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DOE Program
Plans

IMPLEMENTATION PLAN
FOR THE
GEOTHERMAL LOAN PROGRAM

DRAFT

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CONTENTS

INTRODUCTION	
Background	
Purpose	
Objective and Goals	
Assumptions	
MANAGEMENT IMPLEMENTATION	
Organizations and Their Responsibilities	
Responsibilities of DOE Regional Offices	
DOE-SAN and DOE-ID Coordination	
Regulations and Guidelines	
Preliminary Task Implementation	
Title XI Loan Program Implementation	
Application	
Evaluation	
Monitoring	
Disbursement	
APPENDICES	
A. Prefeasibility and Detailed Feasibility Study Loans	
B. Reservoir Confirmation Loans	

FIGURES

1. Generalized Project Flow Summary
2. Organizational Relationships
3. Task Implementation Schedule
4. Operations Flow Diagram
5. Initial Processing of Applications
6. Evaluation of Applications and Award of Funding
7. Loan Monitoring and Disbursement
8. Loan Cancellation

DRAFT IMPLEMENTATION PLAN FOR THE GEOTHERMAL LOAN PROGRAM

INTRODUCTION

Background

In Title VI of the Energy Security Act of 1980, Congress authorizes the Secretary of Energy to make a loan to any person to assist in accelerating the development of geothermal resources. Title VI, cited as the "Geothermal Energy Act of 1980," states:

1. Domestic geothermal reserves can be developed into regionally significant energy sources promoting the nation's economic health and national security;
2. There are institutional and economic barriers to the commercialization of geothermal energy; and
3. Federal agencies should consider the use of geothermal energy in the Government's buildings.*

Subtitle A of this Act authorizes the Secretary of Energy to make a loan to any person to:

1. Explore and determine the economic viability of a geothermal reservoir, and
2. Perform surface exploration and drill one or more exploratory wells.

* Public Law 96-294, Title VI, Section 602.

Subtitle C of this Act authorizes and directs the Secretary "to establish a program of assistance for the accelerated development of geothermal resources for nonelectric applications by geothermal utility districts, geothermal industrial development districts, and other persons." Subtitle C authorizes the loan programs for feasibility studies, licensing applications, and construction.

Combining the elements of Subtitles A and C, the scope of Public Law 96-294, Title VI offers a total loan package program from initial feasibility study loans to licensing applications loans to reservoir confirmation loans to construction loans. As a result, this implementation plan has been prepared to outline of the anticipated project flow for carrying out the intent of the Law. Figure 1 shows a project flow summary and the maximum loan amounts available for each project phase.

Purpose

The purpose of this implementation plan is to define the objective, assumptions, implementation procedures, organization, schedule and program operation necessary to economically and expeditiously implement the Geothermal Energy Act of 1980.

Objectives and Goals

The objective of the Geothermal Energy Act of 1980 is to encourage the accelerated development of geothermal resources for nonelectric and electric applications of geothermal energy. Subtitles A and C include loans for a prefeasibility study, loans for preparing applications for licenses and permits, loans for reservoir confirmation exploration and drilling, loans for a detailed feasibility study, and loans for construction. Funding authorization for the loans for licensing and permitting and for the loans for construction have not been made; however, since legislation is pending to authorize this funding, these elements will be addressed as part of the total program.

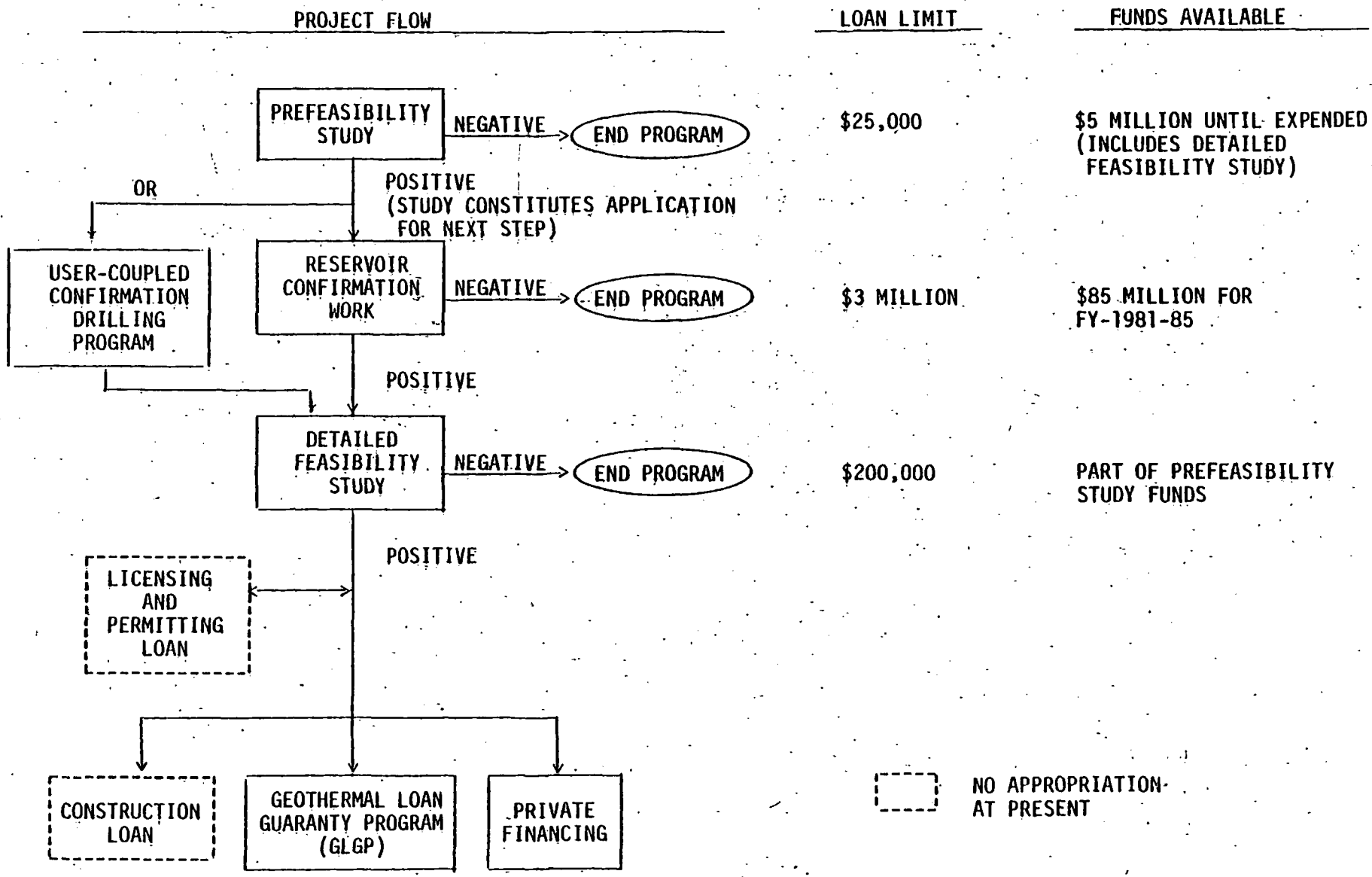


Figure 1. Generalized Project Flow Summary

The primary goals of this implementation plan are to:

1. Establish the management structure with the Department of Energy, Division of Geothermal Energy (DOE-DGE), the Department of Energy-San Francisco Operations Office (DOE-SAN), the Department of Energy-Idaho Operations Office (DOE-ID), and the support contractors to these offices;
2. Outline the responsibilities of each organization;
3. Determine the schedule necessary to implement the preparatory tasks for the program;
4. Establish the format and procedures to be used in accepting, evaluating, and monitoring loan applications received in this program; and
5. Address the role of DOE financial procedures in implementing the loans.

