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PROCEEDINGS AND DEBATES OF THE 99th CONGRESS, FIRST SESSION

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WASHINGTON, WEDNESDAY, JUNE 19, 1985

No. 82

Senate

GEOTHERMAL STEAM ACT AMENDMENTS

Mr. HECHT. Mr. President, today I am introducing legislation to resolve some unfinished business from the 97th and 98th Congress: geothermal leasing reform. I know this may seem a rather arcane and unimportant topic to most of my colleagues, but I would like to take a minute to expose a problem which is threatening to unravel the many hard-earned gains we have made over the past 10 years in the development of America's abundant geothermal resources.

Congress passed the Geothermal Steam Act in 1970 to encourage the leasing and development of geothermal resources located on Federal lands. Spurred by the early success in harnessing northern California's dry steam for electricity production, many of us in Congress believed—or hoped—that passage of the Steam Act would ensure rapid development at the many other geothermal fields known to exist in the Western United States.

Fifteen years later, we are still waiting for that development to occur. The combination of large front-end development costs, risky powerplant technology, and uncertainty over future world energy prices has led to the cancellation or delay of many promising geothermal power projects. These problems are now being compounded by certain inflexible provisions of the Steam Act which prohibit the extension of leases where diligent field development has occurred but actual powerplant construction has been delayed by market forces.

Section 319 of last year's continuing resolution gave geothermal leaseholders a temporary respite by allowing for the conditional 2-year extension of original 10-year leases issued under the Steam Act. The bill I am introducing today will provide a permanent mechanism for the granting of up to three successive 5-year extensions if the following conditions are met:

A full report must accompany developer's extension request, explaining why they have not been able to produce geothermal energy in commercial quantities, and either

Drilling to a depth specified by the Secretary of Interior has commenced prior to each successive extension request, or

Substantial investment (in excess of due diligence requirements) has been made in lease or lease unit up to time of extension request.

In addition, my bill would strengthen the Geothermal Steam Act's provisions for secretarial review of unit and cooperative plans, where developers have proposed the integrated development of several individual leases. In past years, the Department of Interior has arguably been too generous in allowing companies to block up leases in large units in order to avoid acreage limitations under the act. As unit plans come up for review—every 5 years under current regulations—my bill will require the Secretary to consider dropping leases which are not reasonably necessary to the economic viability of a unit or cooperative plan.

Finally, I would like to address a related issue that has frustrated our past attempts to amend the Geothermal Steam Act: National parks protection. Many members of this body, including former Senator Jackson and my colleague Senator MULCHER, have sought to provide statutory protection for significant geothermal features in our National Park System. Our best-known example is the Old Faithful Geyser in Yellowstone National Park, which some experts believe may be threatened by geothermal development outside the park boundary. To combat this threat, Congress recently imposed a moratorium on the leasing of certain Federal lands adjacent to Yellowstone.

Now it has also been proposed that Congress authorize the establishment of buffer zones around some 20 other national parks and monuments containing geothermal features, even though there does not appear to be any development interest in these areas. This idea has kindled a raging philosophical debate over the general concept of buffer zones, which in turn has poisoned the chances for congress-

sional passage of earlier geothermal leasing bills.

I have no interest in picking a quarrel on the park protection issue, but it seems to me that we should not let it interfere with the passage of legislation which I believe is essential to the timely development of our Nation's abundant and environmentally benign geothermal resources.

How many times have you heard people first say that they oppose conventional energy projects because of the superiority of alternative, soft path approaches, and then turn around and throw obstacles in the way of these very same alternative technologies? We've recently seen this happen with small hydropower projects, wind power, cogeneration, and a host of other exciting new technologies.

I know this is not their intent, but by delaying legislation, the park protection advocates have dealt a serious blow to the entire geothermal industry because of their opposition to development in a few specific areas of the country.

Let's not let this happen to geothermal; let's get on with this legislation and give geothermal energy a fighting chance to compete in our energy marketplace and contribute to our energy security. If the industry can revive itself and development interest ever materializes around these other national parks—which I seriously doubt—then Congress can take appropriate steps to protect them.

This is a responsible bill which has been shaped by years of hearing testimony and congressional debate on geothermal leasing. I have stripped away all but the most essential elements of earlier, more comprehensive leasing proposals in the hopes of achieving prompt bipartisan support on this issue. It is absolutely critical that we resolve this issue in the 99th Congress.

Anyone seeking more information or wishing to cosponsor this legislation should contact Dan Frelhofer of my staff at extension 4-1582.

Mr. President, I ask unanimous consent that the complete text of my bill, "The Geothermal Steam Act Amendments of 1985," be printed at this point in the RECORD.

There being no objection, the bill was ordered to be printed in the RECORD, as follows:

S. 1322

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Geothermal Steam Act of 1970 (30 U.S.C. §§ 1001 et seq.) is amended as follows:

SECTION 1. This Act may be cited as the "Geothermal Steam Act Amendments of 1985."

Sec. 2. Sections 6 (a), (c), and (d) of the Geothermal Steam Act of 1970 (30 U.S.C. § 1005) are amended to read as follows:

"(a) Geothermal leases shall be for a primary term of ten years. If geothermal steam is produced or utilized in commercial quantities on a lease or under an approved cooperative or unit plan of development or operation in which a lease is included within this term or any administrative extension thereof under subsection (c), such lease shall continue for so long thereafter as geothermal steam is produced or utilized in commercial quantities, but such continuation shall not exceed an additional forty years."

"(c) Any geothermal lease issued pursuant to the Act and in effect on or after July 27, 1984, shall be extended for successive five year periods, but totalling not more than 15 years, if:

"(1) the lessee has submitted a report to the Secretary detailing bona fide efforts to bring such lease or approved cooperative or unit plan of development into commercial production, given the then current economic conditions; and either

"(2) actual drilling operations, to a depth specified by the Secretary, were commenced prior to the end of its primary term and prior to the end of each successive five year extension period on such lease or on another lease to the benefit of such lease where, at the time application for extension is made, both leases are included in an approved cooperative or unit plan of development; or

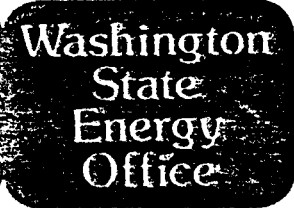
"(3) in the opinion of the Secretary, substantial investment has been made during the primary term and during each successive five year extension period on such lease or on another lease to the benefit of such lease where, at the time application for extension is made, both leases are included in an approved cooperative or unit plan of development.

"(d) For purposes of subsection (a) of this section, production or utilization of geothermal steam in commercial quantities shall be deemed to include the completion of well capable of producing geothermal steam in paying quantities."

Sec. 3. Section 18 of the Geothermal Steam Act of 1970 (30 U.S.C. § 1017) is amended by inserting the following new paragraph after the first full paragraph of that section:

"Five years after approval of any cooperative or unit plan of development or operation, and every five years thereafter, the Secretary shall review each such plan and, after notice and opportunity for comment, eliminate from inclusion in such plan any lease or part of a lease not regarded as reasonably necessary to cooperative or unit operations under the plan. Any lease or part of a lease so eliminated would be eligible for an extension under section 6(c) of this title if it separately meets the requirements for such an extension."

Sec. 4. Every geothermal lease issued pursuant to the Geothermal Steam Act of 1970 and in effect on or after July 27, 1984 is eligible for an administrative extension under section 6(c) of that Act as amended if an application for such an extension is timely submitted either within 180 days of the date of enactment of this Act or 60 days prior to the expiration of the lease's primary term, whichever is later.



WSEO: Gordon Bloomquist

contract number	84-10-01
contract title	Model District Heating System Contracts and Franchises
contract amount	\$ 17,000
filing date	March 7, 1986
effective date	March 17, 1986
expiration date	August 15, 1986

CONTRACT

1. This agreement, is made by and between the State of Washington, WASHINGTON STATE ENERGY OFFICE, 400 E. Union-1st floor, Olympia, Washington, 98504, hereinafter referred to as the AGENCY, and

John Nimmons and Associates

c/o John Nimmons

Golden Gate Energy Center, Fort Cronkhite, Sausalito, CA 94965

hereinafter referred to as the CONTRACTOR.

2. The CONTRACTOR will provide the services described in the attached Statement of Work.

3. Subject to its other provisions, the period of performance of services under this contract will be from the date specified in the NOTICE TO PROCEED through August 15, 1986 unless sooner terminated as provided herein.

