5297

100R76101

AUDIT GUIDE
FOR
CONSTRUCTION
GRANT PROGRAM

ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

FEBRUARY 1976

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.

CONTENTS

	Page
1: INTRODUCTION	1.1
1.1 Purpose of Audit Guide	1.1
1.2 Program Background	1.2
1.3 Authority for Audit	1.2
1.4 Audit Standards	1.3
1.5 Audit Objectives	1.3
1.6 Matters Requiring Immediate Attention	1.4
1.7 Quality Control	1.4
2: DEFINITION OF PROGRAM TERMS	2.1
3: PRELIMINARY PROCEDURES	3.1
3.1 Developing the Audit Approach	3.1
3.2 Types of Audits	3.2
3.3 Developing the Plan	3.3
3.4 Major Activity Areas for Audit Focus	3.7
4: FIELD AUDIT PROCEDURES	4.1
4.1 Approach to Audit Costs	4.2
4.2 General Audit Steps	4.7
4.3 Specific Areas of Audit	4.9
5: EXIT CONFERENCE	5.1
6: THE AUDIT REPORT	6.1
6.1 Introduction	6.1
6.2 Content and Format of Auditor's Report	6.2
6.3 Presenting the Findings	6.2
6.4 Auditor's Report on Subagreement Costs	6.3
APPENDIX A—Survey of Grantee's Accounting, Procurement, and Property Management Systems	A.1
APPENDIX B—Bond Calculation Guidance	B.1
APPENDIX C—Supplemental Audit Procedures for Relocation Costs	C.1
APPENDIX D—Reserved for Industrial Cost Recovery and User Changes	D.1
APPENDIX E—Criteria for Eligibility and Allowability of Selected Items of Costs	E-1
APPENDIX F—EPA Area Audit Offices and Cognizant Geographic Areas	F-1
APPENDIX G—References	G-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 to conduct 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. Auditors must use their 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 preliminary to construction and loans for construction. 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, and 1972. 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 made to a grantee 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 in cases where the state agreed to pay not less than 25 percent of estimated reasonable cost of all projects for which Federal grants were made, and if 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.

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 subcontractor's books, documents, records, and papers which are pertinent to the project (40 CFR 35.935-7). EPA auditors and auditors under contract thereto are the Administrator's representatives.

The EPA Office of Audit is responsible for all audits of EPA grants. The Area Audit Manager (see Appendix F) may elect to have an individual audit conducted by his staff, another Federal agency, state or local auditors, or an independent public accountant. When the Area Audit Manager elects to have the audit performed by an independent public accountant, the Manager must notify the grantee or contractor as to the firm performing the audit. It will be the selected firm's responsibility to contact the grantee or contractor to arrange the commencement 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 grant/contracts, the auditors are expected to adhere to generally accepted auditing standards. In addition, the auditor should utilize those portions of the American Institute of Certified Public Accountants' (AICPA) Industry Audit Guides considered applicable. 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 determine whether the management controls exercised by 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, and Applicable EPA regulations.
- to identify any noncompliance with applicable grant provisions or EPA rules and regulations and, based upon the review, to provide recommendations for improvement.
- to 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. 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, duplications, gross mismanagement, or other similar irregularities are noted the auditors should:

- document the situation
- immediately notify the Area Audit Manager of the situation encountered; and
- proceed only in accordance with instructions provided.

2. Insufficient Data or Inadequate Systems

Auditors are 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 Area Audit Manager or his designated representative. Where insufficient data or inadequate systems preclude the reaching of opinions concerning the reasonableness, allocability, and allowability of costs within a reasonable period of time, auditors must, as a minimum:

- document tests and observations to support the auditor's opinion regarding insufficient data or inadequate systems.
- notify the Area Audit Manager and cease work until instructions are received.

1.7 QUALITY CONTROL

EPA retains the right to review audit work papers to evaluate the over-all quality of the audit performed. In this regard, EPA may require that copies of the audit work papers be forwarded along with the completed audit report to the responsible Area Audit Manager or his designated representative. The audit work papers 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 auditors should retain the work papers 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 Title 40, Part 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 establish by the EPA Regional Office. The grantee is notified of the cutoff date by letter. After the cutoff date, the cost of any 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.

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 his own employees, material and equipment for construction, construction related activities, or for 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, over a period of 30 years or the life of the facility, of construction costs of a treatment works, for the industrial users, based on the proportionate treatment of waste from such users. Fifty percent 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.

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.

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: Figure 3.1.

- Step 1—Facilities Plans and Related Elements
- Step 2—Preparation of Construction Drawings and Specifications
- 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.

Figure 3.1

CONSTRUCTION PROJECT MILESTONES—OVERVIEW

STEP 1

- Facility Plans, and Related Elements
- Municipality submits application
- Reviews by state and EPA
- Facility plans and alternatives proposed
- Environmental and social aspects considerations
- Priorities as set by State for Step 2

STEP 2

- Preparation of Construction Drawings, Plans & Specifications
- Municipality submits application
- Reviews by state and EPA
- Plans and specifications completed
- Review and approval by state and EPA
- Priorities as set by EPA for Step 3

STEP 3

- Fabrication, Building, and Certification of Treatment Works
- Municipality submits application
- Reviews by state and EPA
- Applicant advertises and selects low, qualified bidder
- Review and approval by state and EPA
- Construction

  a) Progress payments
  b) Request for changes approved
  c) Interim inspections by state/EPA
  d) Interim audits by state and/or EPA
  e) User charge, industrial cost recovery system
  f) Operations and maintenance manual approved
  g) Grantee certifications
     - Project completed
     - Final audit, payment

3.2 TYPES OF AUDITS

Two types of field audits will be conducted:

- interim audits, and
- final audits

The overall objectives of these 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 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. However, should the auditor encounter situations requiring skills of an engineering technical nature, he should contact the Area Audit Manager, who will review the situation and arrange for technical assistance.

3.2.1. Interim Audits

The primary purpose of the interim audit is to review the grantee's operations during the initial stages of construction in order to detect any weaknesses in internal controls or in the controls over contractors responsible for design and construction and to offer positive 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:

- internal accounting controls,
- procurement systems,
- design and construction controls, and
- costs incurred

3.2.2. Final Audits

The primary purpose ot the final audit is to review the grantee's 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.

3.3 DEVELOPING THE PLAN

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

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

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

- determine whether a field audit will be performed;
- establish the scope of audit contemplated and provide a basis for preparing the necessary audit request documents; and
- assist the prospective auditors in establishing a firm resource estimate.

Descriptive data needed for completing the audit estimates will be provided (Figure 3.3) to prospective auditors for use in developing an audit plan. Other grant 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.

In addition, there are substantial regulatory requirements the grantee must comply with under the P.L. 92-500 construction grant programs. These requirements are set forth in part 30 and 35 to EPA's regulations. The auditor must also review the documents in order to identify the terms and conditions unique to the audit being performed.

In reviewing the project, the Audit Manager will determine if there are any areas requiring special attention. The Manager will thus identify areas for which he requires detailed audit coverage as well as areas requiring little or no coverage. In addition, the Manager may want to expand the audit to cover certain aspects of efficiency, economy, or program effectiveness. Whenever the scope is thus expanded, the Manager will provide the additional audit guidance necessary for appropriate coverage of the expanded areas.

Figure 3.3

Information to be Provided to Prospective Auditors for Use in Determining Scope, Schedule, Resource Plans, and Estimates of Audit Efforts
• Grant number • Grantee name and address, phone number • Eligible project cost • Grant amount • Number and dollar value of change orders • Number, amount, and type of Construction Contract • 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. • 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 cut-off 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 (i.e., 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:

- note any special grant conditions which may be significant to the audit; and
- familiarize himself with the regulations applicable to the grant/project and indicated in grant award documents.

