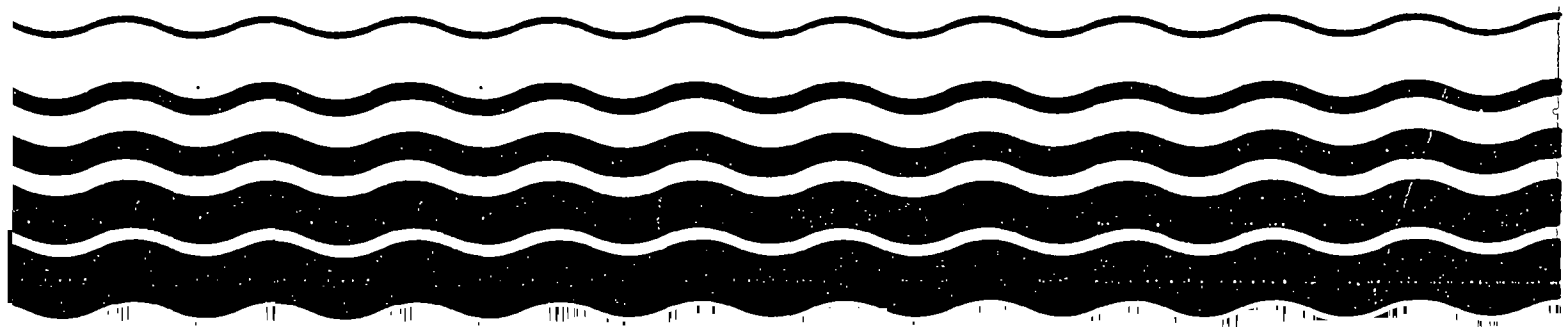


Water

EPA Construction Grants Process for State Agency Personnel

Videotape Instructor Manual



Wastewater

CONSTRUCTION GRANTS PROCESS

FOR

STATE AGENCY PERSONNEL

COURSE 250.2

VIDEOTAPE INSTRUCTOR MANUAL

U.S. Environmental Protection Agency
National Training and Operational Technology Center, Cincinnati, Ohio;
Office of Water Programs Operations, Municipal Construction Division,
Washington, D. C.

US/EPA

This is not an official policy and standards document. The opinions, findings and conclusions are those of the author and not necessarily those of the Environmental Protection Agency.

Every attempt has been made to represent the current policies and regulations of the EPA at the time of publication. However, periodic changes are made based upon the EPA's desire to improve the efficiency of administering the Construction Grants Program.

The Instructor and Student Manuals were prepared by Albert T. Bowyer of A. T. Bowyer, Inc., Towaco, New Jersey. Project direction and guidance were provided by Mr. Joseph F. Santner of NTOTC, U.S. EPA, Cincinnati, Ohio, and Mr. Albert L. Pelmoter of OWPO, U.S. EPA, Washington, D. C.

FOREWORD

In 1972 the Congress enacted the "Federal Water Pollution Control Act Amendments" and authorized \$18 billion for the construction of needed wastewater treatment facilities. This complex and far-reaching legislation stated, "it is the national goal that the discharge of pollutants into the navigable waters be eliminated by 1985" and "...wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water be achieved by July 1, 1983."

In 1977 the Congress enacted "The Clean Water Act" which strengthened and provided anticipated midcourse corrections to the earlier legislation. The Congress reaffirmed its commitment to water pollution abatement as represented by the authorization of an additional \$24.5 billion for fiscal years 78-82 for the construction of needed wastewater treatment facilities.

The funds as authorized by Congress are allotted to the states and territories of the United States based on their need for water pollution abatement projects. Each state or territory in turn is required to identify and rank on a priority basis all needed projects within its territorial borders. Municipalities or other legally constituted bodies are then encouraged or required to construct these projects in order to abate water pollution.

The U. S. Environmental Protection Agency is authorized to provide grants of 75% (up to 85% for eligible projects) to those municipalities certified by the states as entitled to priority over all other projects on the states' priority list. Grants are for planning, design, and construction of these projects.

The Construction Grants Program is, of necessity, very complex considering the potential social, economic, engineering and

environmental impacts of the construction of wastewater treatment facilities. The responsibilities placed on grantee municipalities are at times overwhelming, and a need exists for regulatory agencies to help these municipalities in satisfying regulatory requirements. State agencies in turn require knowledgeable dedicated personnel to work with grantees and efficiently administer the grants program.

The Construction Grants Program is administered by the Municipal Construction Division, Office of Water Program Operations, through each of EPA's ten regional offices. The EPA regional offices work in concert with their counterparts in state agencies to insure that projects conform to the statutory and regulatory requirements of the Act.

In addition to providing the authority and funds "The Clean Water Act of 1977" also stated that "it is the policy of Congress that the states manage the Construction Grants Program under the Act..." The delegation of management functions to the states began in 1978 and requires that states wishing to assume delegation develop an organizational structure, and hire and train the required personnel to carry out the program. Each EPA Regional Administrator is authorized to enter into individually negotiated agreements with his/her respective states for this delegation.

During the winter of 1979/80 a training seminar entitled "Construction Grants Process for State Agency Personnel--Course 250.2" was developed and delivered to 14 of the 24 states desiring delegation. This seminar series provided the training for the initial influx of new state employees. A need exists, however, for additional training of new state employees as more and more of the program functions are delegated to the states.

In an effort to assist with the additional training requirements, EPA has prepared this

training seminar in two formats. The course may be conducted "live" by experienced state/federal personnel using Instructor and Student Manuals with accompanying slides in a classroom setting. Alternatively, the seminar may be presented using prepared videotapes accompanied by Instructor and Student Manuals. This Instructor Manual is designed for use with the videotape presentation.

The Instructor and Student Manuals were prepared by Albert T. Bowyer of A. T. Bowyer, Inc., under contract to EPA. Questions or clarifications of items contained in these manuals may be directed to Mr. Bowyer at Box 134, 698 Main Road, Towaco, New Jersey 07082, telephone 201-263-2707.

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PART I INSTRUCTOR MANUAL

INTRODUCTION AND PURPOSE

This Instructor Manual has been prepared to aid instructors in the planning and delivery of training for the administration of the Construction Grants Program using prepared videotapes. A separate Instructor Manual is available for "live" presentations of the course. In both cases, students use an identical Student Manual when taking the course.

The course is designed as an introduction to the construction grants process and is geared toward new state agency personnel. Under "The Clean Water Act (CWA) of 1977" state agencies are authorized to assume program functions that were formerly carried out by EPA. States are adding new personnel to their staff and students attending this course may be engineers, scientists, planners, environmentalists, or grants administration personnel.

This course was initially developed in 1975 to provide training to over 300 new EPA and state employees. The original forty hour course was delivered at EPA's ten regional offices. In 1979 the course was revised to reflect changes brought about by the CWA and restructured to reflect experiences gained during the initial offering. The resulting course provides an overview and substantial detail of the entire Construction Grants Program. The revitalized course was delivered at eight locations during the winter of 1979/80 and attended by students representing fourteen state agencies.

The subject of the course is the management and administration by state agencies of the Construction Grants Program. However, the object of the grants program is the construction of needed wastewater treatment facilities which abate water pollution

and do so without creating worse environmental problems. Projects may include new, upgraded or expanded sewage treatment plants, pumping stations and force mains, intercepting sewers, collection sewers, and the storage and treatment of combined sewer overflows.

The course addresses technical issues to be considered in the planning and design of treatment facilities. However, the course is not intended to be a sanitary engineering design nor environmental impact statement preparation course. The purpose of the course is to introduce students to the Construction Grants Program and provide a foundation from which students will grow in their technical and administrative duties.

As the course was being revised in 1979, thought was given to developing the course in modules such that states which were receiving limited delegation functions would only train their employees in those functions. While that is still possible due to the breakdown of topics, it is not recommended. Rather, it is recommended that all students receive the entire course. The program is so complex (52 other federal laws impact the Construction Grants Program) that no one person or group can nor should administer all functions. Therefore, it is important for the students to understand the interrelationship between various departments and functions in order that they better understand their job and coordinate their activities with others.

The course begins with a legislative history of federal involvement in water pollution abatement. Understanding the history of the program is not a prerequisite for students to perform their duties. However, the history reveals the evolution of problems and the congressional response to solve them. This in turn places the various planning functions, which precede a project, in proper perspective. Following the legislative history the course briefly

explores the many planning and coordination functions carried out by the state and EPA. The planning functions are designed to assure the efficient expenditure of public funds to projects of highest priority. Thereafter, topics are presented for the processing and review of Step 1-planning, Step 2-design, and Step 3-construction of the resulting projects.

A second purpose of the course is to train students in the awareness and use of other reference documents. No one publication nor regulation contains all the information for all the material to be reviewed during the processing of a grant. Rather, information is contained in handbooks, regulations, program requirements memoranda (PRM's), executive orders, agency policy statements, etc. The students, therefore, must be aware of and know how to use the various publications in order to seek out necessary information. The author of this manual found it very instructive when asked a question to have students look up the answers first in the Handbook of Procedures (MCD-03) or regulations. If these documents did not answer the question, the instructor provided additional information to fully answer the question. This procedure is strongly recommended for it forces the students to use the course handout material which in turn prepares the students for independent work.

The instructor is reminded to carefully set the stage for this course. Students will not enter as neophytes and at the conclusion exit as experts. The course marks the beginning of their formal education in the construction grants process.

COURSE OBJECTIVES

This manual is intended for use by instructors to train new state employees in the administration of the Construction Grants Program. At the conclusion of the course the students should have:

1. A familiarity with water quality management planning;
2. An understanding of a state's priority system and list for candidate projects;
3. A working knowledge of the contents of and procedures for reviewing facilities plans;
4. A working knowledge of the procedures for processing Step 1, Step 2, Step 2+3 and Step 3 grants;
5. A working knowledge of the procedures used in reviewing plans and specifications and monitoring construction activities;
6. An awareness of the considerations for determining the allowability of project costs;
7. An understanding of financial considerations in processing grants; and
8. A thorough familiarity with and working knowledge of the Handbook of Procedures and regulations 40 CFR Part 35 Subpart E.

As an indirect objective of this course, the students should become aware of their own ignorance and project an appreciation of the problems and frustrations faced by new municipal grantees. Perhaps with this awareness students will strive to gain knowledge and help grantees in satisfying their responsibilities.

REQUIRED FACILITIES AND EQUIPMENT

The equipment for the videotape presentation of this course includes a color television and a 3/4" U-matic video cassette recorder. Optional equipment includes a blackboard or large drawing pad as necessary.

It is recommended that class size be limited to no more than 10 students. Classes larger

than this may have difficulty viewing the television screen. Each student should be seated at a desk which allows for writing notes or spreading out course materials. Students should be encouraged to write down questions or note in their outlines points which are not clear. At the conclusion of each video segment, the instructor will entertain questions and clarify items which were not clear to students.

INSTRUCTIONAL FACULTY REQUIREMENTS

Instructors should be current EPA or state employees with three or more years experience in the Construction Grants Program. Ideally, three faculty members should be used, each representing a different perspective such as engineering, environmental evaluation, and grants administration. One faculty member should be designated as the lead instructor and assume responsibility for the overall scheduling and coordination of the course. It certainly is possible to use one instructor but this requires considerable time for that instructor and limits opinions to one perspective.

PRECOURSE PLANNING

Plans for this course should be made a few weeks in advance. Preparation will include:

1. Student selection - the ideal student should be a new employee with between thirty days and six months on-the-job experience. It may be necessary to request candidate names from other departments or divisions. Class size should be limited to 10 students.
2. Faculty selection - the faculty must be selected and provided with a copy of this Instructor Manual in order for them to become familiar with the material being presented. Whenever the instructor wishes to supplement the prepared materials, supplementary notes should be prepared and included in the Student Manual.

3. Schedule classroom facilities including television, VHS videotape recorder, tables, chairs, etc.
4. Course announcements and/or invitations should be distributed three weeks in advance.
5. Handout materials (Handbook of Procedures, MCD-03, and regulations 40 CFR Part 35 Subpart E 9/27/78) should be ordered from EPA well in advance of the course delivery. Also, student outlines must be reproduced and assembled in notebooks.

COURSE LENGTH

The "live" presentation of this course is designed for three full days. However, the videotape presentation should be given over a much longer period of time, recognizing that videotape viewing can become rather taxing for students. A recommended schedule includes six hours per week which, for example, may include two hours each on Monday, Wednesday and Friday. At this rate the entire course would last slightly over three weeks (37 parts each at one-half hour). The instructor should take care to insure that complete topics are given at each session or at least by the end of a week. Splitting topics from one week to the next will cause confusion and preclude continuity. For example, Topic #4, Facilities Plan Review, contains seven parts (3.5 hours) all of which should be presented in one week.

HANDOUT MATERIAL

The basic handout materials consist of the following:

1. "Handbook of Procedures, Construction Grants Program for Municipal Wastewater Treatment Works" - MCD-03. This handbook is extremely helpful to students and is essential for course delivery.
2. Regulations 40 CFR Part 35 Subpart E - Grants for Construction of Treatment Works (Federal Register Vol. 43, No. 188, Wednesday, September 27, 1978). EPA has printed multiple copies of these regulations, and it is important to obtain the copy which includes the preamble.

3. Student Manual - Each student is to receive a manual which contains outlines of the material to be discussed. The outlines are similar to the instructor's outlines contained in this manual, but omit all of the special instructor notes.
4. Course critique, copies of which are attached.
5. Other regulations or materials which represent later or supplementary information which, in the opinion of the lead instructor, will improve the course delivery.

The lead instructor shall contact the local EPA regional office to obtain multiple copies of items 1 and 2 above. Generally, copies may be ordered from:

General Services Administration (8 FSS)
Centralized Mailing List Services
Building 41, Denver Federal Center
Denver, Colorado 80225

(Indicate the publication title and MCD number.)

FINAL PREPARATION

If more than one course instructor will be used, the instructors should meet at least one week in advance of course delivery. This will allow instructors to decide which instructor will be present for each session, provide an opportunity to clarify points in the Instructor Manual and prepare new material, if any, based on revised regulations, PRM's, etc.

As a final check the instructor should insure

1. Handout materials all received and assembled in notebooks;
2. Classroom facilities ready, TV and VHS available;
3. All students notified of dates and starting time;
4. Directions to meeting room clearly displayed in lobbies, hallways or elevator exits.

PART II COURSE DELIVERY

CLASSROOM VIEWING

Instructor Lesson Plan (ILP)

Instructor lesson plans have been prepared for each topic. With videotape presentations the instructor need only review the outlines paying particular attention to the notes, and be prepared to discuss the subject matter at the conclusion of each video part. The instructor is encouraged to use his/her own experiences as a supplement to the videotapes.

The instructor will note that each video part includes questions to be answered by the students. A brief pause occurs after the question and the instructor may wish to turn off the TV and allow students time to answer the question. The instructor may then wish to have a discussion with students concerning the question and answer. After the discussion the TV may be turned on and the answer will be provided. After each part or topic the instructor will entertain additional questions from the students.

Instructors are cautioned about duplication. For example, the review of the state priority certification form appears in Step 1, 2 and 3 grant processing. This subject need only be covered once in any detail and later merely referred to. The same duplication appears for UC/ICR, pretreatment, application form, A-95 clearinghouse comments, procurement for A/E services, etc. The lead instructor must insure that instructors coordinate their comments and avoid duplication.

Course Opening

The lead instructor should welcome students and introduce himself/herself. The instructor will state the course name and indicate the course purpose and objective. Handout materials should be displayed to insure that all students have the required material. The instructor will briefly list the material to be covered and indicate the starting and completion times for each day.

It is often helpful to indicate the location of rest rooms and when and where coffee or other refreshments may be obtained.

In general, it has been found beneficial to explain to students what they can expect from the course and indicate the ground rules. It appears that the more students understand what to expect, the more receptive they are.

Official Welcome and Course Objectives

It is recommended that a senior agency official welcome the students to the course and make a few appropriate comments. The appearance of the senior official lets the students know that the agency feels the training is important and that the students warrant his/her attention. The senior official may want to state the overall course objectives as, for example

"I welcome you to this course in the Construction Grants Process. As you will learn during the course, the issues, regulations and procedures are rather complex. We expect that you will become familiar with some of the details of the grants program and realize that this is the beginning of your grants education. We also trust that you will learn how to use the reference materials in order that you will be able to work as independently as possible. Once you have had this exposure, we expect that you will continue in your education through independent actions and by attendance at other courses which the agency will offer.

It should be apparent to you at the conclusion of this course that you require additional on-the-job training. Can you imagine how a grantee feels when he finds out his responsibilities? Grants are not a full-time job for grantees as it is for you. Grantees, we in the state, and the federal government need your dedicated help. As you proceed through the regulations and procedural requirements, never lose sight of the main objective, that is, the abatement of water pollution but not at the expense of creating worse environmental problems."

Handout Material Use

The handout material was discussed in Part I of this Instructor Manual. It has been found to be instructive to review the material with the students at the beginning of the course. The Handbook of Procedures should be described briefly, including the procedures for updates (TM's). It should be explained that most items in the handbook are broken into four elements, namely, purpose, discussion, review procedures and references. The handbook will be retained by the students for their own use.

The regulations are a second reference source and will be retained by the students.

Students will follow the lectures by using their outlines. Notations or underscoring may be made by the students in the margins, etc. Hopefully, the outlines are complete such that students will not have to take copious notes.

As was mentioned earlier, one of the objectives is to acquaint students with the reference materials. Below is an example of how this may be done based on a student question. Assume during the Step 2 grant application that a student asks the question -

Student: "I was told that applicants needed to have executed intermunicipal agreements at the time of Step 2

application. You indicated it is up to the Regional Administrator of EPA to determine on a case-by-case basis whether these agreements must be executed. I assume you are correct but could you cite your source please?"

Instructor: "Let's assume this question is raised by an applicant during a phone conversation with you. Your boss is on vacation and everyone else in the office is out. What do you do. First, advise the applicant that you will find the answer and get back to him/her. Next, turn to the contents of your Handbook of Procedures. Look under Step 2 Grant Processing."

Instructor: Ask everyone to follow the instructions above and ask the students, "Does anyone find intermunicipal agreements?" The table of contents shows this topic as Chapter V, item E.4., page V-11. Have all students turn to this page in the Handbook of Procedures and read the entire section. The discussion and review procedures state that the Regional Administrator has the authority to determine if the agreements must be executed or not. Assume, however, that the student wants more verification. Have the students check the regulations.

Instructor: Ask everyone to look up 40 CFR 35.920-3(b)(6) in the September 27, 1978 regulations on page 44063. Ask one student to read item (6) aloud.

The instructor will make the point that the Handbook of Procedures can and should be used as the first source of answers. If the handbook does not fully answer the question, references should be checked.

STUDENT EVALUATION

It is helpful to the instructional staff to obtain some feedback from the students regarding the course and its presentation. One means of obtaining this feedback is through the use of student evaluations of the course contents, videotape visual aids, course length, presentation, etc. The student evaluations should be objectively reviewed, taking into account their varied backgrounds.

A sample student course evaluation form is included in the appendix.

SPECIAL VIDEOTAPE NOTES

Topic #5, "Avoiding Delays and Resolving Problems During Facilities Plan Preparation," is not included in the videotape presentations. Rather, the two problems are to be presented by the instructor as described in the ILP.

Instructor lesson plans (ILP) are provided for each topic in the next section. The ILP's show the topic number, objective, videotape running time for each part, the required equipment (color television and VHS videotape recorder except for Topics #5 and #14) and the location of the questions and answers as they appear on the tapes. In addition, the ILP's have an introduction summary and various instructor notes throughout the outline. The videotapes contain all of the information in the ILP. However, the instructor notes are provided as supplements to the tapes and student outline to insure that the issues being addressed are clearly noted. The videotape instructor may wish to read the introduction or summary as he/she feels appropriate at the beginning or end of each part. The ILP's also indicate by horizontal lines the location where each part ends and a new part begins. Following each ILP the questions and answers from the videotapes are included for the instructor's information.

Topic #14, "What Delegation Means to the State of _____," is not included in the videotape presentations but may be included or omitted as the instructor desires. The ILP containing suggestions for discussion of Topic #14 is included.

PART III

INSTRUCTOR LESSON PLANS

INSTRUCTOR LESSON PLAN 1

Topic #1: EVOLUTION OF FEDERAL ROLE IN FINANCING
AND ABATING WATER POLLUTION

Objective: Students should observe the growth and changes in the federal role of abating water pollution. Particular attention should be directed toward the following changes: incentives/enforcement; 2% loans/85% grants; engineering/comprehensive planning; few million \$/multi billion \$.

Videotape Part 1 14:27
Running Part 2 28:30
Time: Part 3 30:03

Required Color television and
Equipment: 3/4" U-Matic Video
cassette recorder

Lesson Outline

Question
& Answer
Location

Introduction:

The federal concern for water pollution abatement was first recognized by the U.S. Public Health Service. The USPHS is charged with maintaining and reporting on the nation's health. Water pollution is a known vehicle for the transmission of communicable diseases and as such actions are necessary to control this source of disease. However, over the years water pollution is also recognized to have a significant impact on the social, economic and environmental well-being of a community. Recognition of these additional concerns is reflected in the elevation and restructuring of the federal agency responsible for implementing water pollution abatement programs. Beginning with the U.S. Public Health Service, responsibility for water pollution control moved through the following agencies to its present location in EPA.

1. Division of Water Supply and Pollution Control,
U. S. Public Health Service, Department of HEW; thence
2. Federal Water Pollution Control Administration (FWPCA),
Department of HEW; thence
3. Federal Water Pollution Control Administration (FWPCA),
Department of the Interior;

| Lesson Outline #1 | Question & Answer Location |
|--|----------------------------------|
| <p>4. Federal Water Quality Administration (FWQA), Department of the Interior;</p> <p>5. U. S. Environmental Protection Agency, Executive Branch.</p> <p>The U. S. EPA was created in 1970 and brought together many of the federal programs concerned with man and his environment. In corresponding fashion, the Congress recognized the growing problems in water pollution control as noted by the following legislation.</p> <p><u>NOTE:</u> The instructor alerts students to observe the changes in the legislation, particularly regarding:</p> <ul style="list-style-type: none"> i) from incentive grants to enforceable requirements ii) from loans of 2% to federal grants of 85% iii) from engineering feasibility to comprehensive planning iv) from a few million to multi <u>bill</u>ion dollars <p>I. P.L. 80-845 "1948 Water Pollution Control Law"</p> <ul style="list-style-type: none"> - \$22.5 million/yr; FY 1949-1953; 2% loans for construction of wastewater treatment works; limited to \$250,000 or one-third project cost - \$1 million/yr; FY 1949-1953; grants to states for pollution control studies - \$800,000/yr; FY 1949-1953; grants to develop plans and specifications for construction <p>II. P.L. 82-579</p> <ul style="list-style-type: none"> - passed in 1952; extended 1948 Act for three additional years <p><u>NOTE:</u> Neither of the two laws was funded by Congress and therefore no loans or grants were made. The real beginning of federal involvement began with P.L. 84-660.</p> <p>III. P.L. 84-660 "1956 Water Pollution Control Act"</p> <ul style="list-style-type: none"> - \$50 million/yr; grants to construct wastewater treatment works; limit 30% or \$250,000/project for interceptor or STP | |

| Lesson Outline #1 | Question & Answer Location |
|--|----------------------------|
| <p>- \$3 million/yr for states to prepare pollution control plans</p> <p><u>NOTE:</u> The instructor points out that a limit of \$250,000/project is not much help for large cities and therefore these cities encouraged Congress to raise the grant limits. Also, primary treatment ("primary treatment or its equivalent resulting in substantially complete removal of all settleable solids") was the only federal standard required for a grant. The legislation provided a modest beginning for states to begin for planning how they would attack water pollution.</p> <p>The instructor points out that students may hear reference in their offices to "660" projects. These are older projects funded under this legislation or later amendments.</p> <p>IV. P.L. 87-88 "1961 Amendments to P.L. 84-660"</p> <ul style="list-style-type: none"> - extended P.L. 84-660; raised grant limitation to \$600,000/project or 30%; limit of \$2.4 million/project or 30% for multimunicipal projects <p><u>NOTE:</u> Grant limit raised to assist larger municipalities. Also, larger limit for multimunicipal projects - first signs of planning beyond one's own political boundaries.</p> <p>V. P.L. 89-234 "Water Quality Act of 1965"</p> <ul style="list-style-type: none"> - states required to establish water quality standards by 6/30/67 <p><u>NOTE:</u> Incentives alone could not get municipalities moving. Required states to establish water quality standards as prelude to enforcement.</p> <p>VI. P.L. 89-753 "Clean Water Restoration Act of 1966"</p> <ul style="list-style-type: none"> - grants to 30%; no \$ limit - grants to 40%; if state made 30% grant - grants to 50%; if state made 25% grant and had adopted enforceable water quality standards | |

| Lesson Outline #1 | Question & Answer Location |
|---|--|
| <p>- grants to 33%, 44% or 55% as above if project approved by metropolitan or regional planning agency as conforming with comprehensive plan</p> <p><u>NOTE:</u> No dollar limitation - large cities finally get fair share. More incentive if states help with grant monies - projects too expensive for municipalities on their own. Grants to 50% if states establish <u>enforceable</u> water quality standards - "carrot and stick" policy. Each grant could be increased by 10% <u>if</u> part of metropolitan or regional plan - planning becoming more important.</p> | <p>Q & A 1 - 4</p> <p>End Part 1</p> |
| <p><u>NOTE:</u> <u>Comparison</u> - The comparison material below is not in the student's outline. Current information may be obtained from "Clean Water Fact Sheet" published each month by the Office of Water Program Operations, EPA, 202-426-9404. The reason for using this material is to introduce the next major piece of federal legislation (P.L. 92-500) and show the large commitment Congress made toward abating water pollution.</p> <p>Between 1956 and 1972 over 14,000 projects assisted with EPA funds.</p> <p>Active projects as of December 31, 1979 number 11,434, Therefore in 16 years the federal government funded only 14,000 projects but now has over 11,000 active projects.</p> <p>Between 1956 and 1972 grants totaled \$5.2 billion stimulating \$14 billion of construction.</p> <p>P.L. 92-500 authorized grants of \$18 billion for 5 years.</p> <p>Again, note the dramatic increase in funding.</p> <p>Since most people do not have a true comprehension of what \$1.0 million means, the instructor dramatizes the \$18 billion as follows. If a person were to be paid \$1 per second to remain seated, it would take 571 years to earn \$18 billion. Almost 3 times the age of the U.S. Also,</p> <p style="padding-left: 40px;">$\\$1/\text{sec} = \\$3,600/\text{hr} = \\$86,400/\text{day} = \\$31,536,000/\text{yr}$</p> <p>This would be a very nice salary for anyone.</p> <p>The point of the above comparison is to dramatize to students that they are involved in a very large national program using public funds. These funds must be spent properly and achieve the desired result, namely, abate water pollution but <u>not</u> at the expense of creating a worse environmental problem.</p> | <p>Start Part 2</p> |

| Lesson Outline #1 | Question & Answer Location |
|--|--|
| <p>In introducing P.L. 92-500 the instructor does <u>not</u> define each of the items in great detail but merely points out that these are generally new items not included in previous legislation. The result of these new items was to initially slow down construction while grantees, engineers and regulatory personnel learned the new requirements.</p> <p>VII. P.L. 92-500 "The Federal Water Pollution Control Act Amendments of 1972"</p> <ul style="list-style-type: none"> - grants to 75% of eligible cost for STP, interceptor collection systems and storm water separation; minimum secondary treatment - \$18 billion; FY 1972-1977 - all discharges in state to be inventoried - Areawide Waste Treatment Management (208) - Basin Plans (303[e]) - 3 step grant process <ul style="list-style-type: none"> Step 1 - planning Step 2 - plans and specifications Step 3 - construction - Facility Plan including <ul style="list-style-type: none"> alternative displays and evaluation environmental assessment infiltration/inflow analysis public input - NPDES permit - UC/ICR <p><u>NOTE:</u> Grants may include collection systems and storm water separation which was not the case in earlier legislation. Also, minimum of secondary treatment for grant as distinct from primary treatment for earlier legislation.</p> <p>VIII. P.L. 95-26 "Supplemental Appropriations Act"</p> <ul style="list-style-type: none"> - \$1 billion supplemental appropriations to P.L. 92-500 | <p>Q & A 5 - 7</p> <p>End Part 2</p> |
| | Start Part 3 |

| Lesson Outline #1 | Question & Answer Location |
|--|----------------------------------|
| <p><u>NOTE:</u> In introducing P.L. 95-217 the instructor points out that Congress envisioned a 10 year cleanup program in 1972. P.L. 95-217 is considered midcourse corrections to P.L. 92-500 and resulted from oversight hearings conducted by Congress. The items included under this legislation are the <u>changes</u> to P.L. 92-500 and are not discussed in detail at this point but merely summarized to introduce the students to current legislative requirements.</p> <p>IX. P.L. 95-217 "Clean Water Act of 1977"</p> <ul style="list-style-type: none"> - \$24.5 billion; FY 1978-1982 - individual systems privately owned eligible for grants under certain conditions - cost effectiveness modified for innovative and alternative technology not to exceed 15% of most cost effective alternative - grants to 85% for components of treatment plant meeting innovative or alternative technology guidelines - combined Step 2+3 grants where construction is \$4 million or less (\$5 million in designated high cost cities) and population 25,000 or less <p><u>NOTE:</u> This was an attempt by Congress to minimize the paperwork for small communities.</p> <ul style="list-style-type: none"> - ad valorem (value added) tax base as method assigning user charges okay in certain circumstances <p><u>NOTE:</u> The decision on ad valorem taxes as a base for assigning user charges had vacillated between being okay and not okay. P.L. 95-217 gives clearer guidance as to when ad valorem is acceptable.</p> <ul style="list-style-type: none"> - ICR exempts users with 25,000 gpd or less and postponed for 18 months repayment of recovered funds to U.S. Treasury <p><u>NOTE:</u> Original postponement to June 30, 1979; was later extended to June 30, 1980. Also, grantee must still develop the ICR system but does <u>not</u> have to collect funds. If funds are</p> | |

| Lesson Outline #1 | Question & Answer Location |
|---|----------------------------|
| <p>collected, they are not to be returned to U.S. Treasury but placed in an interest bearing account.</p> <ul style="list-style-type: none"> - small community set aside <p><u>NOTE:</u> For states with 25% or more rural population, 4% of each year's allotment <u>must</u> be set aside to fund <u>alternative technology</u> projects not for conventional treatment works. States with less than 25% rural population <u>may</u> exercise this option.</p> <ul style="list-style-type: none"> - state delegation of program functions <p><u>NOTE:</u> Known as the Cleveland/Wright Amendment this part of legislation provides for the states to assume more and more responsibilities for administering the Construction Grants Program. This training seminar was designed specifically for new state employees.</p> <ul style="list-style-type: none"> - reimbursement extended <p><u>NOTE:</u> Some municipalities prefinanced all or part of the federal grant at a time when grants were at the 30-50% level and reimbursement was legal. This provision of the law allows federal monies to reimburse the municipality which advanced monies.</p> <ul style="list-style-type: none"> - no grants for treatment of pollutants from separate storm sewers <p><u>NOTE:</u> P.L. 92-500 had allowed grants for treatment of pollutants from separate storm sewers but the problem is so large that insufficient funds are available. Therefore, these projects are no longer eligible for grant.</p> <ul style="list-style-type: none"> - buy American clause <p><u>NOTE:</u> Requires that preference be given to American manufactured products primarily in Step 3 activities.</p> <ul style="list-style-type: none"> - modification of secondary treatment requirement under certain conditions (generally when justified for ocean discharges) | |

| Lesson Outline #1 | Question & Answer Location |
|---|---|
| <p>- extends secondary treatment deadline on case-by-case basis</p> <p><u>NOTE:</u> P.L. 92-500 required that all point discharges (both municipal and industrial) provide secondary treatment by July 1, 1977. Sixty percent of industries and 30% of municipalities met deadline. P.L. 95-217 allowed for extension as contained in NPDES permit.</p> <p>- municipal pretreatment system</p> <p><u>NOTE:</u> Requires industries to pretreat prior to discharge into municipal system. Program getting underway in 1980 and will require extensive work on part of grantee, engineers and regulatory officials.</p> <p><u>NOTE:</u> It should be emphasized that the provisions of P.L. 95-217 are embodied in the regulations 40 CFR Part 35 published September 27, 1978. These regulations are preceded by a preamble which is <u>must</u> reading for anyone involved in the Construction Grants Program. The preamble presents in clearer language than the regulations the logic and thought process used by EPA in developing the implementing regulations. Also to be emphasized are the public participation regulations 40 CFR Part 25 and the pretreatment regulations 40 CFR Part 403.</p> <p>Summary:</p> <p>In summary, the federal involvement in water pollution control and abatement has grown significantly over the years. The current legislation is very complex and applicants/grantees need your help to understand their responsibilities and satisfy the legislation and regulatory requirements. Fifty-four other federal laws have an impact on the Construction Grants Program and, if the program is to be successful toward achieving "elimination of pollutants discharges into navigable waters by 1985," it will be necessary for you (the students) to understand and carry out the provisions of the law and regulations.</p> | <p>Q & A 8 - 12</p> <p>End Part 3</p> |
| | |

QUIZ - TOPIC #1

Evolution of Federal Role in Financing
and Abating Water Pollution

1. In what year did the federal government first become involved in a grant and loan program for the construction of sewage treatment works?
2. What law is considered the true beginning of the Construction Grants Program?
3. What minimum level of treatment was required under the 1956 Water Pollution Control Act?
4. What was the maximum percentage grant for the construction of treatment works under legislation prior to 1972?
5. Collection systems were eligible for grant participation under P.L. 84-660. True or False
6. The three step grant process was first introduced under P.L. 92-500. True or False
7. User charges and industrial cost recovery systems have been required for all grantees since P.L. 84-660. True or False
8. The Clean Water Act of 1977 placed an 18 month moratorium on the collection of user charges. True or False
9. Under P.L. 95-217 all point dischargers were required to achieve secondary treatment by July 1, 1977. True or False
10. For states required to set aside 4% of the states' allotment for small community projects, these funds may be used for either conventional concepts of treatment or alternative technology. True or False

Topic #1 Quiz (Cont'd.)

