

GL00955



State of Utah
DEPARTMENT OF NATURAL RESOURCES
UTAH GEOLOGICAL AND MINERAL SURVEY

Norman H. Bangertor
Governor

Dee C. Hansen
Executive Director

M. Lee Allison
State Geologist

606 Black Hawk Way
Salt Lake City, Utah 84108-1280
801-581-6831

May 16, 1990

Dr. Howard Ross
University of Utah Research Inst.
391 Chipeta Way
Salt Lake City, UT 84108

Dear Howard:

You are invited to attend a field review of the Utah Geological and Mineral Survey's recently completed analysis of the Newcastle geothermal area on Wednesday, June 13. The project is located on the southeast edge of the Escalante Valley in Iron County, near the community of Newcastle, where near-boiling thermal water is used for the space heating of several commercial greenhouses. The UGMS sponsors field reviews of projects so that interested parties can provide technical input prior to publication of the findings. Field reviews also provide geologists and non-geologists an opportunity to become acquainted with the geology of different parts of Utah.

Our project, which was funded as cooperative research with the U.S. Department of Energy, involved integrated geological and geophysical analyses to help determine movement of thermal fluid within the system. The results of the work suggest that meteoric water circulates to depths of possibly 5 kilometers, achieves temperatures in excess of 130°C, and moves upward in association with the range-bounding Antelope Range fault. The apparent upwelling thermal plume is confined to a short segment of the fault where several footwall structures are projected. We will see and discuss Oligocene and Miocene volcanic stratigraphy, possible structural controls to the system, and implications for the discovery of other concealed (no surface expression) hydrothermal systems.

The review is tentatively planned to begin at 8:30 AM starting from the LDS church parking lot in Newcastle and should take three to four hours to complete. Participants should arrange for their own transportation and lodging, and should plan on bringing a lunch, water and hiking boots. Motel accommodations are available in Cedar City. There will be some room in UGMS vehicles for those wishing to travel to Cedar City from Salt Lake City on the day before (6/12/90). If possible, we may tour the recently expanded geothermal power plant at Cove Fort on the trip from Salt Lake to Cedar City.

Those planning to attend should contact either myself or Mike Shubat at the UGMS (801/581-6831) for more specifics.

Sincerely,

Robert E. Blakett
Geologist

REB/mp



State of Utah
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Executive Director

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State Geologist

606 Black Hawk Way
Salt Lake City, Utah 84108-1280
301-581-6831

April 4, 1990

Rec
04/04/90
JRR

Kenneth J. Taylor
U.S. Department of Energy
785 DOE Place
Idaho Falls, Idaho 83402

Dear Mr. Taylor:

We have recently completed work on our geothermal research grant no. DE-FG07-88ID12756 and are hereby sending you the required three copies plus a camera-ready copy of the final report. The report is entitled "The Newcastle Geothermal System, Iron County, Utah -- Geology, Hydrology, and Conceptual Model." The study is presented as a two volume set. Volume one is the final report, and volume 2 contains the appendices. In addition, we are sending to you, under separate cover, camera-ready copies of the three oversize plates that accompany the report. As required under the terms of our contract, we are also sending copies of the study to Marshall Reed, Trudy Thorne, and Howard Ross.

We have enjoyed very much working on this cooperative project as part of your programs, and we hope that we'll have future opportunities on other projects. If you have any questions regarding the report, or need additional copies, please feel free to call us.

Sincerely,

Robert E. Blackett
Geologist

cc. Marshall Reed (DOE, Washington D.C.)
Trudy Thorne (DOE, Idaho Falls)
Howard Ross (UURI, Salt Lake City)

UGMS.drf
(main C disk)
03/01/90

REVIEW COMMENTS

UGMS DRAFT FINAL REPORT

THE NEWCASTLE GEOTHERMAL SYSTEM, IRON COUNTY, UTAH

Page, Para	Specific Comments
vii,2	nation's
vii,2	Mormon
2, 4	Enterprise
4, 2	missing ref, Smith & Sbar, 1974 (Intermtn Seis Belt)
4, 5	Klauck and Gourley, 1983 - not in refs (NIR)
8, 2	Sevier orogenic highland to west? (or east?)
9, 2	Mine series of Siders
10,	Grant and Proctor, 1989 - NIR
11	Reches and Baer (in press) - NIR
12,13	Fir. 4a, 4b ?
16, 1	These data
20, 1	Zoback et al (1981) - NIR
20, 3	P. D. Rowley, 1989; this study - ref. or contributor?
24, 3	gravity meters - models (G-263, and G-461) ?
24, 4	153 sta (+ base?) +240 = 394
28, 2	USGS program con77 or CON77 ?
28, 2	program 1SADJ ?
28, 3	TRITER ?
28, 3	BOUGUER ?
28, 4	Bouguer anomaly (always capitalized!)
29, 4	Data Files ___ and ___
30, 2	Bouguer gravity
30, 3	Chisholm, or Chisholm and Robertson- how to list?
32, 5	due to the rotation of the earth and the equatorial bulge.
34, 1	observation of gravity corrected for terrain and latitude variation at some particular elevation...
34,3	Ross et al, 1982; Ross and Moore, 1985 - NIR
34, 5	which are, (not and is)
39, 1	has been previously documented
39, 1	Weissberg et al, 1979 - NIR
39, 3	Klusman and Landress, 1978 NIR
39, 2	Capuano and Bamford, 1978?
40, 4	systems relates
40, 5	upflow has been documented
41, Fig 18-	scale bar or distance ref? Line numbers?
43, Fig.19-	scale bar or distance ref? Line numbers?
42, 4	displaced, not displace
43, Fig.19	-no figure number; could use larger size for values.
46, 1	, not ;
48, 2	Lachenbruck et al, 1976 - NIR
56, 4	Parasnis, 1971 - NIR
61, 3	Freeze and Cherry - NIR
65, 2	, not ;
69, 4	, not ;

page,para Specific comment

70, 2 major limiting assumption?

73, 3 values of ___ and n

74 great summary!

75 was model of Fig. 21 as shown when study began, i.e.
 sealing by mineral precipitation zone?

77, 1 relatively shallow gradients- or very steep shallow
 gradients in heat flow?

77, 3 Other blind hydrothermal ..?

80, 1 deep exploration hole drilled to the center of the
 upflow zone, or thermal anomaly?

80, Could recommend more detailed gravity profiles NE-SW
 across the NW trending zone for better interpretation?

34-37 see changes by Ross, resistivity and SP

U.S. DEPARTMENT OF ENERGY
NOTICE OF FINANCIAL ASSISTANCE AWARD
(See Instructions on Reverse)

Under the authority of Public Law PL 93-410 and
 subject to legislation, regulations and policies applicable to *(cite legislative program title)*:

Geothermal Energy Research, Development, and Demonstration Act of 1974

1. PROJECT TITLE Geothermal Resource Assessment at Newcastle Utah		2. INSTRUMENT TYPE <input checked="" type="checkbox"/> GRANT <input type="checkbox"/> COOPERATIVE AGREEMENT	
3. RECIPIENT (Name, address, zip code, area code and telephone no.) State of Utah Natural Resources Utah Geological and Mineral Survey 606 Black Hawk Way, Salt Lake City, UT 84108-		4. INSTRUMENT NO. DE-FG07-88ID12756	5. AMENDMENT NO.
8. RECIPIENT PROJECT DIRECTOR (Name and telephone No.) Robert E. Blackett (801) 581-6831		6. BUDGET PERIOD FROM: 6/1/88 THRU: 8/1/89	7. PROJECT PERIOD FROM: 6/1/88 THRU: 8/1/89
9. RECIPIENT BUSINESS OFFICER (Name and telephone No.) Gwen Anderson (801) 581-6831		10. TYPE OF AWARD <input checked="" type="checkbox"/> NEW <input type="checkbox"/> CONTINUATION <input type="checkbox"/> RENEWAL <input type="checkbox"/> REVISION <input type="checkbox"/> SUPPLEMENT	
11. DOE PROJECT OFFICER (Name, address, zip code, telephone No.) Kenneth J. Taylor (208) 526-9063 U.S. DOE, Idaho Operations Office 785 DOE Place, Idaho Falls, Idaho 83402		12. ADMINISTERED FOR DOE BY (Name, address, zip code, telephone No.) Trudy A. Thorne (208) 526-9519 U.S. Department of Energy 785 DOE Place Idaho Falls, Idaho 83402	

13. RECIPIENT TYPE

<input checked="" type="checkbox"/> STATE GOV'T	<input type="checkbox"/> INDIAN TRIBAL GOV'T	<input type="checkbox"/> HOSPITAL	<input type="checkbox"/> FOR PROFIT ORGANIZATION	<input type="checkbox"/> INDIVIDUAL
<input type="checkbox"/> LOCAL GOV'T	<input type="checkbox"/> INSTITUTION OF HIGHER EDUCATION	<input type="checkbox"/> OTHER NONPROFIT ORGANIZATION	<input type="checkbox"/> C <input type="checkbox"/> P <input type="checkbox"/> SP	<input type="checkbox"/> OTHER (Specify)

14. ACCOUNTING AND APPROPRIATIONS DATA				15. EMPLOYER I.D. NUMBER/SSN
a. Appropriation Symbol	b. B & R Number	c. FT/AFP/OC	d. CFA Number	
89X0224.91	AM1510000	YA 410		

16. BUDGET AND FUNDING INFORMATION	
a. CURRENT BUDGET PERIOD INFORMATION	b. CUMULATIVE DOE OBLIGATIONS
(1) DOE Funds Obligated This Action \$ <u>61,641</u>	(1) This Budget Period [Total of lines a. (1) and a. (3)] \$ <u>61,641</u>
(2) DOE Funds Authorized for Carry Over \$ <u>-0-</u>	(2) Prior Budget Periods \$ <u>-0-</u>
(3) DOE Funds Previously Obligated in this Budget Period \$ <u>-0-</u>	(3) Project Period to Date \$ <u>61,641</u>
(4) DOE Share of Total Approved Budget \$ <u>61,641</u>	[Total of lines b. (1) and b. (2)]
(5) Recipient Share of Total Approved Budget \$ <u>10,667</u>	
(6) Total Approved Budget \$ <u>72,308</u>	

17. TOTAL ESTIMATED COST OF PROJECT \$ 72,308

(This is the current estimated cost of the project. It is not a promise to award nor an authorization to expend funds in this amount.)

18. AWARD/AGREEMENT TERMS AND CONDITIONS

This award/agreement consists of this form plus the following:

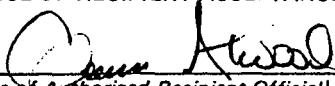
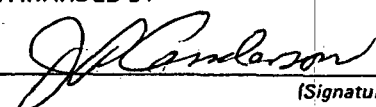
a. Special terms and conditions (if grant) or schedule, general provisions, special provisions (if cooperative agreement)

b. Applicable program regulations (specify) _____ (Date) _____

c. DOE Assistance Regulations, 10 CFR Part-600, as amended, Subparts A and B (Grants) or C (Cooperative Agreements).

d. Application/proposal dated 6/19/87 as submitted with changes as negotiated

19. REMARKS This Grant consists of this NFAA (DOE F 4600.1), Part I - Budget Plan, Part II - Special Conditions, Part III - General Conditions, Part IV - Statement of Work, and Part V - Reporting Requirements. DOE Financial Assistance Rules (10 CFR Part 600), OMB Circular A-102, OMB Circular A-87, and OMB Circular A-128 "Audits of State and Local Governments" are hereby incorporated by reference.

20. EVIDENCE OF RECIPIENT ACCEPTANCE	21. AWARDED BY
 5/10/88 (Signature of Authorized Recipient Official) (Date)	 5/14/88 (Signature) (Date)
GENEVIEVE ATWOOD (Name)	J. P. Anderson, Contracting Officer (Name)
DIRECTOR - UGMS (Title)	Chief, R&D Contracts Branch (Title)

FEDERAL ASSISTANCE BUDGET INFORMATION FORM

FORM EIA-455C
(10 80)

FORM APPROVED
OMB No. 1900-0127

1. Project Identification No. DE-FG07-88ID12756	2. Program/Project Title Geothermal Resource Assessment at Newcastle
3. Name and Address Utah Geological and Mineral Survey 606 Black Hawk Way, Salt Lake City, Utah 84108-1280	
4. Program/Project Start Date June 1, 1988	
5. Completion Date August 1, 1989	

SECTION A - BUDGET SUMMARY						
Grant Program, Function or Activity (a)	Federal Catalog No. (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1. 12693	81.087	\$	\$	\$ 61,641	\$ 10,667	\$ 72,308
2.						
3.						
4.						
5 TOTALS		\$	\$	\$	\$	\$

SECTION B - BUDGET CATEGORIES					
6. Object Class Categories	Grant Program, Function or Activity				Total (5)
	(1) DOE	(2)	(3) UGMS	(4)	
a. Personnel	\$ 17,966	\$	\$ 10,667	\$	\$ 28,633
b. Fringe Benefits					
c. Travel	10,292				10,292
d. Equipment					
e. Supplies	1,200				1,200
f. Contractual	22,500				22,500
g. Construction					
h. Other	3,988				3,988
i. Total Direct Charges					
j. Indirect Charges * 31.7%	5,695				5,695
k. TOTALS	\$ 61,641	\$	\$ 10,667	\$	\$ 72,308
7. Program Income	\$	\$	\$	\$	\$

*Indirect costs of 31.7% of direct salaries.

Special Terms and Conditions for Research Grants

The requirements of this attachment take precedence over all other requirements of this grant found in regulations, the general terms and conditions, DOE orders, etc. except requirements of statutory law. Any apparent contradiction of statutory law stated herein should be presumed to be in error until the Grantee has sought and received clarification from the Contracting Officer, whose signature appears on the face page of this award.

1. Payments and Cost-Share

- a. The Grantee may request advance payment of cost to be incurred. Such requests should not exceed the expected outlays by the Grantee in the succeeding 30-day period.
- b. Cost-Share Arrangement - The cost-share will be in accordance with Part I - Budget Plan. Invoices must include in-kind contributions and DOE's reimbursed costs. To be an invoiced cost, a cash or in-kind contribution must be allowable under the terms and conditions of the award and meet the applicable cost principle tests of allowability in 10 CFR 600.103.

Allowable personnel costs incurred under this grant excluding indirect costs on direct labor, will be cost-shared on the basis of 63% DOE and 37% Grantee. Indirect costs associated with Utah Geological and Mineral Survey's cost share will not be billed to DOE nor be considered on allowable cost for this grant.

- c. Payments to the Grantee shall equal the Federal share of actual allowable costs of performance of this grant, provided however, and notwithstanding any other provision of this grant, that the Government's monetary liability under this grant shall not exceed the Government share of the total approved budget or an amount equal to the Federal share of actual allowable costs, whichever is less. The Grantee shall be obligated to perform under this grant throughout the agreed-upon period of performance, and to bear all costs which DOE has not agreed to pay. However, the Grantee shall have the right to cease to perform when or after the Federal share of actual allowable costs equals or exceeds the Government share of the total approved budget and if prior written notice to that effect has been provided to DOE.
- d. The Government obligations may be increased unilaterally by DOE by written notice to the Grantee and may be increased or decreased by written agreement of the parties.

- e. Upon termination or expiration of the total period of performance, the Grantee shall promptly refund to DOE (or make such disposition as DOE may in writing direct) any sums paid by DOE to the Grantee under this grant in excess of the cumulative Government allowable cost incurred in performance under the grant.
- f. Method of Payment - Payments due for amounts properly invoiced in accordance with the terms and conditions specified elsewhere in the grant shall be made either by Treasury check(s) payable to the Grantee or designee or by electronic funds transfer(s) to a financial institution designated by the Grantee for that purpose. The method of payment shall be determined by the Government at the time of payment in accordance with applicable Treasury Department requirements.

After award but no later than fourteen (14) days before an invoice or bill is submitted for payment, the Grantee shall designate a financial institution for the receipt of electronic funds transfer payments hereunder; and provide the appropriate Government representative (contracting officer or finance official as determined by the Government) with the name of the designated financial institution, financial institution's or correspondent financial institution's 9-digit American Bankers Association identifying number, telegraphic abbreviation of such financial institution, and account number at the designated financial institution to be credited with funds.

In the event the Grantee during the performance of this grant elects to designate a different financial institution for the receipt of any payment made using electronic funds transfer procedures, notification of such change and the information as specified in paragraph (b) above must be received by the appropriate Government representative thirty (30) days prior to the date such change is to become effective.

The document furnishing the information required above must be dated and contain the signature, title, and telephone number of the Grantee official authorized to provide it, as well as the Grantee's name and grant number.

Grantee failure to properly designate a financial institution or to provide appropriate payee bank account information may delay payments of amounts otherwise properly due.

- g. Applicable Credits. The Grantee agrees that any refunds, rebates, credits, or other amounts (including any interest thereon) accruing to or received by the Grantee or any assignee under this grant shall be paid by the Grantee to the Government, to the extent that they are properly allocable to costs for which the Grantee has been

reimbursed by the Government under this grant. Reasonable expenses incurred by the Grantee for the purpose of securing such refund, rebates, credits, or other amounts shall be allowable costs hereunder when approved by the Contracting Officer.

- h. Audit Adjustments. The Contracting Officer may have invoices or vouchers and statements of cost submitted under this grant audited at any time prior to the end of the required retention period for the grant records. Each payment made shall be subject to reduction for amounts included in the related invoice or voucher which are found by the Contracting Officer, on the basis of audit, not to constitute allowable cost. If a final audit of costs has not been performed prior to closeout of the grant, DOE or its successor agency, shall have the right to recover an appropriate amount after fully considering the recommendations on disallowed costs resulting from the final audit when conducted.
- i. Cognizant Office. Invoices should be sent to the individual designated in Block 12. of the Notice of Financial Assistance Award Form (NFAA). In addition to the initial supply of forms made available with this award, appropriate payment forms and instructions will be provided by this office upon request.

2. Reporting Program Technical Performance

- a. Copies. Copies of reports and all other related data and information generated under this grant shall be submitted in accordance with the attached Federal Assistance Reporting Checklist (DOE Form EIA-459A).
- b. Publication of Results. The Grantee may publish the results of its work. However, publications and reports prepared under this grant shall contain the following acknowledgment statement, "This (material) was prepared with the support of the U.S. Department of Energy (DOE) Grant No. DE-FG07-88ID12756. However, any opinions, findings, conclusions, or recommendations expressed herein are those of the author(s) and do not necessarily reflect the views of DOE."
- c. Reporting Requirements. The Federal assistance recipient shall prepare and submit (postage prepaid) the plans and reports indicated on the Federal Assistance Reporting Distribution List. Preparation of the specified plans and reports shall be in accordance with DOE Order 1332.2. The level of detail the recipient provides in the plans and reports shall be commensurate with the scope and complexity of the task and shall be as delineated in Block 4 - Reporting Requirements and Block 5 - Special Instructions.

All reports delivered to DOE shall be the sole property of the DOE. The Grantee shall not claim that any report contains any trade secrets or commercial or financial information deemed by the Grantee to be privileged or confidential, or that the Grantee has any proprietary interest in any report.

3. Designated Key Personnel

The following individual is designated key personnel in accordance with General Condition No. 14:

Robert E. Blackett

4. Project Completion Date

The project completion date identified in Block 7. of the Notice of Financial Assistance Award includes an additional 90 days for completion of the final report. All R&D effort must be completed 90 days prior to the project completion date. Only costs associated with preparation of the final report will be allowed during the 90 days prior to the project completion date.

5. Technical Data

Except for technical data contained in pages N/A of the recipient's application, dated N/A, which are asserted by the Grantee as being proprietary data, it is agreed that as a condition of this award, and notwithstanding the provisions of any notice appearing on the application, the Government shall have the right to use, duplicate, disclose and have others do so for any purpose whatsoever the technical data not identified in the above blanks contained in the application upon which this award is based.

6. Prior Approval

The following actions or costs specified in the application require prior approval of DOE and are specifically disapproved in accordance with General Condition No. 3:

None

7. General Procurement Prior Approval

Article 17 of the General Terms and Conditions for Research Grants is hereby revoked. The Grantee must receive prior approval from DOE before entering into any sole source contract or a contract where only one bid or proposal is received, when the value of the contract in the aggregate is expected to exceed \$25,000.

8. Patent Clauses

The following patent clauses and technical data requirements are applicable to this grant award:

600.118(b)(2) "Patent Rights (Short Form)"

600.118(b)(3) "Rights in Technical Data (Short Form)"

600.118(b)(5) "Authorization and Consent"

600.118(b)(6) "Notice and Assistance"

600.118(c) "Reporting of Royalties"

9. Title to Equipment

a. Title to the following items of equipment shall vest with the Grantee upon completion of this grant:

None

b. Title to the following items of equipment shall vest with the Government at the end of the grant project period:

None

10. Audit Requirements

In addition to the terms and conditions identified in blocks 18.b. and 18.c. of the Notice of Financial Assistance Award and those attached to this award, if any, the recipient shall comply with the audit requirements contained in the DOE Financial Assistance Rules, 10 CFR 600, Subpart D, Audits of State and Local Governments.

- General Terms and Conditions for Research Grants

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General Terms and Conditions for Research Grants

1. Explanation

These general terms and conditions do not restate all the provisions of applicable statutes and regulations nor do they represent an exhaustive listing of all requirements applicable to this grant. Rather they highlight and are consistent with those requirements which are especially pertinent to research grants in general. They are being emphasized by inclusion here either because they are invoked with high frequency, their violation is a matter of especially serious concern (e.g., use of human subjects), and/or they have been restated in the research context to be more easily understood by the research community.

In addition to these general terms and conditions, the grantee must comply with all governing requirements, including those identified in Block 18 of the Notice of Financial Assistance Award and those included in the Special Terms and Conditions attached to this grant award.

2. Grantee Adherence to Grant Terms and Conditions

The grantee's signature on the application and on the Notice of Financial Assistance Award signifies the grantee's agreement to the terms and conditions of award. Should the grantee believe modification of any of the terms and conditions of this award is necessary, an authorized official of the grantee organization or, in the case of an individual, the grantee, must submit a written request on its own behalf or on behalf of any subgrant recipient or applicant to the Contracting Officer named on the face page of this award.

Following this procedure is very important because many of the terms and conditions of this grant are required by statute and must be enforced by the Department of Energy.

3. Definitions

Principal Investigator

As used herein, the scientist or other programmatic expert named in Block 8 of the Notice of Financial Assistance Award designated by the grantee organization to direct the scientific/technical efforts being supported (also called program director or project director/leader).

Prior Approval

A statement in writing, signed by the DOE Contracting Officer, that a cost may be incurred or an action may be taken. The approval may take the form of a letter or of a revision to the grant. If actions or

costs requiring prior approval are specified in the application and are not expressly disapproved by DOE in the attached Special Terms and Conditions, the award of the grant constitutes such prior approval.

4. Authorized Grantee Signatures for Prior Approval Requests

All requests for prior approval must be signed by an individual who is authorized to act for the grantee organization. The signature of the Principal Investigator (unless also a corporate officer or otherwise authorized) is insufficient to obtain action on a prior approval request, although countersignature by the Principal Investigator is not discouraged. Requests for budget revisions shall be made on the same budget format as used in applying for this grant and must be supported by a narrative justification. Other prior approval requests may be made by letter. Prior approval requests should be addressed to the Contracting Officer named on the face page of this award.

5. Allowable Costs/Applicable Cost Principles

In accordance with the applicable cost principles cited below and up to the amount shown on the face page of this award for the total approved budget for the current budget period (line 16.a.(6)), the allowable costs of this grant shall consist of the actual allowable direct costs incident to performance of this project plus the allocable portion of the allowable indirect costs, if any, of the organization less applicable credits.

The allowability of costs for work performed under this grant and any subsequent subaward will be determined in accordance with the Federal cost principles applicable to the grantee or subrecipient in effect on the date of award or, for any subaward, in effect as of the date of that subaward, except as modified by other provisions of this grant or the subaward.

The Federal cost principles applicable to specific types of grantees and subrecipients are:

1. Institutions of Higher Education. OMB Circular A-21, Cost Principles Applicable to Grants, Contracts and Other Agreements with Institutions of Higher Education, is applicable to both public and private colleges and universities.
2. State and local governments and Indian tribal governments. OMB Circular A-87, Cost Principles Applicable to Grants, Contracts and other Agreements With State and Local Governments, is applicable to state, local, and Indian tribal governments (and shall also be used to the extent appropriate for foreign governments).

3. Hospitals. 48 CFR Part 74, Appendix E, Principles for Determining Costs Applicable to Research and Development under Grants and Contracts with Hospitals, applies to nonprofit and for-profit hospitals.
 4. Other nonprofit organizations and individuals. OMB Circular A-122, Cost Principles Applicable to Grants, Contracts, and other Agreements with Nonprofit Organizations, applies to nonprofit organizations and individuals except for nonprofits specifically exempted by the terms of the circular or those nonprofits covered by the cost principles cited in items 1.- 3. above.
 5. Commercial firms and certain nonprofit organizations. 48 CFR Subpart 31.2, Contracts with Commercial Organizations, as supplemented by 48 CFR Subpart 931.2, applies to those nonprofit organizations not covered by OMB Circular A-122, as specified by the terms of that circular, and to all commercial organizations other than those covered by the cost principles in item 3. above.
6. Payment

Payments under this award will be made by an advance payment method unless DOE determines that the grantee's financial management system does not meet the requirements of 10 CFR 600.109 or the grantee has not maintained, or demonstrated the willingness and ability to maintain, procedures that will minimize the time elapsing between transfer of funds from the U.S. Treasury and their disbursement for grant-related purposes.

The appropriate advance payment method or the reimbursement method and the cognizant finance office are specified in the attached Special Terms and Conditions.

Advances by the grantee to subgrantee and contractor organizations must conform substantially to the same standards of timing and amount that govern advances made by the Federal Government to the grantee. Excess cash advances erroneously withdrawn from the U.S. Treasury shall be promptly refunded to DOE unless the funds will be disbursed within seven calendar days or the amount is less than \$10,000 and will be disbursed within 30 calendar days.

Interest earned on advance payments to other than state governments or their subgrantees shall be reported on the Report of Federal Cash Transactions (SF-272) and promptly remitted to the cognizant finance office (unless otherwise specified in the attached Special Terms and Conditions) by check payable to the Department of Energy.

7. Preaward Costs

Costs incurred prior to the beginning date of a new or renewal award are allowable only if they were approved in writing, prior to incurrence, by a DOE Contracting Officer. (Note - this provision does not apply to such bid and proposal costs as may be recovered through an indirect cost rate negotiated in accordance with the applicable Federal cost principles.)

8. Reporting Requirements

Attached to this grant award is EIA-459A, a checklist of the reports required under this grant.

The grantee shall submit a technical progress report (also called a performance report) as part of any application for continuation or renewal of DOE grant support. This report shall be in lieu of a separate annual performance report. Upon completion or termination of the project, the final technical report shall be prepared in accordance with the applicable program rule cited on the face page of this award or, in the absence of such program rule coverage, with the technical reporting format specified in the Uniform Reporting System for Federal Assistance (Grants and Cooperative Agreements) (DOE/MA-001).

The grantee shall submit an annual Financial Status Report (SF-269) within 90 days after the close of the budget period shown on the face page of this award. The grantee shall submit a final Financial Status Report within 90 days after the completion or termination of the project period shown on the face page of this award unless the project period is extended. In the latter case, the report for the last budget period of the existing project period shall be considered an annual report.

Instructions concerning reports to be submitted in conjunction with payment under this award are specified in the attached Special Terms and Conditions.

9. Cost-Sharing

Any cost-sharing as shown on the face page of this award shall defray allowable costs of the project only. Allowability of such costs shall be determined in accordance with the statutes, regulations, applicable cost principles, and other terms and conditions governing this award.

Cost-sharing contributions may be in the form of direct or indirect costs, including cash or in-kind contributions, incurred by the grantee, its subgrantees, or contractors. The cost sharing may be in any allowable budget category or combination of categories. When a direct cost item represents some or all of the non-Federal contribution, any associated indirect costs may not be charged to Federal funds but may be

counted as part of the cost-sharing. The treatment of a contributed cost as direct or indirect must be consistent with the classification of similar items charged to DOE funds.

Valuation of in-kind contributions and documentation of cost-sharing shall be in accordance with 10 CFR 600.107.

10. Continuations, Renewals, and Extensions

Grantees are responsible for assuring that properly completed applications for continuation awards are received no later than 4 months prior to the expiration date of the current budget period shown on the Notice of Financial Assistance Award.

If a grantee wishes to apply for a renewal award in order to receive funding beyond the scheduled expiration of the existing project period, a properly completed application must be submitted to DOE no later than four months prior to the scheduled expiration date of the project period as shown on the Notice of Financial Assistance Award.

Grantee requests for extensions (modifications extending an existing project period by 18 months or less in order to complete a project) must be submitted prior to the expiration date of the project period as shown on the face page of this award, and must include a budget for the use of any remaining funds or any additional funds requested. Any request for an extension, which includes a request for additional funds and any request for an extension of more than 90 days, should be submitted to DOE no later than four months prior to the scheduled expiration date of the project period.

11. Maximum DOE Obligation

This grant is subject to the requirement that the maximum DOE obligation to the recipient is the amount shown on the Notice of Financial Assistance Award as the amount of DOE funds obligated. DOE shall not be obligated to make any additional, supplemental, continuation, renewal or other award for the same or any other purpose.

12. Transfers of Funds Between Grants

Transfers of funds between DOE grants, and transfers of funds from a DOE grant to a project (or portion of a project) not supported by that grant require the prior approval of DOE. Transfer of funds into a DOE grant-supported project from a grant awarded by another Federal agency does not require DOE prior approval but may, of course, require the approval of the other Federal agency. Funds so transferred from the grant of another Federal agency may not be used to satisfy any cost-sharing requirement on a DOE grant.

13. Property

Real and Tangible Personal Property

No real property may be acquired under this award.

Title to any equipment (an article of tangible personal property that has a useful life of more than 2 years and an acquisition cost of \$500 or more) or supplies acquired by a nonprofit institution of higher education or a nonprofit organization whose primary purpose is the conduct of scientific research shall vest in the grantee and such equipment shall be exempt from accountability except that DOE has the right to transfer ownership of any item of equipment having a unit acquisition cost of \$1,000 or more under the conditions specified in 10 CFR 600.117(d)(2). This exemption is derived from Public Law 95-224. The Federal Grant and Cooperative Agreement Act of 1977, as amended.

Title to equipment and supplies acquired by all other grantees shall vest in the grantee. However, such grantees shall be accountable for equipment with a unit acquisition cost of \$1,000 or more acquired under this grant as specified in 10 CFR 600.117(d)(2), (3) and (4). For such grantees, supplies need only be accounted for at closeout and then only if they are unused and exceed \$1,000 in total aggregate current fair market value. In this case accountability requires that DOE be compensated in an amount computed in accordance with Section 600.117(e) if the supplies are retained for use on non-Federal activities.

All grantees shall follow property management policies and procedures which provide for adequate control of the acquisition and use of assets acquired under the grant.

Intangible Property

Treatment, including reporting, of patent and data rights and copyrights shall be as specified in the Special Terms and Conditions of this grant.

14. Change or Absence of the Principal Investigator or Designated Key Personnel

Since the DOE decision to fund a project is based, to a significant extent, on the qualifications and level of participation of the Principal Investigator, a change of Principal Investigator or of the level of effort of the Principal Investigator is considered a change in the approved project. The approval of DOE must be obtained prior to any change of the Principal Investigator or, in certain cases, other key personnel who have been identified as key personnel in the Special Terms and Conditions of this grant. In addition, any continuous absence of the Principal Investigator in excess of three months or plans for the

Principal Investigator to become substantially less involved in the project than was indicated in the approved grant application requires DOE prior approval. Grantee is encouraged to contact DOE immediately upon becoming aware that any of these changes are likely to be proposed, but in any event must do so and receive DOE prior approval before effecting any such change.

15. Changes in Objectives or Scope

Any change in the objectives or scope of a grant-supported project requires the prior approval of DOE. Such changes include changes in the phenomenon or phenomena under study and in the methodology or experiment if they are a specific objective of the research work as stated in the application approved by DOE.

16. Transfer of Substantive Programmatic Effort

None of the substantive effort of this project may be transferred by contract or subgrant to another organization or person without the prior approval of DOE. This provision does not apply to the procurement of equipment, supplies, materials, or general support services which may, however, be subject to other prior approval requirements as found, for example, in the applicable cost principles or procurement standards.

17. General Procurement Prior Approval Requirements

A grantee must receive prior approval from DOE before entering into any sole source contract or a contract where only one bid or proposal is received when the value of the contract in the aggregate is expected to exceed 1) \$10,000 and the grantee is a state, local, or Indian tribal government or 2) \$5,000 for all other grantees.

18. Equipment and Other Capital Expenditures

Expenditures for equipment and other capital assets having a unit acquisition cost of \$500 or more require the prior approval of DOE with one exception. For special purpose equipment, prior approval is required only when the unit acquisition cost is \$1,000 or more. (Special purpose equipment means equipment which is used only for research, medical, scientific, or other technical activities.)

19. Travel

Foreign Travel - DOE prior approval is required for each separate foreign trip. Foreign travel must be directly related to the project objectives. Foreign travel is any travel outside Canada and the United States and its territories and possessions or, for grantees located in another country, travel outside that country.

Domestic Travel - Such costs are allowable to the extent provided in the approved budget. In addition, grantees may exceed the approved budget amount for domestic travel by up to 25% or \$500 whichever is greater, without DOE prior approval. All other expenditures for domestic travel beyond these limits require prior approval.

20. Consultant Services

Costs of consultant services are allowable subject to satisfaction of the requirements of the applicable cost principles, including the requirement that the consultant not be an employee of the grantee organization. There is one exception to the requirement that the consultant not be an employee of the grantee organization which applies to colleges and universities only. For colleges and universities, in unusual cases, and only with the prior approval of DOE, intra-organizational consultation may be permitted where consultation is across departmental lines or involves a separate or remote operation.

21. Paperwork Reduction

This award is subject to the requirements of the Paperwork Reduction Act of 1980 as implemented by the Office of Management and Budget rules, "Controlling Paperwork Burdens on the Public," published at 5 CFR 1320 (48 FR 13666, 3/31/83) if the grantee will collect information from ten or more respondents either:

- A. At the specific request of DOE, or
- B. If the award requires specific DOE approval of the information collection or the collection procedures.

Any proposed sponsored information collection under item 21 B. above shall be submitted by the grantee to the Contracting Officer named on the face page of this award at least 90 days prior to the intended date of information collection. DOE will seek the requisite approval from the Office of Management and Budget and will promptly notify the grantee of the disposition of the request.

22. Generally Applicable Requirements

In accordance with 10 CFR 600.12, this grant is subject to a number of statutory and other generally applicable requirements. Those requirements most pertinent to research projects are highlighted below:

Animal Welfare

Any grantee performing research on warm-blooded animals shall comply with the Laboratory Animal Welfare Act of 1966 (Public Law 89-544, as amended)

and the regulations promulgated thereunder by the Secretary of Agriculture at 9 CFR Chapter 1, Subchapter A, pertaining to the care, handling, and treatment of warm-blooded animals held or used for research, teaching, or other activities supported by Federal awards. The grantee is expected to ensure that the guidelines described in Department of Health and Human Services (DHHS) Publication No. [NIH] 78-23, "Guide for the Care and Use of Laboratory Animals," are followed (Copies are available from the Superintendent of Documents, Government Printing Office, Washington, DC 20024, Stock No. 017-040-00427-3).

Research Involving Recombinant DNA Molecules

Any grantee performing research involving recombinant DNA molecules and/or organisms and viruses containing recombinant DNA molecules agrees by acceptance of this grant to comply with the National Institutes of Health "Guidelines for Research Involving Recombinant DNA Molecules," June 1983 (48 FR 24556) or such later revision of those guidelines as may be published in the Federal Register.

Use of Human Subjects in Research, Development, and Related Activities

Any DOE grantee performing research, development, or related activities involving any use of human subjects must comply with DOE regulations found at 10 CFR Part 74S "Protection of Human Subjects" and any additional Provisions which may be included in the Special Terms and Conditions of this grant. Such provisions are intended to safeguard the rights and welfare of human subjects at risk of possible physical, psychological, or social injury as a consequence of their participation.

23. Nondiscrimination

This grant is subject to the provisions of 10 CFR Part 1040 "Nondiscrimination in Federally Assisted Programs."

24. Public Access to Information

The Freedom of Information Act, as amended, and the DOE implementing regulations (10 CFR Part 1004) require the release by DOE of certain documents and records regarding grants upon written request by any member of the public. The intended use of the information will not be a criterion for release. These requirements apply to information held by DOE, and do not require grantees, their subgrantees, or their contractors to permit public access to their records.

Records maintained by DOE with respect to grants are subject to the provisions of the Privacy Act and the DOE implementing regulations (10 CFR Part 1008) if those records constitute a "system of records" as defined in the Act and the regulations. Generally, records maintained by grantees, their subgrantees, or their contractors are not subject to these requirements.