3.4 MAJOR ACTIVITY AREAS FOR AUDIT FOCUS

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

- accounting practices;
- procurement practices; and
- 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 (Appendix A) are as follows:

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 department(s) 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 vs. 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.

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 soley 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 employee turnover, changes in circumstances, exceptions to the unwritten rules, and loose internal control. 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:

- 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.

- 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 Federal Management Circular (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.

- 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 its 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 insure that all major transactions have checks and balances on

the individuals involved. It should also be remembered that 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's efforts by task should be recorded and should have an audit trail which the grantee could examine in detail if the contract was significant in amount.

f. Accounting reports

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

The constant question must be: has the grantee given sufficient thought to planning the accounting system? It should be based on analysis of his 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 (Figure 3.5)

EPA regulations (40 CFR 35.938-3) require that each construction contract shall be either a lump sum contract, a unit price contract, or a combination of the two. Each contract must be awarded by means of formal advertising to the lowest responsive, responsible bidder.

- **Lump Sum**

The lump sum contract generally provides that the contract 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 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, non-competitive change orders to formally advertised procurements must be negotiated.

- **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. Like lump sum 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.

Figure 3.5

CONSTRUCTION CONTRACT CHARACTERISTICS

AREAS OF CONSIDERATION	FIRM FIXED-PRICE (LUMP SUM)	UNIT PRICE
Cost & fee/profit pattern	• Cost is not specified • Profit is not specified • A total price is established	• Cost is not specified • Profit is not specified • Unit price is fixed
Effect of overrun or underrun	• All costs over price are borne by contractor • Cost underrun increases profit	• All costs over price are borne by contractor • Cost underrun increases profit
Basis of payment	• Progress payment varies	• Payments of billing price upon delivery and acceptance of product • Progress payment varies
Contractor's potential risks	• Profit can go to zero and below • Specified schedules and technical performance requirements **must** be met • Contractor must deny extra contractual effort • Changes to the contract and claims must be managed astutely • A proven cost, schedule, planning, and control system is essential • Can expect an increase in disputes with government	• Profit can go to zero and below • Specified schedules and technical performance requirements **must** be met • Contractor must deny extra contractual effort • Changes to the contract and claims must be managed astutely • A proven cost, schedule, planning, and control system is eesessential • Can expect an increase in disputes with government

b. Engineering contracts (Figure 3.6)

The method of obtaining engineering and consulting services under grants is generally through a negotiated procurement. This type of procurement should involve screening a number of firms for technical competence. Historically, the grantee's consultants have

commonly been preselected and thus the important point is the reasonableness of the negotiated price and method of reimbursement. Under a negotiated procurement, there are a number of types of contracts. They include fixed price, cost reimbursable, time and material (labor hour contracts) or combinations of the above. The Federal Procurement Regulations (FPR), Section 1-3.4 discusses in detail these forms of contracting, when they are considered applicable, and their limitations. The following summary of each is provided.

- **Fixed Price**

The FFP or lump sum 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 contractor assumes full responsibility for profit or loss, he 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 whenever 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.

- **Cost Reimbursable**

The cost reimbursable type of 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. Since the fixed fee does not vary in relation to cost, the CPFF contract provides the contractor only minimum incentive for effective management control of costs. The CPFF contract provides that the contractor receive his 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 completition of performance to determine that their claims included only allowable costs in accordance with applicable regulations.

- **Time and Materials (Labor Hour)**

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 this type of contract 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 labor hour 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 contracting can be acceptable. However, the grantee is responsible for demonstrating that:

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

In reviewing procurement systems for procurements awarded under EPA's "Subagreements Regulation 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.

Figure 3.6
Engineering Contract Characteristics

AREAS OF CONSIDERATION	COST-PLUS-FIXED-FEE	FIRM FIXED-PRICE (LUMP SUM)	LABOR HOUR
Cost & fee/profit pattern	• Cost is estimated • Fee is fixed in CPFF • No fee in cost	• Cost is not specified • Profit is not specified • A total price is established	• Cost is not specified • Profit is not specified • Fixed hourly labor rates are negotiated
Effect or overrun or underrun	• Fee $ unchanged • Government assumes risk of overrun and benefits of underrun	• All costs over price are borne by contractor • Cost underrun increases profit	• All costs over price of each hour's work are borne by contractor • Cost underrun increases profit
Basis of payment	• Cost reimbursed as incurred, plus prorated fee	• Progress payment varies	• Payment based upon actual hours worked
Contractor's potential risks	• No fee risk • Best effort only is required to meet cost • Government maintains a high level of involvement in contractor's operations • Contractor normally does not contest extracontractual direction, requests and interpretations	• Profit can go to zero & below • Specified schedules and technical performance requirements **must** be met • Contractor must deny extra contractual effort • Changes to the contract and claims must be managed astutely • A proven cost, schedule, planning, and control system is essential • Can expect an increase in disputes with government	• Profit can go to zero and below • Specified schedules and technical performance requirements must be met • Changes to the contract and claims must be managed astutely • A proven cost, schedule, planning, and control system is essential

3.4.3. Project Management Practices

The project management approach applied by the grantee is significant to his ultimate ability to control costs and schedules. In addition to a clear understanding of contractual relationships, it is necessary that the grantee, the engineer and the construction contractor establish 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 in Figure 3.7.

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 3.7.

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 3.7.

Figure 3.7

Basic Principles of the Grantee-Engineer-Construction 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, used

Planning and Design Phase Cost and Schedule Control Activities

- Regular planning and design meetings attended by proper management membership
- Regular reports on planning and design progress as related to prior schedules
- Specification 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 and comparison of plans and actuals
- Control of field progress by regular site reviews and continuing physical inspection-/monitoring
- A change order budget system, which shows dollars, manhours, and quantities of materials or equipment.
- A change order approval system, with adequate formalized evaluations of the impact of pending changes, and change notification procedures for fully implementing approved changes

CHAPTER 4: FIELD AUDIT PROCEDURES

In performing the audit, the auditor must use professional judgement 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. Major portions of this section are:

4.1 Approach to Audit of Costs
4.1.1. Factors Determining Allowability
4.1.2. Review of Costs

4.2 General Audit Steps
4.2.1. Initial Field Audit Procedures
4.2.2. Verification of Claim
4.2.3. Verification of Eligibility
4.2.4. Credits, Rebates, and Refunds
4.2.5. Unpaid Bills

4.3 Specific Areas of Audit
4.3.1. Audit of the Force Account
4.3.2. Audit of Engineering Services
4.3.3. Audit of Construction Costs
4.3.4. Criteria for Audit of Special Items of Costs
4.3.5. Other Audit Matters

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 cost 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. 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:

- 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:
- Be authorized or not prohibited under State or local laws or regulations;
- Conform to any limitations or exclusions set forth in the grant document, Federal laws or other governing limitations as to types or amounts of cost items;
- 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;
- Be accorded consistent treatment through application of generally accepted accounting principles appropriate to the circumstances;
- Not be allocable to or included as a cost of any other federally financed program in either the current or a prior period; and
- Be net of all applicable credits.

Costs questioned normally fall under one or more of the following categories:

Prohibited costs. Costs which are specifically prohibited under the terms of the grant or other cost principles cited in the grant or applicable EPA regulations or guidelines.

Unreasonable Costs. In determining the reasonableness of a given cost, consideration shall be given to:

- 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;
- 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:
- 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.
- Significant deviations from the established practices of the grantee/contractor which may unjustifiably increase the grant/contract costs.