Assumptions

Various assumptions have been made in specifying the mechanics of implementing the intent of the Geothermal Energy Act of 1980. The assumed roles for management are:

- o. DOE-DGE has the responsibility for developing geothermal energy resources in the United States. Further, DOE-DGE has the overall fiscal and programmatic control of DOE's geothermal development efforts.
- o. The Idaho Operations Office (DOE-ID) of the U.S. Department of Energy has lead responsibility for implementing the Reservoir Confirmation Loan Program.

- o The San Francisco Operations Office (DOE-SAN) of the U.S. Department of Energy has lead responsibility for implementing the Feasibility Studies Loan Program, the Licensing Loan Program, and the Construction Loan Program.
- o Responsibilities of DOE Regional Offices and State Geothermal Resource and Planning Teams include:
 - Disseminate public information
 - Interface with public
 - Assist loan applicants
- o Contractors will be utilized in administering the program where appropriate.

The assumptions used relating to funding are:

- o Administration expenses for the program will be available from Title VI funds.
- o Title VI, Subtitle C, authorizes \$5 million in Feasibility Study Loans for fiscal year 1981. All funds are to remain available until expended.
- o Title VI, Subtitle A, authorizes up to \$5 million in Reservoir Confirmation Loans for fiscal year 1981, and up to \$20 million for each of the four succeeding fiscal years. Such funds can be carried over into succeeding years and shall remain available for such purposes until expended.
- o Funding authorization and appropriation for Licensing and Permitting Loans have not yet been made, but are expected for

FY 1982. It is assumed that amounts appropriated will be sufficient to allow for a smooth project flow.

- o Funding authorization for Construction Loans has not been made, but is anticipated to be forthcoming. Since this funding authorization amount cannot be anticipated, but can be supplemented by the Geothermal Loan Guaranty Program (GLGP), it will be assumed that either Title VI funding, use of GLGP, or private financing will allow for project construction and completion.

Other generalized assumptions used in this Implementation Plan are:

- o The program will be terminated upon expenditure of funding or by September 30, 1986, whichever comes first.
- o Successful applicants will receive incremental disbursements, based on performance, not lump-sum prepayment.
- o Loans will be processed and awarded or rejected in the order received, except as noted in the regulations.
- o The Loan Officer is responsible for approval or rejection of all applications.
- o The interest rate has been established as equal to the rate in effect (at the time the loan is made) for water resource planning projects under Section 80 of the Water Resources Development Act of 1974.
- o In the event economic, technical, or environmental factors prohibit development, the loan, including interest, may be cancelled.

MANAGEMENT IMPLEMENTATION

This section of the plan includes a description of the organizations involved in the management of the program, the responsibilities of these organizations, a flow diagram, description of the various steps in the plan, and a schedule for the task implementation milestones to be reached before awarding loans.

Organizations and Their Responsibilities

Overall direction for the Geothermal Energy Act of 1980 rests with the Division of Geothermal Energy at DOE's Headquarters in Washington (see Figure 2). The Idaho Operations Office of DOE has lead responsibility for implementing Subtitle A of this program (Reservoir Confirmation Loans). This office receives technical support from the Idaho National Engineering Laboratory (INEL) and from the Earth Science Laboratory of the University of Utah Research Institute (UURI).

The San Francisco Operations Office of DOE has lead responsibility for implementing Subtitle C of this program (Feasibility Study Loans). This operations office will receive technical support from INEL, the Earth Sciences Laboratory of UURI, Energy Technology Engineering Center (ETEC), and others as appropriate.

Regional offices of DOE and the geothermal State Resource and Planning Teams will be used in marketing the program, and in an advisory capacity to applicants.

Responsibilities of DOE Regional Offices

The DOE Regional Offices and Geothermal State Resources and Planning Teams will distribute promotional material, which will be made available when the regulations are issued and when funds for the various program phases are appropriated. They will distribute applicant information kits,

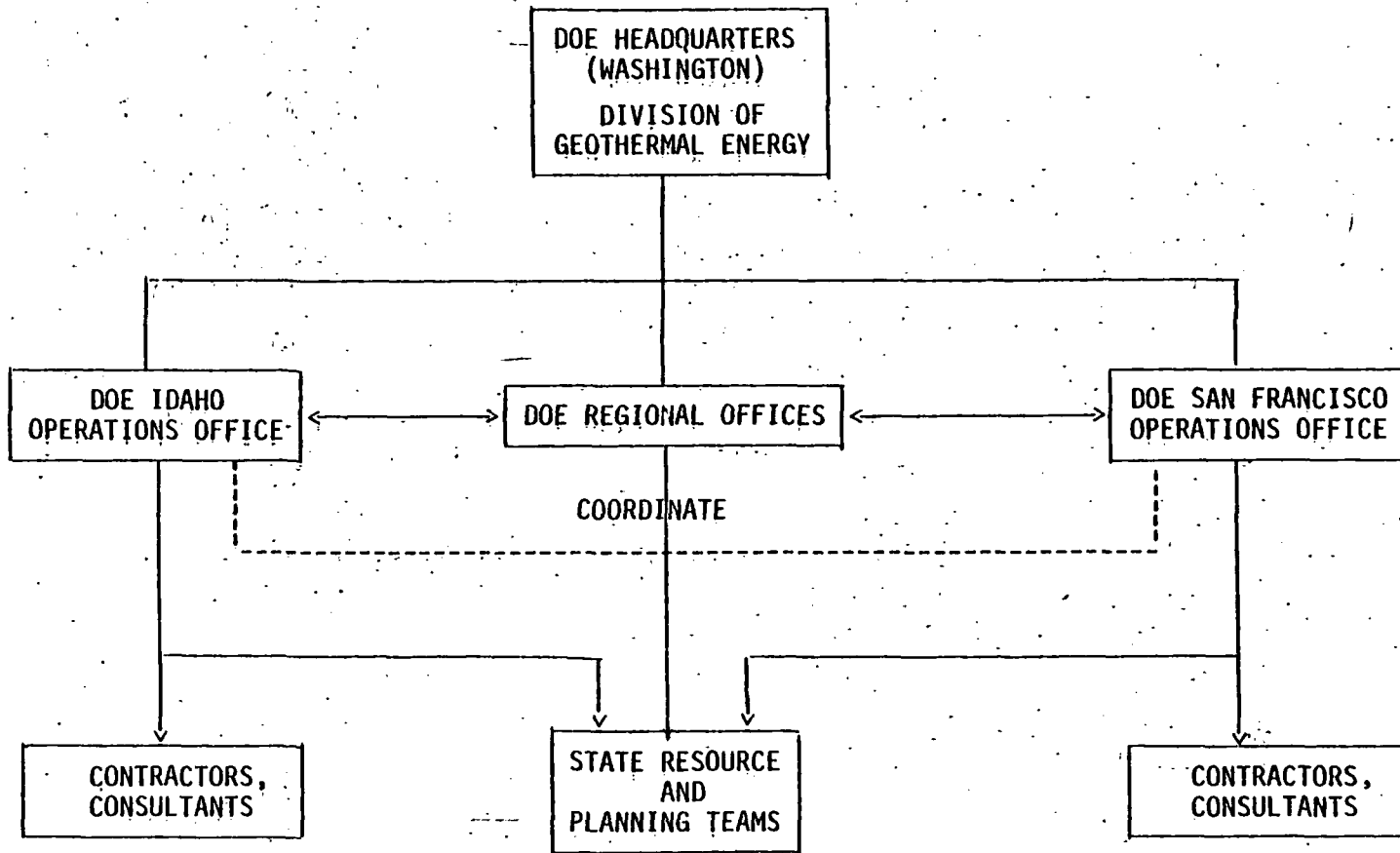


Figure 2. Organizational Relationships

answer questions and resolve problems, and help potential applicants determine if they may qualify for loans. The Regional Offices and state teams will also provide assistance to the applicant in filing for loans, and will be supported by the INEL, ETEC, and UURI as necessary. As part of this assistance, Regional Offices will provide direction in preparing applications, i.e., what data should be in an application and where needed information might be obtained.