25. Acknowledgement of Support

Publication of the results of this grant, subject to any applicable restrictions in 10 CFR 600.118 ("Patents, data, and copyrights"), is encouraged. Any article which is published shall include an acknowledgement that the research was supported, in whole or in part, by a DOE grant (including the grant number), but that such support does not constitute an endorsement by DOE of the views expressed in the article.

26. National Security

It is not expected that activities under this grant will generate or otherwise involve classified information (i.e., Restricted Data, Formerly Restricted Data, National Security Information).

However, if in the opinion of the grantee or DOE such involvement becomes expected prior to the closeout of the grant, the grantee or DOE shall notify the other in writing immediately. If the grantee believes any information developed or acquired may be classifiable, the grantee shall not provide the potentially classifiable information to anyone, including the DOE officials with whom the grantee normally communicates, except the Director of Classification, and shall protect such information as if it were classified until notified by DOE that a determination has been made that it does not require such handling. Correspondence which includes the specific information in question shall be sent by registered mail to U.S. Department of Energy, Attn: Director of Classification, DP-32, Washington, DC 20545. If the information is determined to be classified the grantee may wish to discontinue the project, in which case the grantee and DOE shall terminate the grant by mutual agreement. If the grant is to be terminated, all material deemed by DOE to be classified shall be forwarded to DOE, in a manner specified by DOE, for proper disposition. If the grantee and DOE wish to continue the grant, even though classified information is involved, the grantee shall be required to obtain both personnel and facility security clearances through the Office of Safeguards and Security. Costs associated with handling and protecting any such classified information shall be negotiated at the time the determination to proceed is made.

27. Liabilities and Losses

DOE assumes no liability with respect to any damages or loss arising out of any activities undertaken with the financial support of this grant.

28. Contracting Officer's Technical Representative (COTR)

The individual identified in Block 11. of the Notice of Financial Assistance Award as the DOE Project Officer is the Contracting Officer's Technical Representative (COTR). The COTR is responsible for 1) monitoring the research efforts being conducted by the Grantee under

the scope of this award; 2) advising the Contracting Officer on technical matters related to administration of the grant, including progress and status of the Grantee's research; and 3) providing technical advice and guidance to the Grantee in order to assist both the research efforts of the Grantee and the Grantee's adherence to the grant terms and conditions.

The COTR does not have the authority to:

Cause an increase or decrease in the total estimated cost of, or the time required for, the research effort being supported;

Cause any change in the express terms and conditions of the grant;

Cause any change in the objectives or scope of the effort being supported;

Act in the capacity of the Contracting Officer by issuing any approval or disapproval required by the terms and conditions of the grant;

Interfere with the Grantee's right to perform under the terms and conditions of the grant.

29. Interest

(a) Notwithstanding any other term or conditions of this grant, all amounts that become payable by the recipient to the Government under this grant shall bear simple interest from the date due until paid unless paid within 30 days of becoming due. The interest rate shall be the interest rate established by the Secretary of Treasury (Secretary) as provided in Section 11 of the Debt Collection Act of 1982 (31 U.S.C. 3717), which is applicable to the period in which the amount becomes due, as provided in paragraph (b) of this provision, and then at the rate applicable for each three-month period as fixed by the Secretary until the amount is paid.

(b) Amounts shall be due at the earliest of the following dates:

(1) The date fixed under this grant.

(2) The date of the first written demand for payment consistent with this grant, including any demand resulting from a termination.

(3) The date the Government transmits to the recipient a proposed agreement to confirm completed negotiations establishing the amount of debt.

(c) The interest charge made under this provision may be reduced in accordance with the procedures prescribed in 4 CFR 102.13 or in accordance with agency regulations in effect on the date of original award of this grant.

STATEMENT OF WORK

1.0 INTRODUCTION

The goal of this grant is to support cost-shared geothermal resource assessment at the Newcastle geothermal area in Iron County, Utah. Thermal water was discovered in the Newcastle area in 1975 during test pumping of an irrigation well. Since then limited studies have been conducted in the area but a systematic evaluation of the resource has not been completed. Newcastle may be just one of a large number of hydrothermal systems within the Basin and Range province that are "blind systems" which have no noticeable surface expression. The objectives of this resource assessment study are to complete a detailed evaluation of the Newcastle geothermal resource area using an integrated program of geological, geophysical, and geochemical studies, and to contribute to the development of an exploration methodology for the discovery and evaluation of other Basin and Range blind hydrothermal systems.

2.0 SCOPE

A multi-disciplinary study of the Newcastle geothermal area will be completed with the broad objective of constructing a refined, conceptual geologic model of the resource. These studies will include: the mapping of Quaternary structure and stratigraphy; geologic mapping of bedrock in adjacent hills; acquisition and analysis of detailed gravity and magnetic data; a geochemical study including a soil mercury survey and water analyses; acquisition of geologic and temperature data from an existing well; and thermal gradient mapping within a number of shallow test holes. The various data will be interpreted and integrated to develop a conceptual, geological model for the Newcastle system. The applicability of the various methods for the evaluation of other blind geothermal resources will be evaluated. All tasks will be completed in a 14 month period.

3.0 APPLICABLE DOCUMENTS

The research described herein is abstracted from a proposal titled "Geothermal Resource Assessment at Newcastle, Iron County, Utah," dated June 19, 1987, as revised on October 21, 1987, and March 7, 1988. This proposal was submitted by the Utah Geological and Mineral Survey in response to DOE/ID Program Research and Development Announcement - PRDA No. DE-PRO7-87ID12662.

4.0 TECHNICAL TASKS

The following tasks will be accomplished under this grant.

- 4.1 Complete a comprehensive examination and compilation of all available background data for the Newcastle resource area. These

data will be obtained from State regulatory agencies and published sources, and from private companies that have performed exploration in the area (to the extent that such data may be released).

- 4.2 Study Quaternary deposits in the study area to determine stratigraphic and structural controls to the hydrothermal system. Map Quaternary fault scarps and surficial deposits using air-photo interpretation and field studies.
- 4.3 Compile existing bedrock geologic data and supplement with additional field work to verify structural relationships in complex fault intersection zones. Prepare a geologic map at a scale of 1:24,000 suitable for the interpretation and integration of other project data.
- 4.4 The results from the previously completed project which involved acquiring ground based gravity data to supplement existing gravity data will be incorporated into the final report. This project included obtaining ground magnetic data to supplement aeromagnetic data for the area which will be acquired from a private source; and determining station locations, station elevations and complete data reduction.
- 4.5 Complete a soil mercury geochemical survey across the area of the Newcastle thermal anomaly. The survey will include approximately 200 soil samples taken on a grid of the order of approximately 1,000 by 1,000 feet covering an area of about eight square miles. Collect water samples from available wells and analyze the samples for total dissolved solids (TDS), SO_4 , Cl, F, pH, and alkalinity. Prepare tri-linear plots and determine reservoir equilibration temperature by geothermometry. Obtain samples for oxygen and hydrogen isotope determinations and perform these analyses.
- 4.6 Develop a lithologic log and generalized temperature profile using well data obtained from Union Geothermal Corporation. The profile and log will be constructed to a depth of at least 1,000 ft.
- 4.7 Perform temperature monitoring of multiple, shallow temperature gradient test holes. The program will consist of drilling, using light, portable equipment, 20 to 40 shallow (less than 50 ft) test holes and completing the holes for temperature gradient profiling. Monitoring will be performed over an approximate six-month period following completion of test hole drilling. Computer-aided modeling of thermal gradient data will be performed using other geological and geophysical data to help generate a conceptual geo-hydrologic model of the hydrothermal system at Newcastle.
- 4.8 Obtain additional close-spaced gravity data points as needed to supplement studies performed as part of the technical task described

in paragraph 4.4. Combine all the data in reduced format to be used within the context of presenting a conceptual model.

- 4.9 Compile and evaluate all data sets. Complete an integrated interpretation of all data to arrive at a refined conceptual model of the hydrothermal system. Evaluate the utility of the techniques used as a methodology for the exploration of other blind Basin and Range hydrothermal systems.

5.0 REPORTS, DATA, AND OTHER DELIVERABLES

5.1 Management Records

Reports will be due as indicated on the Federal Assistance Reporting Checklist and the Report Distribution List.

5.2 Final Report

A detailed final technical report will be prepared which will describe all new geological, geochemical and geophysical data. Data reduction methods and computer algorithms used will be described in the text and significant new data will be included as data tables, maps, and illustrations. A geologic map of the Newcastle area will accompany the text. A draft final report will be submitted to DOE/ID for review and comment not less than 45 days prior to the scheduled deliver of the final report.

6.0 SPECIAL CONSIDERATIONS

The University of Utah faculty and students performed the gravity and magnetic field studies, Task 4.4, at no cost to this project. The resulting data from this task will be incorporated into the final report.

REPORT DISTRIBUTION LIST

Grant No. DE-FG07-88ID12756

Report/Plan	Form No.	Frequency	No. of Copies	Address
Federal Assistance Management Summary Report	EIA-459E	Q	1,1,1,1,1	a,b,c,d,e
Notice of Energy RD&D	DOE 538	O	1,1	a,f
Technical Progress Report	N/A	Q	1,1,1,1	a,b,d,e
Topical Report	N/A	A	1,4,1,1	a,b,d,e
Final Technical Report	N/A	F	1,4,1,1	a,b,d,e
Financial Status Report	SF 269	F	1,1,1	a,b,c

LIST OF ADDRESSEES

a. U.S. Department of Energy 785 DOE Place Idaho Falls, ID 83402 Attn: Trudy A. Thorne	f. U.S. Department of Energy Technical Information Center P.O. Box 62 Oak Ridge, TN 37830
b. Same as above Attn: Kenneth J. Taylor	
c. Same as above. Attn: Earl Jones	
d. U.S. Department of Energy Forrestal Bldg., CE-342 1000 Independence Ave, SW Washington, DC 20585 Attn: Marshall Reed	
e. University of Utah Research Institute Earth Science Laboratory 391 Chipeta Way, Suite C Salt Lake City, UT 84108-1295 Attn: Howard Ross	

U.S. DEPARTMENT OF ENERGY Part V - Reporting Requirements
FEDERAL ASSISTANCE REPORTING CHECKLIST

FORM EIA-459A
 (10-80)

FORM APPROVED
 OMB NO 1900-0127

1. Identification Number: DE-FG07-88ID12756	2. Program/Project Title: Geothermal Resource Assessment at Newcastle		
3. Recipient: State of Utah, Natural Resources			
4. Reporting Requirements:	Frequency	No. of Copies	Addressees
PROGRAM/PROJECT MANAGEMENT REPORTING			
<input type="checkbox"/> Federal Assistance Milestone Plan			
<input type="checkbox"/> Federal Assistance Budget Information Form			
<input checked="" type="checkbox"/> Federal Assistance Management Summary Report	Q	1,1,1,1,1	a,b,c,d,e
<input type="checkbox"/> Federal Assistance Program/Project Status Report			
<input checked="" type="checkbox"/> Financial Status Report, OMB Form 269	F	1,1,1	a,b,c
TECHNICAL INFORMATION REPORTING			
<input checked="" type="checkbox"/> Notice of Energy RD&D	O	1,1	a,f
<input checked="" type="checkbox"/> Technical Progress Report	Q	1,1,1,1	a,b,d,e
<input checked="" type="checkbox"/> Topical Report	A	1,4*,1,1	a,b*,d,e
<input checked="" type="checkbox"/> Final Technical Report	F	1,4*,1,1	a,b*,d,e
FREQUENCY CODES AND DUE DATES: A - As Necessary; within 5 calendar days after events. F - Final; 90 calendar days after the performance of the effort ends. O - Quarterly; within 30 days after end of calendar quarter or portion thereof. One time after project starts; within 30 days after award. X - Required with proposals or with the application or with significant planning changes. Y - Yearly; 30 days after the end of program year. (Financial Status Reports 90 days). S - Semiannually; within 30 days after end of program fiscal half year.			
5. Special Instructions: *3 copies plus a camera-ready copy			
6. Prepared by: (Signature and Date) <i>Kim J. Miller</i> 2-4-88	7. Reviewed by: (Signature and Date) <i>Stanley Moore</i> 2/10/88		



State of Utah
DEPARTMENT OF NATURAL RESOURCES
UTAH GEOLOGICAL AND MINERAL SURVEY

Norman H. Bangerter
Governor
Dee C. Hansen
Executive Director
M. Lee Allison
State Geologist

606 Black Hawk Way
Salt Lake City, Utah 84108-1280
801-581-6831

January 8, 1990

Mr. Kenny Osborne
Contracts Management Division
U.S. Department of Energy
785 DOE Place
Idaho Falls, Idaho 83402

RE: Grant NO. DE-FG07-88ID12756; Request for No-cost Time Extension.

Dear Mr. Osborne:

With regard to our recent request for a no-cost time extension (letter dated 12 Dec. 89) to complete work on our geothermal project at Newcastle, Utah, it has come to our attention that this request was of a somewhat untimely nature. Because of delays in processing data from our geothermal studies, we initially had requested an extension of the contract period from the 1 November 89 due date to 31 March 90. We requested an extension of time in order to complete computer modeling of hydrologic and resistivity data, and other forms of data reduction, and to compile a final document. We recently discovered that a request for a retroactive extension must be received 30 days prior to the end of the existing contract period, and because of this, our request was inappropriately timed.

We are therefore requesting a deviation from this restriction so that you may grant us a "one time" extension of the contract due date as indicated in our 12 December letter. We fully understand that this would be a one time exception to DOE contracting procedures. To recap, we feel the earliest date that we may have a draft report for DOE review would be February 1, 1989. Allowing 45 days for DOE review and a couple of weeks for wrap-up into a camera-ready copy would place delivery of the final report near March 31, 1989.

Thank you very much for your understanding and consideration.

Sincerely,

Robert E. Blackett
Geologist

copies: Howard Ross, ESL/UURI

an equal opportunity employer
Bob Cloyn, Werner Haidenthaler UGMS



DEPARTMENT OF NATURAL RESOURCES
UTAH GEOLOGICAL AND MINERAL SURVEY

Norman H. Bangerter
Governor

Dee C. Hansen
Executive Director

Genevieve Atwood
State Geologist

606 Black Hawk Way
Salt Lake City, Utah 84108-1280
801-581-6831

Rec
10/27/89

October 25, 1985

Mr. Ken Taylor
U.S. Department of Energy
Idaho Operations Office
785 DOE Place
Idaho Falls, Idaho 83402

RE: U.S. Department of Energy Geothermal Research Grant NO.
DE-FG07-88ID12756; Request for No-cost Time Extension.

Dear Ken:

Due to delays in processing data from our geothermal studies at Newcastle, Utah and other unforeseen obligations, we are unable to provide you with a final technical report by the current contract deadline (November 1, 1989). We are therefore requesting an extension of time in order to complete, among other things, computer modeling of hydrologic and resistivity data, and compiling a final document. We also understand DOE's need to have ample time for reviewing our work.

I feel the earliest date that we may have a draft report for DOE review would be December 1, 1989. Allowing 45 days for DOE review and a couple of weeks for wrap-up into a camera-ready copy would place delivery of the final report near January 31, 1989: 90

Please let me know if this time-frame is workable for you. We regret having to make this request, but given the additional data gathered (beyond the work scope of the project) this last summer and the lack of time to reduce the new information, we see no other alternative.

I have also enclosed a progress report on the project, for your review, to cover the period from July 1, 1989 to October 1, 1989.

Sincerely,

Robert E. Blackett
Geologist

REB/

copies: Howard Ross, ESL/UURI
Bob Gloyn, Werner Haidenthaller UGMS

Rec
10/22/89

**GEOHERMAL RESOURCE ASSESSMENT AT NEWCASTLE,
IRON COUNTY, UTAH**

Report for the Period: July 1, 1989 through September 30, 1989

Prepared for: U.S. Department of Energy, Geothermal Technology
Division

Grant Number: DE-FG07-88ID12756

Prepared by: Utah Department of Natural Resources
Geological and Mineral Survey

Date: October 25, 1989

INTRODUCTION

The Utah Geological and Mineral Survey (UGMS) began, during the month of June 1988, an investigation of a moderate temperature hydrothermal system near the town of Newcastle in southwestern Utah. The work is supported in large part by a research grant from the U.S. Department of Energy and is a cooperative effort with the University of Utah, Department of Geology and Geophysics.

The project involves an integrated program of geology, geochemistry, and geophysics that includes the following field activities: 1) mapping of Quaternary surficial units and structures; 2) mapping of bedrock geology in the adjacent mountain range; 3) performing ground-based gravity surveys; 4) obtaining water samples for analyses of dissolved constituents and obtaining soil samples for determination of mercury content; and 5) drilling and completing a number of shallow, temperature gradient monitoring holes, and monitoring their temperature profiles over a period of several months. Later additions to the project include an electrical resistivity survey (performed by the Earth Science Laboratory, University of Utah Research Institute) and a radon study.

This report is the fifth technical progress report covering the period from July 1, 1989 through September 30, 1989. The first report (June 1 through Sept. 30, 1988) described work related to thermal gradient drilling and temperature profiling, and geologic mapping. The second report (October 1 through December 31, 1988) described a detailed gravity survey done at the project site, a second round of temperature profiling, and the results of water sampling and testing. The third report (January 1 through March 31, 1989) described the results of a third set of temperature profiles from the drill holes, and results of isotopic analyses on water samples. The fourth report (April 1, 1989 through June 30, 1989) discussed activities related to a fourth set of temperature profiles in the gradient holes, and included a copy of a paper submitted to the Geothermal Resources Council for publication.

PROJECT PLAN

The project is broken into several tasks briefly summarized as follows:

Task 1. Compile all available background information on the Newcastle geothermal area.

Task 2. Study and map the Quaternary deposits in the area to help determine possible stratigraphic and structural controls to the movement of geothermal fluid.

Task 3. Compile existing bedrock geologic data and supplement with additional field geologic mapping to verify structural relationships along complex fault zones.

Task 4. Incorporate the results of previously completed ground based gravity and magnetic studies.

Task 5. Collect soil samples across the study area and analyze the samples for mercury content. Collect water samples from available wells for the determination of total dissolve solids, sulfate, chloride, fluoride, pH, and alkalinity. Collect water samples for determination of oxygen and hydrogen isotopic ratios.

Task 6. Develop a lithologic log and temperature profile from a deep geothermal exploration well drilled by Unocal Geothermal Division.

Task 7. Drill and complete multiple, shallow, temperature gradient test holes. Monitor the temperature profiles in the test holes over a period of several months and use computer-aided techniques to model the hydrothermal system.

Task 8. Obtain additional close-spaced gravity data points as needed to supplement gravity studies already performed (Task 4). Combine and reduce all gravity data for use in developing a conceptual model.

Task 9. Compile and evaluate all data sets, and develop a conceptual geo-hydrologic model of the system.

SUMMARY OF WORK COMPLETED

Task 1 -- Background Data Compilation

No work was done on this project task during this reporting period. This project task was completed during the first reporting period.

Task 2 -- Quaternary Geologic Mapping

No work was done on this task during this reporting period. This task was completed during the first reporting period.

Task 3 -- Bedrock Geologic Mapping

The field portion of this task was completed during the first reporting period.

Task 4 -- Detailed Gravity and Magnetic Studies

During this reporting period, Dr. C.M. Schlinger submitted a final report to the UGMS on gravity and magnetic studies at Newcastle. The report describes all field work completed on the project, the results of numerical analyses, and proposes a simplified model for subsurface structure. Dr. Schlinger's report will be incorporated into the final project report.

Task 5 -- Water Analyses and Soil-Mercury Survey

During this reporting period, two additional sets of water samples were collected and sent to the lab for analysis.

Task 6 -- Temperature Profile and Lithologic Log of Unocal Well

The well log composite was completed during an earlier reporting period. We will include the composite well log as part of the final project report.

Task 7 -- Temperature Gradient Monitoring

No additional temperature profiling was performed during this period.

Task 8 -- Additional Detailed Gravity Data Points

This project task was completed during the second reporting period.

Task 9 -- Evaluate Data, Geo-hydrologic Model, and Final Report

Dr. Craig B. Forster of the University of Utah, Department of Geology and Geophysics, continued work toward modeling the hydrology and thermal regime of the Newcastle geothermal system. Dr. Forster will constrain the model using the results of the thermal studies, gravity surveys, and electrical resistivity survey.

Also during this reporting period, 50 radon detectors (alpha radiation detectors) were placed in 2-ft deep holes across the area of suspected up-flow. The detectors were left in place for a period of five weeks, retrieved, and sent to a commercial laboratory (Tech/Ops Landauer) for alpha track analyses. The results were received and will be included as part of the final report.

6200955

UNIVERSITY OF UTAH RESEARCH INSTITUTE

UURI

391 CHIPETA WAY, SUITE C
SALT LAKE CITY, UTAH 84108-1295
TELEPHONE 801-524-3422

December 19, 1989

Kenneth J. Taylor
U S DOE, Idaho Operations Office
785 DOE Place
Idaho Falls, Idaho 83402

Dear Ken:

Transmitted herewith are four copies of the Washington-Department of Natural Resources final report "Results of the 1988 Geothermal Gradient Test Drilling Project for the State of Washington" by Barnett and Korosec. I have replaced four pages (Disclaimer; pg. 8, 35, 36) with corrected pages provided by Mike Korosec so these may now be accepted as final deliverables.

Also enclosed are five copies of pgs. 29, 30 for the other final report, "New K-Ar Dates, Geochemistry, and Stratigraphic Data for the Indian Heaven Quaternary Volcanic Field, South Cascade Range, Washington" by Michael Korosec. The correction to pg. 29 adds one reference (Pedersen, S. A., 1973) which was not included by WA-DNR in addressing the revisions we requested. Please replace pgs. 29, 30 in the reports you now have with the enclosed pages.

This completes the deliverables required for Grant DE-FG07-88ID12740. Reports can now be submitted for patent review (there does not appear to be any patentable information), and then to TIC. After this the grant may be closed out. Please call me if you have any questions regarding this information.

Sincerely,

Howard

Howard P. Ross
Project Manager

encl.

Geothermal Resource Exploration Target Area Defined by Division Drilling Projects

By Brent Barnett

and Michael Korosec

The Cascade Range of southern Washington, with its numerous Quaternary volcanic centers, tectonic setting, complex structure, easy access, and relatively favorable land ownership (outside of the parks and wilderness areas), represents Washington's best province for the exploration of high-temperature geothermal resources. Through a federal-state assessment program, the Washington Department of Natural Resources, Division of Geology and Earth Resources has conducted preliminary surveys of this Cascade province.

During the late summer and early fall of 1988, DGER completed drilling eight shallow geothermal gradient test wells in the southern Washington Cascade Range. The 1988 project was the sixth of its kind undertaken by DGER since 1975. Most of the funding for the 1988 and four of the earlier projects was provided by the U.S. Department of Energy, with subordinate cost sharing by the State of Washington. Forty-five holes have been drilled since 1975.

In the previous issue of the Washington Geologic Newsletter, preliminary results of the 1988 Geothermal Drilling Project were described. Final temperature gradient information is presented in Table 1, and preliminary heat flow values are given in Table 2. Terrain corrections have not been applied to the data. DGER Open File Report 89-2 (Barnett and Korosec, 1989a) has recently been released; it presents further details of the drilling operations, observations, and results. In addition, a summation of this and past geothermal drilling projects was presented at the Cordilleran Section meeting of the Geological Society of America in Spokane, May 9, 1989 (Barnett and Korosec, 1989b).

From the past and latest projects, we believe we have identified a large zone of high temperature gradients and high heat flow which can serve as a primary target of future explorations for high-temperature geothermal energy resources. When the best 1988 results are plotted with results from past projects, a concentration of gradients in excess of $50^{\circ}\text{C}/\text{km}$ forms a north-northeast-trending zone through the southern Washington Cascade Range (Fig. 1), extending from the Columbia River north to nearly the Naches River.

Within this zone, most temperature gradients range from 50° to $60^{\circ}\text{C}/\text{km}$, and five holes have produced gradients of 70 to $90^{\circ}\text{C}/\text{km}$. Most of the heat flow values from the zone range from 80 to 120 milli Watts per square meter (mW/m^2) with several values between 120 and $160 \text{ mW}/\text{m}^2$. Average gradients outside of the zone are typically 35 to $45^{\circ}\text{C}/\text{km}$, with heat flow values of 40 to $55 \text{ mW}/\text{m}^2$.

Many of the known hydrothermal systems within this zone are indicated by the occurrence of thermal and mineral springs. These hydrothermal systems are, in part, responsible for several of the high gradients. However, many of the highest gradients, those ranging from 70 to $90^{\circ}\text{C}/\text{km}$, have been measured in areas with no surface hydrothermal manifestations. The nature and extent of these geothermal systems are not known, but they are strongly suspected to be related to (a) the active volcanic arc, (b) plutonism associated with the volcanic arc, and (c) hydrothermal systems controlled by the plutonism and regional structure. Most of the Quaternary volcanic centers of the Cascade Range of Washington occur within the zone.

Large areas of the Cascade Range, both within and outside of the projected high-gradient area, have not yet been tested by shallow drilling. Future test drilling of these areas will be necessary to refine the areal bounds of this zone, but significant understanding of the nature and potential of this geothermal resource will only come about with deeper drilling.

REFERENCES CITED

- Barnett, D. B.; Korosec, M. A., 1989a, Results of the 1988 geothermal gradient test drilling project for the State of Washington; Washington Division of Geology and Earth Resources Open File Report 89-2, 54 p.
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WASHINGTON STATE DEPARTMENT OF
Natural Resources

BRIAN BOYLE
Commissioner of Public Lands

OLYMPIA, WA 98504-9

July 5, 1989

Howard Ross
U.U.R.I.
391 Chipeta Way, Suite C.
Salt Lake City, Utah 84108-1295

*Correction Pages
For Washington-DNR
Drilling Report
Dec. 19, 1989 OFR-
89-2*

Jan 7, 1989

Dear Howard,

I am enclosing a few sheets of text to be added to the drilling report OFR 89-2. They include

- Disclaimer, (to back the title sheet)
- Revision of page 8
- Revision of page 35 and 36 for the references

This should take care of most of the problems you pointed out in your letter. We decided that the current text, stating that actual gradients were used for heat flow calculations without terrain corrections, was sufficient for this type of report. We felt that getting into a discussion on the potential for substantial changes or the merits of using empirical formulas to determine the corrections were subjects best left for future papers.

In the meantime, I am working on a letter report covering the age dating data and problems. I hope to have a draft ready for you in a few weeks.

As promised earlier, I am sending you some newsletter articles and an abstract which resulted from our geothermal work of the past 2 years. Hope you can use them to support the future programs.

Sincerely,

Michael A. Korosec

Michael A. Korosec
Geologist
Division of Geology &
Earth Resources

MAK:jl



DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

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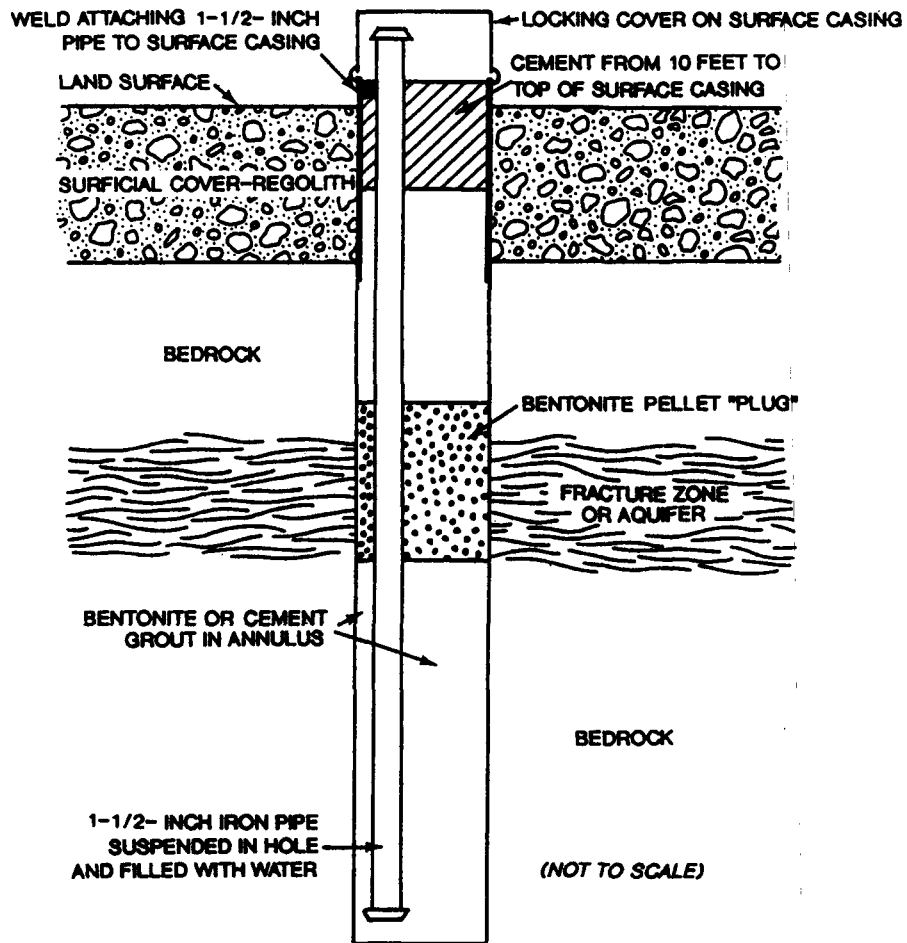


Figure 2. Schematic representation of construction details for the geothermal gradient test wells drilled in 1988. The 1-1/2-in. pipe is suspended from the surface casing to eliminate bends in the pipe that could hinder probe passage.

so that the lower orifice of the tremie was near the portion of the hole being filled, yet still below the surface of the rising fluid column. Occasionally, a severely fractured stratum or an aquifer having a high hydraulic head was encountered in the hole. To counter these conditions, bentonite pellet "plugs" were emplaced at the level of the problem, or cement was pumped into the hole and allowed to cure overnight before resumption of sealing procedures. When sealing was complete, a locking surface security cap was attached to the 6-in. surface casing for the protection of the 1-1/2-in. pipe. Time required for the drilling and construction of a test well averaged approximately 5 days.

Following sealing, the borehole-pipe system was given 2 to 3 weeks to assimilate the natural thermal character of the area. A down-hole temperature probe was then lowered into the water-filled 1-1/2-in. pipe. Readings were taken from the top to bottom of the hole at 5-m intervals in each hole. Repeated loggings with the temperature probe at about 1-week intervals usually revealed the thermal equilibrium status of the hole through the comparison of temperature-vs.-depth graphs from the separate logging sessions. A hole was assumed to be near equilibrium when no perceptible change was observed in the graphs from two successive loggings. Temperature gradients were calculated using the direct measurements and linear regression analysis for the relatively undisturbed values below the zone of seasonal influence. This zone of fluctuating temperatures usually occurs at depths of 0-50 m, but this varies with location.

RESULTS

Details of the lithologies encountered during the drilling of the 1988 test holes are given in Appendix A.

use revised page

The temperature-vs.-depth profiles in Figures 3 through 10 display the actual temperature values ("Temp. (°C)") that were measured, and the best-fit, linear regression estimates in the column labeled "Predicted (°C)." A summary of parameters for the 1988 temperature gradient test holes is presented in Table 2. Temperature observations for individual holes are listed in Tables 3 through 10.

The following descriptions summarize the geologic, hydrogeologic, and thermal conditions encountered during drilling and subsequent temperature measurements for each hole.

Carlton Creek (DNR 88-1)

Although sited within 100 m of a probable Quaternary basalt plug, the rock materials penetrated by this hole consist mostly of felsite or felsic tuffs. Thin volcanoclastic and epiclastic

so that the lower orifice of the tremie was near the portion of the hole being filled, yet still below the surface of the rising fluid column. Occasionally, a severely fractured stratum or an aquifer having a high hydraulic head was encountered in the hole. To counter these conditions, bentonite pellet "plugs" were emplaced at the level of the problem, or cement was pumped into the hole and allowed to cure overnight before resumption of sealing procedures. When sealing was complete, a locking surface security cap was attached to the 6-in. surface casing for the protection of the 1-1/2-in. pipe. Time required for the drilling and construction of a test well averaged approximately 5 days.

Following sealing, the borehole-pipe system was given 2 to 3 weeks to assimilate the natural thermal character of the area. A down-hole temperature probe was then lowered into the water-filled 1-1/2-in. pipe. Readings were taken from the top to bottom of the hole at 5-m intervals in each hole. Repeated loggings with the temperature probe at about 1-week intervals usually revealed the thermal equilibrium status of the hole through the comparison of temperature-vs.-depth graphs from the separate logging sessions. A hole was assumed to be near equilibrium when no perceptible change was observed in the graphs from two successive loggings. Temperature gradients were calculated using the direct measurements and linear regression analysis for the relatively undisturbed values below the zone of seasonal influence. This zone of fluctuating temperatures usually occurs at depths of 0-50 m, but this varies with location.

RESULTS

The temperature-vs.-depth profiles in Figures 3 through 10 display the measured temperature values and the best-fit line determined by linear regression. Table 3 through 10 list the observed temperatures for the individual holes, along with incremental gradients, estimated temperatures predicted by the regression analysis, and statistical data. A summary of measurements for the 1988 temperature gradient test holes is presented in Table 2.

Details of the lithologies encountered during the drilling of the 1988 test holes are given in Appendix A.

The following descriptions summarize the geologic, hydrogeologic, and thermal conditions encountered during drilling and subsequent temperature measurements for each hole.

Carlton Creek (DNR 88-1)

Although sited within 100 m of a probable Quaternary basalt plug, the rock materials penetrated by this hole consist mostly of felsite or felsic tuffs. Thin volcanoclastic and epiclastic

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- Barnett, D. B., 1986, The 1985 geothermal gradient drilling project for the State of Washington: Washington Division of Geology and Earth Resources Open File Report 86-2, 36 p.
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- Korosec, M. A.; Phillips, W. M.; and Schuster, J. E., 1982, The low temperature geothermal resources of eastern Washington: Washington Division of Geology and Earth Resources Open File Report 82-1, 20 p.
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- Schuster, J. E.; Korosec M. A., 1981, Preliminary report on heat-flow drilling in Washington during 1981: Washington Division of Geology and Earth Resources Open File Report 81-8, 36 p.

DISCLAIMER

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RESULTS

Details of the lithologies encountered during the drilling of the 1988 test holes are given in Appendix A.

The temperature-vs.-depth profiles in Figures 3 through 10 display the actual temperature values ("Temp. (°C)") that were measured, and the best-fit, linear regression estimates in the column labeled "Predicted (°C)." A summary of parameters for the 1988 temperature gradient test holes is presented in Table 2.

Temperature observations for individual holes are listed in

Tables 3 through 10, present measurement depth (m), observed temperature (°C), temperatures estimated for corresponding depths by the regression analysis, and incremental (45m) temperature gradients.

The following descriptions summarize the geologic, hydrogeologic, and thermal conditions encountered during drilling and subsequent temperature measurements for each hole.

Carlton Creek (DNR 88-1)

Although sited within 100 m of a probable Quaternary basalt plug, the rock materials penetrated by this hole consist mostly of felsite or felsic tuffs. Thin volcanoclastic and epiclastic

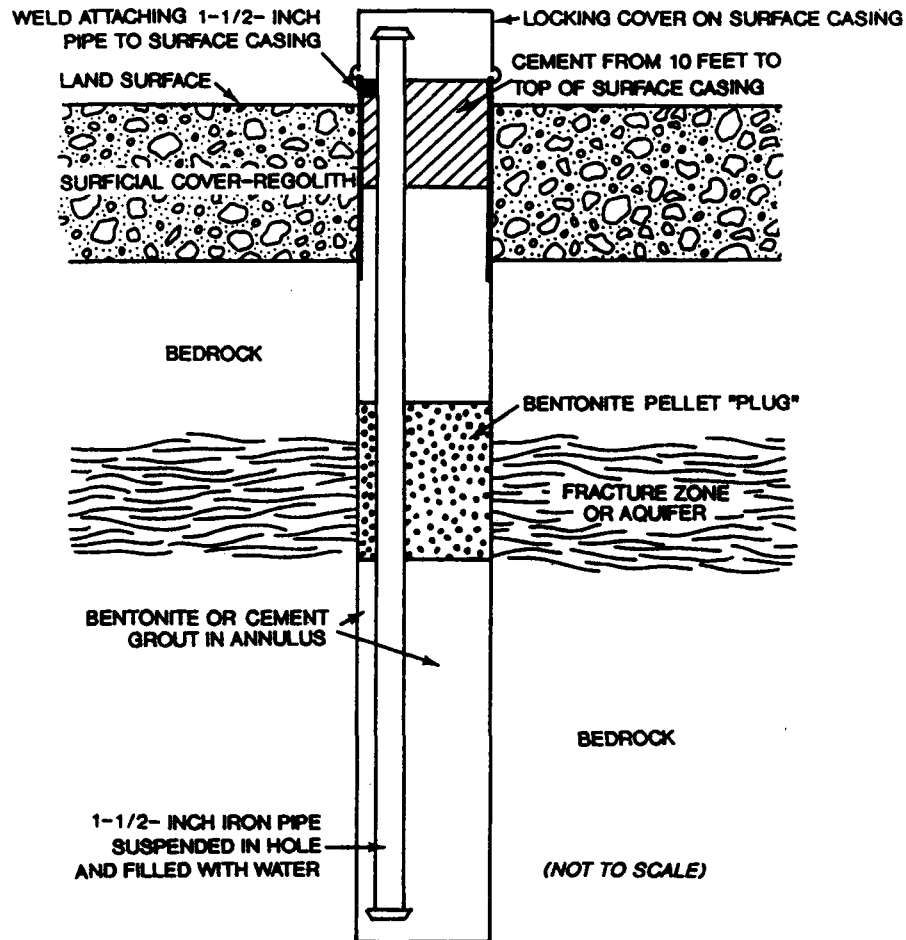


Figure 2. Schematic representation of construction details for the geothermal gradient test wells drilled in 1988. The 1-1/2-in. pipe is suspended from the surface casing to eliminate bends in the pipe that could hinder probe passage.