11. Under P.L. 95-217 grants may not be made for the treatment of pollutants from separate storm sewers. True or False
12. The current legislation under which the grants program is administered is (1) P.L. 84-660; (2) P.L. 92-500; (3) P.L. 95-217?

ANSWERS - TOPIC #1

1. 1948
2. P.L. 84-660
3. Primary treatment or its equivalent resulting in substantially complete removal of all settleable solids
4. 55%; 50% if state made 25% and had adopted enforceable water quality conditions plus 10% of the grant amount if project conforms with appropriate comprehensive plan
5. False - only treatment plants and intercepting sewers
6. True
7. False - introduced in 1972 under P.L. 92-500
8. False - placed moratorium on industrial cost recovery for 18 months; later a one year extension was added
9. False - required by P.L. 92-500; extended on a case-by-case basis by P.L. 95-217
10. False - must be used only for alternative technology
11. True - possible under P.L. 92-500 but eliminated under P.L. 95-217
12. P.L. 95-217

INSTRUCTOR LESSON PLAN 2

Topic #2: FROM LEGISLATION TO PRACTICE

Objective: Student should learn how law evolves into regulations, guidelines, and other publications. In addition, the student should become aware of and learn how to use available reference materials.

Videotape Part 1 20:25
Running Part 2 22:11
Time:

Required Color television and
Equipment: 3/4" U-Matic video
cassette recorder

Lesson Outline

Question
& Answer
Location

Introduction:

At the completion of the course students will return to their offices and begin working on projects. The material presented in this course will be extremely helpful but cannot possibly address all the problems students face in processing projects or working with grantees. For this reason it is important for students to understand how to find and use other reference materials. Also, students must understand what is law and what is guidance, what must be enforced verbatim and what is subject to interpretation. This topic begins with the law and discusses other pertinent documents that will be of assistance to students.

The instructor reviews briefly items A through F below as an introduction to the material about to be discussed. Later each item is discussed in detail.

| Lesson Outline #2 | Question & Answer Location |
|---|----------------------------------|
| <p>I. Terminology</p> <ul style="list-style-type: none"> A. P.L. 95-217; Public Law, 95th Congress, 217th law B. Rules and regulations, promulgated in Federal Register, effect of law C. Program requirements memoranda (PRM's formerly PG's); policy statement and clarification, not law D. Guidelines, Handbook of Procedures, etc. helpful suggestions E. Technical bulletins; particular subjects "state-of-the-art" F. Process design manuals; latest advances in various sanitary engineering processes <p>II. P.L. 95-217</p> <ul style="list-style-type: none"> A. Five titles <ul style="list-style-type: none"> 1. Research and Related Program 2. Grants for Construction of Treatment Works 3. Standards and Enforcement 4. Permits and Licenses 5. General Provisions <p><u>NOTE:</u> Generally students will be concerned with Title II - Grants for Construction of Treatment Works</p> <ul style="list-style-type: none"> B. Sections within law <ul style="list-style-type: none"> 1. Section 201 - Title II 2. Section 303(e) - Title III <p>III. Code of Federal Regulations (CFR)</p> <ul style="list-style-type: none"> A. Implementation regulations B. Published in preliminary and final form | <p>Q & A 1 & 2</p> |

| Lesson Outline #2 | Question & Answer Location |
|--|----------------------------------|
| <p>C. Full force of law once published in final form</p> <p>D. Example</p> <ol style="list-style-type: none"> 1. Title 40 - Protection of Environment 2. Title 3 - The President 3. Title 10 - Energy 4. Title 22 - Foreign Relations <p>We are concerned with Title 40</p> <p><u>NOTE:</u> The instructor discusses the contents of Title 40 and its chapters pointing out that many subdivisions of regulations are reserved for later use. Example below shows Chapters II and III reserved. The instructor continues pointing out the subdivisions of the CFR to demonstrate its organizational structure and ease of use once understood.</p> <ul style="list-style-type: none"> - Title 40 - 3 chapters <ul style="list-style-type: none"> I - EPA IV - Low Emissions Vehicle Certification Board V - Council on Environmental Quality II & III - Reserved - Subchapters of Chapter I <ul style="list-style-type: none"> A - General B - Grants and Other Federal Assistance <p>We are concerned with Subchapter "B"</p> - Parts of subchapters <ul style="list-style-type: none"> Part 30 - General Grant Regulations and Procedures Part 33 - Subagreements Part 35 - State and Local Assistance Part 39 - Loan Guarantees for Construction of Treatment Works | |

| Lesson Outline #2 | Question & Answer Location |
|--|----------------------------------|
| <p>Part 40 - Research and Demonstration Grants</p> <p>Part 45 - Training Grants and Manpower Forecasting</p> <p>Part 46 - Fellowships</p> <p>Parts 47 through 49 - Reserved</p> <p>We are concerned with Part 35</p> <ul style="list-style-type: none"> - Subparts of parts <ul style="list-style-type: none"> Subpart A - Reserved Subpart B - Program Grants Subpart C - Grants for Construction of Wastewater Treatment Works Subpart D - Reimbursement Grants Subpart E - Grants for Construction of Treatment Works - Clean Water Act Subpart F - State Management Assistance Grants Subpart G - Grants for Water Quality Planning, Management and Implementation <p>Generally we are interested in Subpart E</p> - Sections of subparts <ul style="list-style-type: none"> Section 917 - Facilities Planning - Subsections of sections <ul style="list-style-type: none"> 917-1 Contents of Facilities Plan <ul style="list-style-type: none"> -2 State Responsibilities -3 Federal Assistance - Example: 40 CFR 35.927-1 means <ul style="list-style-type: none"> Title 40 - Protection of Environment <ul style="list-style-type: none"> Chapter I - EPA <ul style="list-style-type: none"> Subchapter B - Grants and Other Federal Assistance <ul style="list-style-type: none"> Part 35 - State and Local Assistance <ul style="list-style-type: none"> Subpart E - Grants for Construction of Treatment Works - Clean Water Act <ul style="list-style-type: none"> Section 927 - Sewer System Evaluation and Rehabilitation <ul style="list-style-type: none"> Subsection 1 - Infiltration/Inflow Analysis or 40, I, B, 35, E, 927, 1 <p>Too cumbersome, therefore abbreviated to 40 CFR 35.927-1</p> | <p>Q & A 3 - 6</p> |

| Lesson Outline #2 | Question & Answer Location |
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| <p><u>NOTE:</u> The bound CFR published by the GPC allows all separate preceding regulations published in the Federal Register before that date to be discarded. However, the bound CFR does not include the preamble to regulations which may be necessary for clarification.</p> | <p>End Part 1</p> |
| <p>IV. Guidelines</p> <ul style="list-style-type: none"> A. Facilities planning (MCD-46) B. Sewer system evaluation survey (MCD-19) C. Innovative and alternative technology assessment (MCD-53) D. Mainly MCD's (Municipal Construction Division) <p><u>NOTE:</u> Guidelines are published in two forms. Those which appear in the regulations as appendices (Appendix A to 40 CFR Part 35 Cost Effectiveness Analysis Guidelines, for example) carry the weight of law and <u>must</u> be followed. Others such as "Guidance for Preparing a Facilities Plan" (MCD-46) are suggested, helpful ideas that may or may not be followed by the grantee. Students must understand this distinction and only require compliance with those guidelines published in the regulations.</p> <p>V. Program Memoranda</p> <ul style="list-style-type: none"> A. Program Requirements Memoranda (PRM's) - construction grants policy issued by Headquarters; distributed to EPA regional offices and state agencies as well as others; periodically published in bound form as supplement to MCD-02.0 <p><u>NOTE:</u> Students are encouraged to maintain an up-to-date notebook of <u>all</u> PRM's. Listing of PRM's is included with each MCD-02.0 supplement. PRM's are numbered by fiscal year and then sequentially (example, PRM 78-9 means fiscal year 1978 and issuance number 9).</p> <ul style="list-style-type: none"> B. Program Operations Memoranda (POM's) - guidance of internal operations of the Construction Grants Program | <p>Start Part 2</p> |

| Lesson Outline #2 | Question & Answer Location |
|--|----------------------------------|
| <p><u>NOTE:</u> POM's, because they address internal operations only, are distributed only to those who process grants applications (viz., regional and state construction grants staff).</p> <ul style="list-style-type: none"> C. Transmittal Memoranda (TM's) - used to update "Handbook of Procedures" (MCD-03); issued periodically D. Executive Order (EO's) - President's policy statement; usually translated into PRM or other EPA document where applicable to Construction Grants Program E. Others <ul style="list-style-type: none"> Facilities Requirement Division publications (FRD's) Technology Transfer publications <p>VI. Handbook of Procedures (MCD-03)</p> <ul style="list-style-type: none"> A. Day-to-day procedures for reviewing and processing construction grants projects B. Specific elements of processing a grant <ul style="list-style-type: none"> Purpose Discussion section Review procedures Reference section C. Major sections include <ul style="list-style-type: none"> General handbook discussion and user's guide State Program Step 1, 2, 3 and 2+3 Financial Considerations D. Updated by TM's <p><u>NOTE:</u> The instructor holds up the "Handbook of Procedures" and asks each student to look at his/her copy. The "Handbook of Procedures" supplements the outlines for this course and contains the course contents in greater detail. The instructor points out that the handbook was written after interviewing operating personnel in four EPA regional offices and eight state agencies. Each topic is broken into four elements as appropriate.</p> | <p>Q & A 7 - 9</p> |

| Lesson Outline #2 | Question & Answer Location |
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| <p>Purpose - brief statement</p> <p>Discussion - places subject under review in context</p> <p>Review Procedures - a checklist of items to review</p> <p>Reference - appropriate regulations, PRM's, MCD's, FRD's, etc. are given in the event that the reviewer requires more detailed information; note references are restricted to EPA publications</p> <p>Since one of the objectives of the course is to familiarize the students with reference material, the instructor may wish to have students open their "Handbook of Procedures" to page IV-9 and review the material on "Priority List Compliance and Certification." The instructor should point out that the "Handbook of Procedures" is designed so that approximately 80% of the projects may be reviewed using the handbook alone. Other more complex projects may require the use of other publications or special procedures. If all possible contingencies were addressed in the "Handbook of Procedures," it would be too large for practical use.</p> <p>VII. Other Terminology</p> <p>A. Authorization</p> <p>The amount of money specified in the <u>basic</u> legislation.</p> <p>In the case of P.L. 95-217 the authorization is \$4.5 billion for FY 78 and \$5.0 billion for each of the next four FY's.</p> <p>B. Appropriation</p> <p>The amount of money Congress appropriates <u>each year</u> for a specific program. Appropriations may range from zero to the authorization. For example, Congress appropriated \$3.4 billion for FY 80 while the legislation authorized \$5.0 billion.</p> <p>C. Allotment</p> <p>The amount of money assigned to each state based on the appropriation and a formula in the law.</p> | <p>Q & A 10 - 13</p> |

| Lesson Outline #2 | Question & Answer Location |
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| <p><u>NOTE:</u> The instructor discusses how regulations are derived from law. For example, Section 201 of P.L. 95-217 is cited as the section of the law requiring facilities planning. A review of Section 201 and the corresponding regulations (40 CFR 35.917-1) shows little resemblance. As EPA officials prepare regulations, they review the "legislative history" of the law including both House and Senate Subcommittees' proceedings, testimony and conference reports. The discussion of this material assists students in having a better understanding of how the law evolves into day-to-day procedures.</p> <p>Summary:</p> <p>Laws are implemented through the publication of regulations in the Federal Register. In addition, the EPA publishes other documents designed to further explain and clarify the laws. Students need to be familiar with the various publications and know how to seek out answers to specific problems or questions. The two main sources of information to be used initially are the "Handbook of Procedures" and 40 CFR Part 35 regulations.</p> | <p>End Part 2</p> |
| | |

QUIZ - TOPIC #2

From Legislation to Practice

1. Define each letter or number in P.L. 95-217.
2. Section 201 refers to regulations or a part of the law?
3. What does CFR mean?
4. Regulations carry the force of law once published in final form in the Federal Register. True or False
5. Title 40 of CFR contains regulations for the Department of Energy. True or False
6. Using the 9/27/78 regulations, what is the heading for 40 CFR 35.927-1?
7. What words do the following letters represent?
 - a. MCD
 - b. PRM
 - c. POM
 - d. EO
 - e. FRD
 - f. TM
8. PRM's are used to update the Handbook of Procedures (MCD-03). True or False
9. The Handbook of Procedures was written exclusively to assist grantees' consultants. True or False
10. The terms authorization and appropriation are synonymous? True or False

Topic #2 Quiz (Cont'd.)

11. P.L. 95-217 authorizes \$5 billion for FY 81 for the construction of wastewater treatment facilities. Congress may appropriate \$4 billion without changing P.L. 95-217. True or False

12. Allotment is the amount of money assigned to each state based on the appropriation and a formula. True or False

13. What is the federal fiscal year?

ANSWERS - TOPIC #2

1. P.L. - Public Law
95 - 95th Congress
217 - 217th Law passed by 95th Congress
2. Part of the law - Title II Section 201
3. Code of Federal Regulations
4. True
5. False - Title 40 contains regulations for Protection of Environment
6. Infiltration/Inflow Analysis
7.
 - a. Municipal Construction Division
 - b. Program Requirements Memoranda
 - c. Program Operations Memoranda
 - d. Executive Order
 - e. Facilities Requirements Division
 - f. Transmittal Memoranda
8. False - TM's are used for this purpose
9. False - The Handbook was written primarily for use by federal and state employees to aid in the processing of projects. It is used by grantee's consultants to determine what information should be included in each document.
10. False - Authorizations are contained in the enabling legislation; appropriations are authorized each year.
11. True - Congress may appropriate between zero and the full authorization (\$5 billion)

Topic #2 Answers (Cont'd.)

12. True

13. October 1 through September 30

INSTRUCTOR LESSON PLAN 3

Topic #3: STATE PROGRAM

Objective: Students must understand that the projects for which grants are to be made have resulted from a logical series of comprehensive studies prepared by the state agency and approved by the EPA. Also, students need to understand the coordination activities with other programs within the state prior to approving projects.

Videotape Part 1 16:56
Running Part 2 29:40
Time: Part 3 26:05

Required Color television and
Equipment: 3/4" U-Matic video
cassette recorder

Lesson Outline

Question
& Answer
Location

Introduction:

This topic briefly describes the state programs which precede or occur concurrently with the development of specific construction grants projects. A Step 1 project may be considered the implementation step and in the ideal sense should have been preceded by basin planning (Section 303[e] of the CWA) and areawide waste treatment management planning (Section 208 of the CWA). The latter two planning functions and other state programs are currently grouped together and labeled Water Quality Management (WQM) planning. Regulations implementing the revised WQM planning were published in the Federal Register on May 23, 1979 and are contained in 40 CFR Part 35 Subpart G. The instructor is encouraged to review Subpart G prior to delivery of this lesson. Unfortunately, the regulations are not entirely clear and an understanding of them will require time and study. The outline below highlights the key elements of each program and attempts to show a logical progression of how construction grants projects resulted from the state programs.

I. Components

- A. State/EPA Agreement (covers Sections 106, 208, 205(g) and 314)-
an annually negotiated agreement between EPA and state agency
identifying

| Lesson Outline #3 | Question & Answer Location |
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| <ul style="list-style-type: none"> - Problems - Objectives - Priorities - Coordination and integration with other programs <p>and includes the annual state work program</p> <p>B. Continuing Planning Process (CPP) - a document that describes a process for establishing and revising</p> <ul style="list-style-type: none"> - Policies - Procedures - Practices <p>of the state agency for achieving the goals of the CWA. Revisions to the policies, procedures and practices result from state work program outputs and comprise the WQM process. The CPP will also contain</p> <ul style="list-style-type: none"> - State priority system <p><u>NOTE:</u> The instructor makes a clear distinction between state priority system and state priority list; the latter is the ranking of projects to be funded by name, cost, etc., while the former is the method for ranking projects.</p> <p>C. State Priority System - the procedure and criteria for rating and ranking of needed projects; criteria takes into account</p> <ul style="list-style-type: none"> - Severity of pollution - Existing population affected - Need for the maintenance of high quality waters - Category of need from "Needs Survey" - Innovative and alternative technology projects and projects requiring 100% replacement grants - Other criteria <ul style="list-style-type: none"> - small and rural communities - not considered - project area's development needs not related to pollution abatement | |

| Lesson Outline #3 | Question & Answer Location |
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| <ul style="list-style-type: none"> - the geographic region within the state - future population growth projections - Step sequence, allotment deadline and total funds available <p>The resulting state priority list includes needed projects over a five year period and identifies those for the coming fiscal year (fundable portion of list).</p> <p>D. State Strategy - part of the annual work program and updated annually, the state strategy addresses</p> <ul style="list-style-type: none"> - 5 year goals - Identification of responsible agencies for conducting activities - Summary of anticipated federal and other funds <p>The state strategy shall address the problems, solutions and priorities in approved WQM plans and recommend revisions to WQM plans where appropriate.</p> <p>E. Annual Work Program - part of the state/EPA agreement and consistent with the CPP; includes the state strategy. The annual work program shall also contain</p> <ul style="list-style-type: none"> - Summary and evaluation of the current year's program including outputs - Outputs to be produced during the next year in 16 categories (see 40 CFR 35.1513-5[c]). Included in the categories are <ul style="list-style-type: none"> - Person years - Costs - Funding sources - Milestone for completion of outputs - Disbursement schedule - Responsible agencies - State priority list | <p>Q & A 1 End Part 1</p> |
| <p>F. WQM Agencies - an entire state is subjected to areawide waste treatment management planning to the extent appropriate and as agreed upon between the state and EPA. The WQM agencies</p> | <p>Start Part 2</p> |

| Lesson Outline #3 | Question & Answer Location |
|---|----------------------------|
| <p>may be either</p> <ul style="list-style-type: none"> - Designated by the Governor (sometimes called 208 agencies, COG's, county planning agencies, etc.) - State agency (for nondesignated areas) <p>Designated agencies may receive grants directly from EPA but must coordinate and integrate their activities with the other state programs.</p> <p>G. Water Quality Assessment - a biennial document required by Section 305(b) of the CWA which assesses current water quality and addresses</p> <ul style="list-style-type: none"> - Monitoring to determine the impact of nonpoint source pollution, - Classification of stream segments (either effluent limited or water quality limited segments) - Evaluation of the effectiveness of existing point and nonpoint controls in achieving water quality goals - Determination of relative pollutant loading attributable to point and nonpoint sources - Determination of the impact of air and other nonwater environmental pollution sources on water quality such as population changes, changes in land use or economic conditions <p>H. WQM Plans - a document which is the output from the annual work program and incorporates information developed in the water quality assessment. The WQM plan resolves specific pollution control problems and includes</p> <ul style="list-style-type: none"> - Control needs <ul style="list-style-type: none"> - General <ul style="list-style-type: none"> - Total maximum daily loads, wasteload allocations - Dredged or fill program - Nonpoint source control - Municipal and industrial needs - Urban stormwater | |

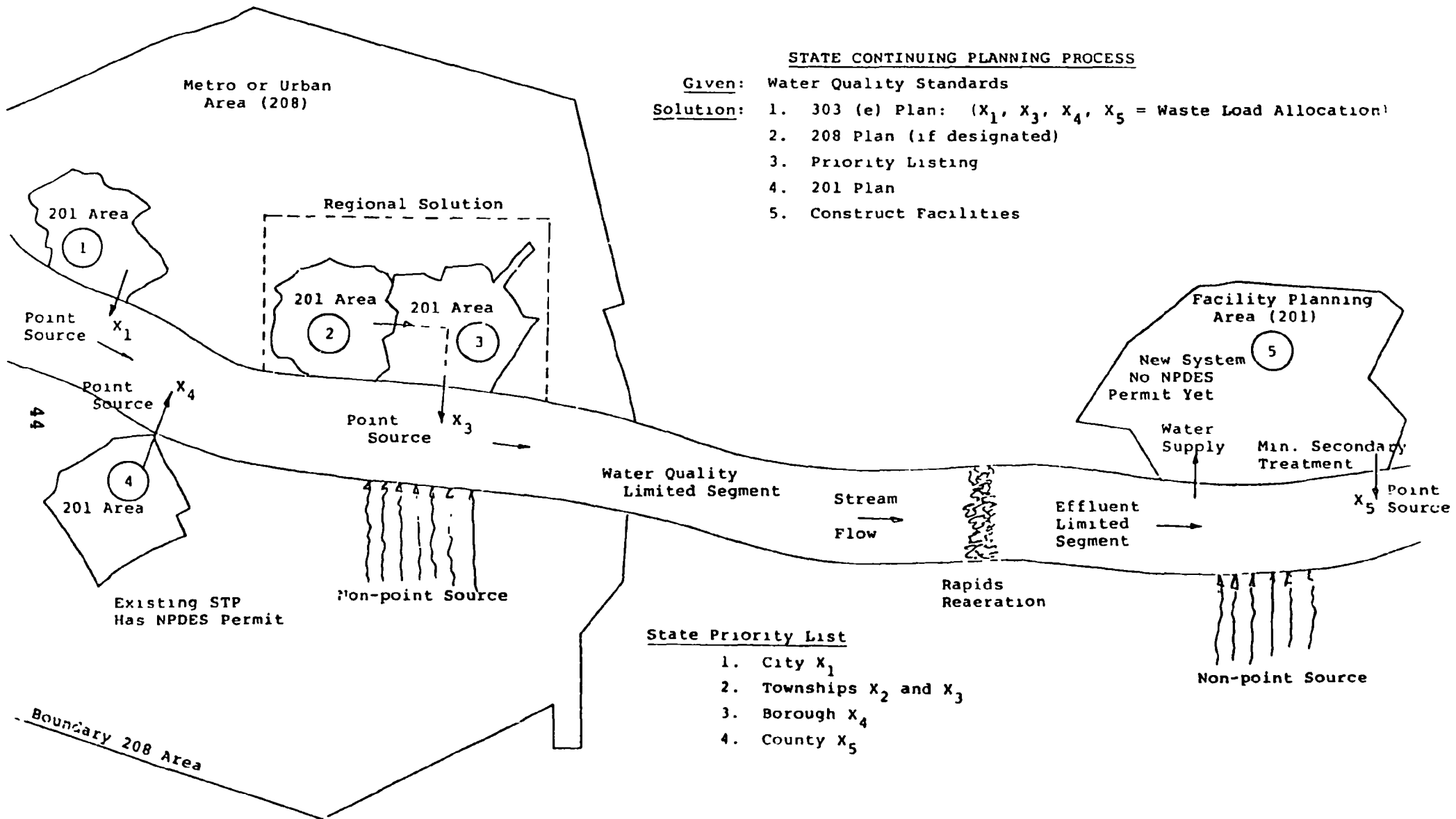
| Lesson Outline #3 | Question & Answer Location |
|---|--|
| <ul style="list-style-type: none"> - Residual waste control, land disposal - Water quality standards - Water conservation - NPDES permit conditions - Regulatory and other programs needed to implement the conclusions of the plan - Identification of the management agencies which will be responsible for implementing the conclusions of the plan (note 201 facilities planning grantees will be identified in this section) - Environmental, social and economic impacts of the implementing plans including population projections - An analysis of open space and recreational opportunities - An analysis of urban impacts and mitigative measures - Coordination with other agencies and government bodies - A method of evaluating implemented portions of the plan and methods of plan revision as necessary | <p>Q & A 2 & 3 End Part 2</p> |
| <p>II. WQM Planning's Relationship with Construction Grants Program</p> <ul style="list-style-type: none"> A. WQM plans identify agencies eligible for construction grants and may designate the facilities planning boundaries B. WQM plans will specify wasteload allocations and population projections to be used in facilities planning C. Step 1 facilities planning grants must conform with approved WQM plans <p><u>NOTE:</u> The instructor uses a graphic at this point and students should turn to the corresponding drawing in their outlines. The graphic is an illustration of a stream and surrounding municipalities and attempts to bring together the relationship between 208 areawide waste management planning boundaries, 201 facilities planning boundaries, point and nonpoint sources of pollution, 303(e) basin planning, state priority list, etc. The graphic lists the five planning steps beginning with the "given" water quality standards thence wasteload allocations, 208 planning, priority listing, facilities planning and construction. The instructor points out that "effluent limited segments" of streams are those for which all point discharges achieve secondary</p> | <p>Start Part 3</p> <p>Q & A 4 - 9</p> |

| Lesson Outline #3 | Question & Answer Location |
|---|----------------------------------|
| <p>treatment and water quality standards are met. If all point sources achieve secondary treatment and water quality standards are <u>not</u> met, the stream segment is classified as "water quality limited" and higher levels of treatment will be required. Designated areawide waste management planning is generally done along water quality limited segments of streams which, in turn, are generally in urbanized or industrialized areas.</p> <p>The classroom instructor should try to stimulate discussions after this part to insure students fully understand 303(e)/208/201 relationships.</p> | |

STATE CONTINUING PLANNING PROCESS

Given: Water Quality Standards

- Solution:
1. 303 (e) Plan: (X_1, X_3, X_4, X_5 = Waste Load Allocation)
 2. 208 Plan (if designated)
 3. Priority Listing
 4. 201 Plan
 5. Construct Facilities



| Lesson Outline #3 | Question & Answer Location |
|--|----------------------------------|
| <p>III. Section 205(g) Delegation of Administration</p> <p>A. Policy: EPA's policy is to decentralize management of the wastewater treatment Construction Grants Program to the maximum extent possible</p> <p>B. Goal: prevent federal/state duplication; increase operating efficiency; make states more responsible for day-to-day and project-by-project management of the Construction Grants Program</p> <p>C. Delegation agreement terms</p> <ol style="list-style-type: none"> 1. Designation of an organizational unit within the state agency responsible for implementing the program 2. Staffing including hiring and training of new personnel 3. Accounting and auditing procedures 4. Schedules for assumption of delegated functions 5. Cost estimates (not to exceed 2% of state's allotment or \$400,000, whichever is greater) 6. Plan for coordination with WQM planning 7. Detailed procedures for each delegated function 8. EPA review procedures <p><u>NOTE:</u> The instructor quickly reviews the items below as some of the items will not be understood as yet by the new employees. Later, when all the items are described, students may return to this section for review of delegable and nondelegable items.</p> <p>D. Delegable functions</p> <ol style="list-style-type: none"> 1. Step 1 - Preapplication conference, plan of study, subagreements, subagreement cost analysis, infiltration/inflow analysis, facilities plan, environmental assessment and related documents, public participation, relocation plans, cost-effectiveness analysis, and analysis of BPWTT and innovative and alternative wastewater treatment technology application. | |

Lesson Outline #3

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2. Step 2 - Subagreements, subagreement cost analysis, user charge and industrial cost recovery systems, plans and specifications for construction, preliminary plan of operation, and the plan and schedule for the Operation and Maintenance Manual
 3. Step 3 - Subagreements, subagreement cost analysis, bid solicitation and contract documents, contract change orders and amendments, draft and final Operation and Maintenance Manuals, final plans of operation, interim and final inspections, sewer use ordinances, and audits
 4. Small community assistance - the state may serve as a community's contracting agent and undertake
 - (a) Negotiating and administering planning, design and construction subagreements
 - (b) Providing technical advice (especially on cost-effective and innovative alternatives
 - (c) Assisting grantees in exercising their resident engineering responsibilities
- E. Nondelegable functions
1. Award of Step 1, 2, 3 and 2+3 grants and amendments
 2. Decision whether to prepare an EIS or issue a finding of no significant impact (FNSI) in accordance with the NEPA; also preparation and issuance of EIS
 3. Civil rights determination and enforcement
 4. Final dispute determinations for ineligibility
 5. Determinations of protests
 6. Resolution of audit exceptions
 7. Determination that an overriding federal interest exists which requires greater federal oversight or participation
 8. Determinations under federal statutes other than the Clean Water Act
 9. AST/AWT determinations

| Lesson Outline #3 | Question & Answer Location |
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| <p>Summary:</p> <p>As a student begins working on a specific project, he must recognize that a great deal of planning has taken place prior to the development of the project. The project must be reviewed in light of other planning functions and coordination must be accomplished.</p> | <p>End Part 3</p> |
| | |

QUIZ - TOPIC #3

State Program

1. What is the difference between the state priority system and state priority list?
2. Mathematical modeling of river basins to determine waste load allocations is generally performed under authority of Section 208 of P.L. 92-500, Areawide Waste Treatment Management. True or False
3. Water Quality Management (WQM) planning encompasses both basin plans and areawide waste treatment management. True or False
4. If water quality standards are achieved for a segment of stream in which all point source discharges need only provide secondary treatment, the segment is classified as an effluent limited segment. True or False
5. Approved WQM plans specify populations projections which may not be exceeded in facilities plans? True or False
6. An applicant municipality for a grant must be the one identified in an approved WQM plan? True or False
7. If the government has not designated a 208 area, no further studies are required for that area. True or False
8. Construction grants monies are used to fund WQM planning. True or False
9. When a facilities plan is reviewed by the state, it is not necessary to compare the selected plan with an approved WQM plan? True or False
10. Mark "D" next to the functions which may be delegated to a state by EPA and "ND" next to those which may not.