4. All rights and obligations of the parties to this contract shall be subject to and governed by those special terms and conditions attached and incorporated by reference herein and the general terms and conditions attached and incorporated by reference herein.

5. The AGENCY shall pay to the CONTRACTOR for those services provided herein in accordance with Article I, of the Special Terms and Conditions. Maximum payment to the CONTRACTOR for services provided under this contract shall not exceed the amount of \$ 17,000.

IT IS FURTHER AGREED THAT:

The CONTRACTOR shall submit invoices on a timely basis at the intervals prescribed and on forms provided by the AGENCY.

STATEMENT OF WORK

Modeling District Heating System Contracts and Franchise Agreements

Introduction

WSEO is involved in an effort to develop a guide to geothermal district heating. The project is funded by the U.S. Department of Energy. As a part of that effort, WSEO is contracting for assistance with developing model geothermal district heating system contracts and franchise agreements.

The information and products prepared under this contract, as stated under the tasks listed, will be incorporated into the guide to geothermal district heating prepared by WSEO.

Task 1

Review and analyze existing utility law as it applies to district heating in the United States with special emphasis on utility commission treatment of district heating, franchise agreements, and contracts between heat suppliers and distributors of district heating and between distributors of district heating and customers.

Task 2

Identify and catalogue the range of terms relevant to geothermal and other forms of district heating services.

Also, identify any additional issues of special or unique concern in the district heating context.

The Contractor will then prepare a model franchise or franchises for consideration by municipalities and others desiring to encourage or implement district heating systems. This will include optional terms designed to increase flexibility, to account for differences in district heating technologies, or to address special situations.

Task 3

Prepare model contracts between a heat supplier and the distributor of district heating and between a distributor of district heating and a customer. This will consist of several models and/or a series of optional terms that consider differing project structures.

Task 4

Recommend modifications, if necessary, of the model franchise agreements and/or contracts to meet the specific needs of up to four cities to be selected by WSEO which are involved in implementing geothermal district heating systems. Present the recommended language to the appropriate city officials if requested to do so by WSEO and the respective city councils.

The Contractor will, by May 30, 1986, accomplish Tasks 1 through 3, present a draft report to WSEO, and make an informal presentation to WSEO concerning the findings and recommendations.

By July 15, 1986, the Contractor will present WSEO with a final report which will include the model franchise agreement and model contracts asked for in Tasks 2 and 3. The Contractor will, at the same time, present WSEO with recommendations for further consideration by the cities agreed upon in Task 4. The Contractor will make formal presentation by August 15 to the appropriate city officials in the selected cities if requested to do so by WSEO and the respective city councils.

Provision for Reimbursement

The Contractor will submit invoices on the 15th of the month following the two month billing period in which work was performed.

WSEO will reimburse the Contractor within 15 days after receipt and approval of an official voucher. The final invoice is due on September 15, 1986.

Contract expenditures shall be documented according to the following categories when appropriate:

CATEGORY	\$ AMOUNT
Salaries } Benefits }	<u>\$ 14,150</u>
Travel	<u>\$ 2,300</u>
Equipment } Supplies }	<u>550</u>
Contractual	<u>NA</u>
** Other _____	<u>NA</u>
TOTAL	<u><u>\$ 17,000</u></u>

Comments:

** Itemize all expenditures included in "Other".

NOTE: Please stay within the listed budget categories. Use those applicable to your needs - mark NA on the nonapplicable categories.



STATE OF WASHINGTON
SCHEDULE OF OBJECTIVES

AGENCY

Washington State Energy Office

ORGANIZATION OR UNIT

John Nimmons and Associates

DATE

3/86

TASKS	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT					
1. TASK 1	19 ■■■■■■■■■■■■■■■■		30 ■■■■■■■■■■■■■■■■										
2. TASK 2	19 ■■■■■■■■■■■■■■■■		30 ■■■■■■■■■■■■■■■■										
3. TASK 3	19 ■■■■■■■■■■■■■■■■		30 ■■■■■■■■■■■■■■■■										
4. Submit Draft Report			30 □										
5. Make Informal Presentation			30 □										
6. Final Report (including Model Franchise agreement and model contracts)					15 □								
7. TASK 4 (make recommendations to WSEO)					15 □								
8. Make Formal Presentation to Appropriate City Officials)						15 □							
9. Invoices			15 □		15 □		15 □	Final					

PROGRESS REPORT

Heatplan 3.0 Development. Contract No. 82-18-59

This is a report intended to inform you about the progress of our contracted work. As you know our work in tasks 2, 3 and 4 is in various phases of progress.

The rewriting of the program from Basic to Turbo Pascal is in good progress. Our opinion so far is that Turbo Pascal 3.0 is very well suited for this program. There has been very few problems. MOD 1 will be ready next week (starting March 10), including full screen layouts and retrofit cost.

It will also be possible to choose between inputs and outputs in either the English or the metric system.

In parallel to the rewriting we are developing corrections to the problems identified in Task 1 and discussed in our start-up meeting in December 1985.

JOHN SPELLMAN
Governor



RICHARD H. WATSON
Director

STATE OF WASHINGTON
WASHINGTON STATE ENERGY OFFICE

400 E. Union, 1st Floor, ER-11 • Olympia, Washington 98504 • (206) 754-0700

March 2, 1984

Mr. Elton Bray
U.S. Department of Energy
Idaho Operations Office
550 2nd Street
Idaho Falls, ID 83401

Re: Proposal to Review and Analyze Federal and State Factors Which Deter Geothermal Resource Assessment and Development and to Transfer the Findings and Recommendations to Developers

Dear Mr. Bray:

I am pleased to transmit, herewith, Washington State's proposal to continue and expand upon our work in reducing legal and institutional barriers to geothermal resource exploration and development. The effort will, however, not be limited to such a review and analysis, but will result in the transfer of our findings and recommendations to developers through the publishing of a developer's guide to leasing, permitting, and licensing. We also intend to reach as many of the developers as we can by organizing a conference designed to familiarize them with the path through the legal and institutional maze of state and federal regulations.

If you have any questions or comments concerning the proposal, please feel free to contact me at (206) 754-0774.

