EOB

ENHANCED OIL RECOVERY
FEBRUARY 1979

Technology Transfer

Project Planning Document

MASTER

DEPARTMENT OF ENERGY

Division of Fossil Fuel Extraction

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TECHNOLOGY TRANSFER

PROJECT PLANNING DOCUMENT - FY 1979

February 1979

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UNITED STATES DEPARTMENT OF ENERGY
DIVISION OF FOSSIL FUEL EXTRACTION

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TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
1. EXECUTIVE SUMMARY	1-1
2. INTRODUCTION	2-1
2.1 Background	2-1
2.2 Project Objectives	2-2
2.3 Project Activities	2-3
2.3.1 Project Management	2-4
2.3.2 Technology Processing	2-5
2.3.3 Information Collection and Dissemination	2-5
2.3.4 Industrial Liaison Management	2-6
2.3.5 Project Interrelationships	2-7
2.4 Funding for Five-Year Project	2-7
3. PROJECT MANAGEMENT	3-1
3.1 Organization and Establishment of Project	3-1
3.1.1 General Organization and Administration	3-1
3.1.2 Management Structure	3-3
3.1.3 Management Policy Groups	3-3
3.1.3.1 Executive Steering Committee	3-3
3.1.3.2 EOR Project Managers	3-6
3.1.3.3 Management Workshop Group	3-6
3.1.4 Operating-Level Management	3-7
3.1.4.1 Project Management Group	3-7
3.1.4.2 Project Manager	3-7
3.1.4.3 Assistant Project Managers	3-9
3.1.4.4 Technical Project Officers	3-10
3.1.4.5 BETC In-House Support	3-10
3.1.5 Management Tracking System	3-10
3.1.6 Reports and Deliverables	3-12
3.2 Plan for Five-Year Program	3-12
3.3 Industrial Liaison Management	3-14
3.4 Interaction with Other EOR Projects	3-15
3.5 Selection of Management Workshop Group	3-15
3.6 EOR Technology Transfer Center Need Study	3-16
3.7 Initiation of Support Contracts and Studies	3-16

(Continued)

TABLE OF CONTENTS (Continued)

<u>Section</u>	<u>Page</u>
4. TECHNOLOGY PROCESSING	4-1
4.1 Assistant Project Manager	4-1
4.2 Identify Information Needs	4-2
4.3 Design of Information System	4-4
4.3.1 Existing Data Bases	4-4
4.3.2 Design Steps	4-5
4.4 Guidelines and Quality Control for the Information System	4-6
4.4.1 Guidelines	4-7
4.4.2 Quality Control of the Information System	4-7
5. INFORMATION COLLECTION AND DISSEMINATION	5-1
5.1 Assistant Project Manager	5-1
5.2 Accumulate Information	5-2
5.3 Maintain Information System	5-3
5.3.1 Maintain Direct Data Access Data Base	5-3
5.3.2 Maintain Other Source Materials	5-4
5.4 Prepare Reports	5-4
5.5 Prepare Visual and Printed Materials	5-5
5.5.1 Prepare Newsletter	5-6
5.6 Distribute Visual and Printed Materials	5-7
5.6.1 Distribution of Publications	5-7
5.6.2 Distribution of Data Base Information	5-8
5.7 Hold Seminars, Workshops, and Symposia	5-8
5.7.1 Annual EOR Symposium	5-9
5.7.2 Other Seminars and Workshops	5-9
5.8 Promote Information System	5-10
6. INDUSTRIAL LIAISON MANAGEMENT	6-1
6.1 Assistant Project Manager	6-1
6.2 Industrial Liaison Task Plans	6-4
6.3 Identify Fields, Companies, and People	6-4
6.4 Interact with Target Companies	6-5
6.5 Industrial Liaison Activity Study	6-5

(Continued)

TABLE OF CONTENTS (Continued)

<u>Section</u>	<u>Page</u>
7. ANTICIPATED ACTIVITY CHANGES BEYOND FY 1979	7-1
7.1 Project Management	7-1
7.2 Technology Processing	7-2
7.3 Information Collection and Dissemination	7-2
7.3.1 Maintain Information System	7-2
7.3.1.1 Delineate DOE's EOR Technology Transfer Role	7-2
7.3.2 Prepare Visual and Printed Materials	7-3
7.3.3 Industry Data Workshop	7-3
7.4 Industrial Liaison Management	7-3

LIST OF FIGURES

<u>Figure</u>	<u>Page</u>
2.1 Project Interrelationships	2-8
3.1 EOR Technology Transfer Project Management Relationships	3-2
3.2 Management Groups	3-4
3.3 Meeting Schedule for Management Groups	3-5
3.4 Operating-Level Management	3-8
3.5 Sample of Detailed Task/Subtask Schedule Chart	3-13
3.6 Project Management Tasks and Milestones	3-17
4.1 Technology Processing Tasks and Milestones	4-8
5.1 Information Collection and Dissemination Tasks and Milestones	5-11 5-12
6.1 Industrial Liaison Management Organization	6-2
6.2 Industrial Liaison Management Tasks and Milestones	6-7
7.1 Milestone Chart for FY 1980-FY 1982	7-6 7-7 7-8

PROJECT PLANNING DOCUMENT
FOR
EOR TECHNOLOGY TRANSFER PROJECT

1. EXECUTIVE SUMMARY

The EOR Technology Transfer Project Planning Document (PPD) presents detailed plans for accomplishing the project's goals and objectives for FY 1979 and makes tentative plans for the remainder of the five-year project, based on expected budgets. FY 1979 plans emphasize the immediate goal of improving and accelerating the existing flow of enhanced oil recovery (EOR) information by defining and setting up management and operating systems to accomplish the goal. Long-term plans emphasize the ultimate goal of fostering the commercialization of EOR processes to help increase U.S. crude oil production. The primary activities of the Technology Transfer Project include:

- Project Management,
- Technology Processing,
- Information Collection and Dissemination,
- Industrial Liaison Management.

The Project Management activity organizes and establishes the Technology Transfer Project to serve the entire DOE program for EOR; establishes short- and long-term plans for achieving the goals and objectives of the project, including an annually updated Project Planning Document; sets up and maintains an Industrial Liaison Management system; provides mechanisms for interaction with other EOR Projects; provides for the selection of a Management Workshop Group; and initiates support contracts and studies.

Technology Processing includes three primary tasks:

- Task 1 is to determine the EOR information requirements of user groups by surveying industry, financial groups, government policy groups, academia, and public groups;
- Task 2 is to design an EOR information system, including a "direct data access" data base, that will serve the EOR information needs of all user groups;
- Task 3 is to establish input guidelines and quality control measures to keep the EOR information system at a high quality that will be responsive to the user groups' needs.

Information Collection and Dissemination includes seven tasks:

- Task 1 is to accumulate EOR information and data from a variety of sources, primarily from the EOR Program research and field demonstration projects;
- Task 2 is to maintain the EOR information system by processing the raw data and information into forms that are most useful to the user groups and into forms that encourage maximum use;
- Task 3 is to prepare various EOR printed reports, including progress reports, annual and final reports, special reports, and the quarterly progress review, Enhanced Oil and Gas Recovery and Improved Drilling Methods;

- Task 4 is to prepare various EOR visual and printed materials to include news releases and feature articles, films, exhibits, television spots, books, monographs, and reviews;
- Task 5 is to distribute visual and printed EOR materials through the Technical Information Center, National Technical Information Service, DOE Energy Technology Centers, specialized mailing lists, and individually upon special request;
- Task 6 is to hold seminars, workshops, and symposia, to include small group workshops for each EOR process and an annual free symposium to provide a means for EOR information exchange;
- Task 7 is to promote the use of the EOR information system through the production and distribution of a guidebook, media releases, and personal presentations.

The Industrial Liaison Management activity includes two tasks:

- Task 1 is to identify targets of opportunity for EOR technology and to identify fields, companies, and people who can fulfill EOR goals. This includes determining the fields, companies who own the fields, and people within the companies who have the authority and influence to bring about commercialization of EOR methods in those fields to meet DOE's goals of increased production by 1985. The findings of this task will be placed in the EOR data base for interchange among the EOR Project Managers;

- Task 2 involves providing interaction with target companies, in cooperation with Government EOR Project Managers, to identify additional needs for performance and information. The goals of this task are to assure that industry is made aware of EOR technology and to convince industry to apply EOR technology commercially.

2. INTRODUCTION

2.1 Background

Despite efforts to reverse the trend, the United States continues to consume much more oil than it can produce. Department of Energy figures show that for 1977:

- Petroleum products accounted for nearly 49 percent of U.S. gross energy consumption--an all-time high;
- Total U.S. petroleum consumption equaled 36,934 trillion BTU's--an all-time high;
- Total petroleum imports were nearly 3.2 billion barrels--an all-time high;
- Total proved U.S. domestic crude oil reserves were slightly less than 29.5 billion barrels--the lowest figure in more than 20 years.

