



User-Coupled Confirmation Drilling Program



Solicitation for Cooperative
Agreement No. DE-SC07-80ID12139

Closing Date: August 15, 1980



Department of Energy
Idaho Operations Office
550 Second Street
Idaho Falls, Idaho 83401

June 11, 1980

SOLICITATION FOR COOPERATIVE AGREEMENT PROPOSALS (SCAP)-USER-COUPLED
CONFIRMATION DRILLING PROGRAM-SCAP NO. DE-SC07-80ID12139

Prospective Proposers:

The Department of Energy (DOE), Idaho Operations Office (ID), desires to receive and consider for support proposals for projects for surface exploration, drilling, testing, and completion of geothermal wells throughout the United States, or for testing wells that have already been drilled but have not been tested for hydrothermal application. Although Cooperative Agreements resulting from this SCAP will not provide for funding the development of the end use of the resource, the end use must be described in the proposal and a commitment to complete the development must be included in the proposal. Section I of this SCAP contains the detailed Statement of Work for this project.

The purpose of this Executive Summary Letter is to summarize the salient elements of this solicitation. It is not an integral part of the attached Solicitation for Cooperative Agreement Proposals (SCAP) which is a self-contained, stand-alone document. In the event of any conflict between the Executive Summary Letter and that of the SCAP, the language of the SCAP will prevail.

Individuals; educational institutions; commercial, industrial or other private entities; public entities, including state and local governments; or teams thereof who wish to have their proposed project considered by DOE for support are invited to respond to this SCAP. If the proposal is submitted by a team, one member of the team must be designated as the principal participant. Proposals from Federal agencies and/or laboratories owned, operated, or under the cognizance of the Federal Government will not be considered for selection and should not be submitted.

The information contained in proposals will be handled in accordance with the policies and procedures set forth in 41 CFR 9-3.150. Any information in your proposal considered proprietary should be clearly and specifically identified. Although proposals must be consistent with this SCAP, it is DOE policy to discourage "brochuremanship" and unnecessarily costly proposal preparation. This SCAP does not commit the Government to pay any costs incurred in the preparation or submission of any proposal or to procure or contract for any services.

A pre-proposal conference will be held to answer questions related to this SCAP. The pre-proposal conference will be held on July 1, 1980, 9:00 a.m. to 12:30 p.m., at the Federal Center, Building No. 56 (Auditorium), entrance at West 6th Avenue, Denver, (Lakewood) Colorado. Attendance is not required but is recommended.

Attendees should prepare questions in writing and mail to the address below before the meeting. Questions presented at the conference must be in writing. No answer given orally at the conference will be considered official unless and until it is distributed in writing to all prospective proposers.

In order to assure receipt of a response, the final deadline for submission of questions regarding this SCAP, which must be submitted in writing to the address below, is July 7, 1980. All substantive questions from prospective proposers, with DOE's responses, will be transmitted as soon as practical to only those SCAP recipients that have indicated an intention to submit a proposal.

It is expected that this SCAP will result in up to ten or more Cooperative Agreements between DOE and principal participants. The cost of the project must be shared by the participant with DOE on a variable cost share basis depending on success of the well. No profit or fee shall be paid to the participant. Proposals should be prepared in accordance with the instructions in Section III of this SCAP. Please refer to the Proposal Checklist found in Appendix Q to assure completeness of your proposal. Ten (10) copies of the proposal should be addressed to:

Ms. Nina Ussery, SEP Secretary
Department of Energy - Room 119
Idaho Operations Office
550 Second Street
Idaho Falls, Idaho 83401

Proposals must be received at the above address no later than 4:00 p.m. local time, August 15, 1980. Late proposals, modifications of proposals, and withdrawals of proposals will be handled in accordance with the Federal Procurement Regulations, Chapter 1, Section 1-3.802.2, which is attached as Appendix D. To facilitate handling, please place the following identification on the outside of the package containing your proposal.

"Proposal for User-Coupled Confirmation Drilling Program,
SCAP No. DE-SC07-80ID12139, To be Opened by Addressee Only"

This SCAP contains the following documents which are listed on the Table of Contents:

- I. Description of Proposed Project with background information.
- II. Qualification Criteria which the potential proposer must meet to qualify for consideration under this SCAP.

III. Proposal Format to follow in preparation of a Volume I - Technical Proposal and Volume II - Business Proposal.


IV. Evaluation Criteria upon which the proposals shall be evaluated.

V. Representations and Certifications required from the proposer.

Appendices with sample cover pages, late proposal regulations, guidelines and other required documentation for this SCAP.

Please acknowledge receipt of the SCAP by completing the enclosed postcard and indicate if a proposal will be submitted. Only those returning the postcard and indicating that a proposal will be submitted will be provided copies of the draft Cooperative Agreement and amendments to the SCAP. Please respond within two weeks from receipt of the SCAP.

Sincerely,



Nell W. Fraser
Contracting Officer

SCAP
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I. DESCRIPTION OF PROPOSED PROJECT

USER-COUPLED CONFIRMATION DRILLING PROGRAM
SCAP NO. DE-SC07-80ID12139

I. DESCRIPTION OF PROPOSED PROJECT

A. Background

Most geothermal scientists agree that there are many more low-to moderate-temperature (<300°F) hydrothermal resources than there are high-temperature (>300°F) hydrothermal resources. However, very little use is presently being made of the energy in low-and moderate-temperature hydrothermal resources. The main reasons for this lack of use appear to be: (1) insufficient knowledge of the resource itself to attract users; (2) the present high risk and high costs associated with reservoir confirmation; and (3) the relative lack of an experienced, integrated infrastructure of exploration consultants, drilling contractors and consultants, utilization engineers, equipment manufacturers, financiers, and legal/institutional people working in the geothermal industry.

The Department of Energy (DOE), Division of Geothermal Energy, is mandated to perform work in all phases of research, development, and demonstration of geothermal resources as an alternate energy source. Under this mandate, DOE has a primary concern for the development of low-to moderate-temperature hydrothermal resources for direct utilization. The purpose of the User-Coupled Confirmation Drilling Program is to stimulate hydrothermal development by reducing reservoir confirmation risk to the developer, and to promote development of an infrastructure of specialists that will facilitate increased economic use of low-to moderate-temperature hydrothermal resources without the need for Federal support beyond 1987. For this solicitation, DOE will cost share surface exploration drilling and flow testing of exploration wells to confirm low-to moderate-temperature hydrothermal resources.

This is the second solicitation issued under this program. The first, Solicitation for Cooperative Agreement (SCA) No. DE-RP07-80ID12132, was confined to the Delmarva Peninsula on the East Coast. This Solicitation for Cooperative Agreement Proposals (SCAP) does not designate any particular area; however, the drilling site must be within the 50 states of the United States. Those proposals which were not selected in the first SCA may be updated and resubmitted for consideration under this or subsequent SCAP's. It is planned that this SCAP will be followed by future solicitations similar in work scope. The amount of funds available for future solicitations will be

dependent upon the availability of funds appropriated by Congress. Copies of the future solicitations will automatically be sent to those persons/firms on the User-Coupled Confirmation Drilling Program mailing list.

B. Project Description

This SCAP solicits projects for exploration, drilling, flow testing, and completion of hydrothermal wells throughout the United States, or for testing wells that have already been drilled but have not been tested for hydrothermal applications. Although this solicitation will not fund the installation of utilization equipment or development of the direct heat application (end use), beyond the reservoir confirmation stage it does require coupling to an economically viable and technically feasible end use for the hydrothermal resource.

Approximately \$10 million will be available for this solicitation in FY 81. DOE anticipates 10 or more awards. DOE reserves the right to make no awards.

DOE will cost share only the following work:

1. exploration leading to the selection of a drill site;
2. environmental report preparation and permit application,
3. drill site preparation and restoration;
4. modification to preliminary well and testing designs and plans as required prior to the drilling and testing phases;
5. actual well drilling and associated drilling expenses;
6. flow testing during and after drilling;
7. fluid disposal during drilling and testing;
8. completion of the well, which could include well stimulation;
9. plugging and abandonment of an unsuccessful well;
10. workover necessary for re-entry and testing of an existing well;
11. drilling and testing of an injection well, if necessary and
12. program management, consultants, and supervision required by the project work scope through completion of well testing and analysis.

The above mentioned work shall be provided for by the participant. DOE and its contractors will monitor all phases of the project as the work progresses. Therefore, DOE and DOE contractors will require access to the project sites, when necessary, during the progress of the project.

As a minimum, the proposal must include the testing and analysis of at least one new or existing well for the purpose of resource confirmation. DOE will support the drilling and testing of the injection well only if required to meet applicable standards and/or regulations for fluid disposal. The completion of a successful well or the plugging and abandonment of an unsuccessful well will be in compliance with appropriate Federal, state, and/or local regulations.

After the first production well has been drilled and tested, the participant may request a modification to expand the scope of work which could include drilling an additional well. At DOE's discretion, DOE and the successful proposer may negotiate to redefine the scope of work and DOE financial participation.

For this solicitation, DOE will share 90% of the costs not to exceed \$2.0 million for a project that is unsuccessful which proposes one production well. DOE will cost share 90% not to exceed \$3.6 million for a project that is unsuccessful that proposes one production well and one injection well (where an injection well is necessary.) An unsuccessful well is one that is unproductive, or has no potential for the proposed direct heat applications.

DOE will share 20% of the costs not to exceed \$440,000 for a project that is successful which proposes one production well. DOE will share 20% of the costs not to exceed \$800,000 for a project that is successful that proposes one production well and one injection well (where an injection well is necessary). A successful well is one that results in a hydrothermal resource having necessary temperature and production characteristics suitable for intended direct application.

For a well that is neither completely successful nor completely unsuccessful, DOE's cost share shall be in accordance with the variable cost-share formula (based on the degree of success) submitted by a proposer. An example of a partially successful well is one that fails to meet the flow and/or temperature requirements for the proposed end use, but could partially support the proposed end use or an alternate end use. The degree of success will be determined from well testing, analysis of reservoir data, and consideration of the requirements of the proposed end use as determined by the participant and concurred by DOE. DOE will incrementally pay, upon invoice as defined by the Payments clause, 20% of the invoiced amount but not to exceed the DOE cost share limit for a successful well. DOE will complete payment of its share of the costs after the degree of success has been determined, and all parties are in agreement.

As the project proceeds, it will be necessary for the participant and DOE to evaluate the reasonableness of proceeding with the project. These evaluations will be made at key decision points (See Appendix M for a flow chart of key decision points.) Prior to drilling and testing, should both parties agree not to proceed, then DOE will pay 90% of the allowable costs incurred. Should the participant elect to terminate during drilling or testing of the well, then the percentage that DOE will pay will be negotiated. This percentage will not be less than 20% nor greater than 90% of the cost incurred at the time of termination.

A potential proposer is one who 1) has a site with hydrothermal potential, 2) has an intended end use or has an arrangement with a potential user with an end use, 3) has solutions to institutional barriers, and 4) can provide a self-sustaining financial package. Before a cooperative agreement can be signed, the proposer must have right of access and use to both the site and the water/geothermal/mineral resource. Without these rights an agreement will not be signed.

Some examples of applications of low-to moderate-temperature hydrothermal resources as an alternate energy are space heat, industrial process heat, ethanol production, etc. The use of hydrothermal fluids for hybrid applications will be considered if a significant fraction of the produced thermal energy is used for direct applications. Proposals which include more than one end use, i.e., cascaded end uses, multiple end uses, or alternative uses for the produced thermal energy will receive a more favorable evaluation than one which proposes only one end use. Proposals which primarily address electrical generation, hot dry rock technology or geopressured resources will not be considered under this solicitation.

Before submitting a proposal, the proposer should determine that the site has a good likelihood of producing the volume of fluid and the temperatures needed for the proposed direct heat end use. This determination should be made from the geological, geochemical, geophysical, and hydrological data available on the area. This information, along with an economic and technical analysis, should be discussed in the technical proposal. Once the likelihood of success has been determined, drilling and well testing plans should be prepared in accordance with section III.A.7. The information that should be included in the proposal as well as the format, are discussed in Section III.A.7. Refinement of these plans will be necessary prior to proceeding with that particular phase (exploration, drilling and/or testing) to include any new information acquired during the process of the project.

It is recommended that proposers who do not have technical expertise in geothermal resources development obtain the necessary technical assistance. Technical capabilities and experience of the proposer's project team are a technical evaluation criteria.

One of DOE's objectives is to gather data and information generated during this project and transfer these data and information to the public to stimulate further development of hydrothermal resources. The reports and deliverables that will be required under any resulting cooperative agreement are listed in Appendix J. Selected portions of these reports and deliverables will be made available by open-file release to the public.

II. QUALIFICATION CRITERIA

II. QUALIFICATION CRITERIA

To qualify for consideration under this SCAP, the proposer must meet certain qualification criteria. Prior to the detailed evaluation, each proposal will undergo a preliminary review to assure the following qualification criteria are satisfied:

1. The proposal must contain a variable cost-share plan.
2. The proposer must not be a Federal agency and/or laboratory owned, operated, or under the cognizance of the Federal Government.
3. The proposal shall include a statement of intent from the potential user to develop the reservoir or cause the development of the utilization system (end use).
4. The DOE cost share shall not exceed \$3.6 million for a project that proposes one production well and one injection well. For a one well proposal, DOE's cost-share shall not exceed \$2.0 million under any circumstances.
5. No proposals will be accepted for sites outside the 50 states of the United States.
6. The project must provide flow testing of at least one new or existing well for the purpose of resource confirmation.
7. Each proposal must be valid for at least 200 days after the closing date of this SCAP.

III. PROPOSAL FORMAT

III. PROPOSAL FORMAT

Each submission in response to this SCAP should be prepared in two separate and detached volumes: Volume I - Technical Proposal, and Volume II - Business Proposal. To facilitate an orderly and expedient review of proposals, proposers are requested to follow the format given below for Volumes I and II. Each volume should be written as a "stand-alone" document. Separate teams of reviewers may review each volume and all pertinent information to make each volume entirely understandable without reference to the other volume should be included. It is recommended that the total number of pages for the two volumes not exceed 200 pages. Proposals should be as short and concise as possible consistent with being complete.

A. VOLUME I - TECHNICAL PROPOSAL

1. Cover Page of Volume I - Appendix A to this SCAP provides a general format and the specific information which should appear on the cover page to Volume I. One of the following organizational classifications should appear on the cover page: ACADEMIC (Local, State, or Private Control); GOVERNMENT AGENCY (Local, State); NON PROFIT (Private Ownership, Local Government Funded, State Government Funded); PROFIT (Private Ownership, Small Business, Partnership, Corporation, Private or Public Utility); INDIVIDUAL. Copies should be numbered, 1 through 10. The number 1 copy should be the original with the signature in ink.
2. Statement of Intent - Appendix C to this SCAP provides a statement discussing the proposed development of the utilization system. The proposer & the potential user should complete this form or provide a letter of intent or other such evidence from the user which shall also be considered adequate to fulfill this requirement.
3. Summary - Submit a concise summary of the proposed project not to exceed 500 words.
4. Table of Contents - Include a Table of Contents to facilitate locating the elements outlined in these guidelines (include page numbers).
5. Resource Potential - Technical and Economical Feasibility - Provide information concerning the resource potential and technical and economic feasibility of the proposed project. Include as a minimum the following:
 - a. A general description of the total geothermal project shall include exploration, drilling, completion, testing, and end use. The portions of the project already completed, and/or involving the utilization

of the geothermal fluid (and hence not eligible for DOE cost sharing under this SCAP), should be clearly distinguished from the work covered under this SCAP and eligible for cost sharing.

b. A resource potential and technical and economic description of the total geothermal project shall include as a minimum the following:

- (1) A comprehensive geological description of the resource, as visualized at the time of the proposal, should be submitted along with a bibliography of pertinent references. This description should include:
 - (i) regional geological setting, including lithology and structural features and relationships, etc.;
 - (ii) description of any hydrothermal manifestations such as thermal springs, spring deposits, thermal wells, hydrothermal alteration etc.;
 - (iii) description of any subsurface information from prior drilling that is relevant to the resource;
 - (iv) any geological, geochemical, geophysical or hydrological information that bears on the resource; and
 - (v) any negative information that bears on the resource including nearby non-thermal wells and springs.