**U.S. DEPARTMENT OF ENERGY
NOTICE OF FINANCIAL ASSISTANCE AWARD
(See Instructions on Reverse)**

Under the authority of Public Law PL 93-410 and
subject to legislation, regulations and policies applicable to (cite legislative program title):

Geothermal Energy Research, Development, and Demonstration Act of 1974

<p>1. PROJECT TITLE Definition and Delineation of the Southern Washington Cascade Range</p> <p>3. RECIPIENT (Name, address, zip code, area code and telephone no.) State of Washington, Dept. of Natural Resources Division of Geology and Earth Resources MS: PY-12, Olympia, WA 98504</p> <p>8. RECIPIENT PROJECT DIRECTOR (Name and telephone No.) Michael A. Korosec (206) 459-6372</p> <p>9. RECIPIENT BUSINESS OFFICER (Name and telephone No.) Michael A. Korosec (206) 459-6372</p> <p>11. DOE PROJECT OFFICER (Name, address, zip code, telephone No.) Kenneth J. Taylor (208) 526-9063 U.S. DOE, Idaho Operations Office 785 DOE Place, Idaho Falls, Idaho 83402</p>	<p>2. INSTRUMENT TYPE <input checked="" type="checkbox"/> GRANT <input type="checkbox"/> COOPERATIVE AGREEMENT</p> <p>4. INSTRUMENT NO. DE-FG07-88ID12740</p> <p>5. AMENDMENT NO.</p> <p>6. BUDGET PERIOD FROM: 4/1/88 THRU: 3/31/89</p> <p>7. PROJECT PERIOD FROM: 4/1/88 THRU: 3/31/89</p> <p>10. TYPE OF AWARD <input checked="" type="checkbox"/> NEW <input type="checkbox"/> CONTINUATION <input type="checkbox"/> RENEWAL <input type="checkbox"/> REVISION <input type="checkbox"/> SUPPLEMENT</p> <p>12. ADMINISTERED FOR DOE BY (Name, address, zip code, telephone No.) Trudy A. Thorne (208) 526-9591 U.S. Department of Energy Idaho Operations Office 785 DOE Place, Idaho Falls, Idaho 83402</p>
---	--

13. RECIPIENT TYPE

<input checked="" type="checkbox"/> STATE GOV'T	<input type="checkbox"/> INDIAN TRIBAL GOV'T	<input type="checkbox"/> HOSPITAL	<input type="checkbox"/> FOR PROFIT ORGANIZATION	<input type="checkbox"/> INDIVIDUAL
<input type="checkbox"/> LOCAL GOV'T	<input type="checkbox"/> INSTITUTION OF HIGHER EDUCATION	<input type="checkbox"/> OTHER NONPROFIT ORGANIZATION	<input type="checkbox"/> C <input type="checkbox"/> P <input type="checkbox"/> SP	<input type="checkbox"/> OTHER (Specify)

14. ACCOUNTING AND APPROPRIATIONS DATA				15. EMPLOYER I.D. NUMBER/SSN
a. Appropriation Symbol	b. B & R Number	c. FT/AFP/OC	d. CFA Number	
89X0224.91	AM 1510000	YA 410		

16. BUDGET AND FUNDING INFORMATION	
a. CURRENT BUDGET PERIOD INFORMATION	b. CUMULATIVE DOE OBLIGATIONS
(1) DOE Funds Obligated This Action \$ <u>170,776</u>	(1) This Budget Period \$ <u>170,776</u> [Total of lines a.(1) and a.(3)]
(2) DOE Funds Authorized for Carry Over \$ <u>-0-</u>	(2) Prior Budget Periods \$ <u>-0-</u>
(3) DOE Funds Previously Obligated in this Budget Period \$ <u>-0-</u>	(3) Project Period to Date \$ <u>170,776</u> [Total of lines b. (1) and b. (2)]
(4) DOE Share of Total Approved Budget \$ <u>170,776</u>	
(5) Recipient Share of Total Approved Budget \$ <u>44,104</u>	
(6) Total Approved Budget \$ <u>214,880</u>	

17. TOTAL ESTIMATED COST OF PROJECT \$ 214,880

(This is the current estimated cost of the project. It is not a promise to award nor an authorization to expend funds in this amount.)

18. AWARD/AGREEMENT TERMS AND CONDITIONS

This award/agreement consists of this form plus the following:

a. Special terms and conditions (if grant) or schedule, general provisions, special provisions (if cooperative agreement)

b. Applicable program regulations (specify) _____ (Date) _____

c. DOE Assistance Regulations, 10 CFR Part 600, as amended, Subparts A and B (Grants) or C (Cooperative Agreements).

d. Application/proposal dated May 29, 1987 as submitted with changes as negotiated

19. REMARKS This Grant consists of this NFAA (DOE F 4600.1), Part I - Budget Plan, Part II - Special Conditions, Part III - General Conditions, Part IV - Statement of Work, and Part V - Reporting Requirements. DOE Financial Assistance Rules (10 CFR Part 600), OMB Circular A-102, OMB Circular A-87, and OMB Circular A-128 "Audits of State and Local Governments" are hereby incorporated by reference.

<p>20. EVIDENCE OF RECIPIENT ACCEPTANCE</p> <p><u>James A. Stearns</u> <u>4-27-88</u> Signature of Authorized Recipient Official (Date)</p> <p>_____ (Name)</p> <p>_____ (Title)</p>	<p>21. AWARDED BY</p> <p><u>J.P. Anderson</u> <u>3/31/88</u> Signature (Date)</p> <p>J. P. Anderson, Contracting Officer (Name)</p> <p>R&D Contracts Branch (Title)</p>
---	--

FEDERAL ASSISTANCE BUDGET INFORMATION FORM

FORM EIA-459C
 (10-80)

FORM APPROVED
 OMB No. 1900-0127

1. Program/Project Identification No. DE-FG07-88ID12740	2. Program/Project Title Definition and Delineation of So. Wash. Cascade Range
3. Name and Address State of Washington, Dept. of Natural Resources Div. of Geology and Earth Resources, Olympia, WA 98504	4. Program/Project Start Date April 1, 1988
	5. Completion Date March 31, 1989

SECTION A - BUDGET SUMMARY						
Grant Program, Function or Activity (a)	Federal Catalog No. (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1.12693	81.087	\$	\$	\$ 170,776	\$ 44,104	\$ 214,880
2.						
3.						
4.						
5. TOTALS		\$	\$	\$	\$	\$

SECTION B - BUDGET CATEGORIES					
6. Object Class Categories	Grant Program, Function or Activity				Total (5)
	(1) DOE	(2)	(3) Wash.	(4)	
a. Personnel	\$ 22,840	\$	\$ 29,580	\$	\$ 52,420
b. Fringe Benefits 24%	5,481		7,099		12,580
c. Travel			6,285		6,285
d. Equipment					
e. Supplies			500		500
f. Contractual	106,000				106,000
g. Construction					
h. Other			640		640
i. Total Direct Charges	134,321		44,104		180,425
j. Indirect Charges 27.14%*	36,455				36,455
k. TOTALS	\$ 170,776	\$	\$ 44,104	\$	\$ 214,880
7. Program Income	\$	\$	\$	\$	\$

* Indirect charges on DOE cost share only

Special Terms and Conditions for Research Grants

The requirements of this attachment take precedence over all other requirements of this grant found in regulations, the general terms and conditions, DOE orders, etc. except requirements of statutory law. Any apparent contradiction of statutory law stated herein should be presumed to be in error until the Grantee has sought and received clarification from the Contracting Officer, whose signature appears on the face page of this award.

1. Payments

- a. The Grantee may request advance payment of cost to be incurred. Such requests should not exceed the expected outlays by the Grantee in the succeeding 30-day period.
- b. Payments to the Grantee shall equal the Federal share of actual allowable costs of performance of this grant, provided however, and notwithstanding any other provision of this grant, that the Government's monetary liability under this grant shall not exceed the Government share of the total approved budget or an amount equal to the Federal share of actual allowable costs, whichever is less. The Grantee shall be obligated to perform under this grant throughout the agreed-upon period of performance, and to bear all costs which DOE has not agreed to pay. However, the Grantee shall have the right to cease to perform when or after the Federal share of actual allowable costs equals or exceeds the Government share of the total approved budget and if prior written notice to that effect has been provided to DOE.
- c. The Government obligations may be increased unilaterally by DOE by written notice to the Grantee and may be increased or decreased by written agreement of the parties.
- d. Upon termination or expiration of the total period of performance, the Grantee shall promptly refund to DOE (or make such disposition as DOE may in writing direct) any sums paid by DOE to the Grantee under this grant in excess of the cumulative Government allowable cost incurred in performance under the grant.
- e. Method of Payment - Payments due for amounts properly invoiced in accordance with the terms and conditions specified elsewhere in the grant shall be made either by Treasury check(s) payable to the Grantee or designee or by electronic funds transfer(s) to a financial institution designated by the Grantee for that purpose. The method of payment shall be determined by the Government at the time of payment in accordance with applicable Treasury Department requirements.

After award but no later than fourteen (14) days before an invoice or bill is submitted for payment, the Grantee shall designate a financial institution for the receipt of electronic funds transfer payments hereunder; and provide the appropriate Government representative (contracting officer or finance official as determined by the Government) with the name of the designated financial institution, financial institution's or correspondent financial institution's 9-digit American Bankers Association identifying number, telegraphic abbreviation of such financial institution, and account number at the designated financial institution to be credited with funds.

In the event the Grantee during the performance of this grant elects to designate a different financial institution for the receipt of any payment made using electronic funds transfer procedures, notification of such change and the information as specified in paragraph (b) above must be received by the appropriate Government representative thirty (30) days prior to the date such change is to become effective.

The document furnishing the information required above must be dated and contain the signature, title, and telephone number of the Grantee official authorized to provide it, as well as the Grantee's name and grant number.

Grantee failure to properly designate a financial institution or to provide appropriate payee bank account information may delay payments of amounts otherwise properly due.

- f. Cost-Share Arrangement - The cost-share will be in accordance with Part I - Budget Plan. Labor and fringe benefits for the Geologist 2, drilling costs, and indirects related to these shall be paid by DOE. All other salaries and fringe benefits, travel, supplies, and analyses of age date material shall be paid by Washington Department of Natural Resources. Indirect costs associated with Washington Department of Natural Resources' cost-share will not be billed to DOE nor be considered an allowable cost for this grant.
- g. Applicable Credits. The Grantee agrees that any refunds, rebates, credits, or other amounts (including any interest thereon) accruing to or received by the Grantee or any assignee under this grant shall be paid by the Grantee to the Government, to the extent that they are properly allocable to costs for which the Grantee has been reimbursed by the Government under this grant. Reasonable expenses incurred by the Grantee for the purpose of securing such refund, rebates, credits, or other amounts shall be allowable costs hereunder when approved by the Contracting Officer.

- h. Audit Adjustments. The Contracting Officer may have invoices or vouchers and statements of cost submitted under this grant audited at any time prior to the end of the required retention period for the grant records. Each payment made shall be subject to reduction for amounts included in the related invoice or voucher which are found by the Contracting Officer, on the basis of audit, not to constitute allowable cost. If a final audit of costs has not been performed prior to closeout of the grant, DOE or its successor agency, shall have the right to recover an appropriate amount after fully considering the recommendations on disallowed costs resulting from the final audit when conducted.
- i. Cognizant Office. Invoices should be sent to the individual designated in Block 12. of the Notice of Financial Assistance Award Form (NFAA). In addition to the initial supply of forms made available with this award, appropriate payment forms and instructions will be provided by this office upon request.

2. Reporting Program Technical Performance

- a. Copies. Copies of reports and all other related data and information generated under this grant shall be submitted in accordance with the attached Federal Assistance Reporting Checklist (DOE Form EIA-459A).
- b. Publication of Results. The Grantee may publish the results of its work. However, publications and reports prepared under this grant shall contain the following acknowledgment statement, "This (material) was prepared with the support of the U.S. Department of Energy (DOE) Grant No. DE-FG07-88ID12740. However, any opinions, findings, conclusions, or recommendations expressed herein are those of the author(s) and do not necessarily reflect the views of DOE."
- c. Reporting Requirements. The Federal assistance recipient shall prepare and submit (postage prepaid) the plans and reports indicated on the Federal Assistance Reporting Distribution List. Preparation of the specified plans and reports shall be in accordance with DOE Order 1332.2. The level of detail the recipient provides in the plans and reports shall be commensurate with the scope and complexity of the task and shall be as delineated in Block 4 - Reporting Requirements and Block 5 - Special Instructions.

All reports delivered to DOE shall be the sole property of the DOE. The Grantee shall not claim that any report contains any trade secrets or commercial or financial information deemed by the Grantee to be privileged or confidential, or that the Grantee has any proprietary interest in any report.

3. Designated Key Personnel

The following individual is designated key personnel in accordance with General Condition No. 14:

Michael A. Korosec

4. Project Completion Date

The project completion date identified in Block 7. of the Notice of Financial Assistance Award includes an additional 90 days for completion of the final report. All R&D effort must be completed 90 days prior to the project completion date. Only costs associated with preparation of the final report will be allowed during the 90 days prior to the project completion date.

5. Technical Data

Except for technical data contained in pages N/A of the recipient's application, dated N/A, which are asserted by the Grantee as being proprietary data, it is agreed that as a condition of this award, and notwithstanding the provisions of any notice appearing on the application, the Government shall have the right to use, duplicate, disclose and have others do so for any purpose whatsoever the technical data not identified in the above blanks contained in the application upon which this award is based.

6. Prior Approval

The following actions or costs specified in the application require prior approval of DOE and are specifically disapproved in accordance with General Condition No. 3:

None

7. General Procurement Prior Approval

Article 17 of the General Terms and Conditions for Research Grants is hereby revoked. The Grantee must receive prior approval from DOE before entering into any sole source contract or a contract where only one bid or proposal is received, when the value of the contract in the aggregate is expected to exceed \$25,000.

8. Patent Clauses

The following patent clauses and technical data requirements are applicable to this grant award:

600.118(b)(2) "Patent Rights (Short Form)"

600.118(b)(3) "Rights in Technical Data (Short Form)"

600.118(b)(5) "Authorization and Consent"

600.118(b)(6) "Notice and Assistance"

600.118(c) "Reporting of Royalties"

9. Title to Equipment

a. Title to the following items of equipment shall vest with the Grantee upon completion of this grant:

None

b. Title to the following items of equipment shall vest with the Government at the end of the grant project period:

None

10. Audit Requirements

In addition to the terms and conditions identified in blocks 18.b. and 18.c. of the Notice of Financial Assistance Award and those attached to this award, if any, the recipient shall comply with the audit requirements contained in the DOE Financial Assistance Rules, 10 CFR 600, Subpart D, Audits of State and Local Governments.

General Terms and Conditions for Research Grants

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General Terms and Conditions for Research Grants

1. Explanation

These general terms and conditions do not restate all the provisions of applicable statutes and regulations nor do they represent an exhaustive listing of all requirements applicable to this grant. Rather they highlight and are consistent with those requirements which are especially pertinent to research grants in general. They are being emphasized by inclusion here either because they are invoked with high frequency, their violation is a matter of especially serious concern (e.g., use of human subjects), and/or they have been restated in the research context to be more easily understood by the research community.

In addition to these general terms and conditions, the grantee must comply with all governing requirements, including those identified in Block 18 of the Notice of Financial Assistance Award and those included in the Special Terms and Conditions attached to this grant award.

2. Grantee Adherence to Grant Terms and Conditions

The grantee's signature on the application and on the Notice of Financial Assistance Award signifies the grantee's agreement to the terms and conditions of award. Should the grantee believe modification of any of the terms and conditions of this award is necessary, an authorized official of the grantee organization or, in the case of an individual, the grantee, must submit a written request on its own behalf or on behalf of any subgrant recipient or applicant to the Contracting Officer named on the face page of this award.

Following this procedure is very important because many of the terms and conditions of this grant are required by statute and must be enforced by the Department of Energy.

3. Definitions

Principal Investigator

As used herein, the scientist or other programmatic expert named in Block 8 of the Notice of Financial Assistance Award designated by the grantee organization to direct the scientific/technical efforts being supported (also called program director or project director/leader).

Prior Approval

A statement in writing, signed by the DOE Contracting Officer, that a cost may be incurred or an action may be taken. The approval may take the form of a letter or of a revision to the grant. If actions or

costs requiring prior approval are specified in the application and are not expressly disapproved by DOE in the attached Special Terms and Conditions, the award of the grant constitutes such prior approval.

4. Authorized Grantee Signatures for Prior Approval Requests

All requests for prior approval must be signed by an individual who is authorized to act for the grantee organization. The signature of the Principal Investigator (unless also a corporate officer or otherwise authorized) is insufficient to obtain action on a prior approval request, although countersignature by the Principal Investigator is not discouraged. Requests for budget revisions shall be made on the same budget format as used in applying for this grant and must be supported by a narrative justification. Other prior approval requests may be made by letter. Prior approval requests should be addressed to the Contracting Officer named on the face page of this award.

5. Allowable Costs/Applicable Cost Principles

In accordance with the applicable cost principles cited below and up to the amount shown on the face page of this award for the total approved budget for the current budget period (line 16.a.(6)), the allowable costs of this grant shall consist of the actual allowable direct costs incident to performance of this project plus the allocable portion of the allowable indirect costs, if any, of the organization less applicable credits.

The allowability of costs for work performed under this grant and any subsequent subaward will be determined in accordance with the Federal cost principles applicable to the grantee or subrecipient in effect on the date of award or, for any subaward, in effect as of the date of that subaward, except as modified by other provisions of this grant or the subaward.

The Federal cost principles applicable to specific types of grantees and subrecipients are:

1. Institutions of Higher Education. OMB Circular A-21, Cost Principles Applicable to Grants, Contracts and Other Agreements with Institutions of Higher Education, is applicable to both public and private colleges and universities.
2. State and local governments and Indian tribal governments. OMB Circular A-87, Cost Principles Applicable to Grants, Contracts and other Agreements With State and Local Governments, is applicable to state, local, and Indian tribal governments (and shall also be used to the extent appropriate for foreign governments).

3. Hospitals. 48 CFR Part 74, Appendix E, Principles for Determining Costs Applicable to Research and Development under Grants and Contracts with Hospitals, applies to nonprofit and for-profit hospitals.
 4. Other nonprofit organizations and individuals. OMB Circular A-122, Cost Principles Applicable to Grants, Contracts, and other Agreements with Nonprofit Organizations, applies to nonprofit organizations and individuals except for nonprofits specifically exempted by the terms of the circular or those nonprofits covered by the cost principles cited in items 1.- 3. above.
 5. Commercial firms and certain nonprofit organizations. 48 CFR Subpart 31.2, Contracts with Commercial Organizations, as supplemented by 48 CFR Subpart 931.2, applies to those nonprofit organizations not covered by OMB Circular A-122, as specified by the terms of that circular, and to all commercial organizations other than those covered by the cost principles in item 3. above.
6. Payment

Payments under this award will be made by an advance payment method unless DOE determines that the grantee's financial management system does not meet the requirements of 10 CFR 600.109 or the grantee has not maintained, or demonstrated the willingness and ability to maintain, procedures that will minimize the time elapsing between transfer of funds from the U.S. Treasury and their disbursement for grant-related purposes.

The appropriate advance payment method or the reimbursement method and the cognizant finance office are specified in the attached Special Terms and Conditions.

Advances by the grantee to subgrantee and contractor organizations must conform substantially to the same standards of timing and amount that govern advances made by the Federal Government to the grantee. Excess cash advances erroneously withdrawn from the U.S. Treasury shall be promptly refunded to DOE unless the funds will be disbursed within seven calendar days or the amount is less than \$10,000 and will be disbursed within 30 calendar days.

Interest earned on advance payments to other than state governments or their subgrantees shall be reported on the Report of Federal Cash Transactions (SF-272) and promptly remitted to the cognizant finance office (unless otherwise specified in the attached Special Terms and Conditions) by check payable to the Department of Energy.

7. Preaward Costs

Costs incurred prior to the beginning date of a new or renewal award are allowable only if they were approved in writing, prior to incurrence, by a DOE Contracting Officer. (Note - this provision does not apply to such bid and proposal costs as may be recovered through an indirect cost rate negotiated in accordance with the applicable Federal cost principles.)

8. Reporting Requirements

Attached to this grant award is EIA 459A, a checklist of the reports required under this grant.

The grantee shall submit a technical progress report (also called a performance report) as part of any application for continuation or renewal of DOE grant support. This report shall be in lieu of a separate annual performance report. Upon completion or termination of the project, the final technical report shall be prepared in accordance with the applicable program rule cited on the face page of this award or, in the absence of such program rule coverage, with the technical reporting format specified in the Uniform Reporting System for Federal Assistance (Grants and Cooperative Agreements) (DOE/MA-001).

The grantee shall submit an annual Financial Status Report (SF-269) within 90 days after the close of the budget period shown on the face page of this award. The grantee shall submit a final Financial Status Report within 90 days after the completion or termination of the project period shown on the face page of this award unless the project period is extended. In the latter case, the report for the last budget period of the existing project period shall be considered an annual report.

Instructions concerning reports to be submitted in conjunction with payment under this award are specified in the attached Special Terms and Conditions.

9. Cost-Sharing

Any cost-sharing as shown on the face page of this award shall defray allowable costs of the project only. Allowability of such costs shall be determined in accordance with the statutes, regulations, applicable cost principles, and other terms and conditions governing this award.

Cost-sharing contributions may be in the form of direct or indirect costs, including cash or in-kind contributions, incurred by the grantee, its subgrantees, or contractors. The cost sharing may be in any allowable budget category or combination of categories. When a direct cost item represents some or all of the non-Federal contribution, any associated indirect costs may not be charged to Federal funds but may be

counted as part of the cost-sharing. The treatment of a contributed cost as direct or indirect must be consistent with the classification of similar items charged to DOE funds.

Valuation of in-kind contributions and documentation of cost-sharing shall be in accordance with 10 CFR 600.107.

10. Continuations, Renewals, and Extensions

Grantees are responsible for assuring that properly completed applications for continuation awards are received no later than 4 months prior to the expiration date of the current budget period shown on the Notice of Financial Assistance Award.

If a grantee wishes to apply for a renewal award in order to receive funding beyond the scheduled expiration of the existing project period, a properly completed application must be submitted to DOE no later than four months prior to the scheduled expiration date of the project period as shown on the Notice of Financial Assistance Award.

Grantee requests for extensions (modifications extending an existing project period by 18 months or less in order to complete a project) must be submitted prior to the expiration date of the project period as shown on the face page of this award, and must include a budget for the use of any remaining funds or any additional funds requested. Any request for an extension, which includes a request for additional funds and any request for an extension of more than 90 days, should be submitted to DOE no later than four months prior to the scheduled expiration date of the project period.

11. Maximum DOE Obligation

This grant is subject to the requirement that the maximum DOE obligation to the recipient is the amount shown on the Notice of Financial Assistance Award as the amount of DOE funds obligated. DOE shall not be obligated to make any additional, supplemental, continuation, renewal or other award for the same or any other purpose.

12. Transfers of Funds Between Grants

Transfers of funds between DOE grants, and transfers of funds from a DOE grant to a project (or portion of a project) not supported by that grant require the prior approval of DOE. Transfer of funds into a DOE grant-supported project from a grant awarded by another Federal agency does not require DOE prior approval but may, of course, require the approval of the other Federal agency. Funds so transferred from the grant of another Federal agency may not be used to satisfy any cost-sharing requirement on a DOE grant.

13. Property

Real and Tangible Personal Property

No real property may be acquired under this award.

Title to any equipment (an article of tangible personal property that has a useful life of more than 2 years and an acquisition cost of \$500 or more) or supplies acquired by a nonprofit institution of higher education or a nonprofit organization whose primary purpose is the conduct of scientific research shall vest in the grantee and such equipment shall be exempt from accountability except that DOE has the right to transfer ownership of any item of equipment having a unit acquisition cost of \$1,000 or more under the conditions specified in 10 CFR 600.117(d)(2). This exemption is derived from Public Law 95-224. The Federal Grant and Cooperative Agreement Act of 1977, as amended.

Title to equipment and supplies acquired by all other grantees shall vest in the grantee. However, such grantees shall be accountable for equipment with a unit acquisition cost of \$1,000 or more acquired under this grant as specified in 10 CFR 600.117(d)(2), (3) and (4). For such grantees, supplies need only be accounted for at closeout and then only if they are unused and exceed \$1,000 in total aggregate current fair market value. In this case accountability requires that DOE be compensated in an amount computed in accordance with Section 600.117(e) if the supplies are retained for use on non-Federal activities.

All grantees shall follow property management policies and procedures which provide for adequate control of the acquisition and use of assets acquired under the grant.

Intangible Property

Treatment, including reporting, of patent and data rights and copyrights shall be as specified in the Special Terms and Conditions of this grant.

14. Change or Absence of the Principal Investigator or Designated Key Personnel

Since the DOE decision to fund a project is based, to a significant extent, on the qualifications and level of participation of the Principal Investigator, a change of Principal Investigator or of the level of effort of the Principal Investigator is considered a change in the approved project. The approval of DOE must be obtained prior to any change of the Principal Investigator or, in certain cases, other key personnel who have been identified as key personnel in the Special Terms and Conditions of this grant. In addition, any continuous absence of the Principal Investigator in excess of three months or plans for the

Principal Investigator to become substantially less involved in the project than was indicated in the approved grant application requires DOE prior approval. Grantee is encouraged to contact DOE immediately upon becoming aware that any of these changes are likely to be proposed, but in any event must do so and receive DOE prior approval before effecting any such change.

15. Changes in Objectives or Scope

Any change in the objectives or scope of a grant-supported project requires the prior approval of DOE. Such changes include changes in the phenomenon or phenomena under study and in the methodology or experiment if they are a specific objective of the research work as stated in the application approved by DOE.

16. Transfer of Substantive Programmatic Effort

None of the substantive effort of this project may be transferred by contract or subgrant to another organization or person without the prior approval of DOE. This provision does not apply to the procurement of equipment, supplies, materials, or general support services which may, however, be subject to other prior approval requirements as found, for example, in the applicable cost principles or procurement standards.

17. General Procurement Prior Approval Requirements

A grantee must receive prior approval from DOE before entering into any sole source contract or a contract where only one bid or proposal is received when the value of the contract in the aggregate is expected to exceed 1) \$10,000 and the grantee is a state, local, or Indian tribal government or 2) \$5,000 for all other grantees.

18. Equipment and Other Capital Expenditures

Expenditures for equipment and other capital assets having a unit acquisition cost of \$500 or more require the prior approval of DOE with one exception. For special purpose equipment, prior approval is required only when the unit acquisition cost is \$1,000 or more. (Special purpose equipment means equipment which is used only for research, medical, scientific, or other technical activities.)

19. Travel

Foreign Travel - DOE prior approval is required for each separate foreign trip. Foreign travel must be directly related to the project objectives. Foreign travel is any travel outside Canada and the United States and its territories and possessions or, for grantees located in another country, travel outside that country.

Domestic Travel - Such costs are allowable to the extent provided in the approved budget. In addition, grantees may exceed the approved budget amount for domestic travel by up to 25% or \$500 whichever is greater, without DOE prior approval. All other expenditures for domestic travel beyond these limits require prior approval.

20. Consultant Services

Costs of consultant services are allowable subject to satisfaction of the requirements of the applicable cost principles, including the requirement that the consultant not be an employee of the grantee organization. There is one exception to the requirement that the consultant not be an employee of the grantee organization which applies to colleges and universities only. For colleges and universities, in unusual cases, and only with the prior approval of DOE, intra-organizational consultation may be permitted where consultation is across departmental lines or involves a separate or remote operation.

21. Paperwork Reduction

This award is subject to the requirements of the Paperwork Reduction Act of 1980 as implemented by the Office of Management and Budget rules, "Controlling Paperwork Burdens on the Public," published at 5 CFR 1320 (48 FR 13666, 3/31/83) if the grantee will collect information from ten or more respondents either:

- A. At the specific request of DOE, or
- B. If the award requires specific DOE approval of the information collection or the collection procedures.

Any proposed sponsored information collection under item 21 B. above shall be submitted by the grantee to the Contracting Officer named on the face page of this award at least 90 days prior to the intended date of information collection. DOE will seek the requisite approval from the Office of Management and Budget and will promptly notify the grantee of the disposition of the request.

22. Generally Applicable Requirements

In accordance with 10 CFR 600.12, this grant is subject to a number of statutory and other generally applicable requirements. Those requirements most pertinent to research projects are highlighted below:

Animal Welfare

Any grantee performing research on warm-blooded animals shall comply with the Laboratory Animal Welfare Act of 1966 (Public Law 89-544, as amended)

and the regulations promulgated thereunder by the Secretary of Agriculture at 9 CFR Chapter 1, Subchapter A, pertaining to the care, handling, and treatment of warm-blooded animals held or used for research, teaching, or other activities supported by Federal awards. The grantee is expected to ensure that the guidelines described in Department of Health and Human Services (DHHS) Publication No. [NIH] 78-23, "Guide for the Care and Use of Laboratory Animals," are followed (Copies are available from the Superintendent of Documents, Government Printing Office, Washington, DC 20024, Stock No. 017-040-00427-3).

Research Involving Recombinant DNA Molecules

Any grantee performing research involving recombinant DNA molecules and/or organisms and viruses containing recombinant DNA molecules agrees by acceptance of this grant to comply with the National Institutes of Health "Guidelines for Research Involving Recombinant DNA Molecules," June 1983 (48 FR 24556) or such later revision of those guidelines as may be published in the Federal Register.

Use of Human Subjects in Research, Development, and Related Activities

Any DOE grantee performing research, development, or related activities involving any use of human subjects must comply with DOE regulations found at 10 CFR Part 74S "Protection of Human Subjects" and any additional Provisions which may be included in the Special Terms and Conditions of this grant. Such provisions are intended to safeguard the rights and welfare of human subjects at risk of possible physical, psychological, or social injury as a consequence of their participation.

23. Nondiscrimination

This grant is subject to the provisions of 10 CFR Part 1040 "Nondiscrimination in Federally Assisted Programs."

24. Public Access to Information

The Freedom of Information Act, as amended, and the DOE implementing regulations (10 CFR Part 1004) require the release by DOE of certain documents and records regarding grants upon written request by any member of the public. The intended use of the information will not be a criterion for release. These requirements apply to information held by DOE, and do not require grantees, their subgrantees, or their contractors to permit public access to their records.

Records maintained by DOE with respect to grants are subject to the provisions of the Privacy Act and the DOE implementing regulations (10 CFR Part 1008) if those records constitute a "system of records" as defined in the Act and the regulations. Generally, records maintained by grantees, their subgrantees, or their contractors are not subject to these requirements.

25. Acknowledgement of Support

Publication of the results of this grant, subject to any applicable restrictions in 10 CFR 600.118 ("Patents, data, and copyrights"), is encouraged. Any article which is published shall include an acknowledgement that the research was supported, in whole or in part, by a DOE grant (including the grant number), but that such support does not constitute an endorsement by DOE of the views expressed in the article.

26. National Security

It is not expected that activities under this grant will generate or otherwise involve classified information (i.e., Restricted Data, Formerly Restricted Data, National Security Information).

However, if in the opinion of the grantee or DOE such involvement becomes expected prior to the closeout of the grant, the grantee or DOE shall notify the other in writing immediately. If the grantee believes any information developed or acquired may be classifiable, the grantee shall not provide the potentially classifiable information to anyone, including the DOE officials with whom the grantee normally communicates, except the Director of Classification, and shall protect such information as if it were classified until notified by DOE that a determination has been made that it does not require such handling. Correspondence which includes the specific information in question shall be sent by registered mail to U.S. Department of Energy, Attn: Director of Classification, DP-32, Washington, DC 20545. If the information is determined to be classified the grantee may wish to discontinue the project, in which case the grantee and DOE shall terminate the grant by mutual agreement. If the grant is to be terminated, all material deemed by DOE to be classified shall be forwarded to DOE, in a manner specified by DOE, for proper disposition. If the grantee and DOE wish to continue the grant, even though classified information is involved, the grantee shall be required to obtain both personnel and facility security clearances through the Office of Safeguards and Security. Costs associated with handling and protecting any such classified information shall be negotiated at the time the determination to proceed is made.

27. Liabilities and Losses

DOE assumes no liability with respect to any damages or loss arising out of any activities undertaken with the financial support of this grant.

28. Contracting Officer's Technical Representative (COTR)

The individual identified in Block 11. of the Notice of Financial Assistance Award as the DOE Project Officer is the Contracting Officer's Technical Representative (COTR). The COTR is responsible for 1) monitoring the research efforts being conducted by the Grantee under

the scope of this award; 2) advising the Contracting Officer on technical matters related to administration of the grant, including progress and status of the Grantee's research; and 3) providing technical advice and guidance to the Grantee in order to assist both the research efforts of the Grantee and the Grantee's adherence to the grant terms and conditions.

The COTR does not have the authority to:

Cause an increase or decrease in the total estimated cost of, or the time required for, the research effort being supported;

Cause any change in the express terms and conditions of the grant;

Cause any change in the objectives or scope of the effort being supported;

Act in the capacity of the Contracting Officer by issuing any approval or disapproval required by the terms and conditions of the grant;

Interfere with the Grantee's right to perform under the terms and conditions of the grant.

29. Interest

(a) Notwithstanding any other term or conditions of this grant, all amounts that become payable by the recipient to the Government under this grant shall bear simple interest from the date due until paid unless paid within 30 days of becoming due. The interest rate shall be the interest rate established by the Secretary of Treasury (Secretary) as provided in Section 11 of the Debt Collection Act of 1982 (31 U.S.C. 3717), which is applicable to the period in which the amount becomes due, as provided in paragraph (b) of this provision, and then at the rate applicable for each three-month period as fixed by the Secretary until the amount is paid.

(b) Amounts shall be due at the earliest of the following dates:

- (1) The date fixed under this grant.
- (2) The date of the first written demand for payment consistent with this grant, including any demand resulting from a termination.

(3) The date the Government transmits to the recipient a proposed agreement to confirm completed negotiations establishing the amount of debt.

(c) The interest charge made under this provision may be reduced in accordance with the procedures prescribed in 4 CFR 102.13 or in accordance with agency regulations in effect on the date of original award of this grant.

STATEMENT OF WORK

1.0 INTRODUCTION

The goal of this grant is to support cost-shared research on geothermal resources of the Cascade Range in the State of Washington. The Cascade Mountains of Washington, with their numerous quaternary volcanic centers, tectonic setting, and complex structure represent the state's best province for the exploration of high temperature geothermal resources. Earlier studies supported by the U. S. Department of Energy's state-coupled assessment program have indicated areas of high thermal gradients in areas of no hydrothermal surface manifestations. This study would utilize temperature gradient drilling, K-Ar age dating, and geochemical studies to better define and characterize the region of high temperature gradients and geothermal potential.

2.0 SCOPE

The technical objectives of this grant are to refine time-space-volume models for Cascade volcanism and to relate this arc volcanism to the geothermal potential of the Cascade Range. The drilling of six temperature gradient holes will permit direct temperature gradient and heat flow determinations for a substantial area within the Southern Washington Cascades geothermal anomaly and thereby better define this thermal anomaly. A quaternary volcanic study will be conducted which will include sampling for K-Ar age dating and geochemical analysis. The net result of the proposed work will be an improved understanding of the Cascades volcanism and a more complete evaluation of the Southern Washington Cascades geothermal resource potential.

3.0 APPLICABLE DOCUMENTS

The research described herein is abstracted from a proposal titled "Definition and Delineation of the Southern Washington Cascade Range Geothermal Anomaly" dated May 29, 1987, as revised by letter on October 7, 1987. The proposal was submitted by the State of Washington - Department of Natural Resources, Division of Geology and Earth Resources. This proposal was submitted in response to a DOE-ID Program Research and Development Announcement (PRDA) for State Geothermal Research and Development - PRDA No. DE-PR07-87ID12662.

