

**AUDIT GUIDE**  
**FOR**  
**CONSTRUCTION**  
**GRANT PROGRAM**

**ENVIRONMENTAL PROTECTION AGENCY**  
**WASHINGTON, D.C. 20460**

**Revised January 1978**

This document is not a replacement for or supplement to EPA regulations, guidelines, or official EPA policy statements. It is a guide used by the Environmental Protection Agency and its auditors to assist in conducting interim and final construction grant audits. As such, this guidance is subject to be modified as EPA regulations, guidelines, and policies change.

## TABLE OF CONTENTS

	Page
<b>Chapter 1: Introduction</b>	1-1
1.1 Purpose of Audit Guide	1-1
1.2 Program Background	1-1
1.3 Authority for Audit	1-2
1.4 Audit Standards	1-2
1.5 Audit Objectives	1-2
1.6 Matters Requiring Immediate Attention	1-3
1.6.1 Suspected Fraud, Irregularity, or Collusion	1-3
1.6.2 Insufficient Data or Inadequate Systems	1-3
1.7 Quality Control	1-3
<b>Chapter 2: Definition of Program Terms</b>	2-1
<b>Chapter 3: Preliminary Procedures</b>	3-1
3.1 Developing the Audit Approach	3-1
3.2 Types of Audits	3-1
3.2.1 Interim Audits	3-1
3.2.2 Final Audits	3-3
3.3 Developing the Plan	3-3
3.4 Major Activity Areas for Audit Focus	3-7
3.4.1 Accounting Practices	3-7
3.4.2 Procurement Practices	3-9
3.4.3 Project Management Practices	3-12
<b>Chapter 4: Field Audit Procedures</b>	4-1
4.1 Approach to Audit of Costs	4-1
4.1.1 Factors for Determining Allowability	4-1
4.1.2 Review of Costs	4-4
4.2 General Audit Steps	4-5
4.2.1 Initial Field Audit Procedures	4-5
4.2.2 Verification of Claim	4-6
4.2.3 Verification of Eligibility	4-6
4.2.4 Credits, Rebates, and Refunds	4-6
4.2.5 Unpaid Bills	4-7
4.3 Specific Areas of Audit	4-7

	<b>Page</b>
4.3.1 Audit of the Force Account	4-7
4.3.2 Audit of Engineering Services	4-9
4.3.3 Audit of Construction Costs	4-19
4.3.4 Other Costs	4-27
4.3.5 Other Audit Matters	4-27
 <b>Chapter 5: Exit Conferences</b>	 5-1
5.1 Audits with No Findings	5-1
5.2 Audits with Significant Findings	5-1
5.3 Documentation	5-1
 <b>Chapter 6: The Audit Report</b>	 6-1
6.1 Introduction	6-1
6.2 Content and Format of Audit Report	6-1
6.2.1 Scope Paragraph	6-i
6.2.2 Opinion	6-1
6.2.3 Comments on Compliance, Performance, and Internal Controls	6-1
6.3 Presenting the Findings	6-2
6.4 Example Audit Report No. 1	6-3
6.5 Example Audit Report No. 2	6-14
 <b>Appendix A: Survey of Grantee's Accounting, Procurement, and Property Management Systems</b>	 A-1
 <b>Appendix B: Bond Calculation Guidance</b>	 B-1
 <b>Appendix C: Supplemental Audit Procedures for Relocation Costs</b>	 C-1
 <b>Appendix D: Criteria for Eligibility and Allowability of Selected Items of Costs</b>	 D-1
 <b>Appendix E: Consulting Engineer Subagreements--Records Subject to Audit</b>	 E-1

	<b>Page</b>
<b>Appendix F: Consulting Engineer Subagreements--Allowable Methods of Compensation</b>	F-1
<b>Appendix G: Consulting Engineer Subagreements Subject to 40 CFR 35.937-5, -6, and -7</b>	G-1
<b>Appendix H: Interpolation of Fee Percentage</b>	H-1
<b>Appendix I: Application of Paragraph B.5 of Appendix D to 40 CFR 35, Subpart E</b>	I-1
<b>Appendix J: EPA Division Audit Offices and Cognizant Geographic Areas</b>	J-1
<b>Appendix K: References</b>	K-1



## **CHAPTER 1: INTRODUCTION**

### **1.1 PURPOSE OF AUDIT GUIDE**

This guide has been prepared to assist the Environmental Protection Agency (EPA) and its auditors in conducting interim and final audits of the construction grant program. The audit steps in this guide are intended to provide general insight into the nature and scope of audit contemplated. This guide is not intended to be a complete manual of procedures, nor is it intended to supplant the auditor's judgment of the work required to meet the audit objectives outlined in this audit guide. The audit procedures contained in this guide may not cover all circumstances or conditions encountered in auditing a particular grant, and, similarly, not all of the audit procedures will apply to each grant audited. The auditor must use his professional judgment to tailor the procedures to meet conditions at the audit site so that the audit objectives set forth in the guide may be achieved.

### **1.2 PROGRAM BACKGROUND**

The first Federal legislation concerning water pollution was the Rivers and Harbors Act of 1899. The Act provided that those convicted of polluting navigable waters or their tributaries would be guilty of a misdemeanor and, upon conviction, would be fined between \$500 and \$2,500 and imprisoned for not less than 30 days nor more than one year. Forty-nine years later, the 1948 Federal Water Pollution Control Act was enacted. It provided grants for the planning and design prior to construction and loans for construction of waste-water treatment plants. The Federal Water Pollution Control Act of 1956 provided the basis for the current construction grant program. This Act was amended in 1961, 1965, 1966, 1970, 1972, 1973, and 1977. The Act, as amended, provides for Federal grants to municipalities, intermunicipal agencies, states, and interstate agencies for the purpose of planning, designing, and constructing waste treatment facilities.

The Department of Health, Education, and Welfare administered the program until 1966. The Federal Water Pollution Control Act of 1966 transferred this responsibility to the Department of the Interior. The construction grant program was transferred to the Environmental Protection Agency in 1970 (Reorganization Plan No. 3).

After June 30, 1967, Federal participation in grants for the cost of constructing a waste treatment facility could be increased to 40 percent if the state agreed to pay not less than 30 percent of the estimated reasonable cost of all state construction projects receiving Federal grants. The percentage limitation could be further increased to 50 percent if (1) the state agreed to pay not less than 25 percent of estimated reasonable cost of all projects for which Federal grants were made and (2) enforceable water quality standards had been established for the waters into which the project discharged. An additional Federal participation of as much as ten percent of the approved grant was permitted if the funded project was in conformity with a metropolitan plan for that particular area. Thus, it was possible for a Federal grant to be awarded for an amount equal to 55 percent of the total estimated reasonable project cost.

Title II of the Federal Water Pollution Control Act Amendments of 1972 authorized a Federal grant of 75 percent of the cost of construction of a treatment works. In addition, Section 206(a) through (e) of P.L. 92-500 (codified in Subpart D of 40 CFR 35 and amended by P.L. 93-207) may provide for reimbursement of public sewage treatment projects on which construction was initiated after June 30, 1956.

### **1.3 AUTHORITY FOR AUDIT**

The authorized representatives of the Administrator of EPA and the Comptroller General of the United States have authority to audit the grantees' books, documents, records, and papers (P.L. 92-500). This audit authority is extended to the subcontractors' books, documents, records, and papers which are pertinent to the project (40 CFR 35.935-7). EPA auditors and auditors under contract to EPA are the Administrator's representatives.

The EPA Office of Audit is responsible for audits of EPA grants. The Division Audit Director (see Appendix J to this guide) may elect to have an individual audit conducted by his staff, another Federal agency, state or local government auditors, or an independent public accountant. When the Division Audit Director elects to have the audit performed by an independent public accountant, the Director must notify the grantee or contractor as to the firm performing the audit. The selected firm must contact the grantee or contractor to arrange for the start of the audit.

### **1.4 AUDIT STANDARDS**

Audits of EPA construction grants will be made in accordance with this guide and the "Standards for Audit of Governmental Organizations, Programs, Activities, and Functions" issued by the Comptroller General in August 1972. The independent public accountant will not be required to express an opinion as to the efficiency and economy of operations or with respect to program evaluations. He will, however, be required to perform certain audit tests related to these aspects and to report the results of his examination.

In performing audits of EPA grants/contracts, the auditor is expected to adhere to generally accepted auditing standards. In addition, the auditor should utilize applicable portions of the American Institute of Certified Public Accountants' (AICPA) Industry Audit Guides. Of particular importance is the guide "Audits of State and Local Governmental Units."

### **1.5 AUDIT OBJECTIVES**

The objectives of the audits of grants and contracts are to:

- a. Determine whether the management controls exercised by the grantee through its management system, accounting system, procurement system, and property control system are adequate to provide assurance that costs claimed/incurred are reasonable, allowable, and allocable to the sponsored project under the grant terms and conditions, Federal Management Circulars (FMCs), and applicable EPA regulations.
- b. Identify any noncompliance with applicable grant provisions or EPA rules and regulations and, based upon the review, provide recommendations for improvement.
- c. Determine whether the costs claimed under the EPA grant are reasonable, allowable, and allocable to the sponsored project.



## **1.6 MATTERS REQUIRING IMMEDIATE ATTENTION**

### **1.6.1 Suspected Fraud, Irregularity, or Collusion**

Audits performed in accordance with this guide are not for the purpose of detecting fraud, although audits may minimize fraud loss, discourage irregularities, and identify conditions of gross mismanagement. If, during the examination, instances of possible fraud, gross mismanagement, or other similar irregularities are noted, the auditor should:

- a. Document the situation;
- b. Immediately notify the Division Audit Director of the situation encountered;  
and
- c. Proceed only in accordance with instructions provided.

### **1.6.2 Insufficient Data or Inadequate Systems**

The auditor is expected to use professional judgment in arriving at conclusions concerning the sufficiency of available supporting data. If additional guidance is needed as to the acceptability of certain data, the auditor should contact the Division Audit Director or his designated representative. Where insufficient data or inadequate systems preclude reaching opinions concerning the reasonableness, allocability, and allowability of costs within a reasonable period of time, the auditor must, as a minimum:

- a. Document tests and observations to support the auditor's opinion regarding insufficient data or inadequate systems.
- b. Notify the Division Audit Director and cease work until instructions are received.

## **1.7 QUALITY CONTROL**

EPA retains the right to review audit workpapers to evaluate the overall quality of the audit performed. In this regard, EPA may require that copies of the audit workpapers be forwarded along with the completed audit report to the responsible Division Audit Director or his designated representative. The audit workpapers will be returned to the auditor upon completion of the EPA evaluation. Based on this review, the auditor may have to return to the job site to perform whatever additional work is required. In this regard, the auditor should retain the workpapers applicable to the audit of any EPA grant or contract for three years after completion of the assignment and submission of the required audit report.



## CHAPTER 2: DEFINITION OF PROGRAM TERMS

In conducting a construction grant audit, it is extremely important that the auditor understand certain program terms. Program terms are defined in 40 CFR 35.805 and 35.905 of EPA's Final Construction Grant Regulations. In addition, the following definitions are presented to further assist the auditor.

**Cutoff Date**--A cutoff date is established by the EPA Regional Office. The grantee is normally notified of the cutoff date by letter. After the cutoff date, the cost of work performed, equipment or materials delivered or installed, or services rendered will not be allowable for Federal participation. If no other cutoff date is established, the cutoff date will be the date of the final inspection performed by either the state agency or EPA, whichever the Region deems the true final inspection.

**Federal Share**--The amount of the Federal grant not to exceed the smaller of the amount of the approved grant or the actual allowable audited costs multiplied by the percentage of Federal participation on which the grant was computed.

**Force Account**--The grantee's use of its own employees, material, and equipment for construction, construction-related activities, or facility repair or improvement.

**Grantee**--An applicant who has received a grant. A grantee may be a municipality, intermunicipality agency, state, interstate agency, District of Columbia, Puerto Rico, Virgin Islands, Guam, American Samoa, or Trust Territory of the Pacific Islands.

**Industrial Cost Recovery**--Recovery, from the industrial users, of construction costs of a treatment works. This recovery is based on the proportionate treatment of waste from such users over a period of 30 years or the life of the facility. Fifty percent of the recovered funds, together with any interest earned during the year, is to be refunded annually to the U.S. Treasury. Forty percent of the recovered amount is to be retained by the grantee and used only for EPA-approved construction. The remaining ten percent may be used as the grantee wishes.

The amendments to P.L. 92-500 (P.L. 95-217, dated December 27, 1977) provide for an 18-month moratorium on the collection of industrial cost recovery payments by the grantee.

**Operation and Maintenance**--The operation and maintenance of a treatment works during its service life, following completion of the Step 3 phase.

**Project File**--The EPA file which contains each grant agreement or amendment (such as Step 1, Step 2, or Step 3) and supporting documents, correspondence with the grantee, copies of inspection reports, and the grantee's payment requests.

**Value Engineering (VE)**--A specialized cost control technique based on a systematic and creative approach which identifies and focuses on unnecessarily high cost in a project in order to arrive at a cost saving without sacrificing the reliability or efficiency of the project. Value engineering is required for all Step 2 grant applications having a projected total Step 3 grant-eligible construction cost of \$10 million or more, excluding the cost of interceptors and collector sewers, for all construction grant projects certified by the state on or after October 26, 1976. (See Section 4.3.5.i of this guide.)



## **CHAPTER 3: PRELIMINARY PROCEDURES**

### **3.1 DEVELOPING THE AUDIT APPROACH**

The scope of each construction project is initially defined by a prospective applicant, with final determination made by the Regional Administrator when grant assistance is awarded (35.930-4).

Grants are generally obligated in three separate stages of project development (see Figure 3.1):

- a. Step 1--facility plans and related elements;
- b. Step 2--preparation of construction drawings and specifications; and
- c. Step 3--fabrication and building of a treatment works.

A "Project" may consist of an entire step, a segment, or a combination of steps (35.905-24). Construction grant projects funded under Public Law 84-660 consist of a combination of Steps 1, 2, and 3. An average sized project may require approximately two years to plan and construct. Very large regional projects may require 12 to 15 years.

### **3.2 TYPES OF AUDITS**

Two types of field audits will be discussed in this guide: interim audits and final audits. (Preawards and defective pricing audits are integral parts of EPA Audit's workload. They are not covered by this guide, but will be the subjects of separate guidance.)

The overall objectives of interim and final audits are to ensure that the grantee is in compliance with grant requirements and to identify any areas in the management of the construction grant program which need improvement.

The auditor is expected to have the skills necessary to perform the reviews required to meet the objectives of this guide. If the auditor encounters situations requiring skills of an engineering technical nature, he should contact the Division Auditor Director, who will review the situation and arrange for technical assistance.

#### **3.2.1 Interim Audits**

The primary purpose of the interim audit is to (1) review grantee operations during construction to detect weaknesses in internal controls or in the controls over contractors responsible for design and construction and (2) offer recommendations for improvements. Interim audits will be performed during the earlier part of a construction project, often shortly after the construction contractor has submitted a construction payment request. Accordingly, interim audits will be primarily directed toward:

- a. Internal accounting controls,
- b. Procurement systems,

Figure 3.1

## CONSTRUCTION PROJECT MILESTONES--OVERVIEW

### STEP 1

#### Facility Plans and Related Elements

- Municipality submits application
- State and EPA review application
- Facility plans and alternatives are proposed
- Environmental and social aspects are considered
- Priorities are set by state for Step 2

### STEP 2

#### Preparation of Construction Drawings, Plans, and Specifications

- Municipality submits application
- State and EPA review application
- Plans and specifications are completed
- State and EPA review and approve plans and specifications
- Priorities are set by state for Step 3

### STEP 3

#### Fabrication, Building, and Certification of Treatment Works

- Municipality submits application
- State and EPA review application
- Applicant advertises and selects low, qualified bidder
- State and EPA review and approve selected bidder
- Construction
  - a) Progress payments
  - b) Request for changes approved
  - c) Interim inspections by state/EPA
  - d) Interim audits by state/EPA
  - e) User charge, industrial cost recovery system
  - f) Operations and maintenance manual approved
  - g) Grantee certifications
    - Project completed
    - Final audit, payment

- c. Design and construction controls, and
- d. Costs incurred.

### **3.2.2 Final Audits**

The primary purpose of the final audit is to review grantee records after completion of the project to assure that costs claimed are reasonable, allocable, and allowable and that the grantee has met the grant objectives. Final audits will also be concerned with controls in effect at the time of grant performance, to provide assurance that the grant was administered efficiently and resulted in an acceptable final product.

## **3.3 DEVELOPING THE PLAN**

The EPA Office of Audit will utilize the criteria presented in Figure 3.2, other relevant reports, construction grant and audit information, and sampling techniques to select projects for audit.

Once the grantee has been selected, the Office of Audit will review the project files and, after consultation with the Regional Office, assemble an audit planning package which will be used to:

- a. Determine whether a field audit will be performed;
- b. Determine the scope of audit; and
- c. Provide a basis for preparing the audit services order.

Descriptive data needed for completing the audit estimates will be provided (Figure 3.3) to the prospective auditor for use in developing an audit plan. Other data relevant to actual project costs and contract information (Figure 3.4) should be obtained from the project file by the auditor selected to perform the audit.

When an auditor under contract to EPA is to perform the audit, the Division Audit Director will coordinate the entrance conference date with him and confirm the date by letter to the grantee.

There are substantial regulatory requirements with which the grantee must comply under the P.L. 92-500 construction grants program. These requirements are primarily set forth in Parts 30 and 35 of EPA regulations published in Title 40 CFR, but other parts are applicable when referenced (e.g., Part 4, Implementation of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970). The auditor must also review the grant documents in order to identify the terms and conditions unique to the audit being performed.

In reviewing the project, the Division Audit Director will determine if there are areas requiring special attention. The Director will identify areas which require detailed audit coverage as well as areas requiring little or no coverage. In addition, the Director may decide to expand the audit to cover certain aspects of efficiency, economy, or program effectiveness. Whenever the scope of audit is expanded, the Director will provide the necessary additional audit guidance.

**Figure 3.2**

**FACTORS TO BE CONSIDERED IN DETERMINING AREAS OF  
AUDIT EMPHASIS**

- Size of grants/projects
- Existence of unit-price contracts
- Type of construction contracts and subcontracts
- Type and materiality of engineering contracts and subcontracts
- Number and significance of change orders
- Experience with prior grantee/project audits
- Indication of deficiencies



Figure 3.3

**INFORMATION TO BE PROVIDED TO PROSPECTIVE AUDITORS  
FOR USE IN DETERMINING SCOPE, SCHEDULE, RESOURCES, PLANS,  
AND ESTIMATES OF AUDIT REPORTS**

- Grant number
- Grantee name, address, and phone number
- Eligible project cost
- Grant amount
- Number and dollar value of change orders
- Number, amount, and type of construction contracts
- Number, amount, and type of engineering agreements
- Extent of force account work (as available)
- Cutoff date
- Notification if construction is located in a flood hazard area requiring the grantee to purchase flood insurance
- National Pollutant Discharge Elimination System (NPDES) permit

**Figure 3.4**

**INFORMATION TO BE OBTAINED FROM THE PROJECT FILE  
BY THE AUDITOR PERFORMING THE AUDIT**

- \* ● Final project inspection date
  - Any additional engineering, construction contracts
  - Copies of related subcontracts (as available)
- \* ● Final inspection reports and cutoff dates (final audits)
  - Copies of EPA-approved change orders
  - Bid tabulations, contractor proposals
  - Expenditure work sheet calculations
  - Payments made by EPA
  - Approvals to advertise, award contracts
  - Other pertinent correspondence (e.g., management problem areas)
  - Grants information and control data sheets
  - Inspection reports, correspondence, and memorandums
- \* ● Final Project Progress Report and Payment Request (PPR & PR) or Outlay Report and Request for Reimbursement for Construction Program
  - Form FWPCA-7 or Form 5700-32, Application, with supporting documentation
  - Form FWPCA-7c, State Priority Certification and Project Approval
  - Form FWPCA-8a or Form 5700-20 (Offer and Acceptance)
- \* Normally not available from Regional Office project files for an interim audit.

After the auditor has been selected and he has studied the project file furnished by EPA, he must:

- a. Note any special grant conditions which may be significant to the audit; and
- b. Familiarize himself with the regulations applicable to the grant/project as indicated in grant award documents.

### **3.4 MAJOR ACTIVITY AREAS FOR AUDIT FOCUS**

The general scope of audits will be established by the EPA Division Audit Director during the definition and audit planning stages. The major activity areas to be addressed during the audits include the grantee's:

- a. Accounting practices,
- b. Procurement practices, and
- c. Project management practices.

Both interim and final audits will include the audit of costs incurred associated with these activities.

#### **3.4.1 Accounting Practices**

A primary requirement for the competent management of any project is a good accounting system. The major areas which should be of primary concern to the auditor during his survey (see Appendix A of this guide) are discussed below. For additional information on the criteria of an adequate/acceptable accounting system, see the EPA publication, "Accounting Guide for Construction Grants" (October 1977).

- a. Accounting records

In order to have an accounting system, there must be records of all financial transactions. This system should document all receipt and disbursement transactions, including explanations and identifying codes (e.g., invoice number) on a chronological basis. It should also group them by type of account (e.g., expense, asset) and by individual account (e.g., Board of Supervisors payroll, communications expense).

Accounts should be set up in such a way as to identify each cost with a cost center and cost objective in the form of a task or subtask. A cost center may be an organizational unit, a function, or even an item of expense. Its purpose is to collect costs on a functional basis. Thus, accounts might be divided into more than one cost center (e.g., payroll expense might be distributed into several departments) and cost centers may have more than one account (e.g., the accounting department's costs might include payroll expense, supplies, and other accounts).

An important project management objective of accounting records is the derivation of information regarding actual versus budgeted costs by project task and by performing organization. A separate cost center or series of subaccounts should be established to identify and accumulate the costs applicable to the EPA construction grant.

All entries in the chronological and account groupings should be cross-referenced. Further, the groupings should be cross-referenced to the supporting documents. (See 40 CFR 30.800 and 30.805.)

b. Supporting documents

Every entry in the accounting records should be supported by appropriate documentation. This could be a document from outside the grantee's office, as in the case of an invoice, or it could be an internally generated document, as in the case of payroll. In many cases, several documents will support a single transaction. For instance, a purchase of materials should have a purchase request, purchase order, and receiving report in addition to an invoice. It might also involve requests for proposal, contracts, advisory board resolutions, progress reports, and progress payments. The key is that the files of supporting documents should contain all information necessary to explain every transaction completely and should be cross-referenced in such a way that transactions can be traced from any document dealing with the transaction back to the initiation of that transaction and forward to the entry or entries concerned with that transaction.

c. Traceability

Traceability is composed of two elements. The first is mechanical in nature. All entries should be traceable to supporting documents. This requires a good filing system based on reference codes for each entry and document. In a small system, codes may not need to be as detailed, due to the lower volume of transactions, but in almost all systems referencing based solely on a date or name will eventually prove cumbersome, inefficient, and probably inadequate. Sequential numerical codes are usually best, not only for ease of referencing but also for internal control.

The second element of traceability is the logic behind the transaction. One should be able to determine not only what was done but why it was done. It is here that written procedures become important. Some companies and governmental units survive without them; however, they constantly experience exceptions to the unwritten rules and loose internal control because of employee turnover and changes in circumstances. A grantee should have or should prepare complete procedures for handling grant funds.

d. Segregation of costs

Accounting systems under Federal grants must provide for segregation of costs. In order to permit grantees and EPA to determine in which costs the government will participate, the accounting system must differentiate between:

(1) Eligible and ineligible costs

Each construction grant project is normally evaluated by EPA Regional Office personnel to determine which portions of the project are eligible for Federal participation under Federal statutes. All costs applicable to eligible portions of the project are considered eligible costs. Costs applicable to the ineligible portion, conversely, are considered ineligible and cannot be claimed for Federal participation.

(2) Allowable and unallowable costs

All costs related to construction grants must be allowable under applicable Federal regulations and the terms of the grant if EPA is to participate. Grantee costs must also be considered allowable under FMC 74-4 and EPA regulations in 40 CFR 35.940. Each cost

should be scrutinized in view of these requirements. Unallowable costs should then be segregated, thus preventing their inclusion in the grantee's claim for Federal participation.

(3) Direct and indirect costs

A further distinction must be made between direct and indirect costs. Direct costs are those which can be directly identified to a particular grant. For example, accounting or procurement costs are commonly not identified with individual grant projects. Grantee indirect costs are not allowable as charges to a grant program unless an indirect cost proposal identifying indirect costs and showing the proposed allocation is prepared, audited, and accepted by the Federal government. (See 40 CFR 30.715-2 and 40 CFR 35.940-4.)

e. Internal control

Internal control is the means by which the accounting, procurement, and other management systems are regulated. It serves to assure management that proper procedures are being followed with respect to receipts and disbursements.

Each grantee should have controls which act to check the functioning of the system automatically and which ensure that all major transactions have checks and balances on the individuals involved. Contractors hired by the grantee should be supervised not only with respect to their work but also with respect to their accounting for the costs of work under reimbursable contracts. This supervision should also be provided for as a part of the grantee's internal control system. For example, costs of contractor efforts by task should be recorded and should have an audit trail which the grantee could examine in detail if the contract were significant in amount.

f. Accounting reports

Accounting reports are an integral part of an accounting system and are often the least planned aspect of the system. This applies more to internal reports than to external reports because the form of many external reports is prescribed. Grantees should realize that the data which must be reported to outside sources is not always the same as that which is required for internal management. Like internal control, report content will vary from grantee to grantee. The keys here are simplicity, comparability, and advance planning.

g. Summary

The constant question must be: has the grantee given sufficient thought to planning the accounting system? It should be based on analysis of needs and resources, rather than on a standard system copied from a book. The thing to look for is an understanding of those needs and an analysis of how the accounting system will fulfill them.

**3.4.2 Procurement Practices**

a. Construction contracts

EPA regulations (40 CFR 35.938-3) require that each construction contract greater than \$10,000 (see 40 CFR 35.936-19 for those under \$10,000) shall be either a firm-fixed-price (or lump sum) contract, a unit price contract, or a combination of the two, awarded by means of formal advertising to the lowest responsive, responsible bidder. Exceptions include negotiated change orders (see 40 CFR 35.938-5) and other construction contracts negotiated for reasons given in 40 CFR 35.936-18.