The origin of all data and interpretations should be clearly identified.

If any new wells are to be drilled, the description should center around the concept of a geothermal exploration target. Available information should be analyzed in such a way that a geologically reasonable idea of conditions in the subsurface is evolved and expressed in terms of a target to be tested by the proposed exploration and drilling program.

- (2) The end use(s) for the hydrothermal fluids should be described in sufficient detail to verify the engineering feasibility of the project. Each

end use shall be clearly identified. The engineering information contained in the proposal should include:

- (i) proposed design schematics of the process(es) which identify temperatures ($^{\circ}\text{F}$), flow rates (GPM), and other pertinent design information.
 - (ii) energy requirements (BTU/hr) for the process(es) and the portion of the requirements that will be met by the use of hydrothermal fluids. The energy requirements should be shown as a Process Energy Requirements Plot of temperature ($^{\circ}\text{F}$) versus hydrothermal fluid flow (gpm). An example of this plot is shown in the Glossary, Appendix N. Clearly describe the minimum acceptable resource requirements (flow rates, temperatures, and other parameters that may limit the project) needed to meet the intended application.
 - (iii) predicted utilization factor;
 - (iv) predicted average gross annual energy consumption (BTU/yr) that will be met through the use of hydrothermal energy;
 - (v) brief description of major energy system components;
 - (vi) 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 hydrothermal energy;
 - (vii) description of the intended fluid disposal system design; and
 - (viii) other data, as deemed appropriate by the proposer, that describe the utilization of the geothermal fluid.
- (3) Financial feasibility of the entire project through end use should be described in terms of the proposer's standard method of economic evaluation. The following information, as a minimum, should be provided for DOE analysis:

- (i) capital requirements for the entire project (resource development cost, utilization system costs, etc.);
- (ii) financing cost (interest, etc.);
- (iii) all projected replacement costs and timing of replacements (pump replacement, etc.);
- (iv) all projected annual costs (operating and maintenance costs, etc.);
- (v) federal and state tax rates,
- (vi) type of business.

If the energy is to be sold to non project users, show evidence of a competitive energy rate schedule and list potential customers.

- c. The proposer should supply any available information on the impact of the total project on local or regional energy needs. DOE may seek independent assessment of this impact by appropriate state agencies.

6. Project Management - Provide as a minimum the following information:

- a. Discuss the project management plan as follows:
 - (1) Provide a concise and definitive statement of work for inclusion into any resulting cooperative agreement. Define the individual key tasks of work and list them in a logical sequence. (An example Statement of Work is shown in Appendix L.)
 - (2) Describe the planned organizational elements showing the reporting relationships of key personnel, and list all key personnel who will be involved in the project. If the project is to be accomplished by a team effort, identify each of the participating organizations and/or individuals, and include a project organization chart. If the proposer is a team of organizations, one member organization must be designated as the principal participant and an individual must be designated Project Manager. The relationship of all parties who work on the project with respect to one another must be clear.

- (3) Identify all consultants and contractors where possible. Clearly explain the nature and extent of their efforts in support of the proposed project. If all consultants and contractors are not yet identified, describe how they will be selected.
- (4) Provide a work schedule for the project. This schedule should indicate the phasing and interrelationship of the various tasks as defined by the Statement of Work. The schedule should also identify key milestones and decision points through testing and well completion. The schedule shall be based on a time line from date of agreement award and not based on calendar dates. Each party to the cooperative agreement (DOE and the participant) will have the right to terminate participation at any decision point; therefore, DOE will need copies of data generated by the project for independent analysis to determine whether or not to extend participation to the next stage. DOE will require a minimum of 10 working days after the receipt of the data to review and make a determination to proceed. The decision point or milestone chart should define the data to be delivered at each stage of the program. The participant shall provide the time requirements at each decision point necessary for review and determination to proceed. The participant shall also state the time requirements for DOE to concur with changes in work and other decisions necessary for work to proceed during each phase, i.e. exploration, drilling and testing. (An example work schedule summary suitable for inclusion in a cooperative agreement is shown in Appendix L.) More detailed schedules for which include day to day project management are desirable.

b. Discuss personnel and organization experience. Include, as a minimum, the following:

- (1) Describe any relevant experience or related capabilities of the proposing organization and consultants that lend strength to the proposed project. Proposals should include a complete description of previous experience that would demonstrate ability to plan and manage projects of similar magnitude.

- (2) Provide resumes of the Project Manager and key personnel to indicate competence and experience in geothermal development or related technologies. This section should also identify and include information about persons who will work on the project, but for whom no funds are requested.

7. Technical Planning - Provide information on the exploration, drilling, completion, and testing phases of the project. Include as a minimum the following:

- a. Exploration Plan (See Exploration Guidelines in Appendix E.) - The exploration program has the basic goal of selecting drill sites. Collection, analysis and interpretation of geological, geochemical, geophysical and hydrological data (as applicable) should form the exploration program. Drilling for the purpose of determining shallow temperature and thermal gradient is acceptable if applicable. Each technique applied should contribute to a better understanding and evaluation of the target concept and to the selection of the drill site. Anticipated methods to be used in analysis and interpretation of the exploration data should be detailed or referenced in the open literature. The exploration program should be kept as modest as possible consistent with developing enough data for good drill site selection. No exploration program should be proposed if (a) a drill site can be selected reliably without the use of surface or shallow hole exploration, (b) sufficient exploration has already been done, or (c) no new production well is to be drilled.
- b. Preliminary Drilling Program (See Drilling Guidelines in Appendix F.) - The purpose of the drilling program is to intersect the resource by utilizing good geothermal drilling practices. Consideration should be given to the use of drilling fluids that minimize or eliminate formation damage, i.e., drilling with air, water or high temperature drilling fluid systems. The proposed drilling program should give anticipated rig type, well depth, well diameter, casing schedule, drilling fluid, logging plan, etc. Anticipated drilling safety problems and planned mitigating measures (such as blowout prevention equipment), should be described. Completion and abandonment plans should be indicated; these plans must comply with Federal, State and/or local requirements.

c. Test Plan (See Well Testing Guidelines in Appendix G.) - The purpose of testing is to prove the existence of an adequate hydrothermal resource. Controlled reservoir testing requires producing a well with careful measurement of critical parameters such as temperature, discharge rate, and fluid (potentiometric) level. Results should be analyzed by an appropriate method designed to predict reservoir behavior over the life of the project. The proposal should specify in detail the plans for testing, including: (a) test and data analysis procedures; (b) type of instrumentation and its accuracy, and (c) any other information relevant to demonstrating the proposer's understanding of well testing. DOE and its contractors will monitor this phase for concurrence for determination of the degree of success, and may perform an independent assessment of all testing.

8. Variable Cost-Share Plan - As described in Section I, DOE's cost share will range from 20% for a completely successful well to 90% for a totally unsuccessful well. DOE's cost share shall not exceed \$3.6 million under any circumstances. The proposal shall state the total cost of the resource confirmation project for which DOE cost sharing is being requested. (This total cost shall be equal to the amount on Line 13 of the Contract Pricing Proposal, Appendix I.) Provide a detailed variable cost-share plan and the rationale for this plan. The engineering and economic calculations used to determine the cost share should be included in the proposal to aid DOE in evaluating the adequacy of the cost share plan. The proposed cost share must be related to the degree of success as defined by the well test results, by the Process Energy Requirements Plot and other minimum resource requirements listed in paragraph 5.b. above. Offer any alternative cost share arrangements for partially successful wells. (See Guidelines for the Variable Cost Share Plan given in Appendix K.)

9. Institutional Considerations (See Institutional Guidelines in Appendix H) - Discuss any institutional considerations. Include, as a minimum, the following:

a. Site and Access - provide a legal description of the site proposed for exploration, drilling, and/or testing. Provide the following evidence to the best of your abilities:

(1) right of access, leases and/or ownership to the property, and

- (2) right to the use of the water/geothermal/mineral resource for the proposed application.
 - b. Environmental Issues - Discuss known and potential environmental issues and proposed solutions. Specifically address:
 - (1) fluid disposal during and after drilling,
 - (2) drill site restoration, and
 - (3) completion and/or abandonment procedures.
 - c. Safety - The proposer should discuss potential safety problems and practices during drilling and testing.
 - d. Describe any legal, social, or institutional issues or problems associated with the project. Describe intended solutions to the issues or problems anticipated.
10. Program Policy and Preference Factors - (See Section IV.D. for list of preference factors.) Briefly discuss the manner in which the proposed project addresses the program and policy factors where applicable.

B. VOLUME II - BUSINESS PROPOSAL

1. Cover page for Volume II - Refer to instructions in Section III.A.1. and Appendix B for general format. Identify the original copy as "Copy 1." Note that the signature(s) of the responsible individual(s) should be on the cover page of Volume II. The person signing should have the authority to commit the proposer to all of the provisions of the proposal.
2. Table of Contents - Volume II should include a Table of Contents to facilitate locating the elements outlined in these guidelines (include page numbers).
3. Project Cost/Budget Summary - The following information should be provided for the proposed project through well completion and testing (as applicable).
 - a. The cost data of the business proposal should be submitted on GSA Optional Form 60 (Appendix I) with the support data noted in the instructions and footnotes thereto. The "Detailed Description of Cost Elements", items 1 through 13 on the GSA Optional Form 60, should be detailed and appended with supporting schedules. The proposer may append as many schedules as required to detail fully the costs of

the project. Include the method of computation and application of labor overhead and general and administrative overhead. The estimated project costs should be clearly delineated in sufficient detail to permit evaluation of each component. Any cost escalation factors utilized in determining the cost estimates should be clearly defined. Any subcontracted costs should be summarized on a separate supplementary Optional Form 60 for each subcontractor and totaled on the principal participant's Optional Form 60, under Item 8. The principal participant (or any others who have a direct financial interest in the success of the project) is not entitled to include a fee or profit in this cost pricing proposal.

- b. Provide a budget summary by the key (major functional) tasks determined in paragraph A.8 above; i.e., estimate the number of labor hours contributed by individual, and costs and duration of time in weeks for each task to permit evaluation of each activity. Allocate other costs (equipment, consultants, etc.) to each task so that the total estimated costs of this summary equal the total estimated costs under B.3.a above.

4. Project Financial Plan - Describe the project financial plan and include the following:

- a. The amount and method of financing proposed for the non-DOE share of the project through implementation of the utilization system; include interest rates, and costs of any loans, bonds, etc. Assume a completely successful well, where DOE's cost share is 20%.
- b. Cost controls, schedules, and other management systems.

5. Organization Information - The following information about the organizations should be provided:

- a. Provide financial data on the proposer(s) and the proposer's available financial resources. An annual financial statement (balance sheet and income and expense statement) for the past three years should be attached for proposers and major proposed subcontractors and consulting firms.
- b. Provide a brief description of the proposing entity including size, type of business, history, and discussion of ownership and/or controlling interest.

- c. Provide a listing of current or recent (within the last two years) Government contracts or other contracts by the proposer(s) in this or related fields. Include the name of the sponsoring agency or firm, contract number, amount of contract, subject area of contract, name and phone number of Contracting Officer for any Government contracts cited. Also, provide information concerning cost and schedule performance. If necessary for evaluation, DOE may solicit experience data concerning proposer's past performance.
6. Other Required Forms - The following forms are required before a Cooperative Agreement can be executed:
 - a. The "Representations and Certifications" for which is in Appendix O of this SCAP should be completed and signed by the proposer.
 - b. The "Federal Assistance Standard Form 424" which is in Appendix P of this SCAP should be completed as applicable by the proposer.

These forms are for SCAP review only and will not be used in the evaluation. These forms should be submitted as part of the Business Proposal.

7. Cooperative Agreement Terms and Conditions - Those persons returning the postcard stating an intention to propose will receive a copy of a sample Cooperative Agreement which contains the terms and conditions applicable to any work arising out of this SCAP. Most of these terms and conditions are required by statute or regulation. Any exceptions to the sample agreement provisions should be identified and the rationale for the exceptions provided. Execution of an agreement containing the required terms and conditions will be necessary in order for the Government to support any proposal.

IV. EVALUATION CRITERIA

IV. EVALUATION CRITERIA

A. General Conditions

The proposals will be evaluated in accordance with the applicable Assistance Regulations: Title 10, Chapter II, Subchapter H, Part 600, Subparagraph C., and the criteria and considerations set forth in this section of the SCAP and the DOE Source Evaluation Board Handbook (DOE/PR-0027). In conducting this evaluation, the Government may utilize assistance and advice from qualified personnel from other Federal agencies, DOE contractors, universities, and industry. Proposers are therefore requested to state on the cover sheet of their Technical Proposal if they do not consent to an evaluation by such non-Government personnel. The proposers are further advised that DOE may be unable to give full consideration to a proposal submitted without such consent. Information contained in the proposals shall be treated in accordance with the policies and procedures set forth in paragraph 9-3.150 of the DOE Procurement Regulations^[a], as summarized in Section V.B. of this document.

DOE reserves the right to support or not to support any proposal. All proposers will be notified in writing of the action taken on their proposals. Proposers should allow approximately 90 days after the closing date of this notification. Status of any proposal during the evaluation and selection process will not be discussed with proposers.

B. Preliminary Review

Prior to making a comprehensive evaluation of the proposal, a preliminary review will be made to determine that the proposal has met the Qualification Criteria in Section II.

C. Evaluation

Proposals which pass the preliminary review will undergo a comprehensive technical and business evaluation in accordance with the criteria listed below. The evaluation criteria parallel the information required in the Technical and Business Proposals as outlined in Section III Proposal Format. This information forms the basis for evaluation. The criteria are listed in descending order of importance within each volume. The Technical Criteria are weighted more than 5 times as much as the Business/Cost Criteria. Criterion 1 is weighted about equal to Criteria 2 and 3 combined. Criteria 3 and 4 are

[a] Copies of the Federal Procurement Regulations (Code of Federal Regulations, Title 41, Chapter 1), the DOE Procurement Regulations (Code of Federal Regulations, Title 41, Chapter 9), the DOE Assistance Regulations, and the SEB Handbook may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, at a nominal cost.

about equal, and combined, approximately equal to Criterion 2. Criteria 5 and 6 are approximately equal, and combined, equal Criterion 3. Criterion 7 is equal to Criteria 8 and 9 combined, and Criterion 9 is approximately half of Criterion 8.

VOLUME I - TECHNICAL PROPOSAL EVALUATION CRITERIA

Criterion 1: Resource Potential - The resource potential will be evaluated considering the following factors:

- a. The likelihood of the existence of a resource.
- b. The size and use potential of the resource.
- c. The correlation between the resource and the intended end use.

Criterion 2: Technical & Economic Feasibility - The total project, including the proposed use of produced fluids, will be evaluated for technical and economic feasibility, (disregarding any proposed DOE funding). The following factors will be considered:

- a. Feasibility of the total project based on the project description, the resource description, and the technical and economic aspects of the project.
- b. Cascaded or multiple uses of the hydrothermal fluid and projects which propose alternative fluid utilization in the event required temperatures and flows are not encountered.
- c. The impact on local or regional energy needs.

Criterion 3: Project Management - The project management will be evaluated to determine the adequacy of the following:

- a. Project Management Plan - will be evaluated for:
 - (1) Completeness and adequacy of the comprehensive project description, discussion of individual responsibilities and task assignments of each project participant, estimates of personnel effort for each of the tasks, discussion of manpower availability to satisfy task requirements, and management techniques.
 - (2) Completeness and adequacy of the detailed schedule including sequence of project tasks, principal milestones and decision points.

(3) Adequacy of participant/team commitments to assure completion of the project in a timely manner.

b. Organization and Management Team - will be evaluated for:

(1) Qualifications, capabilities and experience of key personnel with projects of comparable scope, i.e., in geothermal, petroleum, hydrology or related technologies.

(2) Qualifications, capabilities and experience of all participating organizations.

Criterion 4: Technical Planning - The technical planning of the reservoir confirmation project will be evaluated for content, adequacy, and completeness of exploration, drilling, and flow test plans, particularly the relevancy of the exploration plan to the siting of a drill hole.