4.0 TECHNICAL TASKS

The following tasks will be accomplished under this grant.

4.1 Temperature Gradient Study

Drill four 150m and two 300m temperature gradient holes after a detailed siting study. Sample drill cuttings, case drill holes, and

complete thermal gradient measurements. Complete thermal conductivity determinations or estimate this value to arrive at heat flow values for each drill hole. Conduct near site geologic mapping and sampling. Complete an analysis of these data and describe the study and results in a final report.

4.2 Quaternary Volcanic Studies

Sample 10 to 12 volcanic rocks for K-Ar age dating and geochemical analysis. Submit samples to the University of Arizona for K-Ar age dating. Integrate these new age dates with new and existing geochemistry, age dates, and geologic mapping to reconstruct and refine time-space-volume models for Cascade volcanism and relate this arc volcanism to the geothermal potential of the Cascade Range. Describe this study, all relevant data and interpretations in a final report.

5.0 REPORTS, DATA, AND OTHER DELIVERABLES

5.1 Management Records

Reports will be due as indicated on the Federal Assistance Reporting Checklist and the Report Distribution List.

5.2 Final Reports

Two final reports will be completed. A report for the drilling project will include background information, site maps, depths, lithologies, temperature gradient information, heat flow values, and a discussion and interpretation of the results. The volcanology studies will result in a report which lists the results of age dating and geochemical analyses, compiles previous data relating to the study, and includes a location map. This report will discuss all results and present an interpretation of time-space-composition-volume models of Cascade volcanism and how these models relate to plutonism and geothermal heat sources. Draft final reports will be submitted for review and comment not less than 45 days prior to the scheduled delivery of the final report.

REPORT DISTRIBUTION LIST

Grant No. DE- FG07-88ID12740

Report/Plan	Form No.	Frequency	No. of Copies	Address
Federal Assistance Management Summary Report	EIA-459E	Q	1,1,1,1,1	a,b,c,d,e
Notice of Energy RD&D	DOE 538	O	1,1	a,f
Technical Progress Report	N/A	Q	1,1,1,1	a,b,d,e
Topical Report	N/A	A	1,4,1,1	a,b,d,e
Final Technical Report	N/A	F	1,4,1,1	a,b,d,e
Financial Status Report	SF-269	F	1,1,1	a,b,c

LIST OF ADDRESSEES

a. U.S. Department of Energy 785 DOE Place Idaho Falls, ID 83402 Attn: Trudy A. Thorne	f. U.S. Department of Energy Technical Information Center P.O. Box 62 Oak Ridge, TN 37830
b. Same as above Attn: Kenneth J. Taylor	
c. Same as above Attn: Earl Jones	
d. U.S. Department of Energy Forrestal Bldg., CE-342 1000 Independence Ave, SW Washington, DC 20585 Attn: Lew Pratsch	
e. University of Utah Research Institute Earth Science Laboratory 391 Chipeta Way, Suite C Salt Lake City, UT 84108-1295 Attn: Howard Ross	

FEDERAL ASSISTANCE REPORTING CHECKLIST

FORM EIA-459A
(10-80)

FORM APPROVED
OMB NO. 1900-0127

1. Identification Number: DE-FG07-88ID12740		2. Program/Project Title: Definition and Delineation of the Southern Washington Cascade Region		
3. Recipient: State of Washington, Dept. of Natural Resources				
4. Reporting Requirements:		Frequency	No. of Copies	Addressees
PROGRAM/PROJECT MANAGEMENT REPORTING				
<input type="checkbox"/>	Federal Assistance Milestone Plan			
<input type="checkbox"/>	Federal Assistance Budget Information Form			
<input checked="" type="checkbox"/>	Federal Assistance Management Summary Report	Q	1,1,1,1,1	a,b,c,d,e
<input type="checkbox"/>	Federal Assistance Program/Project Status Report			
<input checked="" type="checkbox"/>	Financial Status Report, OMB Form 269	F	1,1,1	a,b,c
TECHNICAL INFORMATION REPORTING				
<input checked="" type="checkbox"/>	Notice of Energy RD&D	O	1,1	a,f
<input checked="" type="checkbox"/>	Technical Progress Report	Q	1,1,1,1	a,b,d,e
<input checked="" type="checkbox"/>	Topical Report	A	1,4*,1,1	a,b*,d,e
<input checked="" type="checkbox"/>	Final Technical Report	F	1,4*,1,1	a,b*,d,e

FREQUENCY CODES AND DUE DATES:

- A - As Necessary; within 5 calendar days after events.
- F - Final; 90 calendar days after the performance of the effort ends.
- O - Quarterly; within 30 days after end of calendar quarter or portion thereof.
- Q - One time after project starts; within 30 days after award.
- X - Required with proposals or with the application or with significant planning changes.
- Y - Yearly; 30 days after the end of program year. (Financial Status Reports 90 days).
- S - Semiannually; within 30 days after end of program fiscal half year.

5. Special Instructions:
*3 copies plus a camera-ready copy

Approved for Trans Only
25th APRIL 1988
[Signature]

6. Prepared by: (Signature and Date)
Kim Jayla 1-22-88

7. Reviewed by: (Signature and Date)
[Signature] 2/29/88

UURI

EARTH SCIENCE LABORATORY
391 CHIPETA WAY, SUITE C
SALT LAKE CITY, UTAH 84108-1295
TELEPHONE 801-524-3422

June 19, 1989

Michael A. Korosec
Washington State Dept. Natural Resources
Division of Geology and Earth Resources
MS: PY-12
Olympia, WA 98504

Dear Michael:

I enjoyed reading the report "Results of the 1988 Geothermal Gradient Test Drilling Project for the State of Washington" by Douglas Barnett and yourself. The report is well organized, well referenced, apparently free from typos, and in general represents a fine summary of the gradient drilling program and results. The descriptions of hole history, lithology and hydrology encountered and the presentation of temperature data are excellent.

As I noted in our telephone conversation there are a few minor problems which should be cleared up before DOE will accept this as a final report. Most final reports submitted to DOE include a standard DOE Disclaimer statement, generally on the inside front cover or at the front of the report. In the past some reports distributed by state organizations such as the Department of Natural Resources were not required to carry this statement but recent liability problems have prompted DOE to reconsider this requirement. All reports reprinted by TIC should have it. Copies of typical disclaimer statements are enclosed for your consideration.

The description of basic temperature results, under RESULTS, page 8, is somewhat confusing and incomplete. As I read it, it mixes up the information in Table 2, Figures 3-10, and Tables 3-10. A suggestion for rewording follows.

A summary of parameters for the 1988 temperature gradient test holes is presented in Table 2. The temperature-vs.-depth profiles in Figures 3-10 display the temperature values that were measured, and the best-fit, linear regression line to these values. Tables 3 through 10 present depth of measurement, observed temperature (Temp. (C)), temperature estimated by the regression analysis (Estimated (C)), and the incremental (5 m) temperature gradient calculated from the observed data. Statistics for the regression analysis are also shown with the X coefficient indicating the best-fit temperature gradient.

Details of the lithologies encountered during the drilling of the 1988 test holes are given in Appendix A. The following descriptions summarize . . . (etc).

Because the temperature gradients were not corrected for terrain effects, and these corrections could substantially change the calculated heat flow values, it would be appropriate to add a sentence to the paragraph describing Heat Flow Estimates on page 31:

Terrain corrections for some holes could be substantial (+/- 20%) and would result in a significant change in the calculated heat flow values.

I also noted three references which did not seem to be cited in the text: Beach et al., 1987; Galson et al., 1987; and Martinez-Baez, 1980. Should these be deleted from the References?

These are the only problems that I noted with the report. Please call me if your wish to discuss these comments.

Sincerely,



Howard P. Ross
Project Manager

encl.



WASHINGTON STATE DEPARTMENT OF
Natural Resources

BRIAN BOYLE
Commissioner of Public Lands

OLYMPIA, WA 98504

January 12, 1989

Kenneth J. Taylor
U.S. Department of Energy
785 DOE Place
Idaho Falls, ID 83402

Dear Ken:

As per our conversation in late December, I am sending this letter as a proposal for adjusting certain expenditures for Grant #DE-F607-88ID12740. The following are minor changes or charges to the drilling budget (object class f) which have already been carried out:

Transfer from drilling budget to salaries and benefits to cover a raise (about \$900).

Radio rental charges (about \$200).

Supplies and services directly related to the Drilling Program (about \$1,000).

After these changes and charges are made, there is an additional residual amount of about \$3,600 available. In order to generate reports and establish a dedicated geothermal database system, we need to acquire the following (or similar):

Personal computer, AT 286, 12MHz, with 40 Meg Hard Drive	\$1,900
VGA Monitor.	600
EGA card and supporting software.	225
Generic cad software.	200
GEM Draw and GEM Graph Software.	250
DBase III plus.	300
Microsoft mouse.	125

\$3,600.-

Other supporting software, printers, and plotters will be supplied by the Division.

If you need additional details or more information on the potential use of this geothermal database system, please let me know.

Sincerely,

Michael Korosec
Geologist

MK:jl

RECEIVED

JAN 17 1989

**ADVANCED TECHNOLOGY
DIVISION**

#1

PART I - TECHNICAL PROPOSAL
 SUBMITTED TO THE
 DEPARTMENT OF ENERGY
 IDAHO OPERATIONS OFFICE
 STATE GEOTHERMAL RESEARCH AND DEVELOPMENT
 PRDA NO. DE-PRO7-87ID12662

Copy No. 6 of 8

Date of Submission: May 29, 1987

Name of Proposer: State of Washington, Department of Natural Resources, Division of Geology and Earth Resources

Address of Proposer: Mail Stop: PY-12, Olympia, WA 98504

Title of Proposal: Definition and Delineation of the Southern Washington Cascade Range Geothermal Anomaly

Type of Research/Project: Resource Assessment

Location of Work: Southern Cascade Range, Washington

Proposed Start Date: October 1, 1987

Proposed Project Duration: 15 months

Proposed Project Manager: Michael A. Korosec

Phone No: (206) 459-6372

Permission for Outside Evaluation: Yes

AUTHORIZED OFFICIAL: Signature Art Stearns

Name: Art Stearns

Title: Supervisor

Date: 6/1/87

ABSTRACT

The Division of Geology and Earth Resources of the Department of Natural Resources, State of Washington, proposes to conduct a geothermal exploration program for the southern Cascade Range of Washington. The major project of the program will consist of the drilling of 8 temperature gradient holes, 6 to a depth of 150 meters and 2 to a depth of 300 meters. A drilling supervisor will be hired to oversee the drilling operations.

The Division will also conduct a study of the Quaternary volcanism in the southern Cascade Range. Age dates will be determined using K-Ar methods, and this information, along with existing data, will be used to refine time-space-composition models for Cascade volcanism and relate this arc volcanism to the geothermal potential of the Cascade Range.

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I. Statement of Work

The Division of Geology and Earth Resources, Department of Natural Resources, State of Washington, proposes to conduct geothermal resource assessment work in the southern Cascade Range. The projects will include the drilling of six 150 meter and two 300 meter temperature gradient holes, and age dating of Quaternary volcanic rocks within the Cascade province for modeling the volcanic systems.

The drilling will better define and characterize the region of high temperature gradients within the Cascades which has been identified and crudely delineated by previous Division assessment programs supported by U.S. Department of Energy. A drilling supervisor will be hired, and the actual drilling will be sub-contracted.

The Quaternary volcanic studies will involve the sampling of 12 to 20 volcanic rocks and geochemical analysis and age dating of these samples by the specialized K-Ar lab at the University of Arizona. The results will be used in conjunction with existing geochemistry, age dates, and geologic mapping to reconstruct and refine time-space-volume models for Cascade volcanism and relate this arc volcanism to the geothermal potential of the Cascade Range.

The contract work will begin during Fall, 1987, and will be completed by the end of calendar year 1988. The drilling will be conducted during the Summer of 1988, and we will work on the Quaternary volcanic studies throughout the contract period.

II. Discussion of Statement of Work

The Cascade Mountains of Washington, with their numerous Quaternary volcanic centers, tectonic setting, complex structure, easy access, and relatively favorable land ownership (outside of the parks and wilderness areas) represents the state's best province for the exploration of high temperature geothermal resources. Through the U.S. Department of Energy's State-coupled assessment program, the Division has conducted preliminary surveys of the Cascade province. Work included gravity surveys, sampling and analysis of thermal and mineral springs, site specific geologic mapping, and limited temperature gradient/heat flow drilling. In addition, geology for the Cascade Range has been compiled at a scale of 1:100,000 as part of the new 1:250,000 State geologic map. This preliminary work has crudely delineated a zone of high temperature gradients (greater than 50 °C/km, with projected heat flow greater than 90 mW/m²). Many of the known hydrothermal systems occur within this zone as indicated by the occurrence of thermal and mineral springs, and are, in part, responsible for several of the high gradients. But many of the highest gradients, ranging from 70 to 90 °C/km and higher, have been measure in areas with no hydrothermal surface manifestations. The nature and extent of these blind geothermal systems are not known, but are strongly suspected to be related to a) the active volcanic arc, b) plutonism associated with the volcanic arc, and c) hydrothermal systems controlled by the plutonism and regional structure.

The most significant contributions the Division can make toward an understanding and delineation of the Cascade's geothermal resources are the gathering of additional temperature information at depth and determining the nature of the heat sources for the geothermal systems by studying the volcanism, plutonism, and structure of the region.

Large areas of the Cascade Range remain untested by temperature gradient/heat flow drill holes. In addition, there are no existing wells which extend deep enough to characterize upper crustal temperature gradients in the region. The Division's proposed assessment plan calls for the drilling of six 150 m and two 300 m cased holes within the projected/suspected high temperature gradient region of the southern Cascade Range. Figure 1 is a map showing the location of the regional anomaly and the proposed drill holes. The exact position of the sites will be determined during the summer and/or fall of 1987. They include, from north to south (1) Mosquito Valley, north of the Tumac Plateau volcanic field; (2) Carlton Creek, on the west edge of the Tumac Plateau volcanic field and on the Cowlitz River-Cispus Pass lineament; (3) Chambers Creek, just west

of the Walupt Lake and Lakeview volcanoes of the Mount Adams volcanic belt; (4) Table Mountain, near a major fault north of the Indian Heaven fissure zone near an area which has produced a temperature gradient of 72 °C/km (determined in 1985); (5a) Quartz Creek, north of the Indian Heaven volcanic field, in a region with only a few isolated monogenetic volcanoes; (5b) Rush Creek-Hungry Mountain, northwest of the Indian Heaven volcanic field near the Crazy Hills, a 15,000 to 20,000 year old subglacial volcanic field; (6) Trapper Creek, between the Indian Heaven and West Crater-Soda Peak volcanic fields, near the Government Mineral Springs, and in a region with an 87 °C/km gradient determined in 1985; (7) Hawk Butte, near isolated Quaternary volcanoes, Pliocene quartz diorite plugs, and near the Columbia River-Camas Prairie lineament and fault zone; (8) Rock Creek, near the Rock Creek volcanic center and Rock Creek Hot Springs.

A drilling supervisor will be hired in March, 1988, to get an early start on arranging for permits and finding a subcontractor to drill the holes. All of the sites are on U.S. Forest Service land, except the Rock Creek and possibly the Hawk Butte sites which are on State land. This is shown on the map of Appendix D. The drilling subcontractor will be determined through the State competitive bidding process. During drilling, the supervisor will be responsible for collecting and cataloguing lithologic samples, measuring preliminary and final down-hole temperatures, and keeping track of billable drilling expenses. As time permits, the drilling supervisor will conduct near site reconnaissance geologic work, including sampling and possible mapping. The drilling supervisor will also be responsible for writing the temperature gradient report, with assistance from the Program Manager.

During 1983, in an effort to better understand the nature of the probable heat source for the southern Cascade Range geothermal anomaly, plutonism associated with the volcanic arc, the Division and USDOE supported a study of the volcanic flows by Dr. Paul Hammond, Portland State University. Geochemical analyses, age dates, and volume estimates were conducted. Linked with previous mapping by Dr. Hammond, a crude time-space-composition model was constructed. Many of the age dates used are now believed to be in error, and mapping conducted since the preliminary study indicates that several "more critical" flows exist whose ages would lead to a better understanding of the timing and periodicity of volcanic activity in the region. The Division proposes to collect samples for K-Ar age date analyses at the University of Arizona, a lab specifically designed to determine the dates of young volcanic rocks. The study will be conducted by the Program Manager working

with the cooperation and guidance of Dr. Hammond. The only cost to USDOE will be the cost of the age date analyses. The Program Manager's time and all geochemical analyses needed for samples collected as part of this study will be paid for by the Division. The areas of the study will include the Indian Heaven volcanic field, the East Canyon Creek volcanics, the Carlton Creek volcanic centers, and possibly the volcanic flows at Hawk Butte. These areas are outlined on the land ownership map of Appendix D. The specific flows and areas will be determined only after preliminary field work during the summer and/or fall of 1987 and discussions with Dr. Hammond.

IV. Deliverables

Work conducted under the proposed contract will result in the production of two reports. A report for the drilling project will include background information, site maps, depths, lithologies, temperature gradient information, heat flow estimates, and discussions of the results, focusing on a better definition of the southern Cascade Range geothermal anomaly.

The volcanology studies will result in a report which lists the results of age dating and geochemical analyses, compiles some or all of the previous data relating to the study, includes a location map and discusses the results, focusing on time-space-composition-volume models and how this relates to plutonism and geothermal heat sources.

Both reports will be released by the Division as part of its Open File Report series.

U.S. DEPARTMENT OF ENERGY
NOTICE OF FINANCIAL ASSISTANCE AWARD
(See Instructions on Reverse)

Under the authority of Public Law PL 93-410 and
subject to legislation, regulations and policies applicable to (cite legislative program title):

Geothermal Energy Research, Development, and Demonstration Act of 1974

1. PROJECT TITLE Definition and Delineation of the Southern Washington Cascade Range		2. INSTRUMENT TYPE <input checked="" type="checkbox"/> GRANT <input type="checkbox"/> COOPERATIVE AGREEMENT	
3. RECIPIENT (Name, address, zip code, area code and telephone no.) State of Washington, Dept. of Natural Resources Division of Geology and Earth Resources MS: PY-12, Olympia, WA 98504		4. INSTRUMENT NO. DE-FG07-88ID12740	5. AMENDMENT NO. M001
8. RECIPIENT PROJECT DIRECTOR (Name and telephone No.) Michael A. Korosec (206) 459-6372		6. BUDGET PERIOD FROM: 4/1/88 THRU: 5/31/89	7. PROJECT PERIOD FROM: 4/1/88 THRU: 5/31/89
9. RECIPIENT BUSINESS OFFICER (Name and telephone No.) Michael A. Korosec (206) 459-6372		10. TYPE OF AWARD <input type="checkbox"/> NEW <input type="checkbox"/> CONTINUATION <input type="checkbox"/> RENEWAL <input checked="" type="checkbox"/> REVISION <input type="checkbox"/> SUPPLEMENT	

11. DOE PROJECT OFFICER (Name, address, zip code, telephone No.) Kenneth J. Taylor (208) 526-9063 U.S. Department of Energy Idaho Operations Office 785 DOE Place, Idaho Falls, ID 83402		12. ADMINISTERED FOR DOE BY (Name, address, zip code, telephone No.) Trudy A. Thorne (208) 526-9519 U.S. Department of Energy Idaho Operations Office 785 DOE Place Idaho Falls, ID 83402	
--	--	--	--

13. RECIPIENT TYPE

<input checked="" type="checkbox"/> STATE GOV'T	<input type="checkbox"/> INDIAN TRIBAL GOV'T	<input type="checkbox"/> HOSPITAL	<input type="checkbox"/> FOR PROFIT ORGANIZATION	<input type="checkbox"/> INDIVIDUAL
<input type="checkbox"/> LOCAL GOV'T	<input type="checkbox"/> INSTITUTION OF HIGHER EDUCATION	<input type="checkbox"/> OTHER NONPROFIT ORGANIZATION	<input type="checkbox"/> C <input type="checkbox"/> P <input type="checkbox"/> SP	<input type="checkbox"/> OTHER (Specify)

14. ACCOUNTING AND APPROPRIATIONS DATA				15. EMPLOYER I.D. NUMBER,SSN	
a. Appropriation Symbol	b. B & R Number	c. FT/AFP/OC	d. CFA Number		
N/A					

16. BUDGET AND FUNDING INFORMATION	
a. CURRENT BUDGET PERIOD INFORMATION	b. CUMULATIVE DOE OBLIGATIONS
(1) DOE Funds Obligated This Action \$ -0-	(1) This Budget Period \$ 170,776 [Total of lines a.(1) and a.(3)]
(2) DOE Funds Authorized for Carry Over \$ -0-	(2) Prior Budget Periods \$ -0-
(3) DOE Funds Previously Obligated in this Budget Period \$ 170,776	(3) Project Period to Date \$ 170,776 [Total of lines b. (1) and b. (2)]
(4) DOE Share of Total Approved Budget \$ 170,776	
(5) Recipient Share of Total Approved Budget \$ 44,104	
(6) Total Approved Budget \$ 214,880	

17. TOTAL ESTIMATED COST OF PROJECT \$ 214,880
(This is the current estimated cost of the project. It is not a promise to award nor an authorization to expend funds in this amount.)

18. AWARD/AGREEMENT TERMS AND CONDITIONS

This award/agreement consists of this form plus the following:

a. Special terms and conditions (if grant) or schedule, general provisions, special provisions (if cooperative agreement)

b. Applicable program regulations (specify) _____ (Date) _____

c. DOE Assistance Regulations, 10 CFR Part-600, as amended, Subparts A and B (Grants) or C (Cooperative Agreements).

d. Application proposal dated May 29, 1987 as submitted with changes as negotiated

19. REMARKS This Modification extends the budget and project period to May 31, 1989, and revises Part IV - Statement of Work as follows:

2.0 - SCOPE - Change "The drilling of six . . ." to "The drilling of eight . . ."

4.0 - TECHNICAL TASKS - Task 4.1, change "four 150m and two 300m . . ." to "eight 150m . . ."

20. EVIDENCE OF RECIPIENT ACCEPTANCE <u>James A. Stearns</u> (Signature of Authorized Recipient Official) (Date) JAMES A. STEARNS (Name) Department Supervisor (Title)	21. AWARDED BY <u>J. O. Lee</u> 2-15-89 (Signature) (Date) J. O. Lee, Contracting Officer (Name) Procurement & Contract Operations Branch (Title)
---	--

UNIVERSITY OF UTAH RESEARCH INSTITUTE

UURI

EARTH SCIENCE LABORATORY
391 CHIPETA WAY, SUITE C
SALT LAKE CITY, UTAH 84108-1295
TELEPHONE 801-524-3422

September 15, 1989

Michael A. Korosec
Washington State Dept. Natural Resources
Div. of Geology & Earth Resources
MS: PY-12
Olympia WA 98504

Dear Michael:

Enclosed are my comments on your draft final report "New K-Ar age dates for the Indian Heaven Quaternary Volcanic Field, South Cascade Range Washington," and comments in the margins on a copy of the text. Marshall Reed (DOE/DGE) and I have discussed the draft and his comments are also included.

We understand your problem with the University of Arizona age dates but still hope for a more complete report which discusses the "time-space-composition-volume models" for the Indian Heaven volcanic field, perhaps making more use of field relationships and geochemical data. We also hope you will discuss the limitations of the K-Ar dating method as applied to these volcanic rocks.

Since the grant time extension has already terminated and a substantial amount of work may be necessary to complete the final report, you should request a second no-cost time extension by contacting Ken Taylor, DOE/ID. Marshall and I would like to see a revised draft of the report before a final report is submitted to DOE.

Please call me with any questions regarding our comments on the report.

Sincerely,



Howard P. Ross
Project Manager

cc: Marshall Reed, DOE/DGE
Ken Taylor, DOE/ID

encls.

REVIEW COMMENTS

New K-Ar age dates for the Indian Heaven Quarternary volcanic field, South Cascade Range, Washington

1. The report title is far more limited than the Statement of Work (SOW) description, Task 4.2, which describes the integration of age dates with geochemistry, geology and interpretation.
2. The **Preface** contains several errors regarding the DOE/University of Arizona grant and unnecessary discussion about the reduced number of age dates available at no cost to the WDNR. The SOW called for 10-12 age dates. Delete the **Preface**, discuss limitations of K-Ar dating of these low K, low Ar rocks in **Discussion**, and put other explanation (if necessary) in a cover letter with the final report.
3. **Introduction**, page 1 incorrectly described the age dating grant.
4. An index map locating the study area within the State of Washington would be helpful.
5. Figures 1 and 2 could be substantially improved with little effort. Reduce enough to provide page margins, label Township, Range and Latitude and Longitude that is not legible. Figure caption at bottom of page; add a scale bar.
6. Can Figure 3 be improved by "question marks" to those age dates which are probably bad, and indicating the most reliable dates?
7. See editorial comments in text, pgs 11-22.
8. **Discussion**

The **Discussion** should be expanded considerably since this is the only portion of the report devoted to interpretation and the integration of geology, age dates, and geochemistry (other than for individual volcanic units). There could be a subsection "Problems and Limitations of Radiometric Age Dating in Cascade Studies" which would discuss the problems of too little K and too little radiogenic Ar. You could discuss the 1σ dating error as a laboratory determined indicator of reproducibility rather than an indication of accuracy, as demonstrated geologically.

There seems to be little integration of geochemistry in establishing the volcanic stratigraphy. This could also be described in a subsection.

The reader would benefit from your thoughts on: the heat budget for Cascade volcanic activity; how often the magma chamber is recharged; and how much heat may remain. The area heat flow data could be tied to the crustal heat budget. A schematic illustration showing volcanic activity versus time would be useful to the reader.

9. Some of the above may be more appropriate in a **Summary** and **Conclusions** chapter of a page or so. This would be the appropriate section to describe the relationship to geothermal potential, which is the principal DOE interest and has not been mentioned in the report.

10. **Format** For a final report to DOE, major headings should be in caps and centered. New sections need not start on a new page, if you wish to maintain the present pagination for appendices.

6000455

EARTH SCIENCE LABORATORY
UNIVERSITY OF UTAH RESEARCH INSTITUTE
391 Chipeta Way, Suite C
Salt Lake City, Utah 84108
(801) 524-3422

2-23-87
DATE

Peggy Brookshier Doc/Idaho _____
TO ORG./LOCATION TELEPHONE NUMBER

Howard Ross URI 524-3444
FROM ORG./LOCATION TELEPHONE NUMBER

THIS TRANSMITTAL CONSISTS OF 2 PAGES.
(excluding cover sheet)

VERIFICATION TELEPHONE NO. (801) 524-3437

M E M O R A N D U M

TO: Peggy Brookshier
FROM: Howard Ross
SUBJECT: Wording Changes for PRDA
DATE: February 23, 1987

A broadening of the scope of work for the State Cooperative Program PRDA as you have suggested will require several wording changes in the cover letter and the basic PRDA document. My initial thoughts on these changes follow below.

DOE-ID Cover Letter, Pg. 1, Para. 2

The responses should demonstrate that: (1) the agency is designated by the state as being responsible for geothermal resources within the state; (2) the proposed studies and work effort address resource assessment, resource development, research, technical assistance, or related activities, on hydrothermal resources within the state; (3) the states from which the proposals are received must have a significant hydrothermal resource base as defined by DOE research programs or by U. S. Geological Survey Circulars 790 and 892; and (4) the proposed work must be in-state or have written approval from the appropriate executive in the other state(s) where the proposed work is to be done.

(or)

The areas of interest for this PRDA include resource assessment, resource development, research, technical assistance, and related activities relating to hydrothermal systems. Acceptable areas of research are geological, geochemical, geophysical, or hydrological aspects of hydrothermal systems. Development activities include drilling of wells and hydrologic testing to determine productivity (flow rate) and fluid temperatures, but would not include the construction of end user facilities.

The responses should demonstrate that: (1) the agency is designated by the state as being responsible for geothermal resources within the state; (2) the proposed work or studies addresses the areas of interest to DOE described above; (3) the proposed work or studies must be on hydrothermal resources, and the states from which the proposals are received must have a significant hydrothermal resource base as defined by DOE research programs or by U.S. Geological Circulars 790 and 892; and (4)..... (as is)..

PRDA OBJECTIVE, Pg. 1

The objective of this PRDA is the execution of grants which cost-share state-oriented research, resource assessment, resource development, technical assistance and related activities on those aspects of geothermal energy that are not presently being studied or developed by private industry. These activities must have the potential for results that will be applicable by industry in the development of geothermal resources.

PRDA SCOPE, Pg. 2, line 8

Reservoirs is encouraged. Also encouraged are resource assessment and resource development activities that would enhance the knowledge base of geothermal systems or regions and would provide important information that would not otherwise be available to encourage the development of geothermal resources. Resource development as used in this PRDA shall include well drilling and hydrologic testing to determine production and reservoir parameters but would not include the construction and operation of end user facilities. The data gathered by this research will be incorporated in existing geothermal libraries and will be made available to the public.

EVALUATION CRITERIA, Pg. 1

Criterion A, and B:

Substitute: research, resource assessment, resource development, technical assistance and related activities
in place of: research.



Department of Energy

Idaho Operations Office
785 DOE Place
Idaho Falls, Idaho 83402

Rec 3/5/87
9:00 am

from Peggy Brookshire
sent 3/4/87

Comments to Peggy via
telecon. 3/9/87

?? to Trudy Thorne (208)-526-9519

Prospective Proposers:

- Announcement ^{sent} to CBD about 3/1/87
- Expect Sol on street about 1 April

SUBJECT: Program Research and Development Announcement (PRDA) for State Geothermal Research and Development - PRDA No. DE-PR07-87ID12662

The U.S. Department of Energy, Idaho Operations Office, desires to receive and consider for support, proposals from state agencies who desire to cost-share on ~~_____~~ on those aspects of geothermal energy that are not being studied by private industry, but which have the potential for results that will be applicable by industry in development of geothermal resources. This letter summarizes the salient elements of the PRDA. It should be noted, however, that in the event of any conflict between this cover letter and the PRDA, the PRDA will prevail. research and develop - w

To qualify for consideration under this PRDA the minimum requirements listed in Section II must be met. The supporting documentation is to be included as appendices to the Technical Proposal.

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.

Each proposal must be valid for at least ~~100 days~~ after the closing date of this PRDA. 6 months (P)

The total amount of DOE funding allotted for this program is approximately ~~_____~~, and the state must cost-share ~~_____~~ of the gross amount requested. It is anticipated that ~~_____~~ will be made depending on the amount of each award. The expected contractual relationship will be grants. \$171K
-
- an absolute max?

Any information in your proposal considered proprietary should be clearly and specifically identified. Although proposals must be consistent with this PRDA, it is DOE policy to discourage "brochuremanship" and unnecessarily costly proposal preparation. This PRDA does not commit the Government to pay any costs incurred in the preparation or submission of any proposal or to provide support for any effort.

DOE, in evaluating proposals, reserves the right to use any assistance deemed advisable, in accordance with applicable regulations, including qualified personnel from other Federal and State agencies, universities, industry, and DOE-ID's principal management and operating contractor, EG&G Idaho, Inc. 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.

Questions regarding this PRDA must be submitted in writing by [REDACTED] 1980 to the following address to assure receipt of response.

Proposals should be prepared in accordance with the instructions in Section III of this PRDA. The proposals should be submitted in two separate sections distinctly marked as Part I - Technical Proposal and Part II - Business Proposal. Eight (8) copies of the proposal should be addressed to:

Trudy A. Thorne
Contracts Management Division
U.S. Department of Energy
Idaho Operations Office
785 DOE Place
Idaho Falls, ID 83402

[REDACTED] at the above address no later than 4:00 p.m. local time, [REDACTED]. Late proposals, modifications or proposals, and withdrawals of proposals will be handled in accordance with the DOE Financial Assistance Rules, paragraph 600.13 which is printed in its entirety in Section VI of this solicitation.

only 2 mo 20 da before FY8

To facilitate handling, please place the following identification on the outside of the package containing your proposal:

"Proposal For State Geothermal Research and Development, PRDA No. DE-PR07-86ID12662, To Be Opened By Addressee Only."

DOE reserves the right to accept for support all, none, or any number, or part of the proposals submitted. Proposals will not be returned. While DOE may decide to hold discussions with those firms in the competitive range to clarify or expand on the information contained in their proposals, DOE reserves the right, without qualification, to select a firm for contract award based solely on the content of its proposal and relevant information obtained from others concerning the proposers' respective records of past performance. Therefore, your proposal should contain the most favorable terms to DOE which you wish to submit.

Prospective Proposers

-3-

Telephone inquiries requesting information concerning this PRDA shall be directed to Trudy A. Thorne on 208-526-9519.

Very truly yours,

William C. Drake
Contracting Officer

K2a-0849K

PRDA No. DE-PR07-87ID12662

UNITED STATES DEPARTMENT OF ENERGY
IDAHO OPERATIONS OFFICE

ADVANCED TECHNOLOGY DIVISION
PROGRAM RESEARCH AND DEVELOPMENT ANNOUNCEMENT

STATE GEOTHERMAL RESEARCH AND DEVELOPMENT

PRDA NO. DE-PR07-87ID12662

PROPOSALS DUE: JULY 10, 1987

Documentation on State Geothermal
Research and Development

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PRDA No. DE-PRO7-87ID12662

SECTION I

OBJECTIVE, BACKGROUND, AND SCOPE

SECTION IOBJECTIVE, BACKGROUND, AND SCOPE

A. OBJECTIVE

The objective of this PRDA is the execution of grants which cost-share state-oriented resource assessment, resource development or technical assistance and related activities on those aspects of geothermal energy that are not being studied by private industry, but which have the potential for results that will be applicable by industry in development of geothermal resources. *no research ??*

B. BACKGROUND

The Geothermal Energy Research, Development, and Demonstration Act of 1974 presented certain Congressional findings. Among these were the facts that the Nation is suffering a critical shortage of environmentally acceptable forms of energy; the Nation's energy problems can be solved if a national commitment is made to dedicate the necessary financial resources, and enlist the cooperation of the private and public sectors, in developing geothermal resources and other nonconventional sources of energy; the conventional geothermal resources which are presently being used have limited total potential; but geothermal resources which are different from those presently being used, and which have extremely large energy content, are known to exist; some geothermal resources contain valuable by-products such as potable water and mineral compounds which should be processed and recovered as national resources; technologies are not presently available for the development of most of these geothermal resources, but technologies for the generation of electrical energy from geothermal resources are potentially economical and environmentally desirable, and the development of geothermal resources offers possibilities of process energy and other nonelectric applications; *many/* much of the known geothermal resources exist on the public lands; and that Federal financial assistance encourages the extensive exploration, research, and development in geothermal resources which will bring these technologies to the point of commercial application. *grammar*

Toward this end, Congress has set aside funds to be used specifically to assist states with significant hydrothermal resources to continue programs relating to resource assessment, development or technical assistance and related activities.

C. SCOPE

The research and development sought is for state agencies to cost-share on those aspects of geothermal energy that are consistent with the intent of Congress and the Department of Energy as delineated in the objective and background paragraphs A. and B. above. Program policy is

to encourage geographic and resource diversity in this program. Those projects which provide the greatest potential to enhance the objectives of the Department of Energy will receive greatest preference. The suggested areas of research within resource assessment are geological, geochemical, geophysical, and hydrological aspects of hydrothermal systems. Research on the selection, testing, and interpretation of new technologies designed to locate and characterize hidden geothermal reservoirs is encouraged as well as research efforts that would enhance the knowledge base of geothermal systems or regions and would provide important information that would not otherwise be available to encourage the development of geothermal resources. The suggested research areas within resource development are well drilling and hydrologic testing to determine production and reservoir parameters. However, proposals for construction and operation of an end user facility will not be funded. The suggested project areas within technical assistance are preparation of documents and/or the development of appropriate computer software programs for new methods of project development, equipment and material development, and resource exploration and development. However, proposals for activities normally performed by industry consultants, such as prefeasibility or feasibility studies on the resource and existing or planned installations for the purpose of developing geothermal systems, will not be considered. The data gathered by this research may be incorporated in existing geothermal libraries and may be made available to the public.

a definition!

- resource assessment

- not research

- see DOGAMI (1) DIT (7)

The proposer is to provide a concise but definitive scope of work for inclusion into any resulting grant. The individual key tasks are to be defined and listed in logical sequence. It is the responsibility of the proposer to include all items in the scope of work that are important to accomplish the stated purpose of the project. As a minimum, the following research details should be discussed:

1. How the proposed research will benefit others and how it will meet DOE's objectives.
2. Detail each proposed task, stating what will be accomplished, when it will be accomplished, and the cost of each task.
3. The proposed research must be on or related to a significant hydrothermal resource base as defined by DOE research programs or by U.S. Geological Survey resource assessments such as Circular 790, Circular 892, and their supporting documents. All areas for research must meet the minimum criteria for geothermal resources defined in U.S. Geological Survey Circular 892.

