar values in the table are the remediation costs borne by DOD; contractor costs would be \$15 million less the DOD share. The costs are in millions of dollars.

Based on the scenario, the various allocation methods, different conditions, and the assumption that the contractor wishes to maximize the DOD share of the costs, a number of points become evident. First, the contractor's preferred allocation method under conditions of extreme optimism, a

maxi-max criteria, is Normal Business Expense for an increasing DOD base. For a constant DOD base, a Normal Business Expense and a Business Mix Special Allocation result in the same cost sharing. Given then that the contractor believes that the DOD contracts will increase or remain constant, the Normal Business Expense is his dominant approach.

Cleanup Costs: \$15 mill.	Current DOD Base: 95%	Current DOD Base 95%	Current DOD Base 80%	Current DOD Base 80%	Current DOD Base 20%	Current DOD Base 20%
	Prior DOD Base: 20%	Prior DOD Base 20%	Prior DOD Base 80%	Prior DOD Base 80%	Prior DOD Base 95%	Prior DOD Base 95%
	Tech FP: 90%	Tech FP: 30%	Tech FP: 90%	Tech FP: 30%	Tech FP: 90%	Tech FP: 30%
Not Allocated	\$0	\$0	\$0	\$0	\$0	\$0
Tech. FP, Sp.All.	\$13.50	\$4.50	\$13.50	\$4.50	\$13.50	\$4.50
Tech. FP, Fac. All.	\$12.83	\$4.28	\$10.80	\$3.60	\$2.70	\$.90
Bus. Mix, Sp. All.	\$3.00	\$3.00	\$12.00	\$12.00	\$14.25	\$14.25
Bus.Mix, Fac. All.	\$2.85	\$2.85	\$9.60	\$9.60	\$2.85	\$2.85
Normal Bus Exp.	\$14.25	\$14.25	\$12.00	\$12.00	\$12.00	\$12.00

Table 7: DOD Costs Using the Various Allocation Methods

If the contractor believes that the DOD base will decrease, a Business Mix Special Allocation results in the lowest cost share. If only factored allocations are considered, the Normal Business Expense method is again the contractor's preferred choice.

The Normal Business Expense approach is optimal for the contractor when the DOD base remains constant or is increasing. If the contractor consistently claims that

remediation costs are a normal and ordinary business expense, thereby invoking a Normal Business Expense approach, he should not dilute the DOD business base at a business unit with commercial contracts. Conversely, it is to the contractor's advantage to re-locate additional DOD businesses to a business unit if a Normal Business Expense approach is used.

F. COST ALLOCATION CRITERIA

In Chapter II, a number of criteria were discussed that should be considered when selecting a cost allocation method. The criteria included benefit, cause, ability to bear, neutrality, independence and fairness. In this section, the various allocation methods are evaluated for consistency with the criteria.

1. Benefit

There is no direct benefit between current contracts and costs incurred to remediate contamination caused by yesterday's contracts. Today's contracts benefit only indirectly, in the sense that the costs must be incurred for the contractor to remain in business. If the costs are not incurred, the contracts could probably not be performed: non-compliance with environmental laws could spell the end of the contractor's corporate existence.

Defense contractors argue that remediation costs should be allocated to DOD contracts, along with any commercial ones, since they represent ordinary costs of doing business [Refs. 53, 54 and 55]. DOD contracts benefit in the same way that they benefit from corporate taxes or other indirect expenses incurred for the business as a whole. Corporate taxes, although not directly beneficial to DOD contracts, have been determined to be an ordinary cost of doing business, allocable to DOD contracts [Ref. 56].

A Normal Business Expense approach most completely reflects this perspective of an indirectly benefitting

relationship between current cost objectives and remediation costs.