Criterion 5: Variable Cost-Share Plan - The variable cost-share plan as based on the degree of success will be evaluated for adequacy and fairness between DOE and the proposer.

Criterion 6: Institutional Considerations - The institutional considerations will be evaluated according to their potential impact on the success of the project and the likelihood of satisfactory solution of the following items:

- a. Right of access, leases, and/or ownership and right to the use of water/geothermal/mineral resources.
- b. Known and potential environmental issues.
- c. Relevant legal, social, or institutional problems.
- d. Potential safety problems and practices.

VOLUME II - BUSINESS PROPOSAL EVALUATION CRITERIA

Criterion 7: Project Cost-Budget Summary - The project cost-budget summary will be evaluated to determine the reasonableness of costs and time proposed for functional tasks and adequacy of cost breakdown by tasks.

Criterion 8: Project Financial Plan - The project financial plan will be evaluated for the ability of the proposer to commit resources (their own or others') to finance the non-DOE share of the entire development through end use.

Criterion 9: Organization Information - The organization information will be evaluated for the adequacy of the proposed entity for accomplishing the reservoir confirmation project, considering the organization's size, type of business, and past record of business performance.

D. Program Policy and Preference Factors

In conjunction with the technical and business evaluation results, the Source Selection official may make selections for negotiations and subsequent awards in a manner that will further the objectives of the DOE User-Coupled Confirmation Drilling Program, considering the following factors:

1. A variety of projects in terms of geographic location;
2. The potential for expansion or development of the resource;
3. Projects which propose alternative fluid utilization schemes, in the event that the required temperatures and flows are not encountered;
4. Projects which have planned cascaded or multiple uses of the hydrothermal fluid;
5. A variety of projects in terms of the intended end use of the geothermal fluid;
6. Projects which put significant "BTU's-on-line" for the amount of DOE dollars at risk.
7. Total funds available in conjunction with the funds required by a particular proposal.

V. OTHER PERTINENT INFORMATION

V. OTHER PERTINENT INFORMATION

A. False Statements

Proposals must set forth full, accurate, and complete information as required by this SCAP (including attachments). The penalty for making false statements in proposals is prescribed in 18 U.S.C. 100.

B. Treatment of Proprietary Information

Proposals submitted in response to this SCAP may include technical data and other data, including trade secrets and/or privileged or confidential commercial or financial information, which the proposer does not want disclosed to the public or used by the Government for any purpose other than proposal evaluation. To protect such data the proposer must specifically identify each page including each line or paragraph thereof containing the data to be protected and mark the cover sheet of the proposal with the following notice:

NOTICE

The data contained in pages _____ of this proposal have been submitted in confidence and contain trade secrets and/or privileged or confidential commercial or financial information, and such data shall be used or disclosed only for evaluation purposes, provided that if an agreement is made as a result of or in connection with the submission of this proposal, the Government shall have the right to use or disclose the data herein to the extent provided in the agreement. This restriction does not limit the Government's right to use or disclose data which it obtains without restriction from any source, including the proposer.

Reference to the above notice on the cover sheet should be placed on each page to which the notice applies. Data, or abstracts of data, marked with this notice will be retained in confidence and used by DOE or its designated representative(s), including Government contractors and consultants solely for the purpose of evaluating the proposal. The data so marked will not otherwise be disclosed or used without the proposer's prior written permission except to the extent provided in any resulting cooperative agreement, or to the extent required by law. The restriction contained in the notice does not limit the Government's right to use or disclose any data contained in the proposal if it is obtainable from any source, including the proposer, without restriction. Although it is DOE's policy to treat all proposals as confidential, the Government assumes no liability for disclosure or use of unmarked data for any purpose.

C. DOE Treatment of Proposal Information

Information contained in proposals will be utilized by DOE in accordance with the provisions of DOE Procurement Regulations Subpart 9-3.150. DOE may use personnel from other Federal agencies, DOE Contractors, or other consultants to DOE in the evaluation of the proposals. Assurances will be obtained from all evaluators that DOE's commitments are met relating to the proprietary nature of any proposal information.

D. Inventions

Any agreement resulting from proposals submitted under this SCAP will provide for the assignment to the Government of the entire right, title, and interest throughout the world in and to any inventions or discoveries conceived or first actually reduced to practice in the course of or under the agreement, except that the contractor shall retain a revocable, non-exclusive, paid-up license in any such invention.

The proposer, however, has the right in accordance with applicable statutes and DOE regulations to request in advance or within 30 days after the effective date of the agreement, a waiver of all or any part of the rights of the United States in such inventions. To request such a waiver, the proposer should request a waiver application form from DOE after notification of award and prior to execution of an agreement. The decision as to whether such a waiver will be granted is a DOE administrative action, and should not be considered as a contractual action which must be accomplished prior to execution of an agreement.

E. Rights in Technical Data

The "Rights in Technical Data" clause which is included in the draft Cooperative Agreement provided to the proposer defines the respective rights of the parties in data in any agreement which might arise out of this SCAP. As stated in this clause, Proprietary Data is not to be included as part of the work under any agreement arising out of this SCAP nor in any report arising out of this SCAP. If the proposer believes that it is necessary to submit proprietary information as part of its work under any such agreement, he should specifically note the type of information in his proposal so that the Contracting Officer can determine whether such proprietary information should be submitted as part of the work under the agreement. In the absence of a specific request for proprietary information by the Contracting Officer, no such information or data shall be provided under the agreement.

F. Proposal Clarification

DOE reserves the right to require proposals to be clarified or supplemented to the extent considered necessary either through additional written submissions or oral presentations.

G. Amendments

If and when amendments to the SCAP are issued each one must be acknowledged in Volume II - Business Proposal.

H. Small Business

DOE strongly encourages small business and disadvantaged business participation in its programs and in this SCAP. It is DOE policy to give these business concerns a reasonable opportunity to participate fairly and equitably in this drilling program. The projects contemplated under this SCAP may be appropriate for small business involvement. If applicable, certification of small business status for proposed team members and subcontractors is to be submitted with the proposal. Definitions relating to small business size standards are based on governing regulations of the Small Business Administration. The definitions can be found in the Code of Federal Regulations, 13 CFR 121.3-2, or by calling your local Small Business Administration Office.

I. DOE Participation

DOE will agree to participate in a project at a specific level to be negotiated; however, the actual amount to be obligated in each fiscal year will be subject to the availability of funds appropriated by Congress and the terms and conditions of the Cooperative Agreement.

J. Proposer's Past Performance

DOE reserves the right to solicit from available sources relevant information concerning a proposer's past performance and may consider such information in its evaluation.

K. Government Right to Reject, Negotiate, or Award

The Government reserves the right, without qualification, to reject any or all proposals received in response to this SCA, or to select any proposal as a basis for negotiation. Notice is also given of the possibility that award may be made after only limited discussions or negotiations. Therefore, all proposals should be submitted initially on the most favorable technical, cost, and other terms to the Government that the proposer can submit.

L. Commitment of Public Funds

The Contracting Officer is the only individual who can legally commit the Government to the expenditure of public funds in connection with the proposed procurement. Any other commitment, either explicit or implied, is invalid.

M. Where to Send Proposal

Ten (10) copies of each proposal must be received at the following specified room on or before 4:00 p.m., Mountain Daylight Time, on August 15, 1980.

Ms. Nina Ussery, SEP Secretary
Department of Energy
Idaho Operations Office
550 Second Street Room No. 119
Idaho Falls, ID 83401

To facilitate handling, please mark on the outside of the envelope containing your proposal:

"Proposal for User-Coupled Confirmation Drilling Program - To Be Opened by Addressee Only"

N. Questions

Any questions regarding this SCAP must be submitted in writing by July 7, 1980, to the address above to assure receipt of response.

O. Pre-Proposal Conference

A preproposal conference will be held to answer questions related to this SCAP. The preproposal conference will be held on July 1, 1980, 8:00 a.m. to 12:30 p.m. at the Federal Center, Building No. 56 (Auditorium), entrance at West 6th Avenue, Denver (Lakewood), Colorado. Questions must be submitted in writing. Written responses to all questions will be provided to all recipients of the SCAP.

P. Elaborate Brochure

Elaborate brochures or other presentations beyond those sufficient to present a complete and effective proposal are neither necessary nor desired.

Q. Handcarried Proposals

If the proposer elects to forward the proposal by means other than the U. S. Mail, he assumes the full responsibility of insuring that the proposal is received at the place, date, and time specified in the item M above.

R. Late Proposals, Modifications of Proposals, and Withdrawal of Proposals

Late proposals, modifications of proposals, and withdrawal of proposals will be handled in accordance with the Federal Procurement Regulations, Chapter 1, Section 1-3.802-2, which is attached as Appendix D.

S. Signed Originals

Copy No. 1 of the business proposal should contain the signed original of all documents requiring signature by the proposer. Use of reproductions of signed originals is authorized in all other copies of the proposal.

T. Disposal of Proposals

Unsuccessful proposals (except for one copy) will be destroyed 180 days after notification that the proposal is unsuccessful. One copy of each proposal received will be retained for the file. Other Proposal copies will be returned to the proposer only upon receipt of a written request to this office within the 180 days.

U. Effective Period of Proposal

All proposals are required to remain in effect for at least 200 days from the date designated for receipt of proposals.

V. Type of Agreement

The work will be performed on a cost-participation basis under a cooperative agreement. No profit or fee shall be paid to the participant.

SAMPLE DOE PROPOSAL COVER PAGE
VOLUME I - TECHNICAL PROPOSAL
SUBMITTED TO THE
DEPARTMENT OF ENERGY
IDAHO OPERATIONS OFFICE

USER-COUPLED CONFIRMATION DRILLING PROGRAM
SCAP No. DE-SCO7-80ID12139

Copy No. ____ of 10

Date of Submission _____

Name of Organization (principal participant if a team of organizations)

Organizational Classifications

Address of Organization

Title of Proposed Project

Maximum Funds requested from DOE _____ Total Cost of Project
Through Flow Testing _____

Location of Site _____

Proposed Project Duration (in months) _____

Proposed Starting Date _____

Project Manager _____

Position and Title _____

Telephone (w/area code) _____

Permission for Outside Evaluation Yes _____ No _____

This proposal is for drilling a(n)

Production Well _____ Injection Well _____ Other _____

(Check other if for only testing a well).

Flow Testing is Referenced on Page _____

Variable Cost-Share Plan is Referenced on Page _____.

Statement of Intent is Referenced on Page _____.

SAMPLE DOE PROPOSAL COVER PAGE
VOLUME II - BUSINESS PROPOSAL
PROJECT PROPOSAL SUBMITTED TO THE
DEPARTMENT OF ENERGY
IDAHO OPERATIONS OFFICE

USER-COUPLED CONFIRMATION DRILLING PROGRAM
SCAP No. DE-SC07-80ID12139

Copy No. _____ of 10

Date of Submission _____

Name of Organization (principal participant if a team of organizations)

Organizational Classifications

Address of Organization

Title of Proposed Project

Maximum Funds requested From DOE _____ Total Cost of Project
Through Flow Testing _____

Location of Site _____

Proposed Project Duration (in months) _____

Requested Starting Date _____

Official Contact for Negotiations _____

Position and Title _____

Telephone (w/area code) _____

Effective Period of Proposal _____ 200 days

AUTHORIZED OFFICIAL

Signature _____

Name Typed _____

Title _____ Date _____

Please Check Small Business _____ Disadvantaged Business _____ Other _____

DESCRIPTION OF PROPOSED FUTURE DEVELOPMENT

Briefly describe below your proposed end use for the geothermal resource should a successful geothermal well be drilled. Include in your description the following information:

- a. Location of the utilization facility.
- b. Description of the end use of the geothermal fluid and the utilization facility.
- c. Whether or not you will sell the energy to other users.

Signed _____
Proposer

Signed _____
Potential User

FEDERAL PROCUREMENT REGULATIONS

1-3.802-2 LATE PROPOSALS, MODIFICATIONS OF PROPOSALS,
AND WITHDRAWALS OF PROPOSALS

(a) Any proposal received at the office designated in the solicitation after the exact time specified for receipt will not be considered unless it is received before award is made, and:

- (1) It was sent by registered or certified mail not later than the fifth calendar day prior to the date specified for receipt of offers (e.g., an offer submitted in response to a solicitation requiring receipt of offers by the 20th of the month must have been mailed by the 15th or earlier);
- (2) It was sent by mail (or telegram if authorized) and it is determined by the Government that the late receipt was due solely to mishandling by the government after receipt at the Government installation;
- (3) It is the only proposal received; or
- (4) It offers significant cost or technical advantages to the Government, and it is received before a determination of the competitive range has been made.

(b) Any modification of a proposal is subject to the same conditions as in (a) of this provision.

(c) The only acceptable evidence to establish:

- (1) The date of mailing of a late proposal or modification sent either by registered or certified mail is the U.S. Postal Service postmark on both the envelope or wrapper and on the original receipt from the U.S. Postal Service. If neither postmark shows a legible date, the proposal or modification shall be deemed to have been mailed late. (The term "postmark" means a printed, stamped, or otherwise placed impression (exclusive of a postage meter machine impression) that is readily identifiable without further action as having been supplied and affixed on the date of mailing by employees of the U.S. Postal Service. Therefore, offers should request the postal clerk to place a hand cancellation bull's-eye "post-mark" on both the receipt and the envelope or wrapper).
- (2) The time or receipt at the Government installation is the time-date stamp of such installation on the proposal wrapper or other documentary evidence of the receipt maintained by the installation.

(d) Notwithstanding (a), and (b) of this provision, a late modification of an otherwise successful proposal which makes its terms more favorable to the Government will be considered at any time it is received and may be accepted.

(e) Proposals may be withdrawn by written or telegraphic notice received at any time prior to award. Proposals may be withdrawn in person by an offeror or his authorized representative, provided his identity is made known and he signs a receipt for the proposal prior to award.

NOTE - The term "telegram" includes mailgrams.

(c) Proposals that are received in the office designated in the request for proposals before the time specified for their receipt shall be evaluated to determine which proposals are within the competitive range established for the procurement action. There may be cases where lateness due solely to a delay in the mails or mishandling after receipt at the Government installation results in a proposal being received by the contracting officer after the competitive range has been determined. In such cases the late proposal shall be evaluated, and, if found to be within the competitive range, shall be given the same consideration as other proposals within the competitive range.

(d) A late proposal that is delayed due to circumstances other than those set forth in the provisions contained in 1-3.802-2(a) which offers significant cost or technical advantages to the Government shall be evaluated provided it is received before a determination of the competitive range has been made. Where the evaluation results in a determination that the proposal is within the competitive range, the proposal shall be given the same consideration as other proposals within the competitive range. However, where only one proposal is involved and it is received after the time specified, a determination of the competitive range is not to be made and the proposal may be evaluated and considered for award provided that the receipt of the proposal is prior to a decision made by the contracting officer to resolicit. See 1-2.802-1(c) for the meaning of the term "only proposal received."

(e) Late proposals that are delayed under circumstances other than delays in the mails or mishandling at the Government installation which are received after a determination of the competitive range shall not be evaluated or considered for award. Also, where the request for proposals provides that award may be made without discussions with offerors, a late proposal shall not be evaluated or considered if it is received after the successful offeror has been selected and the contract has been awarded.

(f) Generally, contracting officers, assisted by audit or pricing personnel, will be able to make a determination of the significance of any reduction in cost to the Government offered by a late proposal. Determination regarding significant technical advantages shall be made in accordance with agency procedures.

(g) Determination of the competitive range shall be made in accordance with agency procedures. All offerors shall be notified at the same time whether or not their proposals are within the competitive range, and the date of such notification shall be considered to be the date of the determination. Debriefing of unsuccessful offerors shall be conducted in accordance with agency procedures; however, debriefings should be conducted only after award has been made.

(h) An offeror who has submitted a late proposal that has not been accepted for consideration shall be notified in writing that the proposal was received late and will not be considered. The notification shall set forth the reason why the late proposal was not considered; e.g., did not offer significant cost or technical advantage, received after a determination of the competitive range, received after award.

