

# **Handbook of Procedures**

## **Construction Grants Program for Municipal Wastewater Treatment Works**



# Transmittal Memorandum 85-1

## Handbook of Procedures

### Construction Grants Program for Municipal Wastewater Treatment Works

Municipal Construction Division  
Office of Municipal Pollution Control  
Office of Water



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

OFFICE OF  
WATER

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Transmittal Memorandum  
TM 85-1

MEMORANDUM

SUBJECT: Updating of Handbook

FROM: James A. Hanlon, Director  
Municipal Construction Division (WH-547)

TO: Users of Handbook of Procedures

Attached are copies of the first updating to the Handbook of Procedures. The revised, three-hole punched replacement pages are marked "TM 85-1" on the bottom right side to distinguish them from the originals, and revised or added text material has been underlined so the changes are easily recognized. The TM noted pages without underlinings contain either shifted material from an adjacent page, to accommodate lengthy insertions, or clarifications which are primarily editorial.

Also attached is a summary chart listing each revised page and the location of and reason for the changes.

For persons interested in maintaining continuous records, it is suggested that this memorandum, the summary chart and the replaced pages be filed behind the flow chart.

Attachments

TRANSMITTAL MEMORANDUM (TM) 85-1  
(HANDBOOK OF PROCEDURES)

SUMMARY OF REVISIONS

PAGE	LOCATION AND REASON FOR CHANGE
114	Edits: F-1, 1st par., lines 6 and 9; F-1, 3rd par., line 5
115	Added paragraph referring user to 4/17/85 paper on 205(g) grants
214	Edits: 3, 3rd par.; lines 4, 6 & 8; 4th par. lines 7 & 8
215	Edit: last par., material reorganized to improve clarity
216	Sentence added to emphasize need for Regional review and approval of revisions to State priority system
217	Space accommodation (SA)
409	Par. 3, sentence added to direct user to "need evaluation" guidance document; par. 5, erroneous statement corrected
410	Top line - continues correction from previous page
411	Last line, edit
412	Phrases added to clarify equivalent to secondary treatment and SS limits for waste stabilization ponds; paragraph added on effluent limits for trickling filters and waste stabilization ponds
413	Edit: paragraph 1, lines 3 & 4 (to reflect issuance of secondary treatment regs.); paragraph 1, lines 8-11, note on COBDS limit changes; Re: FR cite added; pars. 2, 3, 4, 5 & 6 added to indicate increased flexibility regarding percent removal requirements under secondary treatment regs.
414	SA
421	Par. 1 - sentence added on applicant requirement where flow greater than 120 gpcd
438	Par. 1 - two statements dropped and replaced by reference to section of Handbook which elaborates on restrictions to on-site systems in more detail
439	SA
441	Edits: 6.5, par. 2, line 3, descriptive phrase added; paragraph 2, lines 5 & 7, descriptive phrases added.
442	Edit: par. b, line 1, descriptive term removed

PAGE	LOCATION AND REASON FOR CHANGE
453	Par. 1, reference to recent guidance on innovative designations added
455	6.13, sludge disposal changed to sludge management; "Purpose" revised to clarify utilization aspect of sludge management
456	Par. 1, edits on lines 1, 4 & 5; par. 2, formerly last paragraph on p.533, interchanged and rewritten to clarify interface of sludge management under CG program with RCRA requirements
457	Par. b, cite added; par. c, line 4 edit
458	Reference to current sludge management document; also, "utilization" added
459	"Utilization" added
476-9	Certain aspects of "Financial and Managerial Capability" clarified through rewriting and editing
513	Par. 2 rewritten to better convey flood insurance requirements
532	SA
533	par. 4 - formerly paragraph 4, p.456 (interchange); new references added
534	SA
535	SA
613	Par. 4 - delimiting phrase added
623	Pars. 1, 2 & 4 under 11, descriptive phrases added
624	Par. added - further guidance on the application of Section 24 requirements
641	Par. 8, b - clarification and cite added
650	SA
651	Par. H, 1 - expands on definition of eligible land; paragraph H,2, more narrowly defines scope of land acquisition requirements and review procedures
652	Par. 1, line 3, clarifying phrase added; par. 2, lines 1 & 2 edited to clarify land eligibility statement; par. 2, line 6, qualifying phrase added; par. 3, line 4, correction — appraisers replaces appraisals; 1, b, c & d, statements revised to clarify application requirements



PAGE	LOCATION AND REASON FOR CHANGE
653	Par. 1, application requirement "g", and cite added. Par. 2.f added as an item to be deferred in submitting application
654	Par. 2, lead edited for clarity; par. 3, lines 7 & 8,- clarifying phrase added; par. 2, line 10, descriptive term added. Par. 4, statements added to clarify content of approval letter.
673	f, "Quality Assurance Program" rewritten to conform more precisely with regulations. In particular, if QA program is required, it needs to be made a condition of the grant and the grantee is required to submit a <u>schedule</u> for developing a QA project plan within 30 days of grant award.
720	SA
721	d, "Number of Bids" - rewritten to explain grantee requirements when one bid is received. Noted in particular are those circumstances under which a single bid can be considered acceptable; and, grantee actions when the bidder or his price is questionable.
722	SA
723	SA
727	F, Noncompetitive "procurement" changed to non-competitive "negotiation"
750	Pars. 2 & 3 added to provide guidance on certifying an I/I project to determine whether performance standards have been met
751	SA
947	D, 1, b, lines 3, 4 & 6 - phases and term added to clarify land acquisition requirements under Uniform Relocation Assistance and Real Property Acquisition Policies Act (The Uniform Act)
948	Expanded to provide more detailed explanations of allowable costs under The Uniform Act
949	SA
950	2. Appendix A subpoints on unallowable costs for land and rights-of-way annotated to clarify meaning.
951	SA

Municipal Construction Division  
Office of Municipal Pollution Control  
June 14, 1985

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infiltration/inflow (I/I) analysis, assessment of environmental impacts, user charge (UC) systems, industrial cost recovery, cost effectiveness, best practical waste treatment technology (BPWTT), etc. The Act also authorized \$18 billion over a five year period to support the construction grants program and to provide for a continuity of funding.

The Clean Water Act of 1977 (PL 95-217) contained mid-course corrections to the 1972 legislation and authorized \$24.5 billion over a five year period in support of the construction grants program. Several significant changes were introduced into the construction grants program, one of which required grantees to evaluate I/A technologies when planning their projects. The mandatory I/A evaluations conveyed the desire of Congress to bring about conservation through recycling and more efficient energy use or recovery. For approved I/A projects, the Federal grant share could be increased to 85 percent.

Another significant provision of the 1977 Amendments was the encouragement of, and financial support for, States to administer the construction grants program. Under this provision, the EPA Regional Administrators (RAs) were able to negotiate delegation agreements with the State agencies, detailing the staffing, scheduling, functions, and procedures to be used by the State in program administration.

The Municipal Wastewater Treatment Construction Grant Amendments of 1981 (PL 97-117) eliminated Step 1 and Step 2 grants after December 29, 1981, and replaced them with an allowance to help defray the costs of planning and design. Other provisions reduced the Federal grant share to 55 percent after September 30, 1984; eliminated grants for collection sewer systems, major sewer rehabilitation, and correction of CSOs after September 30, 1984 (except under certain conditions); required States to reevaluate their water quality standards; emphasized low cost alternatives, particularly for small communities; limited the eligibility of reserve capacity; required engineering services to be provided for one year after project completion; and required each grantee to certify, one year after initiation of operation, whether the project is meeting its performance standards.

The Handbook reflects the provisions of the 1981 Amendments and its implementing regulations. Projects receiving grants prior to the 1981 Amendments are subject to the policies and regulations in effect at the time of grant award and, therefore, are not necessarily subject to the review procedures and regulatory requirements contained in this Handbook.

Although the authorizing legislation for the construction grants program is officially entitled the Federal Water Pollution Control Act, Section 518 of the Act provides for the use of the title Clean Water Act (CWA), and this latter title is used throughout the Handbook.

## F. STATE DELEGATION

### 1. General

The 1977 Amendments added Section 205(g) to the CWA, authorizing EPA to use a portion of each State's annual allotment of construction grants funds to award grants to the States to administer the day-to-day operations of the construction grants program. The grants are for 100 percent of the eligible operational costs. Under EPA regulations, the execution of a delegation agreement between an RA and a comparable level State official provides the basis for a construction management assistance (CMA) grant (frequently referred to as a 205(g) grant). The purpose of the agreement is to describe, in specific terms, the relative roles of the State and EPA in the management of the construction grants program in that State.

Delegation agreements were developed and negotiated on a "phase in" basis. That is, once the many specific functions of the program to be delegated were identified, a timetable was established for transferring (i.e., delegating) those functions. Each function was delegated only after the Region determined that the State had trained staff in sufficient numbers to effectively perform that function without direct assistance from the Region.

All agreements describe the procedures to be followed in implementing each function and the forms to be completed by the States as evidence that each function has been fully performed. Periodically, EPA reviews the State's program and representative grant projects, to insure that the delegated functions are being carried out in accordance with the delegation agreement.

Since 1977, forty-nine States and the Commonwealth of Puerto Rico have entered into delegation agreements with EPA. During those years, considerable experience has been gained concerning the form of delegation agreements, the respective roles of each agency, and the most practical and efficient management implementation practices. Because of the attention to detail and mutual concern continuously exercised by EPA Headquarters, the Regions, and the States during this period of transition, the goal of achieving full delegation of the construction grants program to the States is close to being realized.

Regulations implementing State delegation are found primarily in three subparts to 40 CFR Part 35:

Subpart A - Financial Assistance for Continuing Environmental Programs. This subpart deals primarily with grants for State water pollution control programs under Section 106 of the CWA, for State management of the construction grants program under Section 205(g) of the CWA, and for water quality management (WQM) planning under Section 205(j) of the CWA.

Subpart I - Grants for Construction of Treatment Works. This subpart deals with grant requirements for building wastewater treatment works.

Subpart J - Construction Grants Program Delegation to States. This subpart addresses the requirements for delegation agreements, oversight, and grants to States to perform delegated functions, in accordance with Section 205(g) of the CWA.

Guidance on the general use of CMA grant funds and, more particularly, on the conditions under which Section 205(g) funds can be used to support the costs of conducting certain water quality management and permitting activities, is presented in the Office of Water issuance of April 17, 1985, titled "Use of 205(g) Funds for Construction Grants Management on Nonconstruction Grants Activities."

In addition, "Construction Grants Delegation and Overview Guidance," dated December 1983, was prepared to integrate in one document the relevant regulatory requirements, policies, and guidance for managing the delegated program. The sections below briefly summarize relevant aspects of this publication. Program managers responsible for delegation should consult the text for specific details.

## 2. Delegation Agreements

Delegation agreements, which vary from Region to Region with regard to specific procedural requirements, generally contain two main parts:

a. Basic or "Umbrella" Agreement

This part of the delegation agreement sets forth the basic commitments between the State and the EPA Regional Office, and defines the operational framework for accomplishing those commitments. In addition, it covers specific operational items such as scheduling, cost information, hiring and training, accounting methods, and level of effort.

b. Functional Agreements or Subagreements

Along with the basic agreement are a series of individual agreements describing each function or activity (or group of activities) to be delegated. These agreements contain information which State reviewers are expected to be familiar with and use, including the procedures to be followed in reviewing project documents and conducting grant activities, the interface with the Regional Office and other Federal and State offices, and the criteria to be used in evaluating the effectiveness of State grant program activities. The format of functional agreements may vary (e.g., checklists and/or evaluation procedures may be separated from review documents, and included separately as a supplement or appendix).

Functional agreements are critical to the operation of the construction grants program and need to be kept current. That is, as improvements in procedures are developed, as regulations are revised, and as guidance documents are changed, modifications to the agreements will be necessary. Such revisions can be formally adopted by approvals at the State and EPA program manager's level (e.g., Division Directors or Branch Chiefs). It should be noted that one of the purposes of this Handbook is to help bring about general agreement on current review procedures so that they can be more uniformly practiced among the States.

Re: 40 CFR 35.3005, 35.3010

3. Delegated Functions

Earlier regulations included a listing of functions which could be delegated to the States and those functions which because of statutory requirements could not be delegated. Current regulations do not contain these specific listings,

## E. FUNDING THE CONSTRUCTION GRANTS PROGRAM

### 1. General

In the case of POTWs, water quality planning is implemented, in part, through the construction grants program. WQM plans identify priority water quality areas and recommend actions necessary to achieve water quality standards. NPDES permits may also require actions necessary to maintain and enhance water quality. Where such actions include the upgrading or expansion of existing municipal treatment facilities or the construction of new facilities, the municipalities may be considered potential grant applicants and may qualify for grant assistance.

### 2. Allotment of Funds

The CWA authorizes funding of the construction grants program, usually for a period of several years. However, funds only become available for each fiscal year when Congress appropriates them.

The CWA specifies the formula to be used in computing each State's annual allotment of the appropriated grant funds. (For the purposes of the CWA, the term "State" includes the fifty States, as well as the District of Columbia; the Commonwealths of the Northern Marianas and Puerto Rico; the Territories of American Samoa, Guam, and the Virgin Islands; and the Trust Territory of the Pacific Islands.) Generally, the allotment formula is based on each State's population and the need for wastewater treatment works in each State, as identified in the Needs Survey discussed below. After the allotment formula has been used by EPA to compute each State's annual allotment, the allotments are published in the Federal Register (FR).

Every two years EPA, in cooperation with the States, prepares the "Needs Survey - Cost Estimates for Construction of Publicly-Owned Wastewater Treatment Facilities." The needs survey identifies, by category, treatment works needed as of the date of the survey, projected through the year 2000. The categories of need correspond with the categories of projects used in the State's priority system and project priority list (see Item 3 below). In addition to cost estimates, the needs survey provides an inventory of municipal facilities which may be eligible for grant assistance.

Re: 40 CFR 35.910-1 through 35.910-11, 35.2010; EPA "Notice of Allotment," 47 FR 42024-42025 (September 23, 1982); EPA "Notice of Allotment," 47 FR 56177 (December 15, 1982); EPA "Notice of Allotment," 48 FR 51174 (November 7, 1983)

### 3. State Priority System and Project Priority List

#### Purpose:

Establish a priority system and project priority list for awarding grant assistance for specific projects.

#### Discussion:

The 1981 CWA amendments stress the importance of achieving optimal water quality and protecting public health through the construction grants program. The implementing regulations emphasize that high priority should be given to projects in priority water quality areas (i.e., specific stream segments or bodies of water where municipal discharges have resulted in the impairment of a designated use or significant public health risks, and where the reduction of pollution from municipal discharges will substantially restore surface or ground water uses). The concept of priority water quality areas is also used by the States for scheduling revisions to water quality standards; computing total daily maximum wasteloads; issuing major permits; and focusing monitoring, enforcement, and reporting efforts on critical water quality problems.