(1) Firm fixed price (FFP)

The FFP contract generally provides that the contractor will be paid a lump sum agreed to in advance for the construction of the facility reflected in detailed plans and specifications. It is not subject to adjustment by reason of contract cost experience and, when appropriately applied, places maximum risk upon the contractor. The grantee and the Federal government are assured of a reasonable price through the receipt of competitive bids under the formal advertised procurement process. For changes in scope of work, noncompetitive change orders to formally advertised procurements must be negotiated.

(2) Unit price

The unit price contract generally provides that the contractor will be paid a fixed sum for each unit of work performed under the approved plans and specifications. This type of contract is commonly used where the work represents a repetition of things, such as the laying of sewer lines, or where the quantity of work may vary substantially. Unit prices are not subject to adjustment by reason of cost experience. As in FFP contracts, the reasonableness of the total contract price is assured through the receipt of competitive bids under the formal advertised procurement process. Where there are significant differences in unit quantities awarded and unit quantities constructed, the reasonableness of unit prices must be established through negotiation.

b. Engineering contracts (Figure 3.5)

Engineering and consulting services under grants are generally obtained through a negotiated procurement. This type of procurement should involve screening a number of firms for technical competence. Under a negotiated procurement, there are a number of types of contracts: firm fixed price, cost plus fixed fee (or cost reimbursable), time and material (or labor hour), or combinations of the above. The Federal Procurement Regulations (FPR), Section 1-3.4, discuss in detail these forms of contracting, when they are considered applicable, and their limitations. The following summary of each is provided.

(1) Firm fixed price

The FFP contract generally provides for a firm price agreed to in advance for the services to be procured. It is not subject to adjustment by reason of the contract cost experience and, when appropriately applied, places maximum risk upon the contractor. Since the contracting firm assumes full responsibility for profit or loss, it has maximum incentive for effective cost control and contract performance. The FFP contract is suitable for use in procurements only when definite performance requirements are available and when fair and reasonable prices can be established at the outset. Prior to award, a negotiation process which includes either price or cost analysis should take place between the firm and the grantee to arrive at a reasonable estimate of cost plus a negotiated profit. The grantee is expected to document this negotiation.

(2) Cost plus fixed fee (CPFF)

The CPFF contract provides for the payment of actual cost plus a fixed fee to the contractor. The fixed fee once negotiated does not vary with actual cost. Therefore, the CPFF contract provides the contractor only minimum incentive for effective management control of costs.

**Figure 3.5**  
**Engineering Contract Characteristics**

AREAS OF CONSIDERATION	COST-PLUS-FIXED-FEE CONTRACT	FIRM-FIXED-PRICE CONTRACT	TIME AND MATERIALS CONTRACT
Cost and fee profit pattern	<ul style="list-style-type: none"> <li>• Cost is estimated</li> <li>• Fee is fixed</li> <li>• No fee in cost</li> </ul>	<ul style="list-style-type: none"> <li>• Cost is not specified</li> <li>• Profit is not specified</li> <li>• A total price is established</li> </ul>	<ul style="list-style-type: none"> <li>• Cost is not specified</li> <li>• Profit is not specified</li> <li>• Fixed hourly labor rates are negotiated</li> </ul>
Effect of overrun or underrun	<ul style="list-style-type: none"> <li>• Fee unchanged</li> <li>• Government assumes risk of overrun and benefits of underrun</li> </ul>	<ul style="list-style-type: none"> <li>• All costs over price are borne by contractor</li> <li>• Cost underrun increases profit</li> </ul>	<ul style="list-style-type: none"> <li>• All costs over price of each hour's work are borne by contractor</li> <li>• Cost underrun increases profit</li> </ul>
Basis of payment	<ul style="list-style-type: none"> <li>• Cost reimbursed as incurred, plus prorated fee</li> </ul>	<ul style="list-style-type: none"> <li>• Progress payment varies</li> </ul>	<ul style="list-style-type: none"> <li>• Payment based upon actual hours worked</li> </ul>
Contractor's potential risks	<ul style="list-style-type: none"> <li>• No fee risk</li> <li>• Best effort only is required to meet cost</li> <li>• Government maintains a high level of involvement in contractor's operations</li> <li>• Contractor normally does not contest extracontractual direction, requests, and interpretations</li> </ul>	<ul style="list-style-type: none"> <li>• Profit can go to zero and below</li> <li>• Specified schedules and technical performance requirements must be met</li> <li>• Contractor must deny extracontractual effort</li> <li>• Changes to the contract and claims must be managed astutely</li> <li>• A proven cost, schedule, planning system, and control system are essential</li> <li>• Can expect an increase in disputes with government</li> </ul>	<ul style="list-style-type: none"> <li>• Profit can go to zero and below</li> <li>• Specified schedules and technical performance requirements must be met</li> <li>• Changes to the contract and claims must be managed astutely</li> <li>• A proven cost, schedule, planning system, and control system are essential</li> </ul>

The CPFF contract provides that the contractor receive its actual allowable labor, other direct costs, and indirect costs, plus a fixed-fee profit. The CPFF contract is written to provide for a total estimated cost (contract ceiling). The firm's costs are subject to an audit during or after completion of performance to determine that its claims included only allowable costs in accordance with applicable regulations.

(3) Time and materials

This type of contract provides for the procurement of services on the basis of direct labor hours at specified fixed hourly rates (which include direct labor, overhead, and profit). This type of contract does not afford the contractor with any positive incentive to control cost. It is essential that time and materials contracts be used only where provision is made for adequate controls, including appropriate surveillance during performance. Because this type of contract does not encourage effective cost control and requires almost constant surveillance, it should be used only after determination that no other type of contract will suitably serve. This type of contract shall establish a ceiling price which the contractor should not exceed.

The time and materials contract has been used frequently by engineering and consulting firms in the past. While it is an acceptable form of contracting, certain controls that have not existed in the past are essential. The grantee is responsible for obtaining cost data from the consulting engineer for evaluation and negotiation in establishing hourly rates. This should be documented to show that a determination of reasonableness was made. In addition, the grantee is responsible for maintaining surveillance over the hours charged by the contractor. The contract must set a reasonable ceiling on the total cost of these services. A final audit will be made to assure that the contractor has appropriate documentation to support the time charged to the project.

In summary, any of the above forms of engineering contracts can be acceptable. However, the grantee is responsible for demonstrating that:

- (1) The method selected is appropriate for the services to be performed (see FPR 1-3.4);
- (2) The necessary evaluation of the reasonableness of the proposed costs was made; and
- (3) Controls were maintained during performance.

In reviewing systems for procurements awarded under EPA's "Subagreement Regulations for Construction Grants," the auditor should be guided by the requirements of 40 CFR 35.936, 40 CFR 35.937, and 40 CFR 35.938.

### **3.4.3 Project Management Practices**

The grantee's ultimate ability to control costs and construction schedules is strongly influenced by the project management approach applied. In addition to establishing a clear understanding of contractual relationships, the grantee, the engineering firm, and the construction contractor must maintain a complete communication system with effective controls over costs and schedules and with a rapid decision-making and feedback capability. The basic principles of such a system of management controls are shown on Figure 3.6.



**Figure 3.6**

**Basic Principles of the Grantee-Engineer-Construction Contractor System**

- Proper definition of project scope; estimated cost; schedules; and responsibilities of the grantee, the engineer, and the construction contractor
- Prompt revision of scope, estimated costs, and schedules after changes
- Control of design costs and procurement of engineering services and construction
- Control of schedule, costs, and changes during construction by monitoring:
  - work schedules, material schedules, and start-up;
  - material quantities purchased and used

**Planning and Design Phase Cost and Schedule Control Activities**

- Inclusion of VE for Step 3 projects with eligible construction costs of \$10 million or more (excludes interceptor and collector sewers)
- Regular planning and design meetings attended by proper management membership
- Regular reports on planning and design progress as related to prior schedules
- Specifications, reviews, and approval for major equipment, much the same as for drawings

**Controls Applied During Construction**

- A program for viewing overall time schedule and cost variances from budgets and schedules
- Inspections and reports of installed quantities of materials, with comparison between planned and actual construction
- Control of field progress by periodic site reviews or continuing on-site inspection/monitoring
- A change-order budget system which shows dollars, man-hours, and quantities of materials or equipment
- A change-order approval system with (1) adequate formalized evaluations of the impact of pending changes and (2) change notification procedures for fully implementing approved changes

a. Planning and design phases cost and schedule control

The control of costs and construction schedules during planning and design is of great importance. Common activities and management control activities are shown in Figure 3.6.

b. Construction phase cost and schedule control

Emphasis during the construction phase is focused on the management and monitoring of project cost and schedule data for construction labor, material installations, and performance of subcontractors providing equipment and services. The grantee must ensure that adequate inspections at the project locations are provided and that construction and equipment conform with the approved plans and specifications. Controls exercised during this phase are shown in Figure 3.6.

## **CHAPTER 4: FIELD AUDIT PROCEDURES**

In performing the audit, the auditor must use professional judgment on a case-by-case basis in determining the specific audit procedures to be applied. Not all of the audit procedures outlined in this guide will apply to each audit.

The auditor must consider the materiality of costs incurred by the grantee as related to administrative labor and materials, engineering services, and construction. In addition, the management controls applied by the grantee to the overall program must be reviewed.

The prior sections of this manual outline project management systems and their relationships to the audit, including the need to focus on the specifics of the procurement, accounting, and project management activities. This section sets forth the field audit procedures to be used in conjunction with this guidance.

### **4.1 APPROACH TO AUDIT OF COSTS**

In conducting audits of EPA construction grants, the auditor will be attempting to reach a conclusion as to the acceptability of costs. In an interim audit, the auditor will express an opinion on costs incurred through the grantee's most current accounting period even though these costs may not have been claimed on a reimbursement voucher to EPA. In a final audit, the auditor will express an opinion on the costs reported on the final report of expenditures or updated form. Thus, in a final audit where the grantee has actually incurred costs in excess of the amounts claimed or reported, the auditor may not increase the amount of the grantee's claim. Nor should the auditor allow the grantee to offset unclaimed costs with questioned costs, even if the net amount would not increase the grantee's claim. He should, however, disclose through footnotes the extent of unclaimed or unreported costs which would normally be considered allowable.

#### **4.1.1 Factors for Determining Allowability**

To be allowable under a grant program, costs must meet the following general criteria:

- a. Be necessary and reasonable for proper and efficient administration of the grant program, be allocable thereto and, except as specifically provided herein, not be a general expense required to carry out overall responsibilities of state or local governments;
- b. Be authorized or not prohibited under state or local laws or regulations;
- c. Conform to any limitations or exclusions set forth in the grant document, Federal laws, or other governing limitations as to types or amount of cost items;
- d. Be consistent with policies, regulations, and procedures that apply uniformly to both Federally assisted and other activities of the unit of government of which the grantee is a part;
- e. Be accorded consistent treatment through application of generally accepted accounting principles appropriate to the circumstances;
- f. Not be allocable to or included as a cost of any other Federally financed program in either the current or a prior period; and

- g. Be net of all applicable credits.

Costs questioned normally fall under one or more of the following categories (see Figure 4.1):

**Ineligible costs:** Costs which are specifically prohibited by (1) Federal statutes or regulations, (2) the terms of the grant, (3) other cost principles cited in the grant, or (4) applicable EPA regulations or guidelines.

**Unreasonable costs:** In determining the reasonableness of a given cost, consideration shall be given to:

- a. Whether the cost is of a type generally recognized as ordinary and necessary for the conduct of the grantee's (contractor's) business or the performance of the contract;
- b. The restraints or requirements imposed by such factors as generally accepted sound business practices, arm's length bargaining, Federal and state laws and regulations, and grant/contract terms and specifications;
- c. The action that a prudent businessman would take in the circumstances, considering his responsibilities to the owners of the business, his employees, his customers, the government, and the public at large; and
- d. Significant deviations from the established practices of the grantee/contractor which may unjustifiably increase the grant/contract costs.

In conducting his examination, the auditor should be cognizant of the costs incurred which indicate to him that they may be excessively high or even unwarranted. In determining whether to question any costs as being unreasonable, the auditor should rely on his own judgment; he is not expected to make judgments on technical matters outside of his area of expertise.

**Unallocable costs:** In reviewing the allocability of costs, the auditor will be guided by the following criteria:

- a. A cost is allocable to a particular grant/contract to the extent of benefits received.
- b. Any cost allocable to a particular project or function may not be shifted to a Federal grant/contract to overcome fund deficiencies, to avoid restrictions imposed by law or grant/contract agreements, or for other reasons.
- c. Where an allocation of common costs will ultimately result in charges to a grant/contract, an indirect cost rate proposal must be prepared to justify the equitability of the charge.

**Undocumented costs:** Costs for which detailed documentation is not available to show that the costs claimed were incurred under the EPA grant/contract.

**Unapproved costs:** Costs for which grant/contract provisions or applicable cost principles require awarding agency approval, but for which the auditor finds no evidence of such approval.

**Figure 4.1**

**Examples of Ineligible Costs**

- Interest on bonds or other financing costs
- Fines and penalties resulting from violation of Federal, state, and local laws
- Personal injury compensation or damages as a direct result of construction on the project

**Examples of Unreasonable Costs**

- Purchase of expensive equipment needed only for a short period when a lease would have been more economical
- Costs for which appropriate evidence is not available under a negotiated contract that the grantee or contractor employed those controls necessary to assure that the price was reasonable

**Examples of Improperly Allocated Costs**

- Costs already matched to another Federal program
- Inequitable allocation of indirect costs to the contract/grant
- Costs allocated in total to the grant, which also benefited other grantee/contractor programs

**Examples of Improper Documentation of Costs**

- Lack of time and attendance records, invoices, etc.
- Lack of written contracts with consultants
- Lack of proper authorization to incur costs or to disburse funds
- Non-Federal contributions recorded but not documented

**Examples of Costs Not Approved by EPA**

- Purchase of capital equipment
- Costs incurred before or after grant/contract period, except Step 1 and 2 grants prior to July 1, 1975 (40 CFR 35.925-18)

**Unresolved costs:** During the course of an audit, the auditor should attempt to reach a definite conclusion as to whether each item of incurred/claimed cost is allowable. There may be instances in which the allowability of cost cannot be determined without the assistance of an EPA engineer or other program official. In these instances, the auditor should designate these costs in the audit report as unresolved pending the Region's approval/disapproval of actual allowability. Examples of unresolved costs are (1) change orders of force account work not approved by EPA and (2) costs for which an assist audit has been requested but not received as of the audit report date.

The auditor must perform all audit tests on unresolved costs to determine that the costs would otherwise be allowable pending resolution of the issue resulting in the cost being unresolved.

#### 4.1.2 Review of Costs

Under the terms of the grant, EPA's participation in a project is for a limited period. Thus, EPA may only participate in those costs properly chargeable to that period, with the exception of certain pregrant costs which will be allowable (40 CFR 35.925-18). In reviewing costs, the auditor will be examining total project costs. For many projects, EPA is only participating in a portion of the project. Thus, it will be necessary for the auditor to review the grantee's segregation of costs as to the eligible and ineligible portions of the project.

When portions of the project are considered ineligible, the ineligible portions should be clearly identified by EPA in the review of plans and specifications. Bid documents commonly distinguish between eligible and ineligible portions of a construction contract. Where the contractor's monthly pay estimates are prepared on the same basis as the bid documents, distinction between eligible and ineligible construction costs is simplified. Further guidance concerning the eligibility of specific items is included in Appendix D of this guide.

EPA may only participate in the acceptable portion of eligible costs. The auditor will review each cost to determine whether it is acceptable as a charge to the EPA project. During the audit, the auditor will be testing the systems utilized by the grantee in managing the grant. Where items of costs are shown to be unallowable (unreasonable, unallocable, undocumented, unapproved, or ineligible), the costs should be questioned. Where the audit tests have not disclosed any material deficiency with respect to items of cost, the cost should be accepted.

Once the auditor has evaluated eligible construction costs, he will classify the costs as accepted or questioned.

The auditor must review costs other than construction costs claimed to determine whether or not they are acceptable. He then should allocate other acceptable costs over the eligible and ineligible portions of the project on the following basis:

$$\frac{\text{Total Eligible Construction Costs Accepted}}{\text{Total Construction Costs}} \times \text{Other Acceptable Costs} = \text{Other Eligible Accepted Costs}$$

For final audits, this formula should only be applied in situations where:

- a. Other acceptable costs incurred are associated with both eligible and ineligible construction, and
- b. Accounting records accumulating and segregating these costs are not available.

Examples of items exempt from this formula are (1) bond costs (on P.L. 84-660 projects), because the bond formula takes into consideration total eligible project costs (see Appendix B of this guide for an illustration of bond formula); and (2) special studies not related to construction which are totally eligible. The auditor should use the above criteria to determine whether the formula should be applied to a particular cost category.

For interim audits where the eligibility ratio is applicable, the following qualifying language should be incorporated in the report:

The approved grant application estimates eligible construction costs which, when taken over total construction costs, result in an eligibility factor of \_\_\_\_ percent. To arrive at the total eligible project costs, a ratio based on actual costs will be applied to all other acceptable costs at the time of the final audit.

Total eligible project costs will be computed as follows:

$$\begin{array}{rcl} \text{Total Eligible Construction} & + & \text{Other Eligible} \\ \text{Costs Accepted} & & \text{Accepted Costs} \\ & = & \text{Total Eligible} \\ & & \text{Accepted Costs} \end{array}$$

The percentage of project costs in which EPA is participating, through the grant agreement, will then be applied to total eligible project costs accepted. This will show the Federal share earned. The designation of a cost as questionable by the auditor does not necessarily mean that the cost will be disallowed. The determination as to the acceptability of costs will be made by the EPA Regional Administrator.

## **4.2 GENERAL AUDIT STEPS**

### **4.2.1 Initial Field Audit Procedures**

In starting the audit, the auditor should:

a. Conduct an entrance conference with the official-in-charge upon arriving at the audit site. The purpose of the entrance conference is to (1) inform the grantee of the purpose of the audit, the general plan of audit approach, and the records to be used during the audit; and (2) answer the grantee's questions regarding the audit. During the conference, the auditor should also arrange for private, adequate working space.

The auditor should document the entrance conference in his workpapers. He should include the names and positions of those attending the conference and details of the matters discussed.

b. Obtain background information on the grantee organization. This may be in the form of charters, bylaws, incorporation documents, or public relations documents which identify the nature of the organization's operations and key employees. In addition, the auditor should obtain copies of the organization's financial reports as well as access to any audit reports issued by the organization's internal or external auditors.

c. Identify any additional EPA or other Federal grants or contracts awarded to the grantee. In this regard, the auditor will obtain the grant/contract number, the amount of the agreement, the status of the grant/contract, and the Federal agency involved. The auditor should promptly communicate this to the Division Audit Director so that he may decide whether the scope of the audit will be expanded to cover these agreements.

d. Familiarize himself with the grantee's accounting, personnel, procurement, and property management systems as they relate to grant expenditures. The auditor should initially obtain information regarding established policies and procedures governing these activities. In this regard, each audit should be initiated with a survey of the project utilizing, as a minimum, the survey questionnaire contained in Appendix A of this guide. The purpose of this survey is to identify significant weaknesses in the systems, as they apply to the EPA grant, and to establish the scope of the audit. The survey should include documentation and testing of the records to validate the information obtained and to support decisions affecting the scope of audit. Appendix A should be included as documentation in the workpapers for all interim audits and any final audits where the grantee has other active EPA grants.

#### **4.2.2 Verification of Claim**

The auditor should reconcile the control account (that is, total cost incurred) with the latest/final request for reimbursement/cash outlay report and reconcile each expense item in total to the project cost and/or disbursement ledger. The auditor should:

- a. Determine the mathematical accuracy of the report and the ledger.
- b. Determine whether the grantee prepared the report based on its own accounting records or whether the report was prepared by EPA or the grantee's consultant. If it was prepared by others, determine what records were used.
- c. Analyze supporting data (e.g., contractor's and/or other certification for cumulative billing amounts submitted for the cash outlay reimbursement report).
- d. Determine the total cash payments to the grantee under the construction grant.
- e. Determine the total disbursement by the grantee to date and compare with Federal payments. Any under- or over-payment should be documented.

#### **4.2.3 Verification of Eligibility**

Identify from the EPA project file any portions of work under each construction contract or engineering subagreement which have been designated ineligible for Federal participation.

Review the grantee's disbursement ledger to determine if project costs are segregated by means of a special project account which (1) identifies eligible and ineligible costs, (2) identifies allowable and unallowable costs, and (3) contains separate accounts for each item of expense (FMC 74-4); that is:

- a. Construction, by contract;
- b. Engineering services; and
- c. Legal and administrative services.

#### **4.2.4 Credits, Rebates, and Refunds**

Throughout the audit, the auditor should be alert for evidence of credits, rebates, or refunds. Such items should be credited properly to the construction account. As part of the audit:



a. Examine contractor billings, noting whether certain items are marked or indicated for deletion;

b. Examine cash receipt records, noting funds received from contractors and/or other sources (i.e., state sales tax refunded to grantees or subcontractors); and

c. Determine that funds received for copies of the plans and specifications (unrefunded deposits) are credited to the grant costs.

#### **4.2.5 Unpaid Bills**

If the grantee has any unpaid bills relating to the specific grant under audit, the following audit steps should be taken:

a. Determine the reasons for the unpaid bills.

b. Determine whether there are sufficient funds available to pay bills in a timely manner.

c. Assure that costs related to long-standing unpaid bills or retainages have not been included on the request for reimbursement or cash outlay report to EPA. If they have, such costs should be set out in the audit report unless they represent normal accounts payable.

### **4.3 SPECIFIC AREAS OF AUDIT**

#### **4.3.1 Audit of the Force Account**

The actual construction work is normally performed by construction contractors under contracts awarded through competitive bidding. Construction-related activities such as preliminary planning, designing, preparation of plans and specifications, and resident inspection services are normally performed by consulting engineers under subagreements. However, in some instances the work is performed by employees of the grantee. This is known as "force account" work. If force account costs are claimed, such costs should consist of project work performed by employee labor of the grantee or materials, equipment, and supplies purchased by the grantee. (Direct travel costs may be allowed.)

Determine that:

a. Force account work (construction/engineering/administration) was specifically approved by EPA as provided in EPA regulations 40 CFR 30.645, 40 CFR 35.935-2, and 40 CFR 35.936-14.

b. Construction work handled through the force account was not for repair, maintenance, or operation of existing facilities.

c. Completed construction was appropriately approved by the grantee's engineer.

d. Purchases of material or supplies were based on competitive bids as required by state or local procedures or Federal regulations. (This step may be included under the Review of Procurement Controls.)

The auditor should include in his workpapers a schedule showing force account labor costs, and on a selective basis he should:

- a. Trace hours charged to time records;
- b. Verify payroll computations;
- c. Verify payments made from the payroll to the construction account; and
- d. Verify fringe benefit costs.

All indirect costs claimed by the grantee must be supported by an approved indirect cost proposal. If the auditor encounters a situation where indirect costs are not supported by an approved proposal, he should contact the Division Audit Director for further instructions. The auditor should also be alert for situations where:

- a. Persons are working in a capacity other than that for which they are getting paid (e.g., engineer working as a draftsman).
- b. Costs are claimed for hours worked on the project but not paid for by the grantee, i.e., overtime hours not paid for. These costs are not an actual cost to the grantee and therefore are not allowable.
- c. Labor hours are charged on a departmental average hourly rate. This should not be accepted unless there is supporting documentation to prove that it represents actual cost.
- d. Overtime hours are being charged solely to an EPA project when the employee works on other jobs during the same period.

The auditor should include in his workpapers a schedule of force account material, supply, and equipment costs. On a selective basis, he should:

- a. Verify types and quantities of items used to issue slips or similar documentation.
- b. Determine that the amounts charged were reasonable and computed in accordance with the grantee's normal costing policy.
- c. Determine that costs claimed do not include nonexpendable construction equipment (i.e., exceed minimal cost and life expectancy) even though such equipment may have been purchased specifically for the project.
- d. Determine that any write-offs of expendable items do not exceed the amounts allowable under the cost principles contained in FMC 74-4.
- e. Determine whether the grantee followed EPA guidance in disposing of or adjusting costs for unused materials which remained after completion of construction.

If use allowance or rental rates were used in arriving at costs charged to the project, determine whether these factors are in line with FMC 74-4. Review and test the method used to accumulate hours of equipment usage. Test payments made for use of equipment to invoices and cancelled checks and/or to fund transfer documents.

#### 4.3.2 Audit of Engineering Services

In reviewing procurements of engineering services, the auditor should be aware that EPA regulations governing these procurements have changed with the issuance of Program Guidance Memorandum (PG) 53 and with the issuance of EPA's "Subagreement Regulations for Construction Grants" (40 CFR 35.935, 35.936, and 35.937, dated December 17, 1975). Appendix F to this guide (Consulting Engineer Subagreements--Allowable Methods of Compensation) addresses the acceptability of the type of engineering contract during the transition period of the December 17, 1975, regulations. Accordingly, the audit criteria may change depending upon whether the engineering contract was awarded prior to or after the effective date of the above regulations.

##### a. Contracting procedures

It is the responsibility of the grantee in contracting for engineering services to take reasonable measures to ensure that services are obtained from qualified firms at a reasonable price.

Grantees could prior to July 1, 1975, use their own procurement regulations which reflect applicable state and local laws, rules, and regulations, provided that these rules and regulations adhere to minimum standards as set forth in Attachment O to FMC 74-7. Effective July 1, 1975, grantee procurements of consulting engineering services must be in accordance with the requirements of Program Guidance Memorandum 53. Effective December 17, 1975, grantee procurements of consulting engineering services must be in accordance with (1) the requirements of Appendix D to EPA's "Subagreement Regulations for Construction Grants" (which superseded PG 53) and (2) 40 CFR 35.936 and 35.937.

For procurements awarded under 40 CFR 35.936 and 40 CFR 35.937, the auditor should review the grantee's procurement procedures for consulting engineering services and determine that these procedures include, where applicable, requirements for:

- (1) Public notice (40 CFR 35.937-2);
- (2) Evaluation of qualifications (40 CFR 35.937-3);
- (3) Solicitation and evaluation of proposals (40 CFR 35.937-4);
- (4) Negotiation (40 CFR 35.937-5);
- (5) Cost and price considerations (40 CFR 35.937-6 and 40 CFR 35.937-7); and
- (6) Required solicitation and subagreement provisions (40 CFR 35.937-9).