These figures are part of the continuing trend over the past two decades: The United States is requiring increasing oil supplies, while domestic reserves and capacity to produce oil are generally declining. This situation has led to ever-increasing oil imports and massive balance-of-payments deficits.

The Department of Energy's Enhanced Oil Recovery Program is a comprehensive effort designed to discover ways to recover a larger portion of domestic oil resources and to encourage the use of the technology within the petroleum industry.

Primary recovery techniques (pressure flow and pumping) typically recover less than one-third of the oil resource from the average reservoir. Water-flooding (secondary recovery) technology can help recover an additional portion of the oil from certain types of reservoirs, but even then typically more than half of the original oil is left in place.

DOE's Enhanced Oil Recovery Program is now concentrating on developing promising tertiary recovery techniques. The goal is to help develop and demonstrate technologies that by 1985 can increase oil production by 800,000 barrels per day.

EOR Program components include research, development, demonstration, economic incentive, environmental, and technology transfer aspects. The Technology Transfer Project, as described in Chapter 5 of the Technology Implementation Plan for Enhanced Oil Recovery, is an integral part of the program, and is designed to interact with the other EOR Projects to accomplish its goals and objectives.

2.2 Project Objectives

The overall goal of the EOR Technology Transfer Project is to expand the scope and methods for transferring technology developed through the DOE EOR Program to the private sector.

The specific project objectives are as follows:

- The immediate goal is to improve and accelerate the existing flow of EOR-related information through an effective government-industry liaison effort;
- The eventual goal is to develop a comprehensive, coordinated, and effective technology transfer system for EOR information. The system will increase the usefulness of the information to key high-priority users;

- The ultimate goal is to foster commercialization of EOR processes and techniques by working in conjunction with EOR Program Technical Project Officers and by performing the necessary Industrial Liaison activities.

To achieve these objectives, a variety of activities and tasks will be accomplished. In some cases, this involves initiating new activities and tasks. In others, it involves continuing earlier efforts of the DOE, specifically the Bartlesville Energy Technology Center's direct collaboration with industry groups. The purpose of the EOR Technology Transfer Project is to incorporate, and in numerous instances expand, these earlier and existing efforts into a fully integrated program with the new activities and tasks to accomplish the stated objectives.

The current activities of DOE relating to EOR technology transfer include monthly field reports, quarterly progress reviews, annual symposia, contractors' progress reports, discussions and consultations with industry technical personnel, society presentations and journal articles, library assistance and literature searches, exhibits, tours of projects, feature stories on EOR projects for mass media and trade journals, contacts with oil press members regarding EOR project progress, and other related activities.

2.3 Project Activities

Enhanced Oil Recovery Technology Transfer Project activities are grouped into four categories: (1) Project Management, (2) Technology Processing, (3) Information Collection and Dissemination, and (4) Industrial Liaison Management. These activities are performed by a mix of DOE personnel and agencies, academic institutions, and contractors. Fiscal Year 1979 activities and tasks concentrate on building an integrated program into a structure that is manageable and flexible enough to respond to the needs of its participants and audiences. This concentration is designed to accomplish the immediate goal of improving and accelerating the existing flow of EOR-related information. The activities and tasks planned for the following three fiscal years are designed to lead to the eventual and ultimate goals stated in 2.2.

2.3.1 Project Management

Since the EOR Technology Transfer Project involves many individuals and organizations in government and industry, a strong Project Management system is essential to ensure that the project operates as planned and that activities and tasks performed are completed on schedule and meet the needs of the target audiences and user groups.

The Project Manager is headquartered at the Bartlesville Energy Technology Center (BETC). The management team consists of a number of DOE and BETC officials, along with assisting contractor personnel and an independent Management Workshop Group. The management team and its duties are described in detail in Section 3. The team includes individuals with specific experience in designing and operating technology transfer programs and others with technical experience in the various aspects and processes of enhanced oil recovery. This mix of talents and experience is designed to assure that the EOR Technology Transfer Project will accomplish its goals and objectives.

The major functions of Project Management are in the areas of administration, program design and operation, project coordination, and evaluation. The needs for proper administration and program design and operation are obvious. Project coordination with the other parts of the comprehensive Enhanced Oil Recovery Program is highly important. The relative success of the Technology Transfer Project depends strongly on the ability of the management team to closely follow and monitor the progress of EOR research projects, field demonstration projects, commercialization efforts, and economic incentives that are developed as a part of government energy policy, private industry EOR efforts, and the activities of industry societies and professional groups. Project Management is also responsible for continuous project evaluation. In any program as comprehensive as the EOR Technology Transfer Project, no matter how carefully conceived and designed, it is likely that some elements will not operate as expected. By constantly

evaluating project elements, the management team can determine this and can make program alterations to improve performance. Alterations can consist of immediate corrective action as determined by the Project Manager upon the advice of the several management groups, or more comprehensive long-term project changes that can be incorporated into annual updates of the Project Planning Document.

2.3.2 Technology Processing

This activity involves several tasks and subtasks, all designed to eventually make information resulting from ongoing EOR research and field projects available for dissemination to users in a form that is consistent with their needs and that will encourage commercialization. The activity basically is a continuation of earlier DOE efforts, but with the purpose of providing better planning and more direction and coordination with other aspects of the Technology Transfer Project. The work is performed by DOE personnel and selected contractors as detailed in Section 4. The information for processing is generated by government, industry, and academic personnel conducting DOE-sponsored research and field demonstration projects. The emphasis is on setting up procedures to select and process pertinent EOR information which will be most helpful in promoting commercialization.

Existing bibliographic and analytical data bases will be identified and their role in the project determined. Other efforts are aimed at determining the information needed by decision makers for EOR applications (in cooperation with the Industrial Liaison Management activity), and delineating the proper role for DOE EOR Technology Transfer activities.

2.3.3 Information Collection and Dissemination

The Information Collection and Dissemination activity expands upon earlier and existing efforts conducted by various Department of Energy groups, including BETC, the Technical Information Center (TIC), and the Division of Fossil Fuel Extraction (FFX). The activity includes substantial efforts to

accumulate EOR information, package the information into easily usable forms, and operate a variety of information delivery mechanisms to satisfy the EOR information needs of all target audiences and user groups. A major effort will be made to create an integrated program that is fully responsive to the needs of the information users. In addition to the traditional types of research information dissemination, such as distributing reports and abstracts, the activity includes maintaining the EOR direct data access data base; developing and maintaining specialized mailing lists; an annual free EOR Symposium and smaller seminars and workshops dealing with each major EOR process; preparing books, monographs, reviews, films, visual media, exhibits, in-depth news stories and features, and designing and operating delivery systems for them; and preparing and distributing a newsletter about EOR activities. Tasks will be accomplished by BETC and other DOE Energy Technology Centers, TIC, universities, and contractors. Information Collection and Dissemination are detailed in Section 5.

2.3.4 Industrial Liaison Management

The success of the entire EOR program depends heavily upon the ability of DOE to share information and encourage information exchange with and among all components of the EOR industry. Major efforts and resources of the Technology Transfer Project go into the Industrial Liaison Management activity. The key tasks for the Industrial Liaison Management activity include providing information for commercialization to EOR Project Managers and facilitating interaction with target companies and the Project Managers. These tasks will be accomplished by BETC, EOR Project Managers, and contractors. Industrial Liaison Management personnel also will work closely with Technology Processing personnel to determine industry's EOR information needs. Although the Technology Transfer Project Management is responsible for coordinating the activity, available funds for the activity will be "passed through" to the other EOR Project Managers. Industrial Liaison Management tasks are detailed in Section 6.

2.3.5 Project Interrelationships

Technology Processing establishes what information is needed and the quality of the information that should be made available. Industrial Liaison Management also has considerable input in determining what information is valuable to industry. A primary responsibility of Industrial Liaison Management is to see that the information reaches the proper groups and individuals. Industrial Liaison Management is active in promoting commercialization. Industrial Liaison Management works closely with the EOR Program TPO's to maintain contact with industry. Information Collection and Dissemination gathers the EOR information, repackages it, and disseminates it to end users. Project Management coordinates all project activities. The activity relationships are shown in Figure 2.1.

2.4 Funding for Five-Year Project

Actual funding levels for FY 1978 and FY 1979 and anticipated funding for FY 1980 through FY 1982 are given below. Since several tasks actually being performed during FY 1979 are funded from FY 1978 funds, a larger amount of work to accomplish the various tasks will be done during 1979 than might be expected from a simple examination of the FY 1979 budget figures. In particular, several contractor tasks being performed in FY 1979 are funded from the FY 1978 budget. In such cases, contracts were awarded before the end of FY 1978. Such contract work is described in appropriate sections of the PPD.

<u>ACTIVITY</u>	<u>FISCAL YEAR/THOUSANDS OF DOLLARS*</u>					
	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>TOTAL</u>
Project Management	107	229	245	262	281	1124
Technology Processing	305	226	423	557	617	2128
Information Collection & Dissemination	557	377	655	767	827	3183
Industrial Liaison Management	744	498	637	511	519	2909
TOTAL	1713	1330	1960	2097	2244	9344

*Dollar figures inflated at the rate of 7 percent per year.