Topic #3 Quiz (Cont'd.)

- a. Award of Step 1, 2, 2+3, or 3 grants
- b. Review and certification of architectural/engineering procurement procedures
- c. Review and certification of infiltration/inflow analysis
- d. Review and certification of environmental information document
- e. Decision as to whether environmental impact statement is necessary
- f. Preparation of environmental impact statement to satisfy National Environmental Policy Act
- g. Review and certification of plans and specifications
- h. Review and certification of Operation and Maintenance Manual
- i. Advanced secondary treatment/advanced wastewater treatment determinations
- j. Preparation of environmental assessment
- k. Review and certification of value engineering analysis
- l. Resolution of audit exceptions

ANSWERS - TOPIC #3

1. The system defines the criteria and procedures used to establish the list. The list is a ranking in order of priority of all projects in the state which are eligible for grants.
2. False - The list is established on the basis of Section 303(e) based on the criteria of the list.
3. True - It also includes the following functions as well:
 - a. True
4. True
5. True
6. True
7. False - Areawide planning must be done, to a limited extent, for all areas in the state.
8. False - WQM monies are appropriated separately by Congress.
9. False - The facilities plan must be compared and conform with the conclusions of an approved WQM plan.
10. ND a.
 - D b.
 - D c.
 - D d.
 - VI e.
 - ND f.
 - E g.
 - D h.
 - ND i.
 - D j.
 - D k.
 - ND l.

INSTRUCTOR LESSON PLAN 4

Topic #4: FACILITIES PLAN REVIEW

Objective: The student must become familiar with the contents of and review procedures for facilities planning.

Videotape Running Time:

| | |
|--------------|--------------|
| Part 1 19:45 | Part 5 23:14 |
| Part 2 21:12 | Part 6 27:43 |
| Part 3 25:38 | Part 7 27:30 |
| Part 4 25:15 | |

Required Equipment: Color television and 3/4" U-Matic video cassette recorder

Lesson Outline

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Introduction:

The classroom instructor will note that the Facilities Plan Review is out of sequence, i.e., it precedes Step 1 Grant Processing. This is done intentionally since in Step 1 Grant Processing many unfamiliar terms are used which are better defined in their context during Facilities Plan Review. For example, to define infiltration/inflow in the context of a preapplication conference is not nearly as effective nor meaningful as it is to define it in the context of Facilities Plan Review. When facilities planning elements are later addressed in Step 1 Grant Processing, the student will better understand their importance and relevance to the preapplication conference and plan of study.

I. General

After a Step 1 grant offer has been made and accepted, the grantee and his consultant will begin preparing the facilities plan. During its preparation the state/federal project manager should contact the grantee at periodic intervals and offer help and assistance in understanding the requirements and resolving problems. Site visits to the grantee or consultant's office during this

| Lesson Outline #4 | Question & Answer Location |
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| <p>time are a demonstrated method of avoiding delays and precluding omissions in the facilities plan.</p> <p>A. Help grantee during facilities plan preparation</p> <p>B. Approvals prior to EPA receipt of facilities plan</p> <ol style="list-style-type: none"> 1. Clearinghouse (A-95) 2. State certification (if not delegated) that project conforms with WQM plans and regulations <p>II. Contents of Facilities Plan (40 CFR 35.917-1)</p> <p><u>NOTE:</u> In this part it is intended to briefly review the required contents of a facilities plan. This review is intended to alert the students that a facilities plan is complex and requires a great deal of objective and subjective evaluations at all levels (grantee, consultant, public, state, federal, etc.).</p> <p>Since one of the objectives of this course is to familiarize the students with the "Handbook of Procedures" and regulations, the instructor will:</p> <ol style="list-style-type: none"> 1. Review pages IV-19 and 20 of the "Handbook of Procedures" (MCD-03); 2. Review 40 CFR 35.917-1, Contents of Facilities Plan. The instructor will indicate that item 35.917-1(d) (7) "An adequate environmental assessment..." has been changed to "An adequate environmental information document..." 40 CFR 6.507(c) published in the Federal Register 11/6/79. The instructor will then indicate the elements which constitute an adequate environmental information document (see below) since the students may or may not have a copy of 40 CFR Part 6; 3. Review the items below which are summarized from 40 CFR 35.917-1 and 40 CFR 6.507(c). <p>A. Required elements</p> <ol style="list-style-type: none"> 1. A description of the treatment works for which plans and specifications will be prepared including: <ul style="list-style-type: none"> - Engineering data - Cost estimates - Schedules for completion of design and construction | <p>Q & A 1</p> |

| Lesson Outline #4 | Question & Answer Location |
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| <ol style="list-style-type: none"> 2. A description of the complete treatment system of which the works are a part 3. Infiltration/inflow documentation 4. A cost-effectiveness analysis of 1, 2, and alternatives including evaluation of <ol style="list-style-type: none"> a. The relationship of capacity to needs and reserve b. Flow and waste reduction, including nonstructural measures c. Optimum performance of existing system d. Ability to meet effluent limitations e. Application of best practicable waste treatment technology for each of the following waste treatment management techniques <ol style="list-style-type: none"> (1) Biological or physical-chemical treatment and discharge to receiving (surface) waters (2) Reuse of wastewater and recycling of pollutants (3) Land application techniques (EPA preferred alternative) (4) Revenue generating applications (5) On-site and nonconventional systems (heavy emphasis) f. Ultimate disposal of effluent and sludge g. The environmental impacts as contained in an adequate environmental information document h. Innovative and alternative technology processes i. Primary energy requirements 5. Effluent limitations or NPDES permit 6. Clearinghouse comments 7. A final responsiveness summary of public participation 8. A statement that grantee has resources to construct, operate and maintain the treatment works 9. A statement of compliance with Civil Rights Act 10. A description of recreation, open space and water access opportunities analyzed in the recommended plan | |

Lesson Outline #4

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Location

11. A municipal pretreatment program
12. An estimate of total project costs and charges to customers
13. A statement on the availability and estimated cost of proposed sites

Item 4.g. above is further defined in EPA's regulations implementing the National Environmental Policy Act (NEPA) 40 CFR 6.507(c) and reads in part, "An adequate environmental information document [EID] should be an integral part of any facilities plan submitted to EPA or to a State." The EID should address the following:

1. A description of the existing environment, with emphasis on the conditions relevant to the analysis of alternatives
2. A description of the future environment without the project (no action)
3. A discussion of the purpose and need for wastewater treatment in the planning area
4. Documentation of sources used in the evaluation
5. An evaluation of alternatives, with attention given to long term impacts, irreversible impacts and induced impacts
6. A discussion of the environmental consequences, including direct and indirect effects of the proposed action
7. A description of steps to minimize adverse effects, both structural and nonstructural, considered in the plan or identified during review, including any which should become contingencies to award of further grant assistance

B. Helpful documents

To assist the grantee the EPA has published two helpful documents:

1. "Guidance for Preparing A Facilities Plan" (MCD-46) - this document contains a suggested format for facilities plan presentation which may or may not be followed by grantee at their option. Most facilities plans do follow the

| Lesson Outline #4 | Question & Answer Location |
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| <p>format, however. The "Handbook of Procedures" (MCD-Q3) assumes the suggested format for review purposes.</p> <p>2. "Environmental Assessment of Construction Grants Projects" (FRD-5)</p> | <p>End Part 1</p> |
| <p>C. Major components of facilities plans</p> <ol style="list-style-type: none"> 1. Preliminary studies and background 2. Future situation 3. Alternatives 4. Public input 5. Plan selection <p><u>NOTE:</u> The instructor defines in more detail preliminary studies and background. As each item is presented, the instructor discusses the elements it includes and how the information may be presented.</p> <p>D. Preliminary studies and background</p> <ol style="list-style-type: none"> 1. Area description (environmental inventory) 2. Population (historical and present) and land use 3. Water quality (existing for both ground and surface waters) 4. Environmentally sensitive areas (steep slopes, rare and endangered species, unique features, etc.) 5. Existing flows 6. Existing system performance (bypass, sewer backups, treatment performance) 7. Sewer system evaluation <p><u>NOTE:</u> The instructor limits the discussion of sewer system performance as a more detailed discussion follows. Also, effluent limitations are not discussed at this point as experience has shown it is better to define effluent limitation later.</p> | <p>Start Part 2</p> <p>Q & A 2</p> |

| Lesson Outline #4 | Question & Answer Location |
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| <p>E. Sewer system evaluation (40 CFR 35.927; see MCD-19)</p> <p><u>NOTE:</u> The topic sewer system evaluation has been broken out for separate discussion because of a general lack of understanding, its potential for delaying the completion of a facilities plan, and to emphasize that an I/I analysis may be done independently from the facilities plan. The I/I analysis must only determine one figure for use in the facilities plan, namely, the non-excessive I/I. Therefore, the instructor discusses this subject separately and brings it back into the context of facilities planning later. The instructor defines each of the terms below and specifically points out the use of exception (c) (40 CFR 35.927-5[c]).</p> <ol style="list-style-type: none"> 1. I/I analysis 2. Sewer system evaluation survey 3. Rehabilitation <p><u>NOTE:</u> The instructor points out that items 1, 2 and 3 are sequential and that the sewer system evaluation may be stopped after item 1 or 2 if it is determined that the system is not subject to excessive I/I. The instructor then defines each of the terms, namely, excessive, nonexcessive, infiltration, inflow. Prior to the passage of P.L. 92-500 most treatment plants and possibly pumping stations contained bypasses. Since bypassing of raw sewage is now forbidden, the grantee has the choice of treating all flows, eliminating all I/I or a combination of partial removal and partial treatment. At this point the instructor discusses exception (c) (40 CFR 35.927-5[c]) and how it may be employed to allow a facilities plan to be completed while concurrently performing a sewer system evaluation survey.</p> <p>The instructor points out that a state agency may or may not certify to EPA that excessive I/I does or does not exist. The state certification must have some basis in fact (40 CFR 35.927-5[a]).</p> <p><u>NOTE:</u> A graphic shows the inside of an 8" sewer and is helpful for students to understand how infiltration may occur. The instructor points out the crack in the top of the sewer. Unfortunately, the groundwater was not high enough to allow this crack to leak. If it was leaking, however, it would be necessary for an experienced person to estimate the amount of infiltration in gpm and estimate the type and cost of repair. Generally, closed circuit televising of sewers is not done unless fully justified</p> | <p>Q & A 3 - 9</p> |

| Lesson Outline #4 | Question & Answer Location |
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| <p>and approved by the state or EPA as part of the SSES. The graphic is used only to provide students with a better understanding of the problems a sewer system evaluation survey is trying to define and detect.</p> | <p>End Part 2</p> |
| <p>F. Future situation</p> <ol style="list-style-type: none"> 1. Planning period (20 years for treatment plant capacity, up to 40 years for intercepting sewers) <p><u>NOTE:</u> The instructor points out that the planning period is 20 years but the construction of treatment works may be phased over a 10, 15 or 20 year period depending on the growth and cost-effectiveness analysis (40 CFR Appendix A). Also, the instructor discusses the controversy concerning sizing interceptors for 40 years and the likely secondary environmental impacts (developmental pressures) versus the potential for constructing a parallel relief sewer at higher cost in the future.</p> <ol style="list-style-type: none"> 2. Population projections <ol style="list-style-type: none"> a. WQM plans (208 projections) b. State disaggregation c. Recent trends <p><u>NOTE:</u> The instructor discusses population projections in detail. Population projections in urbanized areas have been very controversial but are of utmost importance since they form the basis of the treatment works capacity.</p> <p>G. Alternative development</p> <ol style="list-style-type: none"> 1. Preliminary work <ol style="list-style-type: none"> a. Needs survey (PRM 78-9) | <p>Start Part 3</p> <p>Q & A 10 & 11</p> |

Lesson Outline #4

Question
& Answer
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NOTE: The instructor discusses PRM 78-9 as it relates to establishing a need for the project. Many facilities plans have justified the need for sewers based on failing septic tanks and the resulting public health hazard. Too often the "failure" has not been defined and could be an easily correctable O & M problem. Also, many times the failures are not well documented. In addition, the instructor points out that although PRM 78-9 is specifically directed to "Funding of Sewage Collection System Projects" some EPA regional offices are applying the PRM requirements to projects for treatment plants only.

b. Study area population versus service area population

NOTE: The instructor discusses the concept that an entire facilities planning area may not need sewer service. Rather, the facilities planning area may include a core or centralized developed area requiring a conventional sewer system while more remote or rural areas within the facilities planning boundary may need nothing or septage management or other concepts of treatment. Therefore, there may be a distinction drawn between study area and service area population. In addition, this introduces the possibility of small wastewater treatment systems including on-site systems.

c. Future flows

- (1) Existing average daily base flow (ADBF)
- (2) Nonexcessive I/I

NOTE: The instructor ties in the previous discussions of I/I at this point.

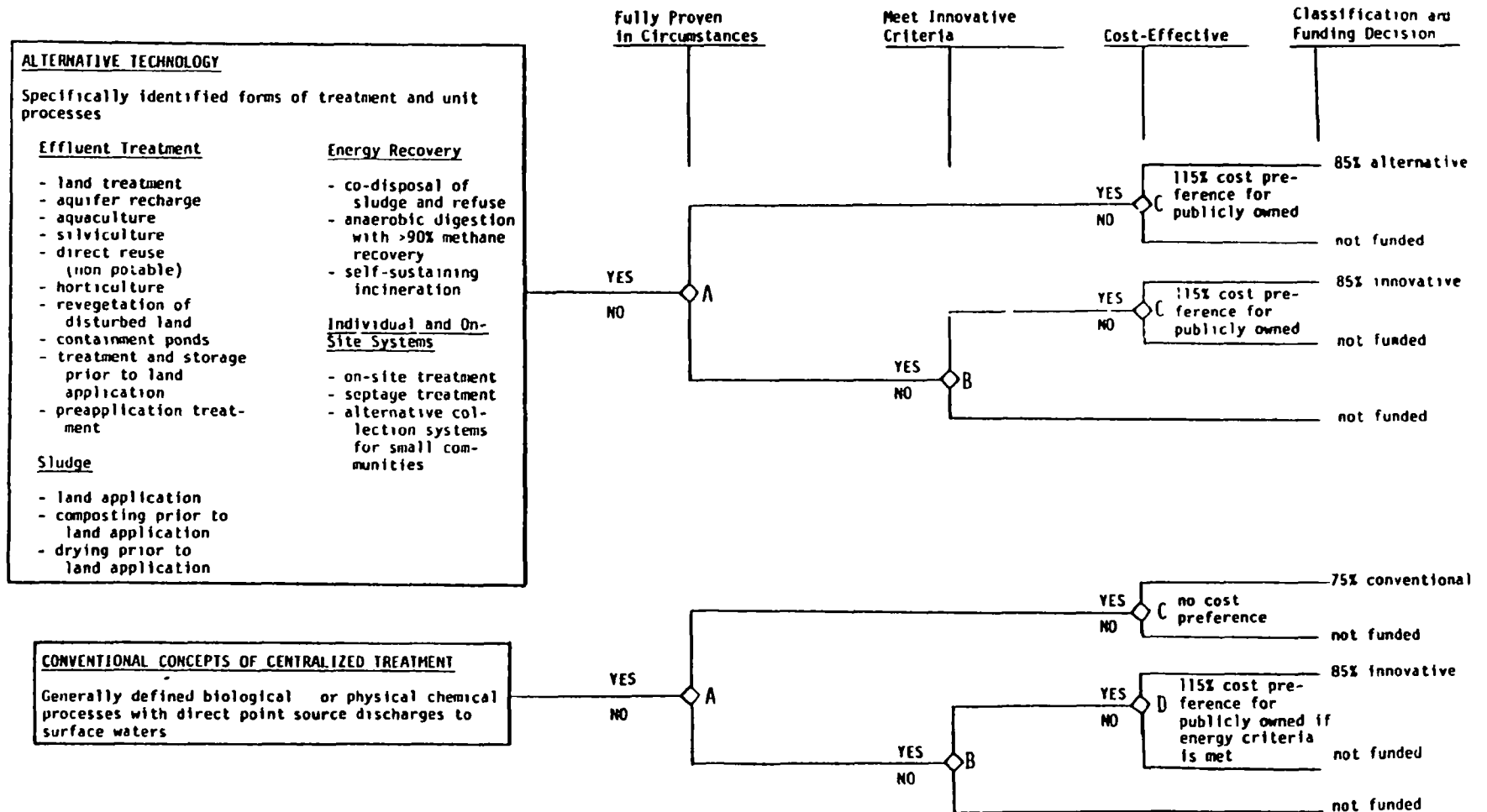
- (3) Projected flow from
 - Residential
 - Commercial
 - Industrial
- (4) Flow reduction measures (water conservation)

Q & A
12

| Lesson Outline #4 | Question & Answer Location |
|---|--|
| <p>2. Conceptual alternatives</p> <ul style="list-style-type: none"> a. No action b. Optimum performance of existing systems c. Regional and subregional systems including on-site systems <p><u>NOTE:</u> The instructor points out that the combinations and permutations of alternatives are potentially astronomical when one considers the various site locations, process designs, sewer and interceptor routings, capacities, etc. Therefore, a method of screening and evaluation is necessary to reduce the number of alternatives to a manageable size.</p> <p>The instructor also discusses the economies of scale to be realized from a large regional system (the generally accepted philosophy in the late 60's and early 70's) versus the current approach of looking more closely at smaller, perhaps on-site systems.</p> <p>3. Waste treatment management techniques employing best practical waste treatment technology (BPWTT) for</p> <ul style="list-style-type: none"> a. Treatment and discharge to surface waters b. Recycle/reuse c. Land treatment (preferred choice of EPA) d. Revenue generating systems e. On-site and nonconventional systems <p><u>NOTE:</u> The instructor emphasizes that the above waste treatment management techniques are applicable to each of the conceptual alternatives discussed in item 2 above. For each such technique the BPWTT has been defined in the regulations.</p> | <p>Q & A 13 - 15</p> <p>End Part 3</p> |
| <p>4. Effluent limitations</p> <ul style="list-style-type: none"> a. Select correct set for each alternative from <ul style="list-style-type: none"> (1) BPWTT | <p>Start Part 4</p> |

| Lesson Outline #4 | Question & Answer Location |
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| <p>(2) NPDES permit as applicable</p> <p>(3) WQM plan</p> <p>5. Summary of alternative development - major alternatives</p> <p>a. Effluent</p> <p>(1) Small alternative wastewater systems</p> <p>(2) Land treatment alternatives</p> <p>(3) Conventional concepts of treatment</p> <p>(4) Optimum performance or integration of existing systems</p> <p>b. Sludge disposal</p> <p>(1) Landfill</p> <p>(2) Land application (including composting)</p> <p>(3) Incineration</p> <p>(4) Codisposal</p> <p><u>NOTE:</u> The instructor suggests that the major alternatives listed above for "effluents" and "sludge disposal" form the basis of a logic train, each of which will be carried through cost-effectiveness analysis and each of which may have several subalternatives (different sites and sizes of land application, for example). Each of these major alternatives must be addressed in detail in the facilities plan, and if rejected, the reasons for rejection must be clearly documented and explained in the facilities plan.</p> | <p>Q & A 16</p> <p>End Part 4</p> |
| <p>H. Innovative and alternative technology (See MCD-53)*</p> <p><u>NOTE:</u> The instructor discusses I & A in detail hereafter, and places I & A into the context of facilities planning and as a further means of alternative development and analysis. Several graphics are used to assist in the definition of I & A but not all of the details are included in the student's outlines. The instructor indicates that all facilities plans begun after September 30, 1978 must address I & A processes or techniques. Also, he indicates that I & A technology requirements are part of a three</p> <p>* See page 61 for visual</p> | <p>Start Part 5</p> |

INNOVATIVE AND ALTERNATIVE TECHNOLOGY DECISION METHODOLOGY



Lesson Outline #4

Question
& Answer
Location

year program and may result in 85% grants for I & A components (Steps 2 and 3 only) rather than 75% for conventional concepts of treatment.

Students may follow the lecture on I & A technology by referring to the figure in their outline entitled "Innovative and Alternative Technology Decision Methodology." This figure appears in the I & A Assessment Manual (MCD-53) and students may wish to review this manual later for a more complete discussion of I & A.

1. Alternative technology - proven processes or techniques which either reclaim or reuse water, recycle wastewater constituents, eliminate discharge of pollutants or recover energy

NOTE: Next two graphics list the defined alternative technologies as shown in the top left box of the figure entitled "Innovative and Alternative Technology Decision Methodology."

NOTE: The next graphic indicates that sewers are not part of alternative technology except if they are alternatives to conventional treatment works for small communities (population under 3,500) or part of individual systems.

NOTE: The next series of graphics briefly discuss on-site treatment systems and land application and are intended to present EPA's current policy and emphasis on these two alternative technologies.

a. On-site and nonconventional systems

- (1) Reduce costs, resource conservation, preclude adverse secondary environmental impacts
- (2) Include septic tanks, septage treatment, cluster septic, mounds systems, small diameter gravity (6" or smaller), pressure or vacuum sewers
- (3) Must reading is PRM 79-8 dated 5/9/79

| Lesson Outline #4 | Question & Answer Location |
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| <p><u>NOTE:</u> The graphic indicates the management functions for small on-site systems. The material is not included in the outline but is addressed in PRM 79-8.</p> <p>b. Land treatment</p> <ol style="list-style-type: none"> (1) Potentially reduces costs, conserves resources (2) Preference of EPA (3) Three systems of which first two must be evaluated in detail <ul style="list-style-type: none"> - Slow rate (crop irrigation) - Rapid infiltration - Overland flow (4) Potential conflict with state preapplication treatment requirements (5) Land costs for land used as integral part of treatment process or storage is eligible for 85% grant <p><u>NOTE:</u> Some states require a minimum of secondary treatment prior to land application. EPA has taken the position that across-the-board requirements for secondary treatment are not justified but rather each system or project must be evaluated on a case-by-case basis. In the worst case, EPA may not financially participate in a project beyond the pretreatment requirements it feels are justified.</p> <p>It will be noted in the material above that land treatment is the preferred choice of EPA. To encourage this process, land acquisition for land treatment projects or the temporary storage of wastes (winter months) is allowable for grant participation. This is not true for other processes not employing the land as an integral part of the treatment process.</p> <p>2. Innovative processes and techniques</p> <ul style="list-style-type: none"> - Developed processes or techniques which are <u>not</u> fully proven in the circumstances of contemplated use (risk but corresponding benefit) | |

Lesson Outline #4

Question
& Answer
Location

- May be alternative technology or conventional concepts of treatment but must provide significant advancement over the state-of-the-art
- Definition flexible and subject to interpretation by EPA

Q & A
17 - 19

NOTE: The instructor will use the next graphic "I & A Decision Methodology" to prepare students for a further discussion of innovative technology. He points out that all alternatives are either classified as alternative technology (list defined in top left box) or conventional concepts of treatment (lower left box). Either alternative technology or conventional concepts of treatment may qualify as innovative if certain conditions are met. The first step is fully proven (risk with benefit), the six criteria, cost-effectiveness analysis, 15% cost preference and finally grant computation as 75%, 85% or none. Each phase in the decision methodology is now discussed.

NOTE: The next two graphics discuss fully proven or risk assessment. Since "risk" is not quantifiable (no such thing as 40 risk units), the next graphic assists in defining what is meant by risk, i.e., not university research bench scale and not conventional treatment processes - it's something in between.

a. Criteria to be applied

- (1) Life cycle cost (LCC) 15% less than noninnovative
- (2) Net primary energy requirements are 20% less than noninnovative
- (3) Improved reliability
- (4) Better management of toxics
- (5) Increased environmental benefits
- (6) New or improved methods of joint municipal and industrial treatment
- (7) Regional Administrator's discretionary authority

Q & A
20 - 22

| Lesson Outline #4 | Question & Answer Location |
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| <p><u>NOTE:</u> The next graphic illustrates that alternative technology can meet any one of the six criteria listed above while conventional concepts of treatment must meet either the 15% cost savings or 20% net primary energy savings. Also, first two criteria quantifiable, last four not quantifiable.</p> <p>I. Cost-effectiveness analysis</p> <p>1. Comparison</p> <ul style="list-style-type: none"> a. Alternatives must be comparable in terms of population and area served, and effluent limitations b. Noninnovative alternative must be identified which is <ul style="list-style-type: none"> - Least costly - Least net primary energy c. Noninnovative alternative must be cost-effective <p><u>NOTE:</u> The instructor points out that an alternative may save 20% or more net primary energy but be five times as costly as the least costly noninnovative and therefore not quality as a viable alternative.</p> <p>d. Cost basis for comparison is the present worth cost</p> | <p>End Part 5</p> |
| <p>2. Cost preference</p> <p>Innovative or alternative technology may be as much as 15% more expensive than the least costly noninnovative alternative and still be considered equal</p> <ul style="list-style-type: none"> a. Less than 50% - if the proposed innovative components of a treatment project represent less than 50% of the total present worth of the treatment project, then only the replaced noninnovative components receive the 115% cost preference b. Equal to or more than 50% - If the proposed innovative components of a treatment project are greater than or equal to 50% of the total present worth of the treatment project, then the entire system receives 115% cost preference | <p>Start Part 6</p> <p>Q & A 23 - 25</p> |

| Lesson Outline #4 | Question & Answer Location |
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| <p><u>NOTE:</u> The instructor refers students to the table in their outlines which illustrates the 15% cost preference and grant computations. This table is from the I & A Assessment Manual, Figure 2-1 page 2-11, and has been slightly modified. The instructor indicates that the cost preference is for present worth costs while the grant is computed on capital costs.</p> | <p>End Part 6</p> |
| <p>J. Alternative evaluation</p> <p>All alternatives must meet the enforceable requirements of the CWA and be evaluated on the basis of</p> <ol style="list-style-type: none"> 1. Engineering - feasibility and energy analysis 2. Environmental - primary and secondary impacts 3. Economics - present worth cost-effectiveness 4. Institutional considerations - implementation capability 5. Public participation <p>K. Public participation</p> <p>An active public participation program must be conducted by the grantee in accordance with the regulations 40 CFR Part 25 (2/16/79) and include either</p> <ol style="list-style-type: none"> 1. Basic program 2. Full scale program <p>L. Plan selection</p> <ol style="list-style-type: none"> 1. Recommended plan must be <ol style="list-style-type: none"> a. Cost-effective b. Environmentally sound c. Capable of implementation d. Acceptable to the public 2. All facilities plans must include <ol style="list-style-type: none"> a. Discussion of NEPA criteria b. Schedule for implementation c. Clearinghouse comments | <p>Start Part 7</p> <p>Q & A 28</p> <p>Q & A 26 & 27</p> |

| <u>Project Preference or Eligibility</u> | <u>Portion of Total Project That Is Eligible (a) (b)</u> | | <u>Authority or Reference</u> |
|---|---|--|---|
| | <u>For Project Portion Less Than 50% of Total Project</u> | <u>For Project Portion Greater Than 50% of Total Project</u> | |
| 115% Cost-Effectiveness (c) Preference for Innovative and Alternative (I & A) Technology | Only I & A Portion | Entire Project | CEAG Paragraph 7 Appendix A |
| 75% to 85% Grant Increase (d) for Innovative or Alter- native (I & A) Technology | Only I & A Portion | Only I & A Portion | 202(a)2 202(a)4 35.908(b) Preamble |

(a) Project eligibility is based on present worth cost of total project eligible portions excluding sewer related costs except for projects qualifying as alternatives to small communities (a municipality with a population of 3,500 or less or a highly dispersed section of a larger community).