DOE-SAN and DOE-ID Coordination

Close coordination and communication between DOE-SAN and DOE-ID will be maintained to affect a smooth and consistent functioning of this program. The two offices will exchange information such as: program participant listings, project correspondence, and final project reports.

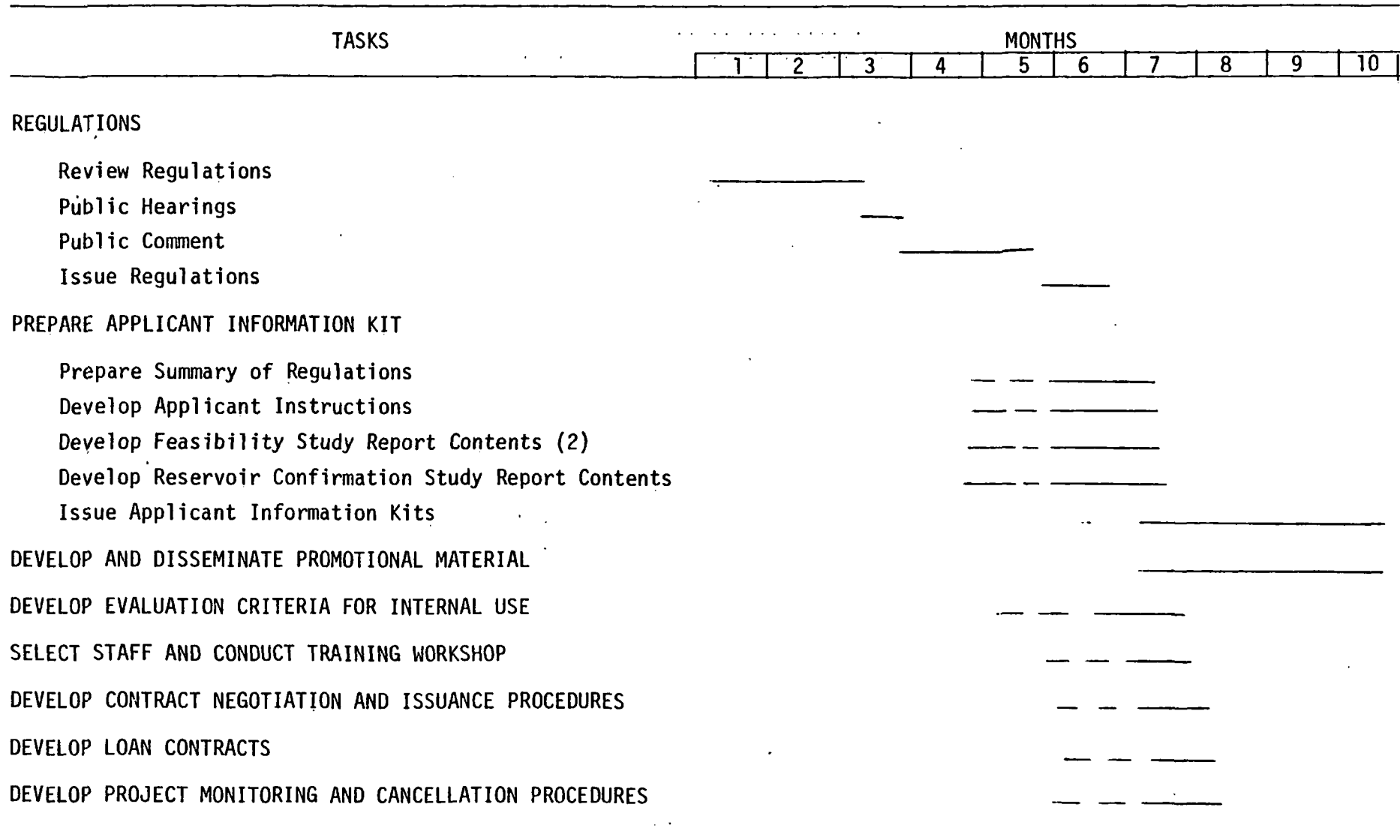
Preparatory Tasks

The preparatory tasks for the program implementation include the development and issuing of the program regulations, information kits, promotional material, loan contracts and administrative implementation procedures. These items are listed in a relative time frame schedule on Figure 3.

Regulations and Guidelines

Draft regulations have been prepared by the Idaho Operations Office for Subtitle A and C implementation. After the draft regulations are issued, public hearings will be conducted by DOE in several major U.S. cities during the winter of 1980-81. Following the 60-day comment period, the regulations will be finalized and issued. Other tasks to be performed are summarized below.

Specific guidelines on the procedure to apply for a loan, on the criteria to evaluate loan applications, and on the procedure for monitoring



--- Drafts Prepared

Figure 3. Task Implementation Schedule

loans, will be finalized upon final approval and adoption of the draft regulations. Based upon the language of the original legislative bill, it is anticipated that the procedures outlined herein will be applicable, with minor modifications.

Prepare and Distribute Application Information Kit

An Applicant Information Kit will be drafted, and will be finalized and augmented when the regulations are issued. The kit will contain:

1. Summary of the regulations and description of the overall program;
2. Application forms and instructions including guidelines and information required on applications for a prefeasibility study loan, a reservoir confirmation loan, and a detailed feasibility study loan;
3. Guideline for preparing adequate prefeasibility and detailed feasibility study reports and for reservoir confirmation reports, identifying elements that must be addressed; and
4. Evaluation criteria--information on how and on what factors loan applications will be evaluated.

Develop and Disseminate Promotional Material

Promotional material such as a newsletter and press releases will be prepared to publicize the program. Conferences will also be held. These efforts will be initiated upon issuance of the regulations.

Develop Evaluation Criteria for Internal Use

A draft will be prepared of the criteria for evaluating loan applications for both feasibility studies and reservoir confirmation. These criteria will be finalized when the regulations are issued.

Select Staff and Conduct Training Workshop

Administration of the Loan Programs will require specialized staffing and training. Requirements include:

1. Selecting and processing staff members from DOE-SAN, DOE-ID, INEL, ETEC, UURI, and/or other contractors where appropriate;
2. Determining financing procedures; and
3. Developing and implementing appropriate training for each group, as well as for the cognizant DOE Regional Office personnel and State Resource and Planning Teams.

Develop Contract Negotiation and Issuance Procedures

Written procedures will be prepared that outline the steps required in negotiating, processing, and issuing contracts.

Develop Loan Contract

Standardized loan agreements suited to program needs will be drafted in accordance with the final regulation. However, it is expected that each loan will be tailored to the individual aspects of the borrower and the borrower's study in the following areas:

- o Re-payment schedule
- o Reporting requirements
- o Loan disbursements.

Develop Operational Procedures

To ensure efficient operation of the Loan Programs, the procedures for application processing will be developed and refined.