Yet, corporate taxes and other indirect expenses will be paid indefinitely: there is little expectation that they will be eliminated in the foreseeable future. Remediation costs, however, are not expected to continue indefinitely. DOD, for example, expects much of the remediation at its sites to be accomplished in the next twenty years [Ref. 45]. Remediation of current sites, as opposed to compliance to future environmental regulations, will eventually be completed provided that no future contamination is generated. Additionally, unlike corporate taxes or top level managerial salaries, not all firms incur environmental remediation costs. Consequently, it is arguable that remediation costs represent other than an ordinary or normal expense. Rather, environmental remediation costs are an extraordinary adjustment to current income for underpricing yesterday's contracts.

Today's contracts benefit indirectly from remediation costs only in the sense that they are necessary for overall operation of the business. Nevertheless, if the costs are not expected to be incurred indefinitely and represent an adjustment for past underpricing decisions, the argument that cleanup costs should be allocated as an ordinary recurring business expense loses much validity.

2. Cause

The causal link may be viewed from two perspectives. First, the contracts being performed today did not cause the contamination being remediated. A No Allocation approach captures this sense of a causal relationship best.

Second, the contamination was caused by the performance of DOD contracts. DOD should, consequently, pay a fair share today because its contracts caused the contamination. The various fair share approaches capture this sense of a causal

relationship best. Technical fingerprinting or use of a Business Mix are efforts to tie DOD to the contamination. Yet, they also confuse the agency (DOD) with the cost objectives (the current DOD contract).

Costs are allocated to a cost objective, to a contract, not to a Government agency. For cause to stand as an allocation criterion, the cost objective must have created the contamination. Not being the case, cause as a criterion for selecting a cost allocation method is weak at best. Strictly interpreted, none of the allocation methods, except No Allocation, can be based on a causal relationship.

3. Ability to Bear

The factored allocations, including a Normal Business Expense approach, most closely reflect an ability to bear criterion. Once a decision is made that remediation costs either represent a normal and ordinary expense of doing business or some portion represent DOD's fair share, they are allocated across a basis that represents the total activity of the firm.

Given that only a tenuous beneficial link and no causal link exist between current contracts and remediation costs, ability to bear is the criterion that actually provides the best rationale for current allocation methods.

4. Neutrality and Independence

None of the allocation methods is neutral in the sense that their effects on decision-making are neutral. Costs incurred to cleanup prior contamination are allocated to current contracts and become part of the total contract or program costs. The total costs of two similar programs being allocated cleanup costs by two dissimilar methods may be quite different and result in differing decisions when not warranted.

Nor are the allocation methods independent. Decisions to re-locate DOD contracts at a previously all-commercial

business unit or efforts to start up a commercial enterprise at a previously all-DOD site highlight the lack of independence. The portion of the cleanup costs allocated to DOD contracts will depend in part upon actions taken with regard to other cost objectives.

5. Fairness

In Chapter II, a number of quantitative fairness criteria were discussed. Comparison of the allocation methods to the criterion is inconclusive, yet highlights the complexity of the issues.

In accordance with the Impersonality Criterion, the fairest method is that which results in the lowest cost to both DOD and the contractor. In accordance with the Grading Criterion, every cost objective prefers its allocation under one method over all the others. If the scenario is viewed as a zero sum game in which those costs not borne by DOD must be borne by the contractor, it appears as if there is no method that can satisfy either criterion. If, however, information costs and subjective probabilities of DOD's participation in the contracts causing the contamination are factored into the scenario, it is possible that one allocation method may satisfy these criteria. This occurs because DOD bears a portion of the costs incurred to seek additional information. Consequently, if records regarding the actual DOD fingerprint are difficult and expensive to obtain, the lowest expected cost or the most preferable method for both the contractor and DOD may result from a Normal Business Expense approach.

Application of the Mini-Max Criterion, to the scenarios in Table 7 results in selection of a Business Mix, Factored Allocation, approach. Using this method, the maximum that can be allocated to DOD is \$9.60 million; the maximum to the contractor \$12.15 million. These are the lowest maximums that could be allocated and would be considered the most fair by this criterion.