Note that 40 CFR 35.937(a) provides that the provisions of 35.937-2 (Public Notices), 35.937-3 (Evaluation of Qualifications), and 35.937-4 (Solicitation and Evaluation of Proposals) are not required, but may be followed where the population of the grantee municipality is 25,000 or less according to the most recent U.S. census. When \$10,000 or less of services (e.g., for consultant or consultant subcontract services) is required, the provisions of 35.936-19 (Small Purchases) shall apply.

For procurements awarded prior to the effective date of 40 CFR 35.936 and 40 CFR 35.937, the auditor should determine that the grantee has documentation to show that:

- (1) Procurements were conducted so as not to prohibit maximum open and free competition.

(2) Contracts were made only with responsible contractors who possess the potential ability to perform successfully under the terms and conditions of a proposed procurement. Consideration should have been given to such matters as contractor integrity, record of past performance, and financial and technical resources.

(3) The contract clearly defines the scope of services to be provided under each reimbursement method included in the contract. The contractual language should be specific enough to identify the services provided under each phase of the contract.

Agreements between grantees and engineering firms covering engineering services take a number of forms. Usually, a single agreement covers all phases of engineering. Traditionally, these agreements were entered into well in advance of the award of a construction grant and represented a continuing relationship for engineering services. The reimbursement provisions contained in such agreements varied from a single fee covering all services to separate fees for each phase of work or combination thereof. Historically, the reimbursement for engineering services included: (a) firm-fixed-price (lump sum) contracts, (b) time and materials (labor hour) contracts, (c) percentage-of-construction-cost (fee curve) contracts, and (d) actual labor cost plus a stipulated multiplier for overhead and profit (cost plus a percentage of cost).

However, for agreements awarded after June 30, 1975, the cost-plus-percentage-of-cost (including salary multiplier where profit is included in the multiplier) and the percentage-of-construction-cost types of contracts are not acceptable. (See Appendix D to EPA's "Subagreement Regulations for Construction Grants," published December 17, 1975.)

In some cases a negotiated subagreement may have been executed prior to July 1, 1975, to cover work under more than one step of a grant. Guidance for these situations is given in Appendix D as referenced above.

Note that Appendix E has been added to this guide to provide an outline of the types of records subject to audit under various situations, and Appendix F has been added to provide an analysis of types of engineering contracts allowable during the transition period.

b. Contracts for engineering services awarded prior to July 1, 1975

EPA does not consider that the fee curve or multiplier method of compensation ensures a reasonable price in the absence of an effective negotiation based on current cost data. However, EPA does not take exception to these forms of contracting prior to July 1, 1975, as they were in accordance with industry practices which EPA regulations did not prohibit. The auditor's report should disclose instances where the fee curve or multiplier forms of contracting were used. The auditor will not be responsible for determining the reasonableness of fees awarded under the fee curve or the multiplier. However, the auditor will be responsible for evaluating the application of the fee curve for reasonableness and consistency. The fee curve will be evaluated in accordance with historical and advisory guidelines in general use or guidelines acceptable locally such as the American Society of Civil Engineers (ASCE) Manual No. 45. Other data relied upon or utilized by the contracting parties in negotiation of the agreement will also be evaluated for reasonableness and consistency.

In cases where engineering services are compensated under a multiplier, fee curve, or FFP contract awarded prior to July 1, 1975, the following audit steps and paragraphs, as appropriate, should be included in the schedule and referenced to technical service costs incurred, claimed, accepted, and questioned.

If multiplier and/or fee curve was used, then the following paragraph should be included in the report:

We noted that compensation for engineering services was based upon the \_\_\_\_\_ method of contracting. The use of the \_\_\_\_\_ and profit resulting solely therefrom have been accepted because, at the time the contractual arrangement was made, this method of contracting was not prohibited and was in accordance with accepted industry practices. The \_\_\_\_\_ method of contracting is now prohibited by Appendix D to Subpart E of 40 CFR 35, dated December 17, 1975.

If a multiplier contract was used, the auditor should:

(1) Determine whether the amounts billed were based on the terms of the agreement.

(2) Determine whether the grantee has performed an audit of the engineering firm's records to establish the propriety of the salary rates and hours billed. If not, the auditor should arrange through the grantee to perform an audit of the engineer's records. In instances where access to records is denied, all engineering fees billed under this method of contracting should be questioned.

If a fee curve contract was used, the auditor should:

(1) Determine whether the fee billed agrees with the contract terms as to the rate used and the method of application

(2) Ascertain whether the fee provided in the contract is consistent with the ASCE or state society guidelines in effect at the time of the award. If not, why?

(3) Ascertain whether the fee percentage is determined in accordance with the engineering agreement and whether the use of separate contracts is justified (e.g., interceptor versus treatment plant). If separate contracts are not justified, the additional compensation should be questioned.

If an FFP contract was used in the absence of an effective price negotiation, then the following paragraph should be included in the report:

We noted that compensation for engineering services was based upon a firm-fixed-price method of contracting without the use of current cost data in the negotiation process. The use of a firm-fixed-price contract not negotiated on the basis of current cost data and the resulting profit have been accepted in this case because, at the time the contractual arrangement was made, a negotiation based on current cost data was not a requirement of the industry or EPA. EPA regulation 40 CFR 35 Subpart E, Appendix D, dated December 17, 1975, requires that all negotiated contracts be based on current cost and pricing data.

If an FFP contract was used, the auditor should:

(1) Determine that the amount billed is in accordance with the terms of the agreement and that the work was accepted by the grantee.

(2) Evaluate the reasonableness of the fixed price. In this regard, the auditor should compare the services provided, the price charged to the services, and the price obtained by using the fee curve as outlined in the ASCE manual.

c. Contracts for engineering services awarded subsequent to June 30, 1975 (under EPA "Subagreement Regulations for Construction Grants," 40 CFR 35.936 and 40 CFR 35.937)

Determine whether the grantee performed a negotiation to establish the reasonableness of compensation. As a minimum, this should include a cost review to determine the composition of each element of cost and the profit proposed by the consulting engineer.

Unless available documentation shows that the grantee's negotiation resulted in a reasonable price, the auditor will review the reasonableness and validity of cost data submitted. Where review of the engineer's records shows that cost data was incorrect, unreasonable, or unallowable under applicable cost principles (FPR 1-15.2, FPR 1-15.4), the excessive costs should be questioned. In addition, the fee curve and multiplier contracts where profit is included in the multiplier are generally considered ineligible if awarded after June 30, 1975.

The right of access to records in auditing charges for engineering services under agreements awarded prior to the effective date of EPA's "Subagreement Regulations for Construction Grants" is governed by the terms of the engineering agreement and Appendix D to the subagreement regulations. This guidance generally prescribes the right of audit access to the engineer's records. In instances where indications of fraud, gross abuse, or corrupt practices are noted, the auditor has the right of access to all records. Refusal by a consulting engineer to allow access to his records as provided by Appendix D will render costs incurred under such contracts ineligible. Accordingly, all such costs will be questioned pending access to records. See Appendix E to this guide, Consulting Engineer Subagreements--Records Subject to Audit.

Guidance for reviewing engineering costs is as follows:

d. Verification of engineering costs

Before auditing the engineering firm's records, the auditor should determine from the Division Audit Director whether another Federal agency has audit cognizance of the firm. If another agency has cognizance, the Director will provide further instructions. If no other agency has audit cognizance, the auditor should complete the applicable sections of this guide.

(1) Determine amount of charges for engineering services. (This should be detailed by services billed under the various methods of reimbursement, e.g., FFP or CPFF.)

(2) Based on a review of the records, determine that claims for services provided are applicable to the eligible portion of the construction.

(3) Determine whether technical service costs were incurred prior to the EPA approval of the grant award or after the date of completion of construction. If work was initiated before October 31, 1974, prior EPA approval was not required. However, for grants awarded after this date the provisions of 40 CFR 35.925-18 apply.

(4) When evaluating the engineering services charged on a reimbursable basis, determine that:

(a) Salaries of partners doing less than "partner's" work (e.g., drafting) are billed at a rate commensurate with the duties performed.

(b) Services included as a basic service under an FFP or fee curve contract are not also billed on a reimbursable basis.

(c) An offsite overhead rate was used when appropriate.

(d) Partners' salaries are reasonable.

(5) Determine the adequacy of the engineering firm's accounting system to account for the type of contract awarded.

(6) Determine that the costs of engineering services claimed by the grantee do not include charges related to ineligible services such as site acquisition, bond preparation, easement, rights-of-way, or claims against the government. The engineer's invoice should be in sufficient detail to clearly define the nature of the work performed.

(7) Verify the mathematical accuracy of the billing for engineering services and test grantee payments for engineering services to vouchers and cancelled checks.

e. Engineering services compensated under the fee curve

Question all costs billed under this method of compensation for agreements entered into after June 30, 1975.

For subagreements awarded prior to July 1, 1975:

(1) Determine whether the amount billed agrees with the contract terms as to the rate used and the method of application.

(2) Ascertain whether the compensation provided in the contract is consistent with the ASCE or state society guidelines in effect at the time of the award, except as provided for in steps three and four below.

(3) Determine whether the compensation (fee) percentage is based upon the total of all construction contracts under a specific project (e.g., treatment plant, interceptor sewers). If a separate fee percentage was used for each contract, the resulting additional cost should be questioned. In determining the allowability of costs based on a separate fee percentage for each contract, consider the appropriate ASCE or state society guidelines in effect at the time the engineering agreement was negotiated. (See Appendix I of this guide, Application of Paragraph B.5 of Appendix D to 40 CFR 35, Subpart E.)

(4) Paragraph B.5 of Appendix D of 40 CFR 35, Subpart E, provides that in no event will allowable costs for a percentage-of-construction type contract be based on an amount exceeding the low bid for construction. This specifically excludes the cost of construction contract change orders and cost overruns from the computation basis. The method of computing allowable cost depends on the time between completion of plans/specifications and bid opening.

(a) Less than one year: If less than one year elapses between substantial completion and bid opening, paragraph B.5.a of Appendix D limits allowable cost to the amount obtained by applying the applicable fee curve percentage to the low bid for construction.

(b) More than one year: When one year or more elapses between substantial completion of design and bid opening, paragraph B.5.b of Appendix D limits allowable costs to the lowest of:

- The applicable fee curve percentage applied to the total of the consulting engineer's construction cost estimate provided at substantial completion of plans and specifications plus an escalation of up to five percent of the estimate.

- The applicable fee curve percentage applied to the consulting engineer's construction cost estimate provided at substantial completion of plans and specifications. A consulting engineer's compensation escalation of up to \$50,000 is added to the resultant amount.

- The applicable fee curve percentage applied to the low bid for construction.

(5) It is EPA policy to recognize those costs incurred by the consulting engineer that are not in the scope of the contract at the time of the construction contract award. For example, a change (ordered by the grantee/owner) which requires specific design and specification preparation by the consulting engineer in the scope of the construction contract probably should be recognized as requiring a change in the consulting engineer's contract for which reasonable additional compensation is allowable. Conversely, additional consulting engineering fees will not be considered eligible if these fees are the result of a change order to the construction contract to correct a design deficiency which is attributed to the consulting engineer.

Of course, these two examples are the extremes in the premises, and between these two poles may arise situations requiring a subjective judgment on the part of the EPA project officer as to the validity of the consulting engineer's request for added compensation. Additional compensation for such design work should be based on actual cost records available for audit.

In the absence of cost records, the auditor should determine whether the change order was of a type which generated an increase in design effort and, therefore, an increase in design cost. Certain change orders do not require additional design effort; for example, an increase solely in construction quantities does not increase design cost. However, a change ordered by the grantee/owner for a modification in the scope of the construction contract does require additional design effort. If these additional design costs are not supported by actual cost records, the costs should be suspended with the recommendation that the Regional Administrator determine the eligibility of these costs.

Also, in the period between the original substantial completion (a subjective judgment on the part of the project engineer) and the bidding of the project, EPA regulations may have been issued which would require some changes in the plans and specifications for which the consulting engineer could request, and EPA could pay, additional compensation under Paragraph B.5.c of 40 CFR 35, Subpart E, Appendix D.

f. Engineering services reimbursed under firm-fixed-price contracts

(1) Determine that the amount billed is in accordance with the terms of the agreement and Appendix D to EPA's "Subagreement Regulations for Construction Grants" (Part B of Appendix D to Subpart E of 40 CFR 35) and that the work was accepted by the grantee.



(2) For FFP contracts awarded prior to the subagreement regulations (July 1, 1975), the auditor should evaluate the reasonableness of the fixed price. In this regard, the auditor should compare the services provided and price charged with the services and price obtained by using the fee curve as outlined in the ASCE manual. Amounts in excess of the comparable fee curve percentage should be questioned.

(3) For FFP agreements in excess of \$100,000 awarded after June 30, 1975, the auditor should analyze the information documenting the grantee's cost review of the composition of costs and perform audit steps four through eight below. (See 40 CFR 35.937-6.)

(4) Determine what review was performed by the grantee to determine the reasonableness and validity of the amounts proposed (both quantity and dollar estimates).

Where the grantee has not performed a review of subagreement costs or the review is considered inadequate, the auditor should furnish the Division Audit Director with a list of all applicable subagreements. (A review of proposed subagreement costs is considered adequate if: (a) the grantee's in-house engineering staff develops an independent, detailed cost estimate which, when compared to the proposed consulting engineering cost estimate, demonstrates the reasonableness of the proposed amount; (b) the grantee performs a verification of the proposed costs and quantities to the data used by the engineering firm in developing the proposal; or (c) sufficient cost and pricing data for work similar to this project is available to provide a basis for comparison.) The Director will decide whether an audit of the subagreement is necessary and will advise the auditor reviewing the grant.

If another agency will perform the audit, the Division Audit Director will initiate the request for audit and provide a copy of the request to the auditor performing the review of the grant. The auditor does not have to wait for the results of audit requests from another Federal agency; he should prepare the audit report and set aside the requested portions. The audit report should explain that the subagreement is being audited by another audit agency and that the results will be transmitted as soon as received.

If the Division Audit Director has determined that no other Federal audit agency is cognizant and that the subagreement should be audited, the auditor should make arrangements to perform an audit of the documentation maintained by the engineering firm. In instances where access to records necessary for the audit is denied, all engineering fees billed under this method of compensation should be questioned pending access to records.

(5) The auditor should compare the fixed price negotiated under the contract and the engineer's actual incurred costs. When actual costs were substantially less than estimated costs included in the proposal used as a basis for negotiation, a comparison of estimated and actual incurred quantities (labor hours/material quantities, etc.) should be made. (EPA regulation 40 CFR 35.937-6(c)(6) requires that the engineer account for costs in the same manner in which he proposes costs.)

(6) In instances where the actual quantities (labor hours) were significantly less than estimated quantities, the auditor should obtain an explanation for the differences from the consulting engineer. Where the reduction in quantities was due to new and improved work methods or efficiencies in performance, the auditor should accept the lump sum price. In other instances, the auditor should review the data used for estimating the quantities included in the consulting engineer's proposal. In instances where the data used as a basis for negotiation was not complete, current, or accurate, the auditor should question amounts claimed in excess of costs computed using complete, current, and accurate data.

(7) In instances where actual costs were significantly less than estimated costs and where actual quantities did not vary significantly from estimated quantities, the auditor should review the engineer's cost proposal used as a basis for negotiation.

(8) In reviewing the engineer's cost proposal, the auditor should as a minimum determine that costs proposed were allowable under FPR 1-15.2 and 1-15.4.

In instances where amounts proposed do not represent current (at the time of negotiation), valid cost or pricing data, the auditor should question any amounts claimed in excess of those computed using current, complete, and accurate cost data.

The auditor should determine that:

(a) Salary rates proposed represented current salary data, factored for the length of the contract.

(b) Fringe benefits represented cost history based on actual fringe benefit cost incurred by the engineering firm.

(c) Costs of material and supplies were based on current cost information.

(d) Costs of subcontracts were based on properly documented previous experience of similar work or bids from the prospective subcontractors.

(e) Travel costs were based on amounts regularly paid under the engineer's standard procedures.

(f) Other direct costs were based on accurate, valid costing data.

(g) Indirect costs were proposed based on rates computed in accordance with FPR 1-15.2 and 1-15.4.

g. Engineering services reimbursed under the multiplier form of contracting

(1) Question all costs billed under this method of compensation for agreements entered into after June 30, 1975, unless the agreement complies with 40 CFR 35.937-1(d) of the EPA "Subagreement Regulations for Construction Grants."

However, for agreements awarded under the new regulations, if under either a CPFF or firm-fixed-price contract the grantee desires to utilize a multiplier for interim billing purposes, all of the following must apply:

(a) The multiplier and the portions of the multiplier allocable to overhead and allocable to profit have been specifically negotiated;

(b) The portion of the multiplier allocable to overhead includes only allowable items of cost under the cost principles of FPR 1-15.2 and 1-15.4;

(c) The portions of the multiplier allocable to profit and allocable to overhead have been separately identified in the contract; and

(d) The firm-fixed-price contract includes a guaranteed maximum price for completion of the specifically defined scope of work; the CPFF contract includes a fixed

dollar profit which may not be increased except in case of a contract amendment which increases the scope of work.

Thus, the multiplier is not an acceptable form of contracting in itself, but under a CPFF or FFP contract it may be used for interim billing purposes. Cost claimed under a multiplier arrangement not meeting the above criteria should be questioned.

(2) For agreements entered into prior to the effective date of the new subagreement regulations:

(a) Determine whether the amounts billed were based on the terms of the agreement.

(b) Determine whether the grantee has performed an audit of the engineering firm's records to establish the propriety of the salary cost billed.

(c) In establishing the acceptability of salary cost used as a base to which the multiplier is applied, use actual salaries and wages paid. In addition, make sure that the multiplier is applied to the labor of only bona fide employees of the engineering firm.

(d) Regardless of contract terms, the actual costs of fringe benefits must be supported by the accounting records when they are claimed as a direct charge. If the charges are not supported or if the actual cost is less than the amount claimed, the total of the difference is unallowable for Federal participation. Where the fringe benefits are claimed as a direct charge and also included in the multiplier, the duplicate direct charge is unallowable for Federal participation.

(e) Regardless of contract terms, question charges made to the grant where there was no cost incurred. Labor charges and related costs for straight time or overtime hours which are billed but for which cost has not been incurred will be unallowable for Federal participation.

(f) Regardless of contract terms, the actual cost of service charges must be supported by accounting records. Service charges are defined as any supplemental charges added to other direct cost (nonsalary) which are claimed on an actual cost basis. If the service charges are not supported or if the actual cost is less than the amount claimed, the total or the difference is unallowable for Federal participation. This is in accordance with the ASCE manual, which states that the service charge is for expenses to be reimbursed by the client. (See PG 64, dated February 5, 1976.)

In reviewing direct costs claimed by the engineer, the auditor should determine whether service charges are claimed on an actual cost basis or a percentage added to a direct cost item (for example, service charge of X% added to the cost of supplies purchased or outside services). When such claims are identified, the auditor should:

- Determine the engineer's actual cost of the services as supported by the accounting records.

- Determine that costs included in the service charge are consistently applied and are not duplicated in other accounts (e.g., overhead).

- Compare the service charge applied to the actual cost of the service and question any over-recovery of actual cost.

h. Engineering services reimbursed under a time and materials form of contracting

(1) Determine whether the grantee has performed an audit of the engineering firm's records to establish the propriety of labor hours billed.

(2) For time and materials contracts over \$100,000 awarded after June 30, 1975, perform Step 4 under FFP contracts. (See page 4-15.)

(3) Determine the adequacy of the firm's accounting system to identify and accumulate project labor hours.

(4) Verify the accuracy of the labor hours claimed to the accounting records.

(5) Determine that the categories of labor billed are in accordance with the contract terms and that employees are charged in the correct classification.

(6) In reviewing costs claimed under a time and materials contract awarded under 40 CFR 35.937, the auditor should compare the rates claimed to the engineer's proposal, which details the labor rates, overhead rate, and profit factor used as a basis for negotiation. The auditor should determine that:

(a) The labor rates used as a basis for negotiation were based on complete, current, and accurate cost data at the time of negotiation. The cost data used should include actual average labor rates for categories of employees or for specific employees anticipated to perform the work.

(b) The overhead rates used as a basis for negotiation were prepared in accordance with FPR 1-15.2 and 1-15.4 and were based on complete, current, and accurate cost data.

(7) In instances where the total rate negotiated under 40 CFR 35.937 was not based on complete, current, and accurate cost data or was not prepared in accordance with FPR 1-15.2 and 1-15.4, the auditor should compute an acceptable rate, using current, complete, and accurate cost data, and question amounts resulting from the use of an unacceptable rate. The auditor should determine that:

(a) Salary rates proposed represented current salary data, factored for the length of the contract.

(b) Fringe benefits represented cost history and were based on actual fringe benefit costs incurred by the engineering firm.

(c) Indirect costs were proposed based on rates computed in accordance with FPR 1-15.2 and 1-15.4.

i. Engineering services reimbursed under a cost-plus-a-fixed-fee contract

(1) Determine whether the grantee has performed an audit of the engineering firm's records to establish the propriety of costs billed.

(2) Where the grantee has not performed reviews of subagreement costs or the reviews were inadequate, the auditor should furnish the Division Audit Director with a list of all applicable subagreements. The Director will decide whether an audit is needed and, if one is needed, who will perform the audit. If no audit of the subagreement is considered necessary,

the Division Audit Director will so advise the auditor reviewing the grant. In such cases, the costs claimed under the subagreement will be considered allowable if costs were claimed in accordance with subagreement provisions.

If another agency will perform the audit, the Division Audit Director will initiate the request for audit and provide a copy of the request to the auditor performing the review of the grant. The auditor does not have to wait for the results of audit requested from another Federal agency; he should prepare the audit report and set aside the requested portions. The audit report should explain that the subagreement is being audited by another audit agency and that the results will be transmitted as soon as received.

If the Division Audit Director has determined that no other Federal audit agency is cognizant and that the subagreement should be audited, the auditor should make arrangements to perform an audit of the documentation maintained by the engineering firm.

(3) Determine whether other direct costs claimed are reasonable, applicable, and allowable under the terms of the contract and the Federal cost principles contained in FPR 1-15.2 and 1-15.4.

(4) Review the firm's overhead rate to determine that it is reasonable, equitable, and in accordance with the principles set forth in FPR 1-15.2 and 1-15.4 and the "EPA Audit Guide for Reviewing Indirect Cost Allocation Plans and Rate Proposals."

(5) More complete guidance as to the audit of CPFF contracts is contained in the "Audit Guide for EPA Contracts." The overhead rates considered allowable by the auditor should be used in determining allowable indirect costs under the subagreement.

#### **4.3.3 Audit of Construction Costs**

Plant construction and equipment costs represent a major portion of the construction grant program. The grantee will normally have established a procedure or engaged the design engineer to ensure that construction is in accordance with the specifications, plans, schedules, and construction contract. For grants awarded under P.L. 92-500, the basic procurement system requirements and procedures utilized to award the construction contract must be in accordance with the applicable grant regulations (40 CFR 35.936 and 40 CFR 35.938, dated December 17, 1975). Specific criteria for procurement systems are outlined in section 3.4.2 of this guide.

In reviewing procurements of construction contracts, the auditor should be aware that EPA regulations governing these procurements have changed with the issuance of EPA's "Subagreement Regulations for Construction Grants." Accordingly, the audit criteria may change depending upon whether the construction contract was awarded prior to or after the effective date of the revised regulations.

##### **a. Audit guidance for basic construction contracts and change orders**

(1) The auditor will review the grantee procurement records for each construction contract awarded in excess of \$10,000 to determine whether:

(a) Construction contracts awarded under the grant are firm fixed price or unit price or combinations of two (40 CFR 35.938-3).

(b) Adequate public notice (40 CFR 35.938-4(a)) was given.

(c) Adequate time (40 CFR 35.938–4(b)) was given for preparing bids.

(d) Bidding documents include (40 CFR 35.938–4(c)):

- A complete statement of the work to be performed, including necessary drawings and specifications and the required completion schedule;
- The terms and conditions of the contract to be awarded;
- A clear explanation of the method of bidding and the method of evaluating bid prices; and
- Responsibility requirements or criteria which will be used in evaluating bidders.

(e) The grantee provided for sealed bids and for safeguarding bids received until public opening (40 CFR 35.938–4(d)).

(f) Contracts were awarded to the lowest responsive, responsible bidder. If not, determine what rationale exists for awarding to other than the lowest bidder (40 CFR 35.938–4(h)).

(g) Approvals were obtained from EPA prior to contract award.

(h) Awarded contracts contain a provision for access to contractor/subcontractor records, reports, drawings, and accounts for the purpose of inspection, review, copying, and audit by EPA representatives (40 CFR 35.935–7).

(i) At least two brand names followed by the words “or equal” are used in the specifications (P.L. 92–500 and 40 CFR 35.936–13(a)(1)). The use of only one brand name is considered restrictive.

(j) Items considered ineligible to EPA were identified as ineligible in the contracts.

(k) Special circumstances or provisions pertaining to the contract require review; e.g., implementation of the provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 when acquiring real property for the project. (Appendix C of this guide provides supplemental procedures for auditing relocation costs.)

(2) Review and test the grantee’s procedures for accumulating cost of change orders.

(3) Determine if change orders to the contract(s) pertain to eligible construction and have been reviewed, checked for duplication of base contract items, and approved by EPA. If approvals from EPA have not been received, such costs are not acceptable.

(4) Determine whether documentation is maintained that demonstrates the purpose, cause, necessity for the change order(s), and reasonableness of the change order price. In this regard, determine whether costs and quantities estimated were supported and evaluated. Be alert for instances where support for a change order indicates that work was for a purpose other than that described on the change order.

(5) Determine that change orders for quantity increases or decreases were approved by the grantee as soon as it could be readily determined that a change was necessary and/or an overrun/underrun would occur.

(6) Determine that credits for deletions have been included in the change order. Credit for deletions from FFP contracts should be based on the market price at the time of deletion. Credit for deletions from unit price contracts should be based on the bid price of the item.

(7) Determine that prior EPA approval was obtained for changes over \$100,000 and changes in the scope of the project.