Sincerely,

R. Gordon Bloomquist, Ph.D.
Geothermal Specialist

RGB/cg/5-117

RECEIVED

MAR 2 1984

ADVANCED TECHNOLOGY
BRANCH

FEDERAL ASSISTANCE		2. APPLICANT'S APPLICATION	4. NUMBER	3. STATE APPLICATION IDENTIFIER	5. NUMBER
1. TYPE OF ACTION: <input type="checkbox"/> PREAPPLICATION <input checked="" type="checkbox"/> APPLICATION <small>(Mark appropriate box)</small> <input type="checkbox"/> NOTIFICATION OF INTENT (OMB) <input type="checkbox"/> REPORT OF FEDERAL ACTION		LEADS BLANK	4. DATE Year month day 19 84 3 2	3. DATE Year month day 19 84 3 2	5. DATE Year month day 19 84 3 2
6. LEGAL APPLICANT/RECIPIENT a. Applicant Name: State of Washington b. Organization Unit: Washington State Energy Office c. Street/P.O. Box: 400 E. Union, 1st Floor ER-11 d. City: Olympia e. County: Thurston f. State: Washington g. Zip Code: 98504 h. Contact Person (Name & Telephone No.): R. Gordon Bloomquist 206754-0774			7. FEDERAL EMPLOYER IDENTIFICATION NO. 91-095-0059		
7. TITLE AND DESCRIPTION OF APPLICANT'S PROJECT Review & Analysis of State & Federal Legal & Institutional Factors Detering Geothermal Exploration & Development in the State of Washington. Track and analyze legal and institutional factors which result in delays. Prepare and publish a legal and institutional guide to leasing, permitting, and licensing. Organize and conduct a conference on the legal and institutional maze.			8. TYPE OF APPLICANT/RECIPIENT A-State B-Interstate C-Substate District D-County E-City F-School District G-Social Purpose District H-Community Action Agency I-Higher Educational Institution J-Indian Tribe K-Other (Specify)		
10. AREA OF PROJECT IMPACT (Name of cities, counties, States, etc.)			11. ESTIMATED NUMBER OF PERSONS BENEFITING		
13. PROPOSED FUNDING a. FEDERAL \$ 22,951 .00 b. APPLICANT 11,225 .00 c. STATE .00 d. LOCAL .00 e. OTHER .00 f. TOTAL \$.00		14. CONGRESSIONAL DISTRICTS OF: a. APPLICANT: Statewide b. PROJECT: Statewide 16. PROJECT START DATE Year month day 19 84 4 2 17. PROJECT DURATION 12 Months 18. ESTIMATED DATE TO BE SUBMITTED TO FEDERAL AGENCY Year month day 19 84 3 2		12. TYPE OF APPLICATION A-New B-Renewal C-Extension D-Continuation E-Expansion Enter appropriate letter(s) A	
20. FEDERAL AGENCY TO RECEIVE REQUEST (Name, City, State, ZIP code) U.S. Dept of Energy ID Operations, 550 2nd St., ID Falls, ID 83410			19. EXISTING FEDERAL IDENTIFICATION NUMBER		
22. THE APPLICANT CERTIFIES THAT: a. To the best of my knowledge and belief, data in this preapplication/application are true and correct, the Government has been duly authorized by the governing body of the applicant and the applicant will comply with the attached assurance if the construction is approved. b. If required by OMB Circular A-95 this application was submitted, pursuant to instructions therein, to appropriate departments and all responses are attached: approve			Responses attached: <input type="checkbox"/> Yes <input type="checkbox"/> No		
23. CERTIFYING REPRESENTATIVE: a. TYPED NAME AND TITLE: David W. Sjoding, Asst. Dir. Administration & Plng. b. SIGNATURE: <i>David W. Sjoding</i> c. DATE SIGNED: 19 84 3 2			21. REMARKS ADDED <input type="checkbox"/> Yes <input type="checkbox"/> No		
24. AGENCY NAME: Washington State Energy Office			25. APPLICATION RECEIVED: 19 84 3 2		
26. ORGANIZATIONAL UNIT: Geothermal Section			27. ADMINISTRATIVE OFFICE:		
28. ADDRESS:			29. FEDERAL APPLICATION IDENTIFICATION:		
31. ACTION TAKEN: <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. WITHHELD			32. FUNDING: a. FEDERAL \$.00 b. APPLICANT .00 c. STATE .00 d. LOCAL .00 e. OTHER .00 f. TOTAL \$.00		34. STARTING DATE: 19 84 3 2 35. CONTACT FOR ADDITIONAL INFORMATION (Name and telephone number) 36. ENDING DATE: 19 84 3 2 37. REMARKS ADDED: <input type="checkbox"/> Yes <input type="checkbox"/> No
30. FEDERAL AGENCY A-95 ACTION:			33. FEDERAL AGENCY A-95 OFFICIAL: (Name and telephone no.)		

Prescribed by OMB Circular A-102

Exhibit M-4. Application for Federal Assistance (For Construction Programs)
 (Page 1 of 14)

Attachment X

OMB Approval No. 80-R0186

PART II

PROJECT APPROVAL INFORMATION

<u>Item 1.</u> Does this assistance request require State, local, regional, or other priority rating? _____ Yes <input checked="" type="checkbox"/> No	Name of Governing Body _____ Priority Rating _____
<u>Item 2.</u> Does this assistance request require State, or local advisory, educational or health clearances? _____ Yes <input checked="" type="checkbox"/> No	Name of Agency or Board _____ (Attach Documentation)
<u>Item 3.</u> Does this assistance request require clearinghouse review in accordance with OMB Circular A-95? _____ Yes <input checked="" type="checkbox"/> No	(Attach Comments)
<u>Item 4.</u> Does this assistance request require State, local, regional or other planning approval? _____ Yes <input checked="" type="checkbox"/> No	Name of Approving Agency _____ Date _____
<u>Item 5.</u> Is the proposed project covered by an approved comprehensive plan? _____ Yes <input checked="" type="checkbox"/> No	Check one: State <input type="checkbox"/> Local <input type="checkbox"/> Regional <input type="checkbox"/> Location of Plan _____
<u>Item 6.</u> Will the assistance requested serve a Federal installation? _____ Yes <input checked="" type="checkbox"/> No	Name of Federal Installation _____ Federal Population benefiting from Project _____
<u>Item 7.</u> Will the assistance requested be on Federal land or installation? _____ Yes <input checked="" type="checkbox"/> No	Name of Federal Installation _____ Location of Federal Land _____ Percent of Project _____
<u>Item 8.</u> Will the assistance requested have an impact or effect on the environment? _____ Yes <input checked="" type="checkbox"/> No	See instructions for additional information to be provided.
<u>Item 9.</u> Will the assistance requested cause the displacement of individuals, families, businesses, or farms? _____ Yes <input checked="" type="checkbox"/> No	Number of: Individuals _____ Families _____ Businesses _____ Farms _____
<u>Item 10.</u> Is there other related assistance on this project previous, pending, or anticipated? _____ Yes <input checked="" type="checkbox"/> No	See instructions for additional information to be provided.
<u>Item 11.</u> Is the project in a designated flood hazard area? _____ Yes <input checked="" type="checkbox"/> No	See instructions for additional information to be provided.

Exhibit M-3. Application for Federal Assistance (Nonconstruction Programs)
(Page 5 of 13)

PART III - BUDGET INFORMATION

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. Geothermal		\$	\$	\$ 22,951	\$ 11,224	\$ 34,175
2.						
3.						
4.						
5. TOTALS		\$	\$	\$ 22,951	\$ 11,224	\$ 34,175

SECTION B - BUDGET CATEGORIES

6. Object Class Categories	- Grant Program, Function or Activity				Total (5)
	(1) Federal	(2) State	(3)	(4)	
a. Personnel	\$ 8,881	\$ 4,440	\$	\$	\$ 13,321
b. Fringe Benefits	1,909	954			2,863
c. Travel	1,000	500			1,500
d. Equipment					
e. Supplies					
f. Contractual					
g. Construction					
h. Other	3,500	1,500			5,000
i. Total Direct Charges	15,290	7,394			22,684
j. Indirect Charges	7,661	3,830			11,491
k. TOTALS	\$ 22,951	\$ 11,224	\$	\$	\$ 34,175
7. Program Income	\$	\$	\$	\$	\$

Exhibit M-3. Application for Federal Assistance (Nonconstruction Programs)
(Page 7 of 13)

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SECTION C - NON-FEDERAL RESOURCES				
(a) Grant Program	(b) APPLICANT	(c) STATE	(d) OTHER SOURCES	(e) TOTALS
8.	\$ 27,951	\$ 11,224	\$	\$ 34,175
9.				
10.				
11.				
12. TOTALS	\$	\$	\$	\$

SECTION D - FORECASTED CASH NEEDS					
	Total for 1st Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
13. Federal	\$ 22,951	\$	\$	\$	\$
14. Non-Federal	\$ 11,224	\$	\$	\$	\$
15. TOTAL	\$ 34,175	\$	\$	\$	\$

SECTION E - BUDGET ESTIMATES OF FEDERAL FUNDS NEEDED FOR BALANCE OF THE PROJECT				
(a) Grant Program	FUTURE FUNDING PERIODS (YEARS)			
	(b) FIRST	(c) SECOND	(d) THIRD	(e) FOURTH
16.	\$	\$	\$	\$
17.				
18.				
19.				
20. TOTALS	\$	\$	\$	\$

SECTION F - OTHER BUDGET INFORMATION
(Attach additional Sheets If Necessary)
21. Direct Charges:
22. Indirect Charges:
23. Remarks:

19

PART IV PROGRAM NARRATIVE (Attach per instruction)

Exhibit M-3. Application for Federal Assistance (Nonconstruction Programs)

(Page 9 of 13)

**PROPOSAL TO THE U.S. DEPARTMENT OF ENERGY
IDAHO OPERATIONS OFFICE**

**REVIEW AND ANALYSIS OF STATE AND FEDERAL
LEGAL AND INSTITUTIONAL FACTORS DETERING
GEOTHERMAL EXPLORATION AND DEVELOPMENT IN
THE STATE OF WASHINGTON**

Prepared by

**The Washington State Energy Office
400 East Union
Olympia, WA 98504**

**Contact Person: R. Gordon Bloomquist, Ph.D.
Phone: (206) 754-0774**

March 1, 1984

**Task Review and Analysis of Federal and State Legal and Institutional Factors
Which Affect Geothermal Resource Assessment and Development and the
Transfer of Findings and Recommendations to Developers**

Nature of Task:

To identify the legal and institutional factors which presently impede geothermal exploration, development, and utilization in the state; to evaluate the severity of each, and to make recommendations as to how such impediments can effectively be reduced or eliminated. The information will be made available to developers through the publishing of a developer's guide to leasing, permitting, and licensing.