In another sense, the accounting methods must be uniform, consistent and verifiable to be considered fair. Uniform, consistent and verifiable application of an accounting method depends, in turn, on clearly stated accounting procedures based on a consensus among auditors, contractors and Contracting Officers about how remediation costs should be treated.

In spite of the current DCMC and DCAA audit guidance, such a consensus is apparently lacking. A number of GAO reports, already discussed, have raised the issue of uniformity and consistency [Refs. 6 and 44]. The results of the informal survey also indicate a lack of consensus on how cleanup costs should be treated. The DCMC/DCAA guidance is based on the assumption that cleanup costs are a normal business expense; Contracting Officers are attempting to establish a DOD fair share.

Lack of specific information about the contamination hinders uniform application of the various accounting methods. The more information required to implement a method, the more difficult the task. For example, attempting to fairly implement a Technical Fingerprint approach without specific information about the contaminants and associated contracts would be a daunting task. Conversely, application of a Normal Business Expense approach not involving third party contaminations would be relatively easy to implement uniformly and consistently; not as much information is required and much of what is needed is already available in the contractor's cost accounting system.

Fairness of an accounting method, in the sense of uniformity, consistency and verifiability, depends then not only on the degree of consensus about how cleanup costs should be treated, but also on the available information. In this sense, a Normal Business Expense approach is probably more fair than the other methods since it can be applied to more

circumstances where information is limited.

G. APPLICATION OF CURRENT REMEDIATION COST GUIDANCE

Current cost allocation guidance is based on the assumption that cleanup costs are a normal business expense. Contractor advocacy of the position that the guidance makes it unnecessary to establish a connection between contamination and prior DOD contracts has been previously discussed. This advocacy is consistent with the analysis that indicates that the Normal Business Expense approach is the contractor's optimal method among all the factored allocations.

The preceding analysis has shown that for DOD to breakeven on a decision to incur additional costs to seek specific information about the contamination as a requisite for application of a fair share approach, the DOD share must be substantially reduced. It is most likely that a Normal Business Expense approach can be implemented more fairly in more circumstances. Yet, the informal survey and discussions with Contracting Officers indicate a preference for a fair share.

One view on this dichotomy from industry is that Contracting Officers are "...hung up on the idea of a causal and beneficial relationship which is not meaningful in the context of remediation costs. Costs are required by law, legal obligations, a business expense that can't be evaded." [Ref. 54]

A Contracting Officer negotiating overhead rates which include costs already incurred to remediate contamination that occurred years ago is essentially in a sole source negotiation with the contractor. There is little direct competitive pressure on the contractor to minimize remediation costs. Since the costs have already been incurred, the Contracting Officer can only use the criterion of reasonableness to limit them.

When queried about the difference between the guidance and practice, one Contracting Officer stated that it represents a difference in the initial negotiating positions between the contractor and Contracting Officer [Ref. 27]. This view is based on the assumption that the audit guidance is just that: guidance. It is still incumbent upon the Contracting Officer to strike a fair and equitable agreement with the contractor that is consistent with Federal law and regulations. A member of the Cost Accounting Standards Board stated, "The ACO's effort to apportion costs on the basis of a connection reflects their belief that the cost paid by the Government should reflect the proportionate harm caused by the Government work." [Ref. 35]

It is likely that if the guidance were modified to explicitly state that no nexus was required between past contamination and DOD contracts for remediation costs to be considered a normal business expense, fully allocable to current contracts per a total cost input base, the dichotomy probably would disappear. The price tag of such guidance for DOD could, however, be astronomical.

Conversely, guidance explicitly stating that such a connection was necessary, as in the proposed Cost Principle, would result in additional information costs that would be borne by DOD programs as contractors and DOD alike expended resources to establish the exact degree of DOD participation in the contamination.

In the final chapter, conclusions and recommendations are presented. In particular, the issues of which allocation method, if any, is the most fair and the need for an environmental Cost Principle are addressed.