(8) Determine whether the grantee or consulting engineer performed an evaluation to establish the reasonableness of the change order price (40 CFR 35.938-5). Note that EPA regulation 40 CFR 35.938-5 does not technically apply to change orders under grants awarded prior to March 1, 1976. However, the requirement to assure the reasonableness of change order costs has always existed in EPA regulations. Although 40 CFR 35.938-5 is not applicable, the principles prescribed by this regulation are just good business practices; thus, procedures comparable to those required by this regulation should be followed in negotiating change order prices. Therefore, in auditing change orders under grants awarded prior to March 1, 1976, the auditor should follow the same basic audit procedures used for auditing change orders under grants awarded after March 1, 1976. It is important to be aware, however, that in writing deficiencies related to these change orders, the auditor should not cite 40 CFR 35.938-5 as a specific requirement.

(a) Original Bid Item. For variances in quantities of items included in the original bid package, it is acceptable to use the original bid price. However, if the variance is significant (15 percent) and the dollars are material, the grantee should be required to demonstrate it has evaluated the reasonableness of using the original bid price.

(b) New Items. Since the reasonableness of the price of new bid items was not established in the basic award, the grantee should take adequate measures to assure that new items are reasonably priced. Prices for new items should be established on the basis of an independent estimate developed from current cost and pricing data or a detailed analysis of the data used to develop the contractor's price. The responsibility for establishing the reasonableness of change order prices is frequently delegated to the consulting engineering firms. In these instances, the audit should include a review of the engineer's records, which should contain estimates of man-hours to be expended, quantities of material, hours of equipment usage, and cost and pricing data.

(9) Change orders under grants awarded after the effective date of EPA's "Subagreement Regulations for Construction Grants" (40 CFR 35.936 and 35.938) must be negotiated on the basis of current cost and pricing data furnished by the contractor to the grantee. For FFP or unit price change orders awarded, the auditor should analyze the information documenting the grantee's cost review of the composition of costs and perform the following audit steps:

(a) Determine what reviews were performed by the grantee or its consulting engineer to ascertain the reasonableness and validity of the amounts proposed (both quantity and dollar estimates).

(b) Where the grantee has not performed a review of change order costs or the reviews are considered inadequate, furnish the Division Audit Director with a list of all change orders under the specific contract being reviewed. (A review of proposed change

order cost is considered adequate if (1) the grantee or its consulting engineer develops an independent detailed cost estimate which when compared to the contractor's proposed change order cost demonstrates the reasonableness of the amount proposed or (2) the grantee performs a verification of the proposed costs and quantities to the data used by the contractor in developing the proposal.) The Director will decide whether an audit of the contractor's records is needed. If no audit of the subcontracts is considered necessary, the Division Audit Director will so advise the auditor reviewing the grant. In such cases, the costs claimed under the change order will be considered allowable if costs were claimed in accordance with FPR 1-15.2 and FPR 1-15.4. If the Division Audit Director has determined that an audit of the contractor's records is necessary, the auditor should make arrangements to audit the documentation maintained by the contractor.

(c) Initially, compare the amounts paid under the contract and the contractor's actual incurred costs. Where actual costs were substantially less than estimated costs, compare estimated and actual incurred quantities (labor hours/material quantities, etc).

(d) In instances where the actual quantities (material and man-hours) were significantly less than estimated quantities, obtain an explanation of the differences from the contractor. Where the reduction in quantities was due to new and improved work methods or other efficiencies, the auditor should accept the amount negotiated for the change order. In other instances, the auditor should review the data used for estimating the quantities included in the contractor's proposal. In instances where the data used as a basis for negotiation was not complete, current, or accurate, the auditor should question amounts claimed in excess of costs computed using complete, current, and accurate data.

(e) In instances where actual costs were significantly less than estimated costs and where actual quantities did not vary significantly from estimated quantities, review the contractor's cost proposal used as a basis for negotiation.

(f) In instances where amounts proposed do not represent current (at the time of negotiation), valid cost or pricing data, question any amounts claimed in excess of those computed using current cost data. The auditor should also ascertain the rationale for differences disclosed above. (See 40 CFR 35.938-5.)

(g) In reviewing the contractor's cost proposal, as a minimum determine that:

- Salary rates proposed represented current salary data factored for the length of the contract.
- Fringe benefits represented cost history based on actual fringe benefit cost incurred by the engineering firm.
- Costs of material and supplies were based on current cost information.
- Costs of subcontracts were based on properly documented previous experience of similar work or bids from the prospective subcontractors.
- Other direct costs were based on accurate, valid costing data.
- Indirect costs were proposed based on rates computed in accordance with FPR 1-15.2 and 1-15.4. (See 40 CFR 35.938-5(d)(4).)



(10) Determine that all credit (decrease) change orders have been considered in interim or final payments to contractors.

(11) Determine whether the work was completed and accepted by the grantee or its designated representative.

(12) Determine whether the engineer accepted the change order work as complete and in accordance with the change order specifications.

(13) If the auditor is unable to assure himself that the reasonableness of the change order was evaluated by the grantee or the engineer, he should question the cost and make a recommendation that the Region determine whether to participate in the cost of the change order.

(14) Determine whether the contractor completed construction within the time constraints provided in the contract. In instances where construction was not completed within the time frame established by the contract, including amendments, determine whether or not the grantee recovered liquidated damages as specified in the construction contract. Any additional cost--construction, engineering, legal, or administrative--generated because of a contractor's lack of performance should be covered by the liquidated damages clause. Thus, any such increase in cost is unallowable for Federal participation even if the grantee elects not to exercise its right to recover liquidated damages.

#### b. Verification of construction pay estimates

It is the grantee's responsibility to establish adequate controls to ensure that construction contractors are paid only for construction work performed and materials and equipment furnished.

Audit tests of construction pay estimates depend, to a large degree, on the type of construction contract awarded, i.e., FFP, unit price, or a combination of FFP and unit price items.

##### (1) Firm-fixed-price contracts

In practice, the responsibility for initially approving interim pay estimates is normally delegated by the grantee to the consulting engineer as an element of services during the construction phase. However, it is the grantee's responsibility to determine that the consulting engineer exercises procedures and controls adequate to ensure that contractors are paid only for acceptable construction performed through the cutoff date of the pay estimate. Accordingly, the auditor should determine whether the grantee has performed a review or analysis to make such a determination.

##### (2) Unit price contracts

Under unit price contracts, the contractor is normally reimbursed monthly on the basis of actual quantities furnished under each bid item. The total cost of this type of contract is flexible to the extent that quantities are estimated and final payment will be based on actual quantities received. The responsibility for verifying unit quantities claimed is normally a part of the services provided by the consulting engineer.

The auditor should perform adequate tests to determine whether the grantee or the consulting engineer (acting as the grantee's representative) exercised the necessary controls to

ensure that payments were made only for quantities received. Claims for quantities which cannot be supported in the grantee's or consulting engineer's records should be questioned.

c. Audit guidance for construction pay estimates

(1) Firm-fixed-price contracts

Under FFP contracts, the contractor is normally reimbursed monthly on the basis of percentage of completion of work plus project inventories stored. In performing final audits, the auditor should:

(a) Examine vouchers, invoices, and disbursement records to determine that costs claimed have been paid in accordance with the original contract award and approved change orders.

(b) Determine that the work required under the contract has been completed by the contractor and accepted by the grantee based on a final inspection by the grantee.

In performing interim audits, the auditor should:

(a) Examine vouchers, warrants, and/or cancelled checks to determine that costs booked have been paid in accordance with approved progress pay estimates.

(b) Ensure that costs claimed are based on the total value of work in place (completed work) reduced by any amounts withheld by the grantee as a retainage (usually a percent of costs claimed that is withheld to guarantee satisfactory completion of work).

(c) Determine whether the grantee or the consulting engineer initially approved pay estimates.

(d) Review the procedures actually used by the consulting engineer to determine that the procedures limit interim payments to work completed and accepted and inventories stored (40 CFR 35.938-6). This should include appropriate tests of specific items included in the pay estimate to source documents which indicate the resident inspector's acceptance. The source documents will include inspector's diaries, daily inspection reports, and other correspondence.

(2) Unit price contracts

(a) Examine vouchers, invoices, and disbursement records to determine that costs claimed have been paid. Costs claimed should be based on the total value of work in place (completed work) reduced by any amounts withheld by the grantee as retainage (usually a percent of costs claimed withheld to guarantee satisfactory completion of work).

(b) Review the procedures used for the verification of quantities claimed under unit price contracts. The pay estimate should be prepared by the contractor and approved by the grantee or its representative. In no instance should the contractor's pay estimate be prepared by the grantee or its representative (the engineer).

(c) Verify quantities billed to the original contract and approved change orders.

(d) Describe briefly in the working papers the procedures in effect and the type of records maintained for recording units of work completed, e.g., pipe placement, piles driven, concrete placed, rock excavation, sheeting). Are the procedures used and the records kept in accordance with the firm's written procedures?

(e) On a selective basis, determine that quantities claimed are properly supported by documentation maintained by the contractor and/or determined by the resident engineer. The documentation may include:

- Daily inspection reports or inspector's diaries;
- Calculations from excavation notes and shop drawings;
- Receipts for materials delivered to the site;
- Pile driving records; and
- As-built drawings. (The auditor may use these to accept quantities of pipe and manholes if he determines, by reviewing source documentation such as field reports, that the as-builts accurately represent in-place construction.)

(f) Determine that all entries are dated. This applies to summary records, books of secondary entry, and source documents.

(g) Determine that all records documenting quantities are maintained on a current basis. Diaries and inspection reports should be maintained daily, summary sheets weekly or monthly.

(h) Review and determine the mathematical accuracy of calculations of excavation and backfill, sheeting, concrete, asphalt, rock excavation, and other items for which quantities are determined through mathematical computations.

(i) Estimates for quantities of rock excavation, excavation below grade, and backfill are often treated as contingencies because actual soil conditions may vary significantly from those established in preliminary test borings. Determine that records show that these items were actually used.

(j) Source documents such as the inspector's diary and/or daily inspection reports sometimes indicate unacceptable construction. Determine whether the inspector has a method for summarizing construction deficiencies that is useful in obtaining corrections. Determine that all construction recorded as unacceptable has been corrected or is in the process of being corrected.

d. Quality control

It is the grantee's responsibility to ensure that construction is performed in accordance with the design plans and specifications. This responsibility is normally assigned to an engineering firm which, under contract with the grantee, provides resident inspection services. These services generally include furnishing a professional engineer to be in overall charge of the project construction inspection, a qualified project representative, and a resident inspector. The inspection of work and materials should normally be continuous whenever work is being performed on the project and throughout the duration of construction.

The grantee or its engineering firm should exercise controls to provide assurance that construction was performed in accordance with the approved design plans and specifications. The auditor should review records documenting this system of controls.

The auditor should exercise reasonable judgment in pursuing audit deficiencies and indications of construction deficiencies. This guide does not require that audits include engineering evaluations of grantee or auditee operations. Should conditions be encountered which require such evaluations, the auditor should contact the Division Audit Director, who will review the situation and arrange for appropriate technical assistance.

e. Guidance for auditing quality control procedures

In auditing controls exercised by the grantee over quality of construction, the auditor should place maximum reliance on inspections performed by state or EPA inspectors. In this regard, he should review inspection reports showing the results of such inspections. Where such inspections are documented to show that each of the areas set forth below was properly controlled by the grantee and its engineer, further audit work may not be required. If, however, the grantee did not properly manage the areas below, the auditor should review them. Where inspection documentation indicates management problems, the auditor should follow up to determine that corrective action was taken. The auditor should proceed as follows:

(1) Where the grantee has delegated the responsibility for professional services during construction and/or resident inspection, determine how the grantee stays apprised of construction progress and problems encountered during the construction. The grantee's procedures should include review and evaluation of daily inspection reports and engineers' work progress reports, and observation of the work performed by the resident engineer and resident inspectors.

(2) Determine the grantee's or consulting engineer's minimum qualification requirements for resident inspectors.

(3) Review personnel records and determine the resident inspector's actual qualifications. Do these qualifications meet the minimum requirements (step 2 above)?

(4) Determine whether the grantee or consulting engineering firm has written procedures, in the form of a "construction manual" or otherwise, which prescribe the duties and responsibilities of the resident inspectors in performing day-to-day activities. Were these procedures followed?

(5) Determine whether there are written procedures requiring that certain types of daily records be kept by the inspector (e.g., diaries, daily inspection reports). Were daily inspection reports maintained? Do such records appear to be complete in accordance with procedures?

(6) Review work progress reports and other correspondence maintained by the grantee and note any major construction problems identified. Determine that noted construction deficiencies were corrected. The auditor should also determine that a punch list of minor construction deficiencies was maintained so that corrective actions may be taken during project cleanup.

(7) Review the contract specifications and determine what tests (e.g., concrete density tests, soil compaction, line and grade tests) are required, who should perform the tests, and what limits or tolerances have been established.

(8) Determine, on a selective basis from the engineer's records, whether tests were performed as required and whether test results were within the specified limits or tolerances.

(9) Should the audit disclose construction deficiencies of a serious nature which have not been corrected, attempt to identify the cost associated with that portion of construction. These costs will not be considered acceptable for EPA participation until the construction deficiencies are corrected.

#### **4.3.4 Other Costs**

In reviewing other costs, the auditor should determine whether the costs are allowable and applicable to the EPA grant. Guidance concerning the allowability of specific cost items can be found in FMC 74-4, 40 CFR 35.940, FPR 1-15.2, FPR 1-15.4, and Appendix D to this guide. The auditor should determine that:

a. The types of expenditures involved were contemplated in the original budget and the expenditures were adequately documented;

b. In instances where the contractor has established separate pools for such costs as computer services, reproduction, and communications, the methods used to calculate and distribute such costs are equitable;

c. Amounts claimed are properly supported as other direct costs, and similar costs are not recovered through indirect costing methods;

d. The contractor credits to the government the applicable portion of any income, rebate, allowance, or other credits relating to any allowable costs received by or accruing to the contractor;

e. When applicable, necessary approvals have been obtained from the EPA project officer; and

f. Such costs are allowable under applicable cost principles.

The auditor should be alert for additional engineering costs or any other added costs due to contract default. These costs are not eligible, as the grantee is compensated for these costs by the contractor's bonding company.

#### **4.3.5 Other Audit Matters**

a. Flood insurance

Effective July 1, 1975 (or one year after a community's notification of identification as a flood-prone community, whichever is later), for activities where the total cost is \$10,000 or more per structure, EPA is prohibited by law from making any grant for acquisition or construction purposes in a flood hazard area unless the community in which the project is located is participating in the flood insurance program and flood insurance is purchased by the grantee. If the audit planning package furnished by the Division Audit Director identified construction in a flood hazard area, the auditor should determine that the grantee has flood insurance.

b. Property control

(1) Real property

Real property should be reviewed to determine that it is (a) for the purpose of the grant and (b) controlled in accordance with 40 CFR 30.810-5.

(2) Personal property

The auditor should review the grantee's property management system using the criteria set forth in 40 CFR 30.810. In evaluating this system, the auditor should:

(a) Determine whether the grantee maintains property records to account for equipment purchased for use in the EPA grant program.

(b) Review the property records maintained and consider whether they contain necessary information, such as:

- The manufacturer's serial number or other identification number; the acquisition date; the cost; the source of acquisition; the percentage of EPA equity; the ultimate disposition data (including sales price and the method used to determine fair market value); and the location, use, and condition of the property.

- A description of the property.

(c) Ascertain whether the grantee takes a physical inventory of grant equipment and reconciles the results with property records at least once every two years to verify the existence, current utilization, and continued need for the property.

(d) Determine whether:

- Differences between the property record balances and physical balances are investigated and fully documented.

- Property records are adjusted as a result of the inventory.

- The grantee takes action to dispose of an item of equipment if it is no longer needed.

- Periodic inspections and routine maintenance are performed on equipment.

(e) Select from the property records a sample of equipment items purchased for the EPA grant and physically inventory the equipment to see whether the system is adequate in terms of (c) above.

c. National Pollutant Discharge Elimination System

The auditor should review the NPDES permit (furnished by the grantee or in the audit planning package) to determine effluent limitations and other requirements as established in the permit. He should determine from grantee records and discussions whether the permit requirements are being met.

(1) Does the grantee have procedures for performance reporting under the NPDES permit requirements and/or state and local requirements? Have they been implemented?

(2) Are required sampling, analytical, and reporting systems in operation?

(3) Do reports indicate that standards are complied with? Note exceptions.

d. User charge system (UCS)

The auditor should determine (for grants awarded after March 1, 1973) whether:

(1) The grantee has developed a UCS. If a UCS has not been developed, its status should be documented.

(2) The Regional Administrator has paid more than 50 percent of the Federal share of the Step 2 grant. If so, has the grantee submitted adequate evidence of timely development of a UCS (40 CFR 35.935-13(a))?

(3) The Regional Administrator has paid more than 80 percent of the Federal share. If so, has the system been approved by the Regional Administrator?

e. Industrial cost recovery (ICR)

The auditor should determine (for grants awarded after March 1, 1973) whether:

(1) The grantee has indicated to the Regional Administrator that it has industrial users. If it advised the Regional Administrator that it does not have industrial users, the auditor should be alert for information to the contrary during the audit.

(2) The grantee has obtained letters from "significant" industrial users agreeing to pay under the ICR system.

(3) Grantees requesting payment of more than 50 percent of the Step 3 grant have made timely progress in developing an approved ICR system in accordance with the ICR guidelines dated February 1976.

(4) Grantees requesting payment of more than 80 percent of the Step 3 grant meet the criteria described in the guidelines.

(5) For final audits of construction grants which have ICR systems, the system proposed by the grantee has been approved by the Regional Administrator. The auditor should qualify his report to the extent that he has not audited the ICR system but will at a later date.

f. Operation and maintenance (O&M) manual

No more than 50 percent of the Federal share may be paid until the grantee submits a draft operation and maintenance manual, and no more than 90 percent may be paid until the manual is approved by the Regional Administrator (40 CFR 35.935-12).

g. Sewer use ordinance

No more than 80 percent of the Federal share may be paid until the sewer use ordinance(s) has been submitted by the grantee and approved by the Regional Administrator (40 CFR 35.935-16).

h. Operation of facility

An important step of the field work will be a tour of the waste-water treatment plant. The objective of this portion of the audit is to discuss operation of the plant with operating personnel. The auditor will be alert for indications that the facility is not managed and maintained in accordance with grant objectives.

During this phase of the audit, the auditor should:

(1) Determine whether the grantee has established a permanent record file which includes:

- (a) The operation and maintenance manual;
- (b) A complete set of as-built drawings;
- (c) Plans, specifications, drawings, and manufacturers' specifications for operation and maintenance of each unit.

(2) Determine whether the grantee has employed the number of qualified treatment plant operators indicated in its operation and maintenance manual.

(a) Has the grantee established institutional arrangements for personnel training and development leading to certification?

(b) Do key supervisory personnel meet the state's minimum certification requirements?

(c) Obtain and review copies of Federal, state, and/or local agency inspection reports. Identify any major deficiencies reported and determine the status of corrective action being taken.

(d) Review the engineer's daily inspection reports, punch lists, and deficiency lists to ascertain construction deficiencies which required correction. Determine whether the deficiencies were corrected. Request technical assistance as required.

(3) Determine that the plant has a laboratory capability and that it is being utilized. Review effluent testing procedures for consistency with requirements in the O&M manual.

(4) Discuss the overall operation of the plant with several levels of operating personnel, including the plant superintendent:

(a) Are there problems which impair the plant's ability to properly treat sewage? If so, review the plant's:

- Equipment;



- Process design; and
- Facility design.

Obtain operating personnel's suggestions for remedial measures.

(b) Do any overflows occur, or is it necessary to bypass any units?  
Frequency and cause?

(c) What are the frequency and nature of contacts by regulatory agency personnel (local, state, or Federal)?

(d) Has an adequately funded preventive maintenance system been established?

(e) Is the plant successful in meeting effluent limitations under its discharge permits?

(f) Are any items of equipment or sections of the plant not in use? Why? Costs of unnecessary or inoperable equipment should be questioned or suspended.

i. Value engineering

VE is required for all Step 2 grants on or after October 26, 1976, having a projected Step 3 grant-eligible construction cost of \$10 million (see page 2-1).

(1) As a minimum, the VE proposal should include, as per 40 CFR 35.936 and Program Requirements Memorandum (PRM) No. 75-36, a description of the:

- (a) Scope of VE analysis;
- (b) VE team and qualifications;
- (c) Level of VE effort;
- (d) VE cost estimate; and
- (e) VE schedule in relation to project schedule.

(2) VE Summary Reports--Upon completion of the VE analysis, a preliminary report summarizing the VE findings and a final report describing implementation of VE recommendations must be submitted to the project officer on a time schedule approved by him.

(3) Grant Eligibility--The grant eligibility of the VE fee is limited to the actual VE analysis of the project. The applicant may incorporate training as part of the proposed VE workshop. However, the intention must be so stated in the proposal, and all costs associated with such training must be computed separately. For example, the cost for a VE instructor, additional time and room space, etc., must be itemized and separately identified for training. These additional costs for training are not grant eligible (PRM 75-36, Section VII, Paragraph 2).

(4) The audit approach should include:

(a) Discussion with the project officer on the adequacy of the VE proposal regarding the requirements listed above.

(b) Review of the Step 2 grant application to determine that the application includes the minimum required information set forth above.

(5) Audit steps should include, but are not limited to:

(a) Verification that the required VE team qualifications have been met.

(b) Determination that a firm independent of the design firm is conducting the VE review. If not, determine that the VE team members had not been involved in any part of the proposed project design except for VE analysis. The audit report should comment that the VE analysis was performed in-house.

(c) Review of the preliminary and final VE reports.

(d) Determination that the VE recommendations were implemented to the maximum extent feasible.

(6) For further information and guidance, see:

(a) "Federal Register," Vol. 41, No. 186 (September 23, 1976), pages 41690–41691.

(b) "Value Engineering Workbook for Construction Grant Projects," US Government Printing Office, MDC-29, and US Environmental Protection Agency, EPA-430/9-76-008 (July 1976).

(c) "Value Engineering in the EPA Construction Grants Program," PRM No. 75-36 (January 20, 1976).

## **CHAPTER 5: EXIT CONFERENCES**

Throughout the course of the audit, the auditor is expected to discuss deficiencies disclosed during audit, their effect, and possible corrective actions, with responsible officials of the audited party. The primary purpose of these discussions is to ensure that audited parties have an opportunity to provide additional data with respect to the problem areas identified during audit.

### **5.1 AUDITS WITH NO FINDINGS**

For audits with no findings or audits without significant findings, the auditor should notify the Division Audit Director and then hold a preliminary exit conference with the audited party at the site. When the audited party is a subcontractor, a separate or joint exit conference may be held with the grantee and the subcontractor. If the audited parties desire to provide written comments with respect to matters raised in the audit, they should be furnished a copy of the draft report and afforded the opportunity to provide written comments. It is not necessary to return to the job site for a formal exit conference.

### **5.2 AUDITS WITH SIGNIFICANT FINDINGS**

For audits with significant findings, the auditor should initially discuss the findings with the Division Audit Director by telephone. The auditor should then hold a preliminary exit conference with the audited party to discuss the factual information disclosed during the audit. He should emphasize that the audit results and findings are tentative at that point, and that they will be included in a draft report forwarded to the audited party for written comment.

The auditor should prepare his draft audit report, highlighting the costs considered unallowable and other deficiencies disclosed during the audit. The Division Audit Director should be promptly furnished a preliminary copy of the draft report. If, after reviewing the draft report, the Division Audit Director agrees that the deficiencies are significant, he will meet with the responsible EPA program officials to brief them on the situation. In addition, he shall require that the grantee and other audited parties (such as those performing under subagreements) be furnished a copy of the draft audit findings and conclusions to enable review and written comment prior to the formal exit conference.

After he receives written comments from the audited parties, the auditor will conduct an exit conference with each of the responsible parties involved (i.e., the grantee and other parties having subagreements whose operations and/or costs were audited).

### **5.3 DOCUMENTATION**

The auditor's workpapers shall contain the name of the auditor who conducted the exit conference, the names and positions of those in attendance, details of the matters discussed, and a summary of the reactions of the audited parties.

A synopsis of the audited parties' comments will be included in the section of the audit report entitled "Comments on Compliance, Performance, and Internal Controls." When written comments are of reasonable length, they will be included as an attachment to the report. The auditor may also include any rebuttal considered appropriate in light of the audited parties' comments.



## **CHAPTER 6: THE AUDIT REPORT**

### **6.1 INTRODUCTION**

Audits of EPA construction grants may result in findings and recommendations concerning costs questioned or deficiencies in the administration of the grant. For effective administration of the construction grant program, audit reports must contain all findings, observations, conclusions, and recommendations resulting from the audit.

### **6.2 CONTENT AND FORMAT OF AUDIT REPORT**

The audit report will be prepared in accordance with the following instructions and in the formats shown in the Example Audit Reports (with exhibits and schedules) on pages 6-3 through 6-24.

#### **6.2.1 Scope Paragraph**

a. The scope paragraph will identify the grant audited and the period audited. For final audits, the period audited will normally be from the date of grant offer to date of final inspection or the designated cutoff date. For interim audits, the period audited will normally be from the date of grant offer to the date audited costs were incurred or claimed.

b. The scope paragraph will also include a statement that the examination was made in accordance with the EPA "Audit Guide for Construction Grant Program" and the GAO "Standards for Audit of Governmental Organizations, Programs, Activities, and Functions." If conditions were encountered which preclude the inclusion of such a statement, an appropriate statement will be prepared explaining the nature of conditions which required the deviation.

#### **6.2.2 Opinion**

The report will contain an opinion as to the costs incurred/claimed and costs eligible under the EPA grant. Based on the review of the reasonableness, allowability, and allocability of costs claimed in conjunction with grant terms and conditions and applicable Federal regulations, the auditor will classify costs as "accepted," "questioned," or "suspended" in a separate schedule referenced in the report.

#### **6.2.3 Comments on Compliance, Performance, and Internal Controls**

The report will include a separate section relating to the compliance, performance, and internal control reviews made during the examination. The report should include a discussion of any deficiencies identified during the course of the audit. In addition, the interim report must contain comments as to the adequacy of the accounting system and procurement system. A final audit report must contain those comments only if the grantee has other active EPA grants.

### **6.3 PRESENTING THE FINDINGS**

Audit findings, whether they relate to costs questioned or grant administration procedures, will be presented in sufficient written detail to ensure that report recipients may readily:

- a. Understand the finding;
- b. Understand the basis for the finding; and
- c. Grasp the significance of findings not directly related to the costs questioned.