The auditor in conducting his examination should be cognizant of the costs incurred which indicate to him that they may be excessively high or even unwarranted. In making

the determination as to any costs which might be questioned as being unreasonable the auditor would rely on his own judgment. In making these determinations the auditor 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 cost is allocable to a particular grant/contract to the extent of benefits received.
- Any cost allocable to a particular project or function may not be shifted to a Federal grant/contract to overcome fund deficiencies, avoid restrictions imposed by law or grant/contract agreements or for other reasons.
- Where an allocation of common costs will ultimately result in charges to a grant/contract, an indirect cost rate proposal will have to 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 in fact 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.

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 pre-grant costs which will be allowable (40CFR 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 E.

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 acceptable other costs over the eligible and ineligible portions of the project on the following basis:

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

Total eligible project costs will be computed as follows:

Total Eligible Construction Costs Accepted	+	Other Eligible Accepted Costs	=	Total Eligible Accepted Costs

The percentage of project costs in which EPA is participating, per 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.

Figure 4.1

EXAMPLES OF PROHIBITED (UNALLOWABLE) 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 benefitted 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)

4.2 GENERAL AUDIT STEPS

4.2.1 Initial Field Audit Procedures

In starting the audit, the auditor should:

- 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.
- identify any additional EPA or other Federal grants or contracts being performed by 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 Area Audit Manager so that a decision may be made as to whether the scope of the audit will be expanded to cover these agreements.
- familiarize himself with the grantee's accounting, personnel, procurement, and property management systems as they relate to grant expenditures. In this regard, the auditor should initially obtain information regarding any established policies and procedures governing these activities. He should then perform a limited survey to identify significant weaknesses in the systems as they apply to the EPA grant, utilizing, as a minimum, the survey questionnaire contained in Appendix A of this audit guide. The survey should include sufficient testing of the records to validate the information obtained in the survey.

4.2.2. Verification of Claim

Examine the latest/final request for reimbursement/cash outlay report and reconcile each expense item in total to the project cost and/or disbursement ledger.

- Determine the mathematical accuracy of the report and the ledger.
- Determine whether the grantee prepared the report based on his accounting records, or whether it was prepared by EPA or the grantee's consultant. If it was prepared by others, determine what records he used to obtain the costs reported.
- Scrutinize supporting data (i.e., contractor(s) and/or other certification for cumulative billing amounts submitted to the cash outlay reimbursement report).
- Determine the total cash payments to the grantee under the construction grant.

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 identifies eligible and ineligible costs as well as allowable and unallowable costs and which contains separate accounts for each item of expense (FMC 74-4), i.e.:

- construction, by contract;
- engineering services; and
- 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. If noted, it should be ascertained that such items were credited properly to the construction account. As part of the audit:

- examine contractor billings noting whether certain items are marked or indicated for deletion; and
- examine cash receipt records, noting funds received from contractors and/or other sources, i.e., State sales tax refunded to grantees or subcontractors.

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:

- determine whether there are sufficient funds available to pay bills in a timely manner.
- 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.

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. Similarly, 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). If force account work has been done, the project file should contain some supporting information, ranging from a simple summary of costs to complete payroll documentation.

Determine whether:

- 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, 40 CFR 35.936-14.
- Construction work handled through force account was not for repair and maintenance of existing facilities.
- Completed construction was appropriately approved by the grantee's engineer.
- 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 work papers a schedule showing force account labor costs and on a selective basis:

- Trace hours charged to time records
- Verify payroll computations
- Verify payments made from the payroll to the construction account.
- Verify fringe benefit costs.

The auditor should include in his work papers a schedule of force account material, supply, and equipment costs and, on a selective basis:

- Verify types and quantities of items used to issue slips or similar documentation.
- Determination that the amounts charged were reasonable and computed in accordance with grantee's normal costing policy.
- Determine that costs claimed do not include nonexpendable construction equipment (i.e., exceeds minimal cost and life expectancy) even though such equipment may have been purchased specifically for the project.
- Determine that any write-offs of expendable items do not exceed the amounts allowable under the cost principles contained in FMC 74-4.
- Determine whether the grantee followed EPA guidance in disposing of or adjusting costs for unused material items 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 No. 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). 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 may use their own procurement regulations which reflect applicable state and local law, rules and regulations provided that these rules and regulations adhere to minimum standards as set fourth in Attachment O, FMC 74-7. Effective July 1, 1975, grantee procurements of consulting engineering services must be in accordance with the requirements of Program Guidance Memorandum No. 53 which was superceeded by Appendix D to EPA's "Subagreement Regulations for Construction Grants." Effective December 17, 1975, grantee procurements of consulting engineering services must be in accordance with the requirement of 40 CFR 35-936 and 40 CFR 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:

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

It should be noted 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:

- Procurements were conducted so as not to prohibit maximum open and free competition.
- 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.
- 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 is entered into which 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 have 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 has included; (a) lump sum contracts, (b) fixed labor hour rates, (c) percentage of construction cost contracts (fee curve), and (d) actual labor cost plus a stipulated multiplier for overhead and profit (cost-plus-a-percentage-of-cost).

For agreements awarded after July 1, 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. (Appendix D to EPA "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.

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

If multiplier and/or fee curve was used:

"We noted that compensation for engineering services was based upon the _____ method of contracting. We do not consider that this method of contracting ensures a reasonable price. However, the use of the _____ and profit resulting soley 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 prohibited by Appendix D to Subpart E of 40 CFR, Part 35."

If lump sum contract was used:

"We noted that compensation for engineering services was based upon a lump sum method of contracting. We do not consider that this method of contracting ensures a reasonable price in the absence of an effective negotiation based on current cost data. The use of a lump sum contract not negotiated on this basis, 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. Appendix D to Subpart E of 40 CFR, Part 35 requires that all negotiated contracts be based on current cost and pricing data."

c. Contracts for Engineering Services Awarded under EPA "Subagreement Regulations for Construction Grants" (40 CFR 35.936, 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 make a review of the reasonableness and validity of cost data submitted. Where review of the engineers 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 forms of contracting are considered ineligible and the cost of services under contracts awarded using these methods of compensation after July 1, 1975, should be questioned.

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 indication 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 contract ineligible. Accordingly, all such costs will be questioned pending access to records.

Guidance for reviewing engineering costs is as follows:

d. Verification of Engineering Costs

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

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

(4) 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

(1) Question all costs billed under this method of compensation for agreements entered into after July 1, 1975.

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

(3) Ascertain whether the compensation provided in the contract is consistent with the American Society of Civil Engineers (ASCE) or State Society guidelines in effect at the time of the award, except as provided for in steps four and five below.

(4) Determine whether the compensation (fee) percentage is based upon the total of all construction contracts under a specific project, i.e., treatment plant, interceptor sewers, rather than a separate fee percentage for each contract. If not, the additional costs resulting from the use of rates for each contract should be questioned. In making a determination as to the allowability of costs based on a separate fee percentage for each contract, consideration should be given to the appropriate ASCE or State Society guideline in effect at the time the engineering agreement was negotiated.

(5) Determine whether the actual construction cost upon which the engineer based his compensation is significantly higher than the engineer's original estimate of construction costs. If so, the auditor should follow the guidance contained in paragraph B.5 of Appendix D to the subagreement regulations. (Part B of Appendix D to Subpart E of 40 CFR Part 35.)

f. Engineering Services Reimbursed Under "Lump Sum" or Fixed Price Contract

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

(2) For "lump sum" or fixed price contracts awarded under the subagreement regulations, the auditor should analyze the information documenting the grantee's cost review of the composition of costs and perform audit steps three through eight below.

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

(4) Where the grantee has not performed a review of subagreement costs or the review is considered inadequate the auditor should furnish the Area Audit Manager with a list of all applicable subagreements. (A review of proposed subagreement costs is considered adequate if: (1) 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, (2) the grantee performs a verification of the proposed costs and quantities to the data used by the engineering firm in developing the proposal, or (3) sufficient cost and pricing data for work similar to this

project are available to provide a basis for comparison.) The manager will decide whether an audit of the subcontracts is considered necessary, the Area Audit Manager will so advise the auditor reviewing the grant.