K2a-0850K

OK

SECTION II

MINIMUM REQUIREMENTS

SECTION II

MINIMUM REQUIREMENTS

To qualify for consideration under this PRDA, the following elements must be documented and included as appendices to the Technical Proposal:

1. The agency is designated by the state as being responsible for geothermal resources within the state.
2. The major area of the proposed research is: a) resource assessment; b) resource development; or, c) technical assistance and related activities on hydrothermal systems. (The proposal should address only one major area.)
3. The proposed research must be on or related to hydrothermal resources, and the states from which the proposals are received must have a significant hydrothermal resource base as defined by DOE research programs or by U. S. Geological Survey Circular 790 and 892.
4. The proposed work must be in-state or have written approval from the appropriate executive in the other state(s) where the proposed work is to be done.

SECTION III
EVALUATION CRITERIA

SECTION IIIEVALUATION CRITERIA

Proposals will undergo a comprehensive technical and business evaluation in accordance with the criteria listed below. The information required in the Technical and Business Proposals as outlined in Section III.B., Instructions for Preparation of Proposals, parallels the Evaluation Criteria. The information provided in the proposals forms the basis for evaluation. The criteria are listed in descending order of importance. The Technical Criteria are weighted approximately three times greater than the Business Criteria.

PART I - TECHNICAL PROPOSAL EVALUATION CRITERIA

The technical evaluation seeks to determine the adequacy of the documentation provided by the proposer and the applicability of that information to the user community. The technical evaluation criteria will be numerically rated and weighted in the following manner: Criterion A is weighted two times greater than Criterion B. Subcriterion A.1 is weighted approximately one-half the total weight of Criterion A. Subcriterion A.2 is weighted about one and one-half times the weight of Subcriterion A.3. Subcriterion B.1 is weighted about one and one-half times the weight of Subcriterion B.2.

Criterion A: Statement of Work

1. Usefulness of the proposed research on resource assessment, resource development, or technical assistance and related activities to industry and others in the development of geothermal resources.
2. Technical quality of the proposed work, including consideration of the merit of the proposed approach and probability of achieving positive results.
3. The significance of the hydrothermal resource.

Criterion B: Qualifications and Capabilities

1. Key personnel will be evaluated as to their knowledge and understanding of the technology involved in the proposed work, as demonstrated by education, publication, and work experience.
2. Proposing organization's and subcontractor's capabilities will be evaluated with regard to providing the necessary facilities and support. Under this criteria, past technical performance will also be evaluated.

PART II - BUSINESS PROPOSAL EVALUATION CRITERIA

Criterion C is weighted approximately four times as much as Criterion D.

Criterion C: Cost-Sharing - The degree of cost-sharing and the ability of the offeror to provide its cost-share commitment will be evaluated.

Criterion D: Project Financial Plan - The project financial plan will be evaluated to determine the realism and reasonableness of the proposed costs, manhours, and duration of the total project and adequacy of cost breakdown by cost element and tasks.
Complete Form EIA-459C - Federal Assistance Budget Information Form.

PROGRAM POLICY AND PREFERENCE FACTORS

The Source Selection Official may make selections for negotiations and subsequent awards in a manner that will further the objectives of DOE, considering the following factors:

1. Total funds available considering the funds required by a particular proposal.
2. The DOE cost-share will not exceed \$200,000 per award, and the proposer must cost-share a minimum of 10% of the gross amount requested. Any submission that proposes DOE's share of the costs in excess of the above limits will not be considered.
3. The potential benefit of the proposed project for the amount of DOE dollars spent.
4. The variety of projects which provide the greatest potential for data to enhance the goals of DOE.
5. Selections may be made to encourage geographic and resource diversity in the program.
6. Cost Considerations - The proposed cost is a function of the management approach, the technical approach, the manpower, the facilities, the organization, the uncertainties of the work, the proposer's competitive strategy and the economy. The panel will determine its own estimate of what it will probably cost the Government taking into account relevant data available. All other considerations being equal, total cost to the Government may be used in the final selection.

SECTION IV

INSTRUCTIONS, CONDITIONS, NOTICES TO PROPOSERS

SECTION IVINSTRUCTIONS, CONDITIONS, NOTICES TO PROPOSERSA. GENERAL CONDITIONS

The proposals will be evaluated in accordance with the applicable DOE Financial Assistance Rules: Title 10, Chapter II, Subchapter H, Part 600, and the criteria and considerations set forth in Section II of this PRDA. The DOE Order 4210 "Competitive, Negotiated Procurements Not Applicable to Source Evaluation Board Procedures" will be used for guidance. Information contained in the proposals shall be treated in accordance with the policies and procedures set forth in 600.18 of the DOE Financial Assistance Rules, as summarized in Section III of this PRDA.

DOE, in evaluating proposals, reserves the right to use any assistance deemed advisable, in accordance with applicable regulations, including qualified personnel from other Federal and State agencies, universities, industry, and DOE-ID's principal management and operating contractor, EG&G Idaho, Inc. 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.

DOE reserves the right to support all, none, or any number, or part of the proposals submitted. All proposers will be notified in writing of the action taken on their proposals. Proposers should allow approximately 90 days after the closing date for this notification. The status of any proposal during the evaluation and selection process will not be discussed with proposers.

To qualify for consideration under this PRDA the minimum requirements listed in Section II must be met. The supporting documentation is to be included as appendices to the Technical Proposal.

B. INSTRUCTIONS FOR PREPARATION OF PROPOSALS

The proposals should be submitted in two sections distinctly marked as Part I - Technical Proposal and Part II - Business Proposal. Eight (8) copies of each part should be provided. In order to facilitate orderly and expeditious review of proposals, proposers are requested to follow the format given below. Material not essential to evaluation of the proposal is not desired.

1. PART I - TECHNICAL PROPOSAL

a. Cover Page for Part I

Section VI to this solicitation provides a general format and the specific information which should appear on the cover sheet to Part I. The proposed number is for identification purposes and should be assigned to each proposal by its originator.

Identify the original proposal copy (i.e., original signature) as "Original Copy No. 1," and consecutively number remaining copies (i.e., 2 through 8).

The signature, title, address, and phone number of an authorized representative of the proposing organization must appear on the cover pages of both parts of the proposal in order for the proposal to be considered under this PRDA.

b. Abstract

A concise abstract (limited to approximately one page) summarizing the proposed project is to be included at the beginning of the proposal.

c. Table of Contents

Part I is to include a table of contents, with page numbers, to facilitate locating the elements outlined in these guidelines. All pages should be numbered.

d. Technical Evaluation Criteria

Statement of Work

The proposer shall provide a detailed Statement of Work which should include as a minimum the following:

State whether the area of research is resource assessment, resource development, or technical assistance and related activities. Once the area of research is identified, discuss the objective of the research and the benefits of the research.

If the research area is either resource assessment or resource development, discuss the hydrothermal resource to be researched and the significance of the resource. Provide a map with the location identified.

If the research area is technical assistance and related activities which is not related to one particular hydrothermal resource, list the hydrothermal resources in the state and discuss how the proposed technical assistance will help in the understanding or developing of hydrothermal resources within the state. If the technical assistance and related activities is related to one particular hydrothermal resource, provide the information requested in the paragraph above.

List and discuss in detail the key tasks necessary to accomplish the objective of the project.

Discuss any known or potential problems.

Include any other pertinent information which would aid DOE in understanding the research, particularly those factors which may make the project especially important in achieving DOE objectives.

Provide and discuss in detail the schedule for completing the project. Discuss in detail if certain start or completion dates are critical to the project. For example, if the schedule is dependent upon when one can get to the field to do the research, discuss the earliest and the latest date that you can get to the field without having to wait for another field season.

List and discuss the deliverables and/or reports that will be provided to DOE.

Criterion A - Statement of Work

Minimum DOE
requirements
reporting

1. The proposer shall address the degree to which the proposed work will benefit industry and others in the development of geothermal resources.
2. The submittal should address the proposed tasks in detail, stating what will be accomplished, when it will be accomplished, and the cost of each task.
3. The proposer should specifically indicate the location of the proposed research. The proposed research must be on or related to hydrothermal resources. The states from which proposals are received must have a significant hydrothermal resource base as defined by DOE research programs or by U.S. Geological Survey Circular 790 or 892.

Criterion B - Qualifications and Capabilities

1. Key personnel of the proposer and subcontractors (if any) who will be involved in the proposed effort should be listed and their functions and responsibilities described. The amount of time key project personnel will devote to the project should be stated. Capabilities of personnel who will be assigned to the project and how their capabilities will contribute to the success of the project should be described. The biographies of key personnel are requested. These should include education, pertinent publications, and work experience.

Consultant's capabilities (if applicable) should be described in the proposal. This should include a description of the functions, responsibilities, and qualifications of any consultant needed from outside the proposing organization. If need for a consultant has been identified but the specific consultant has not been selected, discuss the desired capabilities, how the consultant will be selected, and when the selection will be made.

2. The proposer should describe the resources and capabilities of the proposing organization including consultants and subcontractors and how they will contribute to the success of the project. Discuss any resources that will be required but have yet to be obtained and how the proposer plans to obtain the resources.

e. Appendices

To qualify for consideration under this PRDA, the following elements must be documented and included as appendices to the Technical Proposal:

1. The agency is designated by the state as being responsible for geothermal resources within the state.
2. The major area of the proposed research is: a) resource assessment; b) resource development; or, c) technical assistance and related activities on hydrothermal systems. (The proposal should address only one major area.)

only one -

3. The proposed research must be on or related to hydrothermal resources, and the states from which the proposals are received must have a significant hydrothermal resource base as defined by DOE research programs or by U. S. Geological Survey Circular 790 and 892.
4. The proposed work must be in-state or have written approval from the appropriate executive in the other state(s) where the proposed work is to be done.

2. PART II - BUSINESS PROPOSALS

- a. Cover Sheet for Part II. Refer to Section VI, Attachment 3, for format. Note that the signature(s) of the responsible individual(s) should be on the cover page of both parts of the proposal. The person signing should have the authority to commit the proposer to all of the provisions of the proposal.
- b. Table of Contents for Part II. Part II should include a Table of Contents, with page numbers, to facilitate locating the elements outlined in these guidelines.
- c. Business Evaluation Criteria

Criterion C - Cost-Sharing

Provide a detailed description and estimated monetary value of all contributions to the project by each participant, i.e., the proposed contribution of the participant (which must be at least 10% of the total project cost), the proposed contribution of DOE. Note that "cost-sharing" is not limited to monetary investments. For the purpose of this solicitation, "cost-sharing" is defined as any beneficial service or item, such as manpower, equipment, consultants, and computer time. However, payment of actual costs in the final contract will only include those costs which are allowable, incurred cost as defined in the applicable cost principals, and in cost-share ratios to be defined in negotiations.

Criterion D - Project Financial Plan

Cost data of the business proposal must be submitted on Federal Assistance Budget Information Form, Section VI, Attachment 4, with the support data noted in the instructions thereto. A detailed description of the cost elements should be attached. This description should be broken down in sufficient detail to permit evaluation of the unit costs of

each element; for example, number of hours and base labor rate for each classification of labor, method of computation, and application bases of different overhead pools. The proposer may append as many supporting schedules for each element of cost as required to detail fully the total cost of the project (not just DOE's share). The proposer is not entitled to include a fee or profit in this cost pricing proposal.

Provide a budget summary by the key (major functional) tasks determined in the work breakdown structure; 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 listed above.

If the proposal is to be a team arrangement, a principal grantee should be designated with other members shown as subcontractors or consultants. Each subcontractor or consultant should submit a supplementary Federal Assistance Budget Information Form prepared in the same manner as the principal grantee.

Provide financial data on the proposer and the proposer's available financial resources. Annual financial statements (preferably with auditor's opinion on the balance sheet and income and expense statement) for the past three years should be attached for proposers and major proposed subcontractors and consulting firms.

e. Program Policy and Preference Factors

The Program and Policy Factors may be used, if it is necessary, to assure that the objectives of DOE are met; and to provide equal opportunity for all states with significant hydrothermal resources.

f. Other Required Forms - The following forms are required before a PRDA can be executed.

- (1) The "Assurances" (see Section V) must be completed and signed by the proposer.
- (2) The "Federal Assistance Standard Form 424," Section VI, Attachment No. 5 of this PRDA, should be completed as applicable by the proposer.

These forms are for PRDA review only and will not be used in the evaluation. These forms should be submitted as part of Part II.

C. OTHER PERTINENT INFORMATION

1. False Statements

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

2. Treatment of Proprietary Information

DOE plans to disseminate program results to a wide technical community, including technical publications. Therefore, if you are proposing to withhold delivery of proprietary technical data or to restrict DOE or DOE laboratories from disseminating proprietary technical data to others which restricts program objectives, this can have a significant impact on the selection decision.

For the above reasons, you are requested to identify whether you are proposing to utilize proprietary technical data in the performance of the grant.

Proposals submitted in response to this PRDA may contain trade secrets and/or privileged or confidential commercial or financial information which the proposer (or his subcontractor offeror) does not want used or disclosed for any purpose other than evaluation of the proposal. The use and disclosure of such data may be restricted provided the proposer marks the cover sheet of the proposal with the following legend, specifying the pages of the proposal which are to be restricted in accordance with the conditions of the legend:

"The data contained in page(s) ___ 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 furnished purposes, provided that if a contract is awarded to this proposer 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 contract. This restriction does not limit the Government's right to use or disclose data obtained without restriction from any source, including the proposer."

Further, to protect such data, each page containing such data shall be specifically identified and marked, including each line or paragraph containing the data to be protected with a legend similar to the following:

"Use or disclosure of the data set forth in lines above is subject to the restriction on the cover page of this proposal."

DOE will utilize its best efforts to treat the data so marked in accordance with the above legend. It should be noted, however, that data bearing the aforementioned legend may be subject to release under the provisions of the Freedom of Information Act, 5 U.S.C. 552, as amended. The Government assumes no liability for disclosure or use of unmarked data and may use or disclose such data for any purpose.

Proposers are hereby notified that the DOE Evaluation Panel intends to make all proposals submitted, including any trade secrets and/or privileged, confidential and financial information contained therein, available to other DOE personnel or personnel in the Government's Contractor-operated National Laboratories or to other consultants to DOE, as necessary, for the sole purpose of assisting the Panel in its evaluation of the proposals. These individuals will be required to protect the confidentiality of any specifically identified information obtained as a result of their participation in the evaluation.

3. DOE Treatment of Proposal Information

Information contained in proposals will be utilized by DOE in accordance with the provisions of DOE Financial Assistance Rules 600.18. 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.

4. Inventions

Any agreement resulting from proposals submitted under this PRDA will provide for the assignment to the Government of the entire right, title, or 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.

A small business, institution of higher education or nonprofit scientific or educational organization is automatically entitled to a waiver of the Government title to inventions as set out in the clause "Patent Rights - Small Business Firms and Nonprofit Organizations." In order to qualify for this waiver the representation included in the Assurances must be executed by the proposer.

5. Rights in Technical Data

The Government shall obtain unlimited rights in the technical data contained in any proposal submitted in response to this PRDA which results in an award except those portions of the technical data which the proposer asserts and properly marks as proprietary data (see III.C.2.) or which are not directly related to or will not be utilized in the project and are deleted from the proposal with the concurrence of DOE. If the proposer believes that it is necessary to submit proprietary information as part of its work under any agreement resulting from this PRDA, 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.

6. 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.

7. Amendments

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

8. 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.

9. Government Right to Reject, Negotiate, or Award

The Government reserves the right, without qualification, to accept for support all, none, or any number, or part of the proposals submitted in response to this PRDA. 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.

10. 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.

11. Where to Send Proposal

Eight (8) copies of each proposal must be received at the following address on or before 4:00 p.m., local time, on July 10, 1987.

Trudy A. Thorne
Contracts Management Division
U.S. Department of Energy
Idaho Operations Office
785 DOE Place
Idaho Falls, Idaho 83402

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

"Proposal For State Geothermal Research and Development, PRDA
No. DE-PR07-86ID12662 - To Be Opened by Addressee Only"

12. Questions

Any questions regarding this PRDA must be submitted in writing by May 6, 1987, to the addressee above to assure receipt of response.

13. Elaborate Brochures

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

14. 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 Item 11. above.

15. 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 DOE Financial Assistance Rules 600.13, which is included in Section VI.

16. 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.

17. Disposition of Proposals

Proposals will not be returned (except for timely withdrawals).

18. Effective Period of Proposal

All proposals are required to remain in effect for at least 180 days from the date designated for receipt of proposals.

19. Type of Award Instrument

The work will be performed under a grant. No profit or fee shall be paid to the grantee.

20. Pre-award Costs

The Government is not liable for any costs incurred in the preparation of a proposal. Further, for a selected proposal no costs are reimbursable until after signing of the cooperative agreement unless specifically authorized in writing by the Contracting Officer.

21. Availability of Funds

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.

SECTION V
ASSURANCES

U.S. Department of Energy

Assurance of Compliance

Nondiscrimination in Federally Assisted Programs

(Hereinafter called the "Applicant") HEREBY AGREES to comply with Title VI of the Civil Rights Act of 1964 (Pub. L. 88-352), Section 18 of the Federal Energy Administration Act of 1974 (Pub. L. 93-275), Section 401 of the Energy Reorganization Act of 1974 (Pub. L. 93-438), Title IX of the Education Amendments of 1972, as amended, (Pub. L. 92-318, Pub. L. 93-568, and Pub. L. 94-482), Section 504 of the Rehabilitation Act of 1973 (Pub. L. 93-112), the Age Discrimination Act of 1975 (Pub. L. 94-135), Title VIII of the Civil Rights Act of 1968 (Pub. L. 90-284), the Department of Energy Organization Act of 1975 (Pub. L. 94-385), Title VIII of the Energy Conservation and Production Act of 1978, as amended, (Pub. L. 95-91), and the Energy Conservation and Production Act of 1978, as amended, (Pub. L. 95-91). In accordance with the above laws and regulations issued pursuant thereto, the Applicant agrees to assure that no person in the United States shall, on the ground of race, color, national origin, sex, age or handicap be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity in which the Applicant receives Federal assistance from the Department of Energy.

Applicability and Period of Obligation

In the case of any service, financial aid, covered employment, equipment, property, or structure provided, leased, or improved with Federal assistance extended to the Applicant by the Department of Energy, this assurance obligates the Applicant for the period during which Federal assistance is extended. In the case of any transfer of such service, financial aid, equipment, property, or structure, this assurance obligates the transferee for the period during which Federal assistance is extended. If any personal property is so provided, this assurance obligates the Applicant for the period during which it retains ownership or possession of the property. In all other cases this assurance obligates the Applicant for the period during which the Federal assistance is extended to the Applicant by the Department of Energy.

Employment Practices

Where a primary objective of the Federal assistance is to provide employment or where the Applicant's employment practices affect the delivery of services in programs or activities resulting from Federal assistance extended by the Department, the Applicant agrees not to discriminate on the ground of race, color, national origin, sex, age, or handicap in its employment practices. Such employment practices may include, but are not limited to, recruitment, recruitment advertising, hiring, layoff or termination, promotion, demotion, transfer, rates of pay, training and participation in upward mobility programs, or other forms of compensation and use of facilities.

Subrecipient Assurance

The Applicant shall require any individual, organization, or other entity with whom it subcontracts, subgrants, or subleases for the purpose of providing any service, financial aid, equipment, property, or structure to comply with laws cited above. To this end, the subrecipient shall be required to sign a written assurance form, however, the obligation of both recipient and subrecipient to ensure compliance is not relieved by the collection or submission of written assurance forms.

Data Collection and Access to Records

The Applicant agrees to compile and maintain information pertaining to programs or activities developed as a result of the Applicant's receipt of Federal assistance from the Department of Energy. Such information shall include, but is not limited to, the following: (1) the manner in which services are or will be provided and related data necessary for determining whether

any persons are or will be denied such services on the basis of prohibited discrimination; (2) the population eligible to be served by race, color, national origin, sex, age and handicap; (3) data regarding covered employment including use or planned use of bilingual public contact employees serving beneficiaries of the program where necessary to permit effective participation by beneficiaries unable to speak or understand English; (4) the location of existing or proposed facilities connected with the program and related information adequate for determining whether the location has or will have the effect of unnecessarily denying access to any person on the basis of prohibited discrimination; (5) the present or proposed membership by race, color, national origin, sex, age and handicap, in any planning or advisory body which is an integral part of the program; and (6) any additional written data determined by the Department of Energy to be relevant to its obligation to assure compliance by recipients with laws cited in the first paragraph of this assurance

The Applicant agrees to submit requested data to the Department of Energy regarding programs and activities developed by the Applicant from the use of Federal assistance funds extended by the Department of Energy. Facilities of the Applicant (including the physical plants, buildings or other structures) and all records, books, accounts, and other sources of information pertinent to the Applicant's compliance with the civil rights laws shall be made available for inspection during normal business hours on request of an officer or employee of the Department of Energy specifically authorized to make such inspections. Instructions in this regard will be provided by the Director, Office of Equal Opportunity, U.S. Department of Energy.

This assurance is given in consideration of and for the purpose of obtaining any and all Federal grants, loans, contracts (excluding procurement contracts), property discounts or other Federal assistance extended after the date hereof to the Applicant by the Department of Energy including installment payments on account after such date of application for Federal assistance which are approved before such date. The Applicant recognizes and agrees that such Federal assistance will be extended in reliance upon the representations and agreements made in this assurance and the United States shall have the right to seek judicial enforcement of this assurance. This assurance is binding on the Applicant, its successors, transferees, and assignees, as well as the person whose signature appears below and who is authorized to sign this assurance on behalf of the Applicant.

(Date)

(Name of Applicant)

(Address)

(Authorized Official)

()

(Applicant's Telephone Number)

PRDA No. DE-PR07-87ID12662

SECTION VI

ATTACHMENTS

SECTION VI

ATTACHMENTS

	<u>Attachment No.</u>
Late Proposal Rules (DOE-FAR 600.13).....	1
Part I - Technical Proposal Cover Page.....	2
Part II - Business Proposal Cover Page.....	3
Federal Assistance Budget Information Form.....	4
Standard Form 424 - Federal Assistance Application.....	5

LATE PROPOSAL RULES

PROPOSAL DEADLINES

Regulations concerning proposal deadlines and late proposals are contained in 10 CFR Subchapter H - Assistance Regulations. Part 600, Section 600.13 is paraphrased below for proposers' edification:

(a) Each solicitation shall include a deadline date for submission of proposals. The established deadline shall also apply to any amendment to a proposal initiated by an applicant. A proposal or amendment shall be timely if it is:

(1) Received at the location specified in the solicitation on or before the established deadline date and time; or

(2) Received after the deadline date, and the proposal or amendment was sent by first class mail, was postmarked on or before the deadline date, and is received by DOE before technical evaluation of all acceptable proposals submitted in response to the solicitation begins. Proposers should obtain a legibly dated mailing receipt from the US Postal Service or use certified or registered mail to enable them to substantiate the date of mailing. Private metered postmarks shall not be acceptable proof of the date of mailing; and

(3) Complete (See 600.10(d) and 600.11(c)).

(b) DOE shall not consider and shall return any proposal that does not meet the requirements of paragraphs (a)(1) or (a)(2) and (a)(3) of this section.

(c) If necessary, DOE may extend an established proposal deadline by publishing a timely notice of the extension in the same manner as the solicitation was publicized. The extension of time shall apply to all proposers.

SAMPLE DOE PROPOSAL COVER PAGE
PART I - TECHNICAL PROPOSAL
SUBMITTED TO THE
DEPARTMENT OF ENERGY
IDAHO OPERATIONS OFFICE
STATE GEOTHERMAL RESEARCH AND DEVELOPMENT
PRDA NO. DE-PR07-87ID12662

Copy No. _____ of _____

Date of Submission _____

Name of Proposer _____

Address of Proposer _____

Title of Proposal _____

Type of Research/Project Resource Assessment / Resource Development /
Technical Assistance /

Location of Work _____

Proposed Start Date _____ Proposed Project Duration _____
(in months)

Proposed Project Manager _____ Phone No. () _____

Permission for Outside Evaluation Yes _____ No _____

AUTHORIZED OFFICIAL: Signature _____

Name Typed _____

Title _____

Date _____

SAMPLE DOE PROPOSAL COVER PAGE

PART II - BUSINESS PROPOSAL

SUBMITTED TO THE

DEPARTMENT OF ENERGY

IDAHO OPERATIONS OFFICE

STATE GEOTHERMAL RESEARCH AND DEVELOPMENT

PRDA NO. DE-PRO7-87ID12662

Copy No. _____ of _____

Date of Submission _____

Name of Proposer _____

Address of Proposer _____

Title of Proposal _____

Location of Work _____

Proposed Total Project Cost _____ DOE Funding Requested _____

Proposed Start Date _____ Proposed Project Duration _____
(in months)

Official Contact for Negotiations _____ Phone No. () _____

Permission for Outside Evaluation Yes ___ No ___

Effective Period of Proposal 180 days

AUTHORIZED OFFICIAL: Signature _____

Name Typed _____

Title _____

Date _____

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 <small>(Mark appropriate box)</small> <input type="checkbox"/> NOTIFICATION OF INTENT (Opt.) <input type="checkbox"/> REPORT OF FEDERAL ACTION		b. DATE Year month day 19			b. DATE ASSIGNED Year month day 19																		
4. LEGAL APPLICANT/RECIPIENT 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.) :		5. FEDERAL EMPLOYER IDENTIFICATION NO. a. NUMBER : b. TITLE :		6. PROGRAM (From Federal Catalog)																			
7. TITLE AND DESCRIPTION OF APPLICANT'S PROJECT		8. TYPE OF APPLICANT/RECIPIENT A-State B-Interstate C-Substate District D-County E-City F-School District G-Special Purpose District H-Community Action Agency I-Higher Educational Institution J-Indian Tribe K-Other (Specify):		9. TYPE OF ASSISTANCE A-State Grant B-Supplemental Grant C-Loan D-Insurance E-Other Enter appropriate letter(s)																			
10. AREA OF PROJECT IMPACT (Names of cities, counties, States, etc.)		11. ESTIMATED NUMBER OF PERSONS BENEFITING		12. TYPE OF APPLICATION A-New B-Renewal C-Revision D-Continuation E-Augmentation Enter appropriate letter																			
13. PROPOSED FUNDING		14. CONGRESSIONAL DISTRICTS OF:		15. TYPE OF CHANGE (For 1st or 2nd) A-Increase Dollars B-Decrease Dollars C-Increase Duration D-Decrease Duration E-Cancellation F-Other (Specify): Enter appropriate letter(s)																			
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>a. FEDERAL</td> <td>\$</td> <td>.00</td> </tr> <tr> <td>b. APPLICANT</td> <td></td> <td>.00</td> </tr> <tr> <td>c. STATE</td> <td></td> <td>.00</td> </tr> <tr> <td>d. LOCAL</td> <td></td> <td>.00</td> </tr> <tr> <td>e. OTHER</td> <td></td> <td>.00</td> </tr> <tr> <td>f. TOTAL</td> <td>\$</td> <td>.00</td> </tr> </table>		a. FEDERAL	\$.00	b. APPLICANT		.00	c. STATE		.00	d. LOCAL		.00	e. OTHER		.00	f. TOTAL	\$.00	16. PROJECT START DATE Year month day 19		17. PROJECT DURATION Months	
a. FEDERAL	\$.00																					
b. APPLICANT		.00																					
c. STATE		.00																					
d. LOCAL		.00																					
e. OTHER		.00																					
f. TOTAL	\$.00																					
		18. ESTIMATED DATE TO BE SUBMITTED TO FEDERAL AGENCY Year month day 19		19. EXISTING FEDERAL IDENTIFICATION NUMBER																			
20. FEDERAL AGENCY TO RECEIVE REQUEST (Name, City, State, ZIP code)				21. REMARKS ADDED <input type="checkbox"/> Yes <input type="checkbox"/> No																			
22. THE APPLICANT CERTIFIES THAT		a. To the best of my knowledge and belief, data in this preapplication/application are true and correct, the document has been duly authorized by the governing body of the applicant and the applicant will comply with the attached assurances if the assistance is approved.		b. If required by OMB Circular A-95 this application was submitted pursuant to instructions therein, to appropriate clearinghouses and all responses are attached:																			
		(1) (2) (3)		No Yes response response <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>																			
23. CERTIFYING REPRESENTATIVE		a. TYPED NAME AND TITLE		b. SIGNATURE																			
				c. DATE SIGNED Year month day 19																			
24. AGENCY NAME				25. APPLICATION RECEIVED Year month day 19																			
26. ORGANIZATIONAL UNIT		27. ADMINISTRATIVE OFFICE		28. FEDERAL APPLICATION IDENTIFICATION																			
29. ADDRESS				30. FEDERAL GRANT IDENTIFICATION																			
31. ACTION TAKEN		32. FUNDING		33. ACTION DATE Year month day 19																			
<input type="checkbox"/> a. AWARDED <input type="checkbox"/> b. REJECTED <input type="checkbox"/> c. RETURNED FOR AMENDMENT <input type="checkbox"/> d. DEFERRED <input type="checkbox"/> e. WITHDRAWN		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>a. FEDERAL</td> <td>\$</td> <td>.00</td> </tr> <tr> <td>b. APPLICANT</td> <td></td> <td>.00</td> </tr> <tr> <td>c. STATE</td> <td></td> <td>.00</td> </tr> <tr> <td>d. LOCAL</td> <td></td> <td>.00</td> </tr> <tr> <td>e. OTHER</td> <td></td> <td>.00</td> </tr> <tr> <td>f. TOTAL</td> <td>\$</td> <td>.00</td> </tr> </table>		a. FEDERAL	\$.00	b. APPLICANT		.00	c. STATE		.00	d. LOCAL		.00	e. OTHER		.00	f. TOTAL	\$.00	34. STARTING DATE Year month day 19	
a. FEDERAL	\$.00																					
b. APPLICANT		.00																					
c. STATE		.00																					
d. LOCAL		.00																					
e. OTHER		.00																					
f. TOTAL	\$.00																					
				35. CONTACT FOR ADDITIONAL INFORMATION (Name and telephone number)																			
				36. ENDING DATE Year month day 19																			
				37. REMARKS ADDED <input type="checkbox"/> Yes <input type="checkbox"/> No																			
38. FEDERAL AGENCY A-95 ACTION		a. In taking above action, any comments received from clearinghouses were considered. If agency response is due under provisions of Part 1, OMB Circular A-95, it has been or is being made.		b. FEDERAL AGENCY A-95 OFFICIAL (Name and telephone no.)																			

SECTION I—APPLICANT/RECIPIENT DATA

SECTION II—CERTIFICATION

SECTION III—FEDERAL AGENCY ACTION

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. |
| 2a. Applicant's own control number, if desired. | E. Other. Explain on remarks page. |
| 2b. Date Section I is prepared. | 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. |
| 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. | 11. Estimated number of persons directly benefiting from project. |
| 3b. Date applicant notified of clearinghouse identifier. | 12. Use appropriate code letter. Definitions are: |
| 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. | A. New. A submittal for the first time for a new project. |
| 5. Employer identification number of applicant as assigned by Internal Revenue Service. | 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. |
| 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. | C. Revision. A modification to project nature or scope which may result in funding change (increase or decrease). |
| 6b. Program title from Federal Catalog. Abbreviate if necessary. | 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. |
| 7. Brief title and appropriate description of project. For notification of intent, continue in remarks section if necessary to convey proper description. | E. Augmentation. A requirement for additional funds for a project previously awarded funds in the same funding/budget period. Project nature and scope unchanged. |
| 8. Mostly self-explanatory. "City" includes town, township or other municipality. | 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. |
| 9. Check the type(s) of assistance requested. The definitions of the terms are: | 14a. Self explanatory. |
| A. Basic Grant. An original request for Federal funds. This would not include any contribution provided under a supplemental grant. | 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." |
| 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). | 15. Complete only for revisions (item 12c), or augmentations (item 12e). |
| C. Loan. Self explanatory. | |

- | | |
|--|---|
| <p>Item</p> <p>16. Approximate date project expected to begin (usually associated with estimated date of availability of funding).</p> <p>17. Estimated number of months to complete project after Federal funds are available.</p> <p>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.</p> | <p>Item</p> <p>19. Existing Federal identification number if this is not a new request and directly relates to a previous Federal action. Otherwise write "NA".</p> <p>20. Indicate Federal agency to which this request is addressed. Street address not required, but do use ZIP.</p> <p>21. Check appropriate box as to whether Section IV of form contains remarks and/or additional remarks are attached.</p> |
|--|---|

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:

- | | |
|--|--|
| <p>Item</p> <p>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.</p> <p>23a. Name and title of authorized representative of legal applicant.</p> | <p>Item</p> <p>23b. Self explanatory.</p> <p>23c. Self explanatory.</p> <p>Note: Applicant completes only Sections I and II. Section III is completed by Federal agencies.</p> |
|--|--|

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:

- | | |
|--|--|
| <p>Item</p> <p>24. Executive department or independent agency having program administration responsibility.</p> <p>25. Self explanatory.</p> <p>26. Primary organizational unit below department level having direct program management responsibility.</p> <p>27. Office directly monitoring the program.</p> <p>28. Use to identify non-award actions where Federal grant identifier in item 30 is not applicable or will not suffice.</p> <p>29. Complete address of administering office shown in item 26.</p> <p>30. Use to identify award actions where different from Federal application identifier in item 28.</p> <p>31. Self explanatory. Use remarks section to amplify where appropriate.</p> <p>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.</p> <p>33. Date action was taken on this request.</p> <p>34. Date funds will become available.</p> | <p>Item</p> <p>35. Name and telephone no. of agency person who can provide more information regarding this assistance.</p> <p>36. Date after which funds will no longer be available.</p> <p>37. Check appropriate box as to whether Section IV of form contains Federal remarks and/or attachment of additional remarks.</p> <p>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".</p> <p>Federal Agency Procedures—special considerations</p> <p>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.</p> <p>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.</p> <p>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.</p> |
|--|--|

FEDERAL ASSISTANCE BUDGET INFORMATION FORM

FORM EIA 459C
10 80

FORM APPROVED
OMB No. 1500-0127

1 Program Project Identification No.	2 Program Project Title
3 Name and Address	4 Program Project Start Date
5 Completion Date	

SECTION A - BUDGET SUMMARY

Grant Program Function or Activity (a)	Federal Catalog No (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1		\$	\$	\$	\$	\$
2						
3						
4						
E TOTALS		\$	\$	\$	\$	\$

SECTION B - BUDGET CATEGORIES

6 Object Class Categories	Grant Program Function or Activity				Total (5)
	(1)	(2)	(3)	(4)	
a. Personnel	\$	\$	\$	\$	\$
b. Fringe Benefits					
c. Travel					
d. Equipment					
e. Supplies					
f. Contractual					
g. Construction					
h. Other					
Total Direct Charges					
Indirect Charges					
k. TOTALS	\$	\$	\$	\$	\$
7 Program Income	\$	\$	\$	\$	\$

Memorandum

REC 2/12/87
HPR
FEB 7 1987 - from P.B.
PROJECTS AND EN
PROGRAMS

DATE:

REPLY TO
ATTN OF: CE-1

SUBJECT: Fiscal Year 1987 Funding for the DOE
Hydrothermal Industrialization Program

TO: Troy E. Wade II, Manager
Idaho Operations Office

CERTIFYING OFFICIAL

Name: Fred Glatstein

Signature: *Fred W. Glatstein*

Date: Feb. 11, 1987

DK 2/11/87

This memorandum authorizes Fiscal Year 1987 funding of \$1,410,000 (BA/BO) in operating funds under Budget and Reporting (B&R) Number AM 15 for the Hydrothermal Industrialization Program directed by Congress in P.L. 99-591, the FY 1987 Continuing Resolution Bill. A copy of the Senate Appropriations Committee report on HR 5162 is attached for your reference.

Attached to this authorization for your reference is a copy of the draft FTP received from your office. Please submit a draft of each Request for Proposals to the Headquarters program manager for prior review and approval. Any significant change in program direction requires the prior concurrence of the Headquarters Program Manager and the approval of the Director, Geothermal Technology Division and the Director, Office of Renewable Energy Technologies.

The Idaho Operations Office Approved Funding Program will be revised to reflect this authorization. The Headquarters contact for this authorization is Marshall Reed, FTS telephone 896-8076, for the resource assessment task, and Lew Pratsch, FTS telephone 896-1512, for the technical assistance task and resource development task. The IDO program manager for this authorization is Peggy Brookshire, FTS telephone 583-1403. The principal investigators for the research support contractors are Howard Ross (UURI), FTS telephone 588-3422, and for technical assistance Ben Lunis (INEL), FTS telephone 583-1458.