(b) Conventional concepts of treatment qualifying as innovative under the energy criteria must meet the overall 115% cost-effectiveness criteria to be eligible for funding.

(c) Cost preference is applied to present worth costs.

(d) Grants are computed on capital costs.

| Lesson Outline #4 | Question & Answer Location |
|--|----------------------------------|
| <ul style="list-style-type: none"> d. Summary of public participation e. NPDES permit compliance f. Civil Rights Act of 1964 compliance g. Legal authority of management agency to implement plan h. Municipal pretreatment program (where applicable) i. Statement on availability of proposed sites j. Recreation and open space opportunities <p>III. Facilities Plan Review Process</p> <p>Decision - approve, disapprove, do EIS</p> <p>A. Considerations for decision</p> <ul style="list-style-type: none"> 1. NEPA criteria - significant environmental impacts or highly controversial 2. Historic and archaeologic sites 3. Wetlands (Executive Order) 4. Floodplains (Executive Order) 5. Coastal zones 6. Wild and scenic rivers 7. Threatened or endangered species (fish, wildlife, flora and fauna) 8. Prime agricultural lands (EPA policy) <p>B. Decision</p> <ul style="list-style-type: none"> 1. No EIS <ul style="list-style-type: none"> a. Environmental assessment prepared b. Public notified of finding of no significant impact (FNSI) c. Project approved 2. Prepare EIS <ul style="list-style-type: none"> a. Public notified of intent to prepare EIS b. Draft EIS prepared c. Project modified or approved | <p>Q & A 29 & 30</p> |

| Lesson Outline #4 | Question & Answer Location |
|--|----------------------------------|
| <p><u>NOTE:</u> The instructor indicates that the NEPA implementing regulations have been revised and the terminology has changed as follows.</p> <p><u>NOTE:</u> <u>Change in Terminology</u></p> <ol style="list-style-type: none"> 1. Environmental assessment prepared by grantee now called environmental information document 2. Environmental appraisal prepared by state or EPA now called an environmental assessment 3. Negative declaration prepared by EPA now called a finding of no significant impact <p>Summary:</p> <p>The instructor states,</p> <p>"Alternative evaluation and plan selection is an iterative process during which many of the considerations previously described are reevaluated. Alternatives which are eliminated must be described and the reasons for elimination explained."</p> <p>"Trade-offs and value judgements must be exercised by the grantee in concert with the public, state and federal regulatory agencies. The resulting project must abate water pollution without creating a worse future environmental problem."</p> | <p>End Part 7</p> |
| | |

QUIZ - TOPIC #4

Facilities Plan Review

1. Comments of the appropriate clearinghouse (A-95 review) are required for each facilities plan. True or False
2. List the five major components of a facilities plan.
3. List the three sequential steps in a sewer system evaluation.
4. Rainwater from a downspout on a house is considered infiltration? True or False
5. What determines if I/I is excessive?
6. Is an I/I analysis required for all projects?
7. May a grantee complete a facilities plan if excessive I/I exists?
8. Is closed circuit television inspection of sewers a part of an I/I analysis?
9. Is cleaning of all sewers within a municipality an allowable cost for grant participation?
10. The planning period for facilities plans is 10, 15 or 20 years, depending on the circumstances. True or False
11. Straight line population projections using 1940, 1950, 1960, 1970 and 1980 census figures is the only acceptable means of determining future populations. True or False
12. The use of 100 gal/capita/day is an acceptable method of projecting future flows. True or False

Topic #4 Quiz (Cont'd.)

13. Septic tanks should be eliminated in all cases. True or False
14. What are the five waste management techniques that must be evaluated in each facilities plan?
15. Treatment and discharge to surface waters is EPA's preferred waste management technique. True or False
16. The NPDES permit may contain the effluent limitations for treatment and discharge to surface waters at an existing treatment plant. True or False
17. Alternative technology projects include land application and on-site systems. True or False
18. Alternative technology projects are fully proven processes or techniques. True or False
19. Innovative projects may be either alternative technology or conventional concepts of treatment. True or False
20. Alternative technology projects or those employing conventional concepts of treatment may be classified as innovative by meeting any one of the six qualifying criteria. True or False
21. A conventional project which saves 15% LCC may be automatically classified as innovative and receive an 85% grant. True or False
22. An alternative technology project automatically receives an 85% grant. True or False
23. The 15% cost preference is applied to
 - a. capital costs
 - b. present worth costs
 - c. construction costs

Topic #4 Quiz (Cont'd.)

24. In computing net primary energy for a particular project, the energy value of coal used to generate electricity by the utility company is included in the computations. True or False
25. I & A projects receive an 85% grant for Step 1, 2 and 3 work. True or False
26. A formal public hearing is the only requirement for public participation. True or False
27. Comments of the public must be included in the facilities planning document. True or False
28. What five broad criteria are used to evaluate alternatives?
29. An EIS is prepared for every facilities plan. True or False
30. An EIS, if required, is prepared by the state agency. True or False

ANSWERS - TOPIC #4

1. True - If a clearinghouse has been designated
2. (1) preliminary studies and background; (2) future situation; (3) alternatives; (4) public input; (5) plan selection
3. (1) I/I analysis; (2) SSES; (3) sewer rehabilitation
4. False - inflow
5. I/I is excessive if it is more expensive to treat than to remove.
6. No - Only for municipalities with existing sewers
7. Generally no unless exception c (40 CFR 35.927-5[c]) is applicable
8. No - It is part of an SSES and must be justified in an I/I analysis as being cost-effective.
9. No - Only those sewers which require cleaning prior to CCTV inspections as part of the SSES
10. False - Planning period is always 20 years; construction of the project may be staged for a 10, 15 or 20 year period.
11. False - The WQM (208) projections must be used as a ceiling; state disaggregations are also used.
12. False - Flow projections are based on actual consumptive flows or lacking this data per capita flows shown in Appendix A.
13. False - Septic tanks may be made to operate satisfactorily if a program of septage management is employed. A needs survey (PRM 78-9) will indicate those septs which are not operating properly and may need to be replaced with alternative technology or conventional concepts of treatment.

Topic #4 Answers (Cont'd.)

14. (1) treatment and discharge to surface waters; (2) recycle/reuse; (3) land treatment; (4) revenue generating systems; (5) on-site
15. False - Land treatment is.
16. True
17. True
18. True
19. True
20. False - Alternative technology one of the six; conventional projects must meet either 15% LCC savings or 20% net primary energy reduction.
21. False - It must have risk and corresponding advancement of the state-of-the-art (benefits).
22. False - It must be cost-effective when compared with the least costly noninnovative projects although it is given a 15% preference.
23. b. present worth cost
24. False - Only primary energy is computed, i.e., energy crossing the boundary of the waste treatment system.
25. Since tapes were made, the law has been changed so that 85% applies to Steps 1, 2 and 3,
26. False - An active basic or full public participation program is required.

Topic #4 Answers (Cont'd.)

- 27. True - Responsiveness summaries and generally a full transcript of public hearing must be included; the grantee must address meaningful public comments.
- 28. (1) engineering; (2) environmental; (3) economic; (4) institutional considerations (implementability); (5) public participation
- 29. False - EPA decides which projects will require an EIS and which will not.
- 30. False - An EIS must be prepared by a federal agency (consultants may be used); an EAS may be prepared by the state if this function has been delegated.

INSTRUCTOR LESSON PLAN 5

Topic #5: AVOIDING DELAYS AND RESOLVING PROBLEMS
DURING FACILITIES PLAN PREPARATION

Objective: An example problem is presented to insure that students understand how the 15% cost preference is applied to innovative and alternative projects. A case study is presented and discussed to illustrate common errors in facilities plans and insure that students understand some of the concepts and requirements for facilities planning discussed in lesson plan 4.

Suggested Time: 60 minutes

Required
Equipment: None

Lesson Outline

Question
& Answer
Location

Cost Preference and Grant Computations for I & A Projects

Introduction:

It has been observed that many regulatory personnel and consulting engineers do not understand the application of the 15% cost preference as applied to innovative and alternative technology projects. The classroom instructor may wish to review Table 2-1 "Cost-Effectiveness and Grant Increase Project Portion Eligibility" on page 2-5 of the I & A Technology Assessment Manual (MCD-53). This table has also been reproduced in lesson plan 3. The example is given below with "notes" for the classroom instructor.

EXAMPLE

A proposed innovative system has passed the risk test and fulfills the requirements of 20% net primary energy savings. The components which are being considered as innovative are the primary and secondary process equipment.

NOTE: A project may not be considered innovative unless there is an acceptable degree of risk (not fully proven in the circumstances of

Lesson Outline #5

Question
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Location

contemplated use) and corresponding benefits (advancement of the state-of-the-art). The risk and benefits are assumed for this example. Also, a project must meet one of the six innovative criteria - 20% net primary energy savings in this example. The question remains is the project still within the cost-effective range?

The present worth costs of the proposed system and the least costly noninnovative system are shown below.

| | Least Costly Noninnovative System | | Proposed Innovative System | |
|-----------|---|-------------|----------------------------------|-------------|
| | <u>Capital</u> | <u>PW *</u> | <u>Capital</u> | <u>PW *</u> |
| Primary | \$ 100 | \$ 110 | \$ 31 | \$ 35 |
| Secondary | 720 | 753 | 830 | 905 |
| AWT | <u>873</u> | <u>971</u> | <u>873</u> | <u>971</u> |
| Total | \$ 1,693 | \$ 1,834 | \$ 1,734 | \$ 1,911 |

* PW includes O & M

Computations:

NOTE: The first step is to determine if the proposed innovative components represent 50% or less of the total proposed innovative system. The present worth costs are used for this computation, not the capital costs.

1. $35 + 905 = 940$

2. $\frac{940}{1,911} = 49\%$

NOTE: Since the innovative components are less than 50%, only the replaced noninnovative components are given the 15% preference. These figures from the table above are:

3. (a) $110 + 753 = 863$
(b) $863 \times 1.15 = 992.45$

Lesson Outline #5

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NOTE: The figure in (b) above, when added to the AWT portion of the project (noninnovative component), represents a ceiling which the proposed innovative system may not exceed.

$$(c) \quad 992.45 + 971 = 1,963.45$$

Result:

\$1,911 is less than \$1,963.45; therefore, the proposed system is considered to be within the cost-effective limit and may be selected by the grantee.

NOTE: Students have erroneously used the present worth costs of the replaced components in applying the 50% rule. For example, $110 + 753 = 863$. $863 \div 1,834 = 47\%$ which in this example also happens to be less than 50%. This may not be the case in real projects and the students should be cautioned about this potential error.

Grant Calculations:

Capital costs of innovative components:

$$(31 + 830) \times .85 = 731.85$$

Capital cost of noninnovative component:

$$873 \times .75 = 654.75$$

Total Grant \$1,386.60

NOTE: The instructor will emphasize that only the innovative or alternative components receive the 85% grant. Noninnovative components receive a 75% grant. Also, grants are given on the capital costs, not the present worth costs.

The instructor may wish to illustrate the application of the 50% rule and 15% cost preference by telling the students to assume that the AWT is the proposed innovative component. The corresponding computations for this assumption are as follows and are included in the student outlines.

(1) innovative component \$971

$$(2) \quad \frac{971}{1,911} \times 100 = 51\%$$

$$(3) \quad 1,834 \times 1.15 = 2,109$$

| Lesson Outline #5 | Question & Answer Location |
|--|----------------------------------|
| <p><u>Result:</u></p> <p>\$1,911 is less than \$2,109; therefore, proposed innovative system is considered to be within the cost-effective limit and may be selected by the grantee.</p> <p><u>Grant Calculations:</u></p> <p>Capital cost of noninnovative component:</p> $(31 + 830) \times .75 = 645.75$ <p>Capital costs of innovative components:</p> $873 \times .85 = \underline{742.05}$ <p>Total Grant \$1,387.80</p> <p><u>Summary of Example:</u></p> <p>Insure that the 50% rule is applied to the <u>present worth costs</u> of the <u>proposed innovative or alternative system</u>. Apply the 15% cost preference to either the replaced noninnovative components or the entire noninnovative treatment project (excluding collection system) depending on the outcome of the 50% test. Establish the upper limit for the I or A proposed system to determine if it is cost-effective. Compute grant on capital costs at 85% for I or A components and 75% for non-innovative components.</p> <p style="text-align: center;"><u>Case Study</u></p> <p><u>Introduction:</u></p> <p>The case study requires the students to spend approximately 15 minutes reading the project summary and approximately 20 minutes answering the discussion questions. The instructor is to pose the questions to the students and lead a discussion indicating the</p> | |

Lesson Outline #5

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Location

deficiencies in the facilities plan. The case study is based on a real project but the names have been changed to protect the innocent (guilty?). The case study is presented below and the points to be drawn out are presented in the discussion questions.

Project Name: Quadri-Municipal Facilities Planning Area

Location: 75 miles NSE of Gotham City

History: Several comprehensive sewer studies performed in the late 60's calling for a Regional POTW discharging to the Moy River

Existing Conditions:

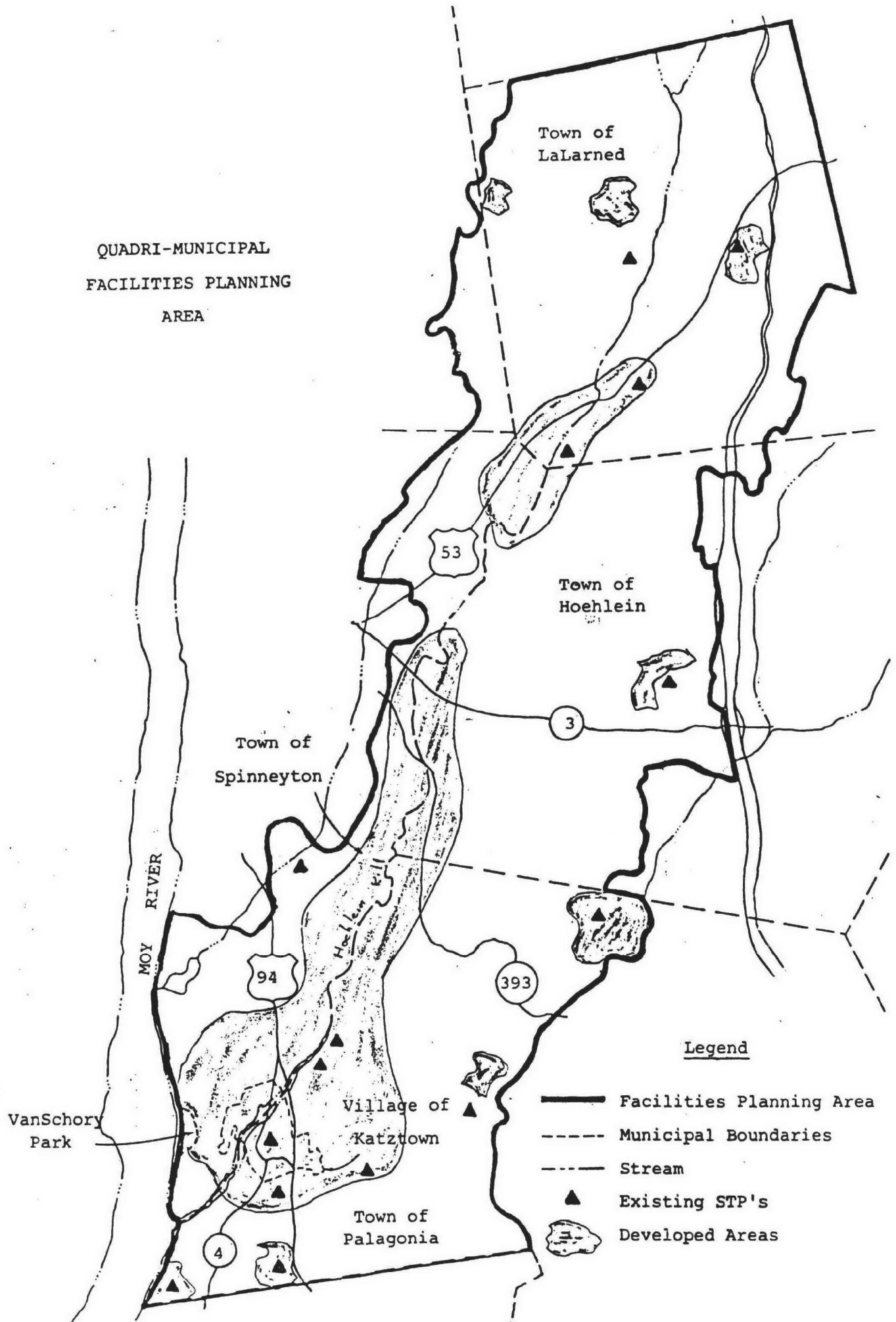
| | |
|---|-------------|
| Total land area | - 29,200 ac |
| Residentially zoned vacant land | - 19,200 ac |
| Vacant land constrained by wetlands, floodplains, steep slopes or prime agricultural land | - 12,600 ac |
| Developed land | - 10,000 ac |
| Total zoning capacity (all residential land) | - 116,000 |
| Present population | - 46,000 |
| 208 projection (year 2000) | - 75,000 |
| Facilities plan population projection | - 102,000 |

Existing Facilities:

A 1 mgd primary plant serving Village of Katztown and a portion of Spinneyton. A number of small facilities (some secondary and some AWT) serving individual housing developments. Total wastewater flow is 2 mgd. All plants discharge to surface waters. All but Katztown plant discharge to small streams which, according to state policy, require high levels of treatment (AWT). There are large areas where the soil has a shallow depth to groundwater and there have been a number of complaints in regard to failing septic systems according to the

| Lesson Outline #5 | Question & Answer Location |
|--|----------------------------|
| <p>facilities plan. Because of this, the facilities plan recommends that a centralized system of sewers and treatment facilities should be extended to all unsewered developed areas.</p> <p><u>Alternatives Evaluated:</u></p> <ol style="list-style-type: none"> 1. A single regional secondary treatment facility discharging to the Moy River and serving the entire 201 planning area 2. Two facilities, one on Hoehleinville Kill serving the village and surrounding area and one on the Moy River serving the remaining study area 3. Several interceptor configurations 4. Several sites for the Moy River facility <p><u>Project Size:</u></p> <p>Design flow (year 2000) of 10 mgd Interceptors designed for 20 mgd</p> <p><u>Selected Plan:</u> (see map)</p> <p>Alternative 1 with elimination of all existing facilities</p> | |

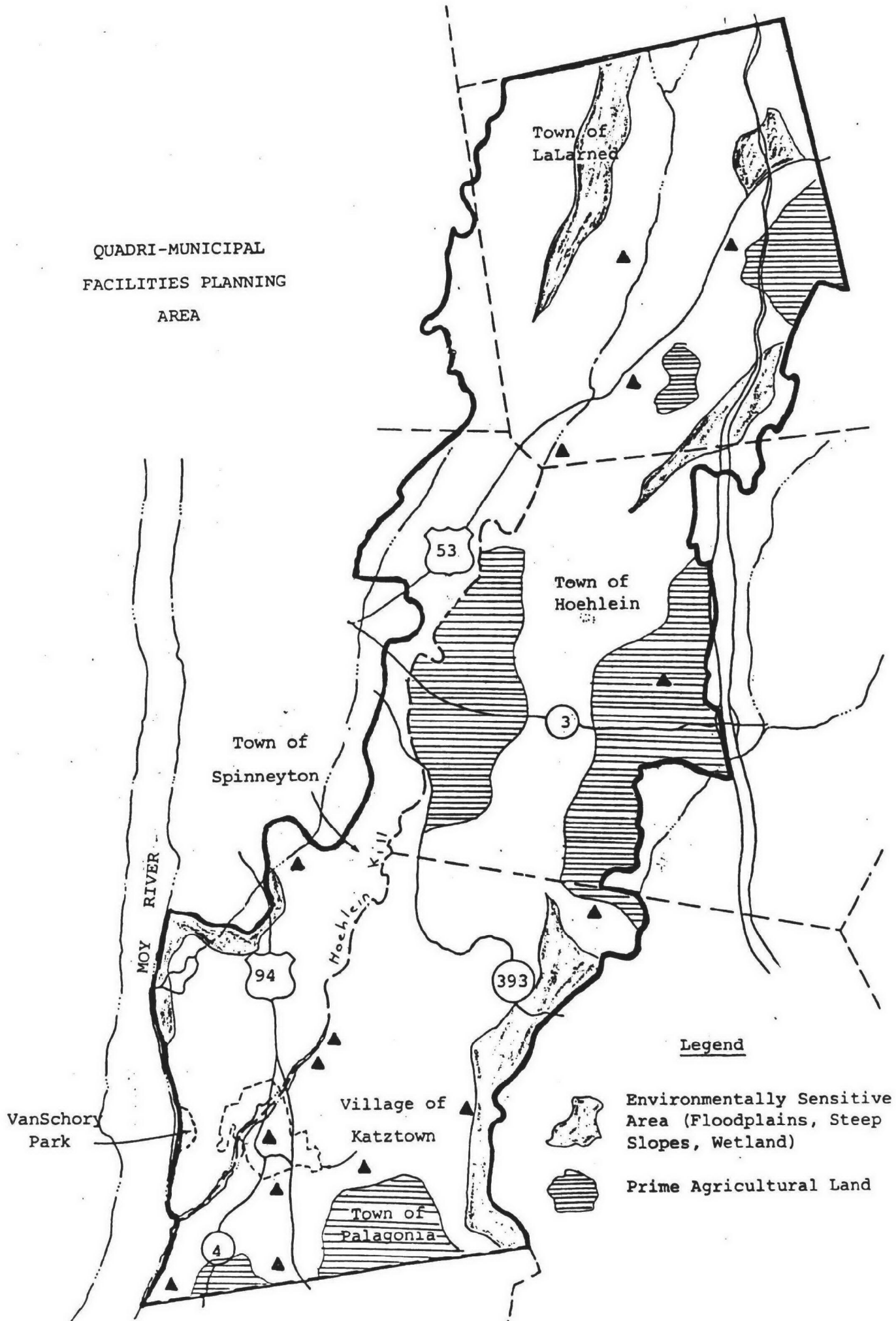
QUADRI-MUNICIPAL
FACILITIES PLANNING
AREA



Legend

- Facilities Planning Area
- - - Municipal Boundaries
- - - Stream
- ▲ Existing STP's
- Developed Areas

QUADRI-MUNICIPAL
FACILITIES PLANNING
AREA



Legend



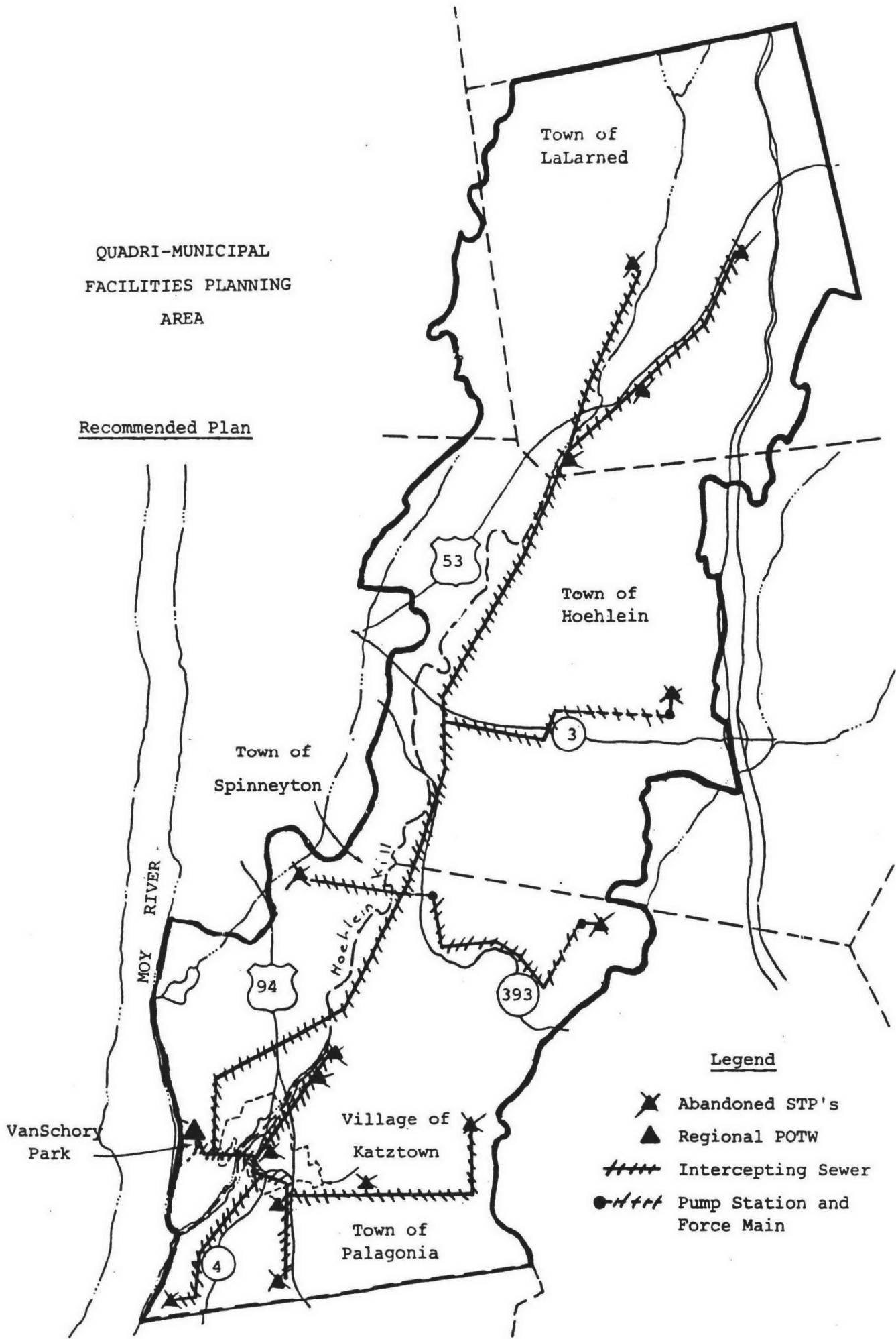
Environmentally Sensitive
Area (Floodplains, Steep
Slopes, Wetland)



Prime Agricultural Land

QUADRI-MUNICIPAL
FACILITIES PLANNING
AREA

Recommended Plan



Legend

- ✕ Abandoned STP's
- ▲ Regional POTW
- ++++ Intercepting Sewer
- +++ Pump Station and Force Main

| Lesson Outline #5 | Question & Answer Location | | | | | | |
|--|---------------------------------|-----------|-------------------------|------------------|---|----------|--|
| <p><u>Discussion</u></p> <p>1. Was there adequate alternative evaluation?</p> <p>NO! Grantee did not consider</p> <ul style="list-style-type: none"> a. Land application - preferred by EPA b. Upgrading of existing facilities c. Innovative technology d. Small wastewater systems including <ul style="list-style-type: none"> - Rehabilitation of septic tanks - Cluster septic tanks or mound systems <p>2. Comment on population projection used</p> <p>a. Grantee proposed 102,000</p> <p>WQM (208) plan shows 75,000</p> <p>Grantee may not exceed WQM approved projection except in very unusual circumstances. Therefore, population is unacceptable.</p> <p>b. From a density viewpoint</p> <table border="0" style="width: 100%;"> <tr> <td>Residentially zoned vacant land</td><td style="text-align: right;">19,200 ac</td></tr> <tr> <td>Constrained vacant land</td><td style="text-align: right;"><u>12,600 ac</u></td></tr> <tr> <td>Residentially zoned vacant land available for development</td><td style="text-align: right;">6,600 ac</td></tr> </table> <p>Present density = $\frac{46,000 \text{ present population}}{10,000 \text{ developed land}} = 4.6 \text{ persons/ac}$</p> <p>Future growth at same density $4.6 \frac{\text{persons}}{\text{acre}} \times 6,600 \text{ acres}$</p> <p style="text-align: right;">= 30,360 additional population</p> <p>Future population at same density = 46,000 present</p> <p style="text-align: right;">+ 30,360 future</p> <p style="text-align: right;">= 76,360 which is close to WQM (208) projection</p> <p>The point may be made that if the communities want to maintain their present character they may possibly do this by maintaining a similar density. If the proposed population of 102,000 was</p> | Residentially zoned vacant land | 19,200 ac | Constrained vacant land | <u>12,600 ac</u> | Residentially zoned vacant land available for development | 6,600 ac | |
| Residentially zoned vacant land | 19,200 ac | | | | | | |
| Constrained vacant land | <u>12,600 ac</u> | | | | | | |
| Residentially zoned vacant land available for development | 6,600 ac | | | | | | |

Lesson Outline #5

Question
& Answer
Location

used, the density would be $102,000 \div (10,000 + 6,600) = 6.1$ persons/acre or 33% increase over the present density.