If another agency will perform the audit, the Area Audit Manager 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 Area Audit Manager 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 lump sum or price negotiated under the contract and the engineers actual incurred costs. Where 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. (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 that 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 July 1, 1975 unless the agreement complies with 40 CFR 35.937-1d of the EPA "Subagreement Regulations for Construction Grants."

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

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

(4) In establishing the acceptability of salary cost used as a base to which the multiplier is applied, the auditor should use actual salaries and wages paid.

(5) Regardless of contract terms, the actual cost 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.

(6) Regardless of contract terms, where charges have been made to the grant and there was not 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.

(7) Service charges are defined as: any supplemental charges added to other direct cost (non-salary) 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. PG 64 dated February 5, 1976.

In reviewing direct cost 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:

(a) determine the engineer's actual cost of the services as supported by the accounting records

(b) determine that costs included in the service charge are consistently applied and are not duplicated in other accounts such as overhead

(c) compare the service charge applied to the actual cost of the service and question any over-recovery of actual cost

(8) For multiplier form of contracts awarded after July 1, 1975, the auditor should perform Step 4 under "lump sum" contract. In auditing the engineer's records, the auditor should:

(a) Determine the adequacy of the firm's accounting system to identify and accumulate project salary cost.

(b) Verify the accuracy of labor hours and rates billed. In this regard, the auditor should determine that overtime worked but not paid for is not billed to the grantee. In addition, the auditor should determine that the multiplier is applied to the labor of only "bona fide" employees of the engineering firm.

(c) In reviewing costs claimed under multiplier contracts awardend under 40 CFR 35.937, the auditor should compare the overhead portion of the multiplier to the engineers proposed overhead rate developed from his accounting records at the time of negotiation. The auditor should determine that the overhead rate developed by the engineer was prepared in accordance with FPR 1-15.2 and 1-15.4 and was based on complete, current, and accurate cost data. In instances where the rate used as a basis for negotiation was not based on complete, current and accurate cost data allowable under FPR 1-15.2 and 1-15.4 the auditor should compute an acceptable overhead rate in accordance with FPR 1-15.2 and 1-15.4 and question amounts resulting from the use of an unacceptable rate.

h. **Engineering Services Reimbursed Under a Labor Hour 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 labor hour form of contracts awarded after July 1, 1975 perform Step 4 under "lump sum" contract.

(3) The auditor should 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 labor hour form of contracting awarded under 40 CFR 35.937, the auditor should compare the rates claimed to the engineers proposal which details the labor rates, overhead rate and profit factor used as a basis for negotiation. The audit 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 was prepared in accordance with FPR 1-15.2 and 1-15.4 and was 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 and question amounts resulting from the use of an unacceptable rate.

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 review of subagreement costs or the reviews were inadequate the auditor should furnish the Area Audit Manager with a list of all applicable subagreements. The Manager will decide whether an audit is needed and, if one is needed, who will perform the audit. If no audit of the subcontracts is considered necessary, the Area Audit Manager will so advise the auditor reviewing the grant. In such cases, the costs claimed under the subcontracts will be considered allowable if costs were claimed in accordance with subcontract provisions.

If another agency will perform the audit, the Area Audit Manager 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 Area Audit Manager 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.

Instances where access to records necessary for the audit is denied, all engineering fees billed under this method of compensation should be questioned.

(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 for or will have engaged the design engineer to ensure that construction is in accordance with the specifications, plans, schedules, and the construction contract.

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 Dec. 17, 1975. Specific criteria for procurement systems are outlined in the prior section 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 lump sum or unit price or are combinations of the two. (40 CFR 35.938-3)

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

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

(d) Bidding documents include: (40 CFR 35.938-4)

- 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.
- 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)

(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)

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

(j) Special circumstances or provisions pertaining to the contract require review: i.e., implementation of the provisions of the Uniform Relocation Assistance and Real Property Acquisition Act of 1970 where acquiring real property for the project. (A supplemental audit guide is available for an audit of relocation costs (Appendix C).)

(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, and necessity for the change order(s), and reasonableness of the change order price.

(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 prior EPA approval was obtained for changes over $100,000.

(7) Determine whether the grantee or consulting engineer performed an evaluation to establish the reasonableness of the change order price. (40 CFR 35.938-5)

(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%) and the dollars are material, the grantee should be required to demonstrate he 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 include estimates of manhours to be expended, quantities of material, hours of equipment usage as well as cost and pricing data.

Change orders negotiated after the effective date of EPA's "Subagreement Regulations for Construction Grants" 40 CFR 35.936 & 938 must be negotiated on the basis of current cost and pricing data furnished by the contractor to the grantee. For lump-sum 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:

- Determine what reviews were performed by the grantee or his consulting engineer to determine the reasonableness and validity of the amounts proposed (both quantity and dollar estimates).
- Where the grantee has not performed a review of change order costs or the reviews are considered inadequate the auditor should furnish the Area Audit Manager 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 his 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 Manager will decide whether an audit of the contractor's records is needed. If no audit of the subcontracts is considered necessary, the Area Audit Manager 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 Area Audit Manager has determined that an audit of the contractor's records is necessary, the auditor should make arrangements to perform an audit of the documentation maintained by the contractor.
- Initially, a comparison should be made between the amounts paid under the contract and the contractor's actual incurred costs. Where actual costs were substantially less than estimated costs, a comparison of estimated and actual incurred quantities (labor hours/material quantities, etc.) should be made.
- In instances where the actual quantities (material and manhours) were significantly less than estimated quantities, the auditor should 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.

- In instances where actual costs were significantly less than estimated cost and where actual quantities did not vary significantly from estimated quantities, the auditor should review the contractor's cost proposal used as a basis for negotiation.
- 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 that computed using current cost data. The auditor should also ascertain the rationale for differences disclosed above.
- In reviewing the contractor's cost proposal, the auditor should as a minimum 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) Other direct costs were based on accurate, valid costing data.

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

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

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

(10) 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 costs - 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 in the event the grantee elects not to exercise his 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 are dependent, to a large degree, on the type of construction contract awarded, i.e., lump sum, unit price, or a combination of lump sum and unit price items. Contracts awarded on a lump sum basis are firm fixed price and those awarded on a unit price basis consist of estimated quantities with a fixed unit price.

(1) Lump Sum 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 adequate

procedures and controls are exercised by the consulting engineer to ensure that contractors are paid only for acceptable construction performed through the cut off 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 are 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) **Lump Sum Contracts**

Under lump sum 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) Determine whether the grantee or the consulting engineer initially approves pay estimates.

(c) Review the procedures actually used by the consulting engineer to determine that the procedures do in fact limit interim payments to work completed and accepted and inventories stored (40 CFR 35.935.6). 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 (i.e., 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 his representative. In no instance should the contractor's pay estimate be prepared by the grantee or his 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, i.e., pipe placement, piles driven, concrete placed, rock excavation, sheeting, etc. Are the procedures used and the records kept in accordance with the firm's written procedures?

(e) Determine that quantities entered on monthly pay estimates agree with amounts shown on authoritative documents such as loading slips or from daily inspection reports and the inspection diary.

(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 should be maintained daily, inspection reports 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, escavation below grade, and backfill are often treated as contingencies because actual soil conditions may vary significantly from that 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 correction. 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 a consulting engineer 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 his consulting engineer 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. It is not intended that audits performed under this guide require engineering evaluations of grantee or auditee operations. Should conditions be encountered which require such evaluations, the auditor should contact the Area Audit Manager, 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 his engineer, further audit work may not be required. Where inspection documentation indicates management problems, the auditor should follow-up to determine that corrective action was taken. Where inspection documentation does not indicate a review of each of the subjects contained in the steps below. 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 inspectors' 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 prescribes the duties and responsibilities of the resident inspectors in performing day-to-day activities? Were these procedures followed?