Justification:

Legal and institutional factors have resulted in major delays in leasing and exploration, and have significantly delayed the construction of technically and economically viable geothermal projects.

The introduction of Wilderness Bills into Congress in 1983 and 1984, and recent announcements by the Bonneville Power Administration and the Pacific Northwest Electric Power Planning Council of power surplus in this region, and a lack of adequate transmission to the south and southwest have added new complicity to the institutional problems which are facing developers. In numerous cases, a combination of these factors has resulted in the termination of exploration and/or development activities in Washington and throughout the Northwest. Presently, no comprehensive program exists to track and analyze the legal and institutional factors which are resulting in serious delays in exploration and development.

Through the development of a system for the tracking and analysis of environmental statements, leasing, permitting, licensing, and administrative decisions, it will be possible to identify and quantify the severity of legal and institutional impediments and make possible the timely implementation of strategies for the resolution of these issues. The improved legal and institutional framework, which will be the result of

this work, will help ensure prompt and secure access by developers to private, state, and federal lands for exploration, and the timely and cost effective development of geothermal projects.

Work Activities:

- o Review and analyze existing or proposed state and federal legislation, and rules and regulations pertaining to geothermal as to adequacy in providing the legal and institutional framework necessary to facilitate exploration and development.
- o Design and implement a system to track and monitor all geothermal environmental statements; leasing, permitting, and licensing activities; and administrative decisions in order to determine the effectiveness of the existing legal and institutional processes.
- o Quantify the factors which are identified as constraints to resource assessment and development in terms of severity of delays, and assess how these delays have affected energy availability and costs.
- o Evaluate the need for, and the cost effectiveness of, removing legal and institutional constraints in terms of ensuring timely geothermal energy developability.
- o Publish a developer's guide to leasing, permitting, and licensing.
- o Organize and conduct a conference on the legal and institutional maze.
- o Serve as advisors to policy makers and legislative bodies concerning geothermal issues.

Work Products:

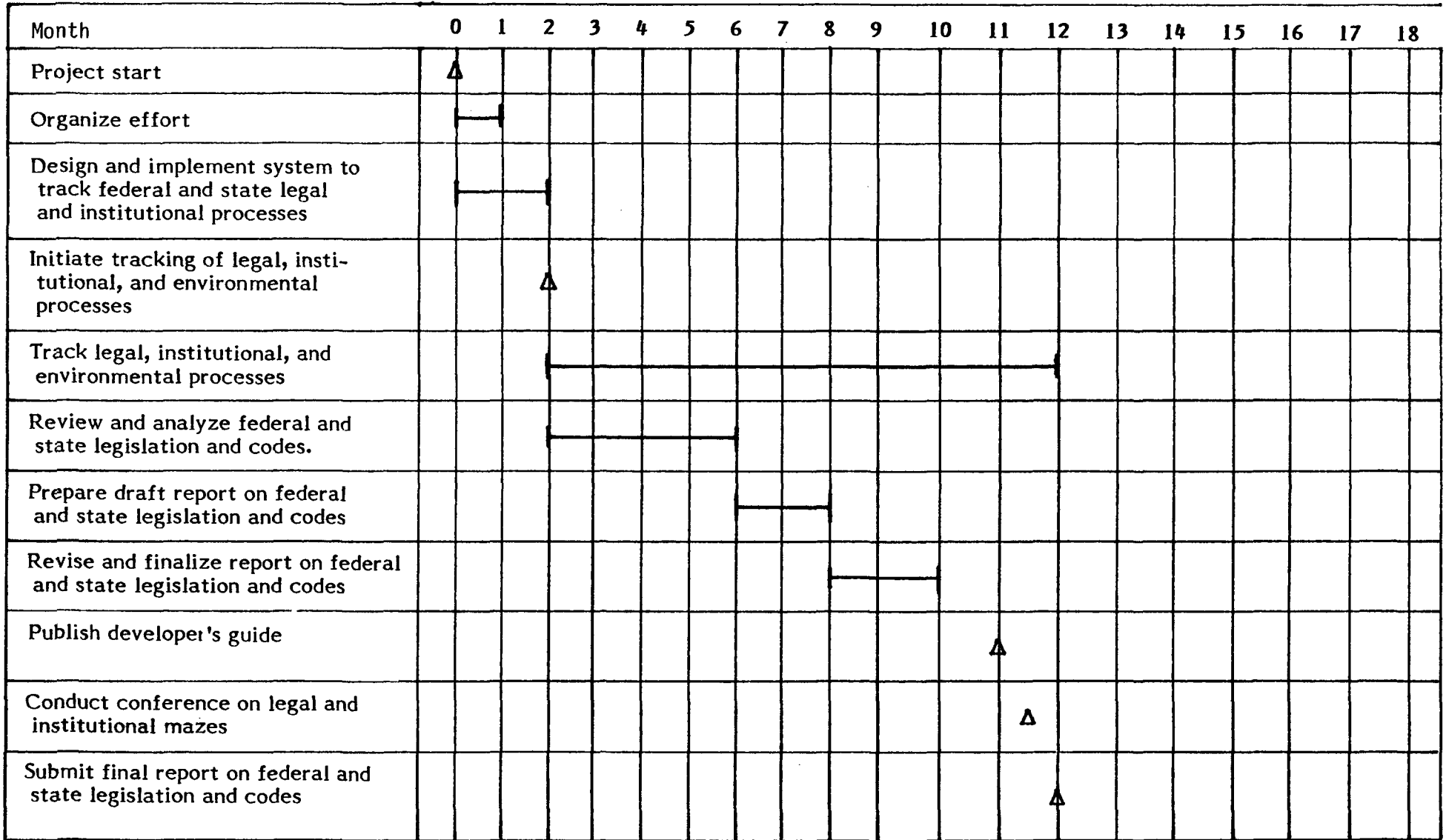
Report(s) will be completed which will include:

- o A review and analysis of the status and adequacy of the state and federal legal and institutional framework as it relates to geothermal exploration and development in Washington State;
- o An evaluation of the legal and institutional factors which presently serve to impede and increase costs of geothermal exploration and development; and
- o A list of recommendations and strategies as to actions which can be implemented in order to improve the institutional and legal framework associated with geothermal exploration and development.
- o A developer's guide to leasing, permitting, and licensing.

Benefits Obtained:

- o A documented analysis of the legal, institutional, and environmental issues which impair geothermal resource development and utilization.
- o Estimates of the costs and benefits associated with resolving specific issues.
- o A list of recommendations and strategies which may be implemented to reduce or eliminate legal and institutional constraints to geothermal exploration and development.
- o An improved institutional and legal framework conducive to geothermal exploration and development in the state.
- o Better information provided to developer on leasing, permitting, and licensing.

**Review and Analysis of Federal and State Legal and Institutional Factors Which Affect
Geothermal Resource Assessment and Development**



R. GORDON BLOOMQUIST
7223 Glenn-Annie Lane SW
Olympia, WA 98502
(206) 754-0774

EDUCATION

Academic:

B.Sc., Earth/Science, Portland State University, 1966
M.Sc., Geology, University of Stockholm, 1970
Ph.D., Geology, University of Stockholm, 1977

Professional:

- o Special Course No. 8, An Introduction to the Exploration and Development of Geothermal Resources, May 1979. Sponsored by Geothermal Resource Council Sponsor - GRC.
- o Field Course, Geothermal Systems of Coso Hot Spring, California, and Mono-Long Valley, California, and Steamboat Hot Springs, Nevada, September 1979. Sponsor - GRC.
- o Technical Training Course No. 3, Basic Geothermal Drilling and Completion Technology, March 1980. Sponsor - GRC.
- o Technical Training Course No. 4, Economic Assessment and Financing of Geothermal Projects, May 1980. Sponsor - GRC.
- o Field Course, Geothermal Systems of the Yellowstone Caldera, Wyoming, September 1980. Sponsor - GRC.
- o Technical Training Course No. 6, Geochemical Fundamentals for Geothermal Exploration and Reservoir Evaluation, November 1980. Sponsor - GRC.
- o Technical Training Course No. 7, Introduction to Geothermal Log Interpretation, April 1981. Sponsor - GRC.
- o Technical Training Course No. 8, Quantitative Chemistry of High Temperature Geothermal Fluids, March 1982. Sponsor - GRC.
- o Geothermal Energy in the Pacific Northwest Marketing and Financing for Communities and Businesses. Sponsor - WSEO, ODOE.
- o Workshop on Siting, Planning, Drilling, and Completion of Low to Moderate Temperature Geothermal Production and Development Wells, February 1983. Sponsor - GRC.