Develop Project Monitoring Procedures

Procedures for monitoring the conduct of the projects will be developed. The monitoring will include elements such as: progress reports, phonecon reports and site visits.

The different aspects of the program demand slightly different formal progress reporting. Prefeasibility and feasibility studies and licensing work which are usually completed in less than six months, requires short-term reporting to allow adequate contract monitoring. Therefore, standard DOE monthly reporting documents will be used for such loans. Longer-term reservoir confirmation and construction operations may be reported adequately on a quarterly basis. All reports must be tied to the agreed-upon schedule, established when the contract is signed, and to designated milestones. Report formats and required data must be identified by the time the first application is approved.

TITLE VI LOAN PROGRAM IMPLEMENTATION

The work flow anticipated to occur in this program is presented in Figure 4, with a generalized concept of responsible agencies. At this time, the applicant can apply for loans in three areas. Greater detail of work flow is presented in the Appendices. It is anticipated that future appropriations will be forthcoming to initiate the loan program for Licensing and Permitting Loans and for Construction Loans.

Although not shown in Figure 4, all of the DOE organizations and contractors mentioned in the previous section will be utilized in promoting and interfacing with potential applicants to this program. It is anticipated that the majority of promotional literature will be developed by DOE-SAN and DOE-ID and their technical support contractors, and the majority of public interfacing will be performed by the DOE Regional Offices and State Resource and Planning Teams. Cooperation and interaction will be employed across both of the above groups to maximize the information dissemination process.

Application

The applicant is defined as any individual, corporation, joint stock company, partnership, association, business trust, municipality, electric cooperative, industrial development agency, nonprofit organization, or Indian tribe interested in development of a geothermal resource for direct heat use (feasibility studies) and for any use (reservoir confirmation). The applicant may initiate his loan request at any stage (i.e., at Reservoir Confirmation or Detailed Feasibility) given the current status of his project. It should be noted, however, that should the applicant initiate the loan request at the Prefeasibility stage, positive findings will enhance an application for a Reservoir Confirmation Loan. Similarly, successful Reservoir Confirmation constitutes a step toward the Detailed Feasibility stage application, should the applicant desire to proceed.

DOE REGIONAL OFFICES AND
STATE RESOURCE AND PLANNING TEAMS

APPLICANT

DOE-SAN AND DOE-ID

FILES APPLICATION FOR EITHER:

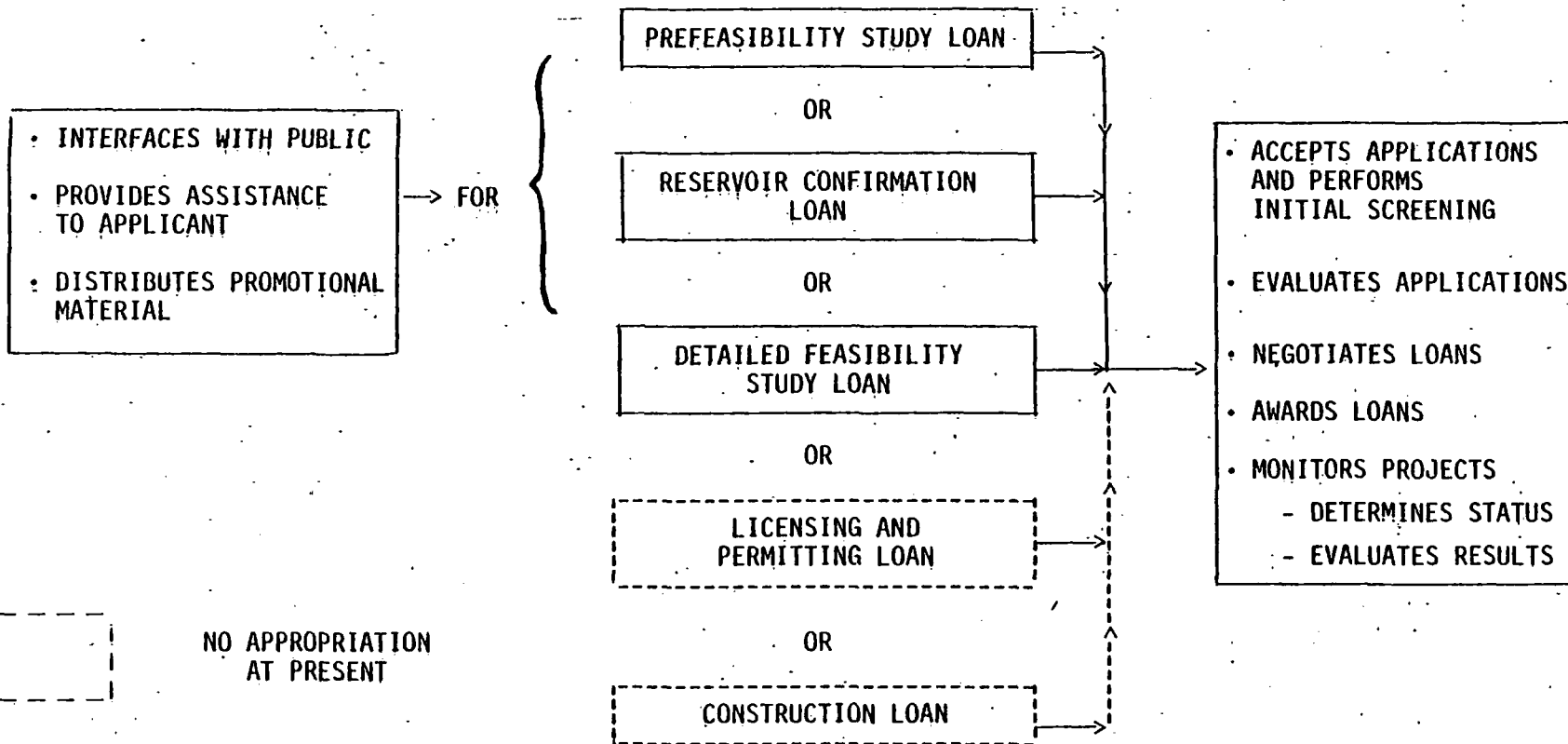


Figure 4. Operations Flow Diagram

The applicant is also free to employ the services of DOE Regional Offices, State Resource and Planning Teams, and Technical Assistance Centers to assist in filing loan applications. It might be noted, rejection of the application on its initial submission does not bar submission of an appropriately revised application.

The loan application is submitted to the DOE Operations Office having jurisdiction over that loan type. Operations Office personnel are responsible for initial application processing and screening. A file control number is assigned to the application and a series of initial critical parameters are checked by the Operations Office.

Evaluation

After the screening and initial checks are completed, the application will be distributed to the various technical contractor organizations and consultants for evaluation. The evaluation process will be designed to assess the application in a manner similar to the approach used by banks in loaning funds, i.e., scrutinizing the application to the degree that projects have a fair chance of success, are economically viable efforts, and can be performed in an environmentally acceptable fashion.

Specialists among the DOE contractors and consultants will be utilized in evaluation to ensure that a sound loan program is established. Priorities will be utilized when funds become limited and a final priority recommendation provided to the DOE Operations Office Loan Officer. At this stage, the applications are either rejected or awarded.

Monitoring

The projects that are awarded loans in this program are subject to DOE monitoring and audit, when necessary, during the course of the project. It is anticipated that for Feasibility Study Loans the major method of monitoring will be via periodic or monthly reports. For Reservoir

Confirmation Loans, the mode of monitoring may entail physical access to the site at various phases of the project, particularly testing. Periodic reporting will also be employed throughout this loan program.