(5) Determine whether procedures are written which provide the type of daily records to be kept by the inspector (e.g., diaries, daily inspection reports). Were daily inspection records 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 make note of any major construction problems identified. A determination should be made that noted construction deficieincies 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 (i.e., concrete density tests, soil compaction, line and grade tests, etc) 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, the auditor should 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 items of cost can be found in FMC 74-4, 40 CFR 35.940, FPR 1-15.2, FPR 1-15.4, and Appendix E to this guide. The auditor should determine that:

- the types of expenditures involved were contemplated in the original budget and the expenditures were adequately documented;
- in instances where the contractor has established separate pools for such costs as computer services, reproduction, communications, etc., the methods used to calculate and distribute such costs are equitable;
- amounts claimed are properly supported as other direct costs and that similar costs are not recovered through indirect costing methods;
- the contractor credits to the government the applicable portion of any income, rebate, allowance, and other credit relating to any allowable costs received by or accruing to the contractor;
- when applicable, necessary approvals have been obtained from the EPA project officer.
- such costs are allowable under applicable cost principles.

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), 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 Area Audit Manager 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 for the purpose of the grant and to determine that it is controlled in accordance with 40 CFR 30.810-5, and FMC 74-7, Attachment N.

(2) Personal Property -

The auditors should review the grantees' property management system using the criteria set forth in 40 CFR 30.810, and FMC 74-7, Attach. N. 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, percentage of EPA equity, 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; and
- 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 Permit Discharge Elimination System (NPDES)**

The auditors should review the NPDES permit furnished 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.

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

Are required sampling, analytical, and reporting systems in operation?

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

d. **Operation of Facility**

An important step of the field work will be a tour of the wastewater 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:

- Determine whether the grantee has established a permanent record file, which includes:
  - the operation and maintenance manual.
  - planning reports and design criteria.
  - plans, specifications, drawings, and manufacturers' specifications for operation and maintenance of each unit.
  - flow charts indicating system hydraulics.

Determine whether the grantees has employed the number of qualified treatment plant operators indicated in their operation and maintenance manual.

- Has the grantee established institutional arrangements for personnel training and development leading to certification?

- Do key supervisory personnel meet the state's minimum certification requirements?
- 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.

Discuss the overall operation of the plant with several levels of operating personnel, including the plant superintendent, and inquire into:

(a) Problems which impair operators' ability to properly treat sewage:

(1) Equipment

(2) Process design

(3) 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 is frequency and nature of contacts by regulatory agency personnel-local, state or Federal?

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

(e) The success of the plant in meeting effluent limitations under their discharge permits?

CHAPTER 5: EXIT CONFERENCE

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

5.1 For audits with no findings or audits without significant findings the auditor should notify the Area Audit Manager and then hold an exit conference with the audited party (at the site or by telephone). 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 an exit conference.

5.2 For audits with significant findings the auditor should initially discuss the findings with the Area Audit Manager by telephone. The auditor should then hold a preliminary exit conference with the audited party to discuss the factual information disclosed during the audit. It should be emphasized 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 Area Audit Manager should be promptly furnished a preliminary copy of the draft report. If after reviewing the draft report, the Area Audit Manager agrees that the deficiencies are significant, he will meet with the responsible EPA program officials to brief them of 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 exit conference.

After receipt of written comments from the audited parties, the auditor will conduct an exit conference with each of the responsible parties involved. Thus, exit conferences must be held with the grantee and other parties having subagreements whose operations and/or costs were audited.

5.3 The auditor's workpapers shall contain the name of the auditor who conducted the exit conference, the names and positions of grantee representatives, 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 obtained, they may 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, it is imperative that audit reports contain all findings, observations, conclusions, and recommendations resulting from the audit.

6.2 CONTENT AND FORMAT OF AUDITORS' REPORT

The audit report will be prepared in accordance with the following instructions and in the formats shown in the Example Accountant's Reports, Exhibits and schedules contained at the end of this chapter.

6.2.1. Scope Paragraph

a. The scope paragraph will identify the grant audited and the period audited. The period audited will be from the date of grant offer to date of final inspection or designated cutoff date.

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 a 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" or "questioned" 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 report must contain comments as to the adequacy of the accounting system and procurement system.

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:

- understand the finding;
- understand the basis for the finding;
- grasp the significance of findings not directly related to the costs questioned; and
- include management improvement recommendations as applicable.

6.4 AUDITOR'S REPORT ON SUBAGREEMENT COSTS

Findings and recommendations concerning costs questioned or deficiencies disclosed in the audit of subagreement costs will be reported on in a separate schedule.

Area Audit Manager
Office of Audit
Environmental Protection Agency
Any City, U.S.A.

(Scope)

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 the "Standards for Audit of Governmental Organizations, Programs, Activities, and Functions" the "Audit Guide for Construction Grant Program" issued February 1976 by EPA, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

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

(Opinion)

In our opinion subject to the effects, if any, on Exhibit A of the ultimate resolution by the Environmental Protection Agency of the questionable expenditures referred to in the preceding paragraph, Exhibit A presents fairly the financial information contained therein in accordance with the financial provisions of the grant and generally accepted accounting principles.

(Transition paragraph)

In addition, in connection with our examination of the statement of costs incurred-/claimed and eligible EPA costs, we have reviewed the Grantee's system of internal control and 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.

*For interim audits, the auditor's report should should address costs incurred. For final audits the auditor's report should address costs claimed.

DATE

SIGNATURE

EXHIBIT A

City of Anywhere, U.S.A.
Secondary Sewage Treatment Plant
Statement of Costs Incurred/Claimed and EPA Eligible Costs
for the Period (month, day, year) to (month, day, year)

	Costs Incurred	
	Total	*EPA Eligible*
Construction	$2,780,000	$731,715
Technical Services:		
Subcontracted	103,537	20,707
Force Account	30,000	6,000
Total Costs	$2,913,537	$758,422

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. 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 I for a statement of costs accepted and questioned during the audit.

SCHEDULE A-1

City of Anywhere, U.S.A.
Secondary Sewage Treatment Plant
Statement of Costs Incurred, Accepted and Questioned
for the Period (month, day, year) to (month, day, year)

		EPA Eligible Costs		
	Incurred	*Accepted*	*Questioned*	*Notes*
Construction Contracts				
Contract No.:				
XXXXXX	$243,750	$216,383	$ 27,367	Note 1
XXXXXX	150,000	0	150,000	Note 1
XXXXXX	337,965	334,965	3,000	Note 1
Total Construction Cost	731,715	551,348	180,367	
Technical Services:				
Subagreements	20,707	6,485	14,222	Note 2
Force Account	6,000	3,302	2,698	Note 3
Total Technical Services Cost	26,707	9,787	16,920	
Total Costs	$758,422	$561,135	$197,281	
Determination of amount due grantee or EPA based on audit:				
Federal share (55%) of accepted eligible costs	$417,132	$308,624*	$108,508	
Less				
EPA payments made through (Month, day, year)		300,000		
Balance due grantee		$ 8,624		

*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 the EPA of questioned costs totaling $197,281.