3. Do per capita flows seem reasonable based on total flow and population served?

$$\frac{10 \text{ mgd}}{102,000 \text{ population}} = 98 \text{ gal/cap/day}$$

This is very close to the 100 gpcd figure used by many engineers and state design standards. EPA has taken the position that unless flows higher than those shown in Appendix A to 40 CFR Part 35 are well documented, they may not be used. Appendix A shows:

Non-SMSA cities and towns with
projected total 10 year populations of
5,000 or less - 60 to 70 gpcd

Other cities and towns - 65 to 80 gpcd

Using the WQM population projection of 75,000 and per capita consumption of 80 gpcd, the total design flow of the treatment plant would be 6.0 mgd or 60% of what has been proposed. Therefore, the proposed per capita flows are not acceptable .

Some students had indicated the proposed 10 mgd plant is a fivefold increase because in the description of the existing facilities it states, "Total wastewater flow is 2 mgd." This flow represents flows at existing facilities but does not include the unsewered population presently on septic tanks.

4. Interceptor routes chosen were designed to minimize the loss of trees and impacts to surface waters. Facilities plan, therefore, states that adverse environmental impacts are not significant. Do you agree?

NO - Woefully inadequate. Facilities plan must specifically address:

Primary and secondary impacts

| Lesson Outline #5 | Question & Answer Location |
|---|----------------------------------|
| <p style="text-align: center;">Impacts on agricultural land Impacts on wetlands and floodplains Loss of vegetation along interceptor route Siltation, etc.</p> <p>5. The site chosen (on the banks of the scenic Moy River) is adjacent to Van Schory Park which was originally part of the Van Schory estate which according to local historians was the original (c. 1645) settlement in the area. Legend has it that a gristmill and large mansion once existed somewhere on the property. A preliminary archaeological survey (walk through) was done during facilities planning and no remains were seen. How would you approach the problem of its potential historical significance?</p> <p>The grantee must document that the National Register of Historic Places has been adequately reviewed. The state or federal reviewer will obtain advice from the State Historic Preservation Officer (SHPO). Depending on the SHPO advice a more detailed investigation by a qualified archaeologist may or may not have to be done. Additional investigations (perhaps preliminary digs) may require a grant amendment to cover the costs.</p> <p>The procedures to identify and investigate archaeological or cultural resources vary from state to state. Therefore, the instructor will modify his discussion of this question to the specific procedures of the state.</p> <p><u>Summary of Case Study:</u></p> <p>The case study was based on a real project and approved by the state agency. EPA reviewed the project and determined that an environmental impact statement should be done. The project has been in progress for seven years and as of this date (March, 1980) the facilities plan has not been approved. How could this fiasco have been avoided? Communi-</p> | |

Lesson Outline #5

Question
& Answer
Location

cations and contact between the regulatory agencies (state or EPA) and the grantee or his consultant. The case study indicates that although EPA had published regulations, handbooks, guidelines, etc. and the state may have distributed these materials, neither the grantee nor his engineer read and/or understood what they read.

Construction grants regulatory personnel have an obligation to manage their projects. One aspect of managing projects is to make periodic contact with the grantees to review progress, problems, misunderstandings, etc. While it cannot be said with absolute assurance, it is very likely that the project discussed in this case study could have avoided the preparation of an EIS had better communications taken place with the grantee.

INSTRUCTOR LESSON PLAN 6

Topic #6: STEP 1 GRANT PROCESSING

Objective: The students must be aware of the many construction grants publications published by EPA, be able to define an eligible applicant, be able to conduct a preapplication conference, and know how to review and process Step 1 project applications.

| | | |
|-------------------------------|--------|-------|
| Videotape Running Time: | Part 1 | 25:24 |
| | Part 2 | 26:49 |
| | Part 3 | 27:08 |
| | Part 4 | 28:40 |

| | |
|----------------------------|---|
| Required Equipment: | Color television and 3/4" U-Matic video cassette recorder |
|----------------------------|---|

Lesson Outline

Question
& Answer
Location

Introduction:

In lesson plan 4 students were exposed to the complex details of facilities planning. As the Step 1 grant processing lesson is presented the instructor points out those items which are potential problems or areas of delay. In this manner students will be aware of the items to emphasize at a preapplication conference or to be critically reviewed in the application package.

I. Preapplication Information

A. General

1. Be aware of and distribute to applicants information published by EPA and state agencies including handbooks (particularly MCD-04), guidelines, rules and regulations, etc.

NOTE: The instructor holds up and displays a copy of "How to Obtain Federal Grants to Build Municipal Wastewater Treatment Works" (MCD-04). This publication, published by EPA, has been specifically written for municipal (lay) officials. It is written in easily understood language and attempts to minimize references to regulations or other documents. The objective of this publication is to get municipal officials involved in their project and not leave it just to the "professionals."

| Lesson Outline #6 | Question & Answer Location |
|---|---|
| <p>2. Most desirable to meet with applicant, state and consultant at preapplication conference (consultant may or may not be present)</p> <p><u>NOTE:</u> The instructor notes that technically the applicant's consultant should not be at the preapplication conference since the applicant should not have hired a consultant at this point. However, the applicant may have satisfied EPA's procurement requirements and it is possible that the consultant will be present.</p> <p>B. Applicant eligibility</p> <ol style="list-style-type: none"> 1. Public body created under state law which has as one of its responsibilities the treatment, transport or disposal of liquid wastes of the general public in a particular geographic area 2. Must have authority to plan, design, construct, finance, operate and maintain treatment works under state law or have reasonable expectation of doing so 3. Does not include airport, turnpike, port facility or other municipal utility such as school or park districts, water treatment works nor power plants 4. Clean Water Act of 1977 permits grants for privately owned treatment works serving principal residences or small commercial establishments constructed and inhabited prior to December 27, 1977; however, applicant must be a public body, as defined above, applying on behalf of a number of individual units <p>C. Preapplication conference</p> <ol style="list-style-type: none"> 1. Include state, applicant, and ideally consultant 2. Clarify which functions, if any, have been delegated to state and establish lines of communication 3. Discuss three step process but emphasize plan of study (POS) and facilities plan | <p>Q & A 1 & 2</p> <p>Q & A 3</p> |

| Lesson Outline #6 | Question & Answer Location |
|---|----------------------------|
| <p><u>NOTE:</u> The specific items listed below in 4. are recommendations of subjects to be discussed at a preapplication conference. Many states or EPA regional offices have checklists or outlines for preapplication conferences. In this case, the students should use prescribed form. In any case, the students will be advised to discuss <u>only</u> those items applicable to the specific project in order not to overwhelm and confuse the applicant. For example, if a project is for upgrading of a treatment plant (no extension of collection system or expansion of the treatment plant), it will not be necessary to discuss the collection system limitations or on-site disposal systems.</p> <p>4. Specific items to discuss</p> <p>a. Important dates</p> <ul style="list-style-type: none"> (1) 10/18/72 - P.L. 92-500 passage, collection systems (35.925-13[a]) (2) 12/27/77 - P.L. 95-217 passage, privately owned systems (35.918-1[a]) (3) 9/30/78 - I & A requirements, primary energy and open space opportunities (35.917[d][8], [9]) (4) 6/30/79 - UC/ICR systems approved before award of Step 3 grant (35.935-13[c], 15[c]) (5) 10/1/79 - Compliance with approved WQM plans (35.917[e]) (6) 12/31/80 - Certain pretreatment requirements met before Step 2 grant award (35.920-3[b][9]) (7) 12/31/81 - All pretreatment requirements met before Step 3 grant award (35.920-3[c][4]) <p><u>NOTE:</u> A/E procurement is not discussed at this point but is discussed in greater detail later in the grant application review. However the applicant must be made aware of the importance of A/E procurement and the satisfaction of MBE goals. Therefore, this is one item to stress at the preapplication conference.</p> | |

| Lesson Outline #6 | Question & Answer Location |
|--|----------------------------|
| <p>b. Contracts for architectural/engineering (A/E) services, including type of contract and procurement procedures (emphasize Minority Business Enterprises [MBE] participation per 40 CFR 35.936-7)</p> | <p>End Part 1</p> |
| <p>c. Administrative requirements</p> <ul style="list-style-type: none"> (1) Application and supporting documents (2) A-95 clearinghouse reviews (3) Prior costs <p><u>NOTE:</u> The instructor indicates that fewer and fewer projects are being submitted which have allowable prior costs. Important dates are April 1, 1980 and April 1, 1981 and the classroom instructor may wish to review 40 CFR 35.925-18 before discussing this item.</p> <ul style="list-style-type: none"> (4) Force account (5) Intermunicipal agreements (6) Nonfederal share of funds (7) Priority list (8) Recordkeeping (9) Limitations on collection systems (10) User charge/industrial cost recovery (UC/ICR), ad valorem taxes (a tax based on property value) (11) Public participation (12) Civil Rights Act of 1964 (13) Small alternative wastewater systems (14) Coordination of grant funding with other federal agencies (FHA, EDA, HUD) (15) Payment requests <p>d. Technical requirements</p> <ul style="list-style-type: none"> (1) Degree of detail in Plan of Study (POS) and Facilities Plan | <p>Start Part 2</p> |

| Lesson Outline #6 | Question & Answer Location |
|---|----------------------------------|
| <p><u>NOTE:</u> EPA regional offices have been observed to vary the amount of detail they wish to see in a POS and FP. However, the point to be made is to tell the applicant and/or his consultant how much detail is expected in the POS and FP in order to preclude future correspondence, time delays and disagreements. Some regions expect the facilities plan to contain a detailed engineering design report for the selected plan. Others will accept lesser details. No matter what the regional policy is, it should be explained to the applicant at the preapplication conference.</p> <ul style="list-style-type: none"> (2) Project tasks and costs in POS including a public participation work plan (3) Weir overflow rates, BOD loadings, etc. in facilities plan (4) Unique features, historical and archaeological (5) Cost-effectiveness (including innovative and alternative technology and energy requirements for Step 1 projects begun after 9/30/78) (6) Sewer system evaluation, infiltration/inflow (I/I), sewer system evaluation survey (SSES), and rehabilitation (7) Environmental information document (EID) as part of the facilities plan (8) Pretreatment and incompatible wastes (9) Compliance with NPDES permit (10) Waste treatment management techniques; BPWTT for <ul style="list-style-type: none"> - Treat and discharge - Land disposal (heavy) - Recycle, reuse - Revenue generating systems (11) Potential opportunities for recreation and open space (12) Estimated project cost and user charges (13) Other federal requirements - flood insurance, hometown plan, Davis Bacon (minimum wage), scenic rivers, etc. | |
| Start | End Part 2 Part 3 |

Lesson Outline #6

Question
& Answer
Location

NOTE: The instructor indicates that the preapplication conference may be the first contact with an applicant. Therefore, it is of utmost importance that applicable requirements be explained in clear, concise language.

II. Application Review and Grant Offer Preparation

A. Application package contents

NOTE: The instructor briefly lists the items to be included in the application package. Later each item is discussed in detail.

1. Plan of study
2. A-95 clearinghouse comments
3. Application form (5700-32)
4. Proposed or actual subagreements (generally engineering agreements)
5. Application submitted to state for review, approval and issuance of priority certification

NOTE: The next item to be discussed in detail is the plan of study. The instructor points out that the POS is the most important item in the application. Also, the cost of preparation of a POS is not grant eligible and this has created some conflicts. Most smaller communities ask their engineers to prepare the POS. In theory the engineer should not have been hired at this point. However, some communities pay the engineers with local funds to prepare the POS. The regulations require four items to be included in the POS as shown below. At first glance these items appear simple, but they can be rather complex. EPA regional offices and state agencies vary in the amount of detail they require in the POS. This is why the point of "degree of detail" was emphasized in the preapplication conference discussion. The instructor again makes the point that the state or EPA personnel need to advise the applicant the level of detail they require in the POS. The instructor holds up and displays a copy of "Model Plan of Study" (MCD-24) which students will provide to the applicant as a guide to fulfilling the regulatory requirements.

| Lesson Outline #6 | Question & Answer Location |
|---|----------------------------------|
| <p>B. Plan of study - regulations require four items</p> <ol style="list-style-type: none"> 1. Designation of planning area - generally a map (USGS, for example) 2. Identification of planning entity and agreement between entities when more than one involved 3. Nature and scope of project including schedule of tasks and public participation program 4. Itemization of costs - generally by task <p>C. Processing of application</p> <ol style="list-style-type: none"> 1. Plan of study must <ol style="list-style-type: none"> a. Demonstrate applicant understands requirements - after 9/30/78 particular attention must be given to <ol style="list-style-type: none"> (1) Innovative and alternative technology alternatives (2) Recreational and open space opportunities (3) On-site and small alternative wastewater treatment systems (4) Energy requirements (5) Pretreatment requirements b. Contain a payment schedule as appropriate c. Agree with state designated boundaries d. Comply with requirements of WQM plans e. Agree with requirements of NPDES permit if issued f. Include prior costs, if any, with explanation g. Demonstrate resolution of conflicts with any of above h. Be circulated to other branches for review and concurrence (EIS Branch, Enforcement Branch, Planning Branch, etc.) <p><u>NOTE:</u> In discussing the A-95 review process, the instructor indicates that there is nothing magic about the number A-95. It happens that this is the numbering system used by the Office of Management and Budget (OMB), and for lack of a better name "A-95" has been attached to this review procedure. The object of the A-95 review is to insure that coordination is provided between and among many of the state, federal and local activities that take place in a specific area. For example, we do not</p> | <p>Q & A 4</p> |

wish to see a POTW located on the same site as a nuclear power plant through which an interstate highway is proposed. Also, the level of review and the comments provided by the A-95 clearinghouses vary from meaningful comments to nothing.

2. Clearinghouse comments (A-95)

- a. OMB circular A-95 established procedures
- b. Generally grantee submits POS to clearinghouse
- c. Adverse comments must be addressed and resolved

NOTE: In discussing the priority certification form the instructor points that the state prepares it and the EPA reviews it. The discussion below is for the EPA reviewer.

3. Priority certification

- a. Properly signed by state
- b. Project included on approved state priority list
(unless funded from 10% reserve) and certified as
being entitled to priority for grant over all other
projects below it
- c. Name, description and all other data agree with POS
and application form

4. Application form (5700-32)

- a. Applicant must have authority to plan, design,
finance, construct, operate and maintain wastewater
treatment facilities under state law

NOTE: Generally, the attorney for the municipality will cite the state statute which provides authority of the applicant to plan, design, etc. Students need to be familiar with the state statutes to insure the applicant does in fact have this authority.

- b. Site requirements not necessary

NOTE: At the Step 1 stage, the applicant does not know what his final project will be and, therefore, cannot address the interests he has in the site. This information, therefore, is not necessary at this stage of the grant process.

| Lesson Outline #6 | Question & Answer Location |
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| <p>c. Funding assurances for nonfederal share</p> <p><u>NOTE:</u> The grantee may use local funds for his portion of the project or may show funds from other sources (FmHA, EDA, ARC, etc.). Also, the applicant may show a state grant or revenue sharing funds to offset the local cost. In any case, students need to be assured that the other sources of funds are available or that a firm commitment exists for these funds.</p> <p>d. Part V assurances must be attached</p> <p><u>NOTE:</u> The applicant assurances are contained in Part V of the application (EPA form 5700-32). Some regions have noted that applicants remove this page from the application. In this case, the regions have sent a letter with page 11 to the applicant requesting acknowledgement and the signature of the authorized official.</p> <p>e. Resolution authorizing official to sign</p> <p>f. Reviewer will insure all costs requested for grant participation are allowable (see MCD-03, Chapter VII)</p> | <p>Q & A 5 - 7</p> <p>End Part 3</p> |
| <p><u>NOTE:</u> The next subject is subagreements and generally refers to A/E procurement. The instructor discusses this complex subject in detail. Special emphasis is given to minority business enterprises goals and requirements as they relate both to the applicant and his engineer. It should also be noted that the regulations allow a grant offer to be made in the absence of an engineering agreement if the applicant describes how he will procure engineering services in accordance with EPA's regulations. However, the material below assumes that the procurement procedures have taken place and an explanation of the procedures used and a proposed engineering subagreement are submitted for review.</p> <p>It is important to point out that the regulations do not require competitive bidding but do allow the comparison of prices at the applicant's option (tantamount to competitive bidding). The instructor discusses advertising, review of qualifications statements, requests for detailed proposals</p> | <p>Start Part 4</p> |

| Lesson Outline #6 | Question & Answer Location |
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| <p>including prices, interviews of candidate firms, negotiation of prices and selection procedures. It is important that the grantee documents the procedures used in procuring A/E or other professionals. Highlighted requirements for procurement are listed below and included in the students' outline. A complete discussion of procurement is included here but is not discussed in detail later in the Step 2 and Step 3 grant processing procedures.</p> <p>5. Subagreements (or intended method of awarding subagreements)</p> <ul style="list-style-type: none"> a. Satisfaction of procurement regulations (40 CFR 35.936, ,937) b. Percent of construction not allowed c. Appendix C-1 to be included in subagreements (see 40 CFR Part 35, Subpart E) d. Include EPA form 5700-41 showing profit e. Must include completion schedules, method of payment f. Must demonstrate satisfaction of MBE requirements <p>D. Grant award procedures</p> <ul style="list-style-type: none"> 1. Complete agreement per Grants Administration Manual <p><u>NOTE:</u> The "Handbook of Procedures" (MCD-03) provides some detail on the procedures to be followed in awarding grants. However, the "Grants Administration Manual" provides much greater detail on how to complete each item of each form. Therefore, the instructor points out to those students working in grants administration that they should obtain a copy of and become familiar with the "Grants Administration Manual."</p> <p><u>NOTE:</u> The next topic addresses regional or state internal procedures which vary from state to state, region to region. Three example regional procedures are listed below, and the classroom instructor may wish to supplement these with the specific regional procedures if these are known.</p> <p>2. Regional and state procedures such as</p> <ul style="list-style-type: none"> a. Notify financial management branch b. Prepare briefing memos for Regional Administrator c. Preparation of transmittal letters to state, applicant, consultant, etc. | <p>Q & A 8 & 9</p> |

| Lesson Outline #6 | Question & Answer Location |
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| <p>3. Complete EPA form 5700-1B and transmit to headquarters for advance (5 days) congressional notification</p> <p><u>NOTE:</u> The instructor cautions students not to confirm to an applicant nor his engineer that a grant offer has been signed by the Regional Administrator. The congressional liaison office is very strict about providing five days advance notice to congressional representatives prior to EPA official announcement.</p> <p>4. Complete Government Information Control System (GICS) coding sheets</p> <p><u>NOTE:</u> The instructor discusses the Government Information Control System (GICS) and indicates its importance as a management tool. GICS contains a complete tracking history of all projects indicating future milestones, completed items, etc. The print-outs may be used to "manage" projects and reallocate resources in the event that more projects are in Step 2 or Step 3, etc. However, as with all computer data systems, the output information is only as good as the care and timeliness of the information put into the system. Therefore, students are encouraged to keep the GICS up to date and utilize this information to manage their projects.</p> <p>5. Clearinghouse notification (if required) both A-95 and Treasury Department Circular No. 1082</p> <p>E. Grant agreement/amendment</p> <ol style="list-style-type: none"> 1. EPA form 5700-20 2. Contract between grantee and EPA . <p><u>NOTE:</u> The instructor points out that when a grant offer is made and accepted it forms a contract between the grantee and EPA. This contract constitutes an "obligation" on the part of EPA to reimburse the grantee for work completed on the project. The obligation of funds means that these funds have been set aside for that project and will not be lost at the end of the appropriation period. However, no cash has changed hands as yet. EPA makes payments of grant funds <u>only</u> for work that has been completed, i.e., not advance payments. This point is emphasized since some grantees expect payment of the grant funds before they incur debts.</p> | |

| Lesson Outline #6 | Question & Answer Location |
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| <p>3. Must define scope of project</p> <p>4. Contain special conditions, if any</p> <p><u>NOTE:</u> Special conditions contained in the grant offer vary widely depending on the nature of the project. A few typical examples are: requirements of the clearinghouse; requests for specialized procedures from the state agency; archaeological investigations; contact with the Department of Interior for rare or endangered species identified in the POS; etc.</p> <p>5. Require grantee to complete "Summary of Costs of Planned Treatment Works Scheduled by Project and Category"</p> <p>6. Grantee has three weeks to accept</p> <p>7. Official signing grant offer must be same as designated or submit new resolution</p> <p>Summary:</p> <p>Students have been exposed to the complexities involved in preparing and reviewing facilities plans. In reviewing and processing a Step 1 application, the reviewer must insure that the applicant fully understands the requirements for facilities planning as described in the Plan of Study. In addition, the applicant must clearly understand his responsibilities for maintaining accurate records, procurement of professional services and the need to conduct an active public participation program. The applicant's first and most influential exposure to these items will take place at the preapplication conference. Thereafter, the reviewer has a responsibility to manage the project and follow up with the grantee.</p> | <p>Q & A 10 & 11</p> <p>End Part 4</p> |
| | |

QUIZ - TOPIC #6

Step 1 Grant Processing

1. A sewage treatment plant owned and operated exclusively by an airport authority is a grant eligible payment. True or False
2. An individual homeowner may apply for a grant to repair his/her privately owned septic tank. True or False
3. At a preapplication conference should the requirements for a plan of operation be emphasized?
4. List the four regulatory elements of a plan of study.
5. Are the costs of preparing the application and POS allowable for grant participation?
6. Must a project be included on the state's priority list by name before a grant can be made?
7. The applicant must show in the application form or other documents the source of funds for the local share. True or False
8. An engineer's contract shows that his fee is a percentage of construction costs in accordance with the American Society of Civil Engineers' fee schedule. Is this acceptable?
9. May the applicant merely state in a letter that there are no MBE firms interested in the project?
10. Once the grant offer is signed by the Regional Administrator of EPA, may it be mailed to the grantee?

Topic #6 Quiz (Cont'd.)

11. Once a grant offer is accepted by the grantee, 10% of the grant funds may be paid to the grantee. True or False

ANSWERS - TOPIC #6

1. False
2. False
3. No - Primary emphasis should be placed on the Step 1 requirements of facilities planning.
4. (1) planning area (map); (2) planning entity; (3) scope of project; (4) itemized costs
5. No
6. Generally yes unless the state has opted for setting aside 10% for Step 1 or 2 projects.
7. True
8. No - Percentage of construction costs not allowed; generally cost plus fixed fee or fixed price type contracts are used.
9. No - The grantee must take positive actions to solicit MBE firms and document these actions.
10. No - Must wait 5 days for congressional notification.
11. False - Grant payments are made only to reimburse grantee for costs incurred; no advance payment.

INSTRUCTOR LESSON PLAN 7

Topic #7: STEP 2 GRANT PROCESSING

Objective: Students must know the requirements for and contents of a Step 2 grant application, be able to conduct a predesign conference, and know how to review and process Step 2 project applications.

Videotape Part 1 26:36
Running Part 2 23:53
Time: Part 3 28:39

Required Color television and
Equipment: 3/4" U-Matic video
cassette recorder

Lesson Outline

Question
& Answer
Location

Introduction:

This topic discusses the technical and administrative requirements of processing a Step 2 and Step 2+3 grant application. Later topics discuss the review of the work performed by the grantee under the Step 2 or Step 2+3 grant. Therefore, this topic is relatively brief and includes some material that was discussed in the Step 1 grant processing (A-95 clearinghouse comments, priority certification, etc.). The instructor briefly reviews the duplicate materials but places most of the emphasis on the newer materials.

1. Type of Step 2 Grant Projects

- A. General - In general most applicants will have applied for and received a Step 1 grant prior to applying for a Step 2 grant. However, exceptional projects are sometimes discovered for which some or all of the Step 1 work was initiated prior to a grant. These older or "woodwork" projects are discussed below indicating important dates and the requirement that "all allowable costs incurred before initiation of construction of the project must be claimed in the application for grant assistance for that project before the award of the assistance

| Lesson Outline #7 | Question & Answer Location |
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| <p>or no subsequent payment will be made for the costs" (40 CFR 35.945, .925-18). In other words grantees are required to claim all prior costs in their first application or else these costs will be considered nonallowable.</p> <p>B. Projects not previously funded</p> <ol style="list-style-type: none"> 1. Project work begun after 10/31/74 but before 6/30/75 <ul style="list-style-type: none"> - Must have had an approved plan of study or facilities plan (in accordance with applicable regulations at that time) - Must obtain Step 2 grant before 4/1/81 - Prior costs may be allowable for grant participation 2. Project work begun before 11/1/74 <ul style="list-style-type: none"> - Must obtain Step 2 grant before 4/1/80 - Prior costs may be allowable for grant participation <p><u>NOTE:</u> The instructor indicates that there are fewer and fewer projects not previously funded as time goes on. However, the dates described above are primarily directed toward limiting these projects and the associated earlier costs. These costs and the work they represent are difficult to document and may not always be pertinent to the proposed projects. Students who are new to the Construction Grants Program will want to discuss these types of projects with their supervisors or other more experienced personnel.</p> <p>C. Projects which are segments of larger projects</p> <ol style="list-style-type: none"> 1. Must insure that the statutory requirements of facilities planning are satisfied 2. Facilities plan must be essentially complete and proposed project is in agreement 3. Applicant must agree to complete facilities plan and/or other segments of project resulting in an operable treatment works meeting the enforceable requirements of the CWA <p>D. Projects which have satisfied Step 1 facilities planning requirements</p> | <p>Q & A 1</p> |

| Lesson Outline #7 | Question & Answer Location |
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| <p>II. Application Review and Grant Offer Preparation</p> <p>A. Application package contents</p> <ol style="list-style-type: none"> 1. Approved facilities plan - If facilities plan has been previously approved, applicant need only submit copy of approval letter. Proposed project must conform to approved facilities plan and any special conditions of the approval (requirements for further archaeological surveys, for example). 2. Priority certification - prepared by state for submission to EPA 3. Application form <ol style="list-style-type: none"> a. Applicant must have authority to design, finance, construct, operate and maintain wastewater treatment facilities under state law b. Statement (generally legal opinion) regarding the availability of the proposed site or status of necessary easements c. Funding assurances for nonfederal share d. Part V assurances must be attached e. Resolution authorizing official to sign f. Reviewer will insure all costs requested for grant participation are allowable 4. Subagreements (or intended method of awarding subagreements) <p><u>NOTE:</u> The subject of subagreements was discussed in Step 1 grant processing (the preceding topic) and the instructor limits his discussion here. However, Step 2 engineering fees are larger than Step 1 or Step 3 engineering fees and the instructor</p> | |

| Lesson Outline #7 | Question & Answer Location |
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| <p>emphasizes that these costs require careful review on the part of the state and/or federal employee. As of the writing of this Instructor Manual, a recent PRM, 80-2, entitled "Step 2 and Step 3 Architect/Engineer Level of Effort Study" dated December 20, 1979 was issued announcing a computerized program to guide grantees and regulatory reviewers on the reasonableness of these costs. The classroom instructor may wish to follow up on this study in the event more information is available to help train the students. The elements of subagreements are listed below and in the students outlines.</p> <ul style="list-style-type: none"> a. Satisfaction of procurement regulations (40 CFR 35.936, .937) b. Percentage of construction cost not allowed c. Appendix C-1 to be included in subagreements d. Include EPA form 5700-41 showing profit e. Must include completion schedules, methods of payment f. Must demonstrate satisfaction of MBE requirements <p>5. Intermunicipal agreements</p> <ul style="list-style-type: none"> a. Regional Administrator will determine if inter-municipal agreements must be executed or proposed at the time of Step 2 grant application b. Must agree with the institutional considerations contained in the approved facilities plan <p><u>NOTE:</u> The instructor emphasizes that intermunicipal agreements have been a major factor in causing project delays. For some reason (whether new officials are elected or are running for office) intermunicipal agreements have a way of becoming quite controversial thereby causing delays. The instructor points out that EPA does not want to see a Step 2 grant used to design a project only to find out that the participating municipalities could not come to agreement on the project.</p> <p>6. Value engineering proposal</p> | <p>Q & A 2</p> |

| Lesson Outline #7 | Question & Answer Location |
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| <p>a. Required for all Step 2 projects for which Step 3 total estimated costs are expected to be \$10 million or greater</p> <p>b. May be done by a firm specializing in VE analysis or by A/E selected to design project. In latter case VE interdisciplinary team must be different from original design team</p> <p>c. Scope, team makeup, level of effort and schedule must be commensurate with complexity of project</p> <p>d. Costs and profits for VE services must be shown separately</p> <p>NOTE: The instructor briefly describes the objectives and components of a VE analysis. Two publications have been produced by EPA and the classroom instructor may wish to point these out to students (MCD-27 and 29). Also, as a simple example of VE for the nontechnical personnel, the classroom instructor may wish to use a small bar of soap as found in most hotel/motels where the center part of the soap bar is indented. Items such as objective of soap - wash, throw away, most economical size, cannot be too small but do not need all the soap, etc. - may be discussed as an analogy of the type of reviews conducted for each component part of a treatment plant.</p> | <p>Q & A 3</p> <p>End Part 1</p> |
| <p>7. Project progress and payment schedule</p> <p>a. Reasonable and include milestones</p> <p>b. Complies with NPDES</p> <p>8. Evidence of compliance with</p> <p>a. User charges - plan and schedule for completion of user charge system prior to Step 3 grant award</p> <p>b. Industrial cost recovery - where applicable, plan and schedule for completion of ICR system prior to Step 3 grant award; letters of intent from significant</p> | <p>Start Part 2</p> |

| Lesson Outline #7 | Question & Answer Location |
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| <p data-bbox="517 239 1353 365">Industrial users (10% or more of design waste flow or strength) indicating agreement to pay their share and intended period of use of treatment facility</p> <p data-bbox="256 438 1385 627"><u>NOTE:</u> The instructor indicates that the CWA placed a moratorium on the implementation of ICR systems until June 30, 1979 (later extended to June 30, 1980). The moratorium delays the implementation or collection of funds from industrial users but does not delay the development of the ICR system. This point is often misunderstood by grantees and new regulatory personnel.</p> <ul style="list-style-type: none"> <li data-bbox="448 697 1334 869">c. Sewer use ordinance - applicant must assure that a sewer use ordinance prohibiting illegal connections and construction of new connections will be enacted prior to completion of construction <li data-bbox="448 890 1334 1121">d. Relocation requirements - if project will result in acquisition of private property or displacement of persons, applicant must provide assurance of compliance with the Uniform Relocation Assistance and Real Property Acquisitions Act <li data-bbox="448 1142 1299 1215">e. Civil rights provisions - completion of EPA forms 4700-1 and 4700-4 <li data-bbox="448 1236 1385 1415">f. Section 404/Section 10 permits - if project involves the discharge of dredge or fill material either the permit(s) must be issued (by U. S. Army COE) or indication that COE is prepared to issue such permit(s) <p data-bbox="363 1436 1318 1709">9. Pretreatment requirements - For Step 2 grants made after 12/31/80 the applicant must have satisfied the pretreatment requirements of 40 CFR Part 403 for industrial contributors. This will have been done as a part of facilities planning or as an amendment to the Step 1 grant. The issues to be addressed in a pretreatment</p> | <p data-bbox="1401 1320 1490 1373">Q & A 4 & 5</p> |

Lesson Outline #7

Question
& Answer
Location

program include

- a. Industrial survey
- b. Legal authority of applicant to enforce requirements
- c. Revenue sources to carry out program
- d. Determination of technical information needed for development and enforcement of program
- e. Monitoring program
- f. Pollutant removals in existing facilities
- g. Determination of monitoring equipment
- h. Determination of tolerance of treatment facilities to toxic pollutants
- i. Determination of equipment needed to analyze industrial wastes

NOTE: The instructor indicates that the pretreatment program and regulations are in the process (as of January 1, 1980) of being implemented. As the program develops, more and more work will be required on the part of grantees necessitating additional reviews on the part of regulatory personnel. Students need to keep up to date with the latest requirements for satisfying the pretreatment regulations.