(i) Modifications of proposals are categorized on the basis of time and receipt as: (1) Receipt prior to a determination of the competitive range, (2) receipt from offerors within the competitive range during negotiations, and (3) receipt at any time from an otherwise successful offeror. Modifications received prior to a determination of the competitive range shall be considered in the evaluation of the proposals which they modify. Modifications received after a determination of the competitive range shall be considered only if they modify proposals which are within the competitive range and are received prior to the date for completion of negotiations established by the contracting officer. All offers within the competitive range shall be notified in writing of the date for completion of negotiations. Modifications received after the date set shall not be considered. However, a modification received from an otherwise successful offer which is advantageous to the Government shall be considered at any time.

EXPLORATION GUIDELINES

These general guidelines are presented to provide proposers with a better understanding of the purpose and scope of the exploration program that may be a part of the proposal to DOE under this SCAP.

The purpose of the exploration program is to select the best site to drill test the reservoir. The exploration program should be kept as modest as possible consistent with developing adequate data to accomplish this purpose. Each item in the proposed exploration program should be designed to contribute to a better understanding of the location and properties of the resource to facilitate selection of the best site for drill testing the hydrothermal target. Overemphasis should not be placed on any one exploration technique without adequate rationale, but rather, a balanced exploration program should generally be planned.

If an award is made and a cost-share cooperative agreement is signed with DOE, the contractor will proceed to carry out the negotiated exploration program. Data analysis and interpretation should keep pace with data acquisition so that if a change in exploration plans is indicated it can be effected. Changes can generally be negotiated with DOE. The aim is to remain flexible enough that the best possible exploration program is accomplished while at the same time minimizing cost and time.

If the proposer lacks adequate in-house expertise in exploration, he should retain the services of a competent consultant or contractor. Consulting and subcontracting costs are items that DOE will cost-share if an award is made. The proposer should be careful to select consultants or contractors who have a broad range of exploration experience and expertise to ensure that an appropriately balanced exploration plan is developed.

Exploration Techniques

It is DOE's general belief that development of a valid geothermal target concept requires a basic geologic understanding of the geothermal area. Geologic data can often be compiled from available information. If adequate geologic control is not available, then geologic mapping should be proposed. Exceptions to this might be for proposed drilling projects in an area where surface geology does not bear strongly on reservoir occurrence and this must then be explained. Appropriate mapping scales may vary, but in most cases geologic control at a scale of 1:24,000 or even more detailed (1:12,000) will be required for drill site selection. Geologic data compilation and mapping should emphasize those aspects that are most closely related to the occurrence and producibility of the postulated geothermal resource. Lithology, structure and hydrothermal manifestations (i.e. springs, siliceous sinter, hydrothermal alteration) are generally the items of most use in this regard.

Basic geologic data, displayed in maps and cross sections, are usually required to interpret other exploration data such as those obtained from geochemical surveys, geophysical surveys, hydrological surveys and shallow temperature drilling. It must be borne in mind that most geological, geophysical, geochemical and hydrological work will furnish only indirect evidence of the occurrence, location and other aspects of the postulated hydrothermal reservoir. Development of an exploration program that will lead to converging lines of evidence for the existence, location and properties of a hydrothermal reservoir is important.

Geophysical techniques may or may not be appropriate. Certain geophysical surveys can sometimes be used to detect hot fluids (e.g. electrical resistivity, heat flow) but geophysics is also commonly used to supplement and to extend geologic mapping, particularly to depths below the surface. This sometimes furnishes a better geologic picture that has indirect bearing on resource occurrence, location and properties. Geophysical techniques should be selected for inclusion in the exploration program to answer specific geologic questions about the target concept. Proposers should consult information available in the literature that shows which geophysical techniques have succeeded in which geologic environments. Particular attention must be given to survey details such as station spacing, line direction and other parameters for each method.

Geochemical techniques are varied in application and utility. Fluids collected for chemical geothermometry should be carefully sampled and preserved. These fluids should be applied with caution, especially in geothermal areas where temperatures are suspected to be 100°C or below. Geothermometers are not well established for lower temperature application. Their use is based on the assumption that chemical equilibrium between the geothermal fluids and rocks at higher temperature in the geothermal reservoir is preserved during the fluids ascent to the surface (Fournier, et al., 1979). These assumptions appear to be valid in some areas and not valid in others. Dilution of the geothermal fluid with cold groundwaters or boiling can sometimes be corrected for, but this introduces a second set of assumptions and a higher level of uncertainty (Fournier, 1979). Geothermometers do not specify where the reservoir is, either horizontally or at what depth. Hg and As surveys may be useful for locating structures, but their application is not well tested in lower temperature systems.

Hydrological surveys and techniques can be useful in studying permeability of potential reservoir rocks and reservoir recharge. Most geologists are not generally familiar with hydrological methods and techniques.

Heat flow and thermal gradient studies are often employed in geothermal exploration. It is important to realize that high heat flow does not guarantee high temperature at depth. In addition, a temperature gradient in a bore hole should be extrapolated beyond the bottom of the hole only with extreme caution. It is common in convecting hydrothermal systems that when a zone of higher permeability is reached the temperature remains the same (becomes isothermal) with increasing depth. A high near-surface geothermal gradient therefore does not guarantee a high temperature at depth. Nevertheless, industry generally considers thermal methods to be the most useful in geothermal exploration.

Data Analysis and Interpretation

Analysis and interpretation of exploration data should use techniques generally accepted by the resource exploration industry. These techniques should be briefly specified in the proposal. Application of analysis and interpretation techniques will lead to conclusions concerning the hydrothermal target and possible drill test sites. The reasoning behind all such conclusions along with the factual data and its interpretation should be clearly documented in reports that DOE will require as the exploration program progresses.

References

- Fournier, R. O., 1979, Geochemical and hydrologic considerations and the use of enthalpy-chloride diagrams in the prediction of underground conditions in hot-spring systems: J. Volcanol. and Geoth. Res., v. 5, p. 1-16.
- Fournier, R. O., White, D. E., and Truesdell, A. H., 1974, Chemical indicators of subsurface temperatures, 1. Basic assumptions: U.S. Geol. Surv. J. Res., v. 2, p. 259-262.

DRILLING GUIDELINES

It is expected that proposers will approach the selection of suitable drilling equipment by means of a logical series of preparatory investigations and that these will be suitably documented.

1. PRELIMINARY DRILLING PROGRAM

In the event that the submitted proposal requires exploration prior to drilling, the intended drilling program may necessarily be general and preliminary in nature. The preliminary drilling program will however, represent one criterion for evaluation of the capability of the proposer in undertaking geothermal drilling. For this reason any preliminary drilling program should identify as clearly as is practical major elements such as rig size, hole depth and diameter, control equipment, intended drilling fluid, and casing, cementing and logging programs.

2. DRILLING PROGRAM

After the exploratory program has identified a specific site and can refine the drill hole conditions, a detailed drilling plan should be presented. The drilling plan should be a refinement of the preliminary plan tailored to meet the site-specific and resource-specific conditions to be anticipated and should address the following major considerations:

2.1 RIG SELECTION

The equipment specification selected should be appropriate to drill, construct, control and develop the intended geothermal well.
oversize derrick for non-bayed csg.

2.2 BOREHOLE CONFIGURATION

The anticipated final borehole configuration should be summarized, addressing the diameters, casing positions and method of completion.

2.3 DRILLING FLUIDS PROGRAM

The intended drilling fluids to be used in each interval of drilling must be clearly addressed including type, weight and viscosity. If other than water or air is used, all additives and their effect on drilling fluid properties should be discussed, particularly with respect to thermal stability. Circulation rates, and anticipated procedures to cope with lost circulation, should be discussed.

2.4 FORMATION IDENTIFICATION

Methods of identifying subsurface formation characteristics should be addressed including: penetration rate and bit weight, depth and frequency of sampling intervals, and should include temperature profiling.

Bit history per Hughes Tool Co. bit report forms which grade the (1-8 scale) gage, teeth, bearings wear,

2.5 CASING PROGRAM

The intended casing materials and casing design should include consideration of the thermal and corrosive nature of subsurface conditions specific to the site being exploited.

2.6 CEMENTING PROGRAM

The intended cementing program should be outlined in sufficient detail to identify: slurry volumes and characteristics, method of mixing and pumping slurry, cementing head equipment and casing movement technique.

2.7 SUPPORT SERVICES/EQUIPMENT

Any additional ^{Drilling pad + sump.} services such as directional drilling, formation fluid sampling, mud logging, borehole logging and detection equipment should be outlined. Locally, hydrogen sulphide detection equipment may be necessary.

2.8 WELL DEVELOPMENT

Any fluid, mechanical or chemical methods intended to treat the completed borehole or test the resource during drilling should be outlined. In the event that borehole fluid displacements are carried out, the method of measuring fluid levels during recovery should be addressed.

2.9 WELLHEAD EQUIPMENT

★ The intended wellhead materials and configuration should reflect anticipated reservoir and production characteristics. Thermal stability and corrosion resistance of materials, allowance for thermal expansion and valve design factors should be addressed.

WELL TESTING GUIDELINES

1. INTRODUCTION

These guidelines are presented to provide data requested for evaluation of geothermal wells. The guidelines should be considered as general. Site and resource-specific considerations will be requested dependent upon the results of drilling and local conditions.

2. EVALUATION DURING DRILLING

During the drilling and development procedures, preliminary information on physical and hydrologic characteristics should be collected in order to maximize the benefits of subsequent testing. Information available during drilling will to some degree be determined by the method of drilling. Physical drilling data should provide information on drillability, lithology and hydrostratigraphy. Hydrologic data should include type, circulation rate, losses and in-out temperature of drilling fluid. It should also include measurement of head or flow at identified reservoir zones.

Well development techniques should provide preliminary estimates of productivity by measurement of fluid level response during recovery.

3. TEST OBJECTIVES

The primary objective in well testing is to stress the producing reservoir sufficiently to predict the well's performance under sustained withdrawals. Testing should evaluate the efficiency of the well, identify reservoir characteristics and estimate the longevity of the resource.

4. TESTING PROCEDURES

Preliminary planning prior to testing should address baseline shut-in data and disposal of produced fluids.

Short term testing (pulse-type testing) at a range of rates will provide information on well efficiency, indications of fluid temperature and quality and the most suitable rate at which to carry out a long-term (sustained) test. A sustained long-term test is required to predict the future behavior of the well and reservoir.

4.1 Duration of Testing

Short-term tests should be sufficiently long to reach quasi-equilibrium temperatures. The long-term (sustained) test must be of sufficient duration to obtain thermal equilibrium conditions, indicate reservoir characteristics and permit reasonably confident prediction of behavior over the life of the intended use. To some degree, the selection of

durations of the sustained test is influenced by the well's performance during the test and the intended use. A recovery period, equal in duration to the drawdown segment, should be observed in all tests.

4.2 Required Data in Testing

The major parameters which must be measured during well testing are flow rate, fluid (potentiometric) levels and temperature. Transient, temperature-induced changes in fluid density and viscosity significantly influence measurement of the potentiometric surface at wellhead. For this reason, in geothermal testing, wellhead measurement must include careful, continuous temperature records. Recommended frequency and accuracy of measurement are outlined in section 7.

5. TEST ANALYSIS

The assumptions made about the reservoir in selecting the most appropriate analytical method must be clearly addressed in the test analysis. Calculation of any hydraulic properties used in predictive models must be clearly substantiated. Long term prediction should include a discussion of the anticipated behavior of the resource which addresses limiting boundaries and reservoir effects. Test analysis should also address well efficiency, well losses and specific capacity.

6. ALTERNATIVE TEST PROCEDURES

It is likely that specific situations may demand procedures other than pulse testing followed by a sustained constant rate test. In the event that an alternate method of well testing is proposed, the method must be shown to be both specifically applicable and sufficiently accurate to meet the objectives of predictive well behavior and resource longevity.

Analytical techniques other than standard non-equilibrium, non-steady state flow assumptions must similarly be shown to have sufficient precedent to meet predictive objectives with equivalent confidence.

7. MEASUREMENTS AND INSTRUMENTATION

Measurements of flow rate, fluid (potentiometric) levels and temperature must be sufficiently accurate to meet the stated test objectives. Recommended limits of accuracy are outlined:

7.1 Flow Rate

Many geothermal reservoirs are comprised of fractured rock. Since this type of reservoir does not conform to the assumptions demanded by standard analytical methods, it is recommended that well test in fracture-flow media be carried out at or above the rate at which the well might be used.

Flow rate should be controlled with + 2% accuracy with resolution of + 2.0 gpm.

7.2 Fluid (potentiometric) Levels

Free fluid levels should be measured to + 0.1 Ft precision. Fluid pressures should be measured to + 0.1 psi.. Measurements should be recorded with a frequency of at least 20 readings distributed per logarithmic cycle of time. The measurements should be made during both drawdown and recovery segments of tests.

7.3 Temperature

Wellhead temperatures should be recorded during both the drawdown and recovery segments of each test with equivalent frequency to fluid (potentiometric) levels. Instruments used for temperature measurement should be calibrated to + .5 °F precision.

INSTITUTIONAL GUIDELINES

INTRODUCTION

In accordance with NEPA, all federal actions which may have a significant effect on the environment require some environmental analysis to be performed. Each contractor under this program will be required to prepare an environmental report assessing the potential environmental impacts of the development of the geothermal resource. DOE, in turn, must ensure that each project is environmentally acceptable. Therefore, each proposer to understand the environmental concerns associated with geothermal development and how they relate to the proposed project.

Since institutional requirements can be a very significant factor in a project, it is also important for each proposer to demonstrate that they can (or have) obtain(ed) the necessary permits and approvals to proceed with the project.

GENERIC ENVIRONMENTAL REPORT

As a part of this program, DOE will prepare and issue a generic environmental report. The objective of this report is to simplify the procedures that each participant contractor will have to follow in preparing an environmental report. The generic report will address:

- a) the types of drilling normally used to develop a geothermal resource,
- b) the primary uses of geothermal resources,
- c) the potential impacts resulting from drilling, testing, and the use of the resource,
- d) reasonable alternatives to the program,
- e) typical environmental monitoring programs,
- f) regulatory requirements.

Once this generic report is issued (scheduled for Oct. 31, 1980), each participant will be required to address only the "site-specific" information relating to the project.

LAND ACCESS, LEASES, ETC.

Before a geothermal drilling project can begin, the developer must have access to the land required for the project, especially if the developer does not own the land. This access may be granted by 1) an agreement between the developer and the private landowner, 2) a lease granted by the private landowner, or 3) a geothermal lease granted on either state or federal lands. These agreements or leases may include additional requirements that the developer must meet. As an evaluation criteria, the proposer must show proof of access to the land involved in the proposed project.

Most states require that a right to the subsurface resource be obtained prior to the use of that resource. Depending on the location of the project and the land ownership, this right may be a water right, a geothermal right, or a mineral right. It is very important that the proposer understand these rights and how they apply to his project. The specific requirements for a right and the proposer's ability to obtain such a right is an evaluation criterion and should be included in the proposal.

SAFETY

Even if OSHA regulations do not apply, a geothermal resource developer should ensure that a safe working environment is provided for those working on the project. The major safety concern related to drilling in geothermal resource areas is maintaining well control. The proposal should include a brief description of: 1) general safety considerations; 2) procedures and equipment for maintaining well control; and 3) procedures for handling hot geothermal fluids during drilling and testing. A second area of concern during drilling is dealing with the high concentrations of H₂S if encountered. H₂S monitoring and methods of handling H₂S if encountered should be addressed.

PERMITS

The proposal should discuss the permits and approvals necessary for the drilling and testing operation. Typical permits include drilling permits, injection permits, and effluent permits (during testing).

POTENTIAL ENVIRONMENTAL, LEGAL, AND SOCIAL CONCERNS

The proposal should include a brief summary of the potential environmental, legal, and social concerns relating to the project. The summary should be in enough detail to demonstrate that the proposer has an understanding of concerns and has a plan to mitigate or resolve the issues. This section of the proposal will be evaluated based on this "understanding", not on the actual concerns.*

Typical concerns that might be addressed in this section, if applicable and important to the project, are:

1. Air quality - wind blown dust, hydrogen sulfide emissions.
2. Noise - human disturbance, particularly during 24-hour drilling operations: disturbance of sensitive, or protected species.