Notes to Schedule A-1

Note 1 **Construction Contracts**

a. **Grantee Overpaid on Unit Price Contract - $27,367:** 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.

b. **Grantee Awarded Contract Prior to Project Funding - $150,000:** The grantee awarded a contract in the amount of $550,000 for the installation of an interceptor sewer to the treatment plant site. The award was made six weeks before EPA approved the grant. The grantee has stated the award was necessary so that the work could be coordinated with the reconstruction of Alpha Road between 10th and 12th Streets, South. The contractor has submitted a change order to the consulting engineer, requesting an increase of $5,000 to cover financing costs resulting from delays in being reimbursed for construction in place because of the premature contract award. The consulting engineer plans to submit a request for grant modification to the EPA Regional Administrator covering these financing costs. EPA regulations do not permit its funds to be used to pay financing costs. Further, the contract between the grantee and the contractor cannot, under the present grant, be financed from EPA funds because it was signed six weeks prior to grant approval. Accordingly, we question $150,000 incurred to date.

c. **Costs Incurred Due to Construction Delay - $3,000:** 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.

Note 2 **Technical services - Subagreements**

A summary of audit recommendations follows:

Description	*Costs Incurred*	*Costs Accepted*	*Costs Questioned*	*Reference*
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 Cost Plus Fixed Fee	$103,537	$32,423	$71,114	
Eligible Costs	$ 20,707*	$ 6,485*	$14,222*	

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. 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 costs claimed.

b. The amount questioned represents the application of the firm's fringe benefit rate of 18.7% to personnel costs questioned in Note 1 above. (18.7% X $22,000 = $4,114).

c. The amount questioned represents the application of the firm's overhead rate of 100% to personnel costs questioned in Note 1 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, subcontracted the design of the settlement basins. EPA regulations require prior approval of subcontracts and a determination that such subcontracts are reasonably priced. In addition to not obtaining EPA or Grantee approval, 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. The engineering firm's representative stated that they were not aware of these requirements and based upon the performance of the subcontractor, they considered this to be a reasonable price.

* In this example audit report, engineering fees were considered to be compensated under a cost reimbursable contract, thus an audit of actual cost was performed. In cases where engineering services are compensated under a multiplier, fee curve or lump sum contract awarded prior to July 1, 1975, the following paragraphs, as appropriate, should be included in this schedule and referenced to technical services costs incurred/claimed accepted, and questioned.

If multiplier and/or fee curve was used:

"We noted that compensation for engineering services was based upon the _____ method of contracting. We do not consider that this method of contracting ensures a reasonable price. However, 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 prohibited by Appendix D to Subpart E of 40 CFR, Part 35."

If lump sum contract was used:

"We noted that compensation for engineering services was based upon a lump sum method of contracting. We do not consider that this method of contracting ensures a reasonable price in the absence of an effective negotiation based on current cost data. The use of a lump sum contract not negotiated on this basis, 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. Appendix D to Subpart E of 40 CFR, Part 35 requires that all negotiated contracts be based on current cost and pricing data." (This paragraph should not be inserted in cases where the grantee can demonstrate that the contract was negotiated on the basis of current cost and pricing data submitted by the engineer.)

Note 3.

Force Account: The grantee charged the grant for $13,492 of force account work that was not authorized in the grant agreement. Due to the absence of supporting documentation, the nature of the work performed could not be determined. Accordingly, we question force account costs applicable to the eligible portions of construction. The eligible construction cost was 20 percent, computed as follows: $551,348 ÷ $2,780,000 = 20%, This percentage was applied to unauthorized force account work to determine the amounts applicable to eligible portions of construction ($13,492 X 20% = $2,698).

The grantee concurred with the facts but considered that he should be entitled to his claims.

EXHIBIT B

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

COMMENTS ON COMPLIANCE PERFORMANCE AND INTERNAL CONTROLS

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

The objective of internal accounting control is to provide reasonable, but not absolute, assurance as to the safeguarding of assets against loss from unauthorized use or disposition, and the reliability of financial records for preparing financial statements and maintaining accountability for assets. The concept of reasonable assurance recognizes that the cost of a system of internal accounting control 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 control. 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 risk that the procedures may become inadequate because of changes in conditions and that the degree of compliance with the procedures may deteriorate.

The "Audit Guide for Construction Grant Program" issued February 1976 by the Environmental Protection Agency requires a review and evaluation of the adequacy of the accounting system and internal controls of the grantee to safeguard its assets, check the accuracy and reliability of the accounting data, promote operating efficiency, and encourage compliance with prescribed management policies and such additional fiscal, accounting, and administrative requirements as EPA may establish. We understand that procedures in conformity with the criteria referred to in the aforementioned Audit Guide are considered by EPA to be adequate for its purposes in accordance with the Audit Guide and that procedures that are not in conformity therewith indicate some inadequacy for such purposes. Based on this understanding and on our study, we believe that the City's procedures were adequate (inadequate) for the purposes of EPA 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 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 includes one construction account which includes the cost 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 relative to the procurement of 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.

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.

ENGINEERING FIRM'S PROCUREMENT SYSTEM

The engineering firm's procurement system is considered generally adequate to protect the interest of the grantee and EPA with the following exception.

The engineering firm awarded a subcontract for a portion of the work under his 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 reimbursement contracts be subjected to a cost or price analysis to assure reasonable prices.

Engineering Firm's Comments

The engineering firm's representatives stated that they were not aware of this requirement in the past but would give consideration to such in subcontracting for future work.

Grantee's Comments

The grantee concurred with the audit finding and recommendation.

CORRECTION OF CONSTRUCTION PROBLEMS

Our review disclosed that construction inadequacies noted in the inspection reports were not adequately controlled to assure correction. The current inspection system does not provide for a mechanism for assuring that deficiencies identified in the inspection process are corrected. For example, we identified 25 construction deficiencies from inspector's diaries and daily inspection reports which have 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 such deficiencies with the resident inspector and project engineer, there had been no action taken to require correction of 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 firms to adequately control and document follow-up 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 he 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 engineer is not clearly defined as to that firm's responsibility for inspecting the work of construction contractors and its authority to interpret the plans and specifications. 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 engineer 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 which the employee is working on. 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 the accounting system.

Grantee's Comments

The grantee concurred with the audit finding and recommendation.

SURVEY OF GRANTEE'S ACCOUNTING PROCUREMENT AND PROPERTY MANAGEMENT SYSTEMS

Survey of Grantee's Management Systems

System	Yes	No	N/A	W/P Ref.
Accounting				
1. Has the grantee established project accounting records to record the costs applicable to EPA grants or contracts?				
2. Are all costs of a project recorded on these records?				
3. Are the costs in these records used as the basis for the grantee's financial status reports or vouchers?				
4. Are the costs recorded on these records reflected on and reconciled with control accounts contained in the grantee's control ledger?				
5. Are project accounts broken into subaccounts by program element or cost objective?				
6. Are approvals requested for significant deviations from amounts contained in the grant proposals?				
7. Is appropriate documentation maintained to support the costs of: a. personnel? b. consultants? c. fringe benefits? d. purchases of material, supplies, and equipment? e. travel? f. other costs?				
8. Before being recorded, are the costs contained in the project accounting records subjected to review as to their reasonableness, allowability, and allocability to the EPA grants?				
9. Are controls established to segregate costs incurred prior to or subsequent to the established grant period?				
10. Are the controls or procedures exercised in administering federal expenditures the same as those utilized in the expenditure of the grantee's funds? (When the grantee's requirements are more stringent than EPA requirements, it is expected that the grantee will treat federal funds as he would treat his own.)				
11. Are the grantee's accounting records subjected to an independent audit at least every two years?				
Cash				
12. Are appropriate controls in effect to determine that vouchers or requests for advances are based on actual expenditures recorded on the grantee's project accounting records?				
Personnel				
13. Are procedures established to determine that employees working under federal grants are paid at rates comparable to the rates paid other employees?				