The discussion of an audit finding should conclude with management improvement recommendations, if applicable.

## 6.4 EXAMPLE AUDIT REPORT NO. 1

Division Audit Director  
Office of Audit  
Environmental Protection Agency  
Any City, U.S.A.

We have examined the statement of costs incurred/claimed\* and EPA-eligible costs (Exhibit A) for the City of Anywhere, U.S.A., under EPA Grant No. XXXX for the period (month, day, year) to (month, day, year). Our examination was made in accordance with generally accepted auditing standards and the "Standards for Audit of Governmental Organizations, Programs, Activities, and Functions." The audit included tests of the accounting records and other auditing procedures we considered necessary in the circumstances. The Environmental Protection Agency's "Audit Guide for Construction Grant Program," revised January 1978, was also used as a guide in our examination.

(Scope)

As part of our examination, we determined the allowability of costs incurred/claimed under the project in accordance with the provisions of the grant and applicable Federal regulations. Schedule A-1 sets forth the costs which we questioned in this regard and includes an explanation of the reasons such costs were questioned.

In our opinion, subject to the effects on Exhibit A of EPA's ultimate resolution of the questionable expenditures referred to in the preceding paragraph, Exhibit A fairly presents the financial information in accordance with generally accepted accounting principles and financial provisions of the grant.

(Opinion)

In addition, in connection with our examination of the statement of costs incurred/claimed and eligible EPA costs, we have reviewed the grantee's (1) system of internal control (based on criteria established by EPA and set forth in the aforementioned EPA audit guide) and (2) compliance with provisions of the grant and applicable Federal regulations. Our report thereon appears as Exhibit B.

(Transition  
Paragraph)

This report is intended for use in connection with the grant to which it refers and should not be used for any other purpose.

\_\_\_\_\_  
DATE

\_\_\_\_\_  
SIGNATURE

\*The audit report will normally address costs claimed. However, on interim audits there may be instances where the grantee's claim is not current. In these instances, the audit report will address cost incurred.

**EXAMPLE AUDIT  
REPORT NO. 1**

**EXHIBIT A**

**City of Anywhere, U.S.A.  
Secondary Sewage Treatment Plant  
Statement of Grantee's Costs Incurred/Claimed and EPA-Eligible Costs  
for the Period (Month, Day, Year) to (Month, Day, Year)**

<i>Description*</i>	<i>Total Costs Incurred</i>	<i>Costs Claimed as EPA-Eligible</i>
Construction Costs	\$2,780,000	\$731,715
Project Inspection Fees	133,537	26,707
Total Costs	<u>\$2,913,537</u>	<u>\$758,422</u>

Grant No. XXXX was awarded to the City of Anywhere, U.S.A., under Public Law 84-660. The grant was awarded on (month, day, year) and provides for 55-percent Federal participation in the construction of a secondary sewage treatment plant and interceptor sewers, with a maximum Federal share of \$1,100,000. At the time of completion of the audit field work (month, year), construction was approximately 40-percent complete on two contracts. The third construction contract under the grant had been recently awarded, but construction had not started at (month, year).

See Schedule A-1 for a statement of costs accepted and questioned during the audit.

\*The cost categories listed on the Outlay Report and Request for Reimbursement for Construction Programs (SF 271) should conform to the Description column.



**EXAMPLE AUDIT  
REPORT NO. 1**

**SCHEDULE A-1**

**City of Anywhere, U.S.A  
Secondary Sewage Treatment Plant  
Statement of Cost Incurred, Accepted, and Questioned  
for the Period (Month, Day, Year) to (Month, Day, Year)**

<u>Description</u>	<u>EPA-Eligible Costs</u>			<u>Notes</u>
	<u>Incurred</u>	<u>Accepted</u>	<u>Questioned</u>	
Construction Cost	\$731,715	\$551,348	\$180,367	1
Project Inspection Fees	26,707	9,787	16,920	2
Total Costs	<u>\$758,422</u>	<u>\$561,135</u>	<u>\$197,287</u>	
Determination of amount due grantee or EPA based on audit				
Federal share (55%) of accepted eligible cost	<u>\$417,132</u>	\$308,624*	<u>\$108,508</u>	
Less EPA payments made through (month, day, year)		<u>300,000</u>		
Balance due Grantee		<u>\$ 8,624</u>		

\*This amount should not be construed as being the final determination of the Federal share of accepted eligible costs. The amount may vary depending upon the resolution by EPA of questioned costs totaling \$197,287.

## Notes to Schedule A-1

### Note 1 Construction Contracts

a. The grantee contracted for the erection of 198,422 feet of wooden fence around the construction site of the treatment plant at a cost of \$1.50 a linear foot, for a total price of \$297,633. The contractor submitted invoices totaling \$325,000 for the 198,422 feet of fence installed. The consulting engineer approved and the grantee paid the overpayment requested. The overpayment was \$27,367.

\$27,367

b. The grantee awarded a \$550,000 construction contract for repair, maintenance, and construction of the collection system. Upon reviewing the scope of the contract, the EPA project engineer stated that it should not have been deemed eligible for Federal participation because it relates to the collection system, not to necessary interceptors. Therefore, we question the entire contract because P.L. 84-660 excludes collection systems from Federal participation. The total cost incurred to date is \$150,000

150,000

c. The grantee contracted for a protective wooden fence to be completed by September 15, 1974. The fence was not completed until September 18, 1974. This delay required another contractor under the grant to defer the start of excavation to September 20, 1974. The contractor incurred \$3,000 in equipment rental costs during the three-day delay. Chapter VII of the Handbook of Procedures states that increased costs resulting from lack of performance by the construction contractor are unallowable for participation, even if the grantee elects not to exercise its right to recover liquidated damages. The cost incurred during the three-day overrun is \$3,000.

3,000

Total Costs Questioned

\$180,367

### Grantee's Comments

The grantee agrees with the above questioned costs.

## Note 2 Project Inspection Fees

A summary of audit recommendations follows:

<u>Description</u>	<u>Costs</u>			<u>Reference</u>
	<u>Incurred</u>	<u>Accepted</u>	<u>Questioned</u>	
Subagreement Costs*				
Personnel	\$32,000	\$10,000	\$22,000	a
Fringe Benefits	6,000	1,886	4,114	b
Overhead	32,000	10,000	22,000	c
Travel	2,537	2,537	- 0 -	
Subcontracts	23,000	- 0 -	23,000	d
Total Costs	\$95,537	\$24,423	\$71,114	
Fee	8,000	8,000	- 0 -	
Total Subagreement Costs plus Fixed Fee	\$103,537	\$32,423	\$71,114	
Force Account Costs	30,000	16,510	13,490	e
Total Project Inspection Fees	<u>\$133,537</u>	<u>\$48,933</u>	<u>\$84,604</u>	
Eligible Costs	<u>\$26,707</u>	<u>\$9,787</u>	<u>\$16,920</u>	f

\*In this example audit report, engineering fees were considered to be compensated under a cost-plus-fixed-fee contract; thus, an audit of actual cost was performed. In cases where engineering services are compensated under a multiplier, fee curve, or FFP contract awarded prior to July 1, 1975, the procedures outlined in section 4.3.2.b of this guide should be included in this schedule and referenced to technical service costs incurred/claimed, accepted, and questioned.

a. Engineering firm's records do not accurately record project cost--\$22,000: The consulting engineer was unable to support charges totaling \$22,000 for project supervision and inspection. The project was charged for the full time of the project engineer and one-half time for another engineer whose identity we could not determine. The engineering firm's payroll records did not identify the projects to which the inspectors were assigned, and the firm was unable to provide the weekly time sheets which, a representative of the firm stated, contain project identification. We are questioning all charges except the salary of the project engineer.

b. The amount questioned represents the application of the firm's fringe benefit rate of 18.7 percent to personnel costs questioned in Note 2a above (18.7 percent x \$22,000 = \$4,114).

c. The amount questioned represents the application of the firm's overhead rate of 100 percent to personnel costs questioned in Note 2a above (100% x \$22,000 = \$22,000).

d. Approval of engineer subcontracts--\$23,000: The consulting engineer, without the knowledge or approval of the grantee or EPA, awarded a fixed-price subcontract for the design of the settlement basins. EPA regulations require prior approval of subcontracts and a determination that such subcontracts are reasonably priced. Further, the consulting engineering firm could not demonstrate that the subcontract was awarded at a reasonable price. Consequently, we have questioned this subcontract of \$20,000 plus a 15-percent management fee of \$3,000, or \$23,000.

e. The grantee incurred personnel costs of \$30,000 for force account work, of which \$6,000 was claimed as EPA-eligible costs. Since the grantee's records did not identify eligible costs, the grantee used the percentage of eligibility identified in the grant application (20% of \$30,000 = \$6,000). An in-depth analysis of the force account costs revealed that \$13,490 was related to another project. The remaining \$16,510 is accepted as eligible costs.

f. The approved grant application estimates eligible construction costs which, when taken over total construction costs, result in an eligibility factor of 20 percent. To arrive at the total eligible project cost, a ratio based on actual costs will be applied to all other acceptable costs at the time of the final audit.\*

#### **Engineering Firm's Comments**

(a thru c) The engineering firm's representative agreed that records were not available to support all salary charges, but contended that the staff had performed sufficient work to earn the cost claimed.

d. The engineering firm's representative stated that they were not aware of these requirements. Based upon the performance of the subcontractor, they considered this to be a reasonable price.

#### **Grantee's Comments**

The grantee concurred with the facts in Note e.

\*See page 4-5 of this guide.

**CITY OF ANYWHERE, U.S.A  
SECONDARY SEWAGE TREATMENT PLANT  
CONSTRUCTION GRANT XXXX**

**COMMENTS ON COMPLIANCE, PERFORMANCE, AND INTERNAL CONTROLS**

As a part of our examination, we reviewed and tested the grantee's system of internal accounting controls to the extent we considered necessary to evaluate the system as required by generally accepted auditing standards. This evaluation established a basis for reliance on the grantee's accounting control system in determining the nature, timing, and extent of other auditing procedures necessary for expressing an opinion on the financial reports.

The objective of internal accounting control is to provide reasonable, but not absolute, assurance that the (1) assets are safeguarded against loss from unauthorized use or disposition and (2) financial records are reliable for preparing financial statements and maintaining accountability for assets. The concept of reasonable assurance recognizes that the cost of a system of internal accounting controls should not exceed the benefits derived and also recognizes that the evaluation of these factors necessarily requires estimates and judgments by management.

There are inherent limitations that should be recognized in considering the potential effectiveness of any system of internal accounting controls. In the performance of most control procedures, errors can result from misunderstanding of instructions, mistakes of judgment, carelessness, or other personal factors. Control procedures whose effectiveness depends upon segregation of duties can be circumvented by collusion. Similarly, control procedures can be circumvented intentionally by management, either with respect to the execution and recording of transactions or with respect to the estimates and judgments required in the preparation of financial statements. Further, projection of any evaluation of internal accounting control to future periods is subject to the risks that the procedures may become inadequate because of changes in conditions and that the degree of compliance with the procedures may deteriorate.

The EPA "Audit Guide for Construction Grant Program," revised January 1978, requires a review and evaluation of the adequacy of the accounting system and internal controls of the grantee to (1) safeguard its assets; (2) check the accuracy and reliability of the accounting data; (3) promote operating efficiency; and (4) encourage compliance with prescribed management policies and such additional fiscal, accounting, and administrative requirements as EPA may establish. We understand that EPA considers procedures conforming to the criteria in its audit guide to be adequate for EPA purposes. Procedures that are not in conformity with the audit guide indicate some inadequacy for EPA purposes. Based on this understanding and on our study, we believe that the City's procedures were adequate (inadequate) for EPA purposes except for (because of) the conditions described below, which we believe are material weaknesses in relation to the grant to which this report refers. In addition to such weaknesses, other conditions which we believe are not in conformity with the criteria referred to above are described on the following pages.

## **GRANTEE'S ACCOUNTING SYSTEM (Interim Report)\***

The grantee's general accounting system is considered adequate to record and accumulate financial information. However, the grantee's cost accounting system is not considered adequate to identify and accumulate costs under the subject grant. The grantee maintains a general accounting system controlled by a general ledger and supported by various accounting journals. However, the grantee does not maintain cost or project accounting records to identify EPA-eligible project costs. The general ledger consists of one construction account which includes the costs of all construction projects undertaken by the City. As a result, we could not determine the amount of EPA-eligible expenditures incurred.

EPA general grant conditions provide "the grantee shall maintain books, records, documents, and other evidence and accounting procedures and practices sufficient to reflect (1) the amount, receipt, and disposition by the grantee of all assistance received for the project, including both Federal assistance and any matching share or cost sharing, and (2) the total cost of the project, including all direct and indirect costs of whatever nature incurred for the performance of the project for which the EPA grant has been awarded...."

During the course of our audit, the accounting system deficiency was discussed with the City Controller, who made arrangements for a public accounting firm to identify and accumulate, from the City's records, costs incurred under the grant project. At the completion of our audit, project costs incurred by the City from inception of the grant through June 30, 1975, had been identified and summarized. However, costs incurred since July 1, 1975, have not been analyzed, and a system to provide the identification and accumulation of future grant expenditures has not been implemented.

### **Recommendation**

We recommend that EPA require the City to take immediate action to implement accounting procedures adequate to reflect EPA-eligible and allowable project costs.

### **Grantee's Comments**

The grantee concurred and indicated that necessary corrective action would be taken.

## **GRANTEE'S PROCUREMENT SYSTEM**

The grantee's procurement system for construction and engineering services was generally adequate except for procedures relating to pricing change orders.

The grantee has not established effective procedures for controlling the change orders to assure that: (1) a review of the reasonableness of change order costs is made, (2) responsibility is assigned for final acceptance of the change order work prior to approving payment on the change orders, and (3) responsibilities of City officials authorized to sign and approve the change orders are defined. The grantee, on the recommendation of the consulting engineer, approved three contract change orders, valued at \$100,000, under contract number XXXX. The change orders extended the construction period for nine months and provided for extensive substitution of equipment.

\*For final audits, statements regarding the accounting systems are necessary only if the grantee has other active EPA grants.

Our review of the consulting engineer's records disclosed that the engineer had not performed a cost analysis or taken other measures to assure the reasonableness of the change order price. In addition, neither the grantee nor the consulting engineer had approved the change order work prior to payment for the change order. We also noted that the changes have not been submitted to EPA for approval. We do not take a position concerning the merits of the changes, but we believe that changes altering the scope of the project are subject to prior approval before they are binding on EPA.

#### **Recommendation**

We recommend that the grantee be required to establish effective procedures for controlling change orders which will, as a minimum, provide for reasonable costs, acceptable work, and properly defined responsibilities for City officials approving the change orders. In addition, prior EPA approval should be obtained whenever the change orders alter the scope of the project and/or when cost changes exceed \$100,000.

#### **Grantee's Comments**

The grantee and the engineering firm concurred with the auditor's findings and recommendations.

### **CORRECTION OF CONSTRUCTION PROBLEMS**

Our review disclosed that construction deficiencies noted in the inspection reports were not adequately controlled to assure correction. The current inspection system does not provide a mechanism for assuring that deficiencies identified in the inspection process are corrected. For example, we identified 25 construction deficiencies (from inspectors' diaries and daily inspection reports) which had not been corrected at the time of completion of the audit field work. These deficiencies were recorded over a six-month period ending in June 1974. As of June 1975, when we discussed these deficiencies with the resident inspector and project engineer, no action had been taken to correct the deficiencies. The project engineer indicated that some of the deficiencies represented major structural defects.

#### **Recommendation**

We recommend that EPA take appropriate action to ensure that the grantee requires its consulting engineering firm to adequately control and document followup action on all construction problems included in the inspection reports or other records. The grantee should ensure it is fully informed of the status of construction and operational problems identified by the consulting engineering firm. We also recommend that EPA perform an inspection to determine the seriousness of the construction deficiencies and the appropriateness of proposed corrective action.

#### **Engineering Firm's Comments**

Representatives of the engineering firm indicated that they would take prompt action to follow up on deficiencies and get the contractors to take necessary corrective action.

#### **Grantee's Comments**

The grantee stated that it would take the necessary action to get deficiencies corrected.

## **CONFLICTING CONTRACT TERMS**

The grantee has relied on the consulting engineer to determine whether the contractors have performed the work in accordance with the plans and specifications approved by EPA. The contract between the grantee and consulting engineering firm is not clearly defined as to the firm's responsibility for inspecting the work of construction contractors and its authority to interpret the plans and specifications. However, the contracts between the grantee and three of its contractors contain specific language that states the consulting engineer is the grantee's representative on all matters concerning interpretation of plans and specifications, inspections, and obtaining rework of work not meeting those plans and specifications. Thus, the grantee appears to rely on the consulting engineer to obtain satisfactory completion of the project when in fact the contract does not provide that assurance.

### **Recommendation**

We recommend that the grantee be required to amend its consulting engineering contract to specifically state the engineer's authority and responsibility.

### **Engineering Firm's Comments**

Representatives of the engineering firm stated that they see no problem with the present wording of the contracts.

### **Grantee's Comments**

The grantee concurred with the audit finding and stated that the consulting engineering contract would be appropriately amended.

## **ENGINEERING FIRM'S ACCOUNTING SYSTEM**

The engineering firm's accounting system is not considered adequate to identify and accumulate costs under the subject contract. Adequate documentation is not maintained to support all costs charged to the project. Payroll records did not identify the projects to which inspectors were assigned. As a result, we questioned \$22,000 of personnel costs charged to the project. (See Schedule A-1, Note 2 (a).)

### **Recommendation**

We recommend that the engineering firm be required to maintain records which properly document salary charged. This should include, as a minimum, weekly time sheets which are signed by the employee and his supervisor and which identify all projects on which the employee is working. In addition, appropriate reconciliations should be made between labor distribution and payroll records.

### **Engineering Firm's Comments**

The engineering firm stated that immediate action was being taken to correct deficiencies in its accounting system.

### **Grantee's Comments**

The grantee concurred with the audit finding and recommendation.



## **ENGINEERING FIRM'S PROCUREMENT SYSTEM**

The engineering firm's procurement system is considered generally adequate to protect the interests of the grantee and EPA with the following exception: the engineering firm awarded a subcontract for a portion of the work under its contract with the grantee. However, in awarding such a contract, the engineer did not perform an adequate cost or price analysis to ensure a reasonable price for the subcontracted work.

### **Recommendation**

We recommend that future subcontract procurements by the engineering firm under cost-plus-fixed-fee contracts be subjected to a cost or price analysis to assure reasonable prices.

### **Engineering Firm's Comments**

The engineering firm's representatives were not aware of this requirement, but will consider it in subcontracting for future work.

### **Grantee's Comments**

The grantee concurred with the audit finding and recommendation.

## 6.5 EXAMPLE AUDIT REPORT NO.2

Division Audit Director  
Office of Audit  
Environmental Protection Agency  
Any City, U.S.A.

We have examined the statement of costs incurred/claimed\* and EPA-eligible costs (Exhibit A) for the City of Anywhere, U.S.A., under EPA Grant No. XXXX for the period (month, day, year) to (month, day, year). Our examination was made in accordance with generally accepted auditing standards and the "Standards for Audit of Governmental Organizations, Programs, Activities, and Functions." The audit included tests of the accounting records and other auditing procedures we considered necessary in the circumstances. The Environmental Protection Agency's "Audit Guide for Construction Grant Program," revised January 1978, was also used as a guide for our examination.

As part of our examination, we determined the allowability of costs incurred/claimed under the project in accordance with the provisions of the grant and applicable Federal regulations. Schedule A-1 sets forth the costs which we questioned in this regard and includes an explanation of the reason such costs were questioned.

In our opinion, subject to the effects on Exhibit A of EPA's ultimate resolution of the questionable expenditures referred to in the preceding paragraph, Exhibit A fairly presents the financial information in accordance with generally accepted accounting principles and financial provisions of the grant.

In addition, in connection with our examination of the statement of costs incurred/claimed and eligible EPA costs, we have reviewed the grantee's (1) system of internal control (based on criteria established by EPA and set forth in the aforementioned EPA audit guide) and (2) compliance with provisions of the grant and applicable Federal regulations. Our report thereon appears as Exhibit B.

This report is intended for use in connection with the grant to which it refers and should not be used for any other purpose.

\_\_\_\_\_  
**DATE**

\_\_\_\_\_  
**SIGNATURE**

\*The audit report will normally address costs claimed. However, on interim audits there may be instances where the grantee's claim is not current. In these instances, the audit report will address costs incurred.

(Scope)

(Opinion)

(Transitional  
Paragraph)

City of Anywhere, U.S.A.  
Statement of Costs Incurred/Claimed and EPA-Eligible Costs  
for the Period (Month, Day, Year) to (Month, Day, Year)

<u>Description*</u>	<u>Total Costs Incurred</u>	<u>Costs Claimed as EPA-Eligible</u>
Administration	\$87,000	\$ 65,000
Preliminary Expense	200,000	70,000
Land, Structures, Rights-of-Way	127,530	
Architectural Engineering Basic Fees	700,000	600,000
Other Architectural Engineering Fees	95,000	87,000
Project Inspection Fees	115,000	103,000
Construction and Project Improvement Cost	<u>4,150,000</u>	<u>3,760,000</u>
Total Claimed	<u>\$5,474,530</u>	<u>\$4,685,000</u>

Grant No. XXXX was awarded to the City of Anywhere, U.S.A., under Public Law 92-500. The grant was awarded on (month, day, year) and provides for 75-percent Federal participation in the construction of a secondary sewage treatment plant and interceptor sewers, with a maximum Federal share of \$13.5 million. At the time of completion of the audit field work (month, year), construction was approximately 30-percent complete on ten contracts.

See Schedule A-1 for a statement of costs accepted and questioned during the audit.

\*The cost categories listed on the Outlay Report and Request for Reimbursement for Construction Programs (SF 271) should conform to the Description column.

**EXAMPLE AUDIT  
REPORT NO. 2**

**SCHEDULE A-1**

**City of Anywhere, U.S.A.  
Statement of Costs Claimed, Accepted, Suspended, and Questioned  
for the Period (Month, Day, Year) to (Month, Day, Year)**

<i>Description</i>	<i>EPA-Eligible Costs</i>				<i>Notes</i>
	<i><u>Claimed</u></i>	<i><u>Accepted</u></i>	<i><u>Suspended</u></i>	<i><u>Questioned</u></i>	
Administration	\$65,000	\$47,258		\$17,742	1
Preliminary Expense	70,000	70,000			
Architectural Engineering					
Basic Fees	600,000	570,400		29,600	2
Other	87,000	76,492		10,508	3
Project Inspection Fees	103,000	31,743	\$63,363	7,894	4
Construction	<u>3,760,000</u>	<u>3,711,700</u>	<u>40,067</u>	<u>8,233</u>	5
Total Costs	<u>\$4,685,000</u>	<u>\$4,507,593</u>	<u>\$103,430</u>	<u>\$73,977</u>	
Determination of amount due grantee or EPA based on audit					
Federal Share (75% of accepted eligible costs)	<u>\$3,513,750</u>	\$3,380,695 *	<u>\$77,572</u>	<u>\$55,483</u>	
Less EPA payments made through (month, day, year)		<u>3,750,000</u>			
Balance due EPA		<u>\$369,305</u>			

\*This amount should not be construed as being the final determination of the Federal share of accepted eligible costs. The amount may vary depending upon the resolution by EPA of questioned and suspended costs of \$177,407.

## Notes to Schedule A-1

### Note 1

Of the total costs claimed by the grantee under the Administration cost category, we have questioned \$17,742 for the following reasons:

(a) The grantee claimed costs incurred by a city employee whose salary was totally reimbursed with Federal funds under the Public Service Program. \$1,242

(b) The sale of plans and specifications to prospective bidders cost \$100 per copy. Each bidder then received a refund of 100 percent of the cost of one copy, but additional copies taken by the same bidder were only refunded at 50 percent of the original cost. The results of our test performed on one contract indicated that where 18 bids were received, the grantee's gross receipts totaled \$23,500; \$10,050 was returned to bidders, and \$13,450 was credited to general revenue. This \$13,450 should have been used to reduce the reimbursable costs for the preparation of the plans and specifications. 13,450

(c) The grantee claimed costs for printing and legal fees related to the sale of bonds. Costs associated with the approval, preparation, issuance, and sale of bonds are not eligible for grant participation in accordance with EPA's "Construction Grants Handbook of Procedures," Chapter VII (formerly Program Guidance Memorandum No. 64). 3,050

Total Costs Questioned \$17,742

### Grantee's Comments

The grantee concurred with the above findings and has indicated that it will compute the amount of miscellaneous revenue for each contract and offset this revenue to the cost of the project.

### Note 2

We noted that compensation for engineering services was based upon the fee curve and multiplier methods of contracting. The use of the fee curve and multiplier and profit resulting solely therefrom have been accepted because, at the time the contractual arrangement was made, these methods of contracting were not prohibited and were in accordance with accepted industry practice. The fee curve and multiplier methods of contracting are now prohibited by 40 CFR 35, Subpart E, Appendix D, dated December 17, 1975.

In addition, the grantee's claim of \$600,000 for the design services was computed by applying the fee suggested by curve A of the American Society of Civil Engineers to the total actual construction costs, including change orders and overruns on estimated quantities in the plans and specifications for completed contracts 1 through 4. However, paragraph B.5.a of Appendix D to 40 CFR 35 limits EPA participation to the amount based upon the low bid for construction. Accordingly, we computed the accepted amount based upon curve A and the low bids of \$13,100,000 for both the eligible and ineligible portions of the construction contract. This resulted in a fee of 5.9 percent. Application of the accepted rate to the low bid for eligible construction work of \$11,790,000 resulted in a fee of \$695,610. This fee was reduced by the applicable portion (\$125,210) of the \$139,122 credit for preliminary work and construction phase, for an accepted cost of \$570,400.

### Grantee's Comments

The grantee concurred with the above finding.

### Engineer's Comments

The engineer agreed with the above finding and calculations.

### Note 3

We have questioned \$10,508 of other architectural engineering fees as not being eligible for EPA participation per Chapter VII of the EPA "Construction Grants Handbook of Procedures" (formerly Program Guidance Memorandum No. 64).