FIGURE 2.1 - PROJECT INTERRELATIONSHIPS

3. PROJECT MANAGEMENT

The Enhanced Oil Recovery Technology Transfer Project is a comprehensive effort designed to immediately improve and accelerate the flow of EOR information to encourage commercialization of EOR technology. As such, the project has far-reaching goals, and project personnel work with numerous groups and individuals throughout government, industry, business, academia, and the general public to accomplish these goals. A strong and aggressive management structure is needed to work with such a variety of groups and individuals to ensure the project's success. For this reason, the Project Planning Document emphasizes the importance of Project Management and the role it plays in the project.

3.1 Organization and Establishment of Project

The first task to be implemented under the Project Management activity is the organization and establishment of the Technology Transfer Project, to include setting up the management structure and schedules.

3.1.1 General Organization and Administration

The Technology Transfer Project is administered through the Office of Fossil Energy Programs, Division of Fossil Fuel Extraction, at Department of Energy Headquarters and is operated at DOE's Bartlesville Energy Technology Center in Bartlesville, Oklahoma, where the EOR Program Manager and EOR Technology Transfer Project Manager (TTPM) are located. The TTPM reports to the EOR Program Manager, who reports to the BETC Director and the Director of the Division of Fossil Fuel Extraction.

In most cases, assistance with procurement, contract administration, financial control, and obligational authority will be obtained for the Technology Transfer Project directly from BETC's EOR Contracting Officers. In limited instances, additional assistance with these matters and with the law may be obtained from the San Francisco Operations Office. The management relationships among DOE Headquarters, the Technology Transfer Project, and the San Francisco Office are shown in Figure 3.1.

FIGURE 3.1 - EOR TECHNOLOGY TRANSFER PROJECT MANAGEMENT RELATIONSHIPS

3.1.2 Management Structure

The management structure of the EOR Technology Transfer Project consists of two primary parts:

- Management policy groups, consisting of an Executive Steering Committee, the EOR Project Managers, and an independent Management Workshop Group,
- Operating-level management personnel, consisting of the Technology Transfer Project Manager, three Assistant Project Managers, and the Technical Project Officers. (Members meet formally as the Project Management Group.)

The structure of each part is designed to provide optimum management functions without being burdensome or impeding the project's progress. The management groups and their relationship to the EOR Program Manager and the Technology Transfer Project Manager are shown in Figure 3.2. The meeting schedule for management groups is shown in Figure 3.3.

3.1.3 Management Policy Groups

3.1.3.1 Executive Steering Committee

The Executive Steering Committee is composed of the Director of the Division of Fossil Fuel Extraction (or his designee), the BETC Director, the EOR Program Manager (chairman), the Technology Transfer Project Manager, and a designee of the Director of the Office of Technical Information. The committee has primary responsibility for setting project policy, reviewing progress, evaluating the project's effectiveness, and recommending any needed project alterations. The committee will meet semiannually.

FIGURE 3.2 - MANAGEMENT GROUPS

MANAGEMENT GROUPS' MEETING SCHEDULES *

Executive Steering Committee--Semiannually

First week of May
First week of November

EOR Project Managers--Annual

During Annual Symposium
(Plus Individual Meetings as Needed)

Management Workshop Group--Semiannually

First week of June
First week of December

Project Management Group--Quarterly

Third week of January
Third week of April
Third week of July
Third week of October

*Exact meeting dates to be set by chairmen
and announced at least two months prior
to meetings.

FIGURE 3.3 - MEETING SCHEDULE FOR
MANAGEMENT GROUPS

3.1.3.2 EOR Project Managers

Project Management must work closely with all EOR Project Managers to develop effective technology transfer methods. To encourage effective working relationships between Project Management and the EOR Project Managers, an annual meeting with the Project Managers and the EOR Program Manager will be held in conjunction with the Annual EOR Symposium. The TTPM will brief the group about Technology Transfer Project progress and plans and will solicit input from the members. Individual meetings between Project Management and each Project Manager also will be scheduled once a year as detailed in Section 3.4.

3.1.3.3 Management Workshop Group

An independent Management Workshop Group will be selected to provide an outside view of the Technology Transfer Project and of the progress being made, and to provide management and guidance input for Project Management personnel. The group will meet semiannually in a workshop format. Membership will consist of representatives from each of the following groups: independent oil producers, major oil producers, EOR chemical/equipment suppliers, academics, environmentalists, state energy officials, and federal energy officials. Selection procedures will be determined by the TTPM, who will make every effort to ensure that these groups are fairly represented by individuals who have an active interest in seeing that EOR technology is transferred accurately and rapidly to the groups they represent. The TTPM, Assistant Project Managers (APM's), and EOR Program Manager will serve as ex-officio members. These management officials will brief members on the project's progress and on the management system's relative success in bringing the goals and objectives into being. The independent membership will be asked to evaluate the management system, to suggest alterations for improvements, and to make recommendations regarding ways in which the project can more effectively work with the groups the members represent to accomplish the goals and objectives.

3.1.4 Operating-Level Management

The operating-level management for the Technology Transfer Project is composed of the Project Manager, the three Assistant Project Managers, and the Technical Project Officers (TPO's) assigned to the project. The operating-level management structure is shown in Figure 3.4. Upon first examination, it might appear that the project is heavy with management personnel. However, it should be noted that in some cases the Assistant Project Managers and the Technical Project Officers actually will perform some of the tasks/subtasks, and in many cases the APM's and TPO's will spend only a fraction of their time managing and supervising the tasks/subtasks. The DOE personnel used as APM's and TPO's for the Technology Transfer Project also perform other duties not related to the project. Also, in some cases the APM's will supervise some tasks/subtasks directly when Technical Project Officers are not required.

3.1.4.1 Project Management Group

In addition to their day-to-day duties, operating-level management personnel will meet collectively as the Project Management Group to help organize and operate the project to reflect the policies and recommendations of the management policy groups, to review progress, and to better coordinate project tasks. The TTPM will serve as Project Management Group chairman. The Project Management Group will have regular quarterly meetings, and the TTPM may call special meetings whenever necessary. Since some tasks will be performed by contractors, universities, and other DOE groups and personnel, representatives may be asked to meet with the Project Management Group upon invitation of the TTPM.

3.1.4.2 Project Manager

The Project Manager is responsible for day-to-day operation and administration of the project. The TTPM reports to the EOR Program Manager and to the Division of Fossil Fuel Extraction. Specific duties of the TTPM include administration and supervision of the project staff, preparation of

FIGURE 3.4 - OPERATING-LEVEL MANAGEMENT

budget requests and disbursement of funds through procurement and contracting officers, selection of contractors and initiation of contracts and studies, coordination of Management Workshop Group and Project Management Group meetings, assuring that all reports and deliverables meet established schedules, updating the annual Project Planning Document, and assuring that all management and other activity tasks are completed.

3.1.4.3 Assistant Project Managers

The three Assistant Project Managers will be selected by the TTPM and will report to him. Three specific activities, in addition to Project Management, comprise the Technology Transfer Project:

- Technology Processing,
- Information Collection and Dissemination,
- Industrial Liaison Management.

Specific duties of the APM's for Technology Processing and for Information Collection and Dissemination include, for their respective areas, selection of Technical Project Officers (subject to TTPM's approval) to oversee performance of specific tasks, supervision of TPO's, preparation of monthly and quarterly progress reports for the TTPM, selection of DOE personnel and contractors (subject to TTPM's approval) to perform specific tasks, writing requests for proposals deemed necessary by the TTPM, assisting the TTPM to update the annual Project Planning Document, and assisting the TTPM with any other duties requested. The APM for Industrial Liaison Management will function differently because Industrial Liaison operating funds are "passed through" the Technology Transfer Project to other EOR projects. Thus, the APM for Industrial Liaison Management will have limited direct authority.

The specific duties and responsibilities of each Assistant Project Manager are discussed in more detail in Sections 4, 5, and 6.

3.1.4.4 Technical Project Officers

Technical Project Officers are selected by the Assistant Project Managers, with the approval of the Project Manager, to oversee specific tasks. The total number of TPO's under appointment at any one time will vary according to the number of tasks underway at the time. In some cases, it will be necessary to appoint a TPO to oversee only one task; in others, one TPO may be assigned to oversee several related tasks. The TPO's are responsible for seeing that the contractors and DOE personnel assigned to perform specific tasks perform them as requested, for identifying and helping to solve any problems encountered by task performers, and for serving as the liaison between Project Management and the task performers.

3.1.4.5 BETC In-House Support

In addition to the operating-level management positions detailed thus far, other BETC personnel will be utilized as necessary in the EOR Technology Transfer Project. For example, procurement officers, information officers, and secretarial personnel at BETC will be used as appropriate. The TTPM has concluded a management services agreement with BETC for \$200,000 from the FY 1979 budget to provide Technical Project Officers, other assistance as noted, and related services for the project.