VII. CONCLUSIONS AND RECOMMENDATIONS

A. INTRODUCTION

The objective of this thesis was to examine various methods of allocating environmental remediation costs incurred to cleanup contractor facilities to DOD contracts. To achieve this objective, the researcher reviewed Government accounting practices, current DOD guidance regarding the allocation of cleanup costs, interviewed a number of personnel tasked with developing or implementing such guidance, and conducted an informal survey of DCMC contracting personnel. The researcher discussed and analyzed the various cost allocation methods in an effort to determine which method, given the controversy of cleanup costs, was the most fair and the most equitable. As a result, the researcher concludes that none of the methods is consistently fair or equitable and that remediation costs should not be allocated to DOD contracts as indirect contract costs.

B. CONCLUSIONS

1. Environmental remediation costs should not be allocated to DOD contracts. Reimbursement of the contractor for any share of the costs for which DOD is responsible should be made independently of the contract cost accounting system.

There is no direct beneficial or causal relationship between remediation costs and current contracts. There is an indirect relationship in the sense that the costs are necessary for the overall operation of the business. Given the tenuous relationship between costs and contract, cleanup costs are actually allocated on an ability to bear basis.

The costs are not normal and recurring in the sense that they are expected to reoccur indefinitely in the future. Cleanup will ultimately be completed. Additionally, not all

DOD contractors incur remediation costs. Rather, the costs are more appropriately viewed as an extraordinary adjustment to past underpricing.

The allocation of remediation costs via indirect cost pools are not neutral nor independent. Allocated cleanup costs can adversely affect decision-making about the affected programs. Allocating remediation costs to DOD contracts and reimbursing contractors from procurement accounts conceals the true amount of the remediation costs being paid from the DOD budget. The addition of remediation costs to indirect cost pools amplifies input substitution effects.

Given the lack of relationship between cleanup costs and current contracts, the ultimately non-recurring nature of remediation costs, and the overhead effects on DOD budgeting and program decision-making, cleanup costs should not be allocated to DOD contracts. This does not mean that contractors should not be reimbursed by DOD for a portion of the costs. Rather, cost recovery should come from another source.

2. A clear statement of the basis upon which DOD's share of remediation costs will be determined is required.

From an accounting perspective, there is no consistently fair and equitable method for allocating remediation costs to DOD contracts. From a policy perspective, however, there may be reasons for DOD to bear a share of the cleanup costs. If, in the interests of national security, preservation of the defense industrial base, environmental safety, or some other clearly articulated policy, the administration and the Congress determine that DOD should bear some of the costs, the basis for establishing DOD's share should be clearly established. This clarification would eliminate inconsistent application and reduce the attendant uncertainty.

C. RECOMMENDATIONS

1. DOD's share of cleanup costs at a site should be based on DOD's participation in the contaminating activity. A connection should exist between prior DOD contracts and the contamination.

Once removed from a cost allocation scenario, it becomes more difficult to justify reimbursing the contractor's remediation costs merely on the basis of DOD's current share of the contractor's business base. Just because DOD contracts can bear the costs, doesn't mean that they should. As Congressman Mike Synar (D-OK) proclaimed, "The Federal government shouldn't pay cleanup costs just because we paid them to build a plane." [Ref. 57]

If the administration and the Congress decide that DOD should reimburse contractors for a portion of contractor cleanup costs, a connection between prior DOD contracts and the contamination being remediated should exist before DOD pays. The amount of DOD's share should depend solely upon the degree of DOD participation in the contracts that caused the contamination.

The burden of proving such a connection and the degree of participation should lie with the contractor. Merely being the customer of a firm should not be sufficient to establish DOD participation. Rather, the contractor should be required to prove that DOD requirements contributed to the contamination: for example, a DOD specification required the use of a chemical later determined to be a contaminant. If the use of the contaminant was not DOD directed, DOD participation should not be construed. Costs incurred to remediate contamination of third party contaminators should also meet this same test to prevent DOD from being used as a deep pocket to remediate the environment.