* It should be noted that an environmental assessment is not required as part of the proposal. The proposer should only address those major concerns which are important to or which may effect the success of the project.

3. Water quality - contamination of surface or ground water with drilling muds, cuttings, special additives or chemicals, oil, siltation, geothermal fluids. This can result from improper location or construction of drill site, inadequate or improperly cemented casing, well blowouts, lack of effluent control during drilling or testing. This is one of the major concerns for most geothermal drilling projects.
4. Water supply - consumptive use of water or increased demand on existing water supplies, particularly when large quantities of water are used as the drilling fluid.
5. Land - disturbance of land for drill site and access roads, erosion, landslides.
6. Subsidence and seismicity - not major concerns for most drilling projects. Can be a concern for long-term developments. Modifications to well and wellhead design may be required in very seismically active areas to ensure well control.
7. Ecology - disturbance of sensitive species, destruction of habitats, contamination of aquatic areas.
8. Socioeconomics - increased demands on housing and community services.
9. Heritage resources - disturbance or destruction of historical, archaeological, paleontological, or cultural resources.

CONTRACT PRICING PROPOSAL (RESEARCH AND DEVELOPMENT)				Office of Management and Budget Approval No. 29-RO184	
This form is for use when (i) submission of cost or pricing data (see FPR 1-3.807-3) is required and (ii) substitution for the Optional Form 59 is authorized by the contracting officer.				PAGE NO.	NO. OF PAGES
NAME OF OFFEROR		SUPPLIES AND/OR SERVICES TO BE FURNISHED			
HOME OFFICE ADDRESS					
DIVISION(S) AND LOCATION(S) WHERE WORK IS TO BE PERFORMED		TOTAL AMOUNT OF PROPOSAL	GOVT SOLICITATION NO.		
		\$			
DETAIL DESCRIPTION OF COST ELEMENTS					
1. DIRECT MATERIAL (Itemize on Exhibit A)			EST COST (\$)	TOTAL EST COST ¹	REFER- ENCE ²
a. PURCHASED PARTS					
b. SUBCONTRACTED ITEMS					
c. OTHER—(1) RAW MATERIAL					
(2) YOUR STANDARD COMMERCIAL ITEMS					
(3) INTERDIVISIONAL TRANSFERS (At other than cost)					
TOTAL DIRECT MATERIAL					
2. MATERIAL OVERHEAD ¹ (Rate % X \$ base =)					
3. DIRECT LABOR (Specify)		ESTIMATED HOURS	RATE/HOUR	EST COST (\$)	
TOTAL DIRECT LABOR					
4. LABOR OVERHEAD (Specify Department or Cost Center) ¹		O.H. RATE	X BASE =	EST COST (\$)	
TOTAL LABOR OVERHEAD					
5. SPECIAL TESTING (Including field work at Government installations)			EST COST (\$)		
TOTAL SPECIAL TESTING					
6. SPECIAL EQUIPMENT (If direct charge) (Itemize on Exhibit A)					
7. TRAVEL (If direct charge) (Give details on attached Schedule)			EST COST (\$)		
a. TRANSPORTATION					
b. PER DIEM OR SUBSISTENCE					
TOTAL TRAVEL					
8. CONSULTANTS (Identify—purpose—rate)			EST COST (\$)		
TOTAL CONSULTANTS					
9. OTHER DIRECT COSTS (Itemize on Exhibit A)					
TOTAL DIRECT COST AND OVERHEAD					
11. GENERAL AND ADMINISTRATIVE EXPENSE (Rate % of cost element Nos.) ¹					
12. ROYALTIES ¹					
TOTAL ESTIMATED COST					
14. FEE OR PROFIT					
TOTAL ESTIMATED COST AND FEE OR PROFIT					

INSTRUCTIONS TO OFFERORS

1. The purpose of this form is to provide a standard format by which the offeror submits to the Government a summary of incurred and estimated costs (and attached supporting information) suitable for detailed review and analysis. Prior to the award of a contract resulting from this proposal the offeror shall, under the conditions stated in FPR 1-3.807-3 be required to submit a Certificate of Current Cost or Pricing Data (See FPR 1-3.807-3(h) and 1-3.807-4).

2. In addition to the specific information required by this form, the offeror is expected, in good faith, to incorporate in and submit with this form any additional data, supporting schedules, or substantiation which are reasonably required for the conduct of an appropriate review and analysis in the light of the specific facts of this procurement. For effective negotiations, it is essential that there be a clear understanding of:

- a. The existing, verifiable data.
- b. The judgmental factors applied in projecting from known data to the estimate, and
- c. The contingencies used by the offeror in his proposed price.

In short, the offeror's estimating process itself needs to be disclosed.

3. When attachment of supporting cost or pricing data to this form is impracticable, the data will be described (with schedules as appropriate), and made available to the contracting officer or his representative upon request.

4. The formats for the "Cost Elements" and the "Proposed Contract Estimate" are not intended as rigid requirements. These may be presented in different format with the prior approval of the Contracting Officer if required for more effective and efficient presentation. In all other respects this form will be completed and submitted without change.

5. By submission of this proposal the offeror grants to the Contracting Officer, or his authorized representative, the right to examine, for the purpose of verifying the cost or pricing data submitted, those books, records, documents and other supporting data which will permit adequate evaluation of such cost or pricing data, along with the computations and projections used therein. This right may be exercised in connection with any negotiations prior to contract award.

FOOTNOTES

1. Enter in this column those necessary and reasonable costs which in the judgment of the offeror will properly be incurred in the efficient performance of the contract. When any of the costs in this column have already been incurred (e.g., on a letter contract or change order), describe them on an attached supporting schedule. Identify all sales and transfers between your plants, divisions, or organizations under a common control, which are included at other than the lower of cost to the original transferee or current market price.

2. When space in addition to that available in Exhibit A is required, attach separate pages as necessary and identify in this "Reference" column the attachment in which the information supporting the specific cost element may be found. No standard format is prescribed; however, the cost or pricing data must be accurate, complete and current, and the judgment factors used in projecting from the data to the estimates must be stated in sufficient detail to enable the Contracting Officer to evaluate the proposal. For example, provide the basis used for pricing materials such as by vendor quotations, shop estimates, or invoice prices; the reason for use of overhead rates which depart significantly from experienced rates (reduced volume, a planned major re-arrangement, etc.); or justification for an increase in labor rates (anticipated wage and salary increases, etc.). Identify and explain any contingencies which are included in the proposed price, such as anticipated costs of rejects and defective work, or anticipated technical difficulties.

3. Indicate the rates used and provide an appropriate explanation. Where agreement has been reached with Government representatives on the use of forward pricing rates, describe the nature of the agreement. Provide the method of computation and application of your overhead expense, including cost breakdown and showing trends and budgetary data as necessary to provide a basis for evaluation of the reasonableness of proposed rates.

4. If the total cost entered here is in excess of \$250, provide on a separate page the following information on each separate item of royalty or license fee: name and address of licensor; date of license agreement; patent number, patent application serial number, or other basis on which the royalty is payable; brief description, including any part or model numbers of each contract item or component on which the royalty is payable; percentage or dollar rate of royalty per unit; unit price of contract item; number of units; and total dollar amount of royalties. In addition, if specifically requested by the contracting officer, a copy of the current license agreement and identification of applicable claims of specific patents shall be provided.

5. Provide a list of principal items within each category indicating known or anticipated source, quantity, unit price, competition obtained, and basis of establishing source and reasonableness of cost.

CONTINUATION OF EXHIBIT A—SUPPORTING SCHEDULE AND REPLIES TO QUESTIONS B AND V.

OPTIONAL FORM 60 (10-71)

ADDITIONAL REPORTS AND DELIVERABLE REQUIREMENTS

1. Environmental Report - An environmental report describing the potential environmental effects of the proposed project must be submitted to DOE after execution of the agreement and prior to drilling. One time only, submit 4 copies.
2. Milestone Schedule - A time frame schedule defining trackable milestones used to measure progress in terms of schedule. This is to be submitted upon contract execution. One time only, submit 4 copies.
3. Well Cuttings - Three sample bags (3" x 5") of well cuttings will be collected as required by DOE. The cuttings will be filed and available to the public after well completion.
4. Logs - A copy of all logs is to be transmitted to DOE as available.
5. Daily Drilling Reports - a daily record shall be kept on the IADC Official Standard Daily Drilling report or other form standard to the drilling industry. The general remarks section shall contain an accurate record of hole conditions and work performed and time required for all work to the nearest quarter hour. A copy of the Daily Drilling report shall be provided. Daily verbal communication may be required to transmit this information. An additional daily record form may be required for transmittal.
6. Test Data - A copy of test data and of the analysis of this data is to be provided to DOE for reservoir assessment. The government will use this data for an independent evaluation to determine the degree of success of the well for purposes of determining the government cost-share.
7. Final Cost Report - A cost report submitted at program completion summarizing estimated and actual costs. This report will show the DOE cost share as evaluated by the previously negotiated variable-cost-share formula criteria. Submit 4 copies.
8. Fluid Samples - as required by DOE.
9. Exploration Data - A copy of the exploration data and the analysis of this data is to be provided to DOE.

REPORTING REQUIREMENTS CHECKLIST

PURPOSE

A checklist to identify and communicate additional reporting requirements which are not otherwise set forth in the General Purpose clauses of DOE contracts and agreements. It will be included as part of the contract or agreement. This form will be completed for each proposed contract or agreement and can be modified as required in Special Instructions to adapt it to a specific situation.

INSTRUCTIONS

Item 1 - Enter the title as indicated in the Procurement Request, Interagency Agreement, or initiating memorandum.

Item 2 - Enter the identification number of the Procurement Request or Interagency Agreement, the date of the memorandum, and contract number after award.

Item 3 - Check spaces to indicate plans and reports required. For each reporting requirement checked, indicate frequency of delivery in column provided using one of the frequency codes shown.

3.A.1 Management Plan - The contractor's plan to manage the effort described in the statement of work or similar document. It will contain management methodologies, control systems, and procedures he will use. Includes milestones and other planning schedules, organizational identification and descriptions, and special and critical plans, such as test plans, plans for handling of Government owned property. Work breakdown structures, key personnel identification, and methods for monitoring progress toward objectives may be required.

3.A.2 Milestone Schedule and Status Report - The contractor's milestone schedule for all work breakdown structure items, line items, or deliverables specified in the contract. Updated periodically (usually monthly) with status, progress toward completion, and percent completion of each line item and of the total contract.

3.A.3 Cost Plan - A baseline plan for incurring costs on a contract or agreement to measure progress in terms of cost; update and forecast contract fund requirements; plan funding changes; and develop fund requirements and budget estimates.

3.A.4 Manpower Plan - A baseline plan to allocate manpower to each reporting category identified in the contract or agreement.

3.A.5 Contract Management Summary Report - A single-page graphic presentation of integrated cost, major milestones, and manpower for rapid visual analysis and trend forecasting.

3.A.6 Project Status Report - A periodic report to communicate to DOE management an assessment of contract status, to explain variances and problems, and to discuss any other areas of concern or achievements.

3.A.7 Cost Management Report - A periodic report of the status of costs compared to the Cost Plan. Data is used to: report actual and projected accrued costs; evaluate performance against plan; identify actual and potential problem areas; construct cost experience for projects and budgeting efforts; and, to verify the reasonableness of contractors' invoices.

3.A.8 Manpower Management Report - A periodic report of the status of actual and projected manpower expenditure against the Manpower Plan. Data is used to evaluate performance against plan; identify actual and potential problem areas; and to construct manpower experience for projections and planning efforts.

3.A.9 Conference Record - Documentation of the contractor's understanding of significant decisions, direction or redirection or required actions resulting from any meeting with DOE representatives.

3.A.10 Hot Line Report - A hardcopy report by the fastest means available, (TWX, etc) documenting critical problems, emergency situations, and important technical breakthroughs.

3.B.1 Notice of Energy R&D Project - A formatted, two-page report to provide information on unclassified DOE R&D projects for dissemination to the scientific, technical, and industrial communities and to the public. Also provides information to the Smithsonian Scientific Information Exchange.

3.B.2 Technical Progress Report - A formal, structured technical report, submitted periodically to communicate project results for dissemination to Government agencies, the scientific, technical and industrial communities and the public.

3.B.3 Topical Report - A special technical report prepared when a project has reached a point at which a major milestone or a significant phase has been completed, when unexpected results have been achieved, when it is logical to summarize results achieved, or when a new scientific or technological finding is deemed to warrant prompt publication.

3.B.4 Final Technical Report - Technical Progress Report reporting final results of DOE supported RD&D and scientific projects.

3.C PMS/Mini-PMS**1) Cost Performance Report (PMS Application)**

Format 1 - Reports current period and cumulative budget, actual costs and earned value data by work breakdown structure elements. Identifies cost and schedule variances and provides contractor's estimate to complete comparisons to budgets.

Format 2 - Reports current period and cumulative budget, actual costs, and earned value data by contractor functional elements.

Format 3 - Provides periodic updating to the established performance measurement baseline. Incorporates authorized contract changes and internal re-planning into the performance measurement baseline.

Format 5 - Provides a narrative analysis of contract variances.

2) Cost/Schedule Report (Mini-PMS Application) - Periodic, usually monthly, report of cumulative budget, actual costs and earned value by summary work breakdown structure elements. Identifies cost and schedule variances and provides contractor's estimate to complete comparisons to budgets.

3) System Description (PMS Application) - Contractor's description of the management control system to be used in performing contract work. Must address all elements of the PMS criteria.

4) Summary System Description (Mini-PMS Application) - Contractor's summarized description of the management control system to be used in performing contract work.

5) WBS Dictionary - Lists and defines work breakdown structure. For more detailed instructions see PMS Manual.

Frequency Codes - Each code must have an identified time period (i.e., As Required ~ 5 days after event occurrence). These time periods are suggested in the solicitation and negotiated at contract award.

Item 4 - Identify any special reporting requirements not indicated in Item 3 and/or qualifiers to those selected. (Use additional sheets as necessary.)

Item 5 - Check appropriate blocks.

Report Distribution List - A comprehensive informative listing of reports by frequency of submission, addresses and number of copies for each addressee.

Reporting Categories (level of detail) - An identification by WBS level of task elements for which reporting will be required by DOE.

Item 6 - Signature of person or persons preparing the checklist and the date prepared. Preparation is by person or persons responsible for preparation of Procurement Request or Statement of Work.

Item 7 - Signature of the person reviewing the checklist and date reviewed.

VARIABLE COST SHARE PLAN GUIDELINES

II Introduction

It is recognized that the economics of geothermal direct application projects are dependent on a number of factors. These factors include a) exploration costs, b) well drilling and completion costs, c) piping distance, d) disposal method, e) water quality, f) achievable well flowrate and temperature and g) other engineering and economic factors specific to the particular end use. The intent of the User-Coupled Confirmation Drilling Program is to stimulate geothermal development by reducing reservoir confirmation risk to the developer. Since this solicitation applies to a wide variety of developers, geothermal resources and end users, a single method of computing a variable cost share was not considered feasible. Therefore, the proposer as noted in Section III A.8, is required to describe and provide the rationale for a variable cost share plan. This plan will be evaluated for adequacy and fairness between DOE and the proposer. General guidelines for the preparation of the plan are contained in the following paragraphs.

III Cost Share Plan

- a) The variable cost share plan should ultimately be based on the economics and process energy requirements of the end use. However, DOE will be involved in the project only through the completion of the well flow test. Therefore, the cost share must be related to the degree of success as defined by the flow test results, the Process Energy Requirements Plot and other resource parameters. These parameters will be established prior to the signing of the Cooperative Agreement, and must be quantifiable parameters that can be measured. An example Process Energy Requirements Plot is shown in the glossary, Appendix N.
- b) The cost share plan should be presented in a manner suitable for inclusion in the Cooperative Agreement. Plans may include multiple schedules to take into account certain baseline conditions. An example schedule for water quality $\leq 20,000$ ppm TDS and a pumping depth ≤ 500 ft is shown as Figure I. A separate schedule for water quality $> 20,000$ ppm TDS and pumping depth > 500 ft could also be proposed. The proposer is responsible for the preparation of all cost share schedules. DOE will initiate negotiations based on the submitted cost share plan.
- c) To the extent practical, the proposer should present an incremental cost share range from 20% to 90% of project cost (Line 13, Contract Pricing Proposal). Each cost share percent should be related to a range of possible flow test parameters. Figure I illustrates this concept.