3.1.5 Management Tracking System

To ensure that operating-level management personnel maintain schedules and meet project deadlines, a management tracking system will be established and maintained throughout the duration of the project. Since the Technology Transfer Project is a service project, some tasks and subtasks will arise that the Technology Transfer Project Management has no way of anticipating. However, many tasks and subtasks will be accomplished on a regular basis, and management tracking will assure that these efforts stay on schedule. In addition, the appropriate Assistant Project Manager will be responsible for setting up management tracking as necessary for unexpected tasks as they arise.

The management tracking system will consist of two main parts:

- Preparation of detailed task/subtask schedule charts and financial status charts by the Assistant Project Managers for every task and/or subtask under their respective areas of responsibility. In the case of those tasks and subtasks assigned to Technical Project Officers, the TPO's will be responsible for preparing the charts and for providing copies to the APM's, who in turn provide them to the TTPM. A complete set of the detailed charts will be provided to the Technology Transfer Project Manager. The Assistant Project Managers are responsible for seeing that the TTPM has current copies of all all charts and seeing that the tasks and financial status are maintained according to schedule;
- Monthly and quarterly progress reports. Task progress will be reported to the TTPM monthly. Both task progress and the financial status for each task/subtask will be reported quarterly. Such reports will include complete descriptions of the task progress and financial status correlated with the task schedule and financial charts. In the case of any tasks that are not being performed satisfactorily, tasks that are not meeting established schedules, or financial problems of any sort, the APM's will include full explanations of the problems and the corrective action that is being taken or planned to remedy the situations.

In addition to presenting the TTPM with written monthly and quarterly reports, each APM will present an oral activity report, based on the latest quarterly report submitted, at the quarterly meetings of the Project Management Group. Any member of the group may offer suggestions through discussion at the meetings. However, management decisions regarding the activities and reports are the responsibility of the TTPM.

Figure 3.5 shows a sample detailed task/subtask schedule chart typical of those that will be prepared for each task/subtask by the APM's and TPO's.

3.1.6 Reports and Deliverables

The Technology Transfer Project Manager, in consultation with the EOR Program Manager and the Assistant Project Managers, is responsible for specifying the reports and deliverables required for each task assigned. The TTPM, with the assistance of the Assistant Project Managers and the Technical Project Officers, will submit regular written and oral progress reports and an annual progress report for each fiscal year's activities to the Division of Fossil Fuel Extraction through the EOR Program Manager. Other written and/or oral reports and reviews will be prepared and presented as requested at any time. Such reports and reviews are separate and independent from the progress reports prepared about the other EOR Projects as specific tasks of the Technology Processing, Information Collection and Dissemination, and Industrial Liaison Management activities.

Although the TTPM will establish the reports and deliverables required from task performers on a case-by-case basis, the general procedure will be to require a full complement of a management plan, milestone schedule and management report, cost plan, hot-line reports, technical progress reports, and final technical reports for contracts exceeding three months' duration and/or a \$10,000 budget. Tasks and contracts not exceeding these time and/or budget levels may be excused from providing some of these reports and deliverables at the option of the TTPM.

3.2 Plan for Five-Year Program

The Technology Transfer Project Manager is responsible for preparing an annually updated version of the Project Planning Document (PPD). It reflects firm plans for the fiscal year it represents and tentative plans for future fiscal years. The PPD includes detailed plans for accomplishing the goals

ENHANCED OIL RECOVERY TECHNOLOGY TRANSFER PROJECT--FISCAL 1979					
For Quarter Ending <u>12-31</u> , 1979 APM <u>T. Jones</u> TPO <u>S. Smith</u>					
Task/Subtask <u>Prepare Visual Materials</u> Performer <u>Science Media, Inc.</u>					
Job	Scheduled Completion	Met	Not Met	If Not Met, Reason Why	Date Completed
Chemical Flooding Feature Story for Oil Press	10-9-79	✓			
35mm Slides for Technology Transfer Speech 11-1-79	10-15-79	✓			
North Stanley Project Feature Story	11-1-79	✓			
Overhead Transparencies for DOE Briefing 11-8-79	11-3-79		✓	Labor Strike by Film Processors Delayed Delivery	11-7-79
Graphic Illustration of Field Project Progress	11-14-79		✓	Field reports received late from Ajax Oil Co, and from Jackson Oil Co.	11-19-79
Mock-up of Cat Canyon Field Project	11-26-79	✓			
General EOR Slide Set for Layman Presentations	12-4-79	✓			
Television Publicity Spot for Residual Oil Seminar	12-6-79	✓			
CO ₂ Support Research Chart for DOE Briefing 12-17-79	12-9-79	✓			
Television Video Tape EOR Feature	12-14-79		✓	Field Equipment Broken at Main Taping Site	12-28-79
Steam Flooding Film for Workshop 1-8-1980	12-27-79	✓			

FIGURE 3.5 - SAMPLE OF DETAILED TASK/SUBTASK SCHEDULE CHART

and objectives through completion of the several activities and tasks included. The PPD also includes budget breakdowns for the fiscal year by activities, milestone schedules, guidelines, and deliverables. Management tasks and structure are emphasized.

The PPD is prepared by the TTPM, with the assistance of the APM's, TPO's, and contractors selected by the TTPM. Preparation will begin in the middle of each fiscal year and the document will be completed by the end of the fiscal year. All progress reports, Executive Steering Committee recommendations, Project Management Group recommendations, Management Workshop Group recommendations, related experiences, and other considerations are input for the preparation of the PPD.

The PPD is the master plan for the Technology Transfer Project and serves as the primary management tool for all management groups and personnel.

3.3 Industrial Liaison Management

Although Industrial Liaison Management is one of the three major activities of the EOR Technology Transfer Project and is detailed in Section 6, the available funds for FY 1979 tasks for the activity are "pass-through" funds to be used by other EOR Project Managers. For this reason, it is necessary to set aside some Project Management funds to provide a means for administering the Industrial Liaison Management activity. This will be accomplished by providing the Assistant Project Manager for Industrial Liaison Management with a budget sufficient to cover expenses relating to the coordination of the activity.

The other EOR Project Managers are expected to prepare task plans for the Industrial Liaison funds for consideration by the TTPM. The APM for Industrial Liaison Management will coordinate this process and will serve as a first reviewer of the task plans. The APM will also work with Project Managers to monitor the progress of the activity and to see that schedules are maintained. He is also responsible for preparing summary monthly and quarterly progress reports regarding Industrial Liaison activities for review

by the TTPM, the other EOR Project Managers, and the several Technology Transfer Project Management groups.

3.4 Interaction with Other EOR Projects

Since the Technology Transfer Project is only one of several projects in the EOR Program, interaction with the other projects and their personnel is vital if a well coordinated, integrated program is to result. The Technology Transfer Project Management must play a lead role in encouraging personnel in all related EOR Projects to work with and through one another and with the Technology Transfer Project personnel to see that truly effective technology transfer actually results. The TTPM and APM's will work together, with the advice and assistance of the several management groups, to achieve this task. The TTPM may call on contractors to assist management with this task.

Specifically, the TTPM will schedule at least one meeting during each fiscal year with each of the other EOR Project Managers to discuss matters of mutual concern and to see that the Technology Transfer Project is meeting the needs and requirements of the other projects. (Such individual meetings are supplemental to the group meeting of EOR Project Managers to be held in conjunction with the Annual EOR Symposium. See Section 3.1.3.2.) In most cases, all or selected Technology Transfer Project APM's will participate in the meetings, along with their counterparts and any other designees of the other EOR Project Managers. Such meetings may be held at the BETC or at the other EOR Project locations, subject to agreement between the TTPM and the other Project Managers.

3.5 Selection of Management Workshop Group

The independent Management Workshop Group will be selected to participate in semiannual workshops to provide an outside view of the Technology Transfer Project to the TTPM, APM's, and the EOR Program Manager. Members will be briefed semiannually regarding the project's progress, plans, and management tasks. Management Workshop Group members, in turn, will be expected to provide management and guidance input to Project Management

personnel. To ensure that the Management Workshop Group is truly independent and is not composed of individuals who for various reasons might be inappropriate for membership, the TTPM will work with a contractor who will choose a nominating committee for the group. The nominating committee members selected by the contractor are subject to final approval by the TTPM and the EOR Program Manager.

3.6 EOR Technology Transfer Center Need Study

The TTPM is conducting a feasibility study of the need for a DOE EOR Technology Transfer Center. This task is being accomplished by Spears and Associates, Inc., as one part of their existing contract to identify EOR information needs of user groups, detailed in Section 4.2. This task will be performed during FY 1979.

3.7 Initiation of Support Contracts and Studies

The Technology Transfer Project Manager, the Assistant Project Managers, and the EOR Program Manager will work together to define the areas of need for special studies and contracts, identify contractors or DOE groups and personnel capable of performing the needed work, and operate to initiate contracts. The TTPM will rely heavily upon the APM's to identify those who can perform needed contractor tasks in their respective areas of responsibility. Upon recommendation of the APM's, the TTPM will have the option to initiate sole-source procurement actions or to issue requests for proposals (RFP's). The appropriate APM's will work closely with the TTPM to write and issue RFP's to interested parties.