Donna R. Fitzpatrick

Donna R. Fitzpatrick
Assistant Secretary,
Conservation and Renewable Energy

Attachments

CPU
87-303

FEB 12 1987
02/12/87



10 P-6700 9 (Rev. 11-80)
 Ref: DOE Order 6700.7

**U.S. DEPARTMENT OF ENERGY
 FIELD TASK PACKAGE PROPOSAL/AGREEMENT**

1. Field Work Package Number 7AD1	2. Field Task Package Number	3. Task Sequence Number	4. Revision Number	5. Date Prepared 12/2/86
6. Field Task Package Title STATE COOPERATIVE RESEARCH AND DEVELOPMENT PROGRAM			7. Field Work Package Title Geothermal Technology Development	
8. Budget and Reporting Code AM 15 10 00 0	9. Field Task Package Term Begin: 1 2 0 1 8 6 1 1 3 0 8 8 End:	10. Contractor Name DOE-Idaho	11. Code	
12. Contractor Task Manager P. A. Brookshier		13. Principal Investigators INEL, UURI-ESL, LBL	14. Is this task package included in the current Institutional Plan? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
15. Work Location (if different from contractor's main office):			16. Does this task package include any management service efforts? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
a. Name of Facility			c. State	
b. City			d. Zip Code	
17. Task Description (200 words or less) <p>Cost shared research and development will be performed in states having significant hydrothermal resources by state designated agencies and educational institutions in areas of hydrothermal development not being studied by private industry. Applicable scientific support will be provided by the Idaho National Engineering Laboratory (INEL), Lawrence Berkeley Laboratory (LBL) and the Earth Science Laboratory of the University of Utah Research Institute (UURI-ESL). The research will be conducted only on hydrothermal systems in the areas of geological, geochemical, geophysical and hydrological aspects. This activity will be executed through the solicitation of proposals for cost shared participation by state agencies and educational institutions.</p> <p>Technical assistance and related activities for the development of hydrothermal systems will be continued similar to that currently being performed by the Oregon Institute of Technology Geo-Heat Center (OIT). State-of-the-art information regarding geothermal direct use and moderate temperature wellhead power generation system applications will be made available to users through technical assistance, maintenance of a technical library, referral and advise services, quarterly bulletin issuance, progress monitoring support, and related technical activities. Technical monitoring and management support will be provided by the INEL. This activity will be executed through the solicitation of proposals for cost shared participation by educational institutions.</p>				
18. Contractor Task Manager/Date		18a. Program Categorization (Fill in the appropriate square)		
_____ (Signature)		_____ (Date)		
		<input type="checkbox"/> BASIC & APPLIED RESEARCH	<input type="checkbox"/> ENGINEERING DEVELOPMENT	
		<input type="checkbox"/> EXPLORATORY DEVELOPMENT	<input type="checkbox"/> DEMONSTRATION	
		<input type="checkbox"/> TECHNOLOGY DEVELOPMENT	<input type="checkbox"/> COMMERCIALIZATION	
19. Detail Attachments (See instruction 19) a. <input type="checkbox"/> FACILITY REQUIREMENTS b. <input type="checkbox"/> PUBLICATIONS c. <input type="checkbox"/> PURPOSE d. <input type="checkbox"/> BACKGROUND e. <input type="checkbox"/> APPROACH f. <input type="checkbox"/> TECHNICAL PROGRESS/JUSTIFICATION g. <input type="checkbox"/> FUTURE ACCOMPLISHMENTS h. <input type="checkbox"/> RELATIONSHIPS TO OTHER PROJECTS i. <input type="checkbox"/> ENVIRONMENTAL EVALUATION j. <input type="checkbox"/> EXPLANATION OF MILESTONES k. <input type="checkbox"/> CAPITAL EQUIPMENT JUSTIFICATION l. <input type="checkbox"/> INVENTORIES JUSTIFICATION m. <input type="checkbox"/> APL ANALYSIS n. <input type="checkbox"/> OTHER _____				



**U.S. DEPARTMENT OF ENERGY
FIELD TASK PACKAGE PROPOSAL/AGREEMENT
TASK REQUIREMENTS FOR OPERATING/EQUIPMENT—COSTS AND OBLIGATIONS**

EO 1-9785-5, Rev. 11-85
Ref. DOE Order 5700.7

Contractor Name	Field Work Package Number	Field Task Package Number	Task Sequence Number	Revision Number	Date Prepared
EG&G Idaho, Inc.	7AD1				12/2/86
Field Task Package Title					
STATE COOPERATIVE RESEARCH AND DEVELOPMENT PROGRAM					
20. Staffing (in full person years)	FY-1986	FY-1987 Budget			FY-1988
		President's	Revised	Authorized	
a. Scientific	0		1		0
b. Other Direct	0		0		0
c. Total Direct	0		1		0
21. Obligations and Costs (in thousands)					
a. Total Costs (BO)	\$ 0	\$	\$ 962	\$	\$ 959
1. Total Direct Costs	\$	\$	\$ 39	\$	\$ 57
(a) Direct Salaries					
(b) Materials & Supplies					
(c) Subcontracts					
(d) Travel					
(e) Computer Services					
(f) Low Value Capital Equipment					
(g) Other <u>DOE-ID Contracts</u>			923		902
2. Total Overhead Costs	\$	\$	\$	\$	\$
(a) Direct Labor Burden					
(b) G&A Expenses					
(c) Common Support					
b. Total Obligations (BA)	\$ 550	\$	\$ 1410	\$	\$
c. Uncosted Obligations @ 9/30/1985 \$					
22. Equipment (in thousands)					
a. Equipment Costs (BO)	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
b. Equipment Obligations (BA)	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
c. Uncosted Obligations @ 9/30/1985 \$	0				
23. Other Costs and Obligations (not in 21.)					
a. Inventory Change Costs (BO)	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
b. Inventory Change Obligations (BA)	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
c. Uncosted Obligations @ 9/30/1985 \$	0				
d. Other Costs (BO)	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
e. Other Obligations (BA)	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0



FIELD TASK PACKAGE PROPOSAL/AGREEMENT
TASK REQUIREMENTS FOR OPERATING/EQUIPMENT—COSTS AND OBLIGATIONS

EO 1.2700 (Rev. 11-85)
Ref: DOE Order 5700.7

Table with 6 columns: Contractor Name (EG&G Idaho, Inc.), Field Work Package Number (7AD1), Field Task Package Number, Task Sequence Number, Revision Number, Date Prepared (12/2/86)

Field Task Package Title
STATE COOPERATIVE RESEARCH AND DEVELOPMENT PROGRAM

Table 24: Five Year Plan (in thousands) (Based on Constant 1988 Dollars). Columns: FY-1988, FY-1989, FY-1990, FY-1991, FY-1992. Rows: a. Total Operating Costs (BO), b. Total Operating Obligations (BA), c. Total Operating Staffing (Person Years), d. Total Equipment Costs (BO), e. Total Equipment Obligations (BA), f. Inventory Change Costs (BO), g. Inventory Change Obligations (BA)

Table 25: Milestone Schedule. Columns: Proposed Schedule (Begin, End), Authorized Schedule (Begin, End). Rows: a. Issue RFPs, b. Complete cost shared research grants, c. Complete technology transfer grant, d. Issue topical and final reports, e. Program coordination-level of effort, f. Scientific support



**U.S. DEPARTMENT OF ENERGY
FIELD TASK PACKAGE PROPOSAL/AGREEMENT
DETAIL ATTACHMENTS (CONTINUATION SHEET)**

ID P-8700.P (Rev. 11-85)
Ref: DOE Order 8700.7

Contractor Name	Field Work Package Number	Field Task Package Number	Task Sequence Number	Revision Number	Date Prepared
EG&G Idaho, Inc.	7AD1				12/2/86

Field Task Package Title
STATE COOPERATIVE RESEARCH AND DEVELOPMENT PROGRAM

19. Detail Attachments (continuation sheet): List in alphabetical order per squares filled in on Page 1.

c. PURPOSE

The purposes of this field task are (1) to conduct research on hydrothermal systems in several states in which significant geothermal potential exists, and (2) conduct technical assistance and related activities for the development of hydrothermal systems. State designated agencies and educational institutions will be utilized to accomplish these purposes.

d. BACKGROUND

Many regions in the United States are suspected of containing significant geothermal resources, as evidenced by deep thermal water and high heat flows; but these regions contain large areas with no surface thermal manifestations to indicate the geothermal activity. Only those states with identified or potential geothermal resources (as determined by the U.S. Geological Survey (USGS) geothermal resource assessments in Circulars 790 and 892) will be considered significant and be considered for this field task. Previous research conducted under the State Cooperative Reservoir Analysis Program helped delineate the areas of identified and potential geothermal resources of USGS Circular 892.

Technical assistance and technology transfer programs developed by the Department of Energy (DOE) and its contractors have been effective in developing an infrastructure of state agencies to provide state-of-the-art information to the technical and engineering firms supporting geothermal development. Past program activities have provided knowledgeable persons within the Idaho National Engineering Laboratory, the Oregon Institute of Technology, the University of Utah Research Institute and state energy and geological offices. These organizations will continue to provide a viable mechanism to productively disseminate high technology data.

The FY-1987 Continuing Resolution Bill, PL 99-591 includes \$2,000,000 funding to continue a minimal effort in the hydrothermal area. The funding will assist states with significant hydrothermal resources to continue programs relating to resource assessment, resource development, technical assistance and related activities. This field task package is prepared in response to this bill.

e. APPROACH

The field task will be accomplished through three activities, resource research, scientific support, and technology transfer. The scientific support activities will be related to resource research, and depending upon the context of the selected proposals, can be directly performed as a part of the proposed activity. All data and analyses will be published for use by industry, public citizens, and other researchers interested in the data.



U.S. DEPARTMENT OF ENERGY
FIELD TASK PACKAGE PROPOSAL/AGREEMENT
DETAIL ATTACHMENTS (CONTINUATION SHEET)

ID F-4700.P (Rev. 11-80)
Ref. DOE Order 5700.7

Page 5 of 8

Contractor Name	Field Work Package Number	Field Task Package Number	Task Sequence Number	Revision Number	Date Prepared
EG&G Idaho, Inc.	7AD1				12/2/86

Field Task Package Title
STATE COOPERATIVE RESEARCH AND DEVELOPMENT PROGRAM

19. Detail Attachments (continuation sheet): List in alphabetical order per squares filled in on Page 1.

a. APPROACH (continued)

Resource Research: DOE-ID will solicit proposals for cost-shared research with State designated agencies to gather the fundamental information needed to increase the knowledge of geothermal systems. DOE will cost-share up to 90% of the allowable cost of research projects associated with data collection and analysis. Technical monitoring of state agency activities will be provided by UURI-ESL.

Scientific Support: Scientific support of state resource investigation, in selected areas, will be performed by INEL, LBL, and UURI-ESL.

Technology Transfer: A solicitation will be prepared by DOE-ID and issued for an educational institution to provide a center of experienced personnel with geothermal expertise supported by appropriate reference data and computer programs to directly transfer high technology to geothermal energy users, and indirectly through state and other agencies.

A library of technical data will be maintained to provide an adequate reference source of state-of-the-art-technology data.

The selected institution will work with potential users, consultants, industry organizations, engineers, and state energy offices to provide technical data and assistance for the direct-utilization of geothermal energy. Referral and advisory services will be performed as a means of transferring technology. This contractor will prepare and issue quarterly bulletins to provide state-of-the-art geothermal data to individuals, firms, agencies, and organizations in the United States and foreign countries.

Progress monitoring information obtained through the contractors activities will be provided to the INEL who will include the information with INEL's input to the DOE National Progress Monitor. A brief final report will be prepared and issued by the contractor to summarize the significant activities and findings of the grant.

Technical monitoring and management support will be provided by the INEL to assist DOE-ID in the administration of the DOE grant.

f. TECHNICAL PROGRESS/JUSTIFICATION

FY-1978 through FY-1986

Research activities in the resource area began in FY-1978, and this continuing research has added greatly to the knowledge of geothermal resources in the United States. Early research covered the entire country and showed certain states to contain identified or potential geothermal resources. More recent research has concentrated on quantifying the identified and potential



**U.S. DEPARTMENT OF ENERGY
FIELD TASK PACKAGE PROPOSAL/AGREEMENT
DETAIL ATTACHMENTS (CONTINUATION SHEET)**

DO P-5700.P Rev. 11-80
Ref: DOE Order 5700.7

Contractor Name	Field Work Package Number	Field Task Package Number	Task Sequence Number	Revision Number	Date Prepared
EG&G Idaho, Inc.	7AD1				12/2/86

**Field Task Package Title
STATE COOPERATIVE RESEARCH AND DEVELOPMENT PROGRAM**

19. Detail Attachments (continuation sheet): List in alphabetical order per squares filled in on Page 1.

F. TECHNICAL PROGRESS/JUSTIFICATION (continued)

FY-1978 through FY-1986 (continued)

Technical assistance and technology transfer activities, starting in FY-1979, have been influential in the development of an infrastructure of consultants, developers, and users for the application of direct uses of hydrothermal energy. These activities are continuing to serve as a means of transferring technology developed through federal laboratories and in meeting the requirements of the Stevenson-Wydler Act of 1980, including establishing centers for industrial technology. Technical assistance, advisory and referral services were provided on request.

FY-1987

Resource Research: DOE-ID will issue a solicitation for proposals from State designated agencies or universities (usually the office of the State Geologist or State Water Resources Director designated as responsible for geothermal resources within their states) to cost share geothermal research projects with the Department of Energy. The studies to be performed may include heat flow determinations and measurements of thermal gradient and thermal conductivity, water chemistry and calculations of chemical geothermometers, passive and active seismic surveys, electrical geophysical surveys, structural geologic surveys, hydrologic studies, and compilation and reinterpretation of previous data. The research efforts will be selected by competitive review to determine those states to receive funding.

Scientific Support: Scientific support will be provided by INEL in the area of flow in fractured volcanics and hydrology of hydrothermal reservoirs, by LBL in the areas of hydrology and reservoir analysis, and by UURI-ESL in the areas of geophysical surveys and chemical analyses.

These contractors will integrate the data and analyses into final reports, and survey results will be presented to detail the work at each research site.

Technology Transfer: DOE-ID will solicit proposals from educational institutions to provide technical assistance. The competitively selected institution will provide technical assistance for the direct utilization of geothermal energy, including moderate temperature wellhead generator applications. The support will be provided directly to the geothermal users and indirectly through state agencies. State-of-the-art review documents will be prepared by the institution and distributed to users to provide data about the various aspects of developing geothermal direct use projects and moderate temperature binary wellhead generator systems. A technical library will be maintained and supplemented with National Laboratory developed data. A quarterly bulletin will be issued, and input will be provided for the National Progress Monitor. Advice and referral service will be provided on an as requested basis.



FIELD TASK PACKAGE PROPOSAL/AGREEMENT DETAIL ATTACHMENTS (CONTINUATION SHEET)

 ID F-5700.P (Rev. 11-85)
 Ref: DOE Order 5700.7

 Page 7 of 8

Contractor Name	Field Work Package Number	Field Task Package Number	Task Sequence Number	Revision Number	Date Prepared
EG&G Idaho, Inc.	7AD1				12/2/86

 Field Task Package Title
STATE COOPERATIVE RESEARCH AND DEVELOPMENT PROGRAM

19. Detail Attachments (continuation sheet): List in alphabetical order per squares filled in on Page 1.

f. TECHNICAL PROGRESS/JUSTIFICATION (continued)
FY-1988

Resource Research: State agency activities started in FY-1987 will be concluded, collected data will be incorporated into topical reports by the states and the scientific results will be presented to the final report for each activity.

Scientific Support: Scientific support data developed by INEL, LBL, and UURI-ESL will be presented in their reports on each research task.

Technology Transfer: The technology transfer contractor will conclude activities, and a summary final report of the tasks activities will be prepared and issued by the contractor.

FY 1989-1992

Program activities are not currently planned for this period.

g. FUTURE ACCOMPLISHMENTS

The program will be concluded in FY-1988.

h. RELATIONSHIP TO OTHER PROJECTS

The Geothermal Reservoir Technology Program has a continuing interchange of scientific information and technology with the resource research and scientific support activities. The research results of this program will be added to the scientific literature on geothermal reservoirs.

Demonstration program activities, reservoir confirmation and research programs, state resource and industrialization team coordination and progress monitoring tasks, both past and present, provide an excellent base from which to compliment the performance of the resource research and technology transfer activities.

i. ENVIRONMENTAL EVALUATION

Operations office monitoring methods and procedures will assure the compliance with environmental concerns and requirements. The activities funded by this program are not expected to require an Environmental Assessment (EA).



**U.S. DEPARTMENT OF ENERGY
FIELD TASK PACKAGE PROPOSAL/AGREEMENT
DETAIL ATTACHMENTS (CONTINUATION SHEET)**

DO P-8765.P (Rev. 11-85)
Ref: DOE Order 8798.7

Contractor Name	Field Work Package Number	Field Task Package Number	Task Sequence Number	Revision Number	Date Prepared
EG&G Idaho, Inc.	7AD1				12/2/86

**Field Task Package Title
STATE COOPERATIVE RESEARCH AND DEVELOPMENT PROGRAM**

19. Detail Attachments (continuation sheet): List in alphabetical order per squares filled in on Page 1.

j. EXPLANATION OF MILESTONES

- a. RFPs will be issued by DOE-ID in 90 days from the receipt of the headquarters funding letter. After the standard period for response, participants will be selected to cost-share research in the investigation of geothermal systems.
- b. The cost-shared research by state agencies will be completed by the end of 1988.
- c. Contractor activities in the technology transfer task is an on-going level of effort service and will be completed in November 1988.
- d. Contractors will provide topical reports on research progress to be published, and a final report will be prepared to cover all phases of the research project.
- e. Program coordination for the research activity and the technology transfer activity will be continued as a level of effort.
- f. Scientific support by LBL, INEL and WURI-ESL will be task oriented, and support efforts will be documented in appropriate reports.

*Draft 2/7/86
Subcommittee*

[COMMITTEE PRINT]

NOTICE: This is a draft only, subject to change until approved by the full Committee

Calendar No. 000

**99TH CONGRESS }
2d Session**

SENATE

**{ REPORT
99-000**

**ENERGY AND WATER DEVELOPMENT APPROPRIATION
BILL, 1987**

JULY 00 (legislative day, JULY 00), 1986 —Ordered to be printed

**Mr. HATFIELD, from the Committee on Appropriations,
submitted the following**

REPORT

[To accompany H.R. 5162]

The Committee on Appropriations, to which was referred the bill (H.R. 5162) making appropriations for energy and water development for the fiscal year ending September 30, 1987, and for other purposes; reports the same to the Senate with various amendments and presents herewith information relative to the changes recommended:

AMOUNT IN NEW BUDGET (OBLIGATIONAL) AUTHORITY, FISCAL YEAR 1987

Amount of bill as passed by the House.....	\$15,548,000,000
Budget estimates considered by House.....	15,867,643,000
Budget estimates considered by Senate.....	15,870,143,000
Section 302(b) budget resolution allocation.....	14,531,000,000
Amount of bill as reported to the Senate.....	14,526,725,000
The bill as reported to the Senate—	
Under the budget estimate, 1987.....	-1,340,918,000
Under the House-passed bill.....	-1,021,775,000
Under 302(b) allocation.....	-4,275,000

In fiscal year 1985, the Committee made funds available to conduct a technology assessment which evaluates the potential of producing hydrogen as a renewable fuel and identifies the research needed to accomplish this objective. The Committee has provided \$1,200,000 to allow the Hawaii Natural Energy Institute and the Florida Solar Energy Center to conduct research on the hydrogen technologies identified in the final report of the technology assessment. Priority is to be given to hydrogen production from renewable energy, photo conversion, and international research on hydrogen utilization.

GEOTHERMAL

The Geothermal Research and Development Program is aimed at resolving technical problems that preclude the private sector from fully developing our vast geothermal resources. The Committee recommends \$20,930,000 for geothermal activities, an increase of \$3,000,000 over the budget request and \$1,000,000 over the House allowance.

Hydrothermal industrialization.—The Committee includes \$2,000,000 to continue a minimal effort in the hydrothermal area. These funds will assist States with significant hydrothermal resources to continue programs relating to resource assessment, resource development, technical assistance, and related activities.

Geopressured resources.—The recommendation includes \$4,000,000 for geopressured resources, \$1,000,000 over the House and the budget request. This funding will continue analysis of long-duration flow test data from the design wells.

Geothermal technology.—The Committee recommends \$14,150,000 for geothermal technology activities, the same as the budget request and the House allowance.

The recommendation includes an additional \$3,000,000 for hot dry rock research. This additional amount will provide sufficient funds to bring this cost-shared program to successful completion.

HYDROPOWER

The Committee recommendation includes \$450,000 for small-scale hydropower, approximately the same amount allowed in fiscal years 1985-86.

ELECTRIC ENERGY SYSTEMS AND STORAGE

The Committee recommends \$28,019,000 for energy storage and electric energy systems, the same as the House and \$11,800,000 over the request.

Electric energy systems.—A total of \$11,319,000 is provided for electric energy systems, which is \$3,700,000 over the budget request and the same as the House allowance.

The recommendation includes \$3,700,000 to continue the Hawaii Deep Water Cable Program.

Energy storage systems.—An amount of \$16,700,000 is included for energy storage, an increase of \$8,100,000 over the budget request.



Department of Energy

Idaho Operations Office
785 DOE Place
Idaho Falls, Idaho 83402

November 21, 1986

SUBJECT: Program Research and Development Announcement (PRDA) for State Geothermal Research and Development

Prospective Proposers:

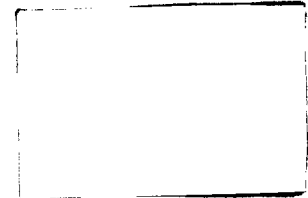
The U.S. Department of Energy, Idaho Operations Office, desires to receive and consider for support, proposals from state agencies who desire to cost-share on state-oriented research on those aspects of geothermal energy that are not being studied by private industry, but which have the potential for results that will be applicable by industry in development of geothermal resources. This letter summarizes the salient elements of the PRDA. It should be noted, however, that in the event of any conflict between this cover letter and the PRDA, the PRDA will prevail.

The responses should demonstrate that: (1) the agency is designated by the state as being responsible for geothermal resources within the state; (2) the areas of research are geological, geochemical, geophysical, or hydrological aspects of hydrothermal systems; (3) the proposed research must be on hydrothermal resources, and the states from which the proposals are received must have a significant hydrothermal resource base as defined by DOE research programs by U.S. Geological Survey Circular 790 and 892; and (4) the proposed work must be in-state or have written approval from the appropriate executive in the other state(s) where the proposed work is to be done.

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.

Each proposal must be valid for at least 180 days after the closing date of this PRDA.

The total amount of DOE funding allotted for this program is approximately \$510,000. It is anticipated that at least six awards will be made in which the DOE cost-share will not exceed \$75,000 per award with the state cost-sharing a minimum of 10% of the gross amount requested. The expected contractual relationship will be grants.



Any information in your proposal considered proprietary should be clearly and specifically identified. Although proposals must be consistent with this PRDA, it is DOE policy to discourage "brochuremanship" and unnecessarily costly proposal preparation. This PRDA does not commit the Government to pay any costs incurred in the preparation or submission of any proposal or to provide support for any effort.

Questions regarding this PRDA must be submitted in writing by December 11, 1986, to the following address to assure receipt of response.

Proposals should be prepared in accordance with the instructions in Section III of this PRDA. The proposals should be submitted in two separate sections distinctly marked as Part I - Technical Proposal and Part II - Business Proposal. Eight (8) copies of the proposal should be addressed to:

Ronald A. King
Contracts Management Division
U.S. Department of Energy
Idaho Operations Office
785 DOE Place
Idaho Falls, ID 83402

Proposals must be received at the above address no later than 4:00 p.m. local time, February 19, 1986. Late proposals, modifications or proposals, and withdrawals of proposals will be handled in accordance with the DOE Financial Assistance Rules, paragraph 600.13 which is printed in its entirety in Section III of this solicitation.

To facilitate handling, please place the following identification on the outside of the package containing your proposal:

"Proposal For State Geothermal Research and Development, PRDA
No. DE-PR07-86ID12662, To Be Opened By Addressee Only."

DOE reserves the right to reject any or all proposals. Proposals will not be returned. While DOE may decide to hold discussions with those firms in the competitive range to clarify or expand on the information contained in their proposals, DOE reserves the right, without qualification, to select a firm for contract award based solely on the content of its proposal and relevant information obtained from others concerning the proposers' respective records of past performance. Therefore, your proposal should contain the most favorable terms to DOE which you wish to submit.

Notice of Possible Availability of Loans for Bid Proposal Preparation by
Minority Business Enterprises Seeking DOE Contracts and Assistance

Section 211(e)(1) of the DOE Act (Public Law 95-91 as amended by Public Law 95-619) authorizes the Department of Energy (DOE) to provide financial assistance to minority business enterprises to assist them in their efforts

to participate in DOE acquisition and assistance programs. Financial assistance is in the form of direct loans to enable the preparation of bids or proposals for DOE contracts and assistance awards, subcontracts with DOE Operating Contractors, and contracts with subcontractors of DOE Operating Contractors. The loans are limited to 75% of the costs involved. Availability of these loans is subject to annual appropriation of funds and the remaining availability of funds from such appropriations.

DOE does not warrant that such assistance can be made available in sufficient time to prepare a proposal for this solicitation. Note, also, as a possible way to save time in the future, that the DOE loan program includes provisions for a preliminary review in advance of a specific loan request.

Information regarding loan availability, eligibility criteria, and how to apply may be obtained from:

San Francisco Operations Office, USDOE
1333 Broadway
Oakland, CA 94612
Attn: Minority Loan Program Office
(415) 273-6403

Telephone inquiries requesting information concerning this PRDA shall be directed to Ronald A. King on 208-526-0790.

Very truly yours,

William C. Drake
Contracting Officer

PRDA No. DE-PR07-86ID12662

UNITED STATES DEPARTMENT OF ENERGY
IDAHO OPERATIONS OFFICE

ADVANCED TECHNOLOGY DIVISION
PROGRAM RESEARCH AND DEVELOPMENT ANNOUNCEMENT

STATE GEOTHERMAL RESEARCH AND DEVELOPMENT

PRDA NO. DE-PR07-86ID12662

PROPOSALS DUE: FEBRUARY 19, 1987

Documentation on State Geothermal
Research and Development

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SECTION I

OBJECTIVE, BACKGROUND, AND SCOPE

SECTION IOBJECTIVE, BACKGROUND, AND SCOPE

A. OBJECTIVE

The objective of this PRDA is the execution of grants which cost-share state-oriented research on those aspects of geothermal energy that are not being studied by private industry, but which have the potential for results that will be applicable by industry in development of geothermal resources.

B. BACKGROUND

The Geothermal Energy Research, Development, and Demonstration Act of 1974 presented certain Congressional findings. Among these were the facts that the Nation is suffering a critical shortage of environmentally acceptable forms of energy; the Nation's energy problems can be solved only if a national commitment is made to dedicate the necessary financial resources, and enlist the cooperation of the private and public sectors, in developing geothermal resources and other nonconventional sources of energy; the conventional geothermal resources which are presently being used have limited total potential; but geothermal resources which are different from those presently being used, and which have extremely large energy content, are known to exist; some geothermal resources contain valuable by-products such as potable water and mineral compounds which should be processed and recovered as national resources; technologies are not presently available for the development of most of these geothermal resources, but technologies for the generation of electrical energy from geothermal resources are potentially economical and environmentally desirable, and the development of geothermal resources offers possibilities of process energy and other nonelectric applications; ~~of~~ *many* of the known geothermal resources exist on the public lands; and that Federal financial assistance is necessary to encourage the extensive exploration, research, and development in geothermal resources which will bring these technologies to the point of commercial application.

Toward this end, Congress has set aside funds to be used specifically to assist states with significant hydrothermal resources to continue programs relating to resource assessment, development, technical assistance, and related activities.

C. SCOPE

The research and development sought is for state agencies to cost-share on those aspects of geothermal energy that are consistent with the intent of Congress and the Department of Energy as delineated in the objective and background paragraphs (I.A. and I.B) of this section of the PDRA. Program policy is to encourage geographic and

resource diversity in this program. In this regard, only one award per state will be made. Those projects which provide the greatest potential to enhance the objectives of the Department of Energy will receive greatest preference. The areas of research are geological, geochemical, geophysical, and hydrological aspects of hydrothermal systems. Research on the selection, testing, and interpretation of new technologies designed to locate and characterize hidden geothermal reservoirs is encouraged, as well as research efforts that would enhance the knowledge base of geothermal systems or regions and would provide important information that would not otherwise be available to encourage the development of geothermal resources. The data gathered by this research will be incorporated in existing geothermal libraries and will be made available to the public.

Also encouraged are resource assessment and development efforts that would enhance the knowledge base. Resource development as used in this PRDA shall include

The proposer is to provide a concise but definitive scope of work for inclusion into any resulting grant. The individual key tasks are to be defined and listed in logical sequence. It is the responsibility of the proposer to include all items in the scope of work that are important to accomplish the stated purpose of the project. As a minimum, the following research details should be discussed:

- (1) How the proposed research will benefit others and how it will meet DOE's objectives.
- (2) Detail each proposed task, stating what will be accomplished, when it will be accomplished, and the cost of each task.
- (3) Location of proposed research. The states from which proposals are received must have a significant hydrothermal resource base as defined by DOE research programs or by U.S. Geological Survey resource assessments such as Circular 790, Circular 892, and their supporting documents. All areas for research must meet the minimum criteria for geothermal resources defined in U.S. Geological Survey Circular 892.

SECTION II
EVALUATION CRITERIA

SECTION IIEVALUATION CRITERIA

Following the preliminary review described in Section III, B., proposals will undergo a comprehensive technical and business evaluation in accordance with the criteria listed below. The information required in the Technical and Business Proposals as outlined in Section III.C., Instructions for Preparation of Proposals, parallels the Evaluation Criteria. The information provided in the proposals forms the basis for evaluation. The criteria are listed in descending order of importance. The Technical Criteria are weighted approximately ~~four~~ ^{two} times greater than the Business Criteria.

The technical evaluation seeks to determine the adequacy of the documentation provided by the proposer and the applicability of that information to the user community. The technical evaluation criteria will be numerically rated and weighted in the following manner: Criterion A is weighted two times greater than Criterion B. The subcriteria under Criterion A are weighted in descending order. The subcriteria under Criterion B are weighted equal. Criterion C is weighted approximately four times greater than Criterion D. Criterion D and E are weighted equal.

*not
Approximately
weighted (?)*

PART I--TECHNICAL PROPOSAL EVALUATION CRITERIACriterion A: Statement of Work

1. Appropriateness of the proposed research to the objectives of DOE.
2. Technical quality of the proposed research, including consideration of the merit of the proposed approach and probability of achieving positive results.
3. Location of research.

Criterion B: Qualifications and Capabilities

1. Key personnel will be evaluated as to their understanding of the technology required to perform the proposed research, as demonstrated by education, publication, and work experience.
2. Proposing organization's capabilities will be evaluated with regard to providing the necessary facilities and support.

PART II: BUSINESS PROPOSAL EVALUATION CRITERIA

Criterion C: Cost-Sharing - The degree of cost-sharing will be considered in the evaluation.

Criterion D: Project Financial Plan - The project Financial Plan will be evaluated to determine the reasonableness of costs, manhours, and time proposed for the total project and adequacy of cost breakdown by tasks on Standard Form 1411 - Contract Pricing Proposal.

Criterion E: Organization Information - The organization information will be evaluated for adequacy of resources available, financial position, organization size, and past record of business performance.

COST AND OTHER CONSIDERATIONS

In conjunction with the technical and business evaluation results, the Source Selection Official may make selections for negotiations and subsequent awards by considering the following factors:

1. The total cost to the Government for all the selected proposals.
2. The potential benefit of the proposed documentation for the amount of DOE dollars spent.

SECTION III

INSTRUCTIONS, CONDITIONS, NOTICES TO PROPOSERS

SECTION IIIINSTRUCTIONS, CONDITIONS, NOTICES TO PROPOSERSA. GENERAL CONDITIONS

The proposals will be evaluated in accordance with the applicable DOE Financial Assistance Rules: Title 10, Chapter II, Subchapter H, Part 600, and the criteria and considerations set forth in Section II of this PRDA. The DOE Order 4210 "Competitive, Negotiated Procurements Not Applicable to Source Evaluation Board Procedures" will be used for guidance. 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 requested to state on the cover sheet of their Technical Proposal if they do not consent to an evaluation by such non-DOE personnel. The proposers are 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 600.18 of the DOE Financial Assistance Rules, as summarized in Section III, paragraph D.2 of this PRDA.

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 for this notification. The status of any proposal during the evaluation and selection process will not be discussed with proposers.

B. PRELIMINARY REVIEW

The responses should demonstrate that:

1. The agency is designated by the state as being responsible for geothermal resources within the state.
2. The areas of research are geological, geochemical, geophysical, or hydrological aspects of hydrothermal systems.
3. The proposed research must be on hydrothermal resources, and the states from which the proposals are received must have a significant hydrothermal resource base as defined by DOE research programs or by U.S. Geological Survey Circular 790 and 892.
4. The proposed work must be in-state or have written approval from the appropriate executive in the other state(s) where the proposed work is to be done.

C. INSTRUCTIONS FOR PREPARATION OF PROPOSALS

The proposals should be submitted in two separate sections distinctly marked as Part I - Technical Proposal and Part II - Business Proposal. Eight (8) copies of each part should be provided. In order to facilitate orderly and expeditious review of proposals, proposers are requested to follow the format given below. Material not essential to evaluation of the proposal is not desired.

1. PART I - TECHNICAL PROPOSAL

a. Cover Page for Part I

Section ~~4~~³ to this solicitation provides a general format and the specific information which should appear on the cover sheet to Volume I. The proposed number is for identification purposes and should be assigned to each proposal by its originator.

Identify the original proposal copy (i.e., original signature) as "Original Copy No. 1," and consecutively number remaining copies (i.e., 2 through 8).

One of the following organizational classifications should appear on the cover page: ACADEMIC (Local, State, or Private Control); GOVERNMENT AGENCY (Local, State); NONACADEMIC, NONPROFIT (Private Ownership, Local Government-funded, State Government-funded); NONACADEMIC, PROFIT (Private Ownership, Partnership, Corporation, Private or Public Utility); INDIVIDUAL.

The signature, title, address, and phone number of an authorized representative of the proposing organization must appear on the cover pages of both volumes of the proposal in order for the proposal to be considered under this PRDA.

b. Abstract

proposed hydrothermal seawater project
research or resource → waste treatment system
A concise abstract of less than 250 words summarizing the waste treatment system to be documented is to be included at the beginning of the proposal.

c. Table of Contents

Volume I is to include a table of contents, with page numbers, to facilitate locating the elements outlined in these guidelines. All pages should be numbered.

d. Technical Evaluation Criteria

(1) Statement of Work (Criterion A)

The proposer shall address the degree to which the proposed research will benefit others and how it will meet DOE's objectives.

The submittal should address the proposed tasks in detail, stating what will be accomplished, when it will be accomplished, and the cost of each task.

The proposer should specifically indicate the location of the proposed research ^{which} must be on hydrothermal resources. The states from which proposals are received must have a significant hydrothermal resource base as defined by DOE research programs or by U.S. Geological Survey Circular 892.

(2) Qualifications and Capabilities (Criterion B)

Key personnel who will be involved in the proposed effort should be listed and their functions and responsibilities described. The amount of time key project personnel will devote to the project should be stated. Capabilities of all personnel who will be assigned to the project and how their capabilities will contribute to the success of the project should be described. The biographics of key personnel are requested. These should include education, pertinent publications, and work experience.

Consultant's capabilities (if applicable) should be described in the proposal. This should include a description of the functions, responsibilities, and qualifications of any consultant needed from outside the proposing organization. If need for a consultant has been identified but the specific consultant has not been selected, discuss the desired capabilities, how the consultant will be selected, and when the selection will be made.

The proposer should describe the experience and capabilities of the proposing organization and how they will contribute to the success of the project. Any pertinent information on past work accomplished should be provided.

relevant

2. PART II - BUSINESS PROPOSALS

- a. Cover Sheet for Volume II. Refer to Section V, Attachment 3, for format. Note that the signature(s) of the responsible individual(s) should be on the cover page of both volumes of the proposal. The person signing should have the authority to commit the proposer to all of the provisions of the proposal.
- b. Table of Contents for Volume II. Volume II should include a Table of Contents, with page numbers, to facilitate locating the elements outlined in these guidelines.
- c. Business Evaluation Criteria

- (1) Cost-Sharing (Criterion C)

Provide a detailed description and estimated monetary value of all contributions to the project by each participant, i.e., the proposed contribution of the participant (which must be at least 10% of the total project cost), the proposed contribution of DOE. Note that "cost-sharing" is not limited to monetary investment. For the purpose of this solicitation, "cost-sharing" is defined as any beneficial service or item, such as manpower, equipment, processes previously analyzed, technology, patents, consultants, and computer time. However, payment of actual costs in the final contract will only include those costs which are allowable, incurred cost as defined in FAR 231.2, and in cost-share ratios to be defined in negotiations.