The methodology used to rate and rank proposed individual municipal wastewater projects for grant assistance is the State priority system. Using the State priority system and the criteria contained therein, each State develops annually a list of projects, ranked in the order of their importance, which are expected to qualify for grant assistance. The priority system may also include administrative, management, and public participation procedures required to develop, revise, and manage the project priority list.

The concept of priority water quality areas is also embodied in the development of the State priority system, and is reflected in the criteria to be used in ranking individual proposed projects. Some criteria are mandated by legislation or regulation, while other criteria may be used at the discretion of the State. The specific criteria mandated by regulation in the development of the State's priority system and which should receive emphasis in the ranking are:

- the impairment of classified water uses resulting from existing municipal pollutant discharges, and
- the extent of surface or ground water use restoration or public health improvement which would result from the reduction in pollution.



Optional criteria include:

- higher priority for projects employing innovative or alternative (I/A) technology;
- need to complete a waste treatment system for which a grant for an earlier phase or segment was previously awarded;
- category of need (e.g., treatment plant, interceptor, sewer rehabilitation, etc.); and
- existing population affected.

If the State includes new phased or segmented projects in the priority list, the projects must meet certain conditions (see Section VI.D.10).

All projects listed in the State's project priority list after September 30, 1984, must fit into at least one of the categories of need described below.

- secondary treatment or any cost effective alternative,
- treatment more stringent than secondary or any cost effective alternative,
- new interceptors and appurtenances, and
- correction of excessive I/I.

After September 30, 1984, the Governor of a State may elect to use up to 20 percent of the State's annual allotment for any of the earlier (before October 1, 1984) project categories which comprise new collection sewers and appurtenances, major sewer rehabilitation and correction of CSOs. Also after September 30, 1984, the Governor may elect to include a category of need for CSOs (i.e., to use more than 20 percent of the allotment), but

only if those projects result in the correction of impaired uses in priority water quality areas. The State must demonstrate that the water goals of the CWA will not be achieved without correcting these CSOs (see Section VI.G).

The project priority list contains two portions:

- the fundable portion, consisting of those projects anticipated to be funded from the current allotment, and
- the planning portion, consisting of projects anticipated to be funded from future allotments.

The project priority list is subject to EPA's public participation requirements, and must be annually reviewed and accepted by the EPA Regional Office. In addition, revisions to the State's priority system must also be reviewed and approved by the EPA Regional Office.

#### Review Procedures:

Each State must submit its priority system, as well as all subsequent revisions, to the EPA Regional Office for review. The Regional Office will review each document to insure that it:

- is consistent with the criteria and the categories of need discussed above, and
- reflects adequate public participation in the development of both the priority system and the project priority list.

The Regional Office will complete its review, and will notify the State in writing of its approval or disapproval, within 30 days of its receipt of each document.

By August 31 of each year, each State must submit a project priority list for use in the following fiscal year. The Regional Office will review each State's list, as well as any subsequent revisions, to insure that each document:

- is consistent with the State's approved priority system;
- is properly divided into a fundable portion, which is consistent with the amount of funds expected to be available for grant awards in the following fiscal year, and a planning portion;
- includes an estimate of the eligible cost of each project;
- reflects adequate public participation in the development of the priority list; and
- contains only projects which will contribute to compliance with the enforceable requirements of the CWA, except for projects which are exempt from this requirement as described below.

The Regional Office will complete its review, and will notify the State in writing of its acceptance or rejection, within 30 days of its receipt of each document. If the project priority list is rejected because it contains projects which will not contribute to compliance with the enforceable requirements of the CWA, the Regional Office must hold a public hearing before requiring the State to remove these projects from the priority list. Furthermore, the Regional Office may not require the removal of any project if:

- it is in one of the following categories: major sewer rehabilitation, new collector sewers and appurtenances, new interceptors and appurtenances, and correction of CSOs; and
- the Federal share of the cost of projects in the above categories does not exceed 25 percent of the State's annual allotment.

Re: 40 CFR Part 25; 40 CFR 35.2015, 35.2024(a)

#### 4. Reserves

Portions of each State's annual allotment of construction grant funds are reserved for certain specific uses in accordance with EPA's regulations. There are five reserves specified in the regulations:

a. Reserve for State Management Assistance

Section 205(g) of the CWA allows each delegated State to reserve up to 4 percent of the State's allotment based on the amount authorized to be appropriated, or \$400,000, whichever is greater, to pay for the State's administration of the construction grants program. These funds are used by EPA to award a grant to the State for the administration of the program (see Section I.F). Once these funds are obligated (as a grant to the State), they remain available to the State until expended. However, if the entire reserve is not obligated during the allotment period, the unobligated funds are transferred by EPA, at the beginning of the next fiscal year, to the State's regular allotment for construction grants.

Re: 40 CFR 35.2020(a)

b. Reserve for Alternative Systems for Small Communities

Each State with a rural population of 25 percent or more must reserve 4 percent of its annual allotment for alternatives to conventional treatment works for small communities. All other States, at the option of the Governor, may also reserve 4 percent for the same purpose. A small community, for the purpose of this reserve, is any municipality with a population of 3,500 or less, or a highly dispersed section of a large municipality.

These funds are used to fund the base grant (normally 55 percent, unless a different rate is applicable, as described in Section VI.L.2) for I/A projects which serve small communities. Funds for the increased grant for the use of an I/A technology (normally 20 percent, except that the total Federal share may not exceed 85 percent) must be taken from the reserve for I/A technologies (see Item c below).

Re: 40 CFR 35.2005(b)(40), 35.2020(b)

c. Reserve for Innovative or Alternative Technologies

Each State must reserve at least 4 percent, but not more than 7.5 percent of the State's annual allotment, to increase the Federal grant share by an additional 20 percent for projects which use I/A wastewater treatment processes and techniques (see Sections IV.C.6.9 through IV.C.6.13, V.C.2.y, VI.E.3, VI.I, VI.J, VI.L.2.d, VI.L.2.e, and VI.M.5.h).

## 2.2 Need for the Project

### Purpose:

A facilities plan must establish the need for the proposed project and demonstrate how the project, or the complete treatment system of which it is a part, will meet the enforceable requirements of the CWA.

### Discussion:

Demonstration of project need may range from a relatively simple to a complex justification. Relatively simple cases arise where an existing treatment works is in violation of its National Pollutant Discharge Elimination System (NPDES) permit, or the municipality is under a court or enforcement order requiring corrective action. The need for the project is represented by the regulatory directive to abate water pollution.

An example of a more complex case, in terms of demonstrating need, is where a municipality claims need based on failing onsite systems. Since no discharge permit exists, the facilities plan must demonstrate the need for the project based on the extent of surface or ground water use, restoration or public health improvement resulting from the project. In order to demonstrate project need, a grant applicant may be required to document the number, frequency, type, and location of failing onsite systems through the use of local health department records, survey questionnaires, or house-to-house surveys. Earlier EPA policy required this type of specific documentation. However, present agency policy allows States and EPA Regions to determine the type of documentation required to substantiate failing onsite systems on a case-by-case basis. Guidance on evaluating need is presented in "How to Conduct A Sanitary Survey" which is contained in Appendix R of CG-85.

Another relatively complex case, requiring judgement in terms of demonstrating need, concerns proposed CSO projects. Depending on the source of funding from the States' allotment, the State may have to demonstrate that significant uses of the water for fishing and swimming will not be possible without the project, and that the project will result in substantial restoration of an existing impaired use (see Sections II.E.3 and VI.G).

Other types of eligible projects for which a unique approach may be necessary to demonstrate project need include: infiltration/inflow (I/I) correction, treatment more stringent than secondary and (in States where the Governor elects to include

project categories not normally eligible for grant assistance after September 30, 1984) major sewer system rehabilitation (see Section II.E.3).

A demonstration of project need is not necessarily an easy task, and will require unique documentation depending on the circumstances of a particular project. Project need may also be demonstrated throughout many sections of a facilities plan, rather than being presented in one chapter or section. With regard to acceptance of the grant applicant demonstration of project need, the principal responsibility of project reviewers is to insure that the proposed project, or the complete treatment system of which the project is a part, meets the enforceable requirements except as noted in the review procedures below.

#### Review Procedures:

A facilities plan must demonstrate project need in terms of meeting the enforceable requirements of the CWA by:

- a. including a copy of regulatory directives (e.g., NPDES permit requirements, court or enforcement orders, etc.) in the case of existing treatment facilities; or
- b. substantiating that the proposed project will reduce pollution and result in surface or ground water use restoration or public health improvement.

An exception to this requirement may apply to certain "sewer projects," as described in Section II.E.3.

Re: 40 CFR 35.2000(a), 35.2015(b) and (f), 35.2024(a), 35.2030(a)(1)

### 3. Effluent Limitations

#### Purpose:

Effluent limitations establish the effluent characteristics for surface water discharges, or the quality of groundwater to be maintained for land application systems.

#### Discussion:

Effluent from a treatment works is either discharged to a surface water body, recharged to groundwater, recycled for other uses, or evaporated in containment ponds. For containment ponds, assuming that the ponds are lined to prevent seepage into the

groundwater, no effluent limitations are required. Recycled effluents must meet the characteristics necessary for their intended use. However, if the recycled effluent is eventually discharged to a surface water body or to groundwater, the recycled effluent must satisfy the applicable effluent limitations.

Facilities plans are required to describe the Best Practicable Wastewater Treatment Technology (BPWTT) applicable to each alternative under consideration. BPWTT is defined in the regulations as the cost effective technology that can treat wastewater, CSOs, and nonexcessive I/I to meet the applicable provisions of:

- a. 40 CFR 122.44(d) - Water Quality Standards and State Requirements;
- b. 40 CFR Part 125, Subpart G - Criteria for Modifying the Secondary Treatment Requirements under Section 301(h) of the Clean Water Act;
- c. 40 CFR Part 133 - Secondary Treatment Information; and
- d. 41 FR 6190 (February 11, 1976) - Alternative Waste Management Techniques for BPWTT (treatment and discharge, land application techniques and utilization practices, and reuse).

BPWTT defines a minimum level of treatment, as well as provisions for higher levels, where necessary to achieve or maintain water quality standards. Projects proposing higher levels of treatment (i.e., advanced treatment) may be subject to EPA's "Policy for Review of Advanced Treatment Projects" (see Item 3.3 below).

Re: 40 CFR 35.2005(b)(7), 35.2030(b)(2)

### 3.1 Secondary Treatment

The 1981 CWA amendments added Section 304(d)(4) to the CWA, which states that "such biological treatment facilities as oxidation ponds, lagoons, and ditches and trickling filters shall be deemed the equivalent of secondary treatment." However, Section 304(d)(4) also requires "that water quality will not be adversely affected by deeming such facilities as the equivalent of secondary treatment."

In implementing these provisions of the CWA, EPA conducted extensive studies of existing facilities to determine the effluent characteristics of various treatment processes.



The investigation concluded that oxidation ditches are appropriately classified as treatment processes capable of providing secondary treatment. Oxidation ponds and lagoons, referred to as waste stabilization ponds in the regulations, and trickling filters were classified as equivalent treatment processes. All other biological treatment processes were found to be capable of achieving secondary treatment.

EPA has defined the minimum level of effluent quality attainable by secondary treatment in terms of the parameters five-day biochemical oxygen demand (BOD<sub>5</sub>), suspended solids (SS), and pH as:

- BOD<sub>5</sub> and SS - 30 day average shall not exceed 30 milligrams per liter (mg/l); 7 day average shall not exceed 45 mg/l; 30 day average percent removal shall not be less than 85 percent; and
- pH - effluent maintained within the limits of 6.0 to 9.0 (certain exceptions are allowed).

Treatment deemed equivalent to secondary treatment (i.e., ponds and trickling filters not capable of meeting the 30/30 mg/l effluent limits) is defined in terms of the parameters BOD<sub>5</sub>, SS, and pH as:

- BOD<sub>5</sub> and SS - 30 day average shall not exceed 45 mg/l; 7 day average shall not exceed 65 mg/l; 30 day average percent removal shall not be less than 65 percent (less stringent SS limits are allowed for waste stabilization ponds where alternative values have been determined by the State and approved by EPA); and
- pH - effluent maintained within the limits of 6.0 to 9.0 (certain exceptions are allowed).

For those States choosing to adjust effluent limits for existing trickling filters and waste stabilization ponds deemed equivalent to secondary treatment, those adjusted limits are to be set on a case-by-case basis based on the performance or design capabilities of the facility to prevent backsliding. The effluent limits are not automatically adjusted to 45 mg/l. Adjustments of limits for equivalent treatment must assure that water quality is not adversely affected. A State must develop an appropriate set of effluent limits for new facilities using trickling filters or ponds. The regulations also provide for upward adjustment by the State, with EPA approval, of the equivalent treatment requirements for existing trickling filters and ponds (i.e., "Alternative State Requirements"). In these cases, the project reviewer is to refer to the appropriate section of the secondary treatment regulations for specific requirements.

Project reviewers should also be aware that the effluent parameter carbonaceous biochemical oxygen demand (CBOD<sub>5</sub>) may be used in lieu of the more common BOD<sub>5</sub> under the revised secondary treatment regulations. It has been determined that CBOD<sub>5</sub> more accurately reflects treatment performance with regard to organic material than BOD<sub>5</sub>. Where CBOD<sub>5</sub> is used, the secondary treatment definition changes for 30 and 7 day averages to 25 mg/l and 40 mg/l respectively. For treatment processes deemed equivalent to secondary treatment, the CBOD<sub>5</sub> limits for 30 and 7 day averages are 40 mg/l and 60 mg/l respectively.

Re: Final amendment to 40 CFR Part 133, 49 FR 36986 (September 20, 1984).

EPA has also proposed that the percent removal provision of the secondary treatment regulations allow more flexibility in terms of adjusting percent removal requirements for individually justifiable cases. The proposed change would allow a lower percent removal requirement or a mass loading limit if:

- The treatment works is consistently meeting or will meet (for new plants) its permit effluent concentration limits (e.g., 30 mg/l BOD<sub>5</sub> and TSS for secondary treatment; 45 mg/l BOD<sub>5</sub> or TSS for equivalent technologies), but its percent removal requirements cannot be met due to less concentrated influent wastewater.
- To meet the percent removal requirements, the treatment works would have to achieve significantly more stringent limitations than would otherwise be required by the concentration-based standards (e.g., at least 25 mg/l BOD<sub>5</sub> and TSS for secondary treatment) or would force significant construction or capital expenditure.
- The less concentrated influent wastewater is not the result of excessive I/I. Definition of excessive I/I is based on that used in the construction grants regulations.

The final regulation for the percent removal requirement is scheduled to be published by May 30, 1985, if final Agency approvals are received.

### 3.2 Marine Discharge Waivers

Refer to Section VI.E.2 for a discussion of requirements applicable to projects with marine discharge waivers.