The TTPM will determine what reports and deliverables are needed from contractors, as detailed in Section 3.1.6. The TTPM also will appoint Technical Project Officers selected by the APM's for each contract awarded. The TPO has first-line responsibility for seeing that the work in question is completed as contracted for and on schedule. The TPO will work with the appropriate APM to set up meetings and other methods for disseminating results obtained from such contracts and studies.

ENHANCED OIL RECOVERY TECHNOLOGY TRANSFER PROJECT--FISCAL 1979

△ Task Beginning
▽ Task Completion

FIGURE 3.6 - PROJECT MANAGEMENT TASKS AND MILESTONES

1. Meetings
2. Quarterly Activity Reports
2. Group Meeting of Project Managers and Program Manager at Annual Symposium

4. TECHNOLOGY PROCESSING

The Technology Processing activity involves three primary tasks:

- Task 1 is to determine the EOR information requirements of user groups;
- Task 2 is to design an EOR "direct data access" computerized data base and information system;
- Task 3 is to establish input guidelines and a quality control program for the EOR computerized data base.

The activity is designed to broaden Technology Transfer efforts and to establish the EOR Program as a credible, comprehensive source of EOR information to encourage EOR commercialization.

4.1 Assistant Project Manager

The TTPM will name an Assistant Project Manager for Technology Processing (APMTP) to coordinate the activity. The APMTP will be responsible for determining the types of EOR information that will do the most to further the goals of the Technology Transfer Project and the entire EOR Program, and for designing systems and mechanisms to encourage the greatest use of the information. These duties will require considerable interaction with all EOR Project Managers, their assistants, and TPO's. The APMTP will also be responsible for the preliminary selection of contractors and DOE personnel to perform Technology Processing tasks and preliminary selection of Technical Project Officers to oversee performance of these tasks (all subject to approval of TTPM), preparation of monthly and quarterly progress reports for the TTPM, writing requests for proposals for the activity, helping the

TPM update the annual Project Planning Document, helping to prepare overall Technology Transfer Project progress reports and reviews, and other related duties.

4.2 Identify Information Needs

In close cooperation with the APM for Industrial Liaison Management, the APMTTP will determine EOR information needs of user groups. This task, which has been initiated, is being accomplished in four major steps.

1. First is a series of detailed field studies to determine information needs and requirements of current and potential user groups of existing and developing technical data and information related to EOR. Five primary types of groups are being surveyed:
 - Technological groups, including major and independent oil producers, petroleum service and supply organizations, and professional consulting and research organizations,
 - Financial groups, including public, private and government agencies,
 - Government Policy groups, including local, state, regional, and federal regulatory, administrative, and legislative agencies,
 - Academia, including universities and research institutions,
 - Public groups, including environmental and consumer organizations.

2. The second major step is to evaluate the findings and to select major actual and potential user group segments of DOE EOR technology and determine all constraints due to information barriers.
3. Step three is to analyze and determine information requirements for each user group and develop case models of specific user group information needs; types of problems and decisions that each will incur; the content, format, and media of dissemination required to determine their solution and/or involvement in EOR projects or the alleviation of the constraining influence.
4. Step four is to critique user group information needs to develop case models for each user group category for comparison to the type, content, and format of technical data being developed. These comparisons will identify major barriers that might exist to impede the accelerated commercialization of EOR processes.

This task is being accomplished under a contract funded from FY 1978 Technology Transfer funds to Spears and Associates, Inc., of Tulsa, Oklahoma. The contractor is conducting the study to be completed December 31, 1979, which is designed to identify user targets and determine data requirements of groups having interest in EOR.

It is anticipated that the study will show that information gaps exist regarding certain EOR subject areas. The APMTTP has the responsibility for determining where such gaps exist and for recommending to the TTPM that special reports be published and distributed to fill the gaps. If such action is approved by the TTPM, the APM for Information Collection and Dissemination will work with the APMTTP to determine the content and distribution methods. Publishing and distributing special reports are among the regular duties of the APMICD.

4.3 Design of Information System

The objective of this task is to establish a "direct data access" computerized data base and information system for EOR. The task will involve accumulating and evaluating identifiable and potentially useful EOR information that might be put into the system. Once established, the system will be maintained by the APM for Information Collection and Dissemination.

Section 4.2 defined the method for determining user needs. In FY 1979 the design effort will focus on defining what the exact nature of the data base should be, how it can best be brought into being, how it should be operated, how it can best serve the EOR industry, and how to encourage maximum use of the data base to bring about the greatest benefits. The Technology Transfer Project Management realizes the importance of these questions and the potential positive impact that a well designed direct data access data base has for furthering the goals and objectives of the project. To answer the questions, the APMTTP will work to better define the questions and will procure a contractor to study existing data bases, design the data base system, and conduct limited tests to determine industry reaction to the system.

4.3.1 Existing Data Bases

Some data bases relating to petroleum currently exist, such as the University of Oklahoma's Petroleum Data System, which is available to the public sector. The Energy Information Administration (EIA) is developing data bases which will contain information relating to EOR.

Information suitable for this type of data base is being developed through several DOE contracts. For example, Gary Operating Company and INTERCOMP are determining candidate reservoirs for micellar-polymer flooding in the Mid-Continent area and in California. Screening criteria are being developed as part of these efforts. Gruy Federal, Inc., is carrying out an assessment of potential increased oil production by polymer-waterflood in

Mid-Continent oil fields. Similar work is being done to determine candidate reservoirs for carbon dioxide flooding. The results of such studies will be suitable as input for a direct data access EOR data base. The Gulf Universities Research Consortium has developed a prototype for a supporting research data base, which will include correlation of chemical flooding support research projects. Although this and other types of petroleum data bases are operational and continue to be developed, no EOR digitized data base exists for use by the public sector.

4.3.2 Design Steps

The initial step in the design of the EOR information system will be to obtain a contractor to examine DOE contract files to identify all contractors who have operated, are operating, or plan to operate any type of petroleum-related data bases for DOE (or its predecessors). This contractor also will seek to identify any designers and/or managers of similar petroleum-related data bases funded by other government or industry groups. Key individuals representing these contractors and other groups will be asked to attend a workshop to explain and discuss their data bases and to report on the uses and level of use.

The workshop also will invite past and current DOE EOR contractors who will explain their needs relative to the establishment of a special "direct data access" EOR data base. These contractors also will recommend how such a data base should best be operated to serve their needs. Key DOE EOR Program personnel will participate in the workshop. Following the workshop, the contractor will meet with these DOE representatives to come to a common agreement, based on the workshop, regarding the needs of industry and the type of data base system that should be established. Input from the TPO's for the field and research contractors will be solicited.

Additional information concerning available petroleum data bases and needs for an EOR data base to foster commercial application will be provided through surveys with industry by Spears and Associates, Inc., as part of the same contract mentioned in Section 4.2.

The contractor will then design a system; meet again with DOE personnel and a small, representative group selected from the workshop; present the data base system designed; and then refine or redesign the system, as needed. Special attention will be given to the evaluation of the system by EOR Project Managers.

The contractor will then set up a prototype system and test it among DOE EOR Program contractors. The system designed will address the following areas:

- Standardization of input data,
- Ease of collection,
- Ease of access,
- Software needs,
- Cost versus expected benefits,
- Overall contribution of the system toward furthering the goals and objectives of the EOR Program and the Technology Transfer Project.

Following the test phase, the contractor will issue a report, discussing industry's reaction to the system, the problems encountered, and any perceived additional study needed. This report will include the contractor's recommendation relative to the overall need for such a system on a large scale. The report will be studied in detail by the Executive Steering Committee, which will make a final recommendation to the Project Management Group to institute in the future.

4.4 Guidelines and Quality Control for the Information System

Upon completion of the design and establishment of the working data base and reporting systems, data collection, information requests, and data dissemination will be accomplished by the APM for Information Collection and

Dissemination, who also will be responsible for promoting use of the system. The APM for Technology Processing will establish the guidelines for the system and continually review the adequacy of the system.

4.4.1 Guidelines

After extensive discussion with the EOR Project Managers, the APMTTP will establish guidelines for the information to be submitted to the data base. This subtask will determine the format to be followed for reporting and data entry. The guidelines will be issued to all EOR Program TPO's, who will keep their contractors informed about the requirements. This subtask also includes advising DOE procurement officers as to what data and reports to require in the procurement package. The APMTTP will meet with each EOR Project Manager at least once a year to review reporting guidelines for contractors.

4.4.2 Quality Control of the Information System

The quality control subtask will provide a continuing review of the adequacy and applicability of EOR Technology Transfer Project information efforts, including EOR reports, the data base, and educational meetings.

The ATMTTP will have the lead role in this subtask. He will work closely with the APM for Industrial Liaison Management to develop methods for obtaining industry feedback regarding the adequacy and applicability of the EOR information system. Such feedback will be the basis for upgrading the system through improvement of existing efforts and possibly through the establishment of new efforts. The APMTTP will brief the TTPM about the progress of this subtask and will recommend any changes that he believes will improve the quality of the information system.