Monitoring will be performed by DOE Operations Office personnel or their designated contractor/technical advisors/auditors. Reporting will be made to the appropriate DOE Operations Office.

Disbursement

Loan disbursement will be made incrementally, depending on the elements of the project, in a sequential pattern. This sequential pattern will be fashioned to fit major project milestones, where applicable (such as Reservoir Confirmation), and will be provided on a front-end basis. Where milestones are minimal, such as on the Feasibility Study Loan, disbursements will follow a pattern flow such as: 50% upon award, 40% when requested, and 10% on submission of the Final Report.

Dependent upon results or findings of work performed under each loan program, a loan cancellation option can be employed by the Loan Officer. Where necessary, a default option may be exercised. However, assuming positive findings or results at each stage, the applicant may proceed to the next step of his project.

Detailed Implementation Plans

The detailed plans for the implementation of the different loan programs are covered in the attached appendices.

Both the prefeasibility study and detailed feasibility programs are covered in Appendix A. The Reservoir Confirmation Loan Program is covered in Appendix B. The Licensing and Construction Loan Programs will be covered in separate appendices to be provided later. Figures 5 through 8 provide an overview of the sequence of events for the loan program.

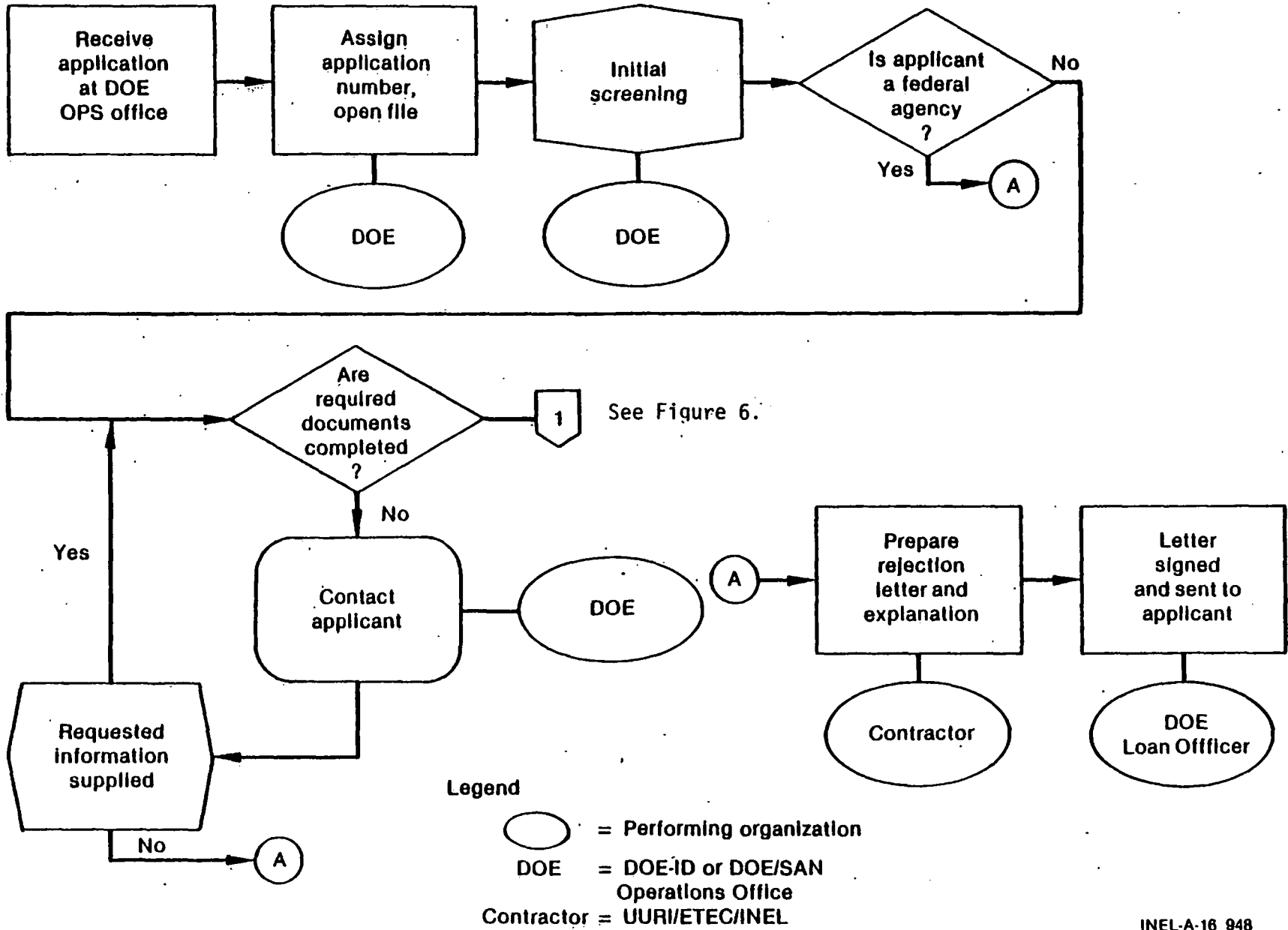


Figure 5. Initial Processing of Applications

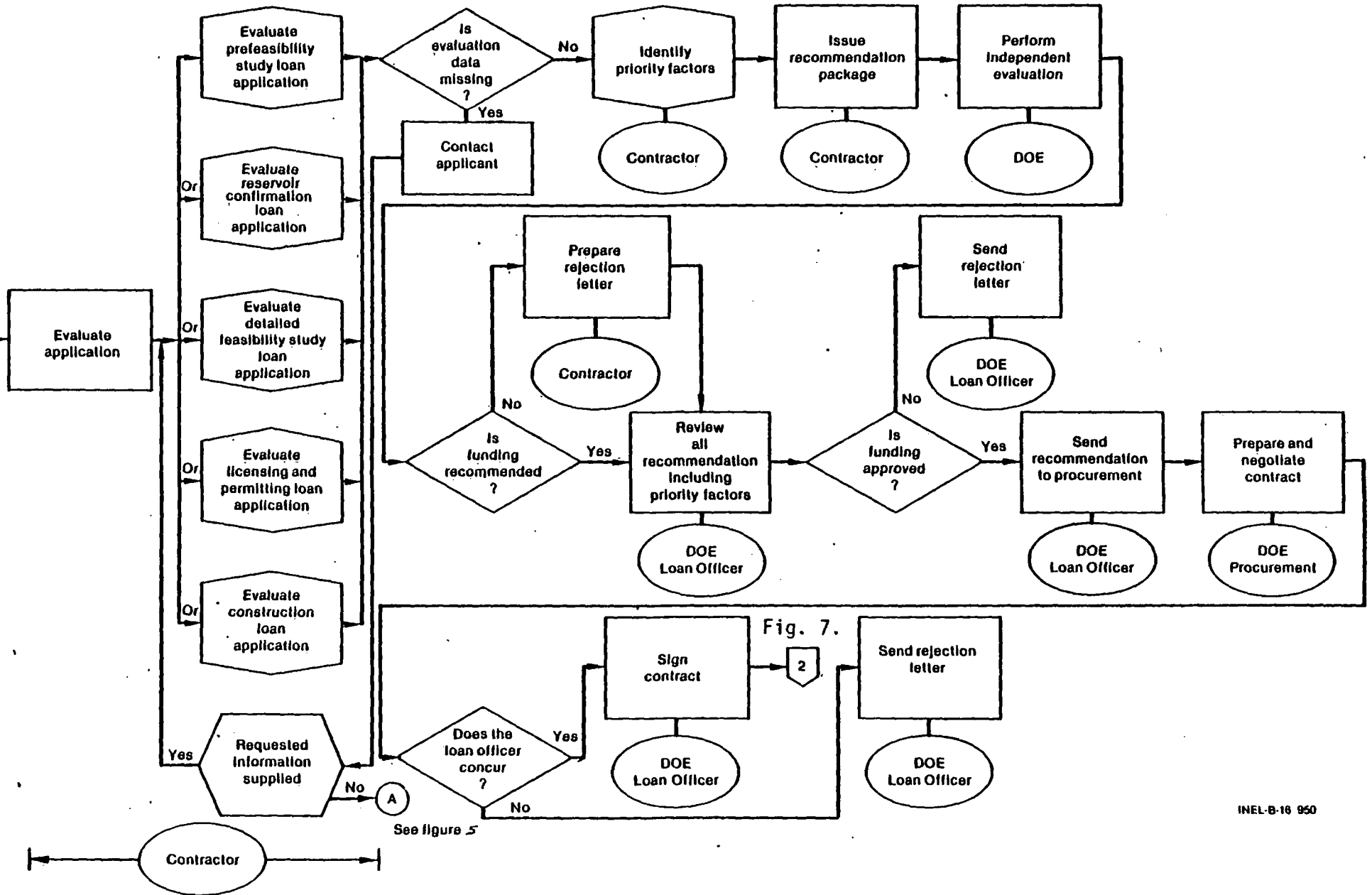
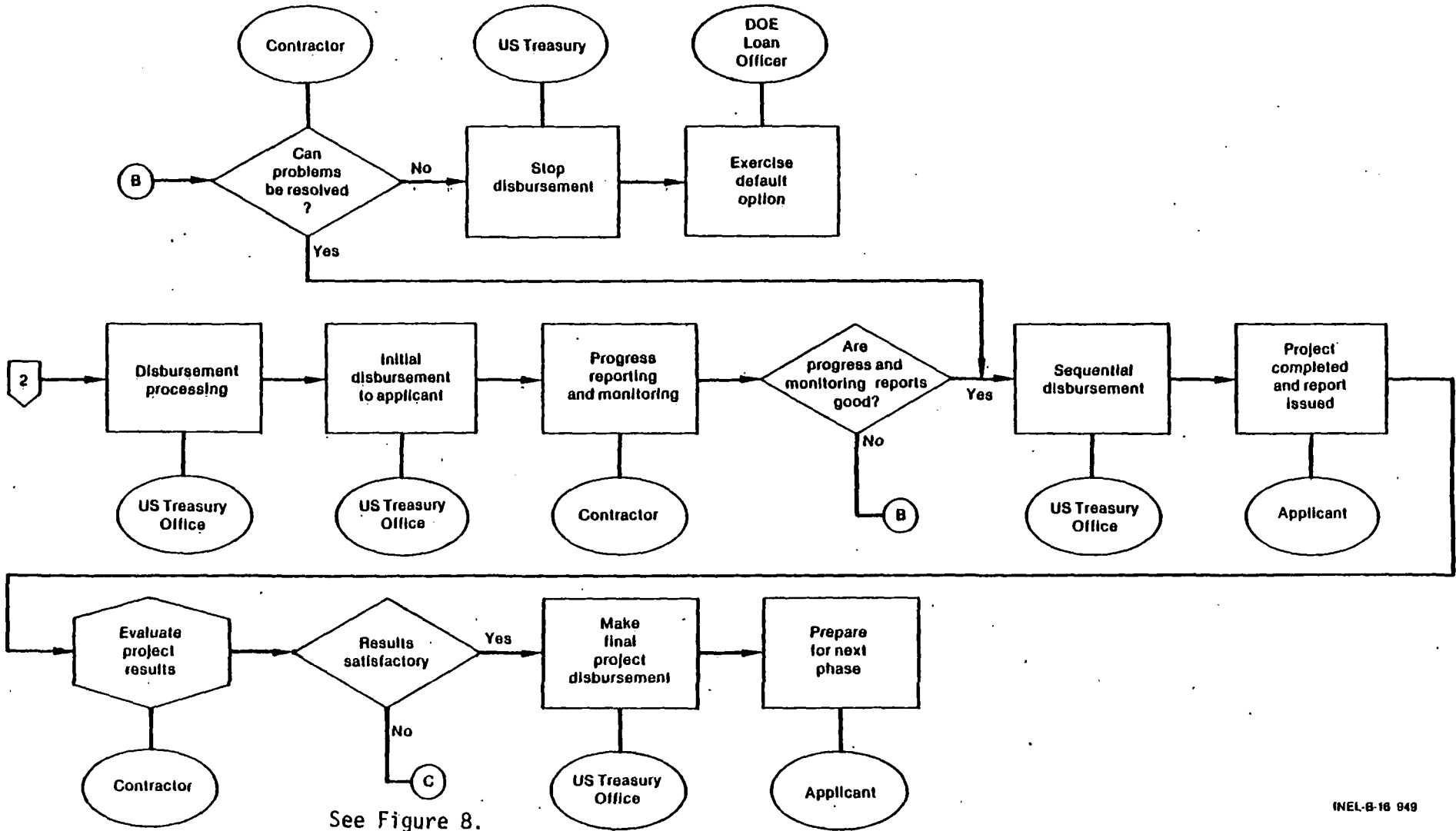


Figure 6, Evaluation of Applications and Award of Funding



See Figure 8.