2. Reimburse contractors independently of the contract cost accounting system for DOD's share of the contamination at a site.

To eliminate the adverse effects of allocating remediation costs to DOD contracts, allowable cleanup costs should be funded from other than procurement accounts. One must recognize that if the contractor was engaged entirely in a commercial market, cleanup cost recovery would be required for the company to remain viable in the long run. In the commercial market, his pricing decisions are exposed to varying degrees of competitive pressure. In a DOD market, particularly if the costs have already been incurred, many of the market's competitive pressures are absent. The regulatory scheme implemented among DOD contractors to simulate the operation of competition in a commercial industry must not only ensure that DOD pays to the extent it participated, but must also ensure that a fair and reasonable price is paid for the remediation efforts.

The Defense Environmental Restoration Program (DERP) should be expanded for the duration of the remediation effort to include cleanup of contractor owned and operated facilities. Following a DERP estimate of the extent of the remediation required at the contractor facility, the contractor and DOD should negotiate the DOD share. Upon reaching agreement on the appropriate shares, the contractor and DOD should jointly solicit and award remediation contracts on a competitive basis and monitor actual cleanup. The funding for DOD's share of the remediation should be provided from the Defense Environmental Restoration Account (DERA).

If cleanup costs have already been incurred, DOD's share should be negotiated and DERA funds used to reimburse the contractor.

Information costs of geologists, researchers, environmental engineers, attorneys or scientists associated

with establishing the degree of DOD participation should be allowable only if DOD participation in the manner described is proved. Otherwise, the contractor should bear any additional information costs incurred.

3. The contractor should be incentivized to seek recovery from insurance companies and third party contaminators.

As part of the DERP cleanup process, advance agreements should be used to ensure that DOD and the DERA are reimbursed whenever the contractor is able to collect from a third party contaminator or an insurance company. Incentives should be built into the advance agreements and based on the share paid by DOD. For example, if DOD and the contractor agreed that the DOD share of a \$15 million remediation effort was 50% and DERA funded \$7.5 million of the cleanup, an agreement could make provisions for the contractor to retain 75% of any recoveries.

D. ANSWERS TO RESEARCH QUESTIONS

The answers to the research questions outlined in Chapter I follow:

1. Primary Question

What are feasible methods for allocating environmental remediation costs to Department of Defense contracts in a fair and equitable manner?

Essentially, remediation costs may be allocated on a Normal Business Expense or Fair Share basis. As a Normal Business Expense, otherwise allowable cleanup costs are allocated in their entirety to current contractor business, including DOD contracts. Thus, the portion of the costs borne by DOD is determined by how much of the contractor's current business is made up of DOD contracts.

The Fair Share approach is based on determination of a DOD share of the cleanup costs. The DOD share, in turn, may be established by technical fingerprinting or by an approximation

based on the DOD business base at the time the contamination occurred.

None of the methods, however, are consistently fair and equitable due to the unavailability of perfect information and the lack of clear causal or beneficial relationships to current contracts. Additionally, none of the allocation methods is neutral, independent or free of adverse, unintended consequences.

2. Subsidiary Questions

What is the current guidance for the allocation of environmental remediation costs?

DCMC and DCAA issued joint guidance in 1992, supplemented in 1994, which states that remediation costs should be treated as normal business expenses and generally allocated as indirect costs via the G&A pool across a total input base. This guidance will be augmented by the results of DCMC's Pilot Program, which is nearing conclusion.

Two major points of controversy result from the guidance. First, costs incurred to cleanup contamination caused by third party contaminators are not allowable under DOD contracts. The contractor is required to pursue recovery of such costs through CERCLA mechanisms and any uncollectible amounts are considered to be similar to bad debts and thus unallowable. Contractors argue that costs incurred to cleanup sites, an action often mandated by law or regulation, are ordinary business expenses no matter the source of the contamination that should be fully allocated and recovered. The opposing viewpoint is that taxpayers should not be required to pay the bill for contamination that was not caused by DOD actions.