### 3.3 Advanced Treatment

Effluent limitations more stringent than secondary treatment (i.e., advanced treatment) may be established by a State for water-quality-limited stream segments. These effluent limitations are determined in the WQM plan, and are based on the wasteload allocation for the specific stream segment into which the effluent is discharged (see Section II.C.3). Where advanced treatment is required to achieve or maintain water quality standards, and where the incremental costs exceed specific limitations, such projects are subject to a more intensive review by the State, EPA Regional Office, and possibly EPA Headquarters. Refer to Section E.1 below for a discussion of the review and processing procedures for such projects.

### 3.4 Land Application

Wastewater effluent applied to land may either recharge the groundwater, be collected for disposal to surface water bodies, or a combination of both. Surface water discharges are subject to the effluent limitations defined in Item 3.1 above. Effluents which recharge groundwater may not themselves be directly subject to effluent limitations. Rather, the quality of groundwater is defined, depending on current or potential uses, which in turn indirectly establishes the effluent limitations for the applied wastewater.

EPA's definition of BPWTT for groundwater discharges considers three cases:

- a. groundwater which can potentially be used for a drinking water supply,
- b. groundwater which is used for a drinking water supply, and
- c. uses other than for a drinking water supply.

In the first two cases, the groundwater quality should not exceed the National Interim Primary Drinking Water Regulations (40 CFR Part 141) for organic and inorganic chemicals. Where the groundwater is presently used for drinking water, the groundwater should also satisfy the microbiological contaminant levels of these regulations. The groundwater quality for other uses is to be established jointly by the State and EPA on a case-by-case basis.

If a grant applicant can demonstrate that the domestic base flow plus infiltration is less than 120 gpcd and that no chronic operational problems are experienced during rain events, no further I/I work is required. If the flow rate is not significantly more than 120 gpcd, the grant applicant may proceed, with reviewing agency approval, without further study. However, in this case the allowable project cost will be limited to the cost of a project with a capacity of 120 gpcd for the existing residential population. In addition, the grant applicant must show that the project is cost-effective and sufficient funds are available for the local share of higher costs, including capital and operating costs. If a grant applicant cannot demonstrate these conditions, further I/I investigations will be necessary, as briefly described in the next paragraph. The criteria described above is equally applicable to excessive infiltration in combined sewers, but inflow is never considered excessive in combined sewers.

In determining if a sewer system contains excessive I/I, the grant applicant will analyze the treatment plant flow records, compare the sewage flows against water consumption records, possibly conduct flow monitoring at selected manholes or pumping stations, and otherwise conduct a field investigation, if necessary, to determine the quantity and source of I/I. The comparison of estimated costs to eliminate portions of the I/I will determine if the I/I is excessive. Where a portion of the I/I is determined to be excessive, the grant applicant must propose a sewer system rehabilitation program to eliminate the excessive I/I. Normally, sewer system rehabilitation is carried out after grant award, and the excessive I/I to be eliminated becomes part of the grantee's project performance standards (see Sections VI.M.5.g and VII.I.2).

The facilities plan includes a demonstration of the non-existence or possible existence of excessive I/I in the sewer system. Data supporting the conclusion may be contained in or appended to the facilities plan. It is important to note that the results of the I/I investigation are essentially two numbers, namely: the nonexcessive I/I and the excessive I/I, if any. Nonexcessive I/I is added to the existing domestic, commercial, and industrial base flow, to establish a total existing flow for the proposed treatment works. This flow is particularly important since after September 30, 1984, construction grants are limited to the capacity required to serve existing needs on the date of grant award (see Section VI.D.18).

### Review Procedures:

For grant applicants whose project includes existing sewer systems, insure that the proposed treatment works is not, and will not be, subject to excessive I/I through a determination that:

- a. An I/I study has been conducted which identifies the quantity of I/I.
- b. Based on the criteria of 120 gpcd for domestic base flow plus infiltration, and 275 gpcd for domestic base flow plus infiltration and peak inflow, it is concluded that:
  - i. excessive I/I does not exist, in which case no further study is required; or
  - ii. excessive I/I may exist, in which case the grant applicant must either:
    - conduct further study, including a cost effectiveness analysis, to more accurately determine the existence of excessive I/I, and propose a sewer rehabilitation program where appropriate; or
    - propose that the treatment works be designed to accommodate domestic base flow plus infiltration which is not significantly more than 120 gpcd, in which case the allowable project cost will be limited to the cost of a project with a capacity of 120 gpcd.
- c. The methods and data used in analyzing I/I are sufficient to support the results and conclusions in Items a and b above.
- d. The quantity of nonexcessive I/I has been determined and is used as one component of the average daily base flow.

- g. the impact on performance of removing excessive I/I or of other flow reduction programs;
- h. the effectiveness and suitability of existing onsite disposal systems, and possible modifications for improving performance through public education and public management.

Re: 40 CFR 35.2030(b)(3)(iii); EPA publication, "Estimate of Effluent Limitations to be Expected from Properly Operated and Maintained Treatment Works"

### 6.3 Unsewered Areas

#### Purpose:

Evaluate the use of onsite systems for unsewered portions of communities with a population of 10,000 or less.

#### Discussion:

This specific requirement for the evaluation of onsite systems, while mandatory for communities with a population of 10,000 or less, may also be applicable to any sparsely populated area within the total planning area. While once considered a poor waste disposal practice, onsite systems offer safe, efficient, and economical waste disposal if properly designed, installed, and operated. One principal reason for the failure of onsite systems is improper O&M by homeowners. A solution to this problem may be O&M by a public body, coupled with a public education program. The term septage management is frequently used to describe O&M of onsite systems by a public body.

To encourage consideration of septage management, the CWA and its implementing regulations allow a public body to apply for a grant to build privately owned onsite systems which serve one or more principal residences or small commercial establishments. A principal residence requires habitation by a family or household for at least 51 percent of the year. Second houses or recreational residences are not considered a principal residence. Small commercial establishments include private establishments (restaurants, hotels, stores, filling stations, recreational facilities, etc.) and non-profit organizations (churches, schools, hospitals, charitable organizations, etc.) with dry weather

wastewater flows less than 25,000 gallons per day.

Other grant restrictions applicable to privately owned individual onsite systems are contained in Section VI.E.1.

While satisfaction of the above definitions and limitations is required for grant assistance, this should not preclude consideration by the public body of assuming management responsibility for all onsite systems, regardless of grant eligibility. Ideally, a public body would be able to convince businesses and homeowners of the benefits of septage management, and to negotiate public ownership of all onsite systems. In reality, however, the public body may not be able to own all systems, but may be able to operate them.

Rehabilitation of publicly or privately owned onsite systems is considered an alternative technology, and therefore qualifies for increased Federal grant assistance (see Item 6.10 below).

The required comparison between the rehabilitation of onsite systems and the construction of conventional collection sewers may point out possible adverse environmental impacts associated with sewers. While sewers in the developed areas may not cause adverse environmental impacts, the transport of the collected wastes by a trunk or interceptor sewer may subject environmentally sensitive areas to developmental pressures. This condition could prevent the award of grant assistance.

#### Review Procedures:

For unsewered portions of communities with a population of 10,000 or less, insure that the grant applicant has considered rehabilitation and management of onsite systems. The evaluation should include:

- a. identification of the number, type, and location of onsite systems;

- b. an analysis of the reasons for onsite system failures;
- c. cost estimates for rehabilitation and the development and operation of a septage management program;
- d. an analysis of the methods by which all onsite systems could become publicly managed, or a listing of reasons why public management is not feasible; and
- e. a cost comparison with a conventional collection and treatment system, and an environmental evaluation of both;

Re: 40 CFR 35.2005(b)(31) and (b)(39), 35.2030(a)(1), 35.2034; 40 CFR Part 35, Subpart I, Appendix A, Paragraphs C and H.2.k; EPA publication 625/1-80-012, "Design Manual - Onsite Wastewater Treatment and Disposal Systems," October 1980

#### 6.4 Conventional Sewers

##### Purpose:

Demonstrate the need for conventional collection sewers for unsewered areas by evaluating all three methods of providing wastewater treatment services to such areas: conventional sewers, rehabilitation of onsite systems, and small diameter sewers.

##### Discussion:

Conventional collection sewers (i.e., 8 inch or larger gravity sewers) represent one method of providing waste disposal to developed areas. Other methods include rehabilitation of onsite systems (see Section 6.3 above), or the use of small diameter gravity, pressure, or vacuum sewers carrying partially or fully treated wastewater (see Section 6.5 below). For unsewered communities or portions thereof, the facilities plan is to evaluate all three methods of providing waste collection and disposal.



After September 30, 1984, conventional collection sewers do not qualify for grant assistance unless the Governor of a State elects to use up to 20 percent of the State's allotment to fund such projects (see Section II.E.3). However, where the rehabilitation of onsite systems is considered, their total cost and environmental impact must be compared with a conventional system (see Section 6.3 above).

In evaluating conventional sewers, the grant applicant must demonstrate their need, based on an analysis of failing onsite systems (see Section 2.2 above). Where conventional collection sewers are justified, and are within a category of projects eligible for grant assistance, other grant limitations (e.g., date of residential occupancy and bulk of flow) must be satisfied (see Section VI.D.14). Collection sewers are also subject to the reserve capacity limitations described in Section VI.D.18.

Conventional collection sewers are to be designed in accordance with State design standards regarding minimum pipe size, slope, allowable rates of infiltration, and spacing between manholes.

#### Review Procedures:

Where conventional collection sewers are proposed as one alternative to serve developed areas, insure that:

- a. the need for sewers is justified and documented;
- b. other methods of collection and disposal (e.g., onsite system rehabilitation and alternative conveyance systems) are evaluated and compared to conventional sewers with regard to total cost and environmental impacts;
- c. the sewers will not encourage the development of environmentally sensitive areas;
- d. cost estimates for grant participation reflect the eligibility or ineligibility of sewers as a category, as well as grant limitations concerning date of residential habitation, quantity of existing flow, and reserve capacity (see Sections VI.D.14 and 18); and

- e. preliminary designs and the resulting cost estimates reflect State design standards.

Re: 40 CFR 35.2005(b)(10), 35.2015(b)(2), 35.2030(a)(1), 35.2034(b)(1), 35.2116, 35.2123(c); 40 CFR Part 35, Subpart I, Appendix A, Paragraph H.2.k

## 6.5 Alternative Conveyance Systems

### Purpose:

Provide an alternative method of collecting and transporting wastewater.

### Discussion:

An alternative conveyance system consists of small diameter gravity, pressure, or vacuum sewers conveying treated or partially treated wastewater in cluster systems. As a general guide, where the population density is less than 6 persons, but at least 1.7 persons per acre (one household per 2 acres), both conventional sewers and alternative conveyance systems should be evaluated. Where the population density is less than 1.7 persons per acre, conventional sewers generally are not cost effective, and only alternative conveyance systems should be evaluated.

One common application for alternative conveyance systems is to collect wastes from existing residential and commercial structures presently served by onsite disposal systems. If the problem with the onsite systems is the failure of the absorption systems due to poor soils, high groundwater or ledge rock, it may be possible to use the septic tanks to remove the settleable solids, and transport the clarified, partially treated, effluent in small sewers. The conveyance system may be small diameter gravity sewers (since settleable solids are removed), pressure sewers (where each septic tank is equipped with a pump), or vacuum sewers with a cluster vacuum station. If the septic tank is retained as part of the system, a septage management program must be established by the grant applicant to provide periodic pump-outs and other routine maintenance. The collected wastes may be transported either to a centralized conventional treatment plant or to a relatively small soil absorption field.

Alternative conveyance systems for small communities are included within the definition of alternative technology, and therefore qualify for increased Federal grant assistance (see Item 6.10 below). Because of their potential cost savings, alternative conveyance systems should be considered as one method of collecting and transporting wastewaters.

#### Review Procedures:

For projects which include the construction of collection sewers, alternative conveyance systems should be evaluated, particularly for isolated developed areas. The evaluation includes:

- a. justification of the need to abandon existing onsite systems (see Section 6.3 above);
- b. consideration for using septic tanks and conveyance of treated wastewater by small diameter gravity, pressure, or vacuum sewers;
- c. comparison of costs and environmental impacts between rehabilitation of existing onsite systems and conventional collection sewers; and
- d. consideration of the development of a septage management program.

Re: 40 CFR 35.2005(b)(4) and (b)(18), 35.2030(b)(3),  
35.2032(a), 35.2034

#### 6.6 Interceptor Sewers

The location and size of intercepting and collection sewers will influence growth in the planning area. Intercepting sewers must be carefully planned, with consideration given to staging of construction, in order to accommodate future growth. Intercepting sewers should not extend into environmentally sensitive areas, unless absolutely necessary to eliminate existing raw sewage discharges or discharges from existing treatment facilities which are to be abandoned.

Since innovative technology is not a specific process, either conventional concepts of treatment or alternative technology processes are candidates for innovative classification, provided that they satisfy certain conditions. The first condition, and the most difficult to assess, is the element of risk. A proposed innovative project which is not developed and has not been the subject of a research or demonstration project is generally not acceptable, since its risk of failure may be too great. Conventional concepts of treatment are not innovative because they are fully proven, and therefore have no risk and offer no significant advancement over the state of the art. Somewhere between these extremes lies a developed process, not fully proven, offering significant benefits, with a corresponding level of acceptable risk. An analysis of the level of risk for a given technology by the grant applicant and the project reviewer requires professional engineering judgement and collaboration. Project reviewers should refer to the three page issuance titled "Guidance on Innovative Designations, October 1984."

Assuming that a proposed innovative project contains an acceptable level of risk, the next condition which must be satisfied is significant advancement over the state of the art. Six criteria have been identified by EPA as representative of significant advancement. Briefly, these criteria are:

- cost reduction (in the range of 15 percent of life cycle costs),
- net primary energy reduction (in the range of 20 percent),
- improved management of toxic substances,
- improved operational reliability,
- improved environmental benefits, and
- improved joint industrial/municipal treatment.

The first two criteria, cost and energy reduction, are quantitative, while the other criteria are qualitative and tend to be subjective, and therefore more difficult to review and assess.

Where the cost or energy reduction criterion is used as a basis for claiming innovative classification, the proposed innovative project must be compared with a base standard in order to measure the claimed reduction. The base standard for comparison is the least costly or least energy consuming noninnovative project which would have been selected if no innovative process was considered. Note that the least costly project and the least energy consuming project are not necessarily the same. Additionally, the base standard project also must be acceptable from an environmental standpoint.

In applying the cost reduction criterion, the costs to be compared are the present worth costs (i.e., capital costs plus the present worth costs of operation, maintenance, and replacement (OM&R), over the design life of the project, minus the present worth cost of the project's salvage value.

In applying the energy reduction criterion, the energy to be compared is the net primary energy, which is that which crosses the treatment plant boundary (electricity or fossil fuel). Net primary energy reduction is the difference between the primary energy requirement for the least energy consuming noninnovative alternative, minus the primary energy for the proposed innovative project.