ENHANCED OIL RECOVERY TECHNOLOGY TRANSFER PROJECT--FISCAL 1979													
ACTIVITY/TASK	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	
TECHNOLOGY PROCESSING													
Task 1--Contractor Study of User Group EOR Information Needs													
Task 2--Design DOE EOR Information System													
● Contractor Study of Direct Data Access Data Base; Design and Test System							△						
Task 3--Establish Input Guidelines and Quality Control for EOR Information System													
● Establish Input Guidelines							△						
● Review Adequacy of DOE EOR Reports, Data Base, and Meetings													

△ Task Beginning
▽ Task Completion

FIGURE 4.1 - TECHNOLOGY PROCESSING TASKS AND MILESTONES

5. INFORMATION COLLECTION AND DISSEMINATION

The Information Collection and Dissemination activity includes a variety of tasks, all designed to encourage eventual EOR commercialization through the collection, production, and distribution of available and developing EOR information. The primary purpose of the activity is to provide the EOR industry with technological information to keep companies and individuals abreast of the latest developments. However, the activity goes beyond this to educate other specialized interests and the general public about EOR techniques and about the importance of the adoption of the technology for the public good. Information Collection and Dissemination tasks are:

- Accumulate information,
- Maintain information system,
- Prepare reports,
- Prepare visual and printed materials,
- Distribute visual and printed materials,
- Hold seminars and workshops,
- Promote information system.

5.1 Assistant Project Manager

The TTPM will name an Assistant Project Manager for Information Collection and Dissemination (APMICD) to coordinate the activity. The APM will be responsible for the preliminary selection of contractors and DOE personnel to

perform Information Collection and Dissemination tasks for preliminary selection of Technical Project Officers to oversee performance of the tasks (all subject to approval of TTPM), preparation of monthly and quarterly progress reports for the TTPM, writing requests for proposals for the activity, helping the TTPM update the annual Project Planning Document, helping the TTPM prepare overall Technology Transfer Project progress reports and reviews, and other related duties.

5.2 Accumulate Information

Task 1 of the Information Collection and Dissemination activity is to accumulate EOR information from several sources. This information will become the "feedstock" of the Technology Transfer Project and will be edited, processed, repackaged, and distributed in a variety of ways detailed throughout Section 5.

The main sources of EOR information are the EOR research and field demonstration projects. Information about these projects will be received primarily through the normal reporting procedures established contractually in the procurement package. Technical Project Officers assigned to the various projects will be responsible for ensuring that contractors and DOE personnel conducting the projects submit the required information in the proper formats.

As detailed in Section 4.3, the APM for Technology Processing will have major responsibilities for designing the information system, including the direct data access data base. The APMTTP will work closely with both the APM for Information Collection and Dissemination and the APM for Industrial Liaison to ensure that the system is designed to gather and disseminate EOR information in a manner that will:

- Collect the type of information desired,
- Ease and automate collection,

- Ease editing, processing, repackaging, and distribution,
- Encourage maximum use.

Two contracts awarded during FY 1978 to accumulate EOR information continue operational during FY 1979. One is with the University of Florida for \$37,734 through May 1, 1979, to conduct a critical survey of the literature to determine the state of the art of surfactant loss by precipitation during micellar-polymer flooding. This work will result in a report to be delivered by the University of Florida. At the option of the TTPM, the report will be published and distributed by DOE. The second contract is with the University of Minnesota for \$38,493 through June 1, 1979, to prepare a state-of-the-art report on interfacial tension measurement equipment and techniques. The report will be published and distributed by DOE at the option of the TTPM.

5.3 Maintain Information System

Once the information system has been established, the APMICD will be responsible for maintaining it, with continuing advice and assistance from the other APM's, the TTPM, and the management groups.

5.3.1 Maintain Direct Data Access Data Base

The direct data access data base will be maintained as a major subtask. The nature of the subtask will be determined by the type and scope of the data base established. If the data base is operated directly from the BETC or other DOE facility, the APMICD will be responsible for direct supervision of its maintenance. If the data base is operated by a contractor, the APMICD will appoint a TPO to work closely with the contractor to see that the data is input, processed, and distributed properly.

In many cases, raw EOR data will need to be "repackaged" into forms to make it easier to be added to the direct data access data base. Regardless of

who operates the data base, the APMICD has the primary responsibility for seeing that this type of data is put into the base in a timely and efficient manner.

5.3.2 Maintain Other Source Materials

Other aspects of the Technology Transfer information system include existing services at the Technical Information Center in Oak Ridge, Tennessee. The APMICD will work with TIC through a TPO to ensure that this subtask is operated satisfactorily. The TIC maintains printed materials and the RECON computerized bibliographic retrieval service. Since these TIC operations are a part of its regular services, no financial support is necessary from the Technology Transfer Project unless special services are requested.

One such special service is now under way by TIC. A financial agreement for \$135,000 has been made with TIC, which has subcontracted with the Information Services Division of the University of Tulsa to provide computerized tapes from the Petroleum Abstracts service. Specifically, the University of Tulsa will provide to TIC a magnetic tape containing the bibliographic references pertaining to enhanced recovery in the University's present system, and a series of magnetic tapes containing the bibliographic references plus the digitized abstract of each reference. Other contracts and agreements may be initiated in FY 1979 or later to index and abstract other specific materials needed by industry as determined by a study of industry data requirements.

5.4 Prepare Reports

One of the major tasks of Information Collection and Dissemination is the preparation of EOR reports. Reports to be prepared include monthly progress reports, quarterly and interim progress reports, the annual and final field reports, special reports, and the quarterly progress review, Enhanced Oil and Gas Recovery and Improved Drilling Methods, which includes reviews

on all DOE EOR projects. The input for the technical reports will come from EOR Program contractors as a part of their normal reporting requirements. Technical Project Officers assigned to the various projects will be responsible for seeing that the material follows guidelines established as part of the Technology Processing task described in Section 4.4.1. The internal Technology Transfer Project reports and reviews will also be prepared as a part of this task.

One contract relating to this task exists with the Stadler-Farrar Company in Tulsa, Oklahoma, to prepare four issues of the Enhanced Oil and Gas Recovery and Improved Drilling Methods report. The contract is specifically for typesetting and art production and is for a total of \$50,000 (\$12,500 per issue).

An open-ended contract with the Region 7 branch of the U.S. Government Printing Office in Dallas, Texas, for printing and binding various sized books and pamphlets went into effect November 1, 1978, and extends through October 30, 1979. The contract anticipated approximately 94 separate orders during its duration.

5.5 Prepare Visual and Printed Materials

Visual materials, as defined in the Technology Implementation Plan for Enhanced Oil Recovery, include a variety of media materials and other information dissemination efforts. These include books, monographs, reviews for each EOR process, films on various processes, television spots, exhibits, in-depth news stories, and magazine articles. Some of these efforts, such as the preparation of news stories and magazine articles, are continuations of past and present efforts. The media materials will emphasize the technical aspects and problems of EOR processes and the economic advantage to the nation of recovering a greater percentage of the domestic oil resource.

Although some materials can be prepared and distributed by the BETC's Technical Information Officer as a result of the management services agreement between the Technology Transfer Project and the BETC, the many subtasks will require a more concentrated effort than is possible for this individual. For this reason, the APMICD will work to procure the services of a contractor to provide visual materials guidance and assistance. The contractor will be selected to perform the specific subtasks selected as a result of decisions by the APMICD and the rest of the Project Management Group. The APM will select a TPO to oversee the work of the contractor. Although the contractor's specific subtasks will depend on the decisions of the APMICD and the Project Management Group, one specific subtask that will be included is the preparation of training aids to be used at the small group workshops and seminars. Visual materials developed for this purpose may include slides, films, displays, equipment mock-ups, and video tapes.

The APMICD and the Project Management Group will consider the need for an overall plan for supplying the media with EOR materials and will include the development and testing of such a plan as one of the contractor subtasks. The test phase of the plan will provide necessary feedback regarding the type of EOR material that the media want and are most willing to disseminate.

One agreement and one contract that apply to this task are in effect. The agreement is with the Technical Information Center, which the TTPM has supplied with a total of \$15,000 to print and provide general EOR information pamphlets for use by the Technology Transfer Project. This is a part of the same general financial agreement with TIC discussed in Section 5.3.2. The contract is with the Government Printing Office and was discussed in Section 5.4.

5.5.1 Prepare Newsletter

An additional subtask of Information Collection and Dissemination is to produce a quarterly newsletter about DOE's EOR activities. The APMICD will

be responsible for generating the newsletter and will procure contractor assistance in producing the final printed product. Although it is not mandatory, the APM will consider using the same contractor who prepares other visual materials. The newsletter will be automatically distributed to all DOE EOR Program personnel and contractors and to all other interested parties, with no subscription charge.

5.6 Distribute Visual and Printed Materials

One task of Information Collection and Dissemination is to distribute the materials prepared under Section 5.5 and to allow ready access to the data bases maintained under Section 5.3.1.