- d) The range of possible flow test parameters and baseline conditions for the cost share plan should be reasonable estimates for the geothermal reservoir in question. The engineering and economic calculations utilized to justify the cost share plan must be included in the proposal to provide the rationale for the plan.
- e) The number of parameters and baseline conditions considered in the establishment of the cost share should be minimized to the extent practical.

		Flow Rate (gal/min)						
		<100	101-150	151-200	201-250	251-300	301-350	>350
Wellhead Temp. (°F)	<125	10%	10%	10%	10%	10%	10%	10%
	125-150	10%	25%	25%	25%	25%	25%	25%
	151-175	10%	25%	40%	40%	40%	40%	40%
	176-200	10%	25%	40%	50%	50%	50%	50%
	201-225	10%	25%	40%	50%	60%	60%	60%
	226-250	10%	25%	40%	50%	60%	70%	70%
	* >251	10%	25%	40%	50%	60%	70%	80%

Fig. I - PROPOSER'S COST SHARE IN % FOR CONDITIONS SHOWN

Water Quality \leq 20,000 ppm TDS

Pumping depth \leq 500 ft

* = Desired flow and temperature conditions

EXAMPLE STATEMENT OF WORK

The following example statement of work is provided to the proposer in order to aid in the preparation of the proposal. The statement of work should be modified as necessary by the proposer if certain tasks such as "Drilling and Logging" have already been accomplished. Statements of work should be written in as much detail as practical. A detailed statement of work will reduce the time required for agreements negotiation of successful proposals.

Task 1. Financial

The participant shall confirm all financial arrangements for implementation of the project and provide DOE with evidence that project financing is sufficient to complete the project. Completion of this task constitutes completion of Milestone #1.

Task 2. Environmental and Institutional

The participant shall prepare and submit an Environmental Report within 60 days of contract award. The Environmental Report will be prepared in accordance with guidelines provided by DOE and will address "site-specific" information relating to the project.

DOE shall determine if an Environmental Assessment is required based on the submitted Environmental Report. DOE shall prepare the Environmental Assessment with input from the participant if an assessment is required.

The Environmental Report must be approved by DOE prior to the conduct of ground disruptive activity such as active seismic surveys, thermal gradient drilling, and/or production well drilling.

The participant shall coordinate with and provide information to local, state, and federal agencies, as necessary, to insure compliance with all other environmental requirements.

The participant is responsible for obtaining all required permits, leases, and other documentation in order to complete the geothermal project. At the request of DOE, the participant shall provide DOE copies of documentation pertaining to the acquisition of the rights to the geothermal resource. Completion of this task constitutes completion of Milestone #2.

Task 3. Exploration

A. The participant, with support from appropriate consultants, shall:

- 1) Conduct the following exploration work:
(List studies and surveys or refer to the applicable section of the proposal).
- 2) Analyze and interpret exploration data as outlined in the proposal and present both the data and the results to DOE.

- 3) Based on the exploration data:
 - a) Select _____ thermal gradient drill sites.
 - b) Prepare bid specifications and select a drilling subcontractor to drill the thermal gradient wells. The bid specifications and drilling subcontracts shall be submitted for DOE review and approval prior to award.
 - c) Obtain bids for the drilling of the thermal gradient wells.
 - d) Review the bids submitted, and award a subcontract to the successful bidder.
 - e) Drill _____ thermal gradient wells in accordance with the bid specifications.
 - f) Obtain thermal gradient and lithology logs during drilling and continue gradient monitoring during the period of temperature stabilization subsequent to drilling.

B. The participant, with the support of appropriate consultants, shall:

- 1) Evaluate the data obtained in Tasks 3A 1-3 and other available assessment data, in order to define the hydrological and geological features of the resource with emphasis on resource location and depth. These data shall be provided to DOE as soon as it is acquired during Task 3A 1-3 in order to minimize the time required for DOE review.
- 2) Within _____ working days of the completion of Task 3B1, DOE and the participant shall discuss and review the data. A mutual written agreement between DOE and the participant must be reached concerning the adequacy of the exploration data for selecting a resource confirmation drill site and the potential need for additional data prior to proceeding with the next task. Completion of this task constitutes completion of Milestone #3.
- 3) Concurrently with Task 3B2 or within _____ working days of the completion of this task, the participant shall discuss and review with DOE the selection of a production well drill site. A mutual written agreement between DOE and the participant must be reached concerning the location of the drill site. Completion of this task constitutes completion of Milestone #4.

Task 4. Drilling and Logging

A. The participant, with support from appropriate consultants, shall:

- 1) Provide for necessary drilling supervision services.
- 2) Update the preliminary Drilling Program which will include well location, drilling techniques, well and wellhead design, anticipated rig type, drilling fluid program, logging requirements, etc. Temporary requirements, such as reserve pits, mud pits, equipment storage areas, noise abatement, blowout prevention, utility services, and other standard well drilling practices, shall be considered and addressed in the drilling plan. DOE shall be advised of the contents of the Drilling Program during its preparation.

- 3) Prepare the bid specifications and submit the Drilling Program and specification to DOE for review and approval. Within _____ working days, DOE shall indicate concurrence or request modifications to the specification and/or program.

B. The participant, with support from appropriate consultants, shall:

- 1) Issue the drilling specification to drilling companies for bid.
- 2) Review the well bids and inspect (if necessary) the bidders' drilling equipment. The participant shall select a drilling subcontractor, with DOE concurrence. The proposed drilling subcontract shall be submitted for DOE review and approval. Within _____ working days, DOE shall indicate approval or request modifications to the subcontract.
- 3) Supervise the drilling of the production well, in accordance with the detailed Drilling Program and specifications. Periodically, the participant or his designated representative and DOE shall confer, so that decisions concerning the drilling operation can be made in a timely manner.
- 4) Collect fluid samples, cutting samples, well logs, bottom hole and gradient temperature data and perform all other tests consistent with industry practice and the Drilling Program. Strata suitable for reinjection will be noted during drilling.
- 5) All data concerning the well shall be forwarded to DOE as soon as they are acquired in order to minimize the time required for DOE review.
- 6) Within _____ working days or the completion of the well, DOE and the participant shall discuss and review the data. A mutual written agreement between DOE and the participant must be reached prior to proceeding with the next task. Completion of this task constitutes completion of Milestone #5.

Task 5. Flow Testing

A. The participant, with support from appropriate consultants, shall:

- 1) Provide for necessary flow testing services.
- 2) Update the Flow Test Plan. The plan shall be submitted to DOE for review and approval. Within _____ working days, DOE shall indicate concurrence or request modifications to the plan.
- 3) Carry out a comprehensive well and reservoir test program, in general accordance with the Flow Test Plan.
- 4) Assimilate the test data taken during the well test and estimate reservoir yield and production life. The well testing and other available data, shall be prepared and presented to DOE. Within _____ working days, DOE and the participant shall discuss and review the well test results. A mutual, written agreement between DOE and the participant must be reached to determine a future course of action. This agreement constitutes project Milestone #6.

Task 6. Injection Well Drilling

(If an injection well is to be drilled, a statement of work similar to that described under Task 4 Drilling and Logging Task should be prepared or referenced.)

Task 7. Determination of Cost Share

DOE and the participant shall review all test results and costs and determine the DOE and participant cost shares. The basis for the determination of the cost shares shall be the variable cost share plan contained in Section _____ of the Cooperative Agreement. Modifications to the cost share plan may be negotiated if necessary. Determination of the cost share constitutes project Milestone #7.

Task 8. Project Management

The participant shall manage the project in a prudent manner consistent with successfully completing the Statement of Work. Management controls shall include technical assessment, budget assessment, and schedule assessment, as described in the participant's proposal.

In addition to close general coordination with DOE, immediate and full disclosure of problem areas to DOE is required, so that timely corrective action may be taken with DOE support, if necessary.

Task 9. Reporting

The reports identified on the attached DOE Form CR-537, Reporting Requirements Checklist, are required to be submitted as indicated.

Task 10. Dissemination of Information

Throughout the project, the participant may prepare press releases, business, and technical articles for trade journals. DOE concurrence shall be obtained on all information prepared for public release, prior to the release of this information.

The participant shall design and erect a sign in good taste and of appropriate construction at the facility, which will define the project objective and parties to the project.

With regard to written and oral public information, the participant is expected to:

- A. Include appropriate recognition of the roles of the principal parties involved in work performed under this Agreement.
- B. Avoid statements or implications that the Department of Energy endorses any process or product arising out of the contract, without advance approval of the Contracting Officer.

C. Provide DOE one copy of news releases, information folders, brochures, advertisements, technical papers, and magazine or newspaper articles pertaining to work performed under the Agreement.

D. Advise the Contracting Officer of news media or public reactions to work performed under the Agreement.

Task 11. DOE Conferences

Occasionally, the participant or its representative may attend geothermal technology conferences at DOE's request. Participation in these conferences shall be reimbursed by DOE, if prior written approval is obtained from the Contracting Officer.

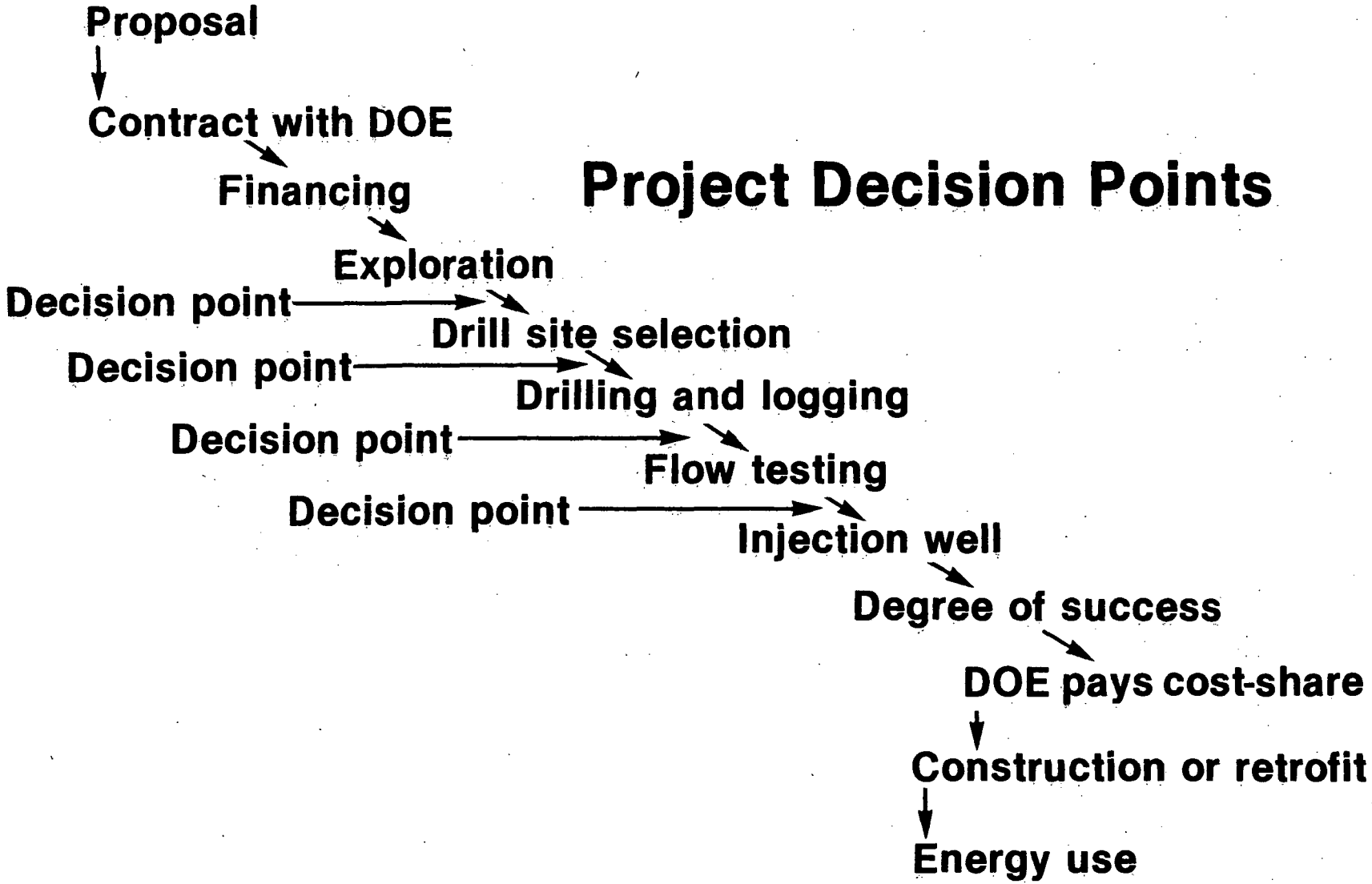
EXAMPLE SCHEDULE AND COST SUMMARY

<u>TASK</u>	<u>COST</u>	<u>SCHEDULE</u>	
		<u>START DATE</u>	<u>END DATE</u>
1. Financial	N/A	(Date)	(Date)
2. Environmental and Institutional	(cost)	↓	↓
3. Exploration			
4. Drilling and Logging			
5. Flow Testing			
6. Injection Well			
7. Determination of Cost Share	N/A		
8. Project Management	(cost)		
9. Reporting		(per requirements of Form CR-537)	
10. Dissemination of Information	N/A	N/A	
11. DOE Conferences	(reimbursable)	(as requested)	

EXAMPLE MILESTONE SUMMARY

<u>Milestone No.</u>	<u>Completion Date</u>
1. (Financial)	(Date)
2. (Environmental)	↓
3. (Exploration)	
4. (Drill site selection)	
5. (Drilling)	
6. (Flow Test)	
7. (Cost Share)	

Project Decision Points



GLOSSARY OF TERMS

Contracting Officer - The DOE employee empowered to commit the government to a legally enforceable agreement.

Daily Drilling Report - A daily record kept on a standard form for the drilling industry on which is recorded an accurate record of hole conditions, materials used, work performed, and the time required for all work to the nearest quarter hour.

Drilling Consultant - A person with expertise in the field of drilling (geothermal) wells, who is capable of providing technical advice to the participant.

Efficiency (of well) - The ratio of theoretical well drawdown to actual well drawdown.

End Use - The economic utilization of the hydrothermal resource as an alternate energy; i.e., space heat, process heat, etc.

Exploration Target Concept - A concept of subsurface geothermal conditions, supported by analysis and interpretation of earth science data, that indicates how and where to drill to intercept a geothermal resource.

Fluid Disposal - The removal of hydrothermal fluids produced from the well for purposes of well tests and drilling.

Historical & Archaeological Clearances - Federal regulations require historical/archaeological clearances be obtained prior to disturbance of federal lands. Most states have regulations requiring protection of historical/archaeological resources. Information on these resources at a specific site can be obtained by contacting the state historical or archaeological officer, Historical Society, or local university.

Hydrology - The study of ground and surface waters, their chemical and physical properties, location, flow and geologic environment.

Hydrostratigraphy - Reservoirs or aquifers determined by hydraulic connection rather than lithology.

Hydrothermal - Of or pertaining to hot water.

Hydrothermal Alteration - Mineralogical changes in rocks caused by the action of hydrothermal fluids.

Institutional (Requirements) - Pertaining to societal or regulatory considerations that effect the leasing/land ownership, the mineral/water/geothermal rights, the permitting, the licensing and other approval of projects.

Liners - Casing used to maintain wellbore stability where that casing is hung in the wellbore and does not extend to the surface.

Lithology - The physical character of a rock; generally determined megascopically or with the aid of a low-power magnifier.