Figure 7, Loan Monitoring & Disbursement

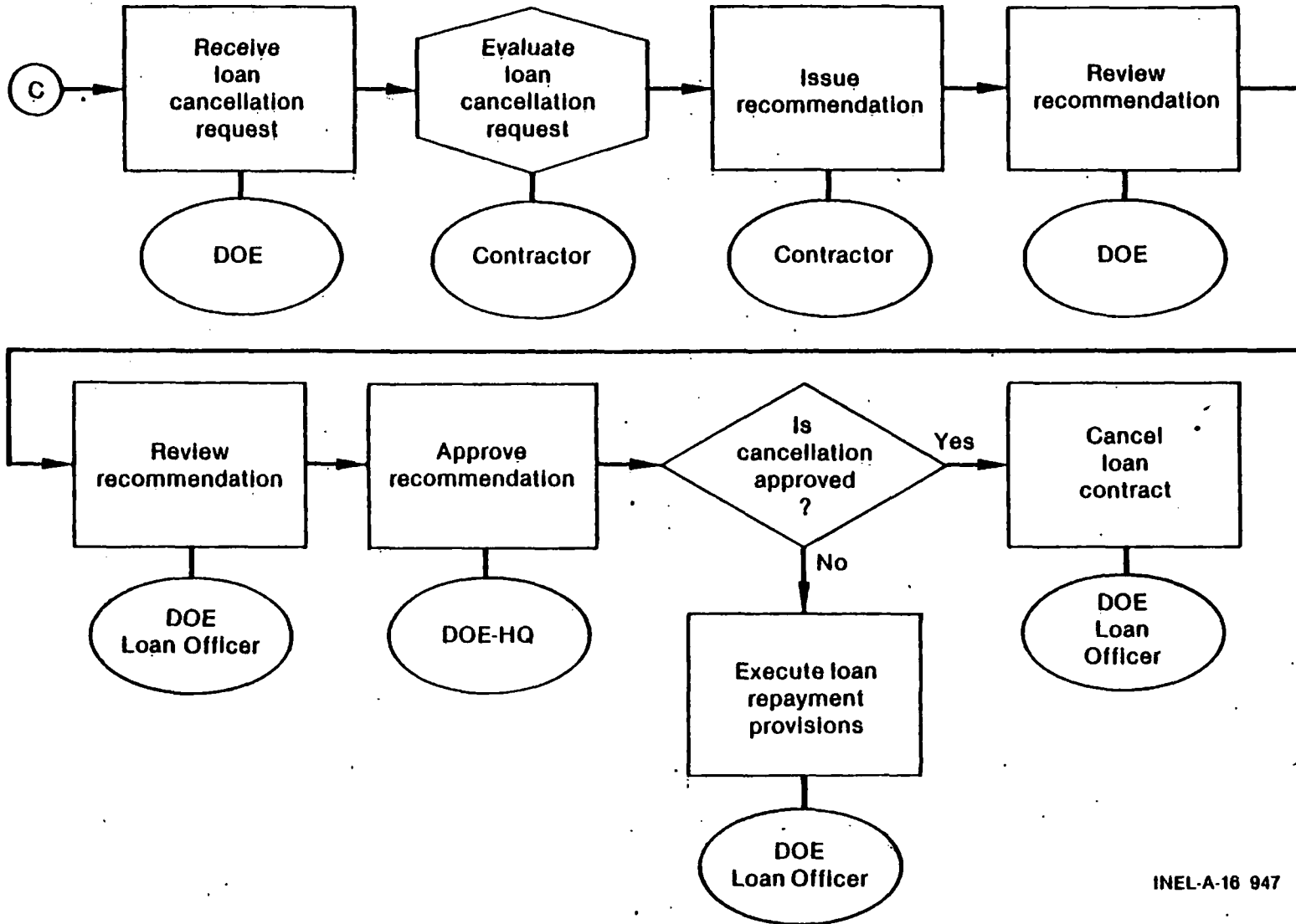


Figure 8. Loan Cancellation

APPENDIX A

PREFEASIBILITY AND DETAILED FEASIBILITY

IMPLEMENTATION PLAN

This appendix details the specific steps to implement the prefeasibility and detailed feasibility loan programs starting with the receipt of an application. The following areas are covered:

1. Initial processing of an application
2. Application evaluation and award of loan
3. Loan monitoring and disbursement.

Figures 5 through 8 in the general section of the Plan provide an overview of the sequence of the implementation steps.

PREFEASIBILITY AND DETAILED FEASIBILITY STUDIES

I. Initial Processing of Applications (Figure 5)

A. Accept applications

1. Verify that four copies of application are received and that signature copy is identified.
2. Assign application number (control number) to each application.
3. Establish a file for each applicant.

B. Conduct initial screening of applications to determine that:

1. The proposal is made by a "person" as defined in regulations.
2. The proposer is not a Federal agency and/or laboratory owned, operated, or under the cognizance of the Federal Government.
3. The project contains sufficient data for evaluation.

C. Applications which do not meet initial screening criteria (see B above)

1. Prepare rejection notification letter with justification.

II. Evaluation and Approval of Loan Applications (Figure 6)

The evaluation of loan applications will be conducted by DOE-SAN. It may be necessary to augment the staffing with DOE-ID or contractors from DOE labs or industry.

A. Prefeasibility and Detailed Feasibility Study Loan Application Evaluation

Items pertinent only to prefeasibility study evaluation and listed in < > and to detailed feasibility study are listed in [].

1. General criteria

a. Financial evaluation

- (1) Financial status
- (2) Capable of loan repayment
- (3) Applicant's proposed equity contribution is acceptable
- (4) Determine the extent to which a loan should be secured.

b. Cost and schedule evaluation

- (1) Total estimated cost
- (2) Schedule is maintainable

- (3) Cost breakdown by task
- (4) Schedule and cost are compatible.
- c. Project management evaluation
 - (1) Adequate technical experience exists within the proposing organization and/or in proposed major contractor's or consultant's organizations to maintain cost and schedule
 - (2) Applicant status documentation
 - (3) Organization capable of managing effort.
- 2. Technical evaluation. The following data, which is to be submitted by applicants, will be evaluated to determine the likelihood of technical feasibility?
 - a. Task description
 - (1) Assessment of work scope and related factors such as: What specifically will be done, Why needed, Prior work, Sound proposed work methodology, End product of study and decision criteria for end results.
 - (2) Importance of the items to be studied
 - o Is some information already available (via other sources)
 - o How critical are the work scope items in relation to the construction of a geothermal facility.

b. Site characteristics

- (1) [The results of geothermal exploration program which culminated in the drilling and/or testing of hot spring or well(s) which is proposed to be used in the project;]
- (2) [The minimum temperature and flow rate required for the end use;]
- (3) [A preliminary indication of the ability of the reservoir to meet the energy requirements of the project;]
- (4) [Any other information that would aid the Secretary in understanding the setting in which the geothermal fluid will be utilized, particularly those factors which may make the setting important or unique, including listing on the National Register of Historic Places of any structure or sites in the vicinity of the proposed project;]
- (5) [A preliminary estimate of the energy requirements of the facility, a preliminary estimate of the energy requirements of the proposed project and the portion of the requirements that will be met by the use of geothermal fluids, and the most likely customers for the heat if it is to be sold;]
- (6) [A description of the existing energy system (if applicable) and the degree to which the existing energy system will be modified to implement the use of geothermal energy.]

3. Economic evaluation

- a. Cost-benefit methodology

4. Environmental evaluation

- a. Impacts on nearby communities
- b. Fish and wildlife concerns
- c. Setting
- d. Institutional implications.

5. Access and possession

- a. Arrangements to perform study
- b. Rights of access to site in event of drilling or construction
- c. Rights of possession.

B. Priorities of loan applications

In the event the total request for loans exceeds the funding available, certain policy factors will be considered when making the selection of applicants. These considerations are identified in the regulation.

C. Determine funding recommendation, if any, based on evaluation

1. Funding recommended

- (a) Prepared final recommendation

- (b) Specify recommended loan amount
 - (c) Specify recommended value of collateral, if applicable.
 - 2. Funding not recommended
 - (a) Prepare justification
 - (b) Identify date needed to change recommendation.
- D. Loan approvals
- 1. Contractor's findings
 - 2. SAN Staff review
 - (a) Analyze findings
 - (b) Prepare recommendation (or add'l data needed).
 - 3. Contact applicant and negotiate contract
 - (a) Negotiate loan agreement
 - (b) Negotiate other documents
 - (c) Finalize schedule
 - (d) Finalize milestones
 - (e) Negotiate reporting schedule
 - (f) Negotiate disbursement schedule

(g) Negotiate re-payment schedule

(h) Negotiate collateral to secure loan, if applicable.

4. SAN loan officer review

(a) Sign agreements

(b) Reevaluate application if directed.

III. Project Monitoring

A. Loan Disbursement and Progress Reporting (Figure 7)

1. U.S. Treasury

- a. Receive notification from DOE-SAN that agreement is approved

- (1) Process approval notice

- (2) Make first payment to applicant in accordance with contract.

2. DOE-SAN

- a. Review and assess progress reports from applicant.

- (1) "Good" report - notify U.S. Treasury to disburse the next sequential payment

- (2) "Problem" progress reports

- (a) Resolve progress problems favorably

- (b) Fail to resolve progress favorably: no authorization of next sequential payment

- (c) Exercise default option

- (d) Take collateral if defaulting borrower has posted it, or initiate other appropriate legal proceedings in accordance with contract.