(a) Processing and coordinating the grant application as reported on employee time sheets.	\$3,420
(b) Cost incurred for easement preparation.	2,870
(c) A15-percent service charge was applied to all direct nonsalary costs excluding mileage. This service charge could not be supported by the accounting records.	<u>4,218</u>
Total Costs Questioned	<u><u>\$10,508</u></u>

### Grantee's Comments

The grantee agreed with the above questioned costs.

### Engineer's Comments

(a) The firm stated that the majority of the grant application costs were incurred because the grantee requested supplemental information and analyses

(b) No Comment.

(c) The firm stated that the service charge was provided for in the engineering agreement and was used to compensate for overhead costs and risks involved in the use of outside consultants.

### Note 4

Of the total costs claimed by the grantee under the Project Inspection Fees cost category, we have suspended \$63,363 and questioned \$7,894 for the following reasons:

Reference	Amounts	
	Suspended	Questioned
a	\$63,363	\$5,742
b	<u>- 0 -</u>	<u>2,152</u>
Total	<u><u>\$63,363</u></u>	<u><u>\$7,894</u></u>

(a) The grantee had claimed \$69,105 for force account work representing resident inspection services. The use of force account work had not been approved by EPA. Program Requirements Memorandum 75-15 provides for a deviation from the provisions of 40 CFR 35.935-2(a) relating to the use of force account work on construction projects. The effect of this deviation is to allow the use of force accounts for any Step 1, 2, or 3 work for which the Regional Administrator has given prior written approval. Although the grantee had requested approval for the force account work in a letter dated June 8, 1976, the Regional Administrator had not, at the time of our audit, responded to the grantee's request. Of the total amount claimed for force account work, \$63,363 is supported by the grantee's accounting records; the remaining \$5,742 is unsupported. Therefore, if retroactive approval of the force account work is granted, Federal participation should be limited to the amount of supported costs.

(b) Questioned costs of \$2,152 are inspection fees billed on Contract No. 2 invoices 17 through 20 for services after the contract completion date (June 18, 1976). Chapter VII of the Handbook of Procedures states that increased costs resulting from lack of performance by the construction contractor are unallowable for participation, even if the grantee elects not to exercise its right to recover liquidated damages. No liquidated damages were assessed, although the contract was not completed until September 19, 1976.

#### **Grantee's Comments**

(a) The grantee expressed the view that all of the force account inspection costs are proper, and stated, "I think that we can explain these charges such that they can be determined to be eligible."

(b) The grantee did not concur with our position on resident inspection costs incurred after the contract completion date.

#### **Engineer's Comment**

(a) No comment.

(b) The engineer stated that a request for an extension of the contract completion date had been submitted to EPA through the State Department of Natural Resources, but approval has not been received. The engineer also contended that inspection costs have not been and will not be increased due to delayed construction. The engineer stated that inspection services were not provided during the time the contractor was not working. Therefore, inspection costs incurred after the scheduled completion date are not added costs but costs that would have been incurred if the project had proceeded in a normal manner.

#### **Auditor's Comments**

We believe the construction contractor will overrun the scheduled completion date even if a time extension is granted. There is merit to the engineer's contention that no added cost will be incurred since he did not perform during the "down period." We believe these facts should be documented and considered at the time of final inspection. Until that time, unless the scheduled completion date is revised, we recommend no payment for inspection services performed after the scheduled contract completion date.

## Note 5

We have questioned or suspended the following amounts of construction costs as being ineligible for Federal participation.

(a) Although eligible costs for construction were not questioned, we determined that the Region had reimbursed the grantee for the Federal share of retained construction payments. The grantee did not record or claim the retainage. The reimbursement of the Federal share produced a temporary overpayment to the grantee. The Region should adjust for any overpayments. Retainage should be deducted in all future partial payments.

(b) The amount suspended includes the following change orders which have not been approved by EPA.

Change Order 3, Contract 1	\$ 3,429
Change Order 5, Contract 1	4,142
Change Order 1, Contract 3	20,541
Change Order 1, Contract 5	11,955
Total	<u>\$40,067</u>

(c) Construction costs claimed also included sales tax not paid by the grantee and ineligible construction. The details are as follows:

<u>Contract</u>	<u>Sales Tax Not Paid</u>	<u>Ineligible Construction</u>
1	\$ 837	
2	300	\$2,150*
3	250	
4	310	4,000*
5	215	
6	171	
Total	<u>\$2,083</u>	<u>\$6,150</u>

\*Represents the cost of construction declared ineligible by EPA.

### Grantee's Comments

The grantee stated that it will no longer claim construction retainage or unpaid sales tax. Regarding the suspended change orders, the grantee stated that the change orders have been submitted to the state agency and are awaiting approval.



**CITY OF ANYWHERE, U.S.A  
SECONDARY SEWAGE TREATMENT PLANT  
CONSTRUCTION GRANT XXXX**

**COMMENTS ON COMPLIANCE, PERFORMANCE, AND INTERNAL CONTROLS**

As a part of our examination, we reviewed and tested the grantee's system of internal accounting controls to the extent we considered necessary to evaluate the system as required by generally accepted auditing standards. This evaluation established a basis for reliance on the grantee's accounting control system in determining the nature, timing, and extent of other auditing procedures necessary for expressing an opinion on the financial reports.

The objective of internal accounting control is to provide reasonable, but not absolute, assurance that the (1) assets are safeguarded against loss from unauthorized use or disposition and (2) financial records are reliable for preparing financial statements and maintaining accountability for assets. The concept of reasonable assurance recognizes that the cost of a system of internal accounting controls should not exceed the benefits derived and also recognizes that the evaluation of these factors necessarily requires estimates and judgments by management.

There are inherent limitations that should be recognized in considering the potential effectiveness of any system of internal accounting controls. In the performance of most control procedures, errors can result from misunderstanding of instructions, mistakes of judgment, carelessness, or other personal factors. Control procedures whose effectiveness depends upon segregation of duties can be circumvented by collusion. Similarly, control procedures can be circumvented intentionally by management, either with respect to the execution and recording of transactions or with respect to the estimates and judgments required in the preparation of financial statements. Further, projection of any evaluation of internal accounting control to future periods is subject to the risks that the procedures may become inadequate because of changes in conditions and that the degree of compliance with the procedures may deteriorate.

The EPA "Audit Guide for Construction Grant Program," revised January 1978, requires a review and evaluation of the adequacy of the accounting system and internal controls of the grantee to (1) safeguard its assets; (2) check the accuracy and reliability of the accounting data; (3) promote operating efficiency; and (4) encourage compliance with prescribed management policies and such additional fiscal, accounting, and administrative requirements as EPA may establish. We understand that EPA considers procedures conforming to the criteria in its audit guide to be adequate for EPA purposes. Procedures that are not in conformity with the audit guide indicate some inadequacy for EPA purposes. Based on this understanding and on our study, we believe that the City's procedures were adequate (inadequate) for EPA purposes except for (because of) the conditions described below, which we believe are material weaknesses in relation to the grant to which this report refers. In addition to such weaknesses, other conditions which we believe are not in conformity with the criteria referred to above are described on the following pages.

**GRANTEE'S ACCOUNTING SYSTEM**

The grantee's accounting system did not provide for (1) segregation of eligible and ineligible costs; (2) time and effort reports to support costs of construction inspection services;

(3) adequate internal controls over cash receipts; (4) reconciliation between the General Ledger Account, the Construction In Progress--Sewer Plant Account, and the Outlay Report and Request for Reimbursement for Construction Programs; and (5) acquiring supporting documentation of consulting engineer billings.

## **SEGREGATION OF COSTS**

All costs, whether eligible or ineligible for EPA participation, were accumulated in the Construction In Progress--Sewer Plant Account. This method of accounting makes it difficult to determine eligible project costs for EPA participation.

Accounting systems under Federal grants must provide for segregation of costs in order to permit grantees and EPA to determine in which costs the government will participate.

## **TIME AND EFFORT REPORTS**

At the time of audit, time and effort reports were not used by the grantee to support costs incurred for construction inspection by force account.

EPA requires time and effort reports to support direct salary costs to the grant project. This enables EPA to adequately identify those costs applicable to the project.

## **INTERNAL CONTROLS**

The grantee's internal control over cash receipts was considered inadequate. We were advised that the accountant is solely responsible for preparing the deposits, recording to the cash receipts journal and general ledger, and performing bank reconciliations of the various funds maintained by the grantee. Adequate physical safeguards and separation of duties are essential for proper internal control.

## **RECONCILIATION OF GENERAL LEDGER ACCOUNT AND OUTLAY REPORT**

The costs recorded in the Construction In Progress--Sewer Plant Account did not agree with the costs reported in the Outlay Report. Our analysis of the cash disbursements journal showed that two engineering invoices totaling \$13,125.89 and grantee travel costs for \$836 were paid out of another fund. We determined that these amounts were chargeable to the construction fund. In addition, we found that a transfer of charges for \$21,840.94 to the construction fund had been recorded twice. We were able to reconcile the Construction Fund Account and the Outlay Report after taking these and other transactions into account.

## **SUPPORTING DOCUMENTATION FOR SUBAGREEMENTS**

The grantee was not requiring supporting data such as names of personnel, hours worked, rates of pay, in-house cost tickets, travel expense reports, vendor invoices, or other applicable support to be provided by the consulting engineer for direct costs billed to the grantee. Such support would enable the grantee to determine if the direct costs are appropriate and valid to the grant project.

During the course of our audit, the grantee established a procedure for segregating eligible and ineligible costs and began using time and effort reports to support force account work. Consequently, no further recommendations on these items are made at this time. Recommendations on the other items are made in the Recommendations section that follows.

For the most part, costs were not questioned in this report due to inadequacies in the grantee's accounting system. We were able, through other audit techniques, to make determinations on costs impacted by the accounting system deficiencies listed above.

### **Recommendations**

We recommend that EPA ensure that the grantee:

- (1) Improve its internal controls over cash receipts by segregating the duties that are now performed by the accountant.
- (2) Make the necessary adjusting entries in order that the Construction In Progress--Sewer Plant Account will reconcile with the Outlay Report.
- (3) Require the consulting engineer to submit supporting documentation for direct charges billed.

### **Grantee's Comments**

The grantee agreed to implement the above recommendations.

## **GRANTEE'S PROCUREMENT SYSTEM**

We found that the grantee had not adequately solicited bids for the construction work as required by the EPA regulations. Title 40 CFR 35.938-4(a) provides that when the estimated cost of Step 3 construction is \$10 million or more, notice for solicitation must generally be published in trade journals of nationwide distribution. The estimated construction cost exceeded \$10 million for this grant, but the bids were solicited only through "The City Bulletin." Although the grantee did receive at least four bids for each contract under the project, solicitation of bids appears to be something less than nationwide as prescribed by regulations. In addition, we noted that the grantee failed to allow 30 days between the date of first announcement of the call for bids and the date by which the construction bids were to be submitted. Under 40 CFR 35.938-4(b), generally not less than 30 days' notice must be given to assure adequate time for bid preparation.

### **Recommendation**

We recommend that the Region require the grantee to comply with the provisions of 40 CFR 35.938-4 mentioned above.

### **Grantee's Comments**

The grantee stated that it was unaware of these requirements, but it will comply with these provisions on future grants.

## **GRANTEE'S PROPERTY MANAGEMENT SYSTEM**

The grantee did not maintain a property management system that meets the requirements of 40 CFR 30.810, which in essence states that property records shall be maintained accurately and provide for: a description of the property; manufacturer's serial number or other identification numbers; acquisition date and cost; source of the property; location, use, and condition of the property; and ultimate disposition data including sales price or the method used to determine fair market value if the grantee compensates EPA for its share.

Although only a few items of equipment have been purchased, as part of the construction contract the grantee will receive laboratory equipment and office furniture that will require property accountability.

### **Recommendation**

We recommend that EPA ensure that the grantee establishes a property management system, in accordance with 40 CFR 30.810, to account for equipment and property purchased under the grant.

### **Grantee's Comments**

The grantee stated that it will install a property management system that meets the criteria of 40 CFR 30.810.

### **Engineer's Accounting System**

The engineering firm's accounting system is considered adequate to identify and accumulate costs under the subject contract.

### **Engineer's Procurement System**

Since there were no major procurements under the engineering subagreement, our audit of the engineer's procurement system was limited to a cursory review. In the areas we did examine, there were no deficiencies noted.

## **APPENDIX A**

### **SURVEY OF GRANTEE'S ACCOUNTING, PROCUREMENT, AND PROPERTY MANAGEMENT SYSTEMS**

#### **INTRODUCTION**

This survey should be considered as a starting point to gain a quick, preliminary understanding of the auditee's operating system. It supplements but does not replace the normal audit review. The normal audit review must still be performed using the detailed audit guide, a core audit program, and the auditor's judgment.

This survey should be performed in all interim audits and all final audits except where a final audit is performed on an auditee that has no active in-house grants. The survey is intended to be used to analyze the grantee's accounting records and systems that pertain to the EPA grant. It should not be applied to those systems that are not affected by the grant.

Depending on the audit, some questions may be more relevant than others. The matter of relevancy should be settled between the field auditor and his supervisor prior to completion of this survey.

Questions that may pertain to both the grantee and the engineer are marked with a double asterisk. Questions that are applicable to the grantee only are not coded. Questions that pertain to the engineer only are marked by a single asterisk.

Negative responses generally will indicate a potential problem. The degree of seriousness of each negative answer should be discussed between the field auditor and his supervisor before further audit action is taken.

Survey of Grantee's Management System	Yes	No	N/A	W/P	Ref.
<b>ACCOUNTING SYSTEM</b>					
** 1. Is the accounting routine set forth in accounting manuals?					
** 2. Do we have copies of such manuals in our files?					
** 3. Does the auditee maintain:					
a. An accrual accounting system?					
b. A cash basis system? If so, are adjustments made to properly reflect the auditee's overhead and G&A submissions on the accrual basis?					
** 4. Does the auditee have an internal audit staff? If so,					
a. Do they render written reports on the results of their examinations?					
b. Have we reviewed their reports?					
c. Are they directly responsible (and do they report) to an executive officer other than the chief accounting officer?					
** 5. Are the auditee's accounting records subjected to an independent audit at least every two years?					
** 6. Has the auditee established project accounting records to record the costs applicable to EPA work?					
** 7. Are all incurred costs of a project recorded on these records on a current basis?					
** 8. Does the auditee propose and accumulate costs on all projects in a consistent and compatible manner?					
** 9. Is appropriate documentation maintained to support direct charges of:					
a. Personnel?					
b. Consultants?					
c. Fringe benefits?					
d. Materials, supplies, and equipment?					
e. Travel?					
f. Other costs (subcontract charges, long-distance telephone calls, etc.)?					
** 10. Are costs contained in the project accounting records segregated as to their eligibility, allowability, and allocability to the respective EPA projects?					
** 11. Are controls established to ensure that:					
a. Grantee costs incurred and recorded prior to or subsequent to the established Federal grant period are segregated and not claimed for reimbursement unless approved?					
b. Engineer costs incurred and recorded prior to or subsequent to the established contract period are segregated and not claimed for reimbursement unless approved?					

Survey of Grantee's Management System	Yes	No	N/A	W/P	Ref.
** 12. Is change order work separately identified in the respective project cost records?					
** 13. Are project costs summarized and reconciled with control accounts contained in the auditee's general ledger?					
** 14. Are the project cost records used as the basis for:					
a. The grantee's financial status reports and "Request for Reimbursement" vouchers?					
b. The engineer's request for reimbursement?					
** 15. Are frequent comparisons made between expended and budgeted costs to provide timely indications of potential project overruns?					
16. Are approvals requested for significant deviations from amounts contained in the grant or contractual agreement?					
** 17. Is there an established policy to maintain consistent treatment and control of direct and indirect cost distributions to avoid duplicate recoveries of cost?					
** 18. Are separate cost centers established to accumulate and distribute such items as:					
a. Computer usage?					
b. Reproduction charges?					
** 19. Are administrative service charges or material handling rates based on uniform policies and supported by the accounting records?					
** 20. Has the auditee developed indirect cost rates in accordance with Federal requirements?					
* 21. Are separate offsite indirect cost rates applied to job site labor?					
** 22. Are overhead expenses distributed between the various indirect cost pools in a systematic manner?					
** 23. Does the auditee post credits for rebates, returns, and allowances as a reduction to expenditures?					
<b>Automated Data Processing (ADP)</b>					
** 1. Is the accounting system automated? (If "no," omit questions 2 through 10.)					
** 2. Are the ADP aspects of the auditee's financial accounting system documented?					
** 3. Are audit trails provided that permit the tracing of any transaction back to the original source document and forward to summary records?					
** 4. Are source documents controlled from the point of origin to the point of conversion to machine-readable media?					
** 5. Is the access to machine-readable computer facilities and records (tapes, cards, etc.) controlled?					
** 6. Are rejected and erroneous data controlled until corrections are made?					

Survey of Grantee's Management System	Yes	No	N/A	W/P	Ref.
<p><b>** 7.</b> Are positive processing controls (e.g., controls which make tests against established criteria before processing action is taken, such as tests to determine whether updates have been made, validity checks, limit tests, compatibility tests, field completeness tests) programmed into the automated system?</p> <p><b>** 8.</b> Are provisions made for:</p> <ul style="list-style-type: none"> <li>a. Safeguarding computer programs and data files,</li> <li>b. Backup or emergency operation, and</li> <li>c. Reconstruction of data files in case of catastrophe?</li> </ul> <p><b>** 9.</b> Does the system provide controls over the distribution of reports?</p> <p><b>** 10.</b> Does the auditee's internal audit staff periodically review the ADP function with respect to:</p> <ul style="list-style-type: none"> <li>a. Software and hardware utilization?</li> <li>b. Budgeted versus actual operating costs?</li> </ul> <p><b>Obligations</b></p> <p>1. Does the system include accounting for obligations/encumbrances/commitments (legally binding agreements)?</p> <p>2. Does the system limit obligations to the amount approved for each respective budget category?</p> <p>3. Are procedures established to assure that obligations reported are supported by appropriate purchase orders, contracts, etc.?</p> <p>4. Do these procedures provide for a periodic validation of recorded obligations?</p> <p>5. Are obligations entered on accounting records when the legal commitment is made (e.g., approval and issuance of subgrant or contract)?</p> <p>6. Does the system require the timely liquidation of obligations?</p> <p>7. Are obligations reclassified as expenditures when the goods or services are received or constructive receipt occurs?</p> <p><b>Cash controls</b></p> <p><b>** 1.</b> Are details of vouchers payable or accounts payable balanced monthly with general ledger controls?</p> <p><b>** 2.</b> Are bank accounts reconciled monthly by employees who do not prepare or approve checks and who do not have access to ledgers?</p> <p><b>** 3.</b> Are supporting data attached to and filed with vouchers?</p> <p><b>** 4.</b> Are supporting data controlled and cancelled to minimize the possibility of improper or duplicate payment?</p> <p>5. Are records maintained to identify and support in-kind contributions applicable to specific projects?</p>					



Survey of Grantee's Management System	Yes	No	N/A	W/P	Ref.
6. Are excess grant funds invested for interest by the auditee where permitted?					
<b>Personnel</b>					
** 1. Does the auditee maintain an organizational chart?					
** 2. Are organizational functions and duties structured to segregate as much as possible responsibilities such as approving financial transactions, entering transactions, keeping control records, and maintaining custody of funds and property?					
** 3. Are employee time distribution records maintained to reflect the actual time spent on each activity, including leave?					
** 4. Are the individual time distribution records prepared and certified by each employee and approved by his supervisor?					
** 5. Are labor costs distributed in accordance with the time reflected on time distribution records?					
** 6. Are such labor distribution costs periodically reconciled with the actual payroll register?					
** 7. Does the auditee have written policies for overtime payments?					
** 8. Are such overtime policies acceptable under the terms of the grant and applicable Federal regulations?					
** 9. Is unpaid overtime for exempt employees properly accounted for?					
** 10. Are labor rates consistently applied (e.g., individual, category averages, departmental averages)?					
* 11. Are employees working under Federal grants/contracts paid at rates comparable to the rates paid employees working on other projects?					
* 12. Has the auditee established reasonable and consistent labor rates to cover the time spent by top executives?					
* 13. Are formal policies in effect with respect to bonuses, retirement plans, and/or profit sharing?					
<b>PROCUREMENT SYSTEM</b>					
** 1. Do the procurement personnel have independent and final authority over the award and administration of purchase contracts?					
** 2. Do procurement policies and procedures require requisitioners to affirm that:					
a. The items/services are really needed and not otherwise available?					
b. The specifications and quality requested are actually needed?					
** 3. Does the formal selection process attempt to restrict the use of sole-source contracts and promote competitive bidding to the maximum extent possible?					
a. Is written justification required when noncompetitive selection is used in lieu of formal public advertising on major procurements?					

Survey of Grantee's Management System	Yes	No	N/A	W/P	Ref.
<p>b. Are all responsible bidders allowed a reasonable time in which to submit their offers?</p> <p><b>** 4. Wherever possible, do major procurements require the use of:</b></p> <p>a. Source lists and catalogues?</p> <p>b. Vendor files which cover:</p> <p>(1) Technical and financial capabilities?</p> <p>(2) Quality and delivery experience?</p> <p><b>** 5. Is documentation maintained to support the costs or prices negotiated on all major purchases and contracts?</b></p> <p><b>** 6. Are procedures in effect to assure that required conditions stipulated in the grant general provisions and appropriate clauses outlined in EPA regulations are incorporated into procurement agreements?</b></p> <p><b>** 7. Are procedures established to ensure that the type of purchase contract utilized is appropriate for the procurement being undertaken and acceptable to the Federal government?</b></p>					
<p><b>PROPERTY MANAGEMENT SYSTEM</b></p> <p>1. Does the auditee maintain property records for all government-furnished property and equipment which show:</p> <p>a. A description of the item?</p> <p>b. The date acquired?</p> <p>c. A property tag I.D. number or manufacturer's serial number?</p> <p>d. The location of the property?</p> <p>e. The cost or value?</p> <p>f. The condition of the item?</p> <p>g. The percent of Federal participation?</p> <p>2. Are periodic inventories made to validate government property information?</p> <p>3. Are differences between physical and book inventories analyzed, and are the resulting adjustments approved?</p> <p>4. Does the auditee follow different accounting policies with respect to major and minor equipment expenditures?</p> <p>5. Are procedures established to assure that required EPA approval is obtained for purchases or any changes in use or disposition of grant/contract property?</p> <p>6. Do the procedures require that EPA receive its appropriate share of any proceeds from disposition of the property?</p> <p>7. Has the auditee established procedures for classifying and recording property improvements, major repairs, and the rearrangement of machinery and equipment?</p>					

### BOND CALCULATION GUIDANCE

Bond issue costs are allowable if incurred under Public Law 84-660, but are unallowable under Public Law 92-500.

The primary guidance for eligible bond cost for construction grants is included in Construction Grant Memorandum 70-5, dated February 13, 1970, which is quoted below:

Subject: Uniform Determination of Bond Issue Costs for Construction Grants

It has been noted that some differences exist between Regions in the method of determining bond charges eligible for grant participation. Therefore, in order to provide for uniformity, the following procedures are to be followed in computing such costs.

Bond costs eligible for Federal participation are those associated with the bond funds actually needed to finance the applicant's share of the eligible costs. Bond funds used in computing bond costs, then, will normally include the total eligible cost of the project less any funds from Federal and State sources. If a portion of the grantee's contribution comes from sources other than a bond issue, a further deduction would be necessary. In those cases where State grants consist of annual payments over an extended period and it is necessary to issue bonds to prefinance the State grant, the eligible cost for computing allowable bonding costs need not be reduced by the amount of the ultimate State grant.

Eligible bond issue costs include those costs associated with printing, advertising, issuing, and other costs subsequent to the bond election.

Federal and State grant amounts, plus any funds from other sources, will be computed on a percentage basis, based on the funds expended for construction of the project. If a project has proceeded on a reimbursable basis, bond costs based on all bonds used during the construction are eligible, even though reimbursement is made at a later date.

After determining the percentage of Federal and state grants to be considered (plus any local funds from sources other than bonds), the eligible bond issue costs are determined by use of the formula explained in Example 1.

Examples 2 and 3 cover some of the problem areas which may arise. In addition, the following comments should clarify most of the situations encountered.

#### COMMENTS ON SPECIAL SITUATIONS

1. If the bond issue is increased during the project period, all bonds issued and all related eligible costs are used in the bond formula.

2. If other Federal agencies participate in the eligible cost, the percentage reduction from "K" is increased as shown in Example 1. A HUD grant is usually applicable to the ineligible portion of the project; in such cases, this step is disregarded.

3. Where there is an increase in the Federal grant subsequent to the bond transaction and the grantee is legally bound to pay bond costs relative to the original grant amount, no adjustment of the K factor is required. The same applies to state participation. In essence, the K

factor should be based on funds available (Federal, state, and other) at the time the grantee negotiated for the bonds.

4. Studies for determining water or sewage rates are sometimes included in reported legal or bonding cost and not identified. Such studies are considered general administration of the municipality and thus not eligible for Federal grant participation.

5. Immaterial differences in the bond cost calculation should be disregarded.

## BOND COST CALCULATIONS

### EXAMPLE #1 - NORMAL BOND CALCULATION

#### Bond Formula

$$F = \frac{S}{\frac{B}{KC} - 1}$$

F = Eligible bond issue costs to be calculated

S = Total eligible project costs, exclusive of bond issue costs--\$180,029

K = 100% less percentage of Federal grants, state grants, other financing, and grantee cash. For this example, K=45% (100%-(30+15+10)).

B = Amount of bond issue--\$192,000

C = Total bond issue costs--\$4,500

#### Example

$$F = \frac{S}{\frac{B}{KC} - 1}$$

$$F = \frac{\$180,029}{\frac{\$192,000}{45\% \times \$4,500} - 1}$$

$$F = \frac{\$180,029}{\frac{\$192,000}{\$2,025} - 1}$$

$$F = \frac{\$180,029}{93.81}$$

$$F = \underline{\underline{\$1,919}}$$

NOTE: In rare instances, an amount slightly greater than C, allowable bond costs, will be obtained for F. In such cases, use C.