10. Public participation work plan - if necessary a continuing public participation program may be included in the Step 2 project and the application must include the costs and work plan for this element

Q & A
6

End
Part 2

B. Combination Step 2+3 grants

1. Limitations

- Community population of 25,000 or less

Start
Part 3

| Lesson Outline #7 | Question & Answer Location |
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| <ul style="list-style-type: none"> - Construction cost estimated at \$4 million or less (\$5 million or less in states with unusually high construction costs) - Satisfy all Step 1 requirements and Step 2 application requirements above <p>2. Additional requirements</p> <ul style="list-style-type: none"> - Step 3 construction estimate - Schedule for submission of P&S, UC/ICR systems, sewer use ordinance, plan of operation including O&M manual <p><u>NOTE:</u> The instructor indicates that a combined Step 2+3 grant in essence must satisfy all of the requirements for both Step 2 and Step 3 grants individually. The objective, however, is to accelerate the grant processing procedures for smaller communities. The topics to be discussed later, such as procurement of construction contracts, are also applicable to combined Step 2+3 grants.</p> <p><u>NOTE:</u> The grant award procedures and grant agreement/amendment (next two items below) for a Step 2 or combination Step 2+3 grant are identical to those discussed in lesson plan 6. The key elements are included below for ease of reference.</p> <p>C. Grant award procedures</p> <ol style="list-style-type: none"> 1. Complete agreement per Grants Administration Manual 2. Regional and state procedures such as <ol style="list-style-type: none"> a. Notify financial management branch b. Prepare briefing memos for RA c. Preparation of transmittal letters to state, applicant, consultant, etc. 3. Complete EPA form 5700-1B and transmit to headquarters for advance (5 days) congressional notification | <p>Q & A 7</p> |

| Lesson Outline #7 | Question & Answer Location |
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| <p>4. Complete GICS coding sheets</p> <p>5. Clearinghouse notification</p> <p>D. Grant agreement/amendment</p> <ol style="list-style-type: none"> 1. EPA form 5700-20 2. Contract between grantee and EPA 3. Must define scope of project 4. Contain special conditions, if any <p><u>NOTE:</u> The instructor indicates that any mitigative environmental measures addressed in the approved facilities plan may be specifically pointed out as a special condition to insure their consideration in the project design.</p> <ol style="list-style-type: none"> 5. Require grantee to complete "Summary of Costs of Planned Treatment Works Scheduled by Project and Category" 6. Grantee has 3 weeks to accept 7. Official signing grant offer must be same as designated or submit new resolution <p>III. Predesign Conference</p> <p>A. General</p> <ol style="list-style-type: none"> 1. Predesign conference is optional but encouraged 2. Opportunity to review administrative and technical requirements of Step 2 project with grantee and consultant <p><u>NOTE:</u> The following list are items which may be discussed at the predesign conference. The instructor indicates that many states and EPA regions have checklists or forms for conducting a predesign conference. These checklists should</p> | <p>Q & A 8</p> |

| Lesson Outline #7 | Question & Answer Location |
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| <p>be used where applicable but may include:</p> <p>B. Discussion items</p> <ol style="list-style-type: none"> 1. Bidding procedures, contract documents and inclusion of 40 CFR 35.936, .938, .939 and Appendix C-2 in specifications 2. Minority Business Enterprise (MBE) goals and requirements 3. Design considerations beyond those shown in approved facilities plan (F/M ratios, system head curves, etc.) 4. Pretreatment design considerations 5. Environmental considerations (soil erosion and sediment plans, traffic control plan, archaeological surveys, etc.) 6. Intermunicipal agreements 7. Phasing of contracts 8. Flood protection insurance requirements 9. Record of costs 10. Site acquisition and easements 11. UC/ICR, sewer use ordinance, SSES scheduling (as applicable), plan of operation, and O&M manual 12. VE analysis 13. Construction management 14. Incentive clauses in construction contracts 15. "Or equal" and buy American provisions 16. Eligible and ineligible cost separation in bid proposal 17. Local funding and sale of bonds <p>Summary:</p> <p>While processing of a Step 2 application includes activities which were also discussed in Step 1 grant processing, the additional and new requirements for VE analysis, UC/ICR, pretreatment requirements must be clearly understood by the grantee if delays are to be avoided.</p> | <p>Q & A 9 & 10</p> <p>End Part 3</p> |
| | |

QUIZ - TOPIC #7

Step 2 Grant Processing

1. May a Step 2 grant be made for a segment of a larger project?
2. An executed intermunicipal agreement must be submitted with the application form. True or False
3. The costs of a value engineering analysis must be included with each application. True or False
4. Costs for developing a user charge and industrial cost recovery system must be included in all Step 2 applications. True or False
5. Grantees need not develop an industrial cost recovery system until after June 30, 1980 because of the moratorium. True or False
6. A pretreatment program must be completed for all Step 2 applications. True or False
7. Combination Step 2+3 grants may be requested at the grantee's option. True or False
8. Industrial contributors with flows greater than 10% of the design capacity need to submit a letter of intent to the grantee. True or False

Topic #7 Quiz (Cont'd.)

9. A predesign conference is mandatory. True or False

10. Archaeological investigations may be an allowable cost of the Step 2 activities. True or False

ANSWERS - TOPIC #7

1. Yes - Provided facilities planning requirements met, facilities plan essentially complete and applicant agrees to complete remaining projects resulting in operable treatment works.
2. False - Regional Administrator of EPA will determine if required on a case-by-case basis.
3. False - Required only for projects with estimated construction costs in excess of \$5 million.
4. True - For all Step 2 grants made after June 30, 1979.
5. False - The system must be developed; the moratorium only delayed collection and return of funds to U.S. Treasury until June 30, 1980.
6. False - Only for Step 2 grants made after June 30, 1980; earlier projects may complete pretreatment programs during Step 2 activities or as a Step 1 grant amendment.
7. False - Only for communities under 25,000 population and projects less than \$2 million (\$3 million in some states).
8. True
9. False - Predesign conferences are optional although strongly encouraged by EPA; could possibly be required in delegation agreement.
10. True - Provided further investigations were recommended and approved in the Step 1 project.

INSTRUCTOR LESSON PLAN 8

| Topic #8: PROBLEMS AND DELAYS DURING STEP 2 | | |
|---|----------------------------|---|
| Objective: The students should be made aware of those common problems which are encountered during the Step 2 phases of the project. | | |
| Videotape Running Time: Part 1 19:05 | Required Equipment: | Color television and 3/4" U-Matic video cassette recorder |
| Lesson Outline | | Question & Answer Location |
| <p>Introduction:</p> <p>The intent of this topic is to alert students to some of the more common problems encountered during the Step 2 project which very often result in project delays. Knowing these problems, students may emphasize them at a predesign conference (last items in preceding topic) by separate letter to the grantee or by meetings with the grantee and his consultant during the Step 2 project.</p> <p>The classroom instructor will add to or delete from the items discussed below based on his/her own experiences. As a means of assistance, the instructor has provided a brief discussion of his experiences.</p> <p>I. Known Problems</p> <p>A. Incomplete submissions</p> <p>NOTE: For projects that did not receive a Step 1 grant, very often the applicant forgets or is not aware to include <u>all</u> prior costs with the first application. Later this creates bad feelings when the grantee discovers that these costs may have been allowable if he had applied for them with his <u>first</u> application. Also, for the older projects engineering subagreements may not conform</p> | | |

Lesson Outline #8

Question
& Answer
Location

to the present procurement regulations. In this case, considerable time may be lost while renegotiating a new contract or agreeing to how the costs may be handled. For engineering agreements that predate the procurement procedures (12/17/75) the classroom instructor may wish to review Appendix D to 40 CFR Part 35 entitled "EPA Transition Policy - Existing Consulting Engineering Agreements." In general, however, the complex issues of "Existing Consulting Engineering Agreements" is beyond the scope of material to be discussed in this introductory course. Rather, the classroom instructor will alert the students to this potential problem and suggest he/she seek assistance from a more experienced coworker.

B. Intermunicipal agreements

NOTE: Of all the items which have created delays, intermunicipal agreements appear to be the worst. While applicants are not required (unless determined to be by the Regional Administrator) to have executed intermunicipal agreements, they must, at a minimum, submit proposed agreements. These must be carefully reviewed, keeping in mind that neither the federal or state governments want to pay for the design of a project that may not be built due to lack of agreement between participating municipalities. There is no specific criteria for the reviewer to use in making an evaluation other than common sense and good judgement. When doubts exist, the reviewer has the regulatory prerogative to make inquiries or request additional information.

C. Easements and site acquisition

NOTE: The application form requests a statement (generally by legal counsel) regarding the availability of proposed sites and the status of necessary easements. Easement and site acquisition can be time consuming procedures, particularly when disputes arise. Also, if the applicant has and must exercise his right of eminent domain, delays may be encountered. Therefore, the reviewer needs to review closely the applicant's response to this subject and provide guidance to insure that when the project is ready for bid (Step 3) the easements and sites are available. In the event that the project involves a land treatment process, in which case the land costs are allowable for federal grant participation, special care must be taken to insure that the land purchase procedures, including the federal interest, are carried out properly. Finally, if the land purchase involves the relocation of people, special

| Lesson Outline #8 | Question & Answer Location |
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| <p>procedures need to be followed in accordance with the Uniform Relocation Assistance and Real Property Acquisition Act.</p> <p>D. Value engineering</p> <p><u>NOTE:</u> Many grantees do not understand the purpose and requirements for value engineering analysis. Therefore, the cost of this service is often not included in the application. For those projects which require a VE analysis the reviewer must insure that the applicant includes the costs in his application.</p> <p>E. UC/ICR (as of 6/30/79 systems must be approved <u>prior</u> to Step 3 grant)</p> <p><u>NOTE:</u> This is a change in the regulations resulting from the passage of P.L. 95-217. (Prior to P.L. 95-217 UC/ICR did not have to be completed until the 80% Step 3 construction stage.) While this has not been a problem to date, the fact that UC/ICR systems must be developed during Step 2 activities has the potential of causing delays. The costs for these studies must, therefore, be included in the Step 2 application and generally in the scope and costs of the consulting engineer's agreement (sometimes separate subagreements are negotiated with firms specializing in this field).</p> <p>F. Pretreatment requirements (as of 12/31/81 <u>all</u> pretreatment requirements must be satisfied prior to Step 3 grant; see page 100 for details)</p> <p><u>NOTE:</u> This is an entirely new requirement and has the potential for causing delays. If the applicant has not conducted the necessary surveys, determinations, and evaluations during the Step 1 project, they must be done during the Step 2 project. Therefore, costs and schedules for completing pretreatment studies must be carefully reviewed.</p> <p>G. Secondary environmental impacts</p> <ol style="list-style-type: none"> 1. Oversizing 2. Change in population projections | |

| Lesson Outline #8 | Question & Answer Location |
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| <p><u>NOTE:</u> The regulatory requirements and specifically the secondary environmental impacts limitations often cause frustration on the part of those applicants who wish to encourage rapid growth. On a few projects applicants have tried to frustrate these limitations by having their engineers overdesign the projects or increase the population projections. One method of achieving this result is to use conservative design criteria for treatment works (600 gallons/day surface settling rate for primary clarifiers rather than 700 or 800 gallons/day as the process may allow) or to increase peaking factors for interceptor sewer design (4.0 rather than 2.5). Where reviewers are suspicious that this potential exists, they may wish to caution the applicant against it or insure that a rigorous review of the plans (and design engineering reports if necessary) is conducted.</p> <p>II. Avoidance of Problems</p> <p>A. Communication with grantee and consultants during Step 2 activities</p> <p>B. Clear definitions of work required as a consequence of predesign conference and communication</p> <p>Summary:</p> <p>This topic discusses real and potential delays that have been or may be encountered during Step 2 projects. The best cure is prevention. Again, it is the regulatory reviewer's responsibility to manage projects rather than just process papers. Contact with the grantee offers the best hope for success.</p> | <p>End Part 1</p> |
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INSTRUCTOR LESSON PLAN 9

| Topic #9: PLANS AND SPECIFICATIONS REVIEW | | | |
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| Objective: The students need to know administrative and technical requirements for reviewing plans and specifications. | | | |
| Videotape | Part 1 | 21:11 | Required Equipment: Color television and 3/4" U-Matic video cassette recorder |
| Running | Part 2 | 25:31 | |
| Time: | Part 3 | 18:52 | |
| Lesson Outline | | | Question & Answer Location |
| <p>Introduction:</p> <p>This topic is primarily directed toward the engineers working within the Construction Grants Program. The topic is not intended to be a detailed discussion of sanitary, structural, electrical or mechanical engineering design principles. Rather, the topic covers the administrative and contractual contents of the contract documents and a number of technical requirements which have a basis in regulations, PRM's, state design standards or sound engineer practices. The instructor indicates to the students that the material presented is intended to highlight those areas deserving of special attention during the reviews.</p> <p>I. Administrative Review</p> <p>The administrative review insures that bidding documents are in order and that the specifications include any required provisions.</p> <p>A. Bidding documents - must include:</p> <ol style="list-style-type: none"> 1. Statement of work and completion schedule 2. Terms and conditions of contract 3. Method of bidding and basis of award | | | |

| Lesson Outline #9 | Question & Answer Location |
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| <p>4. Criteria for evaluating bidders</p> <p>5. Copy of 40 CFR 35.936, 35.938 and 35.939 (procurement regulations for construction contracts)</p> <p>6. Standard statement concerning the funding of the project by EPA (40 CFR 35.938-4[c][5])</p> <p><u>NOTE:</u> Item B below lists the contents of Appendix C-2 to 40 CFR Part 35. Appendix C-2 is to be included in all contract documents as shown in item 5 above. The grantee satisfies the regulatory requirements by including these items in the specifications. Enforcement and implementation takes place during the Step 3 activities. The instructor discusses these items to the extent deemed necessary, particularly since they are not discussed in later topics.</p> <p>B. Supplemental general provisions - Appendix C-2 (see 40 CFR Part 35, Subpart E)</p> <ol style="list-style-type: none"> 1. Changes, suspension or termination 2. Labor standards 3. Utilization of small or <u>minority business</u> 4. Audit, access to records 5. Price reduction for defective cost or pricing data 6. Covenant against contingent fees 7. Gratuities 8. Patents 9. Copyrights and rights in data 10. Clean air and water clause 11. Buy American provisions (PRM 78-3) <p>C. Other provisions</p> <ol style="list-style-type: none"> 1. Equal Employment Opportunity (EEO) <ol style="list-style-type: none"> a. Must be followed in contracts \$10,000 or greater b. Construction costs greater than \$1 million - need for a preaward compliance review c. Executive Order 11246 and hometown or imposed plans <ul style="list-style-type: none"> - Affirmative action to promote and insure EEO in the work force under the contract | |

| Lesson Outline #9 | Question & Answer Location |
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| <p>d. Reviewer should contact Civil Rights and Urban Affairs office within EPA region for specific instructions</p> <p>2. Davis Bacon Act</p> <p>a. Must be followed in all contracts over \$2,000</p> <p>b. Require payment of prevailing minimum wage for various trades (published weekly in F.R.)</p> <p>c. Modification to wage rates to be included in bidding document</p> <p>3. Flood insurance</p> <p>Contractor is required to obtain the necessary flood insurance during construction where project requires flood insurance</p> <p>4. Bonding and insurance</p> <p>For contracts less than \$100,000 bonding and insurance requirements are determined by state and local practices, otherwise the following minimum bonding and insurance practices must be met:</p> <p>a. Bid bond - 5%</p> <p>b. Performance and payment bond - 100%</p> <p>c. Fire and extended coverage, workmen's compensation, public liability, property damage, "all risk"</p> <p>d. Flood insurance during construction as applicable</p> | <p>Q & A 2 & 4 End Part 1</p> |
| <p>II. Technical Review</p> <p><u>NOTE:</u> The items listed below are taken verbatim from the "Handbook of Procedures" (MCD-Q3) Chapter V pp. V-30 through V-34. Since one of the objectives of the training course is to familiarize the students with reference materials, the classroom instructor may wish to have the students turn to these pages in the handbook to follow the lecture rather than use the student outlines. The handbook has a short paragraph below each item and includes references as appropriate.</p> | <p>Start Part 2</p> |

| Lesson Outline #9 | Question & Answer Location |
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| <p>A. General - is the project design based upon</p> <ol style="list-style-type: none"> 1. The cost-effectiveness provision of the regulations? (Appendix A, 40 CFR Part 35) 2. The achievement of applicable effluent limitations or BPWTT? 3. The sewer system evaluation and rehabilitation requirements (where applicable)? 4. Value engineering provisions (where applicable)? <p>B. Policy of Review - "Structural, electrical and mechanical details of the design are not critically reviewed because they are the responsibility of the engineer whose seal appears on the drawings. However, obvious irregularities should be noted." (MCD-03, Chapter V, p. 30)</p> <p><u>NOTE:</u> The instructor discusses legal problems associated with reviewing the plans and specifications. Approval of P and S by state or federal personnel does not relieve the consulting engineer of his responsibility and liability. Irregularities are to be noted and brought to the attention of the grantee with the expectation that the consulting engineer will make corrections. However, if a consulting engineer refuses to make recommended changes or will only do so if he is relieved of responsibility, the reviewer should seek advice from legal counsel before proceeding.</p> <p>C. Specific items</p> <ol style="list-style-type: none"> 1. Environmental considerations <ol style="list-style-type: none"> a. Compare design and mitigative environmental measures with those in the approved facilities plan or EIS b. Example - erosion control plan, hours of operation, backfilling and seeding, design for buildings in a floodplain 2. Safety <ol style="list-style-type: none"> a. Occupation Safety and Health Act (OSHA) | |

| Lesson Outline #9 | Question & Answer Location |
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| <p><u>NOTE:</u> The subject of OSHA is very controversial. In essence, the specifications are to be written in such a way that all contractors and subcontractors are made responsible for compliance with OSHA regulations. However, enforcement of these regulations presents a problem and generally construction grants reviewers will <u>observe</u> safety provisions and notify OSHA officials where suspected violations occur.</p> <ul style="list-style-type: none"> b. Design of chlorine facilities (compliance with PRM 79-1; storage, ventilation, handling, emergency procedures, glass windows, etc.) c. Explosion-proof motors where appropriate <ul style="list-style-type: none"> 3. Bypassing - none except where prior approval obtained from state and RA 4. Project sign <p><u>NOTE:</u> EPA has provided specifications for a project sign to be used on all EPA funded construction projects. The specifications contain an example drawing using Fairfax County, Virginia, as a project name. The author has seen photographs of a project sign in a northcentral state which was identified as "Fairfax County." The grantee or contractor obviously followed the <u>exact</u> letter of EPA directives.</p> <ul style="list-style-type: none"> 5. Reliability and flexibility - standby power, bypassing of individual units, adequate pumping capacity with largest pump out of service, etc. 6. Operation and maintenance - markings for ease of operation and accessibility for maintenance <p><u>NOTE:</u> O & M is discussed in more detail in Step 3 O & M Manual.</p> <ul style="list-style-type: none"> 7. Public water supply - backflow preventors, air gap, etc. 8. Chemical storage - curbing to contain accidental spills, safety, etc. | |

| Lesson Outline #9 | Question & Answer Location |
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| <p><u>NOTE:</u> The storage of chemicals may be addressed in more detail in the near future and reflect provision of the "Resource Conservation and Recovery Act" or the "Toxic Substances Control Act."</p> <ol style="list-style-type: none"> 9. Ventilation - wet well, dry well, chlorine and chemical storage rooms 10. Laboratory facilities - sufficient to conduct control and reporting tests 11. Emergency alarms - notification of equipment failures or malfunctions 12. Hazardous materials - mercury seals not allowed in trickling filters, grout for rehabilitating pipe joints 13. Sewers - acceptable levels of infiltration and required testing; maintenance of minimum scouring velocity (2 fps); adequate capacity including peaking factor (be careful peaking factor not too high to provide flows beyond those approved in facilities plan) <p><u>NOTE:</u> The instructor discusses how the peaking factor has been used by some consulting engineers to provide for greater flows than those allowed in the facilities plan. This has been used in the past as a means of frustrating the population forecasts when the municipality disagrees with the 208 or approved population and tries to "slip in" additional capacity in intercepting sewers.</p> <ol style="list-style-type: none"> 14. Equipment - two trade names and "or equal" on all major items except where based on performance specifications, demonstration purposes or innovative components (require state or EPA prior approval for sole source innovative specifications) 15. Shellfish waters - appropriate protective measures to be exercised where effluents will discharge to shellfish producing waters 16. Pretreatment requirements - insure provisions for adequate pretreatment of industrial wastes before discharge into municipal system | <p>End Part 2</p> |

| Lesson Outline #9 | Question & Answer Location |
|---|-----------------------------------|
| <p>III. Corps of Engineers Review</p> <p><u>NOTE:</u> EPA headquarters entered into a national agreement with U.S. Army Corps of Engineers to provide Corps staff to assist EPA and states in Step 3 activities. Each EPA region entered into a written agreement with the corresponding Corps of Engineers Division. Agreements vary in some detail and procedures from region to region. Therefore, the classroom instructor will determine the specific agreement between EPA/COE for the seminar location. The COE staff act as agents or staff extensions of EPA and states. The COE is in an advisory capacity and their recommendations do not have to be followed. However, experience has shown that the COE is providing constructive reviews of P & S and the EPA/state reviewers would be wise to seriously consider the comments of the COE.</p> <p>The COE is provided an opportunity to review the plans and specifications prior to EPA/state approval. In general, the COE is given 30 days in which to submit their comments. These comments are combined with the EPA/state comments and forwarded to the grantee for response. The COE review has been labeled a "B" or "C" review, i.e., biddability and constructability as briefly defined below.</p> <p>A. Biddability</p> <ol style="list-style-type: none"> 1. Documents are simple, clear and include necessary items 2. Total construction project is divided into reasonably biddable contract packages 3. Appropriate to enable realistic evaluation of bids received 4. Sufficient detail <p>B. Constructability</p> <ol style="list-style-type: none"> 1. Adequate consideration of site limitations 2. Resolution of plan conflicts 3. Restrictive specifications 4. Compatibility with usual construction procedures 5. Consideration of construction difficulties | <p>Q & A 1, 3 & 5</p> |

| Lesson Outline #9 | Question & Answer Location |
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| <p>Summary:</p> <p>Plans and specifications are reviewed to insure that all federal and state statutory requirements are included. The P & S must be based upon sound engineering design practices and translate the approved project from the facilities plan into a project which will achieve the approved effluent limitations. The P & S must reflect the results of a value engineering analysis if appropriate.</p> | <p>End Part 3</p> |
| | |

QUIZ - TOPIC #9

Plans and Specifications Review

1. Plans and specifications are reviewed and certified to the state agency by the U.S. Army Corps of Engineers only.
True or False
2. Specifications may incorporate 40 CFR 35.936, .938, .939 and Appendix C-2 by reference. True or False
3. Specifications must contain "or equal" provisions. True or False
4. Prospective bidders must be required to submit a bid bond or certified check in the amount of 5% of their bid.
True or False
5. The U.S. Army Corps of Engineers is required to do a detailed takeoff of plans and specifications to confirm the engineer's estimates of project costs. True or False

ANSWERS - TOPIC #9

1. False - The COE conducts a concurrent review of P & S and submits its comments to the state and/or EPA.
2. False - Specifications must include the regulations verbatim.
3. True
4. True
5. False - COE performs biddability and constructability reviews.

| Topic #10: STEP 3 GRANT PROCESSING | | | |
|---|------------------------------|----------------------------|---|
| Objective: The students must know the requirements for and contents of a Step 3 grant application and the procedures for processing the grant. | | | |
| Videotape Running Time: | Part 1 28:45 Part 2 29:15 | Required Equipment: | Color television and 3/4" U-Matic video cassette recorder |
| Lesson Outline | | | Question & Answer Location |
| <p>Introduction:</p> <p>This topic discusses the technical and administrative requirements of processing a Step 3 grant application. This topic is relatively brief and includes some material that was discussed in both Step 1 and Step 2 grant processing (application form, priority certification, grant award procedures, etc.). The instructor briefly reviews the duplicate materials but places most of the emphasis on the new materials.</p> <p>I. Types of Step 3 Grant Projects</p> <p>A. General - In general most applicants will have applied for and received a Step 1 and Step 2 grant prior to applying for a Step 3 grant. However, exceptional projects are sometimes discovered for which some or all of the Step 1 and/or Step 2 work was initiated prior to a grant. These older or "woodwork" projects are discussed below and require that, "all allowable costs incurred before initiation of construction of the project must be claimed in the application for grant assistance for that project before the award of the assistance or no subsequent payment will be made for the costs." (40 CFR 35.945, .925-8)</p> <p>In other words, applicants are required to claim all prior costs</p> | | | |

| Lesson Outline #10 | Question & Answer Location |
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| <p>in their first application or else these costs will be considered nonallowable.</p> <p>B. Projects not previously funded - Projects not previously funded with a Step 1 or Step 2 grant will be required to satisfy the requirements of facilities planning to the extent deemed necessary by the Regional Administrator. To satisfy these requirements, an applicant will generally obtain a Step 1 or Step 2 grant and, therefore, it is very unlikely that an applicant would get a Step 3 grant as his first grant.</p> <p>C. Projects which are segments of larger projects</p> <ol style="list-style-type: none"> 1. Must insure that the statutory requirements of facilities planning and Step 2 design are satisfied 2. Proposed segment of project must be in agreement with the facilities plan 3. Applicant must agree to complete the balance of the project resulting in an operable treatment works meeting the enforceable requirements of the CWA <p>D. Advance acquisition or construction</p> <ol style="list-style-type: none"> 1. In general Step 3 project work is discouraged prior to receiving a grant 2. Prior approval of Regional Administrator required for <ol style="list-style-type: none"> a. Advance acquisition of major equipment items requiring long lead times b. Acquisition or an option for the purchase of eligible land c. Advance construction of minor portions of treatment works <p>E. Projects which have satisfied Step 1 and Step 2 requirements (normal project)</p> | <p>Q & A 1 End Part 1</p> |
| <p>II. Application Review and Grant Offer Preparation</p> <p>A. Application package contents</p> | <p>Start Part 2</p> |

| Lesson Outline #10 | Question & Answer Location |
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| <ol style="list-style-type: none"> 1. Priority certification - prepared by state for submission to EPA (see details in Topic 6 Step 1 outline) 2. Application form <ol style="list-style-type: none"> a. Applicant must have authority to finance, construct, operate and maintain wastewater treatment facilities under state law b. Assurance that all required property rights have been obtained or bonafide options taken or formal condemnation procedures have been initiated c. Funding assurances for nonfederal share d. Part V assurances must be attached e. Resolution authorizing official to sign f. Reviewer will insure all costs requested for grant participation are allowable and based on latest engineer's estimate g. Evidence of compliance <ol style="list-style-type: none"> (1) Flood Disaster Protection Act - if community is eligible must insure structures > \$10,000 during construction and life of project <p><u>NOTE:</u> The instructor defines structures to be insured as new or reconstructed surface structures which are walled and roofed (control building or pumping station). Sewers or other structures not likely to be damaged during flooding need not be insured.</p> <ol style="list-style-type: none"> <ol style="list-style-type: none"> (2) Sewer Use Ordinance - must submit ordinance or intent that ordinance will be enacted by all participating municipalities before completion of construction. Prohibits illegal connections, requires proper design and construction for new connections | |

| Lesson Outline #10 | Question & Answer Location |
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| <p>(3) Sewer System Rehabilitation Schedule - where necessary, sewer rehab must be on schedule and ideally completed prior to completion of the treatment works</p> <p>(4) Public Participation Work Plan - if necessary or desired by applicant and public</p> <p>3. Contracts and subagreements (or intended method of awarding subagreements)</p> <p><u>NOTE:</u> The subject of subagreements (generally A/E) was discussed in both the Step 1 and Step 2 grant processing procedures. The instructor points out that some municipalities use their own employees (force account) to provide resident inspection services and only require the design engineer to make periodic inspections or render decisions or interpretations of the P & S. Other possible contractors at the Step 3 application stage may include archaeologists, where necessary, or an environmental consultant. In all cases, the procurement procedures outlined below must be followed.</p> <ul style="list-style-type: none"> a. Satisfaction of procurement regulations (40 CFR 35.936, .937) b. Generally prefer cost reimbursement type contract for engineering inspection services c. Appendix C-1 to be included in subagreements d. Include EPA form 5700-41 showing profit e. Must include completion schedules and outlay schedule f. Must demonstrate satisfaction of MBE requirements <p>4. Intermunicipal agreement - where two or more jurisdictions will be served by the project, final executed intermunicipal agreements must be submitted. These agreements will require compliance by all jurisdictions with financial arrangements and procedural requirements under the grant.</p> | |

| Lesson Outline #10 | Question & Answer Location |
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| <p><u>NOTE:</u> The instructor emphasizes that intermunicipal agreements have been a major factor in causing project delays. The reviewers will give close examination to the agreements to insure that all points of agreements are clearly spelled out and that no loop-holes exist which could frustrate the project.</p> <p>5. Plan of Operation - review the preliminary plan to insure costs and milestones are included. These milestones may include</p> <p><u>NOTE:</u> The detailed requirements of a plan of operation are discussed in Topic #12. At the Step 3 application stage it is necessary for the reviewer to determine that sufficient costs and a schedule of completion of a plan of operation have been included in the application package. A cost breakdown of a schedule may include the items listed below.</p> <ul style="list-style-type: none"> a. Timing of hiring and training of plant personnel b. Timing of O & M manual preparation c. Development of safety and emergency operation programs d. Development of records, filing and laboratory procedures e. Timing of start up procedures f. Preparation of budget and operational reports | <p>Q & A 2 - 4 End Part 2</p> |
| <p><u>NOTE:</u> The pretreatment requirements may have been satisfied in the Step 2 project activities. However, these requirements must be satisfied <u>before</u> the award of a Step 3 grant after December 31, 1981. The items to be addressed in a pretreatment program are referred to below.</p> <p>6. Pretreatment requirements - for Step 3 grant awards made after 12/31/81, the applicant must have completed the nine items listed in Topic #7.</p> <p><u>NOTE:</u> The user charge system and industrial cost recovery system (UC/ICR) were not discussed in detail in any preceding topics. The instructor reviews UC/ICR at this point but indicates to students that in the future UC/ICR systems will be reviewed as part of the Step 2 project submissions. Students are made</p> | <p>Start Part 3</p> |

Lesson Outline #10

Question
& Answer
Location

aware that UC and ICR systems were part of the Step 3 activities prior to the revised regulations of 9/27/78. Those regulations provided a transition period such that after 6/30/79 both UC and ICR approval will be required prior to Step 3 grant award.