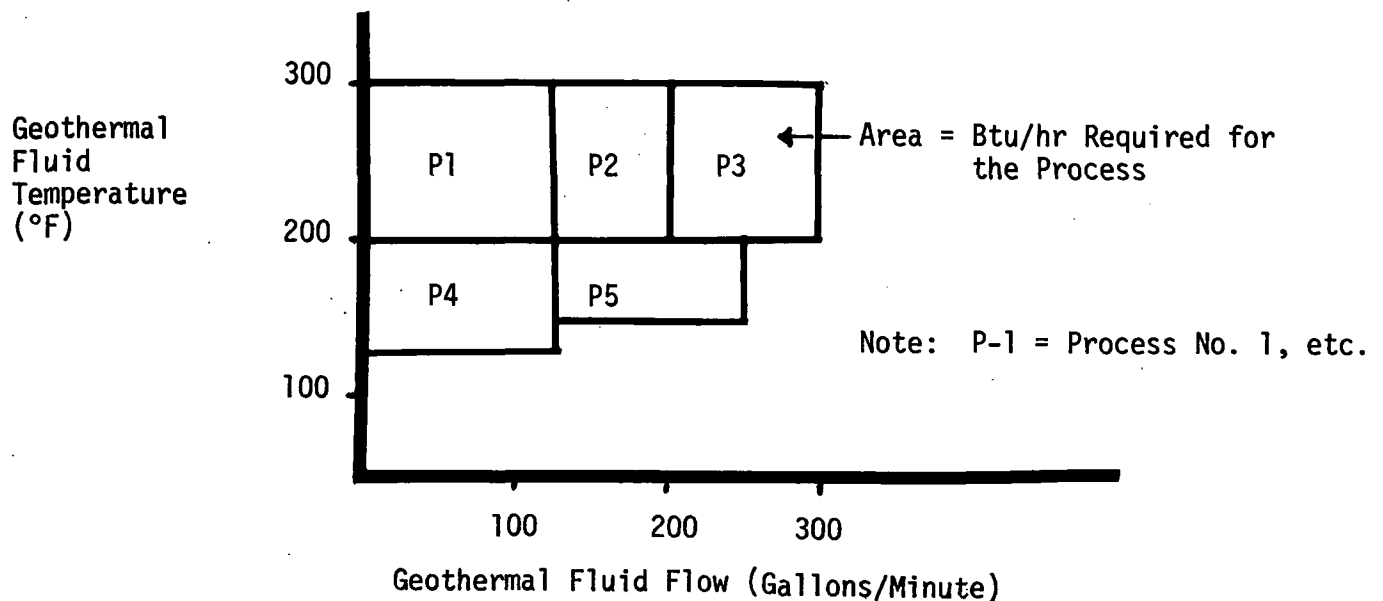
Logs - Geophysical borehole logs used to interpret lithology, porosity, wellbore temperatures, fluid conductivity and resistivity, radioactivity and other physical and chemical characteristics of the rocks and fluids adjacent to the wellbore.

Milestone - A significant event in the course of a project, usually characterized by the completion of a phase or decision.

Operation and Maintenance (O&M) Costs - Annual costs incurred in the operation and maintenance of the end use.

Potentiometric Level - The static head along a particular specified surface or stratum in a reservoir.

Process Energy Requirement Plot - A graphical representation of the energy requirements (in Btu/hr) for each process using geothermal fluid. Example:



Proposer - The group or person responsible for the preparation of a response to the Solicitation for Cooperative Agreement.

Site Preparation - Well site construction necessary for drilling a well, which includes access roads, drill pad, reserve pits, support power and water, cellar and conductor pipe setting.

Test Data - - That data collected during well testings.

Utilization Factor - The amount of power used on an annual basis by the system, divided by the maximum power that can potentially be used by the system on an annual basis (8760 hr/yr). This is analogous to the equivalent percentage of time that the system will operate at peak power on an annual basis.

Variable Cost Share Plan - A plan by which the DOE and the participant divide the expense of the drilling project. The funding division will be dependent upon the relative success of the drilling project.

Well Development or Completion - All procedures and equipment for well clean-out, stimulation, production zone liners, and well head equipment to meet production requirements.

Well Cuttings - - Rock chip samples brought to the surface with the drilling fluid.

Well Testing - Data collection under preplanned, controlled well conditions to determine borehole, fluid and reservoir conditions.

Appendix O

REPRESENTATIONS AND CERTIFICATIONS

[Instructions: Check or complete all appropriate boxes or blanks.]

The proposer makes the following representations and certifications:

1. CONTINGENT FEE

(a) It () has, () has not, employed or retained any company or person (other than a full-time bona fide employee working solely for the bidder) to solicit or secure this contract, and (b) it () has, () has not, paid or agreed to pay any company or person (other than a full-time bona fide employee working solely for the bidder) any fee, commission, percentage or brokerage fee, contingent upon or resulting from the award of this contract; and agrees to furnish information relating to (a) and (b) above as requested by the Contracting Officer. (For interpretation of the representation, including the term "bona fide employee," see Code of Federal Regulations, Title 41, Subpart 1-1.5.).

2. TYPE OF ORGANIZATION

It operates as an () individual, () partnership, () joint venture, () corporation, incorporated in State of _____.

3. EQUAL OPPORTUNITY

It () has, () has not, participated in a previous contract or sub-contract subject to the Equal Opportunity Clause herein, the clause originally contained in Section 301 of Executive Order No. 10925, or the clause contained in Section 201 of Executive Order No. 11114; it () has, () has not, filed all required compliance reports; and representations indicating submission or required compliance reports, signed by proposed subcontractors, will be obtained prior to subcontract awards.

4. AFFIRMATIVE ACTION COMPLIANCE PROGRAM

The offeror represents that (a) it () has developed and has on file, () has not developed and does not have on file, at each establishment an affirmative action program as required by the rules and regulations of the Secretary of Labor (41 CFR 60-1 and 60-2), or (b) () has not previously had contracts subject to written affirmative action program requirements of the rules and regulations of the Secretary of Labor because (check as applicable):

_____ offeror does not have 50 or more employees

_____ offeror has not had a Government prime contract or subcontract of \$50,000 or more.

Representations and Certifications (Cont'd)

5. EQUAL OPPORTUNITY COMPLIANCE

[Applicable to proposals exceeding \$1,000,000]

The offeror represents -

- a. That a full compliance review of the offeror's employment practices () has, () has not, been conducted by an agency of the Federal Government.
- b. If a full compliance review has been conducted by an agency of the Federal Government, the most recent compliance review was conducted on _____ by _____.
(Date) (Federal Agency)
- c. The proposed first-tier subcontractors which will be awarded subcontracts of \$1,000,000 or more are _____

Any offeror and his known first-tier subcontractors which will be awarded subcontracts of \$1,000,000 or more will be subject to full, preaward equal opportunity compliance reviews before the award of the contract for the purpose of determining whether the proposer and his subcontractors are able to comply with the provisions of the Equal Opportunity article.

6. CERTIFICATION OF NONSEGREGATED FACILITIES

By the submission of this proposal, the offeror, applicant, or subcontractor certifies that it does not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not permit its employees to perform their services at any location, under its control, where segregated facilities are maintained. It certifies further that it will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it will not permit its employees to perform their services at any location, under its control, where segregated facilities are maintained. The offeror, applicant, or subcontractor agrees that a breach of this certification is a violation of the Equal Opportunity clause in this contract. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, creed, color, or national origin, because of habit, local custom, or otherwise. It further agrees that (except where it

Representations and Certifications (Cont'd)

6. CERTIFICATION OF NONSEGREGATED FACILITIES (Cont'd)

has obtained identical certifications from proposed subcontractors for specific time periods) it will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding \$10,000 which are not exempt from the provisions of the Equal Opportunity clause; that it will retain such certifications in its files; and that it will forward the following notice to such proposed subcontractors (except where the proposed subcontractors have submitted identical certifications for specific time periods):

NOTICE TO PROSPECTIVE SUBCONTRACTORS OF REQUIREMENT FOR CERTIFICATION OF NONSEGREGATED FACILITIES

A Certification of Nonsegregated Facilities must be submitted prior to the award of a subcontract exceeding \$10,000 which is not exempt from the provisions of the Equal Opportunity clause. The certification may be submitted either for each subcontract or for all subcontracts during a period (i.e., quarterly, semi-annually, or annually).

7. PARENT COMPANY AND EMPLOYER IDENTIFICATION NUMBER

Each proposer shall furnish the following information by filling in the appropriate blocks:

- a. Is the proposer owned or controlled by a parent company as described below? () Yes () No. (For the purpose of this proposal, a parent company is defined as one which either owns or controls the activities and basic business policies of the proposer. To own another company means the parent company must own at least a majority (more than 50 percent) of the voting rights in that company. To control another company, such ownership is not required; if another company is able to formulate, determine or veto basic business policy decisions of the proposer, such other company is considered the parent company of the proposer. This control may be exercised through the use of dominant minority voting rights, use of proxy voting, contractual arrangements, or otherwise.)
- b. If the answer to a. above is "Yes", proposer shall insert in the space below the name and main office address of the parent company.

Name of Parent Company: _____

Representations and Certifications (Cont'd)

7. PARENT COMPANY AND EMPLOYER IDENTIFICATION NUMBER (Cont'd)

Main Office Address (No., Street, City, State and Zip Code)

- c. Proposer shall insert in the applicable space below, if it has no parent company, its own Employer's Identification Number (E.I. No.) (Federal Social Security Number used on Employer's Quarterly Federal Tax Return, U. S. Treasury Department Form 941), or if it has a parent company, the E.I. No. of its parent company.

Employer Identification Number of Parent Company: _____

8. DISCLOSURE STATEMENT - COST ACCOUNTING PRACTICES AND CERTIFICATION

Any contract in excess of \$100,000 resulting from this solicitation except: (i) when the price negotiated is based on: (a) established catalog or market prices of commercial items sold in substantial quantities to the general public, or (b) prices set by law or regulations; (ii) contracts awarded to small business concerns (as defined in 1-701.1 of the Armed Services procurement regulations or FPR §1-1.701-1); or (iii) contracts which are otherwise exempt (see 4 CFR 331.30(b)) shall be subject to the requirements of the Cost Accounting Standards Board. Any offeror submitting a proposal, which, if accepted, will result in a contract subject to the requirements of the Cost Accounting Standards Board must, as a condition of contracting, submit a disclosure statement as required by regulations of the Board. The disclosure statement must be submitted as a part of the offeror's proposal under this solicitation (see (I), below) unless: (i) the offeror, together with all divisions, subsidiaries, and affiliates under common control, did not receive net awards exceeding the monetary exemption for disclosure as established by the Cost Accounting Standards Board (see (II), below); (ii) the offeror exceeded the monetary exemption in its cost accounting period immediately preceding the cost accounting period in which this proposal was submitted but, in accordance with the regulations of the Cost Accounting Standards Board, is not yet required to submit a disclosure statement (see (III), below); (iii) the offeror has already submitted a disclosure statement disclosing the practices used in connection with the pricing of this proposal

Representations and Certifications (Cont'd)

8. DISCLOSURE STATEMENT - COST ACCOUNTING PRACTICES AND CERTIFICATION (Cont'd)

(see (IV), below); or (iv) post-award submission has been authorized by the Contracting Officer. See 4 CFR 351.70 for submission of copy of disclosure statement to the Cost Accounting Standards Board.

CAUTION: A practice disclosed in a disclosure statement shall not, by virtue of such disclosure, be deemed to be a proper, approved, or agreed to practice for pricing proposals or accumulating and reporting contract performance cost data.

Check the appropriate box below.

I. CERTIFICATE OF CONCURRENT SUBMISSION OF DISCLOSURE STATEMENT(S)

The offeror hereby certifies that he has submitted, as a part of his proposal under this solicitation, copies of the disclosure statement(s) as follows: (i) original and one copy to the cognizant Contracting Officer (Administrative Contracting Officer (ACO), see DOD Directory of Contract Administration Components (DOD 4105.59H)); and (ii) one copy to the cognizant contract auditor.

Date of Disclosure Statement(s)

Name(s) and Address(es) of Cognizant Contracting Officer(s) Where Filed

The offeror further certifies that practices used in estimating costs in pricing this proposal are consistent with the cost accounting practices disclosed in the Disclosure Statement(s).

II. CERTIFICATE OF MONETARY EXEMPTION

The offeror hereby certifies that it, together with all divisions, subsidiaries, and affiliates under common control, did not receive net awards of negotiated national defense prime contracts and subcontracts subject to cost accounting standards totaling more than \$10 million in its cost accounting period immediately preceding the period in which this proposal was submitted. The offeror further certifies that if its status changes prior to an award resulting from this proposal it will advise the Contracting Officer immediately.

CAUTION: Offerors who submitted a Disclosure Statement under the filing requirements previously established by the Cost Accounting Standards Board may claim this exemption only if the dollar volume of CAS covered national defense prime

Representations and Certifications (Cont'd)

8. DISCLOSURE STATEMENT - COST ACCOUNTING PRACTICES AND CERTIFICATION (Cont'd)

contract and subcontract awards in their preceding cost accounting period did not exceed the \$10 million threshold and the amount of this award will be less than \$10 million. Such offerors will continue to be responsible for maintaining the disclosure statement and following the disclosed practices on CAS covered prime contracts and subcontracts awarded during the period in which a disclosure statement was required.

() III. CERTIFICATE OF INTERIM EXEMPTION

The offeror hereby certifies that: (i) it first exceeded the monetary exemption for disclosure as defined in (II) above, in its cost accounting period immediately preceding the cost accounting period in which this proposal was submitted, and (ii) in accordance with the regulations of the Cost Accounting Standards Board (4 CFR 351.40(f)), it is not yet required to submit a disclosure statement. The offeror further certifies that if an award resulting from this proposal has not been made within 90 days after the end of that period, it will immediately submit a revised certificate to the Contracting Officer, in the form specified under (I), above or (IV), below, as appropriate, to verify its submission of a completed disclosure statement.

CAUTION: Offerors may not claim this exemption if they are currently required to disclose because they were awarded a CAS covered national defense prime contract or subcontract of \$10 million or more in the current cost accounting period. Further, the exemption applies only in connection with proposals submitted prior to expiration of the 90-day period following the cost accounting period in which the monetary exemption was exceeded.

() IV. CERTIFICATE OF PREVIOUSLY SUBMITTED DISCLOSURE STATEMENT(S)

The offeror hereby certifies that the disclosure statement(s) was filed as follows:

<u>Date of Disclosure Statement(s)</u>	<u>Name(s) and Address(es) of Cognizant Contracting Officer(s) Where Filed</u>
_____	_____
_____	_____

The offeror further certifies that practices used in estimating costs in pricing this proposal are consistent with the cost accounting practices disclosed in the Disclosure Statement(s).

Representations and Certifications (Cont'd)

9. COST ACCOUNTING STANDARDS - EXEMPTIONS FOR CONTRACTS OF \$500,000 OR LESS

If this proposal is expected to result in the award of a contract of \$500,000 or less, the offeror shall indicate whether the exemption to the cost accounting standards clause under the provisions of 4 CFR 331.30(b)(8) is claimed. Failure to check the box below shall mean that the resultant contract is subject to the cost accounting standards clause or that the offeror elects to comply with such clause.

() The offeror hereby claims an exemption from the Cost Accounting Standards clause under the provisions of 4 CFR 331.30(b)(8) and certifies that it has received notification of final acceptance of all deliverable items on (i) all prime contracts or subcontracts in excess of \$500,000 which contain the Cost Accounting Standards clause, and (ii) all prime contracts or subcontracts of \$500,000 or less awarded after January 1, 1975, which contain the Cost Accounting Standards clause. The offeror further certifies it will immediately notify the Contracting Officer in writing in the event it is awarded any other contract or subcontract containing the Cost Accounting Standards clause subsequent to the date of this certificate but prior to the date of any award resulting from this proposal.

10. COST ACCOUNTING STANDARDS ELIGIBILITY FOR MODIFIED CONTRACT COVERAGE

If the offeror is eligible to use the modified provisions of 4 CFR Part 332, and elects to do so, it shall indicate by checking the box below. Checking the box below shall mean that the resultant contract is subject to the Disclosure and Consistency of Cost Accounting Practices clause in lieu of the Cost Accounting Standards clause.