As part of facilities planning, the project reviewer is to insure that the grant applicant has considered the following items when a potential innovative technology is evaluated:

- a. the proposed process must be developed but not fully proven;
- b. the facilities plan must assess risk, and must establish that the level of risk is acceptable in light of the corresponding benefits;
- c. the proposed process must satisfy one of the six innovative criteria described above;
- d. where cost or energy reduction is claimed as a basis for innovative classification, the present worth costs or the net primary energy must be compared with the least costly or least energy consuming noninnovative project, respectively;

- e. cost reduction must be in the range of 15 percent, and net primary energy reduction in the range of 20 percent;
- f. where the risk of a promising technology is relatively high, field testing of the technology, either under a grant or as an allowable preaward cost, must be used to further evaluate the proposed project (see Section VI.I); and
- g. where applicable, the I/A cost preference must be properly applied to the project (see item 7.1.g below).

Re: 40 CFR 35.2005(b)(14), (b)(17), (b)(23), 35.2030(b)(3), 35.2032, 35.2040(e), 35.2118(a)(1), 35.2211, 35.2262

### 6.13 Sludge Management

#### Purpose:

Use and disposal of sludge in a cost effective manner, while avoiding adverse impacts on public health and the environment. EPA actively promotes management practices which provide for the beneficial use of sludge, as stated in the policy on municipal sludge management (49 FR 24358, June 12, 1984).

#### Discussion:

Sludge management must be evaluated and planned with as much care as the wastewater treatment process. Many sludge treatment, utilization and disposal methods are available for evaluation. In general, these methods can be considered in two major categories:

- treatment and volume reduction:
  - incineration,
  - digestion,
  - composting, and
  - surface impoundments;
- ultimate utilization and disposal:
  - landfill,
  - ocean dumping,

- land spreading, and
- distribution/marketing.

Some methods of sludge treatment, utilization and disposal may not be feasible, by virtue of a project's size or location, (e.g., incineration for a small community). Sludge treatment, utilization and disposal is subject to Section 405 of the Clean Water Act and may also be subject to other Federal laws such as the Clean Air Act (stack emissions from thermal reduction methods) or the Resource Conservation and Recovery Act (RCRA) (hazardous and non-hazardous wastes).

Domestic sewage sludge is not listed as a hazardous waste under RCRA. However, specific municipal sewage sludges will be considered hazardous if they exhibit any one of the four characteristics of hazardous wastes -- ignitability, corrosivity, reactivity, and toxicity (see 261.21 through 261.24). In general, the characteristic most likely to cause sewage sludges to be hazardous is toxicity. Since grant applicants must develop pretreatment programs (see Section E.2 below), it is reasonable to assume that commercial/industrial wastes which may cause the grantee's sludge to be considered hazardous will not be discharged into the sewer system. Under RCRA, wastewater treatment authorities have the responsibility to determine whether or not their sludge is hazardous. If the wastewater treatment authority (grantee) suspects that commercial or industrial discharges to its sewerage system may cause its sludge to be classified as hazardous, it is responsible for the appropriate testing of its sludge. If the testing indicates the sludge is hazardous, the grantee should attempt to find and eliminate the source of the discharge causing the sludge to be classified as hazardous. If the source cannot be eliminated, the generation, treatment, storage, and disposal of the grantee's sludge is subject to the RCRA subtitle C regulations (see 260 through 270).

Some of the intermediate sludge treatment processes or ultimate sludge utilization and disposal methods are encouraged by the CWA, and are defined as alternative technology (see Item 6.9 above). The discussion below briefly describes these alternative technology unit processes and disposal methods, highlighting some important considerations for review:

a. Composting

Composting stabilizes and disinfects sludge, allowing public distribution under a giveaway or sale program, or application to land as a soil conditioner or as a cover for landfills. The most common composting technique used in the United States uses open air systems (e.g., aerated pile and windrow), although more complex systems (e.g., enclosed mechanical systems) are being introduced. The cost of land used for composting and for the temporary storage of compost residues is allowable for grant participation.

Re: 40 CFR Part 35, Subpart I, Appendix A, Paragraph D.1(a)(3)

b. Landspreading

Properly treated sludge may be used in agriculture, silviculture, turf grass production, revegetation of strip mine land, fertilization of roadside grasses, and many other applications. Landspreading of sludge may be subject to limitations imposed by State or local law. Care must be exercised to preclude adverse health and environmental impacts from a buildup of heavy metals and toxic organics. The cost of land used for landspreading may be allowable for grant participation.

Re: 40 CFR Part 35, Subpart I, Appendix A, Paragraph D.1(a), 40 CFR Part 257

c. Distribution and Marketing

Like landspreading, distribution and marketing involves the utilization of the nutrients in sludge and its soil conditioning properties. The sludge should be very stable, disinfected, and have a low moisture content. Where



packaged and sold, the sludge should contain appropriate warnings and instructions for its use. Proceeds from sales must be used to offset user charges (see Section V.E).

d. Methane Recovery

Anaerobic digestion employing methane recovery and use is classified as an alternative technology if 90 percent or more of the methane is recovered. The methane may be used for heating, operation of blowers or pumps, or conditioned and sold to nearby users.

e. Self-sustaining Incineration

To be classified as an alternative technology, incineration must realize a net energy gain (i.e., energy produced must be greater than the energy used to dewater and condition the sludge).

Because of the importance and the complex nature of sludge management, EPA has prepared several publications which provide guidance on sludge utilization and disposal. Several of the process design manuals are noted in Section V.C.2.p. EPA publication 430/9-80-015 (formerly MCD-72), "A Guide to Regulations and Guidance for the Utilization and Disposal of Municipal Sludge," dated September 1980 and 625/10-84-003, "Environmental Regulations and Technology: Use and Disposal of Municipal Wastewater Sludge," dated September 1984, may also be helpful during facilities plan review.

Review Procedures:

In reviewing the sludge treatment, utilization and disposal sections of the facilities plan, the reviewer is to insure that:

- the grant applicant has given appropriate consideration to sludge treatment, utilization and disposal by evaluating several alternatives;
- alternatives evaluated by the grant applicant are appropriate to the size and location of the project;
- serious consideration has been given to sludge treatment and disposal methods which recycle or reclaim sludge (alternative technologies) such as methane recovery, self-sustaining incineration, and land application;
- proposed sludge treatment, utilization and disposal methods comply with regulatory requirements of other applicable Federal laws (e.g., Clean Air Act, Resource Conservation and Recovery Act); and
- where applicable, the I/A cost preference has been properly applied to the project (see Item 7.1.g below).

Re: 40 CFR 35.2030(b)(3), 35.2032, 35.2040(e), 35.2152(b)

#### 6.14 Identification of Principal Alternatives

##### Purpose:

After identifying and evaluating feasible alternatives, systematically screen them to identify principal alternatives capable of meeting Federal, State, and local requirements.

##### Discussion:

Ideally, the principal alternatives identified by the grant applicant will include one or more conventional concepts of treatment, one alternative technology and one project proposed as innovative. While there is no prescribed

methodology or procedure for screening alternatives, one possible method employs monetary evaluation, followed by evaluation of environmental impacts, engineering feasibility, public acceptance, and implementability. The monetary evaluation is best considered first, because it tends to be more quantitative than the other criteria. It is to be noted that neither EPA regulations nor policy guidance suggests that one criterion is more important than others in selecting the proposed project. However, EPA policy does require that the grant applicant give careful consideration to the financial impact of the project upon the community, to insure that the project is affordable (see Item 8.2 below).

In preparing preliminary cost estimates for each alternative, the grant applicant may use published cost estimating techniques found in the literature, or the grant applicant's engineer may generate unique estimates to reflect local conditions. Another cost estimating technique, recommended for use by grant applicants and available to States for comparison purposes, is the Computer Assisted Procedure for Design and Evaluation of Wastewater Treatment Systems (CAPDET). Available from the CAPDET Clearinghouse at Mississippi State University, this computer program can be used to quickly analyze the costs of a large number of alternatives. CAPDET can also evaluate the cost of upgrading and expanding wastewater treatment facilities, and can rank alternative treatment systems by the present worth of capital and OM&R (including energy) costs.

Using the preliminary cost estimates, the grant applicant can apply the remaining criteria, considering factors described in Item 7 below.

The primary difference between screening feasible alternatives and analyzing principal alternatives is the depth and level of detail. Principal alternatives are to undergo a thorough cost effectiveness analysis, although the level of detail in the analysis will depend on the size and complexity of the project.

#### Review Procedures:

As feasible alternatives are screened for selection of principal alternatives worthy of a more detailed analysis, insure that the grant applicant has:

- c. listed sound reasons for selecting the proposed project and rejecting other principal alternatives.

Re: 40 CFR 35.2030(a)(1)

## 8. Selected Plan Description

Once the proposed project is selected, the grant applicant is to prepare a concise description, at an appropriate level of detail, of at least the items noted in Items 8.1 and 8.2 below. This description includes both the proposed treatment works and the complete waste treatment system of which it is a part.

Re: 40 CFR 35.2030(b)(1) and (b)(8)

### 8.1 Relevant Design Parameters

#### Purpose:

Review relevant design parameters to insure that all major components of the system have been included, cost estimates are reasonable, design parameters comply with State standards, and the proposed process and design are capable of meeting the applicable effluent limitations.

#### Discussion:

The level of detail describing relevant design parameters varies from project to project, and depends on the project's size and complexity. For example, the description of a standard package treatment plant will not require the same level of detail as a pure oxygen system with phosphate removal and sludge incineration. Representative design parameters to be described include:

- major process features;
- unit processes and sizes;
- a schematic flow diagram;
- sewer lengths and sizes;

- design criteria (e.g., detention times, overflow rates, process loadings, computed removal efficiencies, initial and design flows, etc.);
- sludge management; and
- a schedule for design and construction.

Review Procedures:

Insure that the facilities plan describes relevant design parameters at the appropriate level of detail, in order to demonstrate that:

- a. all major components of the system are included;
- b. cost estimates are reasonable;
- c. design parameters comply with State standards; and
- d. the process and design are capable of meeting the applicable effluent limitations.

Re: 40 CFR 35.2030(b)(8)(i)

8.2 Financial and Managerial Capability

Purpose:

Demonstrate the grant applicant's legal, institutional, managerial, and financial capability to ensure adequate building and operation of the proposed treatment works.

Discussion:

The requirement stated above is a limitation that must be satisfied before award of grant assistance.

EPA has published a final policy entitled "Financial and Management Capability for Construction, Operations, and Maintenance of Publicly Owned Wastewater Treatment Systems" (49 FR 6254-6258, February 17, 1984). This policy ties together many of the financial and managerial responsibilities which must be satisfied by a grant applicant prior to the award of grant assistance and outlines EPA and State responsibilities

for ensuring compliance with this policy. It is based on Section 204(b)(1) of the Clean Water Act and Section 35.2104 of the construction grants regulations.

In order to demonstrate financial capability, applicants are required to answer five questions, consider their financial condition, and certify their financial capability. The five questions are:

- What Is Proposed In The Facilities Plan?
- What Roles And Responsibilities Will Local Governments Have?
- How Much Will The Facilities Cost At Today's Prices?
- How Will Construction, Operation & Maintenance Be Financed?
- What Are The Annual Costs Per Household?

The policy includes worksheets to help applicants answer these questions. Detailed instructions on how to complete the worksheets can be found in EPA's guidance document "Financial Capability Guidebook". For those grant applicants who do not need the detailed instructions contained in the guidebook, EPA has published a "Financial Capability Summary Foldout" to help answer the five questions. However, in order to account for unique aspects of State laws governing local financing and institutional arrangements, States are encouraged to develop their own guidance and procedures for grant applicants to use in demonstrating their financial capability. EPA's guidance may be modified according to the State's need.

The responses to the five questions must be viewed with-in the overall context of the grant applicant's financial condition, financial resources, legal constraints, and local public policy. After answering the five questions, the grant applicant must certify that it has the capability to finance and manage the proposed facility. Before completing this certification, the grant applicant should consider:

- reasonableness of population projections (see Item 5.3 above) relative to historic trends (if new population growth will be relied upon to help finance the proposed system);
- total current outstanding indebtedness;

- State finance laws and legal debt limits;
- historic trends in the community's revenue sources (e.g., changes in taxable assessed property valuation with respect to population); and
- current bond rating and its historic trend.

The Financial Capability Guidebook contains detailed instructions for evaluating the community's financial condition. The policy contains a sample certification letter that applicants may use to certify their financial capability.

Although the financial capability demonstration is not required until the grant application stage, the facilities plan must document that the selected alternative is implementable from a financial viewpoint (see 40 CFR 35.2030(a)(1)).

When two or more jurisdictions are participating in the project, an intermunicipal service agreement must be executed unless waived by the Regional Administrator or delegated State. (See Section V, H for details.)

#### Review Procedures:

##### a. Screening System

Delegated States are responsible for developing a screening system to ensure that potential problem projects are identified and resolved early. This system should use a combination of criteria to identify if a project is potentially high cost or technologically inappropriate. Projects that are identified by the system as having potential problems should receive very close scrutiny. Some suggested screening factors are:

- i. size of community;
- ii. extent of sewers to be built in presently unsewered areas;
- iii. type of technology proposed;
- iv. total capital costs per household;
- v. total annual household costs;

- vi. total annual cost per household as a percentage of median income;
- vii. capital cost of treatment per 1,000 gallons per day of capacity;
- viii. percentage of capacity for future flow;  
and
- ix. other meaningful indicators.

This screening system should be used as early as possible so that any problems can be identified early when project changes are more easily accommodated.

b. Financial Capability Demonstrations

When a demonstration is received, it must be reviewed to ensure that the applicant has the necessary capability to finance and maintain the wastewater treatment system. Review questions to be asked include:

- i. Is the project consistent with the facility plan and FONSI and is it appropriate?
- ii. If required, has an acceptable intermunicipal service agreement been signed?
- iii. Are the cost estimates comprehensive and accurate?
- iv. Are the financing plan and proposed revenue system adequate?
- v. What is the total annual household cost and is it reasonable?
- vi. Has a certification letter been signed?

If this review discloses a problem with the project, the State should work with the applicant to suggest ways to overcome the problem. Suggestions might include reducing the scope of the project, using creative financing techniques, or eliminating unnecessary items from the design.