Survey of Grantee's Management Systems

System	Yes	No	N/A	W/P Ref.
Personnel (Continued)				
14. Do the personnel and/or payroll records provide support for time and attendance, leave, and earnings for all employees?				
15. Are time distribution records maintained to show the amount of time spent on federal grants as well as the time spent on other activities?				
16. Are controls in effect which provide for personnel costs to be distributed in accordance with the time reflected on time distribution records, i.e., reconciliation of labor distribution and payroll records?				
17. Have controls been established to determine that overtime is appropriate for the project approved in accordance with grantee policies, and acceptable under the terms of the grant and applicable Federal Regulations?				
18. When personnel are working on projects other than that sponsored by the federal grant, do procedures provide for the cost of overtime to be:				
a. charged to the federal project on which the overtime was spent?				
b. allocated over the individual's total work during that period?				
c. treated as an indirect cost?				
d. other?				
19. Have procedures been established governing the charges of personnel time related to partners or principles in closely held corporations?				
20. Are formal procedures established with respect to bonuses, retirement plans, and/or profit sharing?				
Procurement				
21. Are procedures established to determine whether professional services, equipment, material and/or supplies requested are really needed?				
22. Are existing supplies or inventories reviewed to determine whether items requested are not already available?				
23. Are formal procurement procedures established to require that equipment, material, and supplies are obtained on a competitive basis?				
24. Are solicitations obtained from several sources so that the grantee obtains the most qualified party to perform needed professional services? (40 CFR 35.936)				
25. Are quotations obtained and reviewed to determine whether the price proposed is reasonable to the grantee and EPA?				
26. Are procedures established to determine whether the type of contract utilized is appropriate for the procurement being undertaken?				
27. Are procedures established which prohibit the grantee from utilizing types of contracts unacceptable to the Federal Government? (40 CFR 35.937.1)				

Survey of Grantee's Management Systems

System	Yes	No	N/A	W/P Ref.
Procurement (Continued)				
28. Are internal controls utilized to determine whether contracts contain all required clauses:				
a. access to records?				
b. ownership of data?				
c. termination?				
d. applicable cost principles?				
e. defective pricing (in fixed price contracts)?				
29. Are procedures in effect which provide for the grantee to request and obtain required approvals:				
a. subcontracts?				
b. equipment purchases?				
c. other capital expenditures?				
Travel				
30. Does the grantee have adequate established policies governing reimbursement for travel?				
31. Do these policies:				
a. require the submission of travel vouchers showing the time and purpose of travel?				
b. clearly indicate the nature of expenses being claimed?				
c. require the submission of supporting documentation?				
Obligations				
32. Are procedures established to require that obligations reported are supported by appropriate purchase orders, contracts, etc?				
33. Do these procedures require that obligations are periodically reviewed with regard to their validity?				
34. Do the procedures require the timely liquidation of the obligations and the updating of information contained on financial status reports?				
Indirect Costs				
35. Has the grantee established procedures indicating which costs are considered direct costs as opposed to indirect costs?				
36. Is the grantee claiming indirect costs under federal grants and contracts?				
37. Has the grantee been submitting the required indirect cost proposals to the federal agencies or retaining them for review during audit?				
38. Have these proposals been audited and negotiated?				
Property Management				
39. Has the grantee established an equipment inventory system for controlling property obtained under federal grants?				

Survey of Grantee's Management Systems

System	Yes	No	N/A	W/P Ref.
Property Management (Continued)				
40. Does this inventory system show:				
a. a description of the item?				
b. a related property tag number?				
c. the federal equity in the equipment?				
d. the location of the equipment?				
e. the condition of the equipment?				
41. Are periodic inventories made to validate inventory information?				
42. Are procedures established governing the use and disposition of property acquired with federal funds?				
43. Do these procedures require that EPA be notified of any change in the use of the property?				
44. Do the procedures require that EPA receive its appropriate share of any proceeds from disposition of the property?				

BOND CALCULATION GUIDANCE

Bond issue costs are allowable if incurred under Public Law 84-660 but are considered 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 on Example 1. A HUD grant is usually applicable to the ineligible portion of the project and, if so, it 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.

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, 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

K = 100% - (30 + 15 + 10) = 45% (for this example)

B = Amount of bond issue—$192,000

C = Allowable bond issue costs—$4,500

Example

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

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

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

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

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

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	F =	Eligible bond issue costs to be calculated.
C =	$972		
B =	$60,000		

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 % of Grantee Cash

(1) $5,000 - $1,000 (Ineligible) = $4,000 = cash available for eligible project costs

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

Computation of K

K = (100% less 55% grant less 4.9% grantee cash) = 40.1%

Computation of F

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

$$F = \frac{\$81,145}{\frac{\$60,000}{.401 \text{ X } \$972} - 1} = \$531$$

(1) 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	**(Omitted)**
	S = $134,130

Source of Funds		% of Total
Federal Grant	$ 44,260	33
Bond issue	75,000	56
	119,260	
Balance unaccounted for (1)	14,870	11
	S = $134,130	100

Computation of "K"

K = 100% less 33% (Federal) less 11% (local) = .56

Computation of "C"

Legal Costs	$1,500
Printing Costs	500
Advertising Costs	187
	C = $2,187

Computation of "F"

$$F = \frac{134{,}130}{\frac{75{,}000}{2{,}187 \times .56}} - 1 = \$2{,}227$$

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

(1) 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 % 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%.

SUPPLEMENTAL AUDIT PROCEDURES FOR RELOCATION COSTS

RELOCATION COST - APPLICATION OF AUDIT PROCEDURES

These audit procedures supplement the Audit Guide for Construction Grant Programs. EPA Regional Audit Managers will provide independent public accountants and EPA auditors with 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.

RELOCATION COST - AUDIT PROCEDURES

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 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. Payments to each occupant of a dwelling in lieu of actual reasonable moving and related expenses 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-occupants actually owned and occupied the dwelling not less than 180 days prior to installation 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 3 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, or 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 multi-family building are entitled to payment based on the cost of a comparable one-family unit in a multi-family or single family structure.

B. **Business or Farm**

1. Packing, unpacking, crating, uncrating, 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 transition 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 junk yards, stockpiled sand, gravel, minerals, metals, etc.

6. Should the cost of moving outdoor advertising displays equal or exceed its 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:

a. Travel costs

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

Search expenses are limited to $500 unless approved by the EPA Administrator.

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 and is not being acquired by a State agency or the United States; 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 displacement nonprofit organization may elect, in lieu of reimbursement for moving and related expenses, a fixed amount equal to the average annual net income, provided the organization cannot be relocated without a substantial loss in existing patronage, and the organization is not part of a commercial enterprise having one other location, engaged in similar activity and not in itself being displaced.

Reserved for Industrial Cost Recovery and User Charges

APPENDIX E

Criteria for Eligibility and Allowability of Selected Items of Costs

INDIRECT, DIRECT, ETC. 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, telephone, etc. 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 the accomplishment of project objectives. Travel not directly related to construction and/or start up 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. (Federal Management Circular (FMC) 74-4).

Architect/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. (41 CFR 1-15.2 and 41 CFR 1-15.4).

Bond Costs:

All costs under PL 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 in the event that the grantee elects not to exercise his right to recover liquidated damages.

Bid Bond Forfeiture:

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

STUDIES, REPORTS, FEDERAL REQUIREMENTS, ETC.

Rate Studies:

Such studies are eligible if required for the establishment of user charge or industrial cost recovery systems in order to comply with Sections 35.925-11 and 12 of the Title II Regulations. 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, structure, etc., to determine the financial capabilities of the applicant or the financial feasibility of the proposed undertaking are similarly allowable. The cost of all other financial reports and studies should generally be considered **unallowable** in that they 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, overviews, 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, issuance of bonds, adjustment of tax rates, establishment of assessment districts, etc. or 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 the costs associated therewith are unallowable. Included in this restriction are legal, administrative and engineering costs associated with activities such as: (1) drafting, review and passage of statutes/ordinances, (2) preparation of regulations, (3) delineation of district boundaries, (4) elections, etc.