PROFESSIONAL EXPERIENCE

Geologist/Geothermal Specialist, Washington State Energy Office, 2-80 to Present.
Assistant Professor, Geo-Heat Center, Oregon Institute of Technology, 9-79 to 2-80.
Research Associate, Geo-Heat Center, Oregon Institute of Technology, 12-77 to 9-79.

PROFESSIONAL ACTIVITIES

Member, Geothermal Resources Council

President, Pacific Northwest Section of Geothermal Resources Council (Charter Member)

Member, USDOE/HUD District Heating Technical Assistance Team.

Chairman, Washington State Interagency Geothermal Development Council

Chairman, PNUCC Geothermal Subcommittee

Co-Chairman, Technical Program, 1983 annual meeting of Geothermal Resources Council.

Co-Chairman, Poster Sessions, 1980 and 1981 annual meetings of Geothermal Resources Council.

Presented testimony on numerous occasions before the Washington State Senate Committee on Energy and Utilities, and the Washington State House of Representatives Committees on Energy and Utilities, and Ways and Means.

Member, International Association of Sedimentologists.

Presented testimony before United States Senate Committee on Energy and Natural Resources Subcommittee on Energy Resources and Material Production, Energy and Mineral Resources and Public Lands in Reserved Water.

PUBLICATIONS

Geothermal Energy in Washington: Site Data Base and Development Status, published by Oregon Institute of Technology Geo-Heat Utilization Center.

Washington: A Guide to Geothermal Energy Development, published by Oregon Institute of Technology Geo-Heat Utilization Center.

Geothermal Policy in Washington - An Overview. Published in Proceedings of the Symposium on the Geothermal Potential of the Cascade Mountain Range. Geothermal Resource Council.

Geothermal Resources in the Cascades: Accessible/Developable--The Institutional Setting, Energy on Tap, Geothermal Resource Council 1983 Annual Meeting Transactions, Volume 7.

Testimony before the Subcommittee on Energy and Mineral Resources of the Energy and Natural Resources Committee, U. S. Senate, on S 568, the Geothermal Steam Act Amendment of 1983, May 2, 1983.

Testimony before Committee on Finance, U. S. Senate, on S 1237 - a bill to amend the Internal Revenue Code of 1954 to clarify the definition of geothermal energy, and for other purposes, July 18, 1983.

Testimony before the Subcommittee on Energy Conservation and Power, U. S. House of Representatives, on the implementation of provisions of the Pacific Northwest Electric Power Planning and Conservation Act, June 13, 1983.

Testimony before the Subcommittee on Energy and Mineral Resources of the Energy and Natural Resources Committee, U. S. Senate, on S. 669, the "Geothermal Steam Act Amendments of 1981," and S. 1516, the "Geothermal Steam Act of 1981," October 27, 1981. Publication No. 97-57 Part 1.

Testimony before the Subcommittee on Public Lands and Reserved Water of the Energy and Natural Resources Committee, U. S. Senate on S. 669, the "Geothermal Steam Act Amendment of 1981," and S. 1516, the "Geothermal Steam Act of 1981." Hearing on Protection of Geothermal Resources in Yellowstone National Park and Other Units of the National Park System, December 12, 1981. Publication No. 97-57 Part 2.

(Editor) Proceedings of the Geothermal Symposium - Potential, Legal Issues, Economics, Financing, June 2, 1980. Published by Washington State Energy Office.

Open-File Report Number OF-10, Geothermal Leasing Status in Washington, 1980, 5 maps.

TECHNICAL EVALUATION
OF A
GRANT PROPOSAL

TITLE: Review and Analysis of State and Federal Legal and Institutional Factors Deterring Geothermal Exploration and Development in the State of Washington

SUBMITTED TO: U. S. Department of Energy
Idaho Operations Office
Idaho Falls, ID

SUBMITTED BY: Washington State Energy Office
400 E. Union, 1st Floor, ER-11
Olympia, WA 98504

AMOUNT REQUESTED: \$22,951

PROPOSED DURATION: One year

PROJECT DESCRIPTION: The proposer offers to review and analyze Federal and State legal and institutional factors which affect geothermal resource assessment and development and the transfer of the findings and recommendations to developers.

GENERAL REMARKS:

- 1.0 Work Statement: The proposer's work statement and schedule are compatible with DOE's technical requirements.
- 2.0 Task Changes: The proposed task activities dated March 2, 1984, appear adequate to properly achieve the desired results, and, therefore, do not require alteration. An initial submittal dated February 2, 1984, was not satisfactory and was altered to properly meet programmatic needs.
- 3.0 Cost Information: The cost information provided is generally adequate for evaluation. However, additional information was obtained by telephone to assist in the evaluation.

SPECIFIC REMARKS:

- 1.0 Manhours: The proposed labor costs to perform the work are reasonable and appropriate.
- 2.0 Materials: The proposal includes \$3,500 as "other" costs. This is made-up of \$2,000 publication costs and \$1,500 for the conference. These costs are reasonable and appropriate.
- 3.0 Subcontracts: The proposer does not plan to subcontract any of the work.

- 4.0 Travel and Per Diem: Travel costs are based on one trip to Washington, DC and about four statewide trips to Council of Government groups. The travel and costs are appropriate and reasonable for the performance of this work.
- 5.0 Indirect Costs: Indirect costs associated with this activity appear to be appropriate and reasonable.
- 6.0 Proposer's Capability to Meet the Objectives: The proposer possesses unique personal experience developed through DOE contracts and other agency involvements. The proposer is fully capable of performing this task.
- 7.0 Key Personnel Qualifications: The person responsible for this activity, Dr. Gordon Bloomquist, has extensive experience and training and is fully qualified to perform the work. Dr. Bloomquist is extensively involved in reviewing and analyzing legal and institutional factors and has been instrumental in the preparation and implementation of state and federal legislation. Dr. Bloomquist holds a Ph. D. from the University of Stockholm. He has served as the Washington State Energy Offices' geothermal specialist for over 4 years following more than 2 years as geothermal specialist for the Oregon Institute of Technology as a Research Associate and Assistant Professor. He has performed similar work satisfactorily under a previous DOE Contract (DE-FG07-79RO-00079) and is capable of performing the tasks of this proposal in a satisfactory fashion.
- 8.0 Anticipated Objectives and Probability of Success: The anticipated objective of this activity is to review and analyze state and federal legal and institutional factors which affect geothermal resource assessment and development, applying them to the state of Washington, and transferring the findings and recommendations to developers. The proposer possesses the capability to perform all aspects of the work and should succeed in properly fulfilling the objectives.

April 13, 1984

Date

R. Eldon Bray

R. Eldon Bray
General Engineer
Advanced Technology Division

STATEMENT OF WORK

1.0 Scope:

The Washington State Energy Office will identify the legal and institutional factors which presently impede geothermal exploration, development, and utilization in the state of Washington; evaluate the impact of each, and make recommendations as to how such impediments can effectively be reduced or eliminated. The information will be made available to developers through the publishing of a developer's guide to leasing, permitting, and licensing. This work will be accomplished through the performance of the following tasks.

- Task 1 Review and analyze existing or proposed state and federal legislation, rules, and regulations pertaining to geothermal development for adequacy in providing the legal and institutional framework necessary to facilitate exploration and development.

- Task 2 Design and implement a system to track and monitor all geothermal environmental statements; leasing, permitting, and licensing activities; and administrative decisions in order to determine the effectiveness of the existing legal and institutional processes.

- Task 3 Quantify the factors which are identified as constraints to resource assessment and development in terms of severity of delays, and assess how these delays have affected energy availability and costs.

- Task 4 Evaluate the need for, and the cost effectiveness of, removing legal and institutional constraints in terms of ensuring timely geothermal energy developability.

- Task 5 Publish a developer's guide to leasing, permitting, and licensing.

- Task 6 Organize and conduct a conference on the legal and institutional maze.

- Task 7 Serve as advisors to policy makers and legislative bodies concerning geothermal issues.

- Task 8 Provide overall project management and complete and report on tasks in a timely manner. Management reports shall be provided as defined by the attached DOE Form CR-537 Reporting Requirements Checklist. The required reports are also summarized as follows:

- | | |
|--|---|
| 1. Form DOE 538 Notice of Energy RD&D | 30 days after award of grant |
| 2. Quarterly Management Summary Report | 15 days after calendar quarter end |
| 3. Project Status Report | 15 days after calendar quarter end |
| 4. Topical Report (Developer's Guide) | Due prior to or accompanying final report in both draft and in final form including one camera-ready copy |
| 5. Final Report (Draft) | Due 45 days prior to completion date |
| 6. Final Report | Due on completion date |
| 7. Financial Status Report, OMB Form 269 | Due on completion date |

2.0 Deliverables:

The performance of the work of this task will result in the following deliverables.