() The offeror hereby claims an exemption from the Cost Accounting Standards clause under the provisions of 4 CFR 331.30(b)(2), and certifies that it is eligible for use of the Disclosure and Consistency of Cost Accounting Practices clause because (i) during its cost accounting period immediately preceding the period in which this proposal was submitted, it received less than \$10 million in awards of CAS covered national defense prime contracts and subcontracts, and (ii) the sum of such awards equaled less than 10 percent of his total sales during that cost accounting period. The offeror further certifies that if its status changes prior to an award resulting from this proposal, it will advise the Contracting Officer immediately.

CAUTION: Offerors may not claim the above eligibility for modified contract coverage if this proposal is expected to result in the award of a contract of \$10 million or more or if, during their current cost accounting period, they have been awarded a single CAS-covered national defense prime contract or subcontract of \$10 million or more.

Representations and Certifications (Cont'd)

11. ADDITIONAL COST ACCOUNTING STANDARDS APPLICABLE TO EXISTING CONTRACTS

The offeror shall indicate below whether award of the contemplated contract would in accordance with paragraph (a)(3) of the Cost Accounting Standards clause, require a change in its established cost accounting practices affecting existing contracts and subcontracts.

() Yes () No

NOTE: If the offeror has checked "yes" above, and is awarded the contemplated contract, it will be required to comply with the Administration of Cost Accounting Standards clause.

12. CLEAN AIR AND WATER CERTIFICATION

(Applicable if the bid or offer exceeds \$100,000, or the Contracting Officer has determined that orders under an indefinite quantity contract in any year will exceed \$100,000, or a facility to be used has been the subject of a conviction under the Clean Air Act (42 U.S.C. 1857c-8(c)(1)) or the Federal Water Pollution Control Act (33 U.S.C. 1319(c)) and is listed by EPA, or is not otherwise exempt.)

The bidder or offeror certifies as follows:

- (a) Any facility to be utilized in the performance of this proposed contract has (), has not (), been listed on the Environmental Protection Agency List of Violating Facilities.
- (b) It will promptly notify the Contracting Officer, prior to award, of the receipt of any communication from the Director, Office of Federal Activities, Environmental Protection Agency, indicating that any facility which it proposes to use for the performance of the contract is under consideration to be listed on the EPA List of Violating Facilities.
- (c) It will include substantially this certification, including this paragraph (c), in every nonexempt subcontract.

13. SMALL AND SMALL DISADVANTAGED BUSINESS CERTIFICATION

- (a) The bidder or offeror certifies that it is () is not () a small business concern as defined in accordance with Section 3 of the Small Business Act (15 U.S.C. 632).
- (b) The bidder or offeror certifies that it is a small business [as set forth in (a) above] and is () is not () owned and controlled by socially and economically disadvantaged individuals. Such a firm is defined as one -

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Representations and Certifications (Cont'd)

13. SMALL AND SMALL DISADVANTAGED BUSINESS CERTIFICATION (Cont'd)

- (i) which is at least 51 per centum owned by one or more such individuals or, in the case of any publicly owned business, at least 51 per centum of the stock is owned by such individuals;
 - (ii) whose management and daily business operations are controlled by one or more such individuals; and
 - (iii) which certifies concerning said ownership and control in accordance with section (c) below.
- (c) The bidder or offeror certifies that it is () is not () a minority individual(s) in accordance with (c)(i) below or that it is () is not () socially and economically disadvantaged in accord with section (c)(ii) or (c)(iii). Socially and economically disadvantaged individuals are defined as:
- (i) United States citizens who are Black Americans, Hispanic Americans, Native Americans, or other specified minorities;
 - (ii) any other individual found to be disadvantaged pursuant to section 8(a) of the Small Business Act (15 U.S.C. 637);
or
 - (iii) any other individual defined as socially, and economically disadvantaged, for purposes relating to other sections of the Small Business Act.

14. WOMAN-OWNED BUSINESS

Concern is () is not () a woman-owned business.

A woman-owned business is a business which is, at least, 51 percent owned, controlled, and operated by a woman or women. Controlled is defined as exercising the power to make policy decisions. Operated is defined as actively involved in the day-to-day management.

For the purposes of this definition, businesses which are publicly owned, joint stock associations, and business trusts are exempted. Exempted businesses may voluntarily represent that they are, or are not, woman-owned if this information is available.

Representations and Certifications (Cont'd)

15. PERCENT OF FOREIGN CONTENT

The offeror/contractor will represent (as an estimate), immediately after the award of a contract, the percent of the foreign content of the item or service being procured expressed as a percent of the contract award price (accuracy within plus or minus 5 percent is acceptable).

NOTE: No solicitation may be properly considered without these representations and certifications, and no award may be made without this form being executed.

Signed by _____

(Title)

FEDERAL ASSISTANCE		2. APPLICANT'S APPLICATION	a. NUMBER	3. STATE APPLICATION IDENTIFIER	a. NUMBER																																														
1. TYPE OF ACTION <input type="checkbox"/> PREAPPLICATION <input type="checkbox"/> APPLICATION <i>(Mark appropriate box)</i> <input type="checkbox"/> NOTIFICATION OF INTENT (Opt.) <input type="checkbox"/> REPORT OF FEDERAL ACTION		<i>Leave Blank</i>	b. DATE Year month day 19	b. DATE Year month day ASSIGNED 19																																															
4. LEGAL APPLICANT/RECIPIENT			5. FEDERAL EMPLOYER IDENTIFICATION NO.																																																
a. Applicant Name : b. Organization Unit : c. Street/P.O. Box : d. City : e. County : f. State : g. ZIP Code: h. Contact Person (Name & telephone No.) :			6. PROGRAM <i>(From Federal Catalog)</i> a. NUMBER b. TITLE																																																
7. TITLE AND DESCRIPTION OF APPLICANT'S PROJECT			8. TYPE OF APPLICANT/RECIPIENT																																																
			A-State H-Community Action Agency B-Interstate I-Higher Educational Institution C-Substate J-Indian Tribe D-County K-Other (Specify): E-City F-School District G-Special Purpose District <i>Enter appropriate letter</i> <input type="checkbox"/>																																																
10. AREA OF PROJECT IMPACT <i>(Names of cities, counties, States, etc.)</i>			11. ESTIMATED NUMBER OF PERSONS BENEFITING																																																
13. PROPOSED FUNDING			12. TYPE OF APPLICATION																																																
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20. FEDERAL AGENCY TO RECEIVE REQUEST <i>(Name, City, State, ZIP code)</i>			21. REMARKS ADDED																																																
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SECTION IV-REMARKS *(Please reference the proper item number from Sections I, II or III, if applicable)*

GENERAL INSTRUCTIONS

This is a multi-purpose standard form. First, it will be used by applicants as a required facesheet for pre-applications and applications submitted in accordance with Federal Management Circular 74-7. Second, it will be used by Federal agencies to report to Clearinghouses on major actions taken on applications reviewed by clearinghouses in accordance with OMB Circular A-95. Third, it will be used by Federal agencies to notify States of grants-in-aid awarded in accordance with Treasury Circular 1082. Fourth, it may be used, on an optional basis, as a notification of intent from applicants to clearinghouses, as an early initial notice that Federal assistance is to be applied for (clearinghouse procedures will govern).

APPLICANT PROCEDURES FOR SECTION I

Applicant will complete all items in Section I. If an item is not applicable, write "NA". If additional space is needed, insert an asterisk "*", and use the remarks section on the back of the form. An explanation follows for each item:

- | Item | Item |
|--|---|
| 1. Mark appropriate box. Pre-application and application guidance is in FMC 74-7 and Federal agency program instructions. Notification of intent guidance is in Circular A-95 and procedures from clearinghouse. Applicant will not use "Report of Federal Action" box. | D. Insurance. Self explanatory.
E. Other. Explain on remarks page. |
| 2a. Applicant's own control number, if desired. | 10. Governmental unit where significant and meaningful impact could be observed. List only largest unit or units affected, such as State, county, or city. If entire unit affected, list it rather than subunits. |
| 2b. Date Section I is prepared. | 11. Estimated number of persons directly benefiting from project. |
| 3a. Number assigned by State clearinghouse, or if delegated by State, by areawide clearinghouse. All requests to Federal agencies must contain this identifier if the program is covered by Circular A-95 and required by applicable State/areawide clearinghouse procedures. If in doubt, consult your clearinghouse. | 12. Use appropriate code letter. Definitions are:
A. New. A submittal for the first time for a new project.
B. Renewal. An extension for an additional funding/budget period for a project having no projected completion date, but for which Federal support must be renewed each year.
C. Revision. A modification to project nature or scope which may result in funding change (increase or decrease).
D. Continuation. An extension for an additional funding/budget period for a project the agency initially agreed to fund for a definite number of years.
E. Augmentation. A requirement for additional funds for a project previously awarded funds in the same funding/budget period. Project nature and scope unchanged. |
| 3b. Date applicant notified of clearinghouse identifier. | 13. Amount requested or to be contributed during the first funding/budget period by each contributor. Value of in-kind contributions will be included. If the action is a change in dollar amount of an existing grant (a revision or augmentation), indicate only the amount of the change. For decreases enclose the amount in parentheses. If both basic and supplemental amounts are included, breakout in remarks. For multiple program funding, use totals and show program breakouts in remarks. Item definitions: 13a, amount requested from Federal Government; 13b, amount applicant will contribute; 13c, amount from State, if applicant is not a State; 13d, amount from local government, if applicant is not a local government; 13e, amount from any other sources, explain in remarks. |
| 4a-4h. Legal name of applicant/recipient, name of primary organizational unit which will undertake the assistance activity, complete address of applicant, and name and telephone number of person who can provide further information about this request. | 14a. Self explanatory. |
| 5. Employer identification number of applicant as assigned by Internal Revenue Service. | 14b. The district(s) where most of actual work will be accomplished. If city-wide or State-wide, covering several districts, write "city-wide" or "State-wide." |
| 6a. Use Catalog of Federal Domestic Assistance number assigned to program under which assistance is requested. If more than one program (e.g., joint-funding) write "multiple" and explain in remarks. If unknown, cite Public Law or U.S. Code. | 15. Complete only for revisions (item 12c), or augmentations (item 12e). |
| 6b. Program title from Federal Catalog. Abbreviate if necessary. | |
| 7. Brief title and appropriate description of project. For notification of intent, continue in remarks section if necessary to convey proper description. | |
| 8. Mostly self-explanatory. "City" includes town, township or other municipality.

Check the type(s) of assistance requested. The definitions of the terms are:
A. Basic Grant. An original request for Federal funds. This would not include any contribution provided under a supplemental grant.
B. Supplemental Grant. A request to increase a basic grant in certain cases where the eligible applicant cannot supply the required matching share of the basic Federal program (e.g., grants awarded by the Appalachian Regional Commission to provide the applicant a matching share).
C. Loan. Self explanatory. | |

- Item**
16. Approximate date project expected to begin (usually associated with estimated date of availability of funding).
17. Estimated number of months to complete project after Federal funds are available.
18. Estimated date preapplication/application will be submitted to Federal agency if this project requires clearinghouse review. If review not required, this date would usually be same as date in item 2b.

- Item**
19. Existing Federal identification number if this is not a new request and directly relates to a previous Federal action. Otherwise write "NA".
20. Indicate Federal agency to which this request is addressed. Street address not required, but do use ZIP.
21. Check appropriate box as to whether Section IV of form contains remarks and/or additional remarks are attached.

APPLICANT PROCEDURES FOR SECTION II

Applicants will always complete items 23a, 23b, and 23c. If clearinghouse review is required, item 22b must be fully completed. An explanation follows for each item:

- Item**
- 22b. List clearinghouses to which submitted and show in appropriate blocks the status of their responses. For more than three clearinghouses, continue in remarks section. All written comments submitted by or through clearinghouses must be attached.
- 23a. Name and title of authorized representative of legal applicant.

- Item**
- 23b. Self explanatory.
- 23c. Self explanatory.
- Note:** Applicant completes only Sections I and II. Section III is completed by Federal agencies.

FEDERAL AGENCY PROCEDURES FOR SECTION III

If applicant-supplied information in Sections I and II needs no updating or adjustment to fit the final Federal action, the Federal agency will complete Section III only. An explanation for each item follows:

- Item**
24. Executive department or independent agency having program administration responsibility.
25. Self explanatory.
26. Primary organizational unit below department level having direct program management responsibility.
27. Office directly monitoring the program.
28. Use to identify non-award actions where Federal grant identifier in item 30 is not applicable or will not suffice.
29. Complete address of administering office shown in item 26.
30. Use to identify award actions where different from Federal application identifier in item 28.
31. Self explanatory. Use remarks section to amplify where appropriate.
32. Amount to be contributed during the first funding/budget period by each contributor. Value of in-kind contributions will be included. If the action is a change in dollar amount of an existing grant (a revision or augmentation), indicate only the amount of change. For decreases, enclose the amount in parentheses. If both basic and supplemental amounts are included, breakout in remarks. For multiple program funding, use totals and show program breakouts in remarks. Item definitions: 32a, amount awarded by Federal Government; 32b, amount applicant will contribute; 32c, amount from State, if applicant is not a State; 32d, amount from local government if applicant is not a local government; 32e, amount from any other sources, explain in remarks.
33. Date action was taken on this request.
34. Date funds will become available.

- Item**
35. Name and telephone no. of agency person who can provide more information regarding this assistance.
36. Date after which funds will no longer be available.
37. Check appropriate box as to whether Section IV of form contains Federal remarks and/or attachment of additional remarks.
38. For use with A-95 action notices only. Name and telephone of person who can assure that appropriate A-95 action has been taken—if same as person shown in item 35, write "same". If not applicable, write "NA".

Federal Agency Procedures—special considerations

- A. *Treasury Circular 1082 compliance.* Federal agency will assure proper completion of Sections I and III. If Section I is being completed by Federal agency, all applicable items must be filled in. Addresses of State Information Reception Agencies (SCIRA's) are provided by Treasury Department to each agency. This form replaces SF 240, which will no longer be used.
- B. *OMB Circular A-95 compliance.* Federal agency will assure proper completion of Sections I, II, and III. This form is required for notifying all reviewing clearinghouses of major actions on all programs reviewed under A-95. Addresses of State and areawide clearinghouses are provided by OMB to each agency. Substantive differences between applicant's request and/or clearinghouse recommendations, and the project as finally awarded will be explained in A-95 notifications to clearinghouses.
- C. *Special note.* In most, but not all States, the A-95 State clearinghouse and the (TC 1082) SCIRA are the same office. In such cases, the A-95 award notice to the State clearinghouse will fulfill the TC 1082 award notice requirement to the State SCIRA. Duplicate notification should be avoided.

PROPOSAL CHECK LIST

Please review this check list to assure that your proposal is complete.

A. Volume I - Technical Proposal

1. Have you included a signed statement of intent?
2. Have you thoroughly discussed your project from the description of the resource through the end use?
3. Have you discussed the financial feasibility of the project?
4. Have you included a variable cost-share plan?
5. Does your management plan include:
 - a. description of your key tasks of work;
 - b. a work schedule showing the key tasks and activities that will take place;
 - c. distinct milestones for your project; not just activities that will take place;
 - d. a schedule for the completion of your selected milestones?
6. Have you included the resumes of your Project Manager and key personnel involved with the project indicating their competence and experience?
7. Have you provided documentation showing evidence of ownership to the property or leases and the right to use the water/geothermal/mineral resource?
8. Have you discussed any environmental impacts due to your proposed project?
9. Have you discussed how the Program Policy and Preference Factors pertain to your project?
10. Is this volume capable of complete review without reference to the other volume?.

B. Volume II - Business Proposal

1. Is the proper signature on the cover page of the Business Proposal?

2. Have you included a properly executed Optional Form 60?
3. Have you included your financial plan discussing your proposed method of financing the non-DOE share of the project?
4. Have you completed and signed the Representations and Certifications?
5. Have you completed the Federal Assistance Standard Form 424?
6. Is this volume capable of review without reference to the other volume?