## BOND COST CALCULATIONS

### EXAMPLE #2 - APPLICATION OF GRANTEE CASH TO INELIGIBLE COSTS

$$S = \$81,145$$

$$C = \$972$$

$$B = \$60,000$$

$$F = \text{Eligible bond issue costs to be calculated}$$

#### Determination of Ineligible Costs

Total Project Costs	\$82,145
Eligible Project Costs	\$81,145
Ineligible Project Costs	\$1,000

#### Source of Funds

Federal Grant	55%
Grantee Cash	\$5,000

#### Determination of Percentage of Grantee Cash

$$\$5,000 - \$1,000 \text{ (Ineligible)} = \$4,000 = \text{cash available for eligible project costs*}$$

$$\frac{\$4,000}{\$81,145} = 4.9\% \text{ of } S$$

#### Computation of K

$$K = (100\% \text{ less } 55\% \text{ grant less } 4.9\% \text{ grantee cash}) = 40.1\%$$

#### Computation of F

$$F = \frac{S}{\frac{B}{KC} - 1}$$

$$F = \frac{\$81,145}{\frac{\$60,000}{.401 \times \$972} - 1}$$

$$F = \underline{\underline{\$531}}$$

\*Local funding should be applied to the ineligible project costs first, and the remainder should be used to reduce K.

## BOND COST CALCULATIONS

### EXAMPLE #3 - SIGNIFICANCE OF SOURCE OF FUNDS

#### Computation of S

Construction Cost	\$120,220
Technical Service	13,310
Administrative	600
Bond Cost	<u>(Omitted)</u>

$$S = \underline{\underline{\$134,130}}$$

Source of Funds	<u>Amount</u>	<u>Percent of Total</u>
Federal Grant	\$44,260	33
Bond issue	75,000	56
	<u>\$119,260</u>	
Balance unaccounted* for*	14,870	11
	<u>S = \$134,130</u>	<u>100</u>

#### Computation of K

$$K = 100\% \text{ less } 33\% \text{ (Federal) less } 11\% \text{ (local)} = 56\%$$

#### Computation of C

Legal Costs	\$1,500
Printing Costs	500
Advertising Costs	187
	<u>C = \$2,187</u>

#### Computation of F

$$F = \frac{\$134,130}{\frac{\$75,000}{\$2,187 \times .56} - 1}$$

$$F = \underline{\underline{\$2,227}}$$

Since F is greater than C, use \$2,187 as eligible bond cost.

\*The balance unaccounted for is assumed to come from local funds unless the funds were obtained by means of a loan, in which case the percentage obtained by loan would not be deducted from the K factor. In the example above, if the \$14,870 had been obtained by loan, K would be 100% less 33%, or 67%.





# APPENDIX C

## SUPPLEMENTAL AUDIT PROCEDURES FOR RELOCATION COSTS

### APPLICATION OF AUDIT PROCEDURES

These audit procedures supplement the "Audit Guide for Construction Grant Program." EPA Division Audit Directors will authorize independent public accountants and EPA auditors to use these supplemental procedures whenever a construction project includes relocation costs. The procedures must be followed explicitly because they are the audit application of EPA regulations, 40 CFR, Part 4, that pertain to payments made to displaced persons.

People who are displaced or whose realty is acquired after January 1, 1971, due to an EPA-assisted project are entitled to compensation as provided by the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970. Auditors shall use the following checklist when examining relocation costs. Applications for benefits must be filed within 18 months from the date the displaced person moves from the acquired real property or the date of final payment for such property, whichever is later, unless this time period is extended by the EPA Administrator.

### ALLOWABLE COSTS

#### A. Dwelling and Personal Property

1. Transportation of people and personal property to a replacement site, not to exceed 50 miles unless justified.
2. Packing, crating, unpacking, and uncrating of personal property, and the cost of advertising for such services.
3. Storage of personal property, generally up to 12 months.
4. Insurance premiums covering loss or damage of personal property in transit or storage.
5. Lost, stolen, and damaged property; removal, reinstallation, and modification of property.
6. Movement of personal property by the displaced person, not to exceed the cost of a commercial move unless approved by the EPA Administrator.
7. In lieu of actual reasonable moving and related expense, payments to each occupant of a dwelling of (a) a \$200 dislocation allowance and (b) a moving expense allowance not to exceed \$300 based on state highway department or Federal Highway Administration allowance schedules.
8. A replacement housing payment not to exceed \$15,000, provided the displaced owner-occupant actually owned and occupied the dwelling not less than 180 days prior to initiation of negotiations, and the displaced owner-occupant purchases and occupies a replacement dwelling. The \$15,000 allowance is the lower of (a) \$15,000 less payment for any increased mortgages, interest costs, or incidental closing costs, (b) the difference between the acquisition price of the acquired dwelling and the estimated cost of a replacement dwelling, or (c) the difference between the acquisition price of the acquired dwelling and the actual price of the replacement dwelling.

9. A replacement housing payment not to exceed \$4,000 is payable to a displaced tenant or a displaced owner-occupant of a dwelling for less than 180 days, provided he occupied the dwelling for not less than 90 days and is not eligible for the \$15,000 replacement housing allowance. A displaced owner-occupant is entitled to the \$4,000 payment, rather than the \$15,000 payment, if he elects to rent, rather than buy, a replacement dwelling.

Computation of the \$4,000 payment is as follows:

a. Displaced tenant. 48 times the reasonable monthly rent for a comparable replacement dwelling less 48 times the average month's rent paid by the displaced tenant for the three months preceding the initiation of negotiation.

b. Displaced tenant by displacing agency. 48 times the reasonable monthly rent for a comparable replacement dwelling less 48 times the monthly economic rent, but no more than would be received under the \$15,000 payment provision.

c. Displaced homeowners. 48 times the reasonable monthly rent for a comparable replacement dwelling less 48 times the monthly economic rent, but no more than would be received under the \$15,000 payment provision.

In no event shall the rental payment, plus the monthly average rental or economic rent, exceed the rental of the replacement dwelling.

Monthly economic rent is either the result of an analysis of the available private rental market, an analysis of at least three comparable replacement dwellings available on the private market, or any method approved by the EPA Administrator.

10. Should a tenant elect to purchase a house within one year from displacement, the replacement housing payment shall be the down payment, plus incident settlement costs, using a conventional loan, and shall include points or a loan service fee. The maximum payment is \$4,000; if more than \$2,000, the tenant must match the excess dollar for dollar up to the \$4,000 maximum Federal payment.

11. The rules for determining the cost of a replacement dwelling are the same as those used to set monthly economic rent (Item 9).

12. Land values associated with the replacement housing payment shall be determined as follows:

a. A dwelling located on a tract typical for the area--probable selling price of a comparable replacement dwelling less the acquisition price of the acquired property.

b. A dwelling located on a tract larger than typical for the area--probable selling price of a comparable replacement dwelling on a typical tract less the estimated value of the dwelling on a tract typical for the area.

c. A dwelling located on a tract having a fair market value higher than residential use--probable selling price of a comparable replacement dwelling on a typical tract less the estimated value of the dwelling assuming it was located on a tract typical for the area.

13. No part of a replacement housing payment may be made for any portion of a dwelling used in connection with a business or farm.

14. Each individual or family occupying a multiple dwelling is entitled to separately calculated replacement housing payments.

15. Displaced homeowners of a multifamily building are entitled to payment based on the cost of a comparable one-family unit in a multifamily or single-family structure.

**B. Business or Farm**

1. Packing, unpacking, crating, and uncrating of personal property, the advertising for such services, and storage of personal property (generally up to 12 months).

2. Insurance premiums covering loss or damage while in transit or storage.

3. Lost, stolen, and damaged property; removal, reinstallation, and modification of personal property.

4. Movement of personal property by the displaced person, not to exceed the cost of a commercial move unless approved by the EPA Administrator.

5. Should the cost of moving the property be disproportionate to its value, reimbursement will be the difference between liquidated value of the property to be moved and the replacement cost at the relocated site. This is applicable to junkyards, stockpiled sand, gravel, minerals, metals, etc.

6. Should the cost of moving outdoor advertising displays equal or exceed their in-place value, such displays may be acquired along with the realty, unless prohibited by state law.

7. The expenses of searching for a replacement farm or business (limited to \$500 unless approved by the EPA Administrator):

a. Travel cost.

b. Extra cost of meals and lodging.

c. Time spent in search at the displaced person's salary rate, not to exceed \$10 hourly.

d. Necessary brokers' fees to locate a replacement business or farm if approved by the displacing agency.

8. Actual direct loss of tangible personal property as a result of relocation:

a. Business or farm operation discontinued--fair market value of personal property for continued use at the displaced location, or estimated cost to move same up to 50 miles, whichever is less.

b. Personal property abandoned--reimbursement same as 8a above.

The cost of removal of personal property will not be offset against any payments due displaced persons. The displaced person must make a bona fide effort to sell property not moved.

9. A displaced person in business may elect, in lieu of reimbursement for moving and related expenses, a fixed amount equal to the average annual net income of the business if that

business: substantially contributes to the displaced person's income and cannot be relocated without substantial loss of income; is not part of a firm engaged in similar business having one other location; is not being acquired by a state or Federal agency; and is not an outdoor advertising business.

10. A displaced person in farming may elect, in lieu of reimbursement for moving and related expenses, a fixed amount equal to the average annual net earnings. Should the acquisition be partial, payment can be made only if the remaining property is not an economic unit.

11. A displaced nonprofit organization may elect, in lieu of reimbursement for moving and related expenses, a fixed amount equal to the average annual net income, provided (a) the organization cannot be relocated without a substantial loss in existing patronage and (b) the organization is not part of a commercial enterprise having one other location, engaged in similar activity, which is not in itself being displaced.

## **APPENDIX D**

### **CRITERIA FOR ELIGIBILITY AND ALLOWABILITY OF SELECTED ITEMS OF COSTS**

#### **INDIRECT COSTS**

Indirect costs are those incurred for a common or joint purpose, benefiting more than one project or cost objective, and not specifically identifiable to the particular project or cost objective benefited. Indirect costs consist of items of a general overhead nature such as office space, utilities, and telephone. The costs are allowable only if determined on the basis of a negotiated indirect cost agreement and incorporated in the grant agreement. (See 40 CFR 30.715-2.)

#### **TRAVEL COSTS**

Grantee travel costs--allowable travel costs include travel considered necessary and directly related to accomplishing project objectives. Travel not directly related to construction and/or startup of the facility, including trips to professional meetings, symposia, lectures, etc., is not allowable as a direct charge to the project. Travel not directly related to a specific project may, however, be recovered under an indirect cost agreement (FMC 74-4).

Consulting engineer travel costs--allowable travel costs include travel considered necessary and project related, including on-site travel costs. Costs of relocation of employees and their families may be considered allowable when such travel is justified and approved by the grantee. The cost of transportation between living quarters and the construction site is normally unallowable. In unusual circumstances, where job sites are located in isolated areas and living quarters are not available within 30 miles, travel costs between living quarters and the job site are considered allowable (FPR 1-15.2 and FPR 1-15.4).

#### **BOND COSTS**

All costs under P.L. 92-500 grants associated with the approval, preparation, issuance, and sale of bonds (including bond counsel and underwriters' fees) are ineligible for grant participation. Interest on bonds or any other form of indebtedness is unallowable (FMC 74-4).

#### **LIQUIDATED DAMAGES**

Monies received by grantees in the form of liquidated damages shall have no effect on the determination of allowable costs of grant projects. However, any additional costs--construction, engineering, legal, or administrative--generated because of a contractor's lack of performance should be covered by the liquidated damages received. Thus, any such increase in cost as a result of lack of performance is unallowable for participation even if the grantee elects not to exercise its right to recover liquidated damages.

#### **BID BOND FORFEITURE**

All bid bond forfeitures should be treated as a reduction to project construction costs.

## **STUDIES, REPORTS, AND FEDERAL REQUIREMENTS**

### **Rate Studies**

Such studies are eligible if required for the establishment of user charge or industrial cost recovery systems in order to comply with 40 CFR 35.925-11 and 35.925-12. Such studies require prior approval either in the grant agreement or an amendment thereto. Allowable costs may include legal, CPA, and engineering fees related to the studies. (In order to avoid double payment, care must be exercised to assure that such work is not incident to a general contractual obligation.)

### **Financial Reports and Studies**

To the extent that such reports constitute “rate studies” for user charges and/or industrial cost recovery procedures, the costs are allowable, provided that such studies are approved in advance by the Regional Office and that the results of such studies are acceptable to EPA. Financial reports which constitute studies of, for example, the local tax base or tax structure, to determine the financial capabilities of the applicant or the financial feasibility of the proposed undertaking, are similarly allowable. The costs of all other financial reports and studies should generally be considered unallowable because such studies constitute a normal function of government.

In this regard, the Regional Office should adhere to a strict interpretation of the term “studies.” Generally, “studies” refers to preliminary reviews, examinations, analyses, etc. The interpretation must not be extended to include preparing procedures, designing implementation schemes, drafting statutes or regulations, delineating boundaries relating to finances, issuing bonds, adjusting tax rates, establishing assessment districts, or performing other activities which are a normal function of government and as such are unallowable.

### **Establishment of Special Assessment Districts**

The “mechanics” of establishing special assessment districts developed, for example, on the basis of rate studies, are a normal function of government, and as such their associated costs are unallowable. Included in this restriction are legal, administrative, and engineering costs associated with activities such as (1) drafting and reviewing statutes/ordinances, (2) preparing regulations, (3) delineating district boundaries, and (4) holding elections.

This policy extends equally to the establishment of any “special districts” such as election, service, or rate districts (including Regional Authorities) related to the grant project.

### **Public Liaison Services**

Such services are generally unallowable since they constitute a type of public information service and as such are not directly related to or necessary for the construction of the treatment works.

### **Public Participation in Step 1**

EPA Regulation 40 CFR 35.917-5 states that “...the facilities planning process (Step 1) shall be consistent with 40 CFR 105--Public Participation in Water Pollution Control...one or more public hearings or meetings should be held within the area to obtain public advice....”

In some cases, these minimum requirements can be met without expense. However, in instances where the plan will be extensive, public interest is significant, or the chance of serious public controversy is high, the expenses of meeting these minimum requirements may be increased. In such instances:

(1) Additional public participation efforts may also be appropriate.

(2) The consulting engineer may have to allocate staff time for preparing mailing lists, fact sheets, summaries of technical reports, maps, graphics, and questionnaires for the public meetings. Staff time may also have to be spent writing and distributing news releases, meeting summaries, and reports. In addition to the required meetings and hearings, other meetings and workshops might be necessary, and the staff might have to appear before local boards, civic groups, and other interested organizations.

(3) The municipality may set up a task force or advisory committee to assist in the planning process.

The above services are grant eligible, and the determination of their remuneration is subject to the terms and scope of the particular subagreement between the grantee and its engineer. If additional public participation services not covered in the basic engineering firm contract scope are required by the grantee, state, or EPA offices, then EPA should participate in such amended contract scope costs.

Administrative costs of the grantee relating to participation are reimbursed as outlined in the grant agreement.

Any costs (travel, per diem, etc.) of the citizen groups or other interested parties are not grant eligible.

#### **Assistance with State and Federal Regulations**

The cost of assistance associated with addressing state and Federal regulations and procedures which are basic to the functions of general government (such as preparation of applications and related documents or obtaining state construction and discharge permits) are unallowable. Costs growing out of meeting specific Federal statutory requirements such as public hearings and other activities related to the user charge study, facilities planning, National Environmental Policy Act (NEPA), Uniform Relocation Assistance and Real Property Acquisition Policies Act, etc., are allowable.

If such costs entail assistance which is readily available through Federal or state offices, such as interpretation of regulations or explanation of grant procedures, they should be disallowed. (In order to avoid double payment, care must be exercised to assure that such work is not incident to a general contractual obligation.)

#### **Redesign/Replanning Costs Resulting from Changes in Federal Requirements**

In those cases in which an applicant's completed or partially completed planning and/or designs are rendered invalid or unacceptable by changes in Federal requirements, both the original cost plus the redesign or replanning costs are allowable. The Regional Office must assure itself that the planning and/or design thus invalidated was undertaken in good faith by the applicant and was not the result of a disregard for existing Federal directives by either the applicant or his agent.

## **Costs of Implementing the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646)**

Four basic categories of costs associated with this Act may be considered allowable:

- (1) Moving and related expenses;
- (2) Replacement housing;
- (3) Relocation assistance advisory services (entailing direct services of the grantee in assisting the displaced person(s)); and
- (4) Acquisition of real property.

Documented allowable costs from these categories incurred on or after July 1, 1972, will be treated as other allowable project costs and reimbursed at the same percentage rate. In the case of costs resulting from acquisition or displacement occurring before July 1, 1972, EPA shall pay the full amount of the first \$25,000 of such costs for each displaced person. Allowable costs should be determined in accordance with 40 CFR 4 and guidelines which will be issued pursuant thereto. (See Appendix C of this guide for audit procedures.)

### **Field Surveys to Identify Cultural Resources**

Reasonable costs incident to field surveys to identify historical, architectural, archeological, and cultural resources in the primary impact area of grant projects are allowable. Allowable costs must be determined on a case-by-case basis and may include the cost of on-site inspections, review of pertinent documents, photographic reconnaissance, services of archeologists or historians, etc.

Such costs should receive prior approval and delineation by the EPA Regional Office. Survey costs associated solely with the examination of the National Register of Historic Places are unallowable. EPA may participate in the cost of intensive surveys (e.g., "digging") only when a sufficient amount of information exists to indicate that there is a reasonably high probability of discovering important cultural resources.

See PRM 75-27, dated November 2, 1975, for additional guidance on this subject.

### **Industrial Planning**

Step 1 related costs of industrial planning conducted and paid for by an industry whose wastes will be treated in a municipal system are not allowable. (See 40 CFR 35.925-15.)

### **Facilities Serving Communities and Federal Facilities**

Whenever a planned treatment works will jointly serve a municipality and a Federal facility, that portion of construction cost allocable to the Federal facility will not be allowable for 75-percent construction grant funding, subject to the following exceptions:

- (1) Facility planning (Step 1) costs.
- (2) Cost of Step 2 work if a Step 2 grant has been certified by the state for funding to EPA prior to the December 29, 1975, issuance of Program Guidance Memorandum 62 (now PRM 75-35).



(3) Design and construction costs allocable to a Federal facility producing less than 250,000 gallons per day, or five percent of the total design flow of waste treatment works, whichever is less.

That portion of the construction costs allocable to the Federal facility shall be based on all factors which significantly influence the cost of the treatment works. Factors such as strength, volume, and delivery flow rate characteristics will be considered and included to ensure a proportional allocation of costs to the Federal facility.

As a minimum, the portion of construction cost allocable to the Federal facility should be based on the ratio of its total hydraulic requirements, including allowances for future needs, to the total design flow of the treatment works. The portion (percentage) allocable to the Federal facility must be agreed upon by the municipality and Federal agency, and approved by EPA, prior to award of a Step 2 or Step 3 grant, whichever is applicable, for the works or any portion thereof. See PRM 75-35 for additional detail.

## **FACILITIES' SITE-RELATED COSTS**

### **Site Acquisition Versus Site Preparation Costs**

All costs associated either directly or indirectly with the acquisition of any land used for or incidental to the construction of treatment plants, lagoons, force mains, gravity sewers, outfall lines, appurtenant piping and structures, and pumping stations--whether by purchase, rental, lease, or easement--are ineligible. Similarly, all legal, realty, engineering, and grantee costs associated with such ineligible acquisition are unallowable, as are the costs of easements, rights-of-way, non-construction-related surveying, plat preparation, meetings, etc.

**NOTE:** The cost of land used as an integral part of the treatment process, such as spray irrigation sites (PRM 75-25, dated July 18, 1975), may be eligible if approved and in accordance with pertinent regulations and/or guidelines. Legal, administrative, and engineering costs associated with the acquisition of grant-eligible land are allowable for grant participation.

Costs associated with the preparation of the treatment works site (including appurtenant features) before, during, and (to the extent agreed upon in the grant agreement or amendment thereto) after construction are generally eligible. These costs include such items as: grade and construction-staking surveys; surveying for alignment and slope; and preparation of working drawings and plans dealing with site preparation, locations, grades, slopes, distances, depths, and alignments. Also eligible are costs such as fine-grading, seeding, and protective trees and shrubs.

Costs related to reasonable site screening or other aesthetic purposes are also allowable. Criteria for participating in aesthetics-related work include: support expressed in NEPA-related studies, approved facility plans, and necessary screening of adjacent properties (when the facility is in constant public view).

### **Certificate as to Title to Project Site**

Except in the case of grant-eligible land, legal costs associated with certifying as to the adequacy of the grantee's interest in the project site should be considered a normal function of government incident to the project, and as such they are unallowable.

## **Acquisition of Privately or Publicly Constructed Waste Treatment Facilities**

Costs incurred by a grantee or applicant associated with the purchase, lease, or acquisition of privately or publicly constructed and owned waste treatment facilities are not allowable.

## **Demolition of Existing Structures**

Demolition of existing structures constitutes an allowable cost provided that the structures are on the facility site (including rights-of-way for the eligible sewer lines) and that construction cannot be undertaken without such demolition. Offsite demolition is unallowable. Aesthetics-related demolition is allowable only if it conforms to the criteria relating to the allowability of site preparation outlined above.

If demolition of existing structures is required on a site not previously owned by the grantee, the grantee must address such demolition in the cost-effective analysis and demonstrate to the satisfaction of the Regional Office that in choosing the site appropriate consideration was given to the cost of demolition.

## **Removal, Relocation, and/or Replacement of Utilities**

Costs associated with the removal, relocation, and/or replacement of utilities (water, electricity, etc.) are allowable when such activity is incident to and necessary for the construction of the eligible facility. However, participation in the cost of replacing existing utilities with utilities having a greater capacity than those originally in place can only be allowed if mandated by local, state, or Federal codes, ordinances, or statutes. If a mandate for greater capacity does not exist, any additional cost must be borne by the grantee.

The provision of new or increased utility service when required for the facility (e.g., construction of a new facility or increased capacity) being constructed is an allowable cost provided that the grantee (utility customer) would ordinarily be required to pay for such installation.

## **Restoration of Streets and Rights-of-Way**

The cost of restoring streets and/or rights-of-way to their original condition is an allowable cost if the need for such restoration results directly from the construction of the eligible project. Allowable restoration may include, for example: refilling and patching of street and roadway surfaces (generally limited to the width of the trench), fine-grading and reseeding of off-street rights-of-way, reasonable tree plantings, and restoration of sidewalks.

## **EQUIPMENT, TOOLS, PARTS, AND SUPPLIES**

In accordance with 40 CFR 30.810, the grantee is required to maintain property accountability on all equipment, tools, parts, and supplies purchased under the project.

### **Mobile Equipment**

Generally, such equipment is allowable if it is identified by the grantee, approved in advance of purchase by the Regional Office, and directly necessary for the operation and/or maintenance of the overall waste-water treatment facility. Such equipment must be necessary for the transmission of waste water or sludge or for the maintenance of plant grounds and/or equipment. Allowable items include but are not limited to:

- a. Portable standby generators.
- b. Large portable emergency pumps to provide "pump-around" capability in the event of pump station failure or pipeline breaks.
- c. Sludge tanks and trailers and other necessary transport and handling equipment in those cases where the location of the ultimate sludge disposal site requires such equipment. However, cars and trucks are unallowable except for specialized sludge-handling or transport equipment.
- d. Grounds and building maintenance apparatus. Such apparatus may include, for example, mowers and snow removal equipment (in certain geographic areas). Regional Offices may use such criteria as cost effectiveness, potential for abuse, and frequency of use in considering allowability. Requests for participation based upon less than 100-percent use should be agreed to only in special situations and prorated accordingly.

### **Office Equipment and Furnishings**

Such items as identified by the grantee and approved in advance by the Regional Office, when installed or located at the treatment works and necessary to the administrative and/or technical (including training and meetings) functioning of the works, may be allowable. In larger facilities, allowability may be extended to reasonable special-purpose rooms and equipment related to the function of the facility. There may well be instances in which the Regional Office will need to exercise judgment, as in the case of "luxurious furnishings," televisions, etc.

### **Shop Furnishings**

Reasonable furnishings for shop areas such as shelves, bins, and workbenches are allowable costs.

### **Laboratory Equipment and Supplies**

Generally, laboratory items are allowable if identified by the grantee and approved prior to procurement by the Regional Office as necessary to conduct tests required for plant operation. In addition, the cost of a reasonable inventory of chemicals and supplies necessary to start operation of the plant is allowable. An EPA publication, "Estimating Laboratory Needs for Municipal Wastewater Treatment Facilities," discusses equipment needed for various size plants.

### **Safety Equipment**

Based upon the specific needs of individual facilities, necessary and reasonable safety equipment is an allowable cost. Generally, such equipment should be delineated in the operation and maintenance manual; the approval of that document may constitute the basis for EPA's participation.

NOTE: Such equipment should meet applicable Federal, state, local, and industry safety regulations and standards.

### **Tools**

Allowable tools are only those which are specified as special-purpose tools necessary for

the repair and adjustment of specific process components by the equipment suppliers/manufacturers or approved by the Regional Office. All other tools are unallowable.

### **Replacement Parts**

Replacement parts identified and approved in advance by the Regional Office as necessary to assure uninterrupted operation of the facility may be included as allowable costs. Allowable replacement items are only those which constitute parts of major systems components and which are: (1) not immediately available and/or whose procurement involves an extended "lead time," (2) identified as critical by the equipment supplier(s), or (3) critical but not included in the inventory provided by the equipment supplier(s). In those instances where adequate "backup" components are built into the system, a reduction in replacement parts should be made.

Items of routine "programmed" maintenance such as ordinary piping, air filters, couplings, hoses, and bolts are unallowable. See the EPA Technical Bulletin, "Design Criteria for Mechanical, Electric and Fluid System and Component Reliability," for additional discussion.

### **Collection-System Maintenance Equipment**

EPA will participate in the cost of collection-system maintenance when the grantee demonstrates that the equipment:

- (1) Is needed frequently;
- (2) Is necessary to preclude the discharge or bypassing of raw sewage; or
- (3) Is necessary to provide for the health, safety, and welfare of the citizens.

Such equipment must be reasonable and approved by the Regional Office.

EPA participation in the cost of such equipment purchased in connection with a construction grant shall be based upon a proration of the portion of the collection system in which EPA participates to the total system. Thus, if EPA participates in 65 percent of the grantee's total collection system, the allowable costs shall constitute 65 percent of the cost of such equipment purchases pursuant to the grant agreement. Generally, the proration should be based upon the relative lengths of the new to the total system rather than cost or size.