- 2.1. Developer's Guide: The primary deliverable of this task will be the preparation and distribution of a developer's guide to leasing permitting and licensing. The document will contain a review and analysis of the status and adequacy of the state and federal legal and institutional framework as it relates to geothermal exploration and development in Washington state; an evaluation of the legal and institutional factors which presently serve to impede and increase costs of geothermal exploration and development; and a list of recommendations and strategies as to actions which can be implemented in order to improve the institutional and legal framework associated with geothermal exploration and development.
- 2.2. Conference: WSEO will organize and conduct a conference on the legal and institutional maze. A brief letter report summarizing attendance, content, response, and other appropriate comments will be submitted.
- 2.3. Reports: The WSEO will provide all management reports identified in Task 8. The final report shall be a brief summation of the activities of this task, the results and findings, and recommendations.



**U.S. DEPARTMENT OF ENERGY
IDAHO OPERATIONS OFFICE
REPORT DISTRIBUTION LIST**

Federal Assistance Milestone Plan Federal Assistance Budget Information Form Federal Assistance Management Summary Report Financial Status Report/Project Status Report Notice of Energy RDEID Technical Progress Report Technical Progress Report OMB Form 269 Topical Report Final Technical Report

Addressees	Number of Report Copies															
U.S. Department of Energy Idaho Operations Office 550 Second Street Idaho Falls, ID 83401 Attn: R. Eldon Bray, Program Mgr. Advanced Technology Div.													2	2	8	8
Attn: Elizabeth M. Hyster Contracts Management Div.													1	1	1	1
Attn: E. G. Jones, Director Financial Management Div.													1			
U.S. Department of Energy Forrestal Bldg. , CE-324 1000 Independence Ave., S.W. Washington, DC 20585 Attn: Ron Thoms													1	1	6	6
EG&G Idaho, Inc. P.O. Box 1625, WCB E-3 Idaho Falls, Idaho 83415 Attn: B. C. Lunis													1	1	1	1
U.S. Department of Energy Technical Information Center P.O. Box 62 Oak Ridge, TN 37830																1

Special Instructions

U.S. DEPARTMENT OF ENERGY
FEDERAL ASSISTANCE REPORTING CHECKLIST

FORM EIA 459A
 (10/80)

FORM APPROVED
 OMB NO. 1900-0127

1. Identification Number: DE-FG07	2. Program/Project Title: Geothermal		
3. Recipient:			
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		
<input checked="" type="checkbox"/> Federal Assistance Program/Project Status Report	Q		
<input checked="" type="checkbox"/> Financial Status Report, OMB Form 269	F		
TECHNICAL INFORMATION REPORTING			
<input checked="" type="checkbox"/> Notice of Energy RD&D	O		
<input type="checkbox"/> Technical Progress Report			
<input checked="" type="checkbox"/> Topical Report	A		
<input checked="" type="checkbox"/> Final Technical Report	F		
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. Q - Quarterly; within 30 days after end of calendar quarter or portion thereof. O - 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:			
6. Prepared by: (Signature and Date)		7. Reviewed by: (Signature and Date)	

JUSTIFICATION FOR NON-COMPETITIVE AWARDS

I recommend that negotiations be conducted only with those organizations listed below for the services described herein in accordance with DOE-PR 9-3.805-501.

Organization

State of Washington, Department of Natural Resources
State of Washington, Energy Office
State of Oregon, Dept. of Geology & Mineral Industries
State of Oregon, Department of Energy
State of Alaska, Department of Commerce & Economic Development, Office of Energy
University of Alaska, Geophysical Institute
State of Alaska, Department of Natural Resources
New Mexico State University, Energy Institute
State of New Mexico Energy & Minerals Department
Idaho Department of Water Resources
State of Utah, Utah Geological & Mineral Survey
State of Utah, Division of Water Rights
State of Montana, Dept. of Natural Resources & Conservation
State of Montana, College of Mineral Science & Technology

1. Description of Supplies or Services to be Supported

- A. The actions with the above named universities and state government agencies are for geothermal resource assessment and to promote geothermal technology transfer within the participating states. Emphasis will be placed on detailed studies within areas with high temperature resources and/or expansion of work previously conducted within the states.
- B. The work to be provided by each university or state agency will be tailored to the needs within each state and DOE objectives for continued resource assessment and technology transfer.

2. History, Estimated Future Requirements, and Long-Range Objectives

- A. The State Teams Programs were initiated approximately seven years ago. At the program peak DOE-ID was administering 39 geothermal contracts, cooperative agreements, or grants with universities and state agencies. Eight of the above mentioned organizations are at present in the final phases of their agreements with DOE; the remainder have completed the work, and their agreements were closed out.
- B. This work is a continuation of the previous program in the sense that it is for geothermal resource assessment and technology transfer. However, the new emphasis will be in accordance with the generic guidelines set forth in C below and will investigate higher temperature systems.
- C. All work will be within the generic guidelines of DOE which are to implement these activities within states which:
 - 1. Have potential for high temperature geothermal resources
 - 2. Whose resource assessment efforts will support R&D investigations required by magma and Cascades research programs
 - 3. Have existing resource and energy groups actively supporting geothermal development
 - 4. Are currently providing outstanding technology transfer and institutional problem mitigation activities
- D. It is not anticipated that DOE will be able to develop competition for this work. The performing state agencies and universities were designated by the Governor's Office of each participating state. An attempt to stimulate competition would be contrary to DOE's policy of cooperation with state governments.

3. Estimated Cost

- A. The program funding level of \$1,925,000 was designated by the FY-84 Appropriations Bill and DOE-HQ. The funding levels for the individual states range from \$ 90,000 to \$145,000 and were established by ID and HQ based on the prior state teams annual funding levels, the amount and quality of work previously accomplished at these levels, and the amount of productive work remaining to be done.
- B. The FY-84 funding level for the portion of the program to be administered at DOE-ID is \$1,295,000 of the total program funding of \$1,925,000. This level of funding is lower than any of the previous seven years; the amount to be funded in future years is uncertain.
- C. It is the intent of this program to expand the knowledge of higher temperature resources within individual states. This work was performed in previous years by the organizations within each state which were designated by the respective Governor's Office. Any change in contractors at this time would increase costs and delay the program and could only be undertaken with the consent of the Governor's Office in each state.

4. Schedule Requirements

- A. The basis for the rapid emplacement of the subject program is the imminent close-out of the agreements DOE now has with several of the organizations we wish to have perform under the FY-84 program. The agreements presently in place are scheduled for various completion dates ranging from almost immediately to September 1984.
- B. It is important to get the work started as soon as possible because the existing expertise may be disbanded if the work presently contracted for is completed prior to the emplacement of this subject program. The existing expertise has been developed to a great extent under the previous DOE-ID contracts and a lapse in DOE funding could result in lack of financial support for the organizations. This cadre of experienced expertise is critical for high quality resource assessment and technology transfer, and it is doubtful that any other organizations can perform as well in the respective states as those which are listed above. Rapid emplacement of this program will help ensure the retention of the existing expertise.
- C. It is doubtful that any savings can be realized or that competition can be increased by relaxing schedules.

5. Exclusive Capacity & Capability

It was determined at the beginning of the previous program to use universities and state agencies to perform the work because these organizations had already performed research in the particular areas, had basic staffs and departments capable of performing the research, and were designated by the state executives. The experience of these organizations has been further enhanced by the work they have conducted for DOE during the past seven years.