5.6.1 Distribution of Publications

The TIC's Fossil Energy Update bibliography, Energy Research Abstracts, and other EOR related materials are distributed through the normal subscription services of the National Technical Information Service. Neither TIC nor NTIS will be asked to offer any new services in this area for the Technology Transfer Project. Rather, the APMICD will work with these groups and with the other EOR Project Managers to see that all DOE EOR program personnel and contractors are on the mailing list for the appropriate publications. The AMP will work to fully inform all interested target audiences and user groups about the services offered by the TIC and to encourage use of the services and facilities. In addition, he will see that copies of all EOR publications are available to all Energy Technology Centers and that personnel at the Centers encourage the use of the TIC and NTIS services by their contractors and other contacts who are interested in EOR technology.

The APM will be responsible for the maintenance of comprehensive and special mailing lists for EOR publications developed by the Technology Transfer Project. The quarterly progress review, Enhanced Oil and Gas Recovery and Improved Drilling Methods, published by the Bartlesville Energy

Technology Center, is mailed under an agreement with the Petroleum Publishing Company in Tulsa, Oklahoma, which also maintains the mailing list. The APM will see that all work done under the agreement meets the requirements of the Technology Transfer Project and will work with the company to accomplish this part of the task. Specialized mailing lists for the Technology Transfer Project are maintained by agreement with National Support Services in Bartlesville. These lists are not computerized because they are not sufficiently large to justify computerization. The APM also is responsible for maintaining supervision over this aspect of the task and for coordinating the work between National Support Services and the Technology Transfer Project.

5.6.2 Distribution of Data Base Information

The APM has the responsibility for assuring that the data bases are accessible to users and that data base information is properly distributed. This includes the TIC bibliographic data system, RECON, and other data bases maintained as described in Section 5.3. If an EOR Technology Transfer Center is established as a result of the study of Section 3.6, the APM will have the responsibility for developing procedures and guidelines for users. A contractor may be required for this subtask.

5.7 Hold Seminars, Workshops, and Symposia

Another task under the Information Collection and Dissemination activity is to hold seminars and workshops on each major EOR process for small groups and to hold an annual EOR Symposium for contractors, DOE personnel, and any other interested groups and individuals. The AMPICD will coordinate this task, which will be accomplished by DOE personnel, contractors, and universities.

5.7.1 Annual EOR Symposium

The APMICD will organize the Annual DOE Symposium, which deals with EOR Technology, as well as enhanced gas recovery technology and improved drilling methods. The APM will be in charge of planning and operating the Symposium, in cooperation with the TTPM, other APM's, EOR Program Manager and other DOE personnel. He will coordinate activities of the Symposium Committee, composed primarily of DOE and BETC officials and industry cosponsors. Contractor assistance in planning and conducting the Symposium will be considered by the APM. He and the Symposium Committee will set up quality control mechanisms to keep the Symposium at high quality. Such mechanisms will include establishing a speaker's kit, a paper presentation review committee, and a visual review committee. The FY 1979 Symposium is scheduled for late August in Tulsa, Oklahoma, with the Oil and Gas Journal and the University of Tulsa as cosponsors.

5.7.2 Other Seminars and Workshops

The APM will work with the TTPM, other APM's, and the Executive Steering Committee to set up a series of small seminars and workshops dealing with all major EOR processes. The emphasis of these small workshops and seminars will be on the basic "how to" of the various processes. The objective will be to involve more petroleum-related companies and individuals in the consideration of EOR processes and to get more "working level" personnel involved. Each workshop or seminar will deal with only one major EOR process. The EOR Program Manager, the appropriate EOR Project Manager, and the APM for Industrial Liaison Management will participate in the planning of the seminars and workshops. Although the small seminars and workshops will be publicized nationally, special efforts will be made by the APMICD to encourage participation from those in the geographic area in which the events are held. Contractors and universities will be utilized to plan, conduct, and possibly cosponsor the workshops and seminars.

5.8 Promote Information System

The final task of Information Collection and Dissemination is to promote the use of the information system by EOR user groups. Proper promotion is necessary to ensure that industry is fully aware of the types of EOR information available through the Technology Transfer Project and how it can be obtained.

The AMPICD will work closely with the TTPM to plan and coordinate promotion efforts. The exact nature of this promotion will evolve as the information system is developed. However, the APMICD will develop an information system guidebook and distribute it to EOR user groups as soon as practicable. Other promotion will involve media and personal presentation efforts.

△ Task Beginning
▽ Task Completion

FIGURE 5.1 - INFORMATION COLLECTION AND DISSEMINATION
TASK AND MILESTONES

1. Compile and Publish

△ Task Beginning
▽ Task Completion

FIGURE 5.1 - INFORMATION COLLECTION AND DISSEMINATION
TASKS AND MILESTONES

1. Compile and Publish

6. INDUSTRIAL LIAISON MANAGEMENT

The Industrial Liaison Management activity involves two tasks:

- Task 1 is to identify fields, companies, and people necessary to bring about increased EOR commercialization;
- Task 2 is to facilitate interaction with target companies and EOR Project Managers.

The Industrial Liaison Management activity differs from other Technology Transfer Project activities in one basic way. Although the TTPM is responsible for preparing an overall plan for the activity, the other EOR Project Managers first prepare task plans for the use of available Industrial Liaison funds. Subject to the approval of the task plans by the Division of Fossil Fuel Extraction, the available funds are "passed through" the Technology Transfer Project directly to the other EOR Project Managers, who are responsible for the actual administration of the funds, while maintaining coordination with the TTPM. The Industrial Liaison Management organization is shown in Figure 6.1.

6.1 Assistant Project Manager

The TTPM will name an Assistant Project Manager for Industrial Liaison Management (APMILM), who will be responsible for working closely with all EOR Project Managers to assure that task plans presented are well planned, worthwhile activities. The APMILM also will monitor the progress of the tasks and see that schedules are met. He also will be responsible for preparing summary progress reports regarding all tasks. Such reports are prepared primarily from the regular technical and financial progress reports submitted by the contractors, which contain sections regarding Industrial Liaison tasks. The summary report will be made available to the TTPM, all other EOR Project Managers, the Technology Transfer Project Management groups, and other appropriate personnel as a synopsis of all Industrial Liaison activity.

FIGURE 6.1 - INDUSTRIAL LIAISON MANAGEMENT ORGANIZATION

Although the responsibility for approval of the Industrial Liaison task plans is not that of the Technology Transfer Project Management personnel, the APM for Industrial Liaison Management will work with the TTPM, the other APM's, and the Management Workshop Group to advise the EOR Program Manager, the other EOR Project Managers, and the Division of Fossil Fuel Extraction regarding the quality and direction of the activity. Such a review effort should serve to continually upgrade future task plans and the actual performance of the Industrial Liaison tasks.

If the Industrial Liaison activity is to be successful, it must have maximum support from industry. To maintain this support, the APMILM will make special efforts to get industry input into Industrial Liaison Management planning. This will require the APMILM to work closely with industry leaders to encourage them to communicate their ideas and needs to the EOR Project Managers responsible for writing the Industrial Liaison task plans. Simultaneously, the APMILM will encourage the Project Managers to seek industry opinion as they prepare task plans.

Since all Industrial Liaison funds are earmarked for distribution to other EOR Projects, the APM for Industrial Liaison position is funded from Technology Transfer Project Management funds. As a part of the management task of interaction with other EOR Projects (described in Section 3.4), the APM for Industrial Liaison Management and the TTPM will meet formally at least once a year in individual sessions with each of the other EOR Project Managers to discuss matters of mutual concern and to see that the support services offered by the Technology Transfer Project are meeting the needs and requirements of the other projects. This will serve as the primary opportunity for these persons to evaluate the progress of the tasks and explore methods for improving the activity. In addition, the APM for Industrial Liaison Management will meet with the other Project Managers and their management personnel at other times and will maintain a close working relationship at all times.

In addition to his formal duties, the Assistant Project Manager for Industrial Liaison Management will have the responsibility for keeping Technology Transfer Project Management personnel current with the general activities and thinking of industry and professional societies regarding enhanced oil recovery. This will include following the activities of such organizations as the Society of Petroleum Engineers, American Petroleum Institute, American Association of Petroleum Geologists, and similar industry groups. The APM also will be responsible for screening the regular professional journals and publications, such as the AAPG Bulletin, Journal of Petroleum Technology, Oil and Gas Journal, Petroleum Today, Society of Petroleum Engineers Journal and others. By keeping current with industry activities, the APMILM can keep the Industrial Liaison activity responsive to industry's needs.

6.2 Industrial Liaison Task Plans

The Technology Implementation Plan for Enhanced Oil Recovery calls for the inclusion of the Industrial Liaison task plans in the annual Project Planning Document for Technology Transfer. Since the task plans for FY 1979 have not been formulated and submitted, they are not included in this PPD. Future annual updates of this document should include the composite plans.