- (2) Project Financial Plan (Criterion D)

Cost data of the business proposal must be submitted on Standard Form 1411, Section V, Attachment 4, with the support data noted in the footnotes and instructions thereto. The "Detailed Description of Cost Element" should be delineated in sufficient detail to permit evaluation of the unit costs of each element; for example, number of hours and base labor rate for each classification of labor, method of computation, and application bases of different overhead pools. The proposer may append as many supporting schedules for each element of cost as required to detail fully the total cost of the project (not just DOE's share).

If the proposal is to be a team arrangement, a principal contractor should be designated with other members shown as "consultants." Each such consultant should submit a supplementary Standard Form 1411 prepared in the same manner as the principal contractor.

(3) Organizational Information (Criterion E)

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 proposer and major proposed subcontractors and consulting firms.

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 experience.

d. Cost Considerations

The cost considerations consist of the offeror's estimated cost to perform the desired work as set forth in the Statement of Work. Since the cost considerations will be evaluated to determine such matters as the reasonableness of the cost, the probable cost to the Government, and an understanding of the magnitude of effort, it should be accurate, complete, and well documented.

The total amount of DOE funding allotted for this program is approximately \$510,000. It is anticipated that ^{at least} six grants will be made in which DOE's contribution cannot exceed \$75,000. Any submission that ^{a DOE cost share} proposes ~~costs or time~~ in excess of the above limits ^{will} may not be considered.

e. Other Required Forms - The following forms are required before a PRDA can be executed.

- (1) The "Federal Assistance Standard Form 424" and the "Assurances" which are attached to this form (see Section V, Attachment 5) should be completed as applicable by the proposer. (NOTE: These forms are required to be completed by those proposers covered by

OMB Circular A-102 - "Uniform Requirements for Assistance to State and Local Governments" and OMB Circular A-110 - "Grants and Agreements with Institutions of Higher Education, Hospitals, and Other Nonprofit Organizations.")

- (2) These forms will not be used in the evaluation; however, they should be submitted as part of the Business Proposal.

D. OTHER PERTINENT INFORMATION

1. False Statements

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

2. Treatment of Proprietary Information

Proposals submitted in response to this PRDA 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 grant, 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.

3. DOE Treatment of Proposal Information

Information contained in proposals will be utilized by DOE in accordance with the provisions of DOE Financial Assistance Rules 600.18. 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.

4. Inventions

Any agreement resulting from proposals submitted under this PRDA will provide for the assignment to the Government of the entire right, title, or 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.

A small business, institution of higher education or nonprofit scientific or educational organization is automatically entitled to a waiver of the Government title to inventions as set out in the clause "Patent Rights - Small Business Firms and Nonprofit Organizations." In order to qualify for this waiver the representation included in the Representations and Certifications must be executed by the proposer.

5. Rights in Technical Data

The Government shall obtain unlimited rights in the technical data contained in any proposal submitted in response to this PRDA which results in an award except those portions of the technical data which the proposer asserts and properly marks as proprietary data (see III.D.2.) or which are not directly related to or will not be utilized in the project and are deleted from the proposal with the concurrence of DOE. If the proposer believes that it is necessary to submit proprietary information as part of its work under any agreement resulting from this PRDA, 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.

6. 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.

7. Amendments

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

8. 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.

9. 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 PRDA 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.

10. 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.

11. Where to Send Proposal

Eight (8) copies of each proposal must be received at the following specified room on or before 4:00 p.m., local time, on February 19, 1987.

Ronald A. King
Contracts Management Division
U.S. Department of Energy
Idaho Operations Office
785 DOE ~~Street~~ *Place*
Idaho Falls, Idaho 83402

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

"Proposal For State Geothermal Research and Development, PRDA No. DE-PRO7-86ID12662 - To Be Opened by Addressee Only"

12. Questions

December Any questions regarding this PRDA must be submitted in writing by ~~January 11~~, 1987, to the addressee above to assure receipt of response.

13. Elaborate Brochures

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

14. 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 Item 11. above.

15. 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 DOE Financial Assistance Rules 600.13, which is included in Section V.

16. 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.

17. Disposition of Proposals

Proposals will not be returned (except for timely withdrawals).

18. Effective Period of Proposal

All proposals are required to remain in effect for at least 180 days from the date designated for receipt of proposals.

19. Type of Award Instrument

The work will be performed under a grant. No profit or fee shall be paid to the grantee.

20. Pre-award Costs

The Government is not liable for any costs incurred in the preparation of a proposal. Further, for a selected proposal no costs are reimbursable until after signing of the cooperative agreement unless specifically authorized in writing by the Contracting Officer.

21. Availability of Funds

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.

SECTION IV
REPRESENTATIONS AND CERTIFICATIONS

SECTION V
ATTACHMENTS

	<u>Attachment No.</u>
Late Proposal Rules (DOE-FAR 600.13).....	1
Part I - Technical Proposal Cover Page.....	2
Part II - Business Proposal Cover Page.....	3
Pricing Proposal Form - Standard Form 1411.....	4
Standard Form 424/Assurances.....	5

DOE-FAR 600.13 PROPOSAL DEADLINES

A proposal or proposal amendment shall be timely if it is:

1. Received at the location specified in the solicitation on or before the established deadline date and time; or
2. Received after the deadline date and the proposal or proposal amendment was sent by first class mail, was postmarked on or before the deadline date, and is received by DOE before technical evaluation of all acceptable proposals submitted in response to the solicitation begins. Proposers should obtain a legibly dated mailing receipt from the US Postal Service or use certified or registered mail to enable them to substantiate the date of mailing. Private metered postmarks shall not be acceptable proof of the date of mailing; and
3. Complete (See 600.10 below).

DOE shall not consider and shall return any application that does not meet the requirements of 1., 2., and 3. above.

If necessary, DOE may extend an established proposal deadline by publishing a timely notice of the extension in the same manner as the solicitation was publicized. The extension of time shall apply to all proposers.

DOE-FAR 600.10 FORM AND CONTENT OF PROPOSALS

- (a) Forms. Proposals shall be on the form or in the format specified by DOE in the applicable solicitation and must include all required information. For State government, local governments, or Indian tribal governments, proposals shall be made on the forms prescribed by OMB Circular A-102, Attachment M. Such proposers shall not be required to submit more than the original and two copies of their proposal.
- (b) Signature. The proposal must be signed by the individual who is proposing or by an individual who is authorized to act for the proposing organization and to commit the proposer to comply with the terms and conditions of the financial assistance instrument, if awarded.
- (c) Contents. In general, a financial assistance proposal shall include:
 - (1) A facesheet containing basic identifying information;

- (2) A narrative description of the proposed project, including the objectives of the project and the proposer's plan for carrying it out;
 - (3) A budget with supporting justification;
 - (4) Any required preaward assurances.
- (d) Incomplete proposals. DOE may return a proposal which does not include all information and documentation required by statute, program rule, and the solicitation, if, in the judgment of the DOE Contracting Officer, the nature of the omission precludes review of the proposal.

SAMPLE DOE PROPOSAL COVER PAGE

PART I - TECHNICAL PROPOSAL

SUBMITTED TO THE

DEPARTMENT OF ENERGY

IDAHO OPERATIONS OFFICE

Documentation on currently operating
LOW-LEVEL RADIOACTIVE WASTE TREATMENT SYSTEMS

STATE GEOLOGICAL
RESEARCH AND
CONSERVATION

PRDA NO. DE-PR07-851012568

86 ID 12662

Copy No. _____ of _____

Date of Submission _____

Name of Proposer _____

Address of Proposer _____

Type of Organization _____

Title of Proposal _____

Location of Work _____

Proposed Start Date _____ Proposed Project Duration _____
(in months)

Proposed Project Manager _____ Phone No. () _____

Permission for Outside Evaluation Yes ___ No ___

AUTHORIZED OFFICIAL: Signature _____

Name Typed _____

Title _____

Date _____

SAMPLE DOE PROPOSAL COVER PAGE

PART II - BUSINESS PROPOSAL

SUBMITTED TO THE

DEPARTMENT OF ENERGY

IDAHO OPERATIONS OFFICE

DOCUMENTATION ON CURRENTLY OPERATING
LOW-LEVEL RADIOACTIVE WASTE TREATMENT SYSTEMS

STATE GEOTHERMAL
RESEARCH AND
DEVELOPMENT

PRDA NO. DE-PRO7-851012568

7-26-85

Copy No. _____ of _____

Date of Submission _____

Name of Proposer _____

Address of Proposer _____

Type of Organization _____

Title of Proposal _____

Location of Work _____

Proposed Total Project Cost _____ DOE Funding Requested _____

Proposed Start Date _____ Proposed Project Duration _____
(in months)

Official Contact for Negotiations _____ Phone No. () _____

Permission for Outside Evaluation Yes ___ No ___

Effective Period of Proposal 180 days

AUTHORIZED OFFICIAL: Signature _____

Name Typed _____

Title _____

Date _____

CONTRACT PRICING PROPOSAL COVER SHEET

1. SOLICITATION/CONTRACT/MODIFICATION NO. FORM APPROVED
JAN 68
3090-0116

NOTE: This form is used in contract orders if submission of cost or pricing data is required. (See FAR 15.204-6(b))
 3. NAME AND ADDRESS OF OFFEROR (Include ZIP Code)

1A. NAME AND TITLE OF OFFEROR'S POINT OF CONTACT 13. TELEPHONE NO.

4. TYPE OF CONTRACT ACTION (Check)

- | | |
|--|---|
| <input type="checkbox"/> A. NEW CONTRACT | <input type="checkbox"/> D. LETTER CONTRACT |
| <input type="checkbox"/> B. CHANGE ORDER | <input type="checkbox"/> E. UNPRICED ORDER |
| <input type="checkbox"/> C. PRICE REVISION/REDETERMINATION | <input type="checkbox"/> F. OTHER (Specify) |

- 5. TYPE OF CONTRACT (Check)**
- FFP CPFF CPIF CPAF
 FPI OTHER (Specify)

6. PROPOSED COST (A+B+C)

A. COST	B. PROFIT/FEE	C. TOTAL
\$	\$	\$

7. PLACE(S) AND PERIOD(S) OF PERFORMANCE

8. List and reference the identification, quantity and total price proposed for each contract line item. A line item cost breakdown supporting this recap is required unless otherwise specified by the Contracting Officer. (Continue on reverse, and then on plain paper, if necessary. Use same headings.)

A. LINE ITEM NO.	B. IDENTIFICATION	C. QUANTITY	D. TOTAL PRICE	E. REF.

9. PROVIDE NAME, ADDRESS, AND TELEPHONE NUMBER FOR THE FOLLOWING (If available)

A. CONTRACT ADMINISTRATION OFFICE	B. AUDIT OFFICE

- | | | |
|---|--|--|
| <p>10. WILL YOU REQUIRE THE USE OF ANY GOVERNMENT PROPERTY IN THE PERFORMANCE OF THIS WORK? (If "Yes," identify)</p> <p><input type="checkbox"/> YES <input type="checkbox"/> NO</p> | <p>11A. DO YOU REQUIRE GOVERNMENT CONTRACT FINANCING TO PERFORM THIS PROPOSED CONTRACT? (If "Yes," complete Item 11B)</p> <p><input type="checkbox"/> YES <input type="checkbox"/> NO</p> | <p>11B. TYPE OF FINANCING (If one)</p> <p><input type="checkbox"/> ADVANCE PAYMENTS <input type="checkbox"/> PROGRESS PAYMENTS</p> <p><input type="checkbox"/> GUARANTEED LOANS</p> |
| <p>12. HAVE YOU BEEN AWARDED ANY CONTRACTS OR SUBCONTRACTS FOR THE SAME OR SIMILAR ITEMS WITHIN THE PAST 3 YEARS? (If "Yes," identify item(s), customer(s) and contract number(s))</p> <p><input type="checkbox"/> YES <input type="checkbox"/> NO</p> | <p>13. IS THIS PROPOSAL CONSISTENT WITH YOUR ESTABLISHED ESTIMATING AND ACCOUNTING PRACTICES AND PROCEDURES AND FAR PART 31 COST PRINCIPLES? (If "No," explain)</p> <p><input type="checkbox"/> YES <input type="checkbox"/> NO</p> | |

14. COST ACCOUNTING STANDARDS BOARD (CASB) DATA (Public Law 91-379 as amended and FAR PART 30)

- | | |
|---|--|
| <p>A. WILL THIS CONTRACT ACTION BE SUBJECT TO CASB REGULATIONS? (If "No," explain in proposal)</p> <p><input type="checkbox"/> YES <input type="checkbox"/> NO</p> | <p>B. HAVE YOU SUBMITTED A CASB DISCLOSURE STATEMENT (CASB DS-1 or 2)? (If "Yes," specify in proposal the office to which submitted and if determined to be adequate)</p> <p><input type="checkbox"/> YES <input type="checkbox"/> NO</p> |
| <p>C. HAVE YOU BEEN NOTIFIED THAT YOU ARE OR MAY BE IN NON-COMPLIANCE WITH YOUR DISCLOSURE STATEMENT OR COST ACCOUNTING STANDARDS? (If "Yes," explain in proposal)</p> <p><input type="checkbox"/> YES <input type="checkbox"/> NO</p> | <p>D. IS ANY ASPECT OF THIS PROPOSAL INCONSISTENT WITH YOUR DISCLOSED PRACTICES OR APPLICABLE COST ACCOUNTING STANDARDS? (If "Yes," explain in proposal)</p> <p><input type="checkbox"/> YES <input type="checkbox"/> NO</p> |

This proposal is submitted in response to the RFP contract, modification, etc. in Item 1 and reflects our best estimates and/or actual costs as of this date.

15. NAME AND TITLE (Type)	16. NAME OF FIRM
17. SIGNATURE	18. DATE OF SUBMISSION

FEDERAL ASSISTANCE		3. APPLICANT'S APPLICATION		4. STATE APPLICATION IDENTIFIER																			
1. TYPE OF ACTION: <input type="checkbox"/> PRE-FULFILLMENT APPLICATION <input type="checkbox"/> APPLICATION FOR IDENTIFICATION OF INTENT (90%) <input type="checkbox"/> REPORT OF FEDERAL ACTION <small>(Mark appropriate box)</small>		5. DATE: Year month day 19		6. DATE ASSIGNED: Year month day 19																			
6. LEGAL APPLICANT/RECIPIENT				7. FEDERAL EMPLOYER IDENTIFICATION NO.																			
a. Applicant Name : b. Organization Unit : c. Street/P.O. Box : d. City : e. State : f. Contact Person (Name & Telephone No.) :				a. County : b. ZIP Code :																			
7. TITLE AND DESCRIPTION OF APPLICANT'S PROJECT				8. TYPE OF APPLICANT/RECIPIENT A-State B-Interstate C-Substate District D-County E-City F-School District G-Special Purpose District H-Community Action Agency I-Higher Educational Institution J-Indian Tribe K-Other (Specify): Enter appropriate letter <input type="checkbox"/>																			
10. AREA OF PROJECT IMPACT (Names of cities, counties, States, etc.)				11. ESTIMATED NUMBER OF PERSONS BENEFITING																			
13. PROPOSED FUNDING				12. TYPE OF ASSISTANCE																			
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>a. FEDERAL</td> <td>\$</td> <td>.00</td> </tr> <tr> <td>b. APPLICANT</td> <td></td> <td>.00</td> </tr> <tr> <td>c. STATE</td> <td></td> <td>.00</td> </tr> <tr> <td>d. LOCAL</td> <td></td> <td>.00</td> </tr> <tr> <td>e. OTHER</td> <td></td> <td>.00</td> </tr> <tr> <td>f. TOTAL</td> <td>\$</td> <td>.00</td> </tr> </table>				a. FEDERAL	\$.00	b. APPLICANT		.00	c. STATE		.00	d. LOCAL		.00	e. OTHER		.00	f. TOTAL	\$.00	A-Basic Grant B-Supplemental Grant C-Loan D-Insurance E-Other Enter appropriate letter(s) <input type="checkbox"/>	
a. FEDERAL	\$.00																					
b. APPLICANT		.00																					
c. STATE		.00																					
d. LOCAL		.00																					
e. OTHER		.00																					
f. TOTAL	\$.00																					
14. CONGRESSIONAL DISTRICTS OF:				15. TYPE OF APPLICATION																			
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>a. APPLICANT</td> <td>b. PROJECT</td> </tr> </table>				a. APPLICANT	b. PROJECT	A-New B-Renewal C-Revision D-Continuation E-Augmentation Enter appropriate letter <input type="checkbox"/>																	
a. APPLICANT	b. PROJECT																						
16. PROJECT START DATE Year month day				17. PROJECT DURATION Months																			
19				19																			
18. ESTIMATED DATE TO BE SUBMITTED TO FEDERAL AGENCY				19. EXISTING FEDERAL IDENTIFICATION NUMBER																			
19																							
20. FEDERAL AGENCY TO RECEIVE REQUEST (Name, City, State, ZIP code)					21. REMARKS ADDED																		
					<input type="checkbox"/> Yes <input type="checkbox"/> No																		
22. THE APPLICANT CERTIFIES THAT		a. To the best of my knowledge and belief, data in this preparation/application are true and correct, the document has been duly authorized by the governing body of the applicant and the applicant will comply with the attached assurance if the assistance is approved.		b. If required by OMB Circular A-95 this application was submitted, pursuant to its instructions therein, to appropriate clearinghouses and all responses are attached:																			
		(1) (2) (3)		No response attached <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>																			
23. CERTIFYING REPRESENTATIVE		a. TYPED NAME AND TITLE		b. SIGNATURE																			
				c. DATE SIGNED Year month day 19																			
24. AGENCY NAME					25. APPLICATION RECEIVED																		
					Year month day 19																		
26. ORGANIZATIONAL UNIT			27. ADMINISTRATIVE OFFICE		28. FEDERAL APPLICATION IDENTIFICATION																		
29. ADDRESS					30. FEDERAL GRANT IDENTIFICATION																		
31. ACTION TAKEN		32. FUNDING		33. ACTION DATE																			
<input type="checkbox"/> a. AWARDED <input type="checkbox"/> b. REJECTED <input type="checkbox"/> c. RETURNED FOR AMENDMENT <input type="checkbox"/> d. DEFERRED <input type="checkbox"/> e. WITHDRAWN		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>a. FEDERAL</td> <td>\$</td> <td>.00</td> </tr> <tr> <td>b. APPLICANT</td> <td></td> <td>.00</td> </tr> <tr> <td>c. STATE</td> <td></td> <td>.00</td> </tr> <tr> <td>d. LOCAL</td> <td></td> <td>.00</td> </tr> <tr> <td>e. OTHER</td> <td></td> <td>.00</td> </tr> <tr> <td>f. TOTAL</td> <td>\$</td> <td>.00</td> </tr> </table>		a. FEDERAL	\$.00	b. APPLICANT		.00	c. STATE		.00	d. LOCAL		.00	e. OTHER		.00	f. TOTAL	\$.00	Year month day 19	
a. FEDERAL	\$.00																					
b. APPLICANT		.00																					
c. STATE		.00																					
d. LOCAL		.00																					
e. OTHER		.00																					
f. TOTAL	\$.00																					
				34. CONTACT FOR ADDITIONAL INFORMATION (Name and telephone number)																			
				35. STARTING DATE Year month day 19																			
				36. ENDING DATE Year month day 19																			
				37. REMARKS ADDED																			
				<input type="checkbox"/> Yes <input type="checkbox"/> No																			
38. FEDERAL AGENCY A-95 ACTION		a. In taking above action, any comments received from clearinghouses were considered. If agency response is due under provisions of Part 1, OMB Circular A-95, it has been or is being made.		b. FEDERAL AGENCY A-95 OFFICIAL (Name and telephone no.)																			

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 clearinghouses. 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. |
| 3b. Date applicant notified of clearinghouse identifier. | C. Revision. A modification to project nature or scope which may result in funding change (increase or decrease). |
| 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. | 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. |
| 5. Employer identification number of applicant as assigned by Internal Revenue Service. | E. Augmentation. A requirement for additional funds for a project previously awarded funds in the same funding/budget period. Project nature and scope unchanged. |
| 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. | 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. |
| 6b. Program title from Federal Catalog. Abbreviate if necessary. | 14a. Self explanatory. |
| 7. Brief title and appropriate description of project. For notification of intent, continue in remarks section if necessary to convey proper description. | 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." |
| 8. Mostly self-explanatory. "City" includes town, township or other municipality. | 15. Complete only for revisions (item 12c), or augmentations (item 12e). |
| 9. 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. Listing 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 | 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. | 23b. Self explanatory. |
| 23a. Name and title of authorized representative of legal applicant. | 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 | Item |
| 24. Executive department or independent agency having program administration responsibility. | 35. Name and telephone no. of agency person who can provide more information regarding this assistance. |
| 25. Self explanatory. | 36. Date after which funds will no longer be available. |
| 26. Primary organizational unit below department level having direct program management responsibility. | 37. Check appropriate box as to whether Section IV of form contains Federal remarks and/or attachment of additional remarks. |
| 27. Office directly monitoring the program. | 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". |
| 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. | |

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.

ASSURANCES

The Applicant hereby assures that it will comply with the regulations, policies, guidelines and requirements, including the applicable OMB Circulars as they relate to the application, acceptance and use of Federal funds for this federally-assisted project. Also the Applicant assures and certifies that:

1. It possesses legal authority to apply for the grant; that a resolution, motion or similar action has been duly adopted or passed as an official act of the applicant's governing body, authorizing the filing of the application including all understandings and assurances contained therein, and directing and authorizing the person identified as the official representative of the applicant to act in connection with the application and to provide such additional information as may be required.
2. It will comply with Title VI of the Civil Rights Act of 1964 (P.L. 88-352) and in accordance with Title VI of that Act, no person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity for which the applicant receives Federal financial assistance and will immediately take any measures necessary to effectuate this agreement.
3. It will comply with Title VI of the Civil Rights Act of 1964 (42 USC 2000d) prohibiting employment discrimination where (1) the primary purpose of a grant is to provide employment or (2) discriminatory employment practices will result in unequal treatment of persons who are or should be benefiting from the grant-aided activity.
4. It will comply with requirements of the provisions of the uniform Relocation Assistance and Real Property Acquisitions Act of 1970 (P.L. 91-646) which provides for fair and equitable treatment of persons displaced as a result of Federal and federally assisted programs.
5. It will comply with the provisions of the Hatch Act which limit the political activity of employees.
6. It will comply with the minimum wage and maximum hours provisions of the Federal Fair Labor Standards Act, as they apply to hospital and educational institution employees of State and local governings.
7. It will establish safeguards to prohibit employees from using their positions for a purpose that is or gives the appearance of being motivated by a desire for private gain for themselves or others, particularly those with whom they have family, business, or other ties.
8. It will give the sponsoring agency or the Comptroller General through any authorized representative the access to and the right to examine all records, books, papers, or documents related to the grant.

9. It will comply with all requirements imposed by the Federal sponsoring agency concerning special requirements of law, program requirements, and other administrative requirements.
10. It will insure that the facilities under its ownership, lease or supervision which shall be utilized in the accomplishment of the project are not listed on the Environmental Protection Agency's (EPA) list of Violating Facilities and that it will notify the Federal grantor agency of the receipt of any communication from the Director of the EPA Office of Federal Activities indicating that a facility to be used in the project is under consideration for listing by the EPA.
11. It will comply with the flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973, Public Law 93-234, 87 Stat. 975, approved December 31, 1976. Section 102(a) requires, on and after March 2, 1975, the purchase of flood insurance in communities where such insurance is available as a condition for the receipt of any Federal financial assistance for construction or acquisition purposes for use in any area that has been identified by the Secretary of the Department of Housing and Urban Development as an area having special flood hazards.

The phrase "Federal financial assistance" includes any form of loan, grant, guaranty, insurance payment, rebate, subsidy, disaster assistance loan or grant, or any other form of direct or indirect Federal assistance.

12. It will assist the Federal grantor agency in its compliance with Section 106 of the National Historic Preservation Act of 1966 as amended (16 U.S.C. 469a-1 et seq.) by (a) consulting with the State Historic Preservation Officer on the conduct of investigations, as necessary, to identify properties listed in or eligible for inclusion in the National Register of Historic Places that are subject to adverse effects (see 36 CFR Part 800.8) by the activity, and notifying the Federal grantor agency of the existence of any such properties, and by (b) complying with all requirements established by the Federal grantor agency to avoid or mitigate adverse effects upon such properties.

The Applicant certifies that it will comply with the above assurances if the assistance is approved.

Grant Applicant: _____

Project Title: _____

Certifying Representative: _____

Signature

Name and Title

Date

UURI

EARTH SCIENCE LABORATORY
391 CHIPETA WAY, SUITE C
SALT LAKE CITY, UTAH 84108-1295
TELEPHONE 801-524-3422

November 11, 1986

Peggy A. M. Brookshier
Project Manager, Advanced Technology Div.
Department of Energy
Idaho Operations Office
785 DOE Place
Idaho Falls, Idaho 83402

Dear Ms. Brookshier:

I have reviewed the copy of the draft PRDA as transmitted with your letter of 6 November. The PRDA as presently written is a concise, well organized document which appears to contain all the essential items of earlier drafts. Thus I do not see the need for any significant revisions.

I did note a few typos and other errors which should be corrected if time permits. These are listed below:

- Cover letter, pg. 2, para. 4, February 19, 1987
- Section I, pg. 1, BACKGROUND,
1.13; potable water
1.20; much of the resource exists, or
many of the resources exist.
- Section II, pg. 1, para. 2, 1.5; Criterion A is
weighted approximately two times greater...(in
agreement with other statements that the weighting
is approximate rather than exact).
- Section III, pg. 1, B. 4., 1.2: the appropriate
executive
- Section III, pg. 2, b. Abstract, 1.2 delete: waste
treatment system; insert: proposed hydrothermal
research or resource development.

- Section III, pg. 3, d(1) SOW, para.3: the location of the proposed research which must be performed on hydrothermal resources. (must or will?)
- Section III, pg. 3, d(2) QAC, para.3, last line: information on relevant past work.
- Section III, pg. 5, d, para.2, 1.4: delete: costs or time; insert: a DOE cost share.

Perhaps these few changes will improve the readability and meaning of the PRDA. Please call me if I can be of other assistance.

Sincerely,

Howard

Howard P. Ross
Section Head/Geophysics

HPR:leo



Department of Energy

Idaho Operations Office
785 DOE Place
Idaho Falls, Idaho 83402
November 6, 1986

Mr. Howard Ross
Earth Science Laboratory
University of Utah Research Institute
391 Chipeta Way, Suite C
Salt Lake City, UT 84108-1295

Dear Mr. Ross:

Enclosed is a copy of the Draft PRDA. Please review and provide me comments as soon as possible. Do not worry about reviewing the "boiler plate."

The information in this draft PRDA is not to be disclosed to anyone.

Very truly yours,

A handwritten signature in cursive script, appearing to read "Peggy".

Peggy A.M. Brookshier
Project Manager
Advanced Technology Division

Enclosure

read

To: E. FEINAUR (DOE3401)
To: P. WELTON (DOE4433)
From: P. WELTON (DOE4433) Posted: Tue 27-May-86 17:51 EDT Sys 64 (78)
Subject: RFP COMMENTS
Acknowledgment Sent

--More--

TO: Peggy Brookshier
FROM: Duncan Foley
SUBJECT: Comments of State Coupled RFP

[] - deletions
CAPS - additions

FY 1986 GUIDANCE

State Cooperative Reservoir Analysis Program

Funding of \$500,000 is authorized for the State Cooperative Reservoir Analysis Program for a solicitation for State Government Agencies (usually the office of the State Geologist or State Water Resources Director, OR, IN SELECTED STATES, STATE UNIVERSITIES OR DEPARTMENTS OF ENERGY) designated as responsible for GEOLOGICAL ASPECTS OF geothermal resources within their states to cost share geothermal research projects with the Department of Energy. Only those states with identified or

--More--

potential geothermal resources (as determined by the USGS assessments in Circulars 790 and 892) are eligible to participate.

The Idaho Operations Office has the prime field responsibility for the entire State Cooperative Reservoir analysis Program. Project coordination by the Idaho Operations Office includes contracting for any required technical assistance needed to monitor the research projects.

Research on the selection, testing, and interpretation of new technologies designed to locate and characterize hidden geothermal reservoirs [should] WILL be encouraged. The data gathered by this research (cost-shared with the states) [should] WILL be incorporated in existing geothermal libraries and be made available to the public.

The contractors will provide weekly reports of significant events, quarterly technical progress reports, and final technical reports on each completed task.

OBJECTIVE OF THIS PROCUREMENT:

The objective of the State Cooperative Reservoir Analysis

--More--

Program is to develop and test new geothermal technologies.

geophysical methods for determining the location, configuration, and depth of geothermal reservoirs.

DESCRIPTION OF WORK TO BE PERFORMED:

During FY 1986 the Idaho Operations Office will prepare and release a solicitation for cost-shared research with the geothermal resource agency of any state with recognized geothermal resources.

^^

PROJECT JUSTIFICATION:

Due to the great difficulty in locating and characterizing geothermal reservoirs, especially in areas far from electrical demand, it is necessary to develop information bases to be maintained by the state governments and available to the public.

This available information will stimulate the development of the resources.

DELIVERABLES:

The deliverables will be weekly reports of significant events, quarterly technical progress reports, and a final technical report on each completed task.

--More--

PRIVATE SECTOR INVOLVEMENT:

Funding of \$500,000 is provided for cost-shared research with the state government agencies. The solicitation will require each geothermal agency involved to provide at least 10% of the research costs.

PERIOD OF PERFORMANCE:

June 1, 1986 to Sept. 30, 1986



November 6, 1990

postmarked 11/9/90
Received by HPR 11/19/90
Received by UNES 11/13/90

Dr. Howard Ross
University of Utah Research Institute
Earth Science Laboratory
391 Chipeta Way, Suite C
Salt Lake City
UT 84108-1295

Dear Dr. Ross:

Enclosed is a copy of the final report on the geology and geochemistry of the Geyser Bight geothermal area. This report fulfills the Geophysical Institute's obligations toward DOE Grant No. DE-FG07-88ID12742. It also partially fulfills the obligations of Roman Motyka (Alaska Division of Geological and Geophysical Surveys), to Grant No. DE-FG07-88ID12744.

We have submitted this report to the Alaska Division of Geological and Geophysical Surveys for publication as a "Report of Investigations". Once printed the report will be widely circulated to libraries around the country and will be entered in various electronic bibliographic databases. We feel that this will provide maximum exposure of all of the aspects of this project. We will also prepare at least a few derivative papers for publication in the open literature. We will be sure to send you copies of any publications which reference any of our past DOE contracts.

Sincerely,

Christopher Nye
(907) 474-7430

Geophysical Institute, University of Alaska
Fairbanks, Alaska 99775-0800

PHONE: 907-474-7558 TELEX: 35414 GEOPH INST FBK
FAX: 907-474-7290 TELEMAIL: GEOPH.INST.FBK



October 2, 1990

Scott Applonie
Contract Specialist
U.S. Department of Energy
785 DOE Place
Idaho Falls
ID 83402

Dear Mr. Applonie:

The University of Alaska Geophysical Institute has taken a no-cost extension to DOE Grant No. DE-FG07-88ID12742, entitled Geothermal Resource Assessment in the Aleutian Islands and Alaska Peninsula, which was issued to the University of Alaska Geophysical Institute. Unfortunately, we were not able to complete the editing of the final report by our contract termination date.

We submitted a draft of the final report to DOE on May 9. The draft received favorable reviews, and all but one of the chapters require only minor modification. We failed to complete the final report for several reasons. Our summer schedules are always complicated by the need for extended field work on several projects, and this year was worse than usual. The original PI of the project, Dr. Don Turner, has retired and was not available for much of the summer. Our chief collaborator from the Alaska Division of Geological and Geophysical Surveys, Dr. Roman Motyka, has been on extended leave for much of the summer, and has also had field work commitments on other projects. Much of my time has continued to be spent on emergency response to the ongoing Mt. Redoubt eruption (the second costliest eruption in US history).

We had anticipated being able to finish the report sometime during the summer and had initially identified two short time periods which we reserved for the final editing. We missed our first period in June because we had not yet received the review of the report from DOE and UURI. Apparently UURI had their own scheduling difficulties. We missed the second period because that was the only time I was able to schedule necessary field work at Mt. Redoubt. I was unable to confirm my Redoubt schedule until late July.

I dislike making excuses. We are all back in town and actively working to finish the report. We anticipate completion soon, but require a no-cost extension until December 1, 1990 in case other unforeseen problems with our schedules arise.

I apologize for letting the contract lapse without contacting DOE. If you have questions or further concerns please call me.

Sincerely,


Christopher Nye
(907) 474-7430

cc:

Kenneth Taylor, DOE
Kenny Osborne, DOE
Howard Ross, UURI
Neta Stilkey, UAF-GI

Geophysical Institute, University of Alaska
Fairbanks, Alaska 99775-0800

PHONE: 907-474-7558 TELEX: 35414 GEOPH INST FBK
FAX: 907-474-7290 TELEMAIL: GEOPH.INST.FBK



September 18, 1990

Ms. Elizabeth Bowhan
U.S. Department of Energy
785 DOE Place
Idaho Falls
ID 83402

Dear Ms. Bowhan:

I would like to request a no-cost extension to DOE Grant No. DE-FG07-88ID12742, entitled Geothermal Resource Assessment in the Aleutian Islands and Alaska Peninsula, which was issued to the University of Alaska Geophysical Institute. Unfortunately, we were not able to complete the editing of the final report by our contract termination date of August 11, 1990.

We submitted a draft of the final report to DOE on May 9. The draft received favorable reviews, and all but one of the chapters require only minor modification. We failed to complete the final report for several reasons. Our summer schedules are always complicated by the need for extended field work on several projects, and this year was worse than usual. The original PI of the project, Dr. Don Turner, has retired and was not available for much of the summer. Our chief collaborator from the Alaska Division of Geological and Geophysical Surveys, Dr. Roman Motyka, has been on extended leave for much of the summer, and has also had field work commitments on other projects. Much of my time has continued to be spent on emergency response to the ongoing Mt. Redoubt eruption (the second costliest eruption in US history).

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I dislike making excuses. We are all back in town and actively working to finish the report. We anticipate completion soon, but ask for a no-cost extension until December 1, 1990 in case other unforeseen problems with our schedules arise. The Geophysical

Geophysical Institute, University of Alaska
Fairbanks, Alaska 99775-0800

PHONE: 907-474-7558 TELEX: 35414 GEOPH INST FBK
FAX: 907-474-7290 TELEMAIL: GEOPH.INST.FBK

Institute business manager informs me that we need to be notified in writing if the extension is granted. If DOE can send notification to me I will forward it to our business office.

I apologize for letting the contract lapse without contacting DOE. If you have questions or further concerns please call me.

Sincerely,

Christopher Nye
(907) 474-7430

cc:

Kenneth Taylor, DOE
Kenny Osborne, DOE
Howard Ross, UURI
Neta Stilkey, UAF-GI

U.S. DEPARTMENT OF ENERGY
NOTICE OF FINANCIAL ASSISTANCE AWARD
(See Instructions on Reverse)

PL 93-410

Under the authority of Public Law _____ and
subject to legislation, regulations and policies applicable to (cite legislative program title):
Geothermal Energy Research, Development, and Demonstration Act of 1974

1. PROJECT TITLE Geothermal Resource Assessment in the Aleutian Island and Alaska Peninsula		2. INSTRUMENT TYPE <input checked="" type="checkbox"/> GRANT <input type="checkbox"/> COOPERATIVE AGREEMENT	
3. RECIPIENT (Name, address, zip code, area code and telephone no.) University of Alaska Geophysical Institute Fairbanks, AK 99775-0800		4. INSTRUMENT NO. DE-FG07-88ID12742	5. AMENDMENT NO.
8. RECIPIENT PROJECT DIRECTOR (Name and telephone No.) Donald L. Turner (907) 474-7198		6. BUDGET PERIOD FROM: 4/11/88 THRU: 10/11/89	7. PROJECT PERIOD FROM: 4/11/88 THRU: 10/11/89
9. RECIPIENT BUSINESS OFFICER (Name and telephone No.) Neta Stilkey (907) 474-7644		10. TYPE OF AWARD <input checked="" type="checkbox"/> NEW <input type="checkbox"/> CONTINUATION <input type="checkbox"/> RENEWAL <input type="checkbox"/> REVISION <input type="checkbox"/> SUPPLEMENT	
11. DOE PROJECT OFFICER (Name, address, zip code, telephone No.) Kenneth J. Taylor (208) 526-9063 U.S. DOE, Idaho Operations Office 785 DOE Place, Idaho Falls, Idaho 83402		12. ADMINISTERED FOR DOE BY (Name, address, zip code, telephone No.) Trudy A. Thorne (208) 526-9519 U. S. Department of Energy Idaho Operations Office 785 DOE Place Idaho Falls, Idaho 83402	
13. RECIPIENT TYPE <input type="checkbox"/> STATE GOV'T <input type="checkbox"/> INDIAN TRIBAL GOV'T <input type="checkbox"/> HOSPITAL <input type="checkbox"/> FOR PROFIT ORGANIZATION <input type="checkbox"/> INDIVIDUAL <input type="checkbox"/> LOCAL GOV'T <input checked="" type="checkbox"/> INSTITUTION OF HIGHER EDUCATION <input type="checkbox"/> OTHER NONPROFIT ORGANIZATION <input type="checkbox"/> C <input type="checkbox"/> P <input type="checkbox"/> SP <input type="checkbox"/> OTHER (Specify)			

14. ACCOUNTING AND APPROPRIATIONS DATA				15. EMPLOYER I.D. NUMBER/SSN
a. Appropriation Symbol 89X0224.91	b. B & R Number AM 1510000	c. FT/AFP/OC YA 410	d. CFA Number	

16. BUDGET AND FUNDING INFORMATION		b. CUMULATIVE DOE OBLIGATIONS	
a. CURRENT BUDGET PERIOD INFORMATION			
(1) DOE Funds Obligated This Action	\$ 55,593	(1) This Budget Period [Total of lines a.(1) and a.(3)]	\$ 55,593
(2) DOE Funds Authorized for Carry Over	\$ -0-	(2) Prior Budget Periods	\$ -0-
(3) DOE Funds Previously Obligated in this Budget Period	\$ -0-	(3) Project Period to Date [Total of lines b. (1) and b. (2)]	\$ 55,593
(4) DOE Share of Total Approved Budget	\$ 55,593		
(5) Recipient Share of Total Approved Budget	\$ 16,580		
(6) Total Approved Budget	\$ 72,173		

17. TOTAL ESTIMATED COST OF PROJECT \$ 72,173
(This is the current estimated cost of the project. It is not a promise to award nor an authorization to expend funds in this amount.)