RECOMMENDED:

R E Wood

R. E. Wood, Director
Energy and Technology Division

CONCUR:

George C. Wingerson

George C. Wingerson
Office of the Chief Counsel

J. F. Marmo 2/5/84

J. F. Marmo, Director
Contracts Management Division


APPROVED:

Troy E. Wade

Troy E. Wade, Manager
Idaho Operations Office

2/7/84
Date

U.S. DEPARTMENT OF ENERGY

DOE F 4220.2 (6-60) (Formerly PR-415)		SMALL BUSINESS/LABOR SURPLUS SET-ASIDE REVIEW		I.D. NO.	
ITEM TITLE/DESCRIPTION <i>State of Washington Energy Office FY 84 Geothermal Grant</i>			SMALL BUSINESS SIZE STANDARD RECOMMENDED BY S.B. SPECIALIST EMPLOYEES NUMBER _____ DOLLAR \$ _____ SIC CODE: _____		
PROGRAM OFFICE: <i>Energy Tech & Cons.</i>		PROCURING ACTIVITY: <i>Contracts Mgmt Div.</i>			
SB/LS PARTICIPATION WAS CONSIDERED IN THE PREPARATION OF THIS PROCUREMENT ITEM AND FOLLOWING IS RECOMMENDED: <input type="checkbox"/> Small Business Set-Aside _____ % \$ _____ <input type="checkbox"/> Labor Surplus Set-Aside _____ % \$ _____ <input type="checkbox"/> SBA Section 8(a) Procurement <input checked="" type="checkbox"/> Set-Aside Action Not Recommended			NAME AND LOCATION OF PROPOSED SOURCE: (If Sole Source) <i>State of Washington</i> <input type="checkbox"/> Small Business <input type="checkbox"/> Minority <input type="checkbox"/> Labor Surplus Firm <input checked="" type="checkbox"/> Other		
SET-ASIDE NOT FEASIBLE BECAUSE: <input type="checkbox"/> No Reasonable Expectation of Receiving Sufficient Offers from SB/LS Firms to Assure Award* <input type="checkbox"/> Program Objectives Dictate Broadest Possible Solicitation to Obtain "Best Available" Expertise* <input type="checkbox"/> Solicitation if for "Best Idea/Approach" R&D Effort <input type="checkbox"/> Continuing and Directly Related R&D Effort. Competitive Procurement Not Feasible for Economic and/or Technical Reasons <input type="checkbox"/> Procurement is for Completion or Within-Scope Expansion of Current Contract <input type="checkbox"/> This is for Extension of Current Services to Allow Preparation/Award of Competitive Follow on Procurement <input type="checkbox"/> Sole Source as Determined Under Current DOE Policy Directives <input type="checkbox"/> Funding of Unsolicited Proposal Under Current DOE Policy Directives <input checked="" type="checkbox"/> Other* <small>*Explanation Required</small>		EXPLANATION/ADDITIONAL COMMENT: <i>Supplementary appropriation by Congress in FY 84 for State Teams Geothermal activity in promoting technology utilization within participating states.</i>			
SMALL BUSINESS SPECIALIST'S ENDORSEMENT <input type="checkbox"/> Accepts <input type="checkbox"/> Requests Reevaluation <input type="checkbox"/> Request Solicitation of SB/LS Sources Attached <input type="checkbox"/> Request Special SB/LS/MB Incentive Provisions (Attached) <input type="checkbox"/> Other Comments/Attached		SMALL BUSINESS SPECIALIST CONSULTED (Check One) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <div style="display: flex; justify-content: space-between;"> <div style="text-align: center;">  <small>P.R. REQUESTOR</small> </div> <div style="text-align: center;"> <i>523-0086</i> <small>TELEPHONE</small> <i>4-12-84</i> <small>DATE</small> </div> </div>			
SMALL BUSINESS SPECIALIST _____ DATE _____		SMALL BUSINESS SPECIALIST _____ DATE _____			
REEVALUATION OF RECOMMENDATIONS/FINDINGS <input type="checkbox"/> Reaffirmed <input type="checkbox"/> Set-Aside Feasible AUTHORIZING PROGRAM OFFICIAL _____ DATE _____		REVIEWED BY SBA <input type="checkbox"/> Request Solicitation of SB Sources Attached SBA Form 70 Attached <input type="checkbox"/> Yes <input type="checkbox"/> No SBA REPRESENTATIVE _____ DATE _____			
PROCUREMENT OFFICER'S ACTION <input type="checkbox"/> SB/LB Set-Aside <input type="checkbox"/> Set-Aside Not Initiated <input type="checkbox"/> Other Recommendations/Request Noted and Appropriate Action Taken PROCUREMENT OFFICER _____ DATE _____		CONTRACT NO.(S) _____ SB/MB/OTHER _____			

U.S. Department of Energy
Procurement Request-Authorization

1. To Awarding Office <i>Contract Management Division</i>		3. PR Number	4. Change/Correction to a PR in Process? <input type="checkbox"/> Yes <input type="checkbox"/> No
2. From Initiating Office <i>Energy Technology & Conservation Advanced Technology Division</i>		5. If Item 4 is yes, enter PR correction Letter	6. <input type="checkbox"/> Procurement <input type="checkbox"/> Assistance
8. Action Description/Title (180 char. max.) <i>State of Washington, Energy Office FY 84 Grant for Legal and Institutional Analysis</i>		7. Consistent with Principal Purpose of Program? <input type="checkbox"/> Yes <input type="checkbox"/> No	

If award is competitive, has list of sources been attached? Yes No If Non-Competitive, Complete Items 9-11.

9. Name <i>State of Washington</i>	11. Address <i>400 E. Union, 1st Floor, ER-11 Olympia, Wash 98504</i>
10. Division <i>State Energy Office</i>	
12. For Procurement Actions Only: Product or Service Code	
13. For Assistance Actions Only: CFDA Number	14. Cooperative Agreement <input type="checkbox"/>
15. Grant <input type="checkbox"/>	
16. Controlled Deliverable For All Actions	17. Kind of Award Action (Recommended) 18. Master Bin
	19. Desired Award Date <i>ASAP</i> Mo Day Year
20. Unsolicited Proposal Number	21. Project Number
22. Government Property <input type="checkbox"/> F-Furnished, P-Purchased, N-Not involved	

FINANCIAL DATA

23. Government Share <i>22,951</i>	24. Awardee Share	25. Total <i>22,951</i>
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FY FUNDS COMMITTED

26. Approp. Symbol	27. B&R Number	28. Dollar Amt.	29. Allotment	30. Object Class	31. AFP	32. CFA

From Continuation Sheet	35. Project Period from _____ thru _____
Total Funds this PR	36. Budget Period from _____ thru _____

PROJECT MANAGER/INITIATOR

37. Name <i>R. Eldon Bray</i>	38. Signature <i>R. Eldon Bray</i>	39. Date <i>4-12-84</i>	40. Office Code
			41. FTS Telephone Number <i>503-0086</i>

PROGRAM REVIEWING OFFICIAL

42. Name <i>Charles E. Gilmore</i>	43. Signature	44. Date
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PROGRAM OFFICE BUDGET OFFICIAL

45. Name <i>Dennis R. Bell</i>	46. Signature
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CERTIFYING OFFICIAL. I hereby certify that the funds cited in item 34 are available

47. Name <i>Frank S. Smith</i>	48. Signature	49. Date
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May 27, 1987

State of Washington - Contract No. DE-AC07-79ET27014

Vickie Gonzales
Property Management Branch

Please issue the State of Washington a property loan for the equipment that was brought under their contract. It is my understanding that the state will be responding to the State Geothermal Research and Development PRDA that has been released. Should the state be awarded a grant, we would like the property to be transferred to this grant.

If you have any questions, please call.

Peggy A.M. Brookshier
Project Manager
Advanced Technology Division

cc: Joe Lee, DOE-ID

✓ bcc: Howard Ross, UURI

ATD
PMB Brookshier:lp
5/27/87

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. AMENDMENT/MODIFICATION NO. **A008** 2. EFFECTIVE DATE _____ 3. REQUISITION/PURCHASE REQUEST NO. **07-84ET27014.502** 4. PROJECT NO. (If applicable) _____

5. ISSUED BY **U. S. Department of Energy
 Idaho Operations Office
 550 Second Street
 Idaho Falls, ID 83401** CODE _____ 6. ADMINISTERED BY (If other than block 5) _____ CODE _____

7. CONTRACTOR NAME AND ADDRESS CODE _____ FACILITY CODE _____
 State of Washington
 Department of Natural Resources
 Olympia, WA 98504
 ATTN: J. Eric Schuster

8. AMENDMENT OF SOLICITATION NO. _____
 DATED _____ (See block 9)
 MODIFICATION OF CONTRACT/ORDER NO. **DE-AC07-79ET27014**
 DATED **5/8/79** (See block 11)

9. THIS BLOCK APPLIES ONLY TO AMENDMENTS OF SOLICITATIONS
 The above numbered solicitation is amended as set forth in block 12. The hour and date specified for receipt of Offers is extended, is not extended.
 Offerors must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation, or as amended, by one of the following methods:
 (a) By signing and returning _____ copies of this amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGEMENT TO BE RECEIVED AT THE ISSUING OFFICE PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If, by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided such telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

10. ACCOUNTING AND APPROPRIATION DATA (If required)
 Obligation increase of \$117,679 to total \$912,427 AM1510000

11. THIS BLOCK APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS
 (a) This Change Order is issued pursuant to _____
 The Changes set forth in block 12 are made to the above numbered contract/order.
 (b) The above numbered contract/order is modified to reflect the administrative changes (such as changes in paying office, appropriation data, etc.) set forth in block 12.
 (c) This Supplemental Agreement is entered into pursuant to authority of Article I-Scope of Work and Exhibit I-Statement of Work of the contract
 It modifies the above numbered contract as set forth in block 12.