7. User Charge System - after 6/30/79 no Step 3 grant may be awarded without an approved user charge (UC) system. The user charge system determines the amount of funds to be collected from all users to offset operation and maintenance (including replacement) costs. Criteria to be used in reviewing UC systems include:
 - a. Must distribute costs of O & M uniformly to all classes of users
 - b. Must consider wastewater characteristics, such as BOD, SS, bulk discharges, etc.
 - c. Surcharge for extra strength discharges
 - d. Must determine first year's charges
 - e. Must provide for annual review and updating of charges
 - f. System must recover all O & M costs (including reserve funds for replacement components)
 - g. System must be enacted into municipal legislation
 - h. Quantity discounts which encourage use not allowed
 - i. May be based on water consumption
 - j. All participating municipalities must implement and enforce UC systems
 - k. Ad valorem (value added) taxes may be used as a basis for proportioning user charges under certain special conditions (see 40 CFR 35.929-1[b])

| Lesson Outline #10 | Question & Answer Location |
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| <p>8. Industrial Cost Recovery - after 6/30/79 no Step 3 grant may be awarded without an approved industrial cost recovery (ICR) system. ICR requires significant (> 25,000 gal/day or equivalent BOD/SS) industrial users to repay their proportionate share of the capital costs. An ICR system requires</p> <ul style="list-style-type: none"> a. All classes of industries must be treated uniformly and recovered costs are based on all significant cost factors (flow, BOD, SS, etc.) b. Each industry is charged only for the portion of the treatment facilities allocated for its use c. Industries have as long as 30 years, interest free, to repay their costs d. Funds are to be collected at least annually e. System is reviewed annually and revised based on waste character changes, expansion or upgrading or in the event an industry discontinues use of treatment facilities f. 50% of recovered funds returned to U. S. Treasury; 50% to grantee of which 80% must be used solely for expansion or reconstruction of treatment facilities and 20% may be used for any purpose except construction of industrial pretreatment facilities or rebates to industry g. Costs not included in ICR payments are I/I correction or treatment, correction of combined sewer overflows (CSO), and collection or treatment of storm waters | |

Lesson Outline #10

Question
& Answer
Location

- h. System is mandatory for recovery of federal funds, optional for state and local funds
- i. All participating municipalities must implement and enforce ICR system
- j. The CWA of 1977 placed a moratorium on the ICR system until 6/30/80. Funds need not be collected from industries during the moratorium; if funds are collected, they must be placed in escrow in an interest bearing account. The moratorium addressed only the collection of funds; ICR systems must still be developed by the grantee.

NOTE: The instructor emphasizes the moratorium since many grantees and consultants think they do not have to develop the ICR system; they do, they just do not have to collect funds.

- 9. Approved plans and specifications - additional sets of P & S may be required; specifications may need to be revised to include later wage rate decision (Davis Bacon Act; Department of Labor)

B. Grant award procedures

NOTE: The grant award procedures and grant agreement/amendment procedures are identical for those in Step 1 and Step 2 grant processing. The classroom instructor may wish to review the noted comments in lesson plan 6.

- 1. Complete agreement per Grants Administration Manual

Q & A
5 & 6

| Lesson Outline #10 | Question & Answer Location |
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| <p>2. Regional and state procedures</p> <p>3. Complete EPA form 5700-1B (congressional notification)</p> <p>4. Complete GICS coding sheets</p> <p>5. Clearinghouse notification</p> <p>C. Grant agreement/amendment</p> <p>1. EPA form 5700-20</p> <p>2. Contract between grantee and EPA</p> <p>3. Must define scope of work</p> <p>4. Contain special conditions, for example</p> <p> a. O & M manual - 50% and 90% payment limitation</p> <p> b. Sewer use ordinance - 80% payment limitation</p> <p> c. Sewer rehabilitation schedule - 80% payment limitation</p> <p>5. Grantee has three weeks to accept</p> <p>6. Official signing grant offer must be same as designated or submit new resolution</p> <p>Summary:</p> <p>While processing of a Step 3 grant includes activities which were discussed also in Step 1 and Step 2 grant processing, the additional material of plan of operation, details of UC/ICR and payment limitations must be clearly understood by the grantee if delays are to be avoided. Therefore, the students need to be told to emphasize the other items beyond construction to insure grantee compliance.</p> | <p>Q & A 7</p> <p>End Part 3</p> |
| | |

QUIZ - TOPIC #10

Step 3 Grant Processing

1. Applicants may order long lead items required for construction before receiving a Step 3 grant. True or False
2. Applicants must submit a copy of an acceptable and implemented sewer use ordinance at the time of application. True or False
3. Final executed intermunicipal agreements are required at the time of Step 3 grant processing. True or False
4. The O & M manual is the only portion of the plan of operation that must be completed during Step 3 construction activities. True or False
5. A pretreatment program, if not previously approved, must be completed prior to Step 3 grant application after December 31, 1980. True or False
6. UC/ICR systems are part of the Step 3 activities. True or False
7. List three grant payment limitations which are generally spelled out in the special conditions of the grant offer.

ANSWERS - TOPIC #10

1. False - They may order but unless prior approval has been obtained from EPA costs are nonallowable.
2. False - Applicant may submit ordinance or letter of intent that ordinance will be enacted before completion of construction.
3. True
4. False - The entire plan of operation must be completed during the Step 3 activities.
5. True
6. False - After June 30, 1979 UC/ICR systems must be completed prior to Step 3 application; for older projects UC/ICR systems were completed during Step 3.
7.
 - a. O & M manual - 50% and 90%
 - b. Sewer use ordinance - 80%
 - c. Sewer rehabilitation on schedule - 80%
 - d. Pretreatment program (pre 12/31/80) - 90%

INSTRUCTOR LESSON PLAN 11

Topic #11: PROCUREMENT OF CONSTRUCTION CONTRACTS

Objective: Since construction of treatment facilities involves the largest portion of grant funds, the students must be familiar with the procedures for advertising for bids, receipt of bids, review of bid documents and award of construction contracts.

| | | |
|------------------|--------|-------|
| Videotape | Part 1 | 28:09 |
| Running | Part 2 | 25:02 |
| Time: | Part 3 | 29:40 |

| | |
|-------------------|--------------------------------------|
| Required | Color television and |
| Equipment: | 3/4" U-Matic video cassette recorder |

Lesson Outline

Question
& Answer
Location

Introduction:

The procurement of construction contracts is a very sensitive matter since it involves the future expenditure of perhaps millions of dollars. Students are not generally party to the bid opening but merely review documents submitted by the grantee after receipt of bids. Past experience has shown that many of the students have never attended a bid opening and do not realize how formal the procedure is. The instructor describes in his own words the atmosphere and procedures used in advertising and opening bids. It is recommended that the classroom instructor supplement the videotape and describe his own experience.

The outline below follows the routine regulatory procedures for procurement of construction contracts.

I. Administrative Procedures

NOTE: Item A below assumes the grantee has accepted the grant offer and returned the grant agreement/amendment to EPA. Therefore, the regulatory reviewer is prepared to authorize the grantee to advertise for bids. Items 2 through 6 are items which many states and EPA regional offices specifically point out to the grantee in the letter authorizing the grantee to advertise.

| Lesson Outline #11 | Question & Answer Location |
|---|----------------------------------|
| <p>A. Authorization and formal advertising for bids</p> <ol style="list-style-type: none"> 1. Preparation of authorization letter reminding grantee of the points in items 2-6 below 2. Grantee compliance with 35.938-4 formal advertising <ol style="list-style-type: none"> a. Advertise project > \$10M on nationwide basis b. Allow minimum 30 days (more for larger, more complex projects) for bid preparation c. Make available to all prospective bidders at convenient times and places copies of approved plans and specifications (most often a deposit is required) 3. MBE compliance <p><u>NOTE:</u> The instructor emphasizes the need for the grantee to aggressively seek out and encourage MBE's to bid on the proposed project. All actions with regard to MBE's must be documented.</p> <ol style="list-style-type: none"> 4. List of documents to be submitted after receipt of bids (see item B below) 5. Warning to grantee not to award contracts prior to receiving authorization to do so from state or EPA 6. Warning to grantee not to prematurely reject all bids until concurrence is received from state or EPA <p><u>NOTE:</u> Item B assumes grantee has received bids and submits bid documents to state or EPA. The reviewer insures all documents are included in the submission and are complete and properly certified.</p> <p>B. Review of bids</p> <ol style="list-style-type: none"> 1. Documents submitted <ol style="list-style-type: none"> a. Tabulation of bids <p><u>NOTE:</u> The instructor indicates that reviewers should check the arithmetic computations on the bid tabulation to insure correctness.</p> | <p>Q & A 1 - 3</p> |

Lesson Outline #11

Question
& Answer
Location

b. Proposal form and bonds from successful bidder

NOTE: The proposal will be checked closely by the reviewer to insure arithmetic is correct and that arabic numbers and words agree (\$1,250 - one thousand two hundred and fifty dollars).

c. Grantee statement naming bidder

NOTE: It is amazing how often a grantee assumes it is obvious who the low bidder is. However, most, if not all, states and EPA require the grantee to specifically name the contract amount and the contractor to whom the grantee wishes to award the contract.

d. Proof of advertising

NOTE: Generally, the advertisement is notarized by the publication which carried it indicating the dates of advertisement. The reviewer needs to insure that nationwide advertisement was obtained for projects > \$10M.

e. Addenda issued and received

NOTE: The proposal forms generally provide space for bidders to acknowledge receipt of addenda. The reviewer checks to insure that all addenda were received by the apparent successful bidder.

f. Contractor certification of EEO compliance

g. MBE results

NOTE: Again, the instructor emphasizes MBE. The grantee has previously committed to achieve the MBE goal in terms of percentage participation in the project. Should this goal not have been achieved, the grantee is to document his efforts in trying to achieve MBE participation. The reviewer may need to consult with the designated MBE officer in the agency.

h. Statement concerning nonresponsiveness of lowest bidder (if applicable)

| Lesson Outline #11 | Question & Answer Location |
|--|----------------------------------|
| <p><u>NOTE:</u> This is a very delicate area, and the reviewer will need to seek the advice of agency counsel before proceeding. In general, contracts are to be awarded to the lowest responsive, responsible bidder. Where a bidder is judged not to be responsive and/or responsible on the part of the grantee, the grantee's legal counsel will generally submit justification for this decision, citing state law. The reviewer must seek advice of his/her supervisor in this case.</p> <p>i. Revised cost estimate</p> <p><u>NOTE:</u> Bids may have been higher or lower than those estimated in the Step 3 grant application and, therefore, a grant adjustment may be necessary. This is discussed in item C below.</p> <p>j. State and local legal requirements</p> <p><u>NOTE:</u> Grantees are required to comply with state and local laws provided they do not conflict with federal statutes.</p> <p>2. Review by state and EPA</p> <ul style="list-style-type: none"> a. Complete and properly executed documents b. Careful review of reasons why lowest bidder was not chosen (discuss with legal counsel) c. Validity of bids d. Proper wage determination <p><u>NOTE:</u> The specifications approved at the conclusion of the Step 2 project should have contained a wage rate determination. However, wage rates may have changed prior to bidding and the reviewer must insure that the latest wage rate determination was incorporated into the contract documents at the time of bidding.</p> <p>e. Timeliness of addenda</p> | |

| Lesson Outline #11 | Question & Answer Location |
|---|--|
| <p><u>NOTE:</u> Were addenda acknowledged by the contractor and received in sufficient time (generally 5 days) to allow the bidders to incorporate the changes into their bid prices?</p> <p>f. State or local preference of contractor - not allowed</p> <p>g. Ambiguous references to subcontractors</p> <p><u>NOTE:</u> The contract documents are to clearly identify information concerning subcontractors that is to be submitted with the bids. If this information is not included, the contract documents are to clearly indicate that this is a reason for declaring the bid nonresponsive.</p> | <p>Q & A 4 - 7</p> <p>End Part 1</p> |
| <p>C. Grant increases/decreases - adjustment of grant</p> <p>1. Contingency allowance (generally 10%)</p> <p><u>NOTE:</u> Generally, at the Step 3 application stage a contingency of 10% of the construction costs is allowed. Hopefully the contingency can be used to offset higher bids. However, the contingency allowance is generally reduced to 3 to 5% of the construction cost after receipt of bids. In either case, higher or lower bids, the grant may need to be adjusted.</p> <p>The instructor indicates that reducing the contingency to 5% after bids may release additional funds which can be used for another Step 1 or Step 2 project. Therefore, it is important for the reviewer to initiate this action where appropriate, even if the grantee has not requested an adjustment.</p> <p>2. Insure that bids are reasonable</p> <p><u>NOTE:</u> Judgement is required here, particularly if the bids are higher than the estimate. If three or more bidders are within 10% of each other, it is generally assumed that the bids are reasonable.</p> <p>3. State certification - required for grant increase</p> <p>4. Meeting to review scope if change is significant</p> | <p>Start Part 2</p> |

| Lesson Outline #11 | Question & Answer Location |
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| <p><u>NOTE:</u> If bids are unreasonably high, it may be prudent for the reviewer to request a meeting with the grantee and his consultant. The meeting will focus on the scope of the project and examine ways of reducing construction costs.</p> <p>D. Protests (see 40 CFR 35.939)</p> <p><u>NOTE:</u> The topic of protests is quite lengthy and is the subject of 40 CFR 35.939. Rather than cover all the possible details of how to handle protests, the instructor merely highlights the items below, since it is recommended that the reviewer seek legal assistance when a protest is received.</p> <ol style="list-style-type: none"> 1. Time limit - protestor, grantee and EPA must all meet specific time limitations in handling protests 2. Primary responsibility rests with grantee for resolution of protest; EPA must concur 3. Protestor has responsibility to notify all affected parties and document allegations of wrongdoing 4. Appeals by protestor to EPA are allowed if protestor disagrees with decision 5. Regional Administrator's decision is final unless protestor appeals to court <p><u>Note:</u> Because of the complex issues involved and the body of law concerning protests, advice of legal counsel should be sought <u>immediately</u> as soon as a protest arises. Familiarity with 40 CFR 35.939 is essential.</p> <p>E. Authorization to award contracts</p> <ol style="list-style-type: none"> 1. If regulatory requirements have been satisfied 2. If protests have been resolved, then 3. Notify grantee to award contracts, and 4. Arrange for preconstruction conference | <p>Q & A 8 - 12</p> <p>End Part 2</p> |
| | <p>Start Part 3</p> |

Lesson Outline #11

Question
& Answer
Location

II. Preconstruction Conference

A. General

1. Initiation by grantee, state or EPA

NOTE: As EPA delegates program functions to states, it is encouraging states to assume the initiative and schedule a preconstruction conference.

2. Use state or EPA regional "Preconstruction Conference Checklists"

NOTE: Many EPA regional offices and states have developed a checklist or other form to be used at preconstruction conferences. The students are encouraged to use these checklists where available.

3. Separate conference relating to EEO optional

NOTE: The EEO officer, based on his own criteria, may initiate a preconstruction conference with the grantee and contractors if it is felt appropriate. The preconstruction conferences may be separate or combined.

B. Purpose

1. Resolve problems, reach understanding
2. Provide definition of roles and responsibilities (grantee, consultant, state, EPA, COE, EEO officer, etc.)
3. Review sample inspection reports

NOTE: Since state, EPA or COE will be conducting on-site inspections, it is helpful to show the grantee the type of information which must be available at the time of inspection in order to complete the inspection report. It is recommended that a blank inspection report be left with the grantee.

C. Items to be discussed

| Lesson Outline #11 | Question & Answer Location |
|---|----------------------------------|
| <p><u>NOTE:</u> The following items are those which the instructor found to be problems during construction. However, the use of a regional checklist is recommended where it exists.</p> <ol style="list-style-type: none"> 1. Responsibilities of grantee <ol style="list-style-type: none"> a. Administration in compliance with laws and regulations b. Administration of subagreements c. Contractor compliance <ol style="list-style-type: none"> (1) Labor standards (including minimum wage) (2) Civil rights and EEO requirements (3) Construction requirements <ol style="list-style-type: none"> (a) Inspection and supervision (b) Project changes (c) Material and workmanship (d) Payment and retainage policy (e) Historical and archaeological findings (f) Mitigative environmental measures (g) Estimates of work in place and progress (h) Availability of funds, records, bonds and insurance, flood insurance, audit (i) Preparation of payment requests 2. Modifications to contract 3. Responsibilities for submittals 4. Commencement, prosecuting and completion of work <ol style="list-style-type: none"> a. Notice to proceed b. Completion time c. Completion schedule d. Liquidated damages 5. Quality control <ol style="list-style-type: none"> a. Materials and equipment testing b. Storage and protection of equipment and materials c. Housekeeping procedures during construction d. Reporting and correction of deficiencies | |

| Lesson Outline #11 | Question & Answer Location |
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| <p>6. Environmental protection</p> <ul style="list-style-type: none"> a. Compliance with local, state and federal laws b. Bypassing prohibition c. Protection of vegetation d. Dust control e. Burning <p>7. Other submissions</p> <p><u>NOTE:</u> The instructor emphasizes that the other submissions are extremely important since, as will be discussed later, grant payments will be limited until the items below are submitted. Note that after June 30, 1979 UC/ICR is a prerequisite for Step 3 grant award and will no longer be discussed at preconstruction conferences.</p> <ul style="list-style-type: none"> a. Sewer use ordinance b. Sewer rehabilitation c. Plan of operation d. O & M manual e. UC/ICR f. Municipal pretreatment program <p>Summary:</p> <p>The procurement of construction contracts is extremely important since it involves the future expenditure of large sums of public funds. Students must be careful to insure that these funds are expended properly and in accordance with the law. The preconstruction conference offers an opportunity for reviewers to insure that a project gets started on the right foot.</p> | <p>Q & A 13 - 15</p> <p>End Part 3</p> |
| | |

QUIZ - TOPIC #11

Procurement of Construction Contracts

1. Upon receipt of the Step 3 grant offer, the grantee may advertise for bids. True or False
2. Grantee must advertise all projects in journals with nationwide distribution. True or False
3. Grantee is required to take affirmative action in seeking MBE participation in Step 3 construction. True or False
4. After receipt of bids grantee must submit completed bidding documents to state and/or EPA before awarding contracts. True or False
5. At the time of bidding, specifications may include wage rate determination (Davis Bacon Act) which was included in the Step 2 specifications. True or False
6. Grantee may reject all bids if contractors are all from out of state. True or False
7. Contracts must be awarded to the lowest responsible responsive bidder. True or False
8. Grantees should refer all bid protests to EPA for resolution. True or False

Topic #11 Quiz (Cont'd.)

9. Bid protests generally require advice from legal counsel prior to resolution. True or False
10. Construction contracts should always be bid on a fixed price basis. True or False
11. Unbalanced bids are cause for rejection of bids. True or False
12. Failure to name subcontractors and supply detailed information about subcontractors is sufficient cause to reject a bid. True or False
13. Preconstruction conferences are arranged with the grantee's consultant only. True or False
14. It is preferable to review a sample inspection form at the time of a preconstruction conference. True or False
15. After receiving bids a grantee needs only complete construction and has no other grant responsibilities. True or False

ANSWERS - TOPIC #11

1. False - Must receive authorization to advertise from state or EPA.
2. False - Must for projects over \$10 million; optional for smaller projects.
3. True
4. True
5. Generally false unless rates have not changed during period which is highly unlikely.
6. False - No preference may be shown for local bidders; bids may not be rejected without good and sufficient reason.
7. True
8. False - Grantees have the responsibility to resolve all protests; the resolution must be reviewed and approved by EPA.
9. True
10. False - Generally combination of unit and fixed price.
11. False - Bids must be carefully reviewed if unbalanced, but in and of itself unbalanced bids are insufficient reason for rejecting a bidder.
12. True - Provided the information was clearly required in the specifications and a warning of bid rejection for non-compliance was clearly stated in the specifications.

Topic #11 Answers (Cont'd.)

- 13. False - Grantees, engineers, state, EPA, COE and contractors should all attend (at least one of the regulatory agencies should be present).
- 14. True
- 15. False - Grantee may have to complete sewer use ordinance, sewer rehabilitation, plan of operation including O & M manual, UC/ICR (for older projects) or pretreatment program (for older projects).

INSTRUCTOR LESSON PLAN 12

| | | |
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| Topic #12: MONITORING OF CONSTRUCTION ACTIVITIES | | |
| Objective: While many of the students will not conduct on-site project inspections, it is important for them to know the procedures followed and the items reviewed in inspecting projects. | | |
| Videotape Running Time: Part 1 25:49 Part 4 26:24 Part 2 25:53 Part 5 19:47 Part 3 18:18 | | Required Equipment: Color television and 3/4" U-Matic video cassette recorder |
| Lesson Outline | | Question & Answer Location |
| <p>Introduction:</p> <p>Many of the students attending this course will not have an opportunity to conduct on-site inspections. However, that does not mean that they cannot monitor the projects by periodically reviewing grantee submissions for payments or progress reports. The principal objectives of monitoring projects are to insure the projects are on schedule and that they are constructed in accordance with the approved plans and specifications.</p> <p>This topic contains a detailed outline. The instructor emphasizes change orders and the implementation of the plan of operation.</p> <p>I. General</p> <p>A. Two types of monitoring</p> <ol style="list-style-type: none"> 1. Office (paperwork) 2. On-site (surveillance) <p>B. Why monitoring is needed</p> <ol style="list-style-type: none"> 1. Insure proper use of public funds 2. Insure project being constructed in accordance with approved plans, specifications and change orders | | |

Lesson Outline #12

Question
& Answer
Location

3. Insure project remains on schedule
4. Insure other requirements are being completed (plan of operation, SSES rehabilitation, sewer use ordinance)
5. Insure grantee is managing project and fulfilling legal responsibilities

II. Responsibilities

A. Grantee

1. In accepting grant, grantee provides assurances that he will comply with and fulfill all legal responsibilities
2. Grantee is ultimately responsible since contract is between federal government and grantee
3. Grantee may choose to delegate some functions to consulting engineer or project manager but is responsible for seeing that project is constructed per approved P & S and change orders
4. Must maintain adequate records, particularly with regard to receipt of and disbursement of monies

B. Consultant

1. Grantee may hire professional firm as his agent for resident inspection (consulting engineer, construction management firm)
2. Functional responsibilities of grantee's agent must be delineated in contract and clearly defined in construction contract documents
3. Generally required to maintain inspector's logs, prepare and/or review estimates of work in place, provide day-to-day guidance or interpretation of plans and specifications

Note: Regulatory reviewers may want to review the experience record of the grantee's inspector to insure "adequate supervision" is being provided.

C. State

1. Monitoring responsibilities may vary from state to state

| Lesson Outline #12 | Question & Answer Location |
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| <p>in accordance with state law</p> <ol style="list-style-type: none"> 2. Generally, state will be concerned to see project is constructed in accordance with approved plans, specifications and change orders 3. If monitoring activities have been delegated from EPA to state, state may insure grantee fulfills federal and state legal requirements <p>D. Federal</p> <ol style="list-style-type: none"> 1. Essentially acts as a monitor to insure grantee fulfills his responsibilities 2. EPA may have negotiated an agreement with U.S. Army Corps of Engineers to act as its agent; EPA maintains responsibility however; procedure varies from region to region <p>III. On-Site Surveillance</p> <p>A. Surveillance</p> <ol style="list-style-type: none"> 1. Distinct from resident inspection 2. Surveillance inspections imply observing and reporting deficiencies to grantee for correction, <u>not</u> issuing instructions to resident engineer nor contractor <p>B. Interim surveillance inspections</p> <ol style="list-style-type: none"> 1. Frequency <ol style="list-style-type: none"> a. As many as necessary for project b. Generally not before 20% completion c. Generally 2 to 4 for average project 2. Advance notice <ol style="list-style-type: none"> a. Provide advance notice to all interested parties b. Consider sending blank inspection form in advance to insure information readily available c. Where necessary, conduct unannounced inspections (cautiously) 3. Technical items to be inspected <ol style="list-style-type: none"> a. Approved P & S available at job site b. Approved change orders available at job site | |

Lesson Outline #12

Question
& Answer
Location

- c. Posting of wage determination (Davis Bacon)
- d. Project sign erected
- e. Contractor insurance not expired
- f. Construction in general agreement with latest estimate of work-in-place and payment request

NOTE: The regulatory observer is not expected to carry a tape measure and compute all the quantities in place. Rather, the observer is to compare visually the amount of construction with the estimate of work-in-place.

- g. Workmanship and general housekeeping of contractors
- h. Progress of project as compared to completion schedule
- i. Storage of delivered equipment

NOTE: Often contractors have equipment delivered to the job site early to insure availability and/or to request payment (up front money). However, it is necessary to insure that the equipment is properly stored in order to preclude start up or operational problems.

- j. Shop drawings received and approved

NOTE: The classroom instructor may need to explain shop drawings.

- k. Construction techniques are sound and customary practice
- l. Materials testing to be done by grantee (slump test, etc.)
- m. Maintenance of treatment during construction

NOTE: The grantee is not to allow for bypassing of an existing treatment plant during construction except in unusual circumstances and with the prior written approval of the state or EPA.

- n. Adequate method of resolving problems with contractor

| Lesson Outline #12 | Question & Answer Location |
|---|--|
| <p><u>Note:</u> EEO compliance (hometown plan) not the responsibility of EPA, COE nor state; also for large complex project full time on-site presence may be provided by state, EPA or COE.</p> | <p>Q & A. 1 - 3 End Part 1</p> |
| <p>4. Administrative items to be inspected</p> <p>a. Accounting records</p> <ol style="list-style-type: none"> (1) Separate eligible and noneligible costs (2) Separate from other town financial records (3) Entries for cash receipts and disbursements (4) Disbursements supported by vouchers (5) Contractor payroll forms submitted <p>b. Evidence of progress on</p> <ol style="list-style-type: none"> (1) Plan of operation (O & M manual and others) (2) Sewer use ordinance (3) Sewer system rehabilitation <p>c. Force account</p> <p><u>NOTE:</u> The instructor defines "force account," i.e., when the grantee uses his own employees to perform grant eligible work. To be allowable for federal grant participation, the grantee must obtain the prior approval of the EPA Regional Administrator. At the time of inspection the regulatory observer will check time sheets for force account employees to insure that all time is being accounted for including nonallowable work.</p> <ol style="list-style-type: none"> (1) Separate records maintained for direct and indirect costs (2) Prior written approval has been obtained from EPA <p>d. Inspection report form</p> <ol style="list-style-type: none"> (1) To be completed during inspection (2) Copies may be left with grantee (3) Copies to be distributed as agreed to (4) Documentation of deficiencies and problems (5) Recommendations on correction of deficiencies or followup inspection | <p>Start Part 2</p> |

| Lesson Outline #12 | Question & Answer Location |
|---|----------------------------|
| <p>of projects. Change orders must be carefully reviewed to insure they are necessary and that the costs are reasonable. Also, at the time of inspection work required for previous CO's should be checked and new pending CO's should be reviewed.</p> <p>A. Purpose</p> <ol style="list-style-type: none"> 1. Modify construction contracts after work has begun 2. May increase or decrease construction costs <p>B. Types</p> <ol style="list-style-type: none"> 1. Requiring prior approval if they alter <ol style="list-style-type: none"> a. Design or scope of work b. Type of treatment c. Location, size, capacity or quantity of major component d. Federal grant amount 2. Not requiring prior approval if <ol style="list-style-type: none"> a. Required for minor corrections b. Required to protect life, property or emergency conditions <p>C. Potential problems</p> <ol style="list-style-type: none"> 1. Potential source of grantee/contractor dispute 2. May overrun project 3. Therefore need to be processed and reviewed as early as possible <p>D. Review procedures</p> <ol style="list-style-type: none"> 1. Grantee must justify and approve 2. Contract increase/decrease sufficiently detailed for review of reasonableness of costs 3. Does not include work already in contract or previously reviewed 4. Agrees with unit price or other costs in contract; if quantities exceeded by 15%, may need to renegotiate <p><u>NOTE:</u> In some states or regions of the country, when a change order exceeds <u>+</u> 15% of the quantities in the proposal, it may be necessary to renegotiate the unit price to insure that the amount of profit is reasonable.</p> | |

Lesson Outline #12

Question
& Answer
Location

5. Does not circumvent nonrestrictive specifications

NOTE: Change orders may not be used to frustrate the "or equal" provisions of the contract documents, i.e., the grantee may not substitute one piece of equipment for that bid unless there is good and sufficient reason to do so.