B. Evaluation of the Completed Feasibility Study

1. DOE-SAN - applicant discuss and assess study results

a. Positive feasibility study results

- (1) Applicant who so desires may apply for next phase (Reservoir Confirmation Loan, Licensing Loan)
- (2) Complete final report satisfactorily - receive final disbursement
- (3) Commence loan payback according to terms negotiated

b. Negative feasibility study

- (1) Loan applicant may request loan cancellation (request sent to DOE-SAN)

C. Loan Cancellation (Figure 8)

1. DOE-SAN evaluates borrower's justification to determine if it meets cancellation criteria of the regulation. DOE-SAN sends its recommendation to DOE-HQ for approval.

- a. Approved loan cancellation request - unpaid balance and accrued interest cancelled on loan.
- b. Disapproved loan cancellation request - commence loan payback in accordance with loan agreement.

APPENDIX B

RESERVOIR CONFIRMATION PROJECTS

IMPLEMENTATION PLAN

This appendix details the specific steps to implement the reservoir confirmation projects starting with the receipt of an application. The following areas are covered:

1. Initial processing of an application
2. Application evaluation and award of loan
3. Loan monitoring and disbursement.

Figures 5 through 8 in the general section of the Plan provide an overview of the sequence of the implementation steps.

RESERVOIR CONFIRMATION LOANS

I. Initial Processing of Applications (Figure 5)

A. Accept applications

1. Verify that four copies of application are received and that signature copy is identified.
2. Assign application number (control number) to each application.
3. Establish a file for each applicant.

B. Conduct initial screening of applications to determine that:

1. The proposal is made by a "person" as defined in regulations.
2. The proposer is not a Federal agency and/or laboratory owned, operated, or under the cognizance of the Federal Government.
3. The project contains sufficient data for evaluation.

C. Applications which do not meet initial screening criteria (see B above)

1. Prepare rejection notification letter with justification.

II. Evaluation and Approval of Loan Applications (Figure 6)

The evaluation of loan applications will be conducted by DOE-ID and INEL. It may be necessary to augment the staffing with contractors, government agencies, or industry.

A. Reservoir Confirmation Loan Application Evaluation

1. General criteria

a. Financial evaluation

- (1) Financial status
- (2) Capable of loan repayment
- (3) Applicant's proposed equity contribution is acceptable
- (4) Determine the extent to which a loan should be secured.

b. Cost and schedule evaluation

- (1) Total estimated cost
- (2) Schedule is maintainable
- (3) Cost breakdown by task
- (4) Schedule and cost are compatible.

c. Project management evaluation

- (1) Adequate technical experience exists within the proposing organization and/or in proposed major

contractor's or consultant's organizations to maintain cost and schedule

(2) Applicant status documentation

(3) Organization capable of managing effort.

2. Technical evaluation. The following data, which is to be submitted by applicants, will be evaluated to determine the likelihood of technical feasibility.

a. A description of the proposed project that covers the technical potential. The description should address, but not necessarily be limited to, the following:

(1) A general description of the total geothermal project including exploration, drilling, full field development, completion, testing, and end use(s).

(2) A comprehensive geological description of the resource including reasonable evidence that a resource adequate to support the intended end use exists at the site proposed. Proposals with good geologic evidence for existence of a resource will be favored over those with poor evidence. The most favorable geological evidence would be direct evidence of consisting of known thermal springs or wells or thermal spring deposits and geochemical thermometry that indicates the existence of a resource. All geological, geophysical, geochemical, and hydrological evidence should be given that bears upon existence of the suspected reservoir, and negative evidence that contradicts the existence of a resource should be given as well.

- (3) Specific details concerning the end use(s) to be made of geothermal fluids along with an analysis of the engineering and economic feasibility of the project. Engineering items to be discussed include energy requirements (e.g., temperature, flow, load factor, peak load) and system design.
 - b. An exploration program description that includes geologic, geochemical and/or geophysical techniques proposed to specifically size the exploratory well.
 - c. A drilling plan that briefly describes anticipated rig type, well depth, well diameter, casing schedule, drilling fluid, logging plan, etc. Later in the project, before actual drilling begins, a more detailed plan for each well will be required that complies with the applicable portions of 30 CFR Part 270.
 - d. A preliminary plan for reservoir testing and analysis of the results. This plan can be modified later depending upon drill results. The plan must be grounded in accepted geohydrology and reservoir engineering techniques and must basically determine usability and longevity of the geothermal resource. Items to be specified include testing methods, duration, flow rate, measurements to be made and accuracy of same, and the techniques to analyze test data.
3. Economic evaluation
 - a. Cost-benefit methodology
 - b. Projected income analysis

4. Environmental evaluation

- a. Impacts on nearby communities
- b. Fish and wildlife concerns
- c. Setting
- d. Institutional implications.

5. Access and possession

- a. Arrangements to perform study
- b. Rights of access to site in event of drilling or construction
- c. Rights of possession

6. Site visit information, if necessary.

B. Priorities of loan applications

In the event the total request for loans exceeds the funding available, certain policy factors will be considered when making the selection of applicants. These considerations are identified in the regulation.

C. Determine funding recommendation, if any, based on evaluation

1. Funding recommended

- (a) Prepared final recommendation
- (b) Specify recommended loan amount

(c) Specify recommended value of collateral, if applicable.

2. Funding not recommended

(a) Prepare justification

(b) Identify date needed to change recommendation.

D. Loan approvals

1. Contractor's findings

2. DOE-ID staff review

(a) Analyze findings

(b) Prepare recommendation (or add'l data needed).

3. Contact applicant and negotiate contract

(a) Negotiate loan agreement

(b) Negotiate other documents

(c) Finalize schedule

(d) Finalize milestones

(e) Negotiate reporting schedule

(f) Negotiate disbursement schedule

(g) Negotiate re-payment schedule

(h) Negotiate collateral to secure loan, if applicable.

4. DOE-ID loan officer review

(a) Sign agreements

(b) Reevaluate application if directed.

III. Project Monitoring

A. Loan Disbursement and Progress Reporting (Figure 7)

1. U.S. Treasury

- a. Receive notification from DOE-ID that agreement is approved
 - (1) Process approval notice
 - (2) Make first payment to applicant in accordance with contract.

2. DOE-ID

- a. Review and assess progress reports from applicant.
 - (1) "Good" report - notify U.S. Treasury to disburse the next sequential payment.
 - (2) "Problem" progress reports
 - (a) Resolve progress problems favorably
 - (b) Fail to resolve progress favorably: no authorization of next sequential payment
 - (c) Exercise default option
 - (d) Take collateral if defaulting borrower has posted it, or initiate other appropriate legal proceedings in accordance with contract.

B. Evaluation of the Completed Reservoir Confirmation Project

1. DOE-ID - applicant discuss and assess results from reservoir drilling operation and flow tests
 - a. Positive results
 - (1) Applicant who so desires may apply for next phase (Licensing Loan - if funding appropriated)
 - (2) Complete final report satisfactorily - receive final disbursement
 - (3) Commence loan payback according to terms negotiated
 - b. Negative results
 - (1) Loan applicant may request loan cancellation (request sent to DOE-ID)

C. Loan Cancellation (Figure 8)

1. DOE-ID evaluates borrower's justification to determine if it meets cancellation criteria of the regulation. DOE-ID sends its recommendation to DOE-HQ for approval.
 - a. Approved loan cancellation request - unpaid balance and accrued interest cancelled on loan.
 - b. Disapproved loan cancellation request - commence loan payback in accordance with loan agreement.