18. AWARD/AGREEMENT TERMS AND CONDITIONS

This award/agreement consists of this form plus the following:

a. Special terms and conditions (if grant) or schedule, general provisions, special provisions (if cooperative agreement)

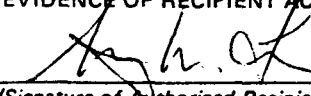
b. Applicable program regulations (specify) _____ (Date) _____

c. DOE Assistance Regulations, 10 CFR Part-600, as amended, Subparts A and B (Grants) or C (Cooperative Agreements).

d. Application/proposal dated June 15, 1987, as submitted with changes as negotiated

19. REMARKS This Grant consists of this NFAA (DOE F 4600.1), Part I - Budget Plan, Part II - Special Conditions, Part III - General Conditions, Part IV - Statement of Work, and Part V - Reporting Requirements. DOE Financial Assistance Rules (10 CFR Part 600), OMB Circular A-110 and OMB Circular A-21 are hereby incorporated by reference.

20. EVIDENCE OF RECIPIENT ACCEPTANCE

 4-21-88


(Signature of Authorized Recipient Official) (Date)

Cary M. Lu

(Name)
Director, Grants & Contracts Services

(Title)

21. AWARDED BY

 4/8/88

(Signature) (Date)

J. P. Anderson, Contracting Officer

(Name)
Chief, R&D Contracts Branch

(Title)

FEDERAL ASSISTANCE BUDGET INFORMATION FORM

FORM EIA-459C
(10-80)

FORM APPROVED
OMB No. 1900-0127

1. Program/Project Identification No. DE-FG07-88ID12742	2. Program/Project Title Geothermal Resource Assessment in the Aleutian Islands and Alaska Peninsula
3. Name and Address University of Alaska Geophysical Institute Fairbanks, AK 99775-0800	4. Program/Project Start Date April 11, 1988
	5. Completion Date October 11, 1989

SECTION A - BUDGET SUMMARY						
Grant Program, Function or Activity (a)	Federal Catalog No. (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1. 12693	81.087	\$	\$	\$55,593	\$16,580	\$72,173
2.						
3.						
4.						
5. TOTALS		\$	\$	\$	\$	\$

SECTION B - BUDGET CATEGORIES					
6. Object Class Categories	Grant Program, Function or Activity				Total (5)
	(1) DOE	(2)	(3) ALASKA	(4)	
a. Personnel	\$ 16,166	\$	\$ 7,843	\$	\$ 24,009
b. Fringe Benefits 0%					
c. Travel	3,693				3,693
d. Equipment					
e. Supplies	3,800				3,800
f. Contractual					
g. Construction					
h. Other	16,050		4,000		20,050
i. Total Direct Charges	39,709		11,843		51,552
j. Indirect Charges 40%	15,884		4,737		20,621
k. TOTALS	\$ 55,593	\$	\$ 16,580	\$	\$ 72,173
7. Program Income	\$	\$	\$	\$	\$

Special Terms and Conditions for Research Grants

The requirements of this attachment take precedence over all other requirements of this grant found in regulations, the general terms and conditions, DOE orders, etc. except requirements of statutory law. Any apparent contradiction of statutory law stated herein should be presumed to be in error until the Grantee has sought and received clarification from the Contracting Officer, whose signature appears on the face page of this award.

1. Payments

- a. The Grantee may request advance payment of cost to be incurred. Such requests should not exceed the expected outlays by the Grantee in the succeeding 30-day period.
- b. Payments to the Grantee shall equal the Federal share of actual allowable costs of performance of this grant, provided however, and notwithstanding any other provision of this grant, that the Government's monetary liability under this grant shall not exceed the Government share of the total approved budget or an amount equal to the Federal share of actual allowable costs, whichever is less. The Grantee shall be obligated to perform under this grant throughout the agreed-upon period of performance, and to bear all costs which DOE has not agreed to pay. However, the Grantee shall have the right to cease to perform when or after the Federal share of actual allowable costs equals or exceeds the Government share of the total approved budget and if prior written notice to that effect has been provided to DOE.
- c. The Government obligations may be increased unilaterally by DOE by written notice to the Grantee and may be increased or decreased by written agreement of the parties.
- d. Upon termination or expiration of the total period of performance, the Grantee shall promptly refund to DOE (or make such disposition as DOE may in writing direct) any sums paid by DOE to the Grantee under this grant in excess of the cumulative Government allowable cost incurred in performance under the grant.
- e. Method of Payment - Payments due for amounts properly invoiced in accordance with the terms and conditions specified elsewhere in the grant shall be made either by Treasury check(s) payable to the Grantee or designee or by electronic funds transfer(s) to a financial institution designated by the Grantee for that purpose. The method of payment shall be determined by the Government at the time of payment in accordance with applicable Treasury Department requirements.

After award but no later than fourteen (14) days before an invoice or bill is submitted for payment, the Grantee shall designate a financial institution for the receipt of electronic funds transfer payments hereunder; and provide the appropriate Government representative (contracting officer or finance official as determined by the Government) with the name of the designated financial institution, financial institution's or correspondent financial institution's 9-digit American Bankers Association identifying number, telegraphic abbreviation of such financial institution, and account number at the designated financial institution to be credited with funds.

In the event the Grantee during the performance of this grant elects to designate a different financial institution for the receipt of any payment made using electronic funds transfer procedures, notification of such change and the information as specified in paragraph (b) above must be received by the appropriate Government representative thirty (30) days prior to the date such change is to become effective.

The document furnishing the information required above must be dated and contain the signature, title, and telephone number of the Grantee official authorized to provide it, as well as the Grantee's name and grant number.

Grantee failure to properly designate a financial institution or to provide appropriate payee bank account information may delay payments of amounts otherwise properly due.

- f. Cost-Share Arrangement - The cost-share will be in accordance with Part I - Budget Plan. Invoices must include in-kind contributions and DOE's reimbursed costs. To be an invoiced cost, a cash or in-kind contribution must be allowable under the terms and conditions of the award and meet the applicable cost principle tests of allowability in 10 CFR 600.103.

Allowable costs incurred under this grant will be cost-shared on the basis of 77% DOE and 23% Grantee.

- g. Applicable Credits. The Grantee agrees that any refunds, rebates, credits, or other amounts (including any interest thereon) accruing to or received by the Grantee or any assignee under this grant shall be paid by the Grantee to the Government, to the extent that they are properly allocable to costs for which the Grantee has been reimbursed by the Government under this grant. Reasonable expenses incurred by the Grantee for the purpose of securing such refund, rebates, credits, or other amounts shall be allowable costs hereunder when approved by the Contracting Officer.

- h. Audit Adjustments. The Contracting Officer may have invoices or vouchers and statements of cost submitted under this grant audited at any time prior to the end of the required retention period for the grant records. Each payment made shall be subject to reduction for amounts included in the related invoice or voucher which are found by the Contracting Officer, on the basis of audit, not to constitute allowable cost. If a final audit of costs has not been performed prior to closeout of the grant, DOE or its successor agency, shall have the right to recover an appropriate amount after fully considering the recommendations on disallowed costs resulting from the final audit when conducted.
- i. Cognizant Office. Invoices should be sent to the individual designated in Block 12. of the Notice of Financial Assistance Award Form (NFAA). In addition to the initial supply of forms made available with this award, appropriate payment forms and instructions will be provided by this office upon request.

2. Reporting Program Technical Performance

- a. Copies. Copies of reports and all other related data and information generated under this grant shall be submitted in accordance with the attached Federal Assistance Reporting Checklist (DOE Form EIA-459A).
- b. Publication of Results. The Grantee may publish the results of its work. However, publications and reports prepared under this grant shall contain the following acknowledgment statement, "This (material) was prepared with the support of the U.S. Department of Energy (DOE) Grant No. DE-FG07-88ID12740. However, any opinions, findings, conclusions, or recommendations expressed herein are those of the author(s) and do not necessarily reflect the views of DOE."
- c. Reporting Requirements. The Federal assistance recipient shall prepare and submit (postage prepaid) the plans and reports indicated on the Federal Assistance Reporting Distribution List. Preparation of the specified plans and reports shall be in accordance with DOE Order 1332.2. The level of detail the recipient provides in the plans and reports shall be commensurate with the scope and complexity of the task and shall be as delineated in Block 4 - Reporting Requirements and Block 5 - Special Instructions.

All reports delivered to DOE shall be the sole property of the DOE. The Grantee shall not claim that any report contains any trade secrets or commercial or financial information deemed by the Grantee to be privileged or confidential, or that the Grantee has any proprietary interest in any report.

3. Designated Key Personnel

The following individual is designated key personnel in accordance with General Condition No. 14:

Donald L. Turner

4. Project Completion Date

The project completion date identified in Block 7. of the Notice of Financial Assistance Award includes an additional 90 days for completion of the final report. All R&D effort must be completed 90 days prior to the project completion date. Only costs associated with preparation of the final report will be allowed during the 90 days prior to the project completion date.

5. Technical Data

Except for technical data contained in pages N/A of the recipient's application, dated N/A, which are asserted by the Grantee as being proprietary data, it is agreed that as a condition of this award, and notwithstanding the provisions of any notice appearing on the application, the Government shall have the right to use, duplicate, disclose and have others do so for any purpose whatsoever the technical data not identified in the above blanks contained in the application upon which this award is based.

6. Prior Approval

The following actions or costs specified in the application require prior approval of DOE and are specifically disapproved in accordance with General Condition No. 3:

None

7. General Procurement Prior Approval

Article 17 of the General Terms and Conditions for Research Grants is hereby revoked. The Grantee must receive prior approval from DOE before entering into any sole source contract or a contract where only one bid or proposal is received, when the value of the contract in the aggregate is expected to exceed \$25,000.

8. Patent Clauses

The following patent clauses and technical data requirements are applicable to this grant award:

600.118(b)(2) "Patent Rights (Short Business Firm or Nonprofit Organization)"

600.118(b)(3) "Rights in Technical Data (Short Form)"

600.118(b)(5) "Authorization and Consent"

600.118(b)(6) "Notice and Assistance"

600.118(c) "Reporting of Royalties"

9. Title to Equipment

a. Title to the following items of equipment shall vest with the Grantee upon completion of this grant:

None

b. Title to the following items of equipment shall vest with the Government at the end of the grant project period:

None

wp/Thorne

General Terms and Conditions for Research Grants

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General Terms and Conditions for Research Grants

1. Explanation

These general terms and conditions do not restate all the provisions of applicable statutes and regulations nor do they represent an exhaustive listing of all requirements applicable to this grant. Rather they highlight and are consistent with those requirements which are especially pertinent to research grants in general. They are being emphasized by inclusion here either because they are invoked with high frequency, their violation is a matter of especially serious concern (e.g., use of human subjects), and/or they have been restated in the research context to be more easily understood by the research community.

In addition to these general terms and conditions, the grantee must comply with all governing requirements, including those identified in Block 18 of the Notice of Financial Assistance Award and those included in the Special Terms and Conditions attached to this grant award.

2. Grantee Adherence to Grant Terms and Conditions

The grantee's signature on the application and on the Notice of Financial Assistance Award signifies the grantee's agreement to the terms and conditions of award. Should the grantee believe modification of any of the terms and conditions of this award is necessary, an authorized official of the grantee organization or, in the case of an individual, the grantee, must submit a written request on its own behalf or on behalf of any subgrant recipient or applicant to the Contracting Officer named on the face page of this award.

Following this procedure is very important because many of the terms and conditions of this grant are required by statute and must be enforced by the Department of Energy.

3. Definitions

Principal Investigator

As used herein, the scientist or other programmatic expert named in Block 8 of the Notice of Financial Assistance Award designated by the grantee organization to direct the scientific/technical efforts being supported (also called program director or project director/leader).

Prior Approval

A statement in writing, signed by the DOE Contracting Officer, that a cost may be incurred or an action may be taken. The approval may take the form of a letter or of a revision to the grant. If actions or

costs requiring prior approval are specified in the application and are not expressly disapproved by DOE in the attached Special Terms and Conditions, the award of the grant constitutes such prior approval.

4. Authorized Grantee Signatures for Prior Approval Requests

All requests for prior approval must be signed by an individual who is authorized to act for the grantee organization. The signature of the Principal Investigator (unless also a corporate officer or otherwise authorized) is insufficient to obtain action on a prior approval request, although countersignature by the Principal Investigator is not discouraged. Requests for budget revisions shall be made on the same budget format as used in applying for this grant and must be supported by a narrative justification. Other prior approval requests may be made by letter. Prior approval requests should be addressed to the Contracting Officer named on the face page of this award.

5. Allowable Costs/Applicable Cost Principles

In accordance with the applicable cost principles cited below and up to the amount shown on the face page of this award for the total approved budget for the current budget period (line 16.a.(6)), the allowable costs of this grant shall consist of the actual allowable direct costs incident to performance of this project plus the allocable portion of the allowable indirect costs, if any, of the organization less applicable credits.

The allowability of costs for work performed under this grant and any subsequent subaward will be determined in accordance with the Federal cost principles applicable to the grantee or subrecipient in effect on the date of award or, for any subaward, in effect as of the date of that subaward, except as modified by other provisions of this grant or the subaward.

The Federal cost principles applicable to specific types of grantees and subrecipients are:

1. Institutions of Higher Education. OMB Circular A-21, Cost Principles Applicable to Grants, Contracts and Other Agreements with Institutions of Higher Education, is applicable to both public and private colleges and universities.
2. State and local governments and Indian tribal governments. OMB Circular A-87, Cost Principles Applicable to Grants, Contracts and other Agreements With State and Local Governments, is applicable to state, local, and Indian tribal governments (and shall also be used to the extent appropriate for foreign governments).

3. Hospitals. 48 CFR Part 74, Appendix E, Principles for Determining Costs Applicable to Research and Development under Grants and Contracts with Hospitals, applies to nonprofit and for-profit hospitals.
4. Other nonprofit organizations and individuals. OMB Circular A-122, Cost Principles Applicable to Grants, Contracts, and other Agreements with Nonprofit Organizations, applies to nonprofit organizations and individuals except for nonprofits specifically exempted by the terms of the circular or those nonprofits covered by the cost principles cited in items 1.- 3. above.
5. Commercial firms and certain nonprofit organizations. 48 CFR Subpart 31.2, Contracts with Commercial Organizations, as supplemented by 48 CFR Subpart 931.2, applies to those nonprofit organizations not covered by OMB Circular A-122, as specified by the terms of that circular, and to all commercial organizations other than those covered by the cost principles in item 3. above.

6. Payment

Payments under this award will be made by an advance payment method unless DOE determines that the grantee's financial management system does not meet the requirements of 10 CFR 600.109 or the grantee has not maintained, or demonstrated the willingness and ability to maintain, procedures that will minimize the time elapsing between transfer of funds from the U.S. Treasury and their disbursement for grant-related purposes.

The appropriate advance payment method or the reimbursement method and the cognizant finance office are specified in the attached Special Terms and Conditions.

Advances by the grantee to subgrantee and contractor organizations must conform substantially to the same standards of timing and amount that govern advances made by the Federal Government to the grantee. Excess cash advances erroneously withdrawn from the U.S. Treasury shall be promptly refunded to DOE unless the funds will be disbursed within seven calendar days or the amount is less than \$10,000 and will be disbursed within 30 calendar days.

Interest earned on advance payments to other than state governments or their subgrantees shall be reported on the Report of Federal Cash Transactions (SF-272) and promptly remitted to the cognizant finance office (unless otherwise specified in the attached Special Terms and Conditions) by check payable to the Department of Energy.

7. Preaward Costs

Costs incurred prior to the beginning date of a new or renewal award are allowable only if they were approved in writing, prior to incurrence, by a DOE Contracting Officer. (Note - this provision does not apply to such bid and proposal costs as may be recovered through an indirect cost rate negotiated in accordance with the applicable Federal cost principles.)

8. Reporting Requirements

Attached to this grant award is EIA 459A, a checklist of the reports required under this grant.

The grantee shall submit a technical progress report (also called a performance report) as part of any application for continuation or renewal of DOE grant support. This report shall be in lieu of a separate annual performance report. Upon completion or termination of the project, the final technical report shall be prepared in accordance with the applicable program rule cited on the face page of this award or, in the absence of such program rule coverage, with the technical reporting format specified in the Uniform Reporting System for Federal Assistance (Grants and Cooperative Agreements) (DOE/MA-001).

The grantee shall submit an annual Financial Status Report (SF-269) within 90 days after the close of the budget period shown on the face page of this award. The grantee shall submit a final Financial Status Report within 90 days after the completion or termination of the project period shown on the face page of this award unless the project period is extended. In the latter case, the report for the last budget period of the existing project period shall be considered an annual report.

Instructions concerning reports to be submitted in conjunction with payment under this award are specified in the attached Special Terms and Conditions.

9. Cost-Sharing

Any cost-sharing as shown on the face page of this award shall defray allowable costs of the project only. Allowability of such costs shall be determined in accordance with the statutes, regulations, applicable cost principles, and other terms and conditions governing this award.

Cost-sharing contributions may be in the form of direct or indirect costs, including cash or in-kind contributions, incurred by the grantee, its subgrantees, or contractors. The cost sharing may be in any allowable budget category or combination of categories. When a direct cost item represents some or all of the non-Federal contribution, any associated indirect costs may not be charged to Federal funds but may be

counted as part of the cost-sharing. The treatment of a contributed cost as direct or indirect must be consistent with the classification of similar items charged to DOE funds.

Valuation of in-kind contributions and documentation of cost-sharing shall be in accordance with 10 CFR 600.107.

10. Continuations, Renewals, and Extensions

Grantees are responsible for assuring that properly completed applications for continuation awards are received no later than 4 months prior to the expiration date of the current budget period shown on the Notice of Financial Assistance Award.

If a grantee wishes to apply for a renewal award in order to receive funding beyond the scheduled expiration of the existing project period, a properly completed application must be submitted to DOE no later than four months prior to the scheduled expiration date of the project period as shown on the Notice of Financial Assistance Award.

Grantee requests for extensions (modifications extending an existing project period by 18 months or less in order to complete a project) must be submitted prior to the expiration date of the project period as shown on the face page of this award, and must include a budget for the use of any remaining funds or any additional funds requested. Any request for an extension, which includes a request for additional funds and any request for an extension of more than 90 days, should be submitted to DOE no later than four months prior to the scheduled expiration date of the project period.

11. Maximum DOE Obligation

This grant is subject to the requirement that the maximum DOE obligation to the recipient is the amount shown on the Notice of Financial Assistance Award as the amount of DOE funds obligated. DOE shall not be obligated to make any additional, supplemental, continuation, renewal or other award for the same or any other purpose.

12. Transfers of Funds Between Grants

Transfers of funds between DOE grants, and transfers of funds from a DOE grant to a project (or portion of a project) not supported by that grant require the prior approval of DOE. Transfer of funds into a DOE grant-supported project from a grant awarded by another Federal agency does not require DOE prior approval but may, of course, require the approval of the other Federal agency. Funds so transferred from the grant of another Federal agency may not be used to satisfy any cost-sharing requirement on a DOE grant.

13. Property

Real and Tangible Personal Property

No real property may be acquired under this award.

Title to any equipment (an article of tangible personal property that has a useful life of more than 2 years and an acquisition cost of \$500 or more) or supplies acquired by a nonprofit institution of higher education or a nonprofit organization whose primary purpose is the conduct of scientific research shall vest in the grantee and such equipment shall be exempt from accountability except that DOE has the right to transfer ownership of any item of equipment having a unit acquisition cost of \$1,000 or more under the conditions specified in 10 CFR 600.117(d)(2). This exemption is derived from Public Law 95-224. The Federal Grant and Cooperative Agreement Act of 1977, as amended.

Title to equipment and supplies acquired by all other grantees shall vest in the grantee. However, such grantees shall be accountable for equipment with a unit acquisition cost of \$1,000 or more acquired under this grant as specified in 10 CFR 600.117(d)(2), (3) and (4). For such grantees, supplies need only be accounted for at closeout and then only if they are unused and exceed \$1,000 in total aggregate current fair market value. In this case accountability requires that DOE be compensated in an amount computed in accordance with Section 600.117(e) if the supplies are retained for use on non-Federal activities.

All grantees shall follow property management policies and procedures which provide for adequate control of the acquisition and use of assets acquired under the grant.

Intangible Property

Treatment, including reporting, of patent and data rights and copyrights shall be as specified in the Special Terms and Conditions of this grant.

14. Change or Absence of the Principal Investigator or Designated Key Personnel

Since the DOE decision to fund a project is based, to a significant extent, on the qualifications and level of participation of the Principal Investigator, a change of Principal Investigator or of the level of effort of the Principal Investigator is considered a change in the approved project. The approval of DOE must be obtained prior to any change of the Principal Investigator or, in certain cases, other key personnel who have been identified as key personnel in the Special Terms and Conditions of this grant. In addition, any continuous absence of the Principal Investigator in excess of three months or plans for the

Principal Investigator to become substantially less involved in the project than was indicated in the approved grant application requires DOE prior approval. Grantee is encouraged to contact DOE immediately upon becoming aware that any of these changes are likely to be proposed, but in any event must do so and receive DOE prior approval before effecting any such change.

15. Changes in Objectives or Scope

Any change in the objectives or scope of a grant-supported project requires the prior approval of DOE. Such changes include changes in the phenomenon or phenomena under study and in the methodology or experiment if they are a specific objective of the research work as stated in the application approved by DOE.

16. Transfer of Substantive Programmatic Effort

None of the substantive effort of this project may be transferred by contract or subgrant to another organization or person without the prior approval of DOE. This provision does not apply to the procurement of equipment, supplies, materials, or general support services which may, however, be subject to other prior approval requirements as found, for example, in the applicable cost principles or procurement standards.

17. General Procurement Prior Approval Requirements

A grantee must receive prior approval from DOE before entering into any sole source contract or a contract where only one bid or proposal is received when the value of the contract in the aggregate is expected to exceed 1) \$10,000 and the grantee is a state, local, or Indian tribal government or 2) \$5,000 for all other grantees.

18. Equipment and Other Capital Expenditures

Expenditures for equipment and other capital assets having a unit acquisition cost of \$500 or more require the prior approval of DOE with one exception. For special purpose equipment, prior approval is required only when the unit acquisition cost is \$1,000 or more. (Special purpose equipment means equipment which is used only for research, medical, scientific, or other technical activities.)

19. Travel

Foreign Travel - DOE prior approval is required for each separate foreign trip. Foreign travel must be directly related to the project objectives. Foreign travel is any travel outside Canada and the United States and its territories and possessions or, for grantees located in another country, travel outside that country.

Domestic Travel - Such costs are allowable to the extent provided in the approved budget. In addition, grantees may exceed the approved budget amount for domestic travel by up to 25% or \$500 whichever is greater, without DOE prior approval. All other expenditures for domestic travel beyond these limits require prior approval.

20. Consultant Services

Costs of consultant services are allowable subject to satisfaction of the requirements of the applicable cost principles, including the requirement that the consultant not be an employee of the grantee organization. There is one exception to the requirement that the consultant not be an employee of the grantee organization which applies to colleges and universities only. For colleges and universities, in unusual cases, and only with the prior approval of DOE, intra-organizational consultation may be permitted where consultation is across departmental lines or involves a separate or remote operation.

21. Paperwork Reduction

This award is subject to the requirements of the Paperwork Reduction Act of 1980 as implemented by the Office of Management and Budget rules, "Controlling Paperwork Burdens on the Public," published at 5 CFR 1320 (48 FR 13666, 3/31/83) if the grantee will collect information from ten or more respondents either:

- A. At the specific request of DOE, or
- B. If the award requires specific DOE approval of the information collection or the collection procedures.

Any proposed sponsored information collection under item 21 B. above shall be submitted by the grantee to the Contracting Officer named on the face page of this award at least 90 days prior to the intended date of information collection. DOE will seek the requisite approval from the Office of Management and Budget and will promptly notify the grantee of the disposition of the request.

22. Generally Applicable Requirements

In accordance with 10 CFR 600.12, this grant is subject to a number of statutory and other generally applicable requirements. Those requirements most pertinent to research projects are highlighted below:

Animal Welfare

Any grantee performing research on warm-blooded animals shall comply with the Laboratory Animal Welfare Act of 1966 (Public Law 89-544, as amended)

and the regulations promulgated thereunder by the Secretary of Agriculture at 9 CFR Chapter 1, Subchapter A, pertaining to the care, handling, and treatment of warm-blooded animals held or used for research, teaching, or other activities supported by Federal awards. The grantee is expected to ensure that the guidelines described in Department of Health and Human Services (DHHS) Publication No. [NIH] 78-23, "Guide for the Care and Use of Laboratory Animals," are followed (Copies are available from the Superintendent of Documents, Government Printing Office, Washington, DC 20024, Stock No. 017-040-00427-3).

Research Involving Recombinant DNA Molecules

Any grantee performing research involving recombinant DNA molecules and/or organisms and viruses containing recombinant DNA molecules agrees by acceptance of this grant to comply with the National Institutes of Health "Guidelines for Research Involving Recombinant DNA Molecules," June 1983 (48 FR 24556) or such later revision of those guidelines as may be published in the Federal Register.

Use of Human Subjects in Research, Development, and Related Activities

Any DOE grantee performing research, development, or related activities involving any use of human subjects must comply with DOE regulations found at 10 CFR Part 74S "Protection of Human Subjects" and any additional Provisions which may be included in the Special Terms and Conditions of this grant. Such provisions are intended to safeguard the rights and welfare of human subjects at risk of possible physical, psychological, or social injury as a consequence of their participation.

23. Nondiscrimination

This grant is subject to the provisions of 10 CFR Part 1040 "Nondiscrimination in Federally Assisted Programs."

24. Public Access to Information

The Freedom of Information Act, as amended, and the DOE implementing regulations (10 CFR Part 1004) require the release by DOE of certain documents and records regarding grants upon written request by any member of the public. The intended use of the information will not be a criterion for release. These requirements apply to information held by DOE, and do not require grantees, their subgrantees, or their contractors to permit public access to their records.

Records maintained by DOE with respect to grants are subject to the provisions of the Privacy Act and the DOE implementing regulations (10 CFR Part 1008) if those records constitute a "system of records" as defined in the Act and the regulations. Generally, records maintained by grantees, their subgrantees, or their contractors are not subject to these requirements.

25. Acknowledgement of Support

Publication of the results of this grant, subject to any applicable restrictions in 10 CFR 600.118 ("Patents, data, and copyrights"), is encouraged. Any article which is published shall include an acknowledgement that the research was supported, in whole or in part, by a DOE grant (including the grant number), but that such support does not constitute an endorsement by DOE of the views expressed in the article.

26. National Security

It is not expected that activities under this grant will generate or otherwise involve classified information (i.e., Restricted Data, Formerly Restricted Data, National Security Information).

However, if in the opinion of the grantee or DOE such involvement becomes expected prior to the closeout of the grant, the grantee or DOE shall notify the other in writing immediately. If the grantee believes any information developed or acquired may be classifiable, the grantee shall not provide the potentially classifiable information to anyone, including the DOE officials with whom the grantee normally communicates, except the Director of Classification, and shall protect such information as if it were classified until notified by DOE that a determination has been made that it does not require such handling. Correspondence which includes the specific information in question shall be sent by registered mail to U.S. Department of Energy, Attn: Director of Classification, DP-32, Washington, DC 20545. If the information is determined to be classified the grantee may wish to discontinue the project, in which case the grantee and DOE shall terminate the grant by mutual agreement. If the grant is to be terminated, all material deemed by DOE to be classified shall be forwarded to DOE, in a manner specified by DOE, for proper disposition. If the grantee and DOE wish to continue the grant, even though classified information is involved, the grantee shall be required to obtain both personnel and facility security clearances through the Office of Safeguards and Security. Costs associated with handling and protecting any such classified information shall be negotiated at the time the determination to proceed is made.

27. Liabilities and Losses

DOE assumes no liability with respect to any damages or loss arising out of any activities undertaken with the financial support of this grant.

28. Contracting Officer's Technical Representative (COTR)

The individual identified in Block 11. of the Notice of Financial Assistance Award as the DOE Project Officer is the Contracting Officer's Technical Representative (COTR). The COTR is responsible for 1) monitoring the research efforts being conducted by the Grantee under

(3) The date the Government transmits to the recipient a proposed agreement to confirm completed negotiations establishing the amount of debt.

(c) The interest charge made under this provision may be reduced in accordance with the procedures prescribed in 4 CFR 102.13 or in accordance with agency regulations in effect on the date of original award of this grant.

REPORT DISTRIBUTION LIST

Grant No. DE- FG07-88ID12742

Report/Plan	Form No.	Frequency	No. of Copies	Address
Federal Assistance Management Summary Report	EIA-459E	Q	1,1,1,1,1	a,b,c,d,e
Notice of Energy RD&D	DOE 538	O	1,1	a,f
Technical Progress Report	N/A	Q	1,1,1,1	a,b,d,e
Topical Report	N/A	A	1,4,1,1	a,b,d,e
Final Technical Report	N/A	F	1,4,1,1	a,b,d,e
Financial Status Report	SF-269	F	1,1,1	a,b,c

LIST OF ADDRESSEES

- | | |
|--|--|
| a. U.S. Department of Energy
785 DOE Place
Idaho Falls, ID 83402
Attn: Trudy A. Thorne | f. U.S. Department of Energy
Technical Information Center
P.O. Box 62
Oak Ridge, TN 37830 |
| b. Same as above
Attn: Kenneth J. Taylor | |
| c. Same as above
Attn: Earl Jones | |
| d. U.S. Department of Energy
Forrestal Bldg., CE-342
1000 Independence Ave, SW
Washington, DC 20585
Attn: Low Pratsch Marshall Reed | |
| e. University of Utah Research Institute
Earth Science Laboratory
391 Chipeta Way, Suite C
Salt Lake City, UT 84108-1295
Attn: Howard Ross | |

U.S. DEPARTMENT OF ENERGY
FEDERAL ASSISTANCE REPORTING CHECKLIST

Grant No. DE-FG07-88ID12742
 Part V - Reporting Requirements

FORM EIA-459A
 (10-80)

FORM APPROVED
 OMB NO 1800-0127

1. Identification Number: DE-FG07-88ID12742		2. Program/Project Title: Geothermal Resource Assessment in the Aleutian Islands and Alaska Peninsula		
3. Recipient: University of Alaska				
4. Reporting Requirements:		Frequency	No. of Copies	Addressees
PROGRAM/PROJECT MANAGEMENT REPORTING				
<input type="checkbox"/>	Federal Assistance Milestone Plan			
<input type="checkbox"/>	Federal Assistance Budget Information Form			
<input checked="" type="checkbox"/>	Federal Assistance Management Summary Report	Q	1,1,1,1,1	a,b,c,d,e
<input type="checkbox"/>	Federal Assistance Program/Project Status Report			
<input checked="" type="checkbox"/>	Financial Status Report, OMB Form 269	F	1,1,1	a,b,c
TECHNICAL INFORMATION REPORTING				
<input checked="" type="checkbox"/>	Notice of Energy R&D	O	1,1	a,f
<input checked="" type="checkbox"/>	Technical Progress Report	Q	1,1,1,1	a,b,d,e
<input checked="" type="checkbox"/>	Topical Report	A	1,4*,1,1	a,b*,d,e
<input checked="" type="checkbox"/>	Final Technical Report	F	1,4*,1,1	a,b*,d,e

FREQUENCY CODES AND DUE DATES:

- A - As Necessary; within 5 calendar days after events.
- F - Final; 90 calendar days after the performance of the effort ends.
- O - Quarterly; within 30 days after end of calendar quarter or portion thereof.
- Q - One time after project starts; within 30 days after award.
- X - Required with proposals or with the application or with significant planning changes.
- Y - Yearly; 30 days after the end of program year. (Financial Status Reports 90 days).
- S - Semiannually; within 30 days after end of program fiscal half year.

5. Special Instructions:
 *3 copies plus a camera-ready copy

6. Prepared by: (Signature and Date)
Lynn Taylor 1-27-88

7. Reviewed by: (Signature and Date)
Stanley Moore 3/1/88

STATEMENT OF WORK

1.0 INTRODUCTION

The goal of this grant is to support cost-shared research on geothermal resources in the State of Alaska. The Aleutian Islands-Alaska Peninsula region is known to be one of the largest geothermal energy resource areas of the United States, but the resource areas are remote and the population is scarce. The increased development of the American bottom-fish industry in the Bering Sea and the northern Pacific Ocean, and increased oil and gas exploration in the Bering Sea are generating an increased need for power in the region. The objective of this resource assessment study is to obtain new site specific data on one promising resource area so that these data are available for future exploration and development activities. The geothermal resource assessment will be conducted at the Geyser Bight KGRA.

2.0 SCOPE

Geyser Bight KGRA on Umnak Island is the hottest and most extensive area of thermal springs in Alaska but the resource has not been studied in detail. An integrated geological and geochemical study will include a 1:25,000 scale geologic map of Geyser Creek Valley and the surrounding area, fluid geochemistry, K-Ar dating, petrography and rock chemistry. A detailed chemical model of fluid chemistry will be developed which will constrain deep reservoir temperatures, origins of fluids, and mixing between different fluids. The period of performance for this study, including final reporting, will be 18 months.

3.0 APPLICABLE DOCUMENTS

The research described herein is abstracted from a proposal titled "Geothermal Resource Assessment in the Aleutian Islands and Alaska Peninsula," dated June 15, 1987, as revised on October 28, 1987. This proposal was submitted by the Geophysical Institute, University of Alaska and the Alaska Division of Geological and Geophysical Surveys in response to DOE-ID Program Research and Development Announcement (PRDA) for State Geothermal Research and Development - PRDA No. DE-PRO7-87ID12662.

4.0 TECHNICAL TASKS

The following tasks will be accomplished under this grant.

4.1 Geyser Bight KGRA Site-Specific Study

- 4.1.1 Complete field geologic mapping and interpretation to complete a 1:25,000-scale geologic map of Geyser Creek Valley and the surrounding area. Mapping information will include geological structures, quaternary valley-fill deposits,

alteration, plutonic rocks, major contacts, and volcanic rocks. Geologic mapping will be supported by K-Ar age dating. Information relating to volcanic hazards will be noted and evaluated. The Alaska DGGs will participate in and contribute to this subtask.

4.1.2 Fluid Chemistry Investigation of the Geyser Bight KGRA. Provide management, logistical and technical support to Alaska DGGs personnel who will complete the technical and reporting portions of this subtask.

4.1.3 Interpret and analyze all new and existing geological and geochemical data, and then integrate with Alaska DGGs studies to produce an integrated final report on the Geyser Bight geothermal study area. This evaluation will include improved estimates of the reservoir temperatures and of the magnitude of the energy available for development.

5.0 REPORTS, DATA, AND OTHER DELIVERABLES

5.1 Management Records

Reports will be due as indicated on the Federal Assistance Reporting Checklist and the Report Distribution List.

5.2 Final Report

A detailed final technical report will be published which will describe the geology, lithologies, rock geochemistry, K-Ar dates, and potential for volcanic hazards of the Geyser Creek Valley area, and surrounding area. The report will include a detailed 1:25,000-scale geologic map of the Geyser Creek Valley area, and a detailed report of the Alaska DGGs fluid geochemistry study, complete with tables of chemical analyses and isotopic data. The report will also include an integrated interpretation of all the relevant data, estimates of reservoir temperature and of the magnitude of the energy available for development. A draft final report will be submitted to DOE-ID for review and comment not less than 45 days prior to the scheduled delivery of the final report.