6. If exceeds \$100,000 requires negotiation per regulations (40 CFR 35.938-5[d] and [e])

NOTE: If CO's exceed \$100,000 it is necessary for the contractor to submit a complete price breakdown including profit (EPA form 5700-41) and special review procedures are followed. Students should be careful that CO's are not broken into smaller CO's, each less than \$100,000, in order to frustrate this requirement.

7. Grant increase/decrease paperwork prepared if CO exceeds contingency allowance

Q & A
7 - 9
End
Part 3

V. Plan of Operation

Start
Part 4

NOTE: In the earlier years of the program, the plan of operation did not receive as much attention as it does now. Initially, emphasis was placed on the O & M manual because of the grant limitation. However, inspections of projects have shown that many of the problems associated with the operation of a treatment plant are related to poor operator training or lack of sufficient budget to attract and hire competent staff. Therefore, the plan of operation must be emphasized as an important element of the Step 3 activities.

A. General

1. Always part of regulations but initially O & M manual received most attention
2. Current policy places emphasis on entire plan of operation
3. Preliminary plan of operation as part of Step 3 grant application

| Lesson Outline #12 | Question & Answer Location |
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| <p>B. Staffing and training</p> <ol style="list-style-type: none"> 1. Staffing plan including salaries and organization 2. Chief operator hired by 50% construction completion 3. Preoperation training schedule 30 days after chief operator hired 4. All hiring problems solved 60 days prior to startup 5. Submission of positions filled and qualifications of new hires submitted 30 days prior to startup 6. Continuous training plan and schedule developed 30 days prior to startup <p>C. Administration</p> <ol style="list-style-type: none"> 1. Laboratory facilities adequate to perform required tests for control 2. Provisions for submission of operational reports to state 3. Operational procedures during startup 4. Employee safety training 5. Provisions for maintenance management program <p>D. Budget</p> <ol style="list-style-type: none"> 1. To consider costs for salary, administration, supplies, utilities and others 2. Salaries commensurate to attract qualified personnel <p>E. Emergency operating plan must consider</p> <ol style="list-style-type: none"> 1. Effects of emergency on operation 2. Vulnerability analysis of system 3. Protective measures 4. Emergency response program 5. Periodic revision as necessary <p>F. Operation and maintenance manual to include</p> <ol style="list-style-type: none"> 1. Design information 2. Process control information 3. Maintenance requirements for equipment 4. Laboratory procedures 5. Safety requirement | |

| Lesson Outline #12 | Question & Answer Location |
|---|--|
| <ul style="list-style-type: none"> 6. Records and reports 7. Troubleshooting procedures 8. Grant limitation <ul style="list-style-type: none"> a. Draft manual before 50% grant payment b. Manual approved before 90% grant payment | <p>Q & A 10 & 11</p> <p>End Part 4</p> |
| <p>VI. Payment Conditions - Outlay Schedule</p> <p><u>NOTE:</u> EPA has placed a great deal of emphasis on "Outlay Management" during the past few years. The instructor indicates that the federal government faces the same problems as does any small business, namely, "cash flow." When a Step 3 grant offer is made, an outlay schedule is generated for internal use by EPA and eventually the U.S. Treasury. If construction is delayed or accelerated, this schedule needs to be revised to reflect as accurately as possible when funds (cash) will be needed. In 1976, outlays were more than anticipated, and in May of that year no additional cash was available to honor payment requests. This created hardships on many grantees and contractors and resulted in more attention to "Outlay Management." Students need to be aware of this management problem and insure that the outlay schedule is modified to reflect the most accurate project conditions.</p> <p>The grant payment limitations contained in this section need to be emphasized to the grantee in order to preclude future problems. To illustrate this point, the instructor cites the case of a large southern municipality which had not completed its UC/ICR system (no longer applicable for current Step 3 projects) by the 80% grant payment stage. EPA was unable to honor the payment request. The municipality did not have the funds to pay the contractor. The contractor closed down the project due to nonpayment and charged the municipality \$50,000 remobilization when the project was restarted. The municipality was required to make this payment and the costs were not allowable for federal grant participation. It is this type of situation which must be avoided by good project management.</p> <p>A. O & M manual</p> <ul style="list-style-type: none"> 1. No more than 50% payment until <ul style="list-style-type: none"> a. Draft manual submitted b. Evidence of timely development submitted 2. No more than 90% payment until <ul style="list-style-type: none"> a. Manual approved by regulatory agency | <p>Start Part 5</p> |

| Lesson Outline #12 | Question & Answer Location |
|--|----------------------------------|
| <p>B. Sewer use ordinance No more than 80% payment until ordinance approved by regulatory agency</p> <p>C. Sewer system rehabilitation program No more than 80% payment until evidence of compliance with schedule</p> <p>D. UC/ICR systems</p> <p><u>NOTE:</u> As was mentioned previously, the UC/ICR systems will be part of the Step 2 grant activities in the future. However, the payment limitations are discussed here for those older projects which received Step 3 grants prior to June 30, 1979.</p> <ol style="list-style-type: none"> 1. Pre 6/30/79 Step 3 grant awards <ol style="list-style-type: none"> a. No more than 50% payment until evidence of timely development b. No more than 80% payment unless system approved by regulatory agency 2. Post 6/30/79 Step 3 grant awards <ol style="list-style-type: none"> a. UC/ICR systems require approval before Step 3 grant award (Step 2 work) 3. Step 3 awards between 4/24/78 and 7/1/79 <ol style="list-style-type: none"> a. Must obtain approval before 7/1/79 or no payments <p>E. Municipal pretreatment program</p> <ol style="list-style-type: none"> 1. Step 3 grants post 10/1/79 <ol style="list-style-type: none"> a. No more than 90% payment unless program approved unless b. Grants after 10/1/79 but before 12/31/80 - Regional Administrator determines that progress is being made and likely that progress will continue 2. Step 3 grants post 12/31/81 - require approvable municipal pretreatment program prior to Step 3 grant award <p>F. Final payment</p> <ol style="list-style-type: none"> 1. Requires final inspection to insure | |

Lesson Outline #12

Question
& Answer
Location

- a. Constructed in accordance with approved P & S and CO's
- b. Compliance with grant agreement

VII. Role of U. S. Army Corps of Engineers

A. Headquarters agreement

- 1. Negotiated for 3 years to provide additional resources
- 2. Each region to negotiate regional agreement
- 3. COE personnel act as agents of EPA

B. Regional agreement

- 1. Vary from region to region, state to state
- 2. Provides for COE to review P & S for biddability and constructability
- 3. Provides for periodic or full time inspections and processing of Step 3 grants

VIII. Construction Management

NOTE: While construction management by a firm specializing in these activities is not required by EPA, it is encouraged in order to insure professional project management. The outline shows that 85% of the grantees are municipalities under 50,000 population. As such, these municipalities do not have full time experienced staff that can manage the projects. Therefore, it is the EPA's position that construction management may provide an opportunity to see that projects are constructed more efficiently and on schedule, thereby reducing costs and saving time. Generally, this service is provided by a separate firm from the design engineers.

A. Requirements (35.936-5[b])

- 1. None
- 2. Encouraged by EPA, however

B. Definition

- 1. Independent multi-disciplined team acting as agent of grantee
- 2. Generally responsible to manage budget, schedule coordination of all activities

C. Best to engage in Step 1 activities and maintain through construction completion

| Lesson Outline #12 | Question & Answer Location |
|--|--|
| <p data-bbox="300 346 1257 427">D. Why ? 85% of grantees are municipalities under 50,000 population</p> <p data-bbox="236 563 360 591">Summary:</p> <p data-bbox="231 627 1380 1002">Monitoring of construction activities is the final step in the Construction Grants Program (final audit excepted). Finally, after years of planning and design, the project is being constructed. Since the construction involves the expenditure of large sums of public funds, it is of utmost importance that the project be monitored closely. Many opportunities exist during construction for a project to get into trouble, and it is up to the construction grants reviewer to insure that he/she and the grantee monitor and manage the project.</p> | <p data-bbox="1401 361 1517 421">Q & A 12 & 13</p> <p data-bbox="1417 1029 1513 1089"><i>End Part '5</i></p> |
| | |

QUIZ - TOPIC #12

Monitoring of Construction Activities

1. The state or EPA employee acts as the resident engineer and interprets P & S and advises contractors. True or False
2. At least one copy of the approved P & S must be available at the job site. True or False
3. The wage rate determination must be posted in a prominent place at the job site. True or False
4. Grantees accounting or fiscal records should be reviewed at the first inspection. True or False
5. State, EPA or COE personnel are responsible for enforcing OSHA. True or False
6. At the final inspection all equipment should be operational. True or False
7. Change orders for minor corrections of P & S require prior EPA and/or state approval. True or False
8. Change orders in excess of \$100,000 require only grantee approval. True or False

Topic #12 Quiz (Cont'd.)

9. Every approved change order requires a grant increase.
True or False
10. The chief operator of the treatment plant must be hired by
at least the 50% construction completion stage. True or
False
11. A draft O & M manual must be submitted to EPA or the state
before releasing more than 50% of the grant. True or False
12. The COE is required to enforce EEO requirements. True or
False
13. Construction management is required on all projects over
\$5 million. True or False

ANSWERS - TOPIC #12

1. False - State or federal inspector is an observer and may only direct grantee's activities.
2. True
3. True
4. True
5. False - The contractor is responsible; apparent violations should be brought to the attention of the U.S. Department of Labor.
6. True
7. False
8. False - All change orders except for minor corrections or emergencies require state and/or EPA approval; CO's in excess of \$100,000 require price and profit negotiations.
9. False - The contingency allowance of 5% should cover CO's.
10. True
11. True
12. False - Done by the Department of Labor.
13. False - No requirements for construction management; optional.

Topic #13: SUMMARY OF FINANCIAL CONSIDERATIONS

Objective: This topic presents information which is common to the processing of Step 1, 2, 2+3 and 3 grants. It is necessary that students not only understand the material presented but more importantly know where to look for the answers to specific questions.

Videotape Part 1 22:33
Running Part 2 25:31
Time:

Required Equipment: Color television and
3/4" U-Matic video
cassette recorder

Lesson Outline

Question
& Answer
Location

Introduction:

This topic presents information common to the processing of all construction grants projects. The instructor asks students to review Chapter VII in the "Handbook of Procedures." This procedure is used since one of the objectives of the course is to familiarize the students with the "Handbook of Procedures." Students are asked to turn to pre-selected pages in Chapter VII and review specific points. It is also recommended that the students leaf through every page in order to observe the information contained therein.

I. Handbook of Procedures, Chapter VII

A. Allowable and unallowable costs

NOTE: The terms "eligible," "ineligible," "allowable," "unallowable" are not interchangeable and were specifically selected to connote different situations.

The term eligible refers to an entire project. For example, the construction of an airport is ineligible for grant funds under the CWA of 1977. In like fashion, the construction of a highway, water treatment plant, etc. are all ineligible under the CWA of 1977.

The construction of a wastewater treatment works is eligible for grant participation under the CWA of 1977.

Lesson Outline #13

Question
& Answer
Location

An eligible project may contain allowable and unallowable costs. For example, construction of the treatment plant and associated engineering design fees are allowable costs for grant participation. The purchase of land (except where land is a part of the treatment process), rights of way and easements are unallowable costs of an eligible project. Interest during construction or costs associated with the sale of bonds are unallowable costs of an eligible project.

The distinction between these terms is pointed out to students. Unfortunately, however, when the regulations were revised on September 27, 1978, the terms were used interchangeably. Therefore, confusion exists among these terms, and the instructor advises students of this confusion and instructs them to be careful when interpreting regulations and other documents.

1. General

Chapter VII

| <u>Page No.</u> | <u>Item</u> | <u>Comment</u> |
|-----------------|---|---|
| 2 | Allowable and Unallowable Costs B.1.a, b, c, d | Students are asked to read entire general section. Distinction made between eligible and allowable. Emphasis placed on general guiding principles listed in a, b, c, d. |

2. Allowability and miscellaneous costs

Chapter VII

| <u>Page No.</u> | <u>Item</u> | <u>Comment</u> |
|-----------------|----------------|---|
| 4 | Bond Costs | Indicated as unallowable. |
| 6 | Public Liaison | Indicated as generally unallowable except for public participation. |

| Lesson Outline #13 | | | Question & Answer Location |
|--|---|---|----------------------------------|
| Chapter VII | | | |
| <u>Page No.</u> | <u>Item</u> | <u>Comment</u> | |
| 9 | Site Acquisition vs Site Preparation Costs | Points out distinction between land used as integral part of treat- ment process (allowable) and not part of treat- ment process (unallow- able). | |
| 14 | Replacement Parts | Critical components allowable; other rou- tine O & M items unallowable. | |
| <p><u>NOTE:</u> The classroom instructor may wish to cite other specific examples. Those listed above are representative of allowable, unallowable and combinations requiring judgement. The instructor asks students to turn to page VII-2 and leaf through to page VII-21 observing the underlined headings. The instructor indicates that pp. VII-22 through VII-26 have been left blank to allow for future allowability/unallowability decisions.</p> <p>B. Force account</p> <p><u>NOTE:</u> The instructor requests students to turn to page VII-27 of the "Handbook of Procedures" and review the conditions under which force account work may be accomplished. While the agency does not encourage force account (primarily because of the administrative problems and records to be maintained by the grantee), it has been used by some knowledgeable grantees to save substantial monies. The instructor points out one project for which the grantee (executive director is former EPA construction grants employee) was able to reduce resident inspection fees by two-thirds with the use of force account compared with the costs of a consulting engineer.</p> | | | |

Lesson Outline #13

Question
& Answer
Location

Chapter VII

Page No.

Item

Comment

| | | |
|----|------------------------------|-------------------------------------|
| 26 | General C.1.a, b | Students to read through item 1. |
| 26 | EPA Prior Approval C.2. | Students to read through item 2. |
| 27 | Other Considerations C.3. | Students to read items a - d. |

C. Payments

NOTE: Because of the cash flow needs of grantees and their contractors or consultants, the EPA has attempted to process payment requests in 48 hours from the date of receipt. Unfortunately, this short time is not realized often enough but is a goal that grants administration personnel should strive for. Also, other regulatory personnel involved in the handling or processing of payment requests should give the requests priority treatment in order not to delay payments.

NOTE: In general, the grants administration section of EPA receives and processes payment requests. The first and final payment requests are sent to the construction grants project manager for review. Intermediate payment requests are routinely processed by grants administration based on the assumption that the request is legitimate. Exceptions to the routine processing are 50%, 80% and 90% payment requests for Step 3 grants. These are the limitations milestones in the regulations covering the completion of O & M manual, sewer use ordinance, etc. At these milestones the payment request is also reviewed by the construction grants project manager.

Chapter VII

Page No.

Item

Comment

| | | |
|----|---------------|---|
| 29 | Payments D.1. | Students to read all of the general section (item 1). |
|----|---------------|---|

Q & A
1 - 6,
8 & 9

| Lesson Outline #13 | | | Question & Answer Location | | | | | | | | | | | | | | | |
|--|---------------------------------|---|----------------------------------|---------------------------------|--------------------------------------|-------------|---------------------|--------------------------------------|-----------------|-------------|----------------|----|---------------------|---|----|--------------|--------------------------------------|-----------------|
| <p>Chapter VII</p> <table border="1"> <thead> <tr> <th><u>Page No.</u></th> <th><u>Item</u></th> <th><u>Comment</u></th> </tr> </thead> <tbody> <tr> <td>32</td> <td>Documentation b.</td> <td>Students to read item b entirely.</td> </tr> </tbody> </table> | | | <u>Page No.</u> | <u>Item</u> | <u>Comment</u> | 32 | Documentation b. | Students to read item b entirely. | End Part 1 | | | | | | | | | |
| <u>Page No.</u> | <u>Item</u> | <u>Comment</u> | | | | | | | | | | | | | | | | |
| 32 | Documentation b. | Students to read item b entirely. | | | | | | | | | | | | | | | | |
| <p>D. Increases and decreases</p> <table border="1"> <tbody> <tr> <td>34</td> <td>Increases and Decreases E.1.</td> <td>Students to read item 1 entirely.</td> </tr> </tbody> </table> <p>E. Audits</p> <p><u>NOTE:</u> The main point made in the discussion of audits is that the state or EPA project manager can preclude substantial problems and bad feelings if he/she helps the grantee set up records and other documents in anticipation of an audit.</p> <p>Auditors prepare audit reports and where appropriate make exception to certain items as being allowable for grant participation. The audit report is first submitted to the state or EPA project manager for review. Resolution of exceptions may take place at this level. If the project manager agrees with the exception(s), the grantee is provided an opportunity to explain the exception and/or supply additional information as to why the costs should be considered allowable. Where an exception is not clearly defined by regulation or other agency policy, the final decision rests with EPA headquarters.</p> <table border="1"> <thead> <tr> <th colspan="3">Chapter VII</th> </tr> <tr> <th><u>Page No.</u></th> <th><u>Item</u></th> <th><u>Comment</u></th> </tr> </thead> <tbody> <tr> <td>36</td> <td>Audits 1. and 2.</td> <td>Students to read items 1 and 2 entirely.</td> </tr> <tr> <td>39</td> <td>Audits 6.</td> <td>Students to read item 6 entirely.</td> </tr> </tbody> </table> | | | 34 | Increases and Decreases E.1. | Students to read item 1 entirely. | Chapter VII | | | <u>Page No.</u> | <u>Item</u> | <u>Comment</u> | 36 | Audits 1. and 2. | Students to read items 1 and 2 entirely. | 39 | Audits 6. | Students to read item 6 entirely. | Start Part 2 |
| 34 | Increases and Decreases E.1. | Students to read item 1 entirely. | | | | | | | | | | | | | | | | |
| Chapter VII | | | | | | | | | | | | | | | | | | |
| <u>Page No.</u> | <u>Item</u> | <u>Comment</u> | | | | | | | | | | | | | | | | |
| 36 | Audits 1. and 2. | Students to read items 1 and 2 entirely. | | | | | | | | | | | | | | | | |
| 39 | Audits 6. | Students to read item 6 entirely. | | | | | | | | | | | | | | | | |
| | | | Q & A 7 & 10 | | | | | | | | | | | | | | | |

| Lesson Outline #13 | Question & Answer Location |
|--|----------------------------------|
| <p>Summary:</p> <p>The topic Financial Considerations contains information and procedures common to all construction grants. The information and procedures are contained in Chapter VII of the "Handbook of Procedures." Students should first review this chapter when questions arise and resort to the references contained in the chapter as necessary.</p> | <p>End Part 2</p> |
| | |

QUIZ - TOPIC #13

Summary of Financial Considerations

1. The construction of a water treatment plant is (a) not eligible, (b) unallowable for a grant under the CWA.
(Circle a or b)
2. The cost of selling municipal bonds to finance the construction of a sewage treatment plant is
 - a. allowable
 - b. unallowable
 - c. eligible
 - d. ineligible
3. A pickup truck to be used 50% at the treatment plant and 50% by the Street Department is purchased by the grantee. Half the costs of the truck are allowable for grant participation.
True or False
4. The cost of land purchase is allowable for grant participation if the land will be an integral part of the treatment plant.
True or False
5. Costs for startup services are not allowable for grant participation. True or False
6. The use of force account labor requires justification and prior EPA approval. True or False
7. Step 3 grants may be decreased after receipt of bids and reduction of contingency allowance (assumes bids are lower than estimated). True or False
8. Advance payments are made for large construction projects
True or False

Topic #13 Quiz (Cont'd.)

9. Final grant payment is made prior to final inspection if requested by grantee. True or False
10. Audits are conducted on all projects. True or False

ANSWERS - TOPIC #13

1. (a) not eligible
2. (b) unallowable
3. True
4. True - Land acquisition costs for conventional forms of treatment are not allowable.
5. False - Up to 90 days for most plants and 300 days for large complex plants.
6. True
7. True - This allows other projects to be funded.
8. False - Payments made only after costs have been incurred.
9. False
10. False - Generally only on projects with grants > \$250,000.

INSTRUCTOR LESSON PLAN 14

Topic #14: WHAT DELEGATION MEANS TO THE STATE OF _____

Objective: The students are presented state plans on the implementation of State Delegation Agreement.

Suggested Time: 45 minutes

Required
Equipment: None

Lesson Outline

Question
& Answer
Location

Introduction:

This topic does not have a prepared outline but has been set aside for senior state management personnel to address new employees. During the year preceding the preparation of this instructor manual, this course was delivered eight times throughout the United States. Approximately fourteen states were represented by the students attending this course. The presentation of material for this topic ranged from ten minutes of extemporaneous comments to sixty minutes of planned instruction.

In many instances, the assemblage of students represented the first time that all new employees in the Construction Grants Program were gathered in one place at the same time. The most effective presentations were made by a series of senior state management personnel followed by a question and answer period. Following is a series of topics that are recommended for presentation.

I. Delegation Agreement

- A. Schedule of delegation - a list of dates and functions which will be assumed by the state beginning with the signing of the delegation agreement between the state and EPA

| Lesson Outline #14 | Question & Answer Location |
|---|----------------------------------|
| <p>B. Functions and responsibilities retained by EPA - a listing of functions which are not anticipated to be delegated by EPA and a discussion of the sampling reviews to be conducted by EPA for those functions delegated</p> <p>C. Responsibilities of the state under delegated functions - specific details of the responsibilities to be carried out by the state for the delegated functions. For example, with regard to environmental reviews, the state may or may not prepare the environmental assessment statement (EAS) (formerly environmental appraisal) based on the grantee's environmental information document. EPA must by law retain the final decision as to whether an EIS will or will not be prepared. However, the state may prepare the EAS.</p> <p>II. Organization</p> <p>Many states have had to reorganize their departments, divisions or other unit of government in order to efficiently handle the increased responsibilities. This topic should include organization diagrams showing the various units of government and their interrelationship.</p> <p>A. Location within state government</p> <p>B. Division or department organization including subsections, such as</p> <ol style="list-style-type: none"> 1. Engineering section <ol style="list-style-type: none"> a. Engineering reviews and inspection b. O & M review and monitoring c. Environmental review d. Technical support services 2. Administration section <ol style="list-style-type: none"> a. Project coordination b. Program support 3. Staff training 4. Personnel | |

| Lesson Outline #14 | Question & Answer Location |
|---|----------------------------|
| <p>III. Staffing</p> <p>This topic may show the number and grade of various positions which will be filled during the delegation process. Positions may be identified by disciplines and prerequisite years of experience, etc.</p> <p>IV. Staff Training</p> <p>This topic may present the type and dates for specific training programs, such as</p> <ul style="list-style-type: none"> A. Management staff training B. Basic training (new employees) C. Advanced training <p>V. Questions and Answers</p> <p>VI. Summary</p> <p>The state senior manager may wish to summarize the three day seminar as follows.</p> <p>"Having completed the Construction Grants Process course, you have been exposed to the entire Construction Grants Program from the history of federal involvement through construction and final audit. You are now aware of the complicated procedures that you and a grantee must follow in satisfying the federal requirements for a construction grant. We do not now consider you an expert; rather, we consider this training seminar as the beginning of your education. You should now have a reasonably good idea of how the program functions and how the many parts fit together.</p> <p>Some of you will work in only one specific area of the program during the next year or so. However, you should have learned how each function is interrelated to other program functions in order that you can better coordinate your actions with others.</p> <p>It should be obvious that the program is rather complex. You will spend full time administering the program. Can you imagine</p> | |

| Lesson Outline #14 | Question & Answer Location |
|--|----------------------------------|
| <p>how municipal officials must feel when they are exposed to all the forms, paperwork and responsibilities which they assume after receiving a grant? They do not spend full time on their sewage treatment project. They need your help, not hindrance. The success of the program depends on you working cooperatively with grantees and applicants. You must seek out every opportunity to help them. You must manage the program so that the public monies are spent effectively. We all tend to get bogged down in regulations and paperwork. We must not forget, however, that the primary objective of this program is to abate water pollution, but <u>not</u> at the expense of creating worse environmental problems.</p> <p>We thank you for your attendance at this training seminar and trust it has been fruitful. Please keep in mind that we welcome your suggestions for improvement to the efficient administration of the program and are available to meet with you at any time."</p> | |

APPENDIX

STUDENT COURSE EVALUATION

| TITLE: CONSTRUCTION GRANTS PROCESS FOR STATE AGENCY PERSONNEL (250.2) | | TIME ALLOTTED | | | | LEVEL OF INSTRUC- TION | | | | INSTRUCTOR PRESENTATION | | | | VISUAL AIDS | | | | | |
|--|---|------------------|-------------|-----------|------------|------------------------------|-------------|--------------|------------|----------------------------|------------|---------|------|----------------|------------|--------------|-------------|-----------|------------|
| LOCATION: | | Insufficient | Appropriate | Excessive | No Opinion | Too Basic | Appropriate | Too Advanced | No Opinion | Very Poor | Inadequate | Average | Good | Outstanding | No Opinion | Insufficient | Appropriate | Excessive | No Opinion |
| DATES: | | | | | | | | | | | | | | | | | | | |
| DAY | TOPIC | | | | | | | | | | | | | | | | | | |
| #1 | 1 Evolution of Federal Role | | | | | | | | | | | | | | | | | | |
| | 2 From Legislation to Practice | | | | | | | | | | | | | | | | | | |
| | 3 State Program | | | | | | | | | | | | | | | | | | |
| | 4 Facilities Plan Review | | | | | | | | | | | | | | | | | | |
| | 5 Avoiding Delays | | | | | | | | | | | | | | | | | | |
| #2 | 6 Step 1 Grant Processing | | | | | | | | | | | | | | | | | | |
| | 7 Step 2 Grant Processing | | | | | | | | | | | | | | | | | | |
| | 8 Problems and Delays | | | | | | | | | | | | | | | | | | |
| | 9 Plan and Specifications Review | | | | | | | | | | | | | | | | | | |
| #3 | 10 Step 3 Grant Processing | | | | | | | | | | | | | | | | | | |
| | 11 Procurement of Construction Grants | | | | | | | | | | | | | | | | | | |
| | 12 Monitoring of Construction | | | | | | | | | | | | | | | | | | |
| | 13 Summary of Financial Considerations | | | | | | | | | | | | | | | | | | |
| | 14 What Delegation Means to the State of | | | | | | | | | | | | | | | | | | |
| ADDITIONAL COMMENTS: | | | | | | | | | | | | | | | | | | | |

| | |
|--|-----|
| PLEASE RATE THE ENTIRE COURSE FOR THE FOLLOWING | |
| PRACTICAL APPLICATION | |
| Inadequate | () |
| Average | () |
| Good | () |
| Outstanding | () |
| No Opinion | () |
| REFERENCE MATERIAL | |
| Insufficient | () |
| Appropriate | () |
| Excessive | () |
| No Opinion | () |
| CLASSROOM FACILITIES | |
| Insufficient | () |
| Appropriate | () |
| Excellent | () |
| No Opinion | () |
| If insufficient, pls comment | |
| QUIZZES | |
| Inadequate | () |
| Average | () |
| Good | () |
| Outstanding | () |
| Not Necessary | () |

SOURCE COURSE MATERIALS

1. Federal Regulations

The major regulations used as source material are taken from Title 40 Code of Regulations, Chapter I. The major parts and/or subparts are listed below in their general order of importance.

- a. Part 35 Subpart E - Grants for Construction of Treatment Works - Clean Water Act
 - Subpart F - State Management Assistance Grants
 - Subpart G - Grants for Water Quality Planning, Management and Implementation
- b. Part 6 Subpart E - Environmental Review Procedures for Wastewater Treatment Construction Grants Program
- c. Part 25 - Public Participation in Programs under Resource Conservation and Recovery Act, The Safe Drinking Water Act, and The Clean Water Act
- d. Part 30 - General Grant Regulations and Procedures
- e. Part 33 - Subagreements (used for other than A/E subagreements)
- f. Part 403 - General Pretreatment Regulations for Existing and New Sources of Pollution

2. Municipal Construction Division (MCD) Publications

- a. Handbook of Procedures (MCD-03)
- b. Handbook for Sewer System Evaluation and Rehabilitation (MCD-19)
- c. Model Plan of Study, Supplement to Guidance for Preparing a Facility Plan (MCD-24)
- d. Value Engineering Workbook for Construction Grants Projects (MCD-29)

- e. Guidance for Preparing a Facility Plan (MCD-46)
 - f. Innovative and Alternative Technology Manual (MCD-53)
- 3. Environmental Assessment of Construction Grants Project (FRD-5)
 - 4. Program Requirement Memoranda, Office of Water Program Operations
 - 5. Program Operations Memoranda, Office of Water Program Operations