### **Project Inspection**

Costs associated with technical inspections of the eligible project before and during construction (including time extensions approved by change order) are allowable. Such costs must be clearly documented, and to avoid double payment, the work must not be incident to a general contractual obligation.

### **Ground-Water-Monitoring Facilities**

Costs associated with the construction of ground-water-monitoring equipment and facilities may be considered allowable only in those cases in which, as a direct result of project construction, the possibility of ground-water deterioration, depletion, or modification exists. Allowability may not be extended to the operation, surveillance, and/or analyses associated with these facilities. Such facilities require the prior approval of the Regional Office.

### **Biological "Seeding"**

Under certain conditions (climatic, geographic, nature of wastes, etc.), reasonable costs associated with the purchase and/or transportation of biological seeding materials required for initiating (or expediting the initiation of) the treatment process operation are allowable.

### **SUBAGREEMENT COSTS**

The following requirements are mandated under P.L. 84-660, P.L. 92-500, and EPA regulations 40 CFR 30.800 and 30.805.

#### **Service Charges**

Service charges are defined as any supplemental charges added to other direct costs (nonsalary) which are claimed on an actual cost basis. Regardless of contract terms, the actual cost of service charges must be supported by accounting records. If the service charges are not supported or if the actual cost is less than the amount claimed, the total or the difference is unallowable for Federal participation. This is in accordance with the ASCE manual, which states that the service charge is for expenses to be reimbursed by the client.

#### **Fringe Benefits**

Regardless of contract terms, the actual cost of fringe benefits must be supported by accounting records when they are claimed as a direct charge. If the charges are not supported or if the actual cost is less than the amount claimed, the total or the difference is unallowable for Federal participation. Where the fringe benefits are claimed as a direct charge and also included in the multiplier, the duplicate direct charge is unallowable for Federal participation.

#### **Labor Charges and Related Costs**

Regardless of contract terms, where charges have been made to the grant and there was no cost incurred, the charges should be questioned. Labor charges and related costs for straight time or overtime hours which are billed but for which cost has not been incurred will be unallowable for Federal participation. (Compensatory time will be considered in determining actual labor costs incurred. However, compensatory time is allowable only if it is incurred in accordance with established company policy, if it is properly controlled and accounted for, and if it is used within an annual accounting period.)



## APPENDIX E

### CONSULTING ENGINEER SUBAGREEMENTS--RECORDS SUBJECT TO AUDIT

#### Method of Compensation (1)

Type of Records (2)	Percent of Construction Cost (ASCE Curve) (3)	Salary Cost Plus Multiplier (4)	Time and Materials (Per Diem) (5)	Cost Plus Fixed Fee (6)	Firm Fixed Price (7)
Category A: Technical and professional project records	Yes	Yes	Yes	Yes	Yes
Category B: Financial records of direct costs for the services performed	No	Yes	Yes	Yes	No
Category C: Financial records pertaining to profit and overhead	No	No	No	Yes	No

#### Notes:

(1) An engineering subagreement may provide for more than one method of compensation based on the different services provided. Records under each method of compensation under a subagreement are subject to audit individually in accordance with the guidance provided in Appendix D to Subpart E of 40 CFR 35, paragraph A.2.d. In addition, under agreements covering both grant-eligible and ineligible work, access to records will be exercised to the extent necessary to allocate contract work or costs between work eligible for Title II construction grant assistance and work or costs which are ineligible (Appendix D, paragraph A.2.c).

(2) Where there is an indication of fraud, gross abuse, or corrupt practices, EPA will exercise its right of access to records in all categories (Appendix D, paragraph A.2.b).

(3) Agreements based upon a percentage of construction cost. Category B and C records will not be audited. However, terms of the agreement, including the total amount of compensation, will be evaluated for fairness, reasonableness, and consistency with historical and advisory guidelines in general use and acceptable locally (such as ASCE Manual 45 or other analyses or data relied upon or utilized by the contracting parties in negotiation of the agreement). Such evaluation shall also consider comparable contracts for which EPA grants have been awarded (Appendix D, paragraph A.2.b(1)).

Total allowable fees under percentage-of-construction-cost type contracts are conditioned by the following (Appendix D, paragraph B.5):

(a) Applying the accepted fee rate to the low bid where design work (Step 2) is essentially continuous from start of design to bid opening (Step 3) and bid opening occurs within a year of design completion;

(b) Where design work is not continuous from start of design to bidding or one year or more elapses between substantial Step 2 completion and bid opening, the total allowable contract costs may not exceed the lower of:

1. The consulting engineer's construction cost estimate provided at the time of such substantial completion plus an escalation of this construction cost estimate of up to five percent, but not to exceed the consulting engineer's total compensation based on the low bid for construction; or

2. The consulting engineer's construction cost estimate provided at the time of such substantial completion plus a consulting engineer's compensation escalation not to exceed either \$50,000 or the consulting engineer's total compensation based upon the low bid for construction.

(c) Where the low bid for construction would have resulted in a higher consulting engineer's total compensation than provided in paragraph B.5.b of Appendix D, the Regional Administrator may also consider a reasonable additional compensation for updating the plans and specifications, revising cost estimates, or similar services.

(4) Agreements based upon salary cost times a multiplier, including profit. Category A and B records will be audited. Category C records will not be audited. However, terms of the agreement, including the total amount of compensation and the multiplier, will be evaluated for fairness, reasonableness, and consistency with historical and advisory guidelines in general use and acceptable locally (such as ASCE Manual 45 or other analyses or data relied upon or utilized by the contracting parties in negotiation of the agreement). Such evaluation shall also consider comparable contracts for which EPA grants have been awarded. Items of overhead or other indirect costs will only be audited to the extent necessary to assure that types of costs found both in overhead and reimbursable direct costs, if any, are properly charged (Appendix D, paragraph A.2.b(2)).

(5) Time and materials (per diem) agreements. Category C records will not be audited. Category A and B records will be audited to the extent necessary to determine that hours claimed and classes or personnel used were properly supported. The per diem rates will be evaluated in accordance with appropriate portions of paragraphs A.2.b(1) and (2) of Appendix D. (See Appendix D, paragraph A.2.b(3).)

(6) Cost plus a fixed fee (profit). All direct costs and overhead and other indirect costs claimed will be audited to determine that they are reasonable, allowable, and properly supported by the consulting engineer's records. The amount of fixed fee will not be questioned unless the total compensation appears unreasonable when evaluated in accordance with paragraphs A.2.b(1) and (2) of Appendix D. (See Appendix D, paragraph A.2.b(4).)

(7) Firm-fixed-price (lump sum) contracts. Category B and C records will not be audited. The contract amount will not be questioned unless the total compensation appears unreasonable when evaluated in accordance with appropriate portions of paragraphs A.2.b(1) and (2) of Appendix D. (See Appendix D, paragraph A.2.b(5).)



## APPENDIX F

### CONSULTING ENGINEER SUBAGREEMENTS--ALLOWABLE METHODS OF COMPENSATION

#### Method of Compensation

<u>Date of Grant Award</u>	<u>Percent of Construction Cost (ASCE Curve)</u>	<u>Salary Cost Plus Multiplier</u>	<u>Time and Materials (Per Diem)</u>	<u>Cost Plus Fixed Fee</u>	<u>Firm Fixed Price</u>
Prior to July 1, 1975--all grant steps	Yes	Yes	Yes	Yes	Yes
July 1, 1975, through March 1, 1976					
Step 1	No (1)	No (1)	Yes	Yes	Yes
Step 2	No (2)	No (2)	Yes	Yes	Yes
Step 3	Yes (3)	Yes (3)	Yes	Yes	Yes
After March 1, 1976					
Step 1	No (1)	No (1)	Yes (5)	Yes	Yes
Step 2	No (2)	No (2)	Yes (5)	Yes	Yes
Step 3	No (4)	No (4)	Yes (5)	Yes	Yes

#### Notes:

(1) This method of compensation is unallowable unless "work was initiated" before July 1, 1975 (Appendix D, paragraph B.1). The definition of "work initiated" for Step 1 is as follows (40 CFR 35.905-4):

(a) Prior to November 1, 1974: the execution of a subagreement for any element of Step 1 project work; issuance of a notice to proceed; or a work order for Step 1 work.

(b) Subsequent to October 31, 1974: the date of approval of a plan of study.

In addition, this method of compensation will not be questioned when reimbursed in conjunction with a Step 3 award for work within the scope of Step 2 work "contracted for" prior to July 1, 1975 (Appendix D, paragraph B.2.). Note the words "contracted for" as opposed to "grant award." In this context, "contracted for" relates to the engineering subagreement.

(2) This method of compensation is unallowable unless "work was initiated" before July 1, 1975. The definition of "work initiated" for Step 2 is as follows:

(a) Prior to November 1, 1974: the execution of a subagreement for plans and specifications; issuance of a notice to proceed; or a work order for Step 2 work.

(b) Subsequent to October 31, 1974: the date of approval of facilities plans.

In addition, this method of compensation will not be questioned when reimbursed in conjunction with a Step 3 award for work within the scope of Step 1 and 2 work contracted for prior to July 1, 1975.

(3) Although Appendix D is silent on Step 3 grants awarded during this period, the Headquarters Grants Administration Division (GAD), in a memorandum to Region IX dated August 18, 1976, provided the following guidance:

Neither PG 53 nor Appendix D requires the renegotiation of Step 3 engineering agreements, even if they are of the types prohibited under 35.937-1.

While EPA does not require this renegotiation, there is nothing to prevent a grantee or state from requiring renegotiation if it desires to do so.

(4) Multiplier agreements are not allowable except for subagreements executed prior to March 1, 1976, which cover more than one step (40 CFR 35.937-11). However, such agreements are subject to the requirement that the subagreements may have to be renegotiated to either the cost-plus-fixed-fee or firm-fixed-price method of compensation prior to the grant award action for the next step (Appendix D, paragraph B.6). Headquarters GAD's memorandum to Region IX dated August 18, 1976, provided further guidance in this regard:

Under the provisions of 35.937-11, Appendix D is applicable to all existing engineering agreements for which grants are awarded on or after March 1, 1976. Therefore, for Step 3 grants awarded after March 1, renegotiation of such contracts is not required (presuming of course that the Step 2 work was initiated before June 30, 1975).

The definition of "initiation of work" is provided in Note 2 above.

(5) 40 CFR 35.937-1(e) provides certain restrictions on the use of time and material subagreements when the amount is expected to exceed \$10,000.

## APPENDIX G

### CONSULTING ENGINEER SUBAGREEMENTS SUBJECT TO 40 CFR 35.937-5, -6, AND -7 (NEGOTIATION AND SUBMISSION OF EPA FORM 5700-41)

<u>Date of Grant Award</u>	<u>Applicability</u>
Prior to March 1, 1976	No
March 1, 1976, to June 30, 1976	Yes (1) and (2)
After June 30, 1976	Yes (1)

#### Notes:

(1) Subagreements executed prior to March 1, 1976, which cover more than one step may be exempted until the next step is awarded (40 CFR 35.937-11). The exemption does not apply to Step 2 work initiated after June 30, 1975 (40 CFR 35, Subpart E, Appendix D, paragraphs B.3 and B.6). Nor does it apply to Step 3 grants where the Step 2 work was initiated after June 30, 1975. (See Headquarters Grants Administration Division's memorandum dated August 18, 1976.)

(2) For grant applications submitted between December 17, 1975, and February 28, 1976, the subagreements are not exempted subject to Note 1 above. Grant applications submitted prior to December 17, 1975, may be exempted. (See Alm/Breidenbach Class Deviation dated May 11, 1976.)



# APPENDIX H

## INTERPOLATION OF FEE PERCENTAGE

When construction costs, or other bases of compensation, fall between two known points on the fee curve, it is necessary to use interpolation to arrive at the applicable fee percentage. Most engineering agreements specify the use of straight-line interpolation between points. In the absence of a specified method of interpolation, the use of the straight-line method will result in a slightly higher, but insignificantly different, amount of allowable costs. An explanation of straight-line interpolation follows:

Audit Question: What percent design fee corresponds to construction costs of \$9,750,000?

	<u>Construction Cost</u>	<u>Fee Percentage</u>
Lower Limit	\$5,000,000	6.42%
Upper Limit	<u>10,000,000</u>	<u>6.03%</u>
Absolute Difference	<u>\$5,000,000</u>	<u>.39%</u>

(Above data based on ASCE 1972 Curve "A" (page H-2).)

The interpolation can be made in either of two directions (from the "bottom up" or from the "top down"). Thus, there are two ways to compute the "incremental difference" (shown below). Both methods give the same results. Whichever direction is chosen, the auditor must be sure that he is consistent in the approach.

Construction Cost	\$9,750,000	Upper Limit	\$10,000,000
Lower Limit	<u>5,000,000</u>	-or- Construction Cost	<u>9,750,000</u>
Incremental Difference	<u>\$4,750,000</u>	Incremental Difference	<u>\$250,000</u>

The interpolation may be expressed in ratio form, for each of the two methods above, as follows:

$$\begin{array}{lcl}
 \text{(Incremental Cost Difference)} & \frac{\$4,750,000}{\$5,000,000} & = \frac{?}{.39\%} \text{ (Incremental Fee Difference)} \\
 \text{(Absolute Cost Difference)} & & \text{.39\% (Absolute Fee Difference)} \\
 \\ 
 \text{(Incremental Cost Difference)} & \frac{\$250,000}{\$5,000,000} & = \frac{?}{.39\%} \text{ (Incremental Fee Difference)} \\
 \text{(Absolute Cost Difference)} & & \text{.39\% (Absolute Fee Difference)}
 \end{array}$$

Cross multiplying, the unknown is solved as shown below:

$$(1) \text{ Incremental Fee difference} = \frac{\$4,750,000 \times .39\%}{\$5,000,000} = \frac{\$18,525}{\$5,000,000} = .37\%$$

$$6.42\% - .37\% = \underline{6.05\%}$$

NOTE: When method (1) is used (from the "bottom up"), the result must be deducted from the higher fee percentage.

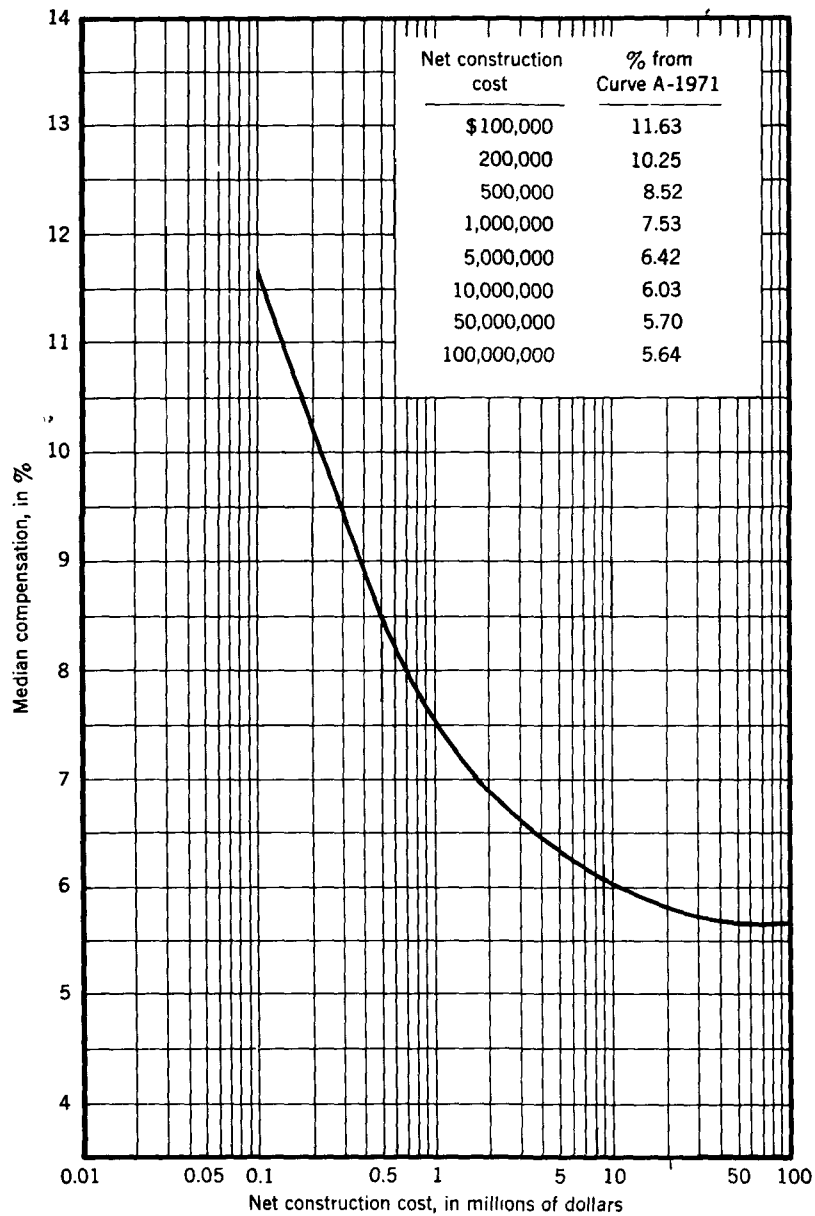
$$(2) \text{ Incremental Fee difference} = \frac{\$250,000 \times .39\%}{\$5,000,000} = \frac{\$975}{\$5,000,000} = .02\%$$

$$6.03\% + .02\% = \underline{6.05\%}$$

NOTE: Using method (2) (from the "top down"), the result is added to the lower fee percentage.

Figure H-1

**CURVE A, MEDIAN COMPENSATION FOR  
BASIC SERVICES EXPRESSED AS A PERCENTAGE OF  
CONSTRUCTION COST FOR PROJECTS OF  
ABOVE-AVERAGE COMPLEXITY (1971)**



Source: ASCE Manual No. 45.

The total design fee in this case would be computed as follows:

\$9,750,000 (total construction costs) x 6.05% = \$589,875.

NOTE: The design fee percentage would be applied to eligible construction costs to obtain accepted design costs per audit.





# APPENDIX I

## APPLICATION OF PARAGRAPH B.5 OF APPENDIX D TO 40 CFR 35, SUBPART E

The following example is intended to clarify the provisions, and to provide a working model, of the application of paragraph B.5 (determining total allowable contract costs for grant payment where work for the design step is not essentially continuous from start of design to bidding, or one year or more elapses between substantial completion of Step 2 design work and bid opening for Step 3 construction).

The provisions of Appendix D are applicable to all existing construction grants, regardless of statutory authority or date of award. Thus, Appendix D applies to both P.L. 84-660 and 92-500 grants.

### 1. COMPUTATION OF ALLOWABLE COST

Appendix D provides that in no event will allowable costs for a percentage-of-construction type contract be based on an amount exceeding the low bid for construction. This specifically excludes the cost of change orders and cost overruns from the computation basis. The method of computing allowable cost is dependent upon the time between substantial completion (discussed in paragraph 2 below) of plans and specifications and bid opening.

A. Less Than One Year. If less than one year elapses between substantial completion and bid opening, paragraph B.5.a of Appendix D limits allowable cost to the amount obtained by applying the applicable fee curve percentage to the low bid for construction.

#### Example:

##### Facts

Substantial completion of design--May 20, 1973  
Bid opening--November 27, 1973

Low bid	\$5,000,000
Changes orders	<u>1,000,000</u>
Total construction cost	<u>\$6,000,000</u>

Fee curve at \$5,000,000 = 6.42%

##### Application

Low bid	\$5,000,000
Fee curve percentage	<u>x .0642</u>
Allowable fee	<u>\$321,000</u>

B. More Than One Year. When one year or more elapses between substantial completion of design and bid opening, paragraph B.5.b limits allowable costs to the lowest of:

- (1) The applicable fee curve percentage applied to the total of the consulting engineer's construction cost estimate provided at substantial completion of plans and specifications plus an escalation of five percent of the estimate.
- (2) The applicable fee curve percentage applied to the consulting engineer's construction cost estimate provided at substantial completion of plans and specifications. A consulting engineer's compensation escalation of up to \$50,000 is added to the resultant amount.
- (3) The applicable fee curve percentage applied to the low bid for construction.

Examples:

Facts

Substantial completion of design--June 15, 1972  
 Bid opening--Nov. 27, 1973

Engineer's estimate at substantial completion	\$4,000,000
Low bid	5,000,000
Total construction cost	6,000,000

(1) Engineer's estimate of construction	\$4,000,000
Allowable escalation	x 1.05
	<u>\$4,200,000</u>

Applicable fee curve percentage (interpolated)	x .0664
	<u>\$278,880</u>

(2) Engineer's estimate of construction	\$4,000,000
Applicable fee curve percentage (interpolated)	x .0670
	<u>\$268,000</u>
Engineer's compensation escalation	50,000
	<u>\$318,000</u>

(3) Low bid	\$5,000,000
Applicable fee curve (from curve percentage)	x .0642
	<u>\$321,000</u>

Method (1) above resulted in the lowest compensation; therefore, allowable compensation in the example would be example (1), or \$278,880.

## **2. SUBSTANTIAL COMPLETION**

No precise definition of “substantial completion” of design has been made within EPA. Therefore, auditors must apply their judgment to the circumstances of each grant to ascertain the date of substantial completion. Design is normally substantially complete when no major additions or revisions are required to complete the plans and specifications.

*Evidence of substantial completion may consist of one or more of the following:*

- a. Dates shown on plans or specifications.
- b. Transmittal of plans and specifications from the consultant to the grantee.
- c. Submission of plans and specifications to the state and EPA for review.
- d. Minutes of board meeting in which completed plans are accepted or discussed.
- e. Grant application checklists in which completion date is annotated.
- f. Engineer's billings which show percentage of completion of design.



## APPENDIX J

### EPA DIVISION AUDIT OFFICES AND COGNIZANT GEOGRAPHIC AREAS

**Address of Cognizant  
EPA Division Audit Office**

**Geographic Area**

Mr. Juan Soto, Jr., Director  
Mid-Atlantic Audit Division  
Environmental Protection Agency  
Crystal Mall #2, Room 716  
Washington, D.C. 20460  
(703) 557-7700

Pennsylvania, Delaware,  
Maryland, Virginia,  
West Virginia, and  
Washington, D.C.

Mr. Kenneth A. Konz, Director  
Eastern Audit Division  
Environmental Protection Agency  
90 Church Street, Room 802  
New York, New York 10007  
(212) 264-5730

Maine, Connecticut, New York,  
Massachusetts, Rhode Island,  
Vermont, New Hampshire,  
New Jersey, Puerto Rico,  
and the Virgin Islands

Mr. W. Rogers Smith, Director  
Northern Audit Division  
Environmental Protection Agency  
1 North Wacker Drive  
Chicago, Illinois 60606  
(312) 353-2486

Ohio, Michigan, Wisconsin,  
Minnesota, Indiana, Illinois,  
Iowa, Nebraska, Missouri,  
and Kansas

Mr. Truman R. Beeler, Director  
Western Audit Division  
Environmental Protection Agency  
215 Fremont Street  
San Francisco, California 94105  
(415) 556-1954

Colorado, Utah, Nevada,  
Hawaii, Washington, Oregon,  
California, Idaho, Montana,  
Wyoming, Arizona,  
North Dakota, Alaska,  
South Dakota,  
Guam, American Samoa, Trust  
Territories of the Pacific  
Islands, and Wake Island

Mr. Leslie M. Buie, Director  
Southern Audit Division  
Environmental Protection Agency  
1371 Peachtree Street, NE  
Atlanta, Georgia 30309  
(404) 881-3623

Alabama, North Carolina,  
South Carolina, Florida,  
Georgia, Mississippi, Texas,  
Arkansas, Tennessee,  
Kentucky, Oklahoma,  
New Mexico, and Louisiana



## APPENDIX K

### REFERENCES

Audit Guide for EPA Contracts, Environmental Protection Agency (Washington, D.C.: February 1976).

Audit Guide for Reviewing Indirect Cost Allocation Plans and Rate Proposals, Environmental Protection Agency (Washington, D.C.: Publication pending).

Audits of State and Local Governmental Units, American Institute of Certified Public Accountants (New York: 1974).

Clean Water Act of 1977, Public Law 95-217 (December 27, 1977).

"Construction and Architect-Engineer Contracts," Public Contracts and Property Management, Code of Federal Regulations 41, Subpart 1-15.4 (U.S. Government Printing Office, Washington, D.C.). Also codified in the Federal Procurement Regulations, Subpart 1-15.4.

Consulting Engineering--A Guide for the Engagement of Engineering Services, American Society of Civil Engineers, Manual No. 45 (New York: rev. 1972).

"Contracts with Commercial Organizations," Public Contracts and Property Management, Code of Federal Regulations 41, Subpart 1-15.2 (U.S. Government Printing Office, Washington, D.C.). Also codified in the Federal Procurement Regulations, Subpart 1-15.2.

"Cost Principles Applicable to Grants and Contracts with State and Local Governments," Federal Management Circular, FMC 74-4, General Services Administration, Office of Federal Management Policy (July 18, 1974). Also referenced in "Project Costs," Protection of the Environment, Code of Federal Regulations 40, Subpart F, Section 30.710(a).

Federal Water Pollution Control Act, Public Law 84-660 (July 9, 1956).

Federal Water Pollution Control Act Amendments of 1972, Public Law 92-500 (October 18, 1972).

"General Grant Regulations and Procedures; State and Local Assistance--Interim Regulations," Federal Register, Part III, Vol. 37, No. 112 (Environmental Protection Agency, Washington, D.C.: June 9, 1972).

"General Grant Regulations and Procedures," Protection of the Environment, Code of Federal Regulations 40, Subchapter B, Part 30 (U.S. Government Printing Office, Washington, D.C.).

"Grant Programs--Interim Regulations," Federal Register, Part II, Vol. 36, No. 229 (Environmental Protection Agency, Washington, D.C.: November 27, 1971).

Handbook of Procedures--Construction Grants Program for Municipal Wastewater Treatment Works, Environmental Protection Agency (Washington, D.C.: February 1976).

Standards for Audit of Governmental Organizations, Programs, Activities, and Functions, U.S. General Accounting Office (U.S. Government Printing Office, Washington, D.C.: 1972).

"State and Local Assistance," Protection of the Environment, Code of Federal Regulations 40, Subchapter B, Part 35 (U.S. Government Printing Office, Washington, D.C.).

"Uniform Administrative Requirements for Grants-in-Aid to State and Local Governments," Federal Management Circular, FMC 74-7, General Services Administration, Office of Federal Management Policy (September 13, 1974).