Detailed instructions for developing a screening system, reviewing the demonstrations and resolving problem projects are contained in "Guidance for Implementing the Policy on Financial and Management Capability for Publicly Owned Wastewater Treatment Systems", December 1983.



c. Capital Financing Plan

- i. a projection of future wastewater treatment services required during the 10 year period after initial operations;
- ii. a projection of the nature, extent, timing, and costs of future expansion and reconstruction of the treatment works; and
- iii. the manner in which future expansion and reconstruction will be financed.

d. Project Implementation

- i. identification of each participating agency, and its jurisdiction and responsibilities;
- ii. demonstration that each agency has the ability and authority under State law (or a reasonable expectation of obtaining such authority) to finance, design, construct, acquire access to, operate, and maintain facilities within its jurisdiction;
- iii. identification of referenda or public elections necessary to implement the selected plan;
- iv. adopted resolutions of plan acceptance by participating agencies; where opposition exists, a description of steps necessary to reach agreement;
- v. proposed intermunicipal service agreements or memoranda of understanding (see Section V.H);
- vi. a schedule of specific actions necessary to implement the selected plan, which agrees with the existing NPDES permit and the schedule resulting from the National Municipal Policy (see Sections II.D.1 and II.D.2).

Contractors should be required to obtain adequate construction insurance (e.g., fire and extended coverage, workmen's compensation, public liability and property damage, and all risk) in accordance with local or State laws.

EPA regulations require that a grantee participate in the National Flood Insurance Program if the proposed project involves construction or acquisition of insurable structures (i.e., four walls and a roof, principally above ground), with a value of \$10,000 or more and located in a flood hazard area. Flood protection insurance adequate to protect the grantee's financial interest must be provided for structures as soon as the walls and roof exist. Insurance must be provided during construction and maintained by the grantee thereafter. Building materials for the insurable structure can also be insured if stored on the premises in an enclosed building.

Re: 40 CFR 30.600(b), 33.265; Treasury Circular 570

m. Regulatory Provisions

The contract documents must include a copy of the most recent EPA specification inserts, including 40 CFR 33.295 ("Subagreement Awarded by a Contractor"), Subparts F ("Subagreement Provisions") and G ("Protests"), and EPA Form 5720-4 ("Labor Standard Provisions for Federally Assisted Contracts"). By including these inserts in the contract documents, many of the administrative requirements will be satisfied.

Subpart F includes subagreement provisions such as labor standards provisions, patents data and copyrights clause, violating facilities clause, energy efficiency clause and model subagreement clauses. The model subagreement clauses include the Buy American requirements (see Item 2.aa below) and the quality assurance requirements (see Section VI.5.M.f). With regard to the model subagreement clauses, the grant applicant may use the exact wording in 33.1030 or their equivalent, and should exclude those clauses which are not applicable to construction contracts. Grant applicants should be encouraged to have their model subagreement or substitute clauses reviewed by their legal counsel, to insure their compatibility with State laws and prevailing legal practices.

Re: 40 CFR 30.302(d)(3), 30.503(f) and (h), 33.420(f), 33.710; 40 CFR Part 33 Subparts F and G

n. Safety

Project specifications must require contractors to comply with applicable regulations issued by the Occupational Safety and Health Administration, U.S. Department of Labor (DOL). In addition, where a State has promulgated additional regulations concerning safety in design of structures or safety during construction, such regulations should be incorporated into the specifications (generally by reference).

At the time of plan and specification review, the reviewing agency should insure that the specifications require contractor compliance with applicable State and DOL safety requirements, as well as the specific additional safety provisions for chlorination facilities, wet and dry wells, and other hazardous locations which are described in Items 2.c through 2.e below.

o. Schedule

Each construction contract must include a completion schedule and provisions for coordination among contractors. Since the grant applicant is required to submit a project schedule with the grant application, the construction schedule should be reviewed for reasonableness and conformance with the project schedule, as well as with any permits, compliance schedules, court orders, or State administrative orders. The construction completion schedule is generally given in calendar days from the date of the notice to proceed, and forms the basis for assessing liquidated damages against the contractor (see Item r below). Any circumstances under which the completion schedule would be amended should be clearly defined in the contract documents, which should also indicate that a formal change order is required in such cases.

Re: 40 CFR 33.420(a), 35.2040(b)(6)

p. Permits

The contract documents should require that, to the extent possible, contractors obtain all necessary permits for construction. (Some permits may be required to be held by the owner of the project.)

m. Sewers

Sewers and interceptors should be adequately sized to insure minimum scouring velocities and reasonable peaking factors. Collection sewers should conform with State standards and include properly designed fittings for house connections. Manhole spacing, grades, alignment, elevations, materials of construction, and connections should conform to State standards and be designed to minimize possible sources of infiltration and inflow. Bedding, backfill materials and compaction requirements should be specified to insure the integrity of the sewers for their useful life. Infiltration and exfiltration testing by the contractor should be required as a criteria for acceptance.

n. Sewer Rehabilitation

Where sewer system rehabilitation is an eligible part of the project, the specifications should dictate the sequence of construction (e.g., where necessary, sewer cleaning and closed circuit television inspection with possible air pressure testing of joints followed by joint grouting, manhole grouting, slip lining, or sewer replacement). Because of unforeseen construction difficulties, bid prices for sewer rehabilitation should be unit prices based on estimated quantities. The specifications may also include provisions for post testing as a condition of acceptance after rehabilitation of various sections. This may be particularly important since grantees are required to certify after one year of operation whether the project is meeting its performance standards, including the elimination of excessive infiltration/inflow.

o. Small Systems

Small wastewater treatment projects may range from rehabilitation of failed onsite septic systems to larger cluster systems using small diameter gravity, vacuum, or pressure sewers. Since long term experience with these systems (excluding septic systems) is not readily

available, the technical review of the plans and specifications must carefully consider both design and O&M criteria. Design should conform with EPA's design manual (see Item 1 above) and with State standards for percolation rates, distribution systems, and depth to groundwater and bedrock. Where pressure systems are employed using individual pumps, the specifications should provide for the stocking of a reasonable number of replacement pumps or spare parts. Small systems are also discussed in Sections IV.C.6.10.d and VI.E.1.

Re: 40 CFR 35.2034, 35.2110; EPA publication 625/1-80-012, "Design Manual, Onsite Wastewater Treatment and Disposal Systems," October 1980.

p. Sludge Management

In most cases, sludge must be disposed of in one of three ways: land application, burial in a secure landfill, or incineration. Design of facilities for the disposal of sludge, including intermediate steps such as conditioning, digestion, dewatering, and composting, should be based on the minimum requirements set forth in the following EPA manuals:

- i. EPA publication 625/1-83-016, "Process Design Manual, Land Application of Municipal Sludge," October 1983;
- ii. EPA publication 625/1-79-011, "Process Design Manual, Sludge Treatment and Disposal," September 1979;
- iii. EPA publication 625/1-78-010, "Process Design Manual, Municipal Sludge Landfills," October 1978;
- iv. EPA publication 625/1-82-014, "Process Design Manual for Dewatering Municipal Wastewater Sludge," October 1982; and

- v. EPA publication 430/9-81-011 (formerly (MCD-79), "Technical Bulletin, Composting Process to Stabilize and Disinfect Municipal Sewage Sludge," June 1981.

For incineration or thermal reduction, the Clean Air Act requires that the discharge gases meet the requirements of an approved State Implementation Plan (40 CFR Part 52), the New Source Performance Standards (40 CFR Part 60), and the National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61). Ash (residuals) resulting from incineration must be disposed of in a manner which protects the public health and water quality (both surface and ground water).

An alternate means of sludge disposal is ocean dumping. Ocean dumping of municipal sludge has been the subject of considerable controversy and litigation. Where ocean dumping is proposed by a grant applicant, special review procedures beyond the scope of this Handbook are to be employed (40 CFR Parts 220-228).

Design of sludge disposal processes must comply with applicable State and EPA standards. The use of individual process units (e.g., centrifuges, belt presses, vacuum filters, incinerators) should not exceed manufacturers' recommended loadings. Sufficient capacity must also be included to allow for time lost to equipment startup and maintenance (e.g., capacity based on a six hour day if only one work shift is used).

In general, municipal sludge is not hazardous unless industrial dischargers are major contributors to the wastewater treatment system (see Section IV.C. 6.13 above). In that case the development and implementation of a municipal pretreatment program (see Section E.2 below) may eliminate one discharge of hazardous industrial wastes.

Re: EPA publication 625/10-84-003, "Environmental Regulations and Technology: Use and Disposal of Municipal Wastewater Sludge," September 1984 (see p.2 for applicable regulations); EPA publication 430/9-80-015 (formerly MCD-72), "A

Guide to Regulations and Guidance for the Utilization and Disposal of Municipal Sludge," 1980; EPA publication 430/9-80-001 (formerly MCD-61), "Evaluation of Sludge Management Systems, Evaluation Checklist and Supporting Commentary," October 1979.

q. Bypassing during Construction

Bypassing of inadequately treated sewage during construction is normally not allowed. The construction sequence must be such that wastes are provided a minimum of sedimentation (and disinfection if required to protect public health) during all phases of construction, unless a different level of treatment is required by the State agency. Where absolutely unavoidable, bypassing may be employed for short periods, but only after approval by the reviewing and permitting agency.

r. Ease of Maintenance

Equipment which will require routine maintenance (e.g., lubrication of bearings, changing of oil and filters, replacement of belts) should be designed and located in such a way to provide ease of maintenance. Piping should be color coded, with arrows indicating the direction of flow. Valves and controllers should be readily accessible, especially those used to control routine operations. Adequate railings, guards, and other safety devices should protect operating personnel during routine maintenance.

s. Emergency Alarms

Emergency sirens, lights, or other alarms should be provided, depending on the size and complexity of the project. Emergency alarms should notify operators or emergency personnel (e.g., police, fire, disaster coordinator, etc.) in the event of failures such as power outage, major equipment failure, chlorine leak, or explosive gases in influent wastewater or digestion facilities.

t. Pretreatment

In reviewing the plans and specifications, it is necessary to compare the design considerations against the municipal pretreatment program developed by the grant applicant in accordance with 40 CFR Part 403 (see Section IV.E.2). Where allowed, some nonresidential wastes may increase pollutant or solids loadings (e.g., dairy processing or pulp and paper mill wastes), thereby requiring special design for various unit processes. This review may also help identify those portions of a treatment plant, if any, which are not eligible for grant participation.

u. Aesthetics

One area of particular difficulty in reviewing treatment plant designs concerns the inclusion of reasonable and compatible aesthetic features. It is EPA policy that only essential structures, equipment, and unit processes necessary to meet the projects performance standards are allowable for grant participation. This policy, however, must be tempered by thoughtful consideration of the project's location, visibility, and proximity to nearby residential, commercial, and historic properties. Reasonable aesthetic features such as plantings in buffer zones, revegetation of disturbed lands, compatible architectural features, etc. may be considered allowable costs if approved by the reviewing agency (see Section IX.F.4, Paragraph B.2.a). Other features such as brick veneer on process units, unusual building shapes, special siding on buildings, covered walkways, fountains, or office paneling must be questioned, and where necessary, justified by an analysis similar to a value engineering study.

Re: EPA Audit Resolution Board Decision 13/14,  
"Criteria for Assessing the Allowability of  
Aesthetic Features and Landscaping on EPA  
Construction Grant Projects," February 24,  
1984.



v. Laboratory Facilities

Laboratory facilities and supplies should be sufficient to provide for sampling and testing, according to approved methods, that is necessary for daily operational control and for preparation of reports submitted to State regulatory agencies for those effluent parameters specified in the NPDES or SPDES permit. Except where mandatory implementation of the pretreatment program is required for a major wastewater treatment works, expensive and sophisticated tests should not be performed. Where periodic expensive and sophisticated tests are to be conducted (e.g., periodic checking on industrial waste discharges) consideration should be given to contracting with a nearby university laboratory facility, larger adequately equipped treatment plant, or licensed commercial testing firm in lieu of onsite facilities.

w. Handicapped Design Considerations

Design of wastewater treatment facilities initiated after February 13, 1984 must comply with EPA nondiscrimination regulations. These regulations require wastewater treatment facilities to be designed to provide accessibility to the maximum extent possible to potential handicapped employees. In meeting these accessibility requirements, a grant applicant is not required to take any action that would result in a fundamental alteration in the nature of the treatment facility, or an undue financial or administrative burden. Thus, accessibility for handicapped persons would not have to be provided solely to allow all members of the general public to tour all areas of the facility. Similarly, accessibility would not have to be provided to areas where, because of the nature of the facility and the requirements of the jobs there, it is unlikely that persons with particular handicaps could meet the physical requirements for those jobs, even with reasonable accommodation. For example, elevator access need not be provided to those areas of a treatment plant in which full mobility would be necessary to perform the essential functions of the jobs in those areas. However, administrative and laboratory areas must be accessible to persons in wheelchairs.

#### D. LIMITATIONS ON AWARD

The following sections describe regulatory limitations to grant award. At the time of grant application, the grant applicant must provide evidence of compliance with the applicable limitations described below. The documentation supplied by the grant applicant forms a part of the application package.

##### 1. Advanced Treatment

Projects which propose advanced treatment are subject to a special EPA Regional or Headquarters review and approval prior to grant award. Ideally, this review will have taken place during facilities planning, or at least prior to the initiation of design. Refer to Section IV. E.1 for specific details concerning the advanced treatment review. At the time of the application review, insure that the proposed project and supporting documents agree with the results of the advanced treatment review.

Re: 40 CFR 35.2101

##### 2. Water Quality Management Plans

The proposed project must be consistent with the approved elements of the applicable WQM plan approved under Section 208 or 303(e) of the Clean Water Act (CWA). The grant applicant must be the wastewater management agency designated in the WQM plan. Refer to Section IV.B.3 for specific details.

Re: 40 CFR 35.2023, 35.2030, 35.2102

##### 3. Priority Determination

Each State annually prepares a State project priority list based on the State's approved priority system. To be eligible for a grant in the current year, a project must be listed on the project priority list and must be within the fundable range for the State's current allotment.

At the time of the application review, insure that the scope of the proposed project and the amount of the grant request agree with the corresponding information on the project priority list. All States have established internal processing procedures for insuring

that the funds needed for grant award will not cause the State's allotment to be exceeded, and that the use of reserve funds (e.g., I/A technologies, alternative systems for small communities, etc.) is properly noted and recorded. These procedures should be followed. Refer to Section II.E.3 for a more complete discussion of the State priority system and project priority list.

Re: 40 CFR 35.2015, 35.2103

#### 4. Financial and Managerial Capability

##### Purpose:

Insure that the grant applicant agrees to pay the non-Federal project costs, and has the legal, institutional, managerial, and financial capability to insure the adequate building and operation of the project.

##### Discussion:

By signing the application and the grant agreement, the applicant agrees to pay the non-Federal share of project costs if a grant is offered. If, however, after review of the application package, the reviewing agency determines that the grant offered will be significantly lower than the grant requested, it may be advisable to contact the grant applicant and confirm that the grant applicant agrees to pay the increased non-Federal share. It may also be necessary to reassess the applicant's financial capability (see below).

The grant applicant is required to demonstrate its legal, institutional, managerial, and financial capability to insure the adequate building and operation of the treatment works throughout the entire area to be serviced by the applicant. As part of the grant application package, the grant applicant certifies that it has this capability and has analyzed the local share of the estimated project cost, including the financial impact on each community and the residents of the service area, and finds it to be affordable. The reviewing agency must, however, be satisfied that the application and supporting documents do in fact demonstrate the applicant's capability.