6.3 Identify Fields, Companies, and People

The first task of the Industrial Liaison Management activity is to identify oil fields that show promise for successful application of EOR technology, the companies who own the fields, and officials within the companies who have the management authority and the influence to bring about the use of EOR technology in the fields. To a great extent, the completion of this task will be less difficult because companies interested in applying EOR technology are encouraged to participate in DOE cost-sharing research, development, and demonstration programs. This is an economic incentive in itself, and will result in automatic identification of many of the companies, fields, and people interested in EOR technology. However, the EOR

Project Managers should view this as a starting point only. Efforts need to go beyond this stage to actually seek out others who are not automatically identified. Project Managers will be expected to correlate those automatically identified with fields, companies, and people having similar characteristics.

6.4 Interact with Target Companies

The second task of the Industrial Liaison Management activity is to provide interaction between DOE and target companies and among target companies themselves. This will involve setting up a series of effective communication devices among DOE and the target companies and personnel. The goal is to assure that interested industrial components are as aware as possible of existing and emerging EOR technology so that it will be applied commercially as it becomes economically feasible. The communication "networks" established must serve not only the exploration and drilling companies directly involved in current cost-sharing efforts, but other companies potentially interested in demonstration and commercialization efforts. To ensure a totally integrated effort, DOE and companies participating in research, development, and demonstration efforts must serve all segments of the industry who are now and who eventually will be involved in commercialization of EOR technology. Such segments include major and independent producers, chemical and equipment manufacturers and suppliers, petroleum financing institutions, petroleum consulting groups, environmental groups, state and national energy officials, and other related groups. When developing task plans, the EOR Project Managers will be expected to include ways to provide interaction among all groups.

6.5 Industrial Liaison Activity Study

Following completion of the first full cycle of Industrial Liaison activity, the Assistant Project Manager for Industrial Liaison Management will be responsible for designing and conducting a special study of the activity. The study will include surveys of all EOR Project Managers, DOE and

contractor personnel who participated in the Industrial Liaison tasks, and the individuals and organizations reached as a result of the tasks.

The study will be designed to formally evaluate the effectiveness of this method of operating the activity by measuring the activity's overall contribution toward meeting the goals and objectives of the EOR Program and the Technology Transfer Project. The study also will include recommendations by the APMILM and the TTPM for any changes necessary to improve the operation of the activity.

ENHANCED OIL RECOVERY TECHNOLOGY TRANSFER PROJECT--FISCAL 1979

ACTIVITY/TASK	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
INDUSTRIAL LIAISON MANAGEMENT*												
Task 1--Identify Fields, Companies and People												
Task 2--Facilitate Interaction with Target Companies and EOR Project Managers												
*Detailed Industrial Liaison task plans for EOR Projects not available for FY 1979 due to the time of preparation of the document. Detailed task plans to be developed by other EOR Project Managers and reported in Technology Transfer Project Progress Reports and in updates of the PPD.												

- △ Task Beginning
- ▽ Task Completion

FIGURE 6.2 - INDUSTRIAL LIAISON MANAGEMENT TASKS AND MILESTONES

7. ANTICIPATED ACTIVITY CHANGES BEYOND FY 1979

The type and level of activities conducted by the Technology Transfer Project beyond FY 1979 will depend upon the level of funding received. Funding at the levels shown in Section 2.4 will allow Project Management to increase the amount and pace of some activities each fiscal year throughout the duration of the project. The following discussion focuses on the additional services to be offered in FY 1980 and beyond, subject to sufficient funds, further study, and inclusion in updated versions of the Project Planning Document.

7.1 Project Management.

The basic structure of Project Management and methods of operation will remain unchanged throughout the duration of the project, subject to their successful operation in FY 1979. The only change planned in the Project Management activity beyond FY 1979 is the selection of a contractor to conduct formal evaluations of the project in FY 1980 and FY 1982. These contractor evaluations are designed to ensure that a totally objective approach will be taken in measuring the project's success toward accomplishing its goals and objectives. The TTPM will be responsible for defining the contractor task and for initiating the contract. The contractor will conduct formal evaluations of all project activities and recommend methods for improvement. The contractor will design all necessary surveys, tests, and other evaluation instruments, perform the evaluations, compile the findings, and issue final reports. The evaluations will be conducted during the parts of the fiscal years prior to the period when the Project Planning Document will be updated for the following fiscal years. This will allow management to plan any changes shown necessary as a result of the evaluation studies.

7.2 Technology Processing

No basic changes relating to this activity are planned for the duration of the project. Project Management will continually seek more efficient ways to process the technology and to speed the process to get EOR information into the hands of the users.

7.3 Information Collection and Dissemination

7.3.1 Maintain Information System

Two primary evolutions of this task are planned after FY 1979. First, the results obtained from the FY 1979 study of the need for a DOE EOR direct data access computerized data base will be used as a basis for setting up and maintaining such a data base. Assuming that the results will show a need for the data base, plans call for its establishment in FY 1980, and its maintenance throughout the duration of the project. Second, a bibliography relating to the data base will be published by the end of FY 1980 and updated as often as needed in future fiscal years.

7.3.1.1 Delineate DOE's EOR Technology Transfer Role

One of the subtasks conducted during FY 1979 as a part of Project Management will provide the basis for decisions regarding this task in later years. In particular, the contractor study of the need for a DOE EOR Technology Transfer Center will be the basis for determining whether such a Center will be established. Assuming a need is shown, the Center will be established at the Bartlesville Energy Technology Center in FY 1980 and maintained by the AMPICD. The Executive Steering Committee, with primary guidance from the TTPM, will be responsible for defining the exact nature of the Center and the services to be offered.

7.3.2 Prepare Visual and Printed Materials

No basic changes relating to this task are planned beyond FY 1979, but several milestones and decision points are worthy of mention. First, among other duties, the contractor selected to provide visual materials guidance and assistance will produce (or subcontract to have produced) visuals and exhibits to be determined by the APMICD and the Project Management Group. Management personnel will evaluate the need for new visuals and exhibits throughout the duration of the project, and the contractor will have new visuals and exhibits completed by the end of each fiscal year. Second, one of the contractor subtasks during FY 1979 is to develop and test a plan for supplying the media with EOR articles. Upon studying the conclusions and recommendations of the resulting report, the APMICD will set up a permanent EOR media service. The service may be operated by BETC information personnel or by a contractor, depending on the report's recommendations and the final decision by the APMICD.

7.3.3 Industry Data Workshop

A primary subtask is to determine data required by industry for EOR commercialization. To accomplish this, a series of annual workshops for industry is planned for FY 1980 and beyond. The APMICD and APMILM will be responsible for planning and conducting the workshops. The primary goal will be to get all DOE EOR contractors to attend and relate their data needs, comment about DOE efforts, and make recommendations for improvements. The workshops will be open to all interested individuals, in addition to the contractors.

7.4 Industrial Liaison Management

One basic addition is planned for this activity, based on an anticipated need which will be determined by the Industrial Liaison Management activity study to be conducted during FY 1980, following the first full cycle of that activity (Section 6.5).

If the need is shown by the study, a system of EOR field agents will be tested during the last half of FY 1980, and instituted on a regular basis in FY 1981, if the system proves an asset to the Technology Transfer Project. All of this is based on one major assumption: that a portion of the Industrial Liaison funds earmarked to be passed through the Technology Transfer Project can be retained to test and operate the EOR field agent system. If so, the system will be set up to establish a closer relationship between the EOR Program and industry to better promote commercialization efforts.

The APMILM will procure the services of a contractor to test the system. The test will consist of placing two EOR field agents in separate geographic areas where EOR technology appears most economically feasible. The agents will serve as contacts with the petroleum industry and related groups to promote the technology and to answer industry questions or relay them to the APMILM and other appropriate DOE personnel. If questions are relayed to DOE personnel, the answer will come back through the EOR field agents to industry. This method of operation will establish the field agents as reliable, credible sources of information. Field agents selected will be EOR technology experts with a strong working knowledge of the particular processes applicable to their geographic areas. They also must have the ability to communicate effectively with industry and related groups. Some of the field agents' duties will include working individually with producers and their interest groups, disseminating EOR reports and other relevant materials, assisting the APMILM and APMICD in setting up small-group workshops and seminars, and filling speaking engagements.

Following the conclusion of the test phase at the end of FY 1980, the contractor will report test results, including the level of activity, and will make recommendations in a report to the APMILM regarding the future of the EOR field agent system. The report will be studied in detail by the Executive Steering Committee and the Project Management Group, who will jointly decide whether to continue and/or expand the system.

During the period between the end of FY 1980 and the time the decision is made about continuing the system, the contractor will continue to operate the system as it was operated during the test phase. This will allow for continuity of effort should the system be continued and/or expanded.

FIGURE 7.1 - MILESTONE CHART FOR FY 1980-FY 1982

△ Task Beginning
▽ Task Completion

*Meetings
| Submit Reports
7-6

1. Initial User Group Survey Completed

FIGURE 7.1 - MILESTONE CHART FOR FY 1980-FY 1982 (CONTINUED)

△ Task Beginning
▽ Task Completion

2. New Visuals and Exhibits Completed