This policy extends equally to the establishment of any "special districts" such as election, service, rate, etc. 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.

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, obtaining state construction permits, discharge permits, etc. 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, NEPA procedures, 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, explanations of grant procedures, etc. 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 (PL 91-646):

Basically there are four categories of costs associated with this Act which 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)).
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 Part 4 and guidelines which will be issued pursuant thereto.

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 Program Guidance Memo #52 (7-2-75) for additional guidance on this subject.

Industrial Planning:

Step I 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 Section 35.925-15 of the Title Regulations).

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 issuance of PGM number 62 (12-29-75).
3. Design and construction costs allocable to a Federal facility producing less than 250,000 gallons per day or 5 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 insure 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 PGM #62 (12-29-75) for additional detail.

FACILITIES SITE RELATED COSTS

Site Acquisition vs. 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, nonconstruction 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 - See PG 49 - 7-18-75) 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, preparation of working drawings and plans dealing with site preparation, locations, grades, slopes, distances, depths, alignments, etc. Also eligible are costs such as fine-grading, seeding, and protective trees and shrubs.

Costs related to reasonable site screening or aesthetic purposes are also allowable. Criteria for participating in aesthetics related work include: Support expressed in NEPA related studies, approved facility plans, necessary screening of adjacent properties, whether the facility is in constant public view or remote therefrom, etc.

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 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. Off site 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 that 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. The need for such restoration must result 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, restoration of sidewalks, etc.

EQUIPMENT, TOOLS, PARTS, ETC.

Mobile Equipment

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

a. Portable stand-by 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.

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, frequency of use, etc. in considering allowability. Requests for participation based upon less than 100 percent use, should be agreed to only in special situations and prorated accordingly.

e. Cars and trucks are **unallowable,** except for specialized sludge handling/transport equipment as noted in "c" above.

NOTE: The grantee is required to maintain property accountability on all such equipment in accordance with FMC 74-7 and 40 CFR 30.810.

Office Equipment and Furnishings:

Such items as identified by the grantee and approved in advance by 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.

NOTE: The grantee is required to maintain property accountability on all such equipment in accordance with FMC 74-7 and 40 CFR 30.810.

Shop Furnishings:

Reasonable furnishings for shop areas such as shelves, bins, work benches, etc. are allowable costs.

NOTE: The grantee is required to maintain property accountability on all such equipment in accordance with FMC 74-7 and 40 CFR 30.810.

Laboratory Equipment and Supplies

Generally, laboratory items identified by the grantee and approved prior to procurement by the Regional Office as necessary to conduct tests as may be required for plant operation are allowable. 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.

NOTE: The grantee is required to maintain property accountability on all such equipment in accordance with FMC 74-7 and 40 CFR 30.810.

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 and the approval of that document may constitute the basis for our participation.

NOTE: Such equipment should meet applicable Federal, State, local, and industry safety regulations and standards. The grantee is required to maintain property accountability on all such equipment in accordance with FMC 74-7 and 40 CFR 30.810.

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 supplier(s) /manufacturer(s) or approved by the Regional Office. All other tools are unallowable.

NOTE: The grantee is required to maintain property accountability on all such equipment in accordance with FMC 74-7 and 40 CFR 30.810.

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 critical 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) are critical but not included in the inventory provided by the equipment supplier(s). In those instances where adequate "back-up" 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, hose, bolts, etc. are unallowable. See EPA Technical Bulletin: "Design Criteria for Mechanical, Electric and Fluid System and Component Reliability" for additional discussion.

Collection System Maintenance Equipment:

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

In addition allowability will be based upon: (1) a demonstrable frequency of need, and (2) the equipment must be necessary to preclude the discharge or by-passing of raw sewage, and/or (3) the equipment is necessary to provide for the health, safety and welfare of the citizens.

INSPECTION, MONITORING, ETC.

Project Inspection:

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

Groundwater Monitoring Facilities:

Costs associated with the construction of groundwater monitoring equipment and facilities may be considered allowable **only** in those cases in which, as a direct result of project construction, the possibility of groundwater 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

(These requirements have been EPA National policy under both PL 84-660 and PL 92-500 as required under 40 CFR 30.800 and .805).

Services Charges

Service charges are defined as: any supplemental charges added to other direct cost (non-salary) 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.)

EPA AREA AUDIT OFFICES AND COGNIZANT GEOGRAPHIC AREAS

Address of Cognizant EPA Area Audit Office	Geographic Area
Mr. Juan Soto, Jr. Area Audit Manager Environmental Protection Agency Mid-Atlantic Area Audit Group 401 M Street, S.W., Rm. 3704 Washington, D.C. 20460 (202) 755-0953	Pennsylvania, Delaware, Maryland, Virginia, West Virginia, and Washington, D.C.
Mr. Joseph J. DeRosa Area Audit Manager Environmental Protection Agency Eastern Area Audit Group 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 Virgin Islands
Mr. Roger Smith Area Audit Manager Environmental Protection Agency Northern Area Audit Group 1 North Wacker Drive Chicago, Illinois 60606 (312) 353-7910	Ohio, Michigan, Wisconsin, Minnesota, Indiana, Illinois, Iowa, Nebraska, Missouri, and Kansas
Mr. Truman R. Beeler Area Audit Manager Environmental Protection Agency Western Area Audit Group 100 California Street San Francisco, California 94111 (415) 556-1954	Colorado, Utah, Nevada, Hawaii, Washington, Oregon, California, Idaho, Montana, Wyoming, Arizona, North Dakota, Alaska, and South Dakota
Mr. Leslie M. Buie Area Audit Manager Environmental Protection Agency Southern Area Audit Group Suite 921 1720 Peachtree Road, N.W. Atlanta, Georgia 30309 (404) 526-3623	Alabama, North Carolina, South Carolina, Florida, Georgia, Mississippi, Texas, Arkansas, Tennessee, Kentucky, Oklahoma, New Mexico, and Louisiana

REFERENCES

GAO "Standards for the Audit of Government Organizations, Programs, Activities, and Functions"

FMC 74-4 Cost Principles Applicable to Grants and Contracts with State and Local Governments

FPR Section 1-15.2 Cost Principles Applicable to Grants and Contracts with Commercial Organizations

FPR Section 1-15.4 Cost Principles Applicable to Construction and Architect-Engineer Contracts

FMC 74-7 Uniform Administrative Requirements for Grants-in-Aid to State and Local Governments

40 CFR 30 Interim General Grant Regulations, issued November 1971

40 CFR 35 Interim Grant Regulations, issued June 9, 1972

40 CFR 30 Final General Grant Regulations, issued May 1975

40 CFR 35 Subpart E Grants for Construction of Treatment Works - Federal Water Pollution Control Act Amendments of 1972 issued February 1973 and updated February 1974 and December, 1975.

40 CFR 30 Federal Guidelines, Design, Operation, and Maintenance of Waste Treatment Facilities

EPA Program Guidance Memorandum No. 64 - Alllowability/Eligibility of Miscellaneous Costs

EPA Program Guidance Memorandum No. 49 - Eligibility of Land Acquisition Costs for Land Treatment Processes

EPA Audit Guide for EPA Contracts

EPA Audit Guide for Reviewing Indirect Cost Allocation Plans and Rate Proposals

Public Law 84-660

Public Law 92-500

Date Due

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF AUDIT
PM-209
WASHINGTON, D.C. 20460

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, $300

POSTAGE AND FEES PAYED
U.S. ENVIRONMENTAL
PROTECTION AGENCY
EPA-335

THIRD CLASS BULK RATE

U.S.MAIL

☆ U.S. GOVERNMENT PRINTING OFFICE 1976— 622-812/435