The principal information necessary to demonstrate the applicant's financial and managerial capability is contained in the responses to five basic questions contained in EPA's "Financial and Management Capability" policy statement. To assist grant applicants in answering these questions, EPA has prepared a sample format which suggests one method for displaying responses to the questions. The format, entitled

- the treatment works being phased or segmented is described in a facilities plan which was approved by the reviewing agency before October 1, 1984;
- the Step 3 grant for the initial phase or segment was awarded before October 1, 1984;
- the phase or segment is a sequential phase or segment of a primary, secondary, or advanced treatment facility or its interceptors, or I/I correction; and
- the phase or segment is necessary to:
  - make a previously funded phase or segment operational and in compliance with the enforceable requirements of the CWA, or
  - complete the treatment works, provided that all previously funded phases or segments are operational and in compliance with the enforceable requirements of the CWA.

Re: 40 CFR 35.2108, 35.2123, 35.2152(a) and (c)

## 11. Revised Water Quality Standards

Section 24 of the 1981 CWA amendments requires that after December 29, 1984 no construction grants can be awarded for projects which discharge into stream segments for which the State has failed to review and revise, as appropriate, water quality standards within the previous three years.

While the responsibility for reviewing and revising water quality standards generally does not reside with the construction grants program staff, the project reviewer should be aware of the status of the review of the stream segment into which an applicant project will discharge.

After December 29, 1984, no grant is to be awarded unless the State has reviewed and revised, as appropriate, its water quality standards within the last three years. This limitation on award is satisfied if:

- a. water quality standards for the entire State, or for the particular stream segment into which the project will discharge, have been reviewed and revised (in accordance with Section 303(c) of the CWA), as appropriate, within the last three years and approved by EPA; or

- b. the State agency, in good faith, has submitted to EPA the results of its review, with appropriate revisions, but EPA has failed to act on them within 120 days of receipt.

The above review also applies to no discharge grant projects such as sludge handling, odor control and sewer construction or rehabilitation if these components are part of a wastewater treatment facility discharging to a water body. The review does not apply to containment ponds or land treatment. In addition, funding of a project phase or segment before December 29, 1984, does not grandfather future phases or segments for exemption from Section 24 requirements. However, if a Section 303(c) review is completed for a phased/segmented project after December 29, 1981, then Section 24 is satisfied for the remaining phases/segments.

Re: 40 CFR 35.2111; 40 CFR Part 131

## 12. Environmental Review

A facilities plan, which is a part of the grant application package, is subject to an environmental review in accordance with the EPA regulations implementing the National Environmental Policy Act (NEPA). The environmental review may result in:

- a. a categorical exclusion from further environmental review;
- b. a finding of no significant impact (FONSI); or
- c. the need to prepare an environmental impact statement (EIS).

The environmental review is most often performed prior to the initiation of design, and the grant applicant should have been informed of the need for the review to be performed at that time, to prevent subsequent delays in the award of grant assistance. At the time of application review, insure that the environmental review has been completed, and that the project described in the grant application reflects the conclusions of, and is consistent with, the results of the environmental review. In the absence of a previous environmental review, and in the case of significant changes to the project since the previous environmental review, the proposed project must be reviewed in accordance with requirements described in Section IV.D.

Re: 40 CFR Part 6; 40 CFR 35.2113

## 8. General Grant Conditions

Along with the demonstration that the grant applicant has the financial and managerial capability to build and operate the proposed treatment works, the grant applicant is required to demonstrate its ability to comply with 40 CFR Part 30.

Among other things, 40 CFR Part 30 addresses the requirements for a grant application, payments, project management, deviations, etc. At the time of grant application review, particular attention should be given to property management standards and compliance with other Federal laws. Compliance with some Federal laws will be satisfied initially by including the "Labor Standards Provisions for Federally Assisted Construction Contracts" (EPA Form 5720-4) in the contract documents. Compliance with other Federal laws will also be fulfilled initially by the grant applicant's "assurance of compliance" in the grant application form (see Section C.1 above). The review procedures below highlight some of the requirements from the general grant regulations which may require special consideration during application review.

Where applicable, insure that the grant applicant has or will have the ability to fulfill the general grant requirements listed below:

a. property management standards;

Re: 40 CFR 30.530 through 30.537

- b. compliance with the Flood Disaster Protection Act (if the proposed project involves construction or property acquisition in a special flood hazard area and if the project is located in a community participating in the National Flood Insurance Program, the grant applicant must purchase flood insurance or commit to purchase it at the appropriate time as a condition of receiving grant assistance) (see Section V.C.1.1);

Re: 40 CFR 30.600(b)

- c. the grant applicant may not propose the performance of any work on the proposed project by a facility on EPA's List of Violating Facilities, which includes facilities which have violated either the Clean Air Act or the CWA;

Re: 40 CFR 30.600(c) and (d)

- d. discrimination on the grounds of race, color, national origin, age, sex, and handicap is prohibited, and the grant applicant is required to submit a certification of non-discrimination (EPA Form 4700-4) with the grant application;

Re: 40 CFR 7.8(b), 30.600(d) through (g)

- e. compliance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act, whether or not the real property is eligible for grant assistance (see Section VI.H).

Re: 40 CFR 30.600(i)

- f. if the proposed project will benefit Indians, compliance with the Indian Self-Determination and Education Assistance Act, which requires that Indians be given preference in training and employment opportunities;

Re: 40 CFR 30.600(j)

- g. compliance with the Hatch Act, which requires State and local government employees to comply with restrictions on political activities if their principal employment activities are funded in whole or part by Federal Assistance;

Re: 40 CFR 30.600(k)

- h. compliance with the Safe Drinking Water Act, which prohibits EPA grant assistance if the proposed project may contaminate a sole source aquifer which will result in a significant hazard to public health; and

Re: 40 CFR 30.600(l)

- i. compliance with the reporting requirements for MBE/WBE utilization (see Sections B.7.E and D.5 above).

Re: 40 CFR 35.2104(d)

priority water quality areas of marine bays or estuaries which are due to the impacts of the CSO, and specifically that, at a minimum:

- significant usage of the water for shellfishing and swimming will not be possible without the proposed project; and
- the proposed project will result in substantial restoration of an existing impaired use.

Re: 40 CFR 35.2024(b)(2)

iv. The project must satisfy all applicable limitations on award, grant conditions, Federal grant share provisions, and allowable cost provisions, except for:

- allotment and reallocation (see Sections II.E.2 and II.E.4);
- State priority system and project priority list (see Section II.E.3);
- reserves and reallocation of reserves (see Section II.E.4);
- advances of allowance to potential grant applicants (see Sections II.E.4.e, III.D.3.c, III.E, VI.K, and IX.B.8.c);
- review of grant applications and priority determinations (see Sections VI.M.1 through VI.M.3); and
- Step 2+3 projects (see Section VI.F).

Re: 40 CFR 35.2024(b)(4)



v. Two regulatory provisions for marine CSO projects vary slightly from those for other construction grant projects:

- final plans and specifications may, but need not, accompany the grant application; however, the grant applicant must commit itself to providing them by a date set by the reviewing agency; and
- if the proposed project is a phase or segment described in the facilities plan, the criteria used to demonstrate the need for the project (see Item ii above) must be applied to the entire facilities plan proposal and to each segment proposed for funding.

Re: 40 CFR 35.2024(b)(3)

- vi. Marine CSO project applications and supporting documents are submitted to the State by the grant applicant. The State reviews the project, prepares the special demonstration described in Item iii above, and submits the project to the EPA Regional Office. The Regional Office determines whether all Federal requirements have been met, completes the environmental review, prepares a statement of regional and national significance, determines the eligibility of the project for consideration of funding, and submits the required information to EPA Headquarters.
- vii. Once a year, EPA Headquarters will prepare a priority list, based on the criteria in Item ii above, for proposed marine CSO projects.
- viii. On the basis of the priority list described in Item vii above, EPA headquarters will provide obligating authority for grant award to the appropriate EPA Regional Office.
- ix. Projects receiving marine CSO grant awards will be administered by EPA Regional Offices or, where delegated, State reviewing agencies.

Re: 40 CFR 35.2024(b), 35.2040(f); EPA publication,  
"Guidance for the Preparation and Review of  
Applications, Special Fund for Abatement of  
Combined Sewer Overflow Pollution in Marine  
Bays and Estuaries (The Marine CSO Fund),"  
dated January 1984

#### H. LAND ACQUISITION GRANTS

##### Purpose:

Provide grant assistance for the acquisition of real property (i.e., land) which will be an integral part of the treatment process or provide for ultimate disposal of residuals.

##### Discussion:

During facilities planning, the grant applicant will have evaluated various treatment alternatives, including land application of wastewater or sludge, and selected the cost effective alternative. Land associated with the proposed project may already be owned by the applicant, may be available for lease or purchase, or may be available for use without payment. Since most acquisitions are fee simple purchases of eligible land, this section will generally deal with that acquisition method. Other types of acquisitions methods for eligible land (e.g., long-term lease, permanent easements) are also grant eligible and should be considered where appropriate. Regardless of the acquisition method, acquisition must be accomplished in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (The Uniform Act) and EPA's implementing regulations, 40 CFR Part 4. The Uniform Act and regulations are applicable to the acquisition of real property necessary for EPA assisted projects whether or not the land so acquired is eligible for grant assistance. Regardless of the method of acquisition, owners must be fully informed of their rights under The Uniform Act. After being informed of these rights, landowners may voluntarily waive (in writing) their right to an appraisal.

Arrangements for long-term lease, permanent easement, and use without payment of the treatment site need to be reviewed to insure that they are adequate for the successful construction and operation of the project (e.g., that they are not subject to an expiration or revocation which would prevent the continuing operation of the project).

Acquisition of eligible real property may generally be accomplished in one of three ways under the construction grants program:

- under authorization to proceed as a preaward cost
- under a grant solely for land acquisition, or
- as a part of the grant for the construction of the project.

In any of the above situations, the provisions of 40 CFR Part 4 must be satisfied if the land is to be eligible for grant assistance. 40 CFR Part 4 in essence is separated into two parts:

- requirements for the acquisition of real property, and
- requirements applicable when persons, businesses or farms will be displaced as a result of such acquisition.

In view of the potentially high costs and legal fees associated with land acquisition, grant applicants and reviewing agencies should use personnel experienced in all phases of the acquisition process, including qualified appraisers. The review procedures below address the highlights of the regulatory requirements, but are not a substitute for a detailed review by professional personnel to insure compliance with 40 CFR Part 4. Eligibility of land acquisition and associated costs is discussed in Section IX.D which should be consulted prior to grant award.

#### Review Procedures:

##### 1. Grant Application

A grant application which requests funds for the acquisition of real property must include:

- a. all applicable information and documents described in Sections C through E above, except that grant applications solely for the acquisition of real property need not include the information described in Item 2 below;
- b. a plat map which includes the legal description of the property to be acquired (in lieu of design and specifications if not available).
- c. a preliminary layout of the distribution and drainage system (in lieu of design and specifications if not available).
- d. an identification of the interest in real property to be acquired (e.g., fee simple purchase, long-term lease, permanent easement).

- e. a copy of the appraisal reports for the property;
- f. assurances that the property will be used only for the purpose for which it is purchased, and that EPA's interest in the property will be adequately reflected and protected in compliance with all recordation or registration requirements of applicable local laws on real property (see CFR Part 30; Item 3.b and Section M.5 below); and
- g. assurances of compliance with The Uniform Act.

Re: 40 CFR 30.535, 30.600(i), 35.2040(b)  
40 CFR Part 4, Subpart F

## 2. Deferred Provisions

Grant applications which request funds solely for land acquisition need not include information regarding the following items whose submission may be deferred until the award of grant assistance to build the project:

- a. debarment and suspension (see Section D.7 above);
- b. user charge system (see Section V.E and Section D.17 above);
- c. sewer use ordinance (see Section V.F and Section D.17 above);
- d. O&M manual payment limitations (see Section IX.B.5);
- e. adoption of UC system and SUO (see Sections V.E and V.F, and Section D.17 above); and
- f. final design drawings and specifications.

Re: 40 CFR 35.2122, 35.2260, 35.2040

## 3. Grant Conditions

Grant awards which include the acquisition of eligible real property are to include grant conditions (see Section M.5.d below) stating that:

- a. real property must not be acquired until the reviewing agency has determined, based on documentation submitted by the grantee, that the applicable provisions of 40 CFR Part 4 have been or will be met; and
- b. consistent with 40 CFR Part 30, the Federal interest in the property to be acquired must be protected by the inclusion of the following language in the title or other recordation instrument:

"Federal lien: Federal grant funds have been used to purchase this property. The United States interest is \_\_\_\_\_ percent (depending on the Federal share at the time of grant award) of the proceeds from any subsequent sale or current fair market value of the property on the date of the transaction which removes it from the use for which it was purchased. (See 40 CFR 30.535(e), revised on September 30, 1983). A lien to this effect and extent is hereby asserted."

Re: 40 CFR 30.535, 35.2210

#### 4. Preaward Costs

Potential grant applicants requesting approval, as a preaward cost, of the acquisition of eligible land or of an option for the purchase of eligible land may receive such approval after completion of the environmental review (see Section D.12). In addition, the reviewing agency should request sufficient information from the applicant, such as that required for grant award in Items 1.b through 1.f above, to insure that the costs are likely to satisfy grant application requirements for a subsequent grant. The approval letter from the reviewing agency should include notification that the acquisition of real property, to be eligible, must be procured in accordance with the applicable provisions of 40 CFR Parts 4 and 30.

The approval letter should note that these costs will only be reimbursed if a grant is subsequently made and thus does not represent a commitment of funds. Grantees should be advised that certain costs incurred prior to grant award may not be deemed allowable if specific authorization for preaward costs was not obtained. Refer to Section D.15 above for additional warning language to be included in the approval letter.

Re: 40 CFR 35.2118

f. Quality Assurance Program

When environmentally related measurements or data generation are involved in a project, the grantee must develop and implement a quality assurance program which will assure that quality data will be produced and a minimum of data will be lost through out of control conditions or malfunctions. If a grant condition requires the grantee to gather environmental related data, a schedule for developing a quality assurance project plan must be submitted within 30 days of a grant award. Field testing of I/A technologies and evaluation of wastewater treatment plant performance (e.g., during the one year project performance period) are examples of activities which may entail gathering environmental or environmentally related data.

Re: 40 CFR 30.302(d)(3), 30.503(f) and (h)

g. Project Performance Standards

The grantee should be informed of the parameters which have been identified by the reviewing agency as project performance standards (see Sections V.C.2.a and VII.I.2.a).

Re: 40 CFR 35.2218(c)

h. Field Testing of Innovative or Alternative Technologies

See Section I.3 above.