Recovery from insurance coverages creates the second major controversy in the guidance. Contractors argue that because environmental damage was not a specifically insured risk in older General Comprehensive Liability policies, recoveries from insurance companies occur only after prolonged

negotiations and litigation. Since the likelihood of immediate recovery is slim, they argue that potentially covered costs should be allocable to DOD contracts. DOD would be credited for any future recoveries. The opposing argument is that DOD should not pay contractors if there is a possibility of recovery. In particular, the contractor would not be incentivized to aggressively seek recovery if DOD had already reimbursed him for incurred cleanup costs.

There is no Environmental Cost Principle.

What other methods were considered while the current guidance was being developed?

Prior to release of the joint DCMC and DCAA guidance, draft provisions of an Environmental Cost Principle included provisions which required that performance of DOD contracts must have caused at least some of the contamination before the costs could be considered allowable and allocable to current DOD contracts. The current guidance, however, does not specify such a relationship.

What are the advantages and disadvantages of each allocation method?

The primary advantage of a Normal Business Expense approach is that it requires less information about the sources and timing of the contamination. It is, consequently, less costly to implement. The Normal Business expense approach, however, does not require DOD participation in the contaminating events and is based on an ability to bear criterion. DOD's share of cleanup costs is determined solely by DOD's percentage of the contractor's current business base.

The various Fair Share approaches are difficult to implement because they require detailed technical information that is often lacking. To obtain the information, additional costs must be incurred that are ultimately borne by DOD

contracts.

None of the allocation methods is neutral or independent. Given the same contamination scenario, the choice of a method affects the total cost of a contract. Programs and contracts appear more costly than they would otherwise because of how the costs are allocated; this could result in poor decisions by Program Offices and those exercising oversight. Additionally, allocation of remediation costs to indirect cost pools amplifies tendencies to substitute labor for capital investment and in-house production for subcontracting on DOD contracts.

What allocation methods are actually being used by defense contractors and allowed by Contracting Officers?

Contracting Officers appear to favor some variation of a Fair Share method where the fair share is established by a combination of technical fingerprinting, business mix and negotiations. This is contrary to a strict reading of the current DCMC and DCAA guidance which treats otherwise allowable remediation costs as a normal cost of doing business and allocable across a total cost input base. It is, however, consistent with the idea that Contracting Officers, although guided by the guidance, must exercise their judgment to determine a fair and reasonable price by means of negotiations with the contractor.

Is additional guidance regarding the allocation of environmental remediation costs required by Contracting Officers?

Based on the informal survey results, conversations with contracting personnel and the dichotomy that exists between current guidance and practice, additional guidance is required. To resolve many of the issues associated with environmental remediation costs, an environmental Cost

Principle should be developed. To implement the recommendations of this thesis such a Cost Principle would merely state that environmental remediation costs are not allocable to DOD contracts and that any DOD payments for cleanup costs would be made through DERP.

E. AREAS FOR FURTHER RESEARCH

During the course of this thesis, other areas that appeared to merit additional study were identified. Addressing these areas was beyond the scope of this thesis and they are presented for consideration for future research.

Specific recommendations to apply the Defense Environmental Restoration Program (DERP) to contractor owned and operated facilities.

To adapt the DERP to fund a share of the remediation costs at contractor owned and operated facilities, a number of organizational functions and responsibilities would have to be modified. For example, would DCMC or DOD's current agent for DERP, the Army Corps of Engineers, be tasked with negotiating DOD shares and administering site remediation contracts. A detailed examination of current functions and possible modifications could provide such a plan of action.

Analysis of the results of DCMC's Environmental Initiatives Task Force Cost Allowance Program (Pilot Program).

Once DCMC's Pilot Program results are released, the new guidance should be analyzed to determine possible effects on environmental cost allowability and allocability.

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