6. Special Grant Conditions

Where there are compelling reasons, special grant conditions may be included in the grant agreement. Unlike general grant conditions, special grant conditions do not repeat EPA's regulatory requirements, but rather are special conditions under which the grant has been awarded, due to unusual circumstances. All proposed special grant conditions should receive a technical and legal review, to insure that their inclusion in the grant agreement/amendment is appropriate.

(see Item 5 above), a change order may be issued to the contractor by the grantee, with the price of the additional services negotiated as an equitable adjustment to the contract. If the change order requires prior approval by the reviewing agency (see Section H.3 below, and Section IX.F.4, Paragraph A.1.f), the review procedures described in Section H.5 below, modified to suit contracts for professional services, should be used.

If the additional work is within the scope of the project, but outside the scope of work of the existing contract, the additional services must be procured through the procedures described in Section C.1 or C.2 above, unless the procedures described in Section E or F below are appropriate.

Re: 40 CFR 33.1030, Paragraph 3(b)

#### D. PROCUREMENT OF CONSTRUCTION CONTRACTORS

The grantee is required to award subagreements and issue notices to proceed for building all significant elements of the project as soon as possible, but no later than 12 months, after grant award. All grantees must submit limited information concerning each sub-agreement award to the reviewing agency. Grantees without a certified procurement system must submit more detailed information.

##### 1. Competitive Bidding

In almost all cases, procurement of construction contractors and suppliers of equipment and materials must be done using the competitive bidding method (referred to as formal advertising in 40 CFR Part 33). Competitive bidding involves advertising for bids, receipt of sealed bids, public opening of bids, and the award of the contract to the responsive and responsible bidder who submits the lowest bid. In practically all cases (see Section B.2.a above), a bid tabulation must be prepared by the grantee's engineer, showing the prices bid by each contractor for each item in the contract proposal form. The reviewing agency is to insure that all required competitive bidding procedures were used, including:

a. Public Notice

When advertising for bids under the formal advertising (i.e., competitive bidding) method, the grantee must give adequate notice to the public. The public notice must include sufficient information to enable bidders to readily obtain and review bidding documents.

b. Bidding Documents

The bidding documents must include:

- i. a copy of 40 CFR 33.295; 40 CFR Part 33, Subparts F and G; and if appropriate, "Labor Standard Provisions for Federally Assisted Contracts" (EPA Form 5720-4);
- ii. a complete statement of the work to be performed, including where appropriate, design drawings, specifications, and the required performance schedule;
- iii. the terms and conditions of the sub-agreement to be awarded, including payment, delivery schedules, point of delivery, and acceptance criteria;
- iv. the place and deadline for submitting bids;
- v. a clear explanation of the bidding procedures and the method to be used by the grantee to evaluate bid prices and to award the subagreement;
- vi. the criteria to be used in evaluating bidders' compliance with the responsibility requirements; and
- vii. the DOL prevailing wage rate determination, if applicable.

c. Addenda

Prior to bid opening, the grantee may have issued addenda to correct errors, to clarify information in the bidding documents, or to incorporate the current wage rate determination. Contract proposal documents



should include a form for certification that the bidder has received all addenda before the bid date. Where addenda have been issued by the grantee, the reviewing agency is to insure that receipt of such addenda is acknowledged by each bidder, and that the addenda were issued in a reasonable time (generally 5 days) before the deadline for the receipt of bids (see Section V.C.1.d).

d. Number of Bids

Sufficient bids should have been received. If only one bid is received, the grantee should analyze the reasons for receipt of only one bid. If the grantee determines that the specifications were written in a manner which discouraged bidding, or that some other situation existed which caused the lack of bidders, the grantee must correct these problems and rebid the project.

If the grantee determines that there was a sufficient number of responsible contractors within the area that could have bid on the project, and that there is valid justification for receiving only one bid, the grantee may accept the bid provided that he conducts a price analysis, if the bid exceeded \$10,000, and determines that the bid is reasonable (i.e., it compares favorably with the engineer's estimate or some other basis for a price comparison).

If the bid price significantly exceeds the engineer's estimate, the grantee may reject the bid as explained in Item 2 below.

e. Bid Evaluation

Evaluation of all bids must have been made using the objective criteria described in the bidding documents. All necessary bid bonds and certifications must have been submitted, and all required forms completed and signed. If less than three responsive and responsible bids were received and the low bid exceed \$10,000, the grantee must have conducted a price analysis of the winning bid and determined that it was reasonable.

f. Contract Award

A fixed price contract must be awarded to the lowest responsive and responsible bidder (see Section V.C.1.f). The contractor to which the contract is awarded must not be on EPA's Master List of suspended and debarred contractors.

Re: 40 CFR 33.211, 33.220, 33.235, 33.290(b), 33.405, 33.410, 33.415

2. Rejection of All Bids

The grantee may reject all bids only if it has sound, documented business reasons for doing so. The reviewing agency may approve such actions where justified as being in the best interests of the construction grants program. Because of varying State statutory requirements, it may be prudent to request that the grantee's legal counsel submit documentation supporting such actions under State law. If the grantee improperly rejects all bids, any additional costs incurred (including a contract price which is higher than the original low bid) will be ineligible for grant assistance. It is therefore advisable for the grantee to consult with the reviewing agency before rejecting all bids.

After rejection of all bids, the grantee may either readvertise using the competitive bidding method (see Item 1 above), or negotiate the procurement (if appropriate) in accordance with 40 CFR 33.505 through 33.525 or 33.605.

Re: 40 CFR 33.430(c)

3. Small, Minority, Women's, and Labor Surplus Area Businesses

The reviewing agency is to insure that affirmative actions have been taken by the grantee, and where appropriate, by the grantee's contractors, to include small, minority, women's, and labor surplus area businesses in the bidding process (see Section V.C.1.w). Where State or local goals have been established, the reviewing agency is to compare those goals against the contract awards.

Re: 40 CFR 33.240

4. Grant Adjustment

Each grant award is originally based on the estimated allowable costs of building the project, a reasonable construction contingency, the cost of eligible land, and the estimated

allowance for planning and/or design. After the receipt of bids and the acquisition of eligible land, the costs of building the project are more accurately known, and the grant should be adjusted accordingly. Any grant adjustment requires a formal grant amendment.

a. Building Cost

The sum of all prime contracts and subcontracts (including contracts for the direct purchase of equipment, materials, or supplies by the grantee), plus the cost of approved force account work in lieu of awarding construction contracts, equals the total allowable building cost. If the total allowable building cost is less than the estimates used for grant award, the grant is to be reduced accordingly (see Section IX.C.2). If the total allowable building cost is more than the estimated allowable building cost plus the construction contingency, the grant may be increased (see Section IX.C.1) if the bids are judged reasonable, and sufficient funds are available in the State's allotment (many States maintain a reasonable reserve of grant funds for this purpose). If bids are significantly higher than anticipated, it may be necessary for the grantee to reevaluate its financial capability in light of the higher costs. Also, if bids are significantly higher, it may be appropriate for the grantee to reevaluate the scope of work, or when appropriate, reject all bids and readvertise. This last course of action may only be undertaken in accordance with State law and EPA procurement regulations (see Item 2 above).

b. Construction Contingency

After receipt of bids, the construction contingency is usually reduced to between 2 and 5 percent of the total allowable building costs. The construction contingency is available for unanticipated cost increases (i.e., change orders) during construction.

c. Land Acquisition Cost

Assuming that the requirements of 40 CFR Parts 4 and 30 have been satisfied with regard to the acquisition of eligible land, the grant amount may require adjustment after the actual cost of eligible land is known.

d. Allowance for Planning and/or Design

The final allowance for planning and/or design is determined only once, and is based on the initial allowable award amount of all prime construction contracts

(including contracts for the direct purchase of equipment, materials, and supplies by the grantee), plus the initial amount approved for force account work in lieu of awarding construction contracts, and the purchase price of eligible land. The amount of the allowance does not change, even if the actual building costs increase or decrease during the performance of the work. The final allowance is computed in accordance with 40 CFR Part 35, Subpart I, Appendix B (see Section VI.L.1).

e. Grant Amendment

Any grant adjustment, as determined in Items a through d above, requires the preparation of a formal Grant Agreement/Amendment (EPA Form 5700-20A). States are to verify that sufficient funds are available in the State's allotment, certify the grant amendment and other documents required by the State/EPA delegation agreement, and submit the grant amendment to EPA for approval (see Section VI.M).

Re: 40 CFR 30.700, 35.2204

5. Contract Award

Grantees are to award contracts and issue notices to proceed for building all significant elements of the project as soon as possible, but no later than 12 months, after grant award (see Section IX.F.4, Paragraph A.2.e).

Re: 40 CFR 35.2212

6. Protests

A protest is a written complaint concerning the grantee's solicitation or award of a subagreement, and may be filed with the grantee only by a party with a direct financial interest which has been adversely affected by the grantee's action. Protests may be filed during the procurement of professional services or construction services (including the direct purchase of equipment, materials, and supplies by the grantee), and should normally be submitted to the grantee prior to the closing date for the receipt of proposals or bids.

1. the aggregate amount of any one procurement does not exceed \$10,000, or a lower amount established by State or local law;
2. the procurement was not divided into smaller amounts to avoid the dollar limitation for small purchase procurement; and
3. price or rate quotations were obtained and documented from an adequate number of qualified sources.

Re: 40 CFR 33.305, 33.310, 33.315

#### F. NONCOMPETITIVE NEGOTIATION

Noncompetitive negotiation (i.e., sole source procurement) is the least favored method of procurement, and may only be used if the other three methods of procurement are inappropriate, or where the requirements for continuation of engineering services have been satisfied (see Section C.3.c above). Noncompetitive negotiation for the continuation of engineering services requires the prior written approval of the reviewing agency.

Noncompetitive negotiation may only be used if the other three procurement methods (i.e., competitive bidding, competitive negotiation, and small purchase) are inappropriate because:

1. the item is available only from a single source;
2. a public exigency or emergency exists;
3. after solicitation from a number of sources, competition is inadequate (e.g., after formal advertising, only one responsive and responsible bid is received); or
4. the reviewing agency authorizes noncompetitive negotiation for continuation of engineering services (see Section C.3.c above).

Re: 40 CFR 33.605, 33.715

## G. MONITORING CONSTRUCTION

### Purpose:

Insure that the grantee manages the project in accordance with the commitments made in the grant application and the grant acceptance, and that the project is constructed in accordance with the approved plans, specifications, and change orders.

### Discussion:

To insure adequate performance by all equipment vendors and construction contractors, the reviewing agency must provide for sufficient monitoring of construction activities. The reviewing agency's monitoring program should begin with a preconstruction conference, extend through interim construction monitoring activities, and conclude with a final inspection. The extent and frequency of monitoring will depend on the size and complexity of the project, and the needs and performance of the grantee, the resident inspection team, and the construction contractors. The agency performing the monitoring activities will be designated in the State/EPA delegation agreement, with monitoring activities carried out by the State, EPA and/or the U.S. Army Corps of Engineers (COE). In some States, one of these agencies has been given the responsibility for all monitoring activities, while in others, two or all three agencies share this responsibility. Each agency is to follow the detailed monitoring procedures in the State/EPA delegation agreement and/or the EPA/COE interagency agreement.

To assist reviewing agencies in carrying out a thorough and efficient monitoring program, EPA has prepared two guidance documents which include a complete discussion of the specific actions to be undertaken during construction monitoring: "Operating Procedures for Monitoring Construction Activities at Projects Funded under the Environmental Protection Agency's Construction Grants Program," dated September 1983, and "Construction Management Evaluation and Project Management Conference Manual," dated December 1983. The documents should be used in conducting onsite construction monitoring activities. However, reviewing agencies must also maintain off-site (i.e., in the reviewing agency's office) construction monitoring through the review of payment requests, inspection reports, change orders, correspondence, and telephone communications. This information, when compared with the project schedule in the grant agreement, will provide an indication of the adequacy of construction progress, and may form the basis for changing the frequency of

c. Payment Requests

Payments for the Federal share of engineering services during the first year of operation are to be processed as discussed in Section IX.B. For fixed price contracts, payment is related to the completion of specific tasks. For cost-plus-fixed-fee contracts, payments are made as the work is completed (generally no more frequently than monthly).

d. Deficiencies

During the first year of operation, problems may develop with regard to equipment, unit processes, or deficiencies due to poor construction. The grantee is responsible for correcting such deficiencies, using appropriate means such as: invoking the provisions of equipment warranties, construction contractor performance bonds, and guarantees from the design engineer; initiating enforcement action against industrial dischargers; etc.

As a part of good project management, reviewing agencies should establish a program which tracks the performance of completed projects during the first year of operation. Such a program could include periodic onsite inspections and a review of monthly operation reports submitted by grantees. When onsite inspections or monthly reports indicate that a project is experiencing difficulties in meeting its project performance standards, the reviewing agency should work with the grantee and offer technical assistance or guidance as appropriate.

2. Project Performance After One Year

a. Certification

One year after the initiation of the operation of the project, the grantee is required to certify to the reviewing agency whether the project meets the project performance standards. Project performance standards are performance and operational requirements applicable to the project, including the enforceable requirements of the CWA, and the design criteria upon which the plans and specifications are based. For projects required to satisfy the enforceable requirements of the CWA, the performance standards include

the design criteria (usually contained in the engineer's design report and/or the facilities plan) and the effluent limitations contained in the National Pollutant Discharge Elimination System (NPDES) permit (see Section II.D.2). For projects not required to satisfy the enforceable requirements of the CWA (e.g., sewers and pumping stations), performance standards include only the design criteria. For projects which include sewer rehabilitation, the quantity of excessive I/I to be eliminated is one of the project performance standards. Guidance for certifying an I/I project is described below.

To positively certify an I/I project, the grantee must show that the rehabilitation program has achieved an acceptable level of I/I reduction. Ideally, this means that the planned I/I reduction target is achieved at a cost not exceeding the rehabilitation cost projected in the cost-effectiveness analysis. However, past experience has shown that it is technically impossible to determine the actual I/I reduction due to (1) lack of precise and reliable flow monitoring procedures and (2) the difference in storm and groundwater conditions before and after rehabilitation is completed.

For these reasons, criteria for certifying I/I project performance must be established on the basis of project cost-effectiveness. Accordingly, a sewer rehabilitation project is considered certifiable as long as the I/I reduction is achieved at a cost not to exceed the transport and treatment cost for that portion of reduced flow. In addition, the remaining I/I in the system will not adversely impact the performance of the treatment facility as designed. A detailed procedure for determining minimum acceptable I/I reduction is described in CG-85.

Project performance standards will normally have been established at the time of grant award, and should have been included in the grant agreement as a grant condition (see Section VI.M.5.g).

Where the grantee certifies that the project is meeting its project performance standards and where all grant conditions have been satisfied, the project may be prepared for audit and closeout (see Section VIII.D). If the grantee is unable to certify that the project is meeting its performance standards, the grantee must undertake corrective action as described in Item b below.



b. Corrective Action

If the reviewing agency or the grantee concludes that the project is not meeting its project performance standards, the grantee is required to submit the following:

- i. a corrective action report which includes an analysis of the cause of the project's failure to meet the performance standards, and an estimate of the nature, scope, and cost of the corrective action necessary to bring the project into compliance;
- ii. a schedule for undertaking, in a timely manner, the corrective action necessary to bring the project into compliance; and
- iii. the scheduled date by which the grantee will be able to certify that the project is meeting its performance standards.

The reviewing agency is to insure that the proposed schedule is in conformance with, or will become a part of, the State-developed schedule for implementing EPA's National Municipal Policy. For a municipality whose project is not in compliance with its NPDES permit, this policy requires that the community prepare a composite correction plan (see Section II.D.1).

Except in the case of projects which qualify for a 100 percent grant for the modification or replacement (M/R) of a failed innovative or alternative (I/A) technology (see Section VI.J), or the extent allowed by EPA's policy on project additions (see Section IX.F.4, Paragraph H.1.d), the cost of preparing the corrective action report and undertaking the corrective action necessary to bring the project into compliance with the project performance standards is not eligible for grant participation.

Re: 40 CFR 35.2218(c) and (d); 40 CFR Part 35, Appendix A, Paragraphs H.1.d (3)(b), H.2.e, and H.2.1; EPA notice, "National Municipal Policy," 49 FR 3832 and 3833 (January 30, 1984)

D. REAL PROPERTY

1. ALLOWABLE COSTS FOR LAND AND RIGHTS-OF-WAY INCLUDE:

- a. THE COST (INCLUDING ASSOCIATED LEGAL, ADMINISTRATIVE AND ENGINEERING COSTS) OF LAND ACQUIRED IN FEE SIMPLE OR BY LEASE OR EASEMENT UNDER GRANTS AWARDED AFTER OCTOBER 17, 1972, THAT WILL BE AN INTEGRAL PART OF THE TREATMENT PROCESS OR THAT WILL BE USED FOR THE ULTIMATE DISPOSAL OF RESIDUES RESULTING FROM SUCH TREATMENT PROVIDED THE REGIONAL ADMINISTRATOR APPROVES IT IN THE GRANT AGREEMENT. THESE COSTS INCLUDE:
- (1) THE COST OF A REASONABLE AMOUNT OF LAND, CONSIDERING IRREGULARITIES IN APPLICATION PATTERNS, AND THE NEED FOR BUFFER AREAS, BERMS, AND DIKES;
  - (2) THE COST OF LAND ACQUIRED FOR A SOIL ABSORPTION SYSTEM FOR A GROUP OF TWO OR MORE HOMES;
  - (3) THE COST OF LAND ACQUIRED FOR COMPOSTING OR TEMPORARY STORAGE OF COMPOST RESIDUES WHICH RESULT FROM WASTEWATER TREATMENT;
  - (4) THE COST OF LAND ACQUIRED FOR STORAGE OF TREATED WASTEWATER IN LAND TREATMENT SYSTEMS BEFORE LAND APPLICATION. THE TOTAL LAND AREA FOR CONSTRUCTION OF A POND FOR BOTH TREATMENT AND STORAGE OF WASTEWATER IS ALLOWABLE IF THE VOLUME NECESSARY FOR STORAGE IS GREATER THAN THE VOLUME NECESSARY FOR TREATMENT. OTHERWISE, THE ALLOWABLE COST WILL BE DETERMINED BY THE RATIO OF THE STORAGE VOLUME TO THE TOTAL VOLUME OF THE POND.
- b. THE COST OF COMPLYING WITH THE REQUIREMENTS OF THE UNIFORM RELOCATION ASSISTANCE AND REAL PROPERTY ACQUISITION POLICIES ACT OF 1970 (42 U.S.C 4621 et.seq., 4651 et seq.), UNDER PART 4 OF THIS CHAPTER.

The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (The Uniform Act), as implemented by EPA under 40 CFR Part 4, is applicable to the acquisition of land necessary for projects receiving EPA grant assistance regardless of whether the land so acquired is eligible for grant assistance (e.g., sewer easements). The cost of complying with 40 CFR Part 4 is allowable; it is only the cost of the land itself which may or may not be eligible for grant assistance.

Representative costs of complying with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 include:

- i. cost of appraisal and review appraisal (including supplemental engineering, surveying or other studies necessary to properly value improvements, minerals, timber or other resources on the property);
- ii. necessary services associated with the acquisition such as title search; documentation relating to just compensation/offer amount; purchase negotiations; preparation of purchase agreement (including options if applicable), proposed deed covenants, legal description, lease agreements and related legal documents;
- iii. related costs such as legal notices, closing costs (e.g., transfer tax, evidence of title, recording fee), mortgage prepayment penalties and certain pro-rata prepaid property taxes;
- iv. certain legal and other costs relating to abandoned or unsuccessful condemnation proceedings or inverse condemnation proceedings decided in favor of the landowner;
- v. advisory assistance to displaced persons, businesses and farms to relocate;
- vi. moving and related expenses for displaced persons, businesses and farms;
- vii. replacement housing payments for displaced persons.
- viii. other administrative costs of complying with The Uniform Act.

Each of the representative costs listed above contain limitations concerning reasonableness, allowability or eligibility which are more fully described in 40 CFR Part 4.

Re: 40 CFR 4.101, 4.201, 4.205, 4.400, 4.503, 4.600 et seq.

- c. THE COST OF CONTRACTING WITH ANOTHER PUBLIC AGENCY OR QUALIFIED PRIVATE CONTRACTOR FOR PART OR ALL OF THE REQUIRED ACQUISITION AND/OR RELOCATION SERVICES.

- d. THE COST ASSOCIATED WITH THE PREPARATION OF THE TREATMENT WORKS SITE BEFORE, DURING AND, TO THE EXTENT AGREED ON IN THE GRANT AGREEMENT, AFTER BUILDING. THESE COSTS INCLUDE:

- (1) THE COST OF DEMOLITION OF EXISTING STRUCTURES ON THE TREATMENT WORKS SITE (INCLUDING RIGHTS-OF-WAY) IF BUILDING CANNOT BE UNDERTAKEN WITHOUT SUCH DEMOLITION;

Demolition of existing structures on the treatment works site (including rights-of-way), when not required for building the project, will be considered to be an allowable cost only if the existing structures constitute a real and present hazard to safety, public health, or water quality, which can only be abated by the removal of the existing structures. The demolition of an existing structure for the convenience of the owner as a means of increasing property value or property use is unallowable for grant participation.

- (2) THE COST (CONSIDERING SUCH FACTORS AS BETTERMENT, COST OF CONTRACTING AND USEFUL LIFE) OF REMOVAL, RELOCATION OR REPLACEMENT OF UTILITIES, PROVIDED THE GRANTEE IS LEGALLY OBLIGATED TO PAY UNDER STATE OR LOCAL LAW; AND

- (3) THE COST OF RESTORING STREETS AND RIGHTS-OF-WAY TO THEIR ORIGINAL CONDITION. THE NEED FOR SUCH RESTORATION MUST RESULT DIRECTLY FROM THE CONSTRUCTION AND IS GENERALLY LIMITED TO REPAVING THE WIDTH OF TRENCH.

Repaving beyond the trench width may be considered to be an allowable cost if uniformly required by State or local law for all projects involving road construction, regardless of the source of project funding. Sometimes referred to as "saw width," this provision requires that the road surface and subsurface be cut one or two feet beyond the trench width. This is not, however, to be interpreted as allowing the cost of complete or partial repaving of a road beyond the "saw width."

- e. THE COST OF ACQUIRING ALL OR PART OF AN EXISTING PUBLICLY OR PRIVATELY OWNED WASTEWATER TREATMENT WORKS PROVIDED ALL THE FOLLOWING CRITERIA ARE MET:

- (1) THE ACQUISITION, IN AND OF ITSELF, CONSIDERED APART FROM ANY UPGRADE, EXPANSION OR REHABILITATION, PROVIDES NEW POLLUTION CONTROL BENEFITS;
- (2) THE ACQUIRED TREATMENT WORKS WAS NOT BUILT WITH PREVIOUS FEDERAL OR STATE FINANCIAL ASSISTANCE;
- (3) THE PRIMARY PURPOSE OF THE ACQUISITION IS NOT THE REDUCTION, ELIMINATION, OR REDISTRIBUTION OF PUBLIC OR PRIVATE DEBT; AND
- (4) THE ACQUISITION DOES NOT CIRCUMVENT THE REQUIREMENTS OF THE ACT, THESE REGULATIONS, OR OTHER FEDERAL, STATE OR LOCAL REQUIREMENTS.

2. UNALLOWABLE COSTS FOR LAND AND RIGHTS-OF-WAY INCLUDE:

- a. THE COSTS OF ACQUISITION (INCLUDING ASSOCIATED LEGAL, ADMINISTRATIVE AND ENGINEERING, ETC.) OF SEWER RIGHTS-OF-WAY, WASTE TREATMENT PLANT SITES (INCLUDING SMALL SYSTEM SITES), SANITARY LANDFILL SITES AND SLUDGE DISPOSAL AREAS EXCEPT AS PROVIDED IN PARAGRAPH 1.a. OF THIS SECTION.

Costs of complying with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 are allowable even if the property being acquired is not (see Section D 1.b above).

- b. ANY AMOUNT PAID BY THE GRANTEE FOR ELIGIBLE LAND IN EXCESS OF JUST COMPENSATION, BASED ON THE APPRAISED VALUE, THE GRANTEE'S RECORD OF NEGOTIATION OR ANY CONDEMNATION PROCEEDING, AS DETERMINED BY THE REGIONAL ADMINISTRATOR.

An amount higher than the determination of just compensation may be found allowable through an administrative settlement if the grantee provides sufficient written documentation to the Regional Administrator prior to the actual acquisition. Such an administrative settlement may be appropriate where negotiated purchase is unsuccessful and where a condemnation action may entail a long delay or excessive costs. Administrative settlements may be used when it is reasonable, prudent and in the public interest. Documentation may include evidence of purchase negotiations, real property sales data, estimated court settlement and legal costs based on previous condemnation proceedings. Such documentation may form the basis of an administrative settlement with Regional Administrator approval.

- c. REMOVAL, RELOCATION OR REPLACEMENT OF UTILITIES LOCATED ON LAND BY PRIVILEGE, SUCH AS FRANCHISE.

These costs are not allowable unless the grantee is required to pay such costs under State or local law.

E. EQUIPMENT, MATERIALS AND SUPPLIES

1. ALLOWABLE COSTS OF EQUIPMENT, MATERIALS AND SUPPLIES INCLUDE:

- a. THE COST OF A REASONABLE INVENTORY OF LABORATORY CHEMICALS AND SUPPLIES NECESSARY TO INITIATE PLANT OPERATIONS AND LABORATORY ITEMS NECESSARY TO CONDUCT TESTS REQUIRED FOR PLANT OPERATION.

A suggested list of equipment, supplies, and chemicals for various sizes of treatment plants is given in Appendix B of EPA publication 430/9-74-002, "Estimating Laboratory Needs for Municipal Waste Water Treatment Facilities," 1974. Large stocks of expendable materials are, however, not allowable.

- b. THE COSTS FOR PURCHASE AND/OR TRANSPORTATION OF BIOLOGICAL SEEDING MATERIALS REQUIRED FOR EXPEDITIOUSLY INITIATING THE TREATMENT PROCESS OPERATION.

- c. COST OF SHOP EQUIPMENT INSTALLED AT THE TREATMENT WORKS NECESSARY TO THE OPERATION OF THE WORKS.

The need for installed shop equipment necessary for the operation of the treatment works should be carefully reviewed to insure that it is cost effective when compared to the cost of equipment rental or the procurement of a contractor to perform the required work. The need will depend on the specific item, its frequency of expected use, and the size and complexity of the treatment facility. Undoubtedly, larger treatment facilities will have a greater need for installed shop equipment than smaller ones. For example, a portable welding machine may be appropriate for a large facility, whereas it may be more economical for a smaller community to employ a local welder when necessary. Also, smaller projects may not have the staff (e.g., skilled machinists) necessary to operate some of the equipment. Where the proposed items of equipment are inappropriate to the size of the treatment works, the reviewing agency may determine that the proposed installed shop equipment is unallowable for grant participation.

- d. THE COSTS OF NECESSARY SAFETY EQUIPMENT, PROVIDED THE EQUIPMENT MEETS APPLICABLE FEDERAL, STATE, LOCAL OR INDUSTRY SAFETY REQUIREMENTS.

- e. A PORTION OF THE COSTS OF COLLECTION SYSTEM MAINTENANCE EQUIPMENT. THE PORTION OF ALLOWABLE COSTS SHALL BE THE TOTAL EQUIPMENT COST LESS THE COST ATTRIBUTABLE TO THE EQUIPMENT'S ANTICIPATED USE ON EXISTING COLLECTION SEWERS NOT FUNDED ON THE GRANT. THIS CALCULATION SHALL BE BASED ON:

- (1) THE PORTION OF THE TOTAL COLLECTION SYSTEM PAID FOR BY THE GRANT,
- (2) A DEMONSTRABLE FREQUENCY OF NEED, AND
- (3) THE NEED FOR THE EQUIPMENT TO PRECLUDE THE DISCHARGE OR BYPASSING OF UNTREATED WASTEWATER.

See Paragraph E.2.c below for a discussion of other allowable maintenance equipment.

- f. THE COST OF MOBILE EQUIPMENT NECESSARY FOR THE OPERATION OF THE OVERALL WASTEWATER TREATMENT FACILITY, TRANSMISSION OF WASTEWATER OR SLUDGE, OR FOR THE MAINTENANCE OF EQUIPMENT. THESE ITEMS INCLUDE:

- (1) PORTABLE STAND-BY GENERATORS;
- (2) LARGE PORTABLE EMERGENCY PUMPS TO PROVIDE "PUMP-AROUND" CAPABILITY IN THE EVENT OF PUMP STATION FAILURE OR PIPELINE BREAKS:  
AND
- (3) SLUDGE OR SEPTIC TANKS, TRAILERS, AND OTHER VEHICLES HAVING AS THEIR SOLE PURPOSE THE TRANSPORTATION OF LIQUID OR DEWATERED WASTES FROM THE COLLECTOR POINT (INCLUDING INDIVIDUAL OR ONSITE SYSTEMS) TO THE TREATMENT FACILITY OR DISPOSAL SITE.

Mobile equipment necessary for the operation of the overall wastewater treatment facility may also include vehicles necessary for the daily removal and disposal of grit. While vehicles used for other purposes (e.g., sludge tanks or trailers) would normally serve this purpose, large facilities may have a sufficient need to justify a separate vehicle to be used solely for the transportation and disposal of grit. Additionally, for projects which involve the landscrapping of sludge as the method of ultimate sludge disposal, the necessary