12. DESCRIPTION OF AMENDMENT/MODIFICATION
 SEE ATTACHED

RECEIVED
 SEP 10 1984

Except as provided herein, all terms and conditions of the document referenced in block 8, as heretofore changed, remain unchanged and in full force and effect.

13. CONTRACTOR/OFFEROR IS NOT REQUIRED TO SIGN THIS DOCUMENT CONTRACTOR/OFFEROR IS REQUIRED TO SIGN THIS DOCUMENT AND RETURN 2 COPIES TO ISSUING OFFICE

14. NAME OF CONTRACTOR/OFFEROR
 BY James A. Stearns
 (Signature of person authorized to sign)

17. UNITED STATES OF AMERICA
 BY William C. Drake
 (Signature of Contracting Officer)

15. NAME AND TITLE OF SIGNER (Type or print)
 James A. Stearns
 Department Supervisor

16. DATE SIGNED
 9/25/84

18. NAME OF CONTRACTING OFFICER (Type or print)
 William C. Drake
 Contracting Officer

19. DATE SIGNED
 9/15/84

1. Article I - Scope of Work is modified to add the work in the attached Modification No. A008 Statement of Work.
2. Article II - Period of Performance is modified to extend the term through February 28, 1986.
3. Paragraphs (a), (c) and (d) of Article III - Estimated Cost and Cost Sharing are revised to read as follows:

- (a) The total estimated cost of the work under this contract is increased by \$140,288.00 from \$1,007,240 to \$1,147,528.00 for work under the original contract, Modification No. A003, Modification No. A006 and this Modification No. A008. Of this estimated cost, the amount that DOE will fund is increased by \$117,679.00 from \$794,748 to \$912,427.00 for work under this Modification No. A008. (The estimated cost of the Statement of Work in this Modification No. A008 is \$213,334.00 of which DOE's share is \$190,725.00 which is funded by \$73,046.00 of funds remaining from prior work and \$117,679.00 of new funds).
- (c) The amount of costs that the Contractor shall fund out of its own resources is increased by \$22,609.00 from \$212,492 to \$235,101.00 for work under this Modification No. A008. In the event that the actual cost of the work under the original contract and this Modification No. A008 exceeds the amount of \$22,609.00 it is understood and agreed that the Contractor shall be under no further obligation to thereafter share costs of contract performance hereunder, and in no event shall the Contractor be obligated to contribute an amount from its own resources in excess of \$235,101.00 for work under the original contract, Modification No. A003, Modification No. A006, and Modification No. A008.
- (d) The total amount presently obligated under this contract is increased by \$117,679.00 from \$794,748.00 to \$912,427.00. Amounts obligated under the contract by both parties are summarized as follows:

	<u>DOE Obligations</u>	<u>Washington Share</u>
Original contract	\$296,894	\$12,984
Increase Mod. A003	294,217	12,867
Increase Mod. A006	203,637	186,641
Increase Mod. A008	117,679	22,609
<u>Totals</u>	<u>\$912,427</u>	<u>\$235,101</u>

4. Paragraph (e) of Article IV - Technical Direction and Surveillance is modified to read as follows:

(e) The "Technical Manager" for DOE is as follows:

R. Eldon Bray
Energy & Technology Division
U. S. Department of Energy
Idaho Operations Office
550 Second Street
Idaho Falls, Idaho 83401
Telephone (208) 526-0086

STATEMENT OF WORK

The Contractor will perform following tasks on the geothermal resource assessment of the State of Washington.

- Task 1. Drill shallow temperature gradient holes, collect drill cuttings, log the cuttings, measure the down-hole temperatures, sample the water from any artesian holes, and analyze all samples for parameters of interest.
- Task 2. Conduct area specific mercury surveys.
- Task 3. Locate and collect water samples from thermal and mineral springs not previously sampled and perform analyses of these samples.
- Task 4. Construct geologic maps for the most important geothermal areas of study.
- Task 5. Analyze and interpret all the available data derived from Tasks 1 through 4 and prepare reports, maps, logs, and tables, etc. for the purpose of ultimately making the results of these investigations available to the public. The information reported for the mercury surveys, for example, will include such information as a sample location map, analytical values for each sample, and descriptions of samples and analytical techniques. A topical report on the temperature gradient activities (Task 1) will be a deliverable, but it may be included in the final report. A final report of all the investigations will be one of the major results and deliverable of this grant. It will cover all the work of Tasks 2, 3, and 4 and may include the temperature gradient activities (Task 1).
- Task 6. Project Management
 - a. Provide overall project management and complete and report on tasks in a timely manner.
 - b. Provide all reports, in accordance with DOE Uniform Contractor Reporting System requirements and as defined by the attached DOE Form CR-537 Reporting Requirements Checklist.

REPORTING REQUIREMENTS CHECKLIST

DOE Form CR-537
(1-78)

(See Instructions on Reverse)

FORM APPROVED
OMB NO. 38R-0190

1. IDENTIFICATION Washington Geothermal Resource Assessment	2. OBLIGATION INSTRUMENT: DE-AC07-79ET27014 - Mod. A008
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3. REPORTING REQUIREMENTS

A. PROJECT MANAGEMENT	Frequency	B. TECHNICAL INFORMATION REPORTING	Frequency
1. <input type="checkbox"/> Management Plan 2. <input type="checkbox"/> Milestone Schedule & Status Report 3. <input type="checkbox"/> Cost Plan 4. <input type="checkbox"/> Manpower Plan 5. <input checked="" type="checkbox"/> Contract Management Summary Report 6. <input checked="" type="checkbox"/> Project Status Report 7. <input type="checkbox"/> Cost Management Report 8. <input type="checkbox"/> Manpower Management Report 9. <input type="checkbox"/> Conference Record 10. <input type="checkbox"/> Hot Line Report	Q Q	1. <input checked="" type="checkbox"/> Notice of Energy RD&D Project (SSIE) 2. <input type="checkbox"/> Technical Progress Report 3. <input checked="" type="checkbox"/> Topical Report 4. <input checked="" type="checkbox"/> Final Technical Report C. PMS/MINI-PMS 1. Cost Performance Report <input type="checkbox"/> Format 1 WBS <input type="checkbox"/> Format 2 Functional <input type="checkbox"/> Format 3 Baseline <input type="checkbox"/> Format 5 Problem Analysis 2. <input type="checkbox"/> Cost/Schedule Status Report 3. <input type="checkbox"/> Management Control System Description 4. <input type="checkbox"/> Summary System Description 5. <input type="checkbox"/> WBS Dictionary	O A F

FREQUENCY CODES: A - As Required C - Contract Change F - Final (End of Contract) M - Monthly O - One Time (Soon After Contract Award)	Q - Quarterly S - Semi-Annually X - Mandatory for Delivery with Proposals/Bid Y - Yearly or Upon Contract Renewal
---	--

4. SPECIAL INSTRUCTIONS

A.5. and 6.-Due 15 days after end of the reporting period.

B.1.-Due 30 days after effective date of modification.

B.3. and 4.-Due in draft 45 days prior to completion of contract term for DOE comments.
Final due at completion.

5. ATTACHED HEREWITH:

<input checked="" type="checkbox"/> Report Distribution List	<input type="checkbox"/>
<input type="checkbox"/> WBS/Reporting Category	<input type="checkbox"/>

6. PREPARED BY (Signature and date): <i>R Eldon Bray 8-15-84</i>	7. REVIEWED BY (Signature and date): <i>Kent DeHastings 9/12/84</i>
---	--

REPORTING REQUIREMENTS CHECKLIST

PURPOSE

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

INSTRUCTIONS

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

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

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

- 3.A.1 *Management Plan* — The contractor's plan to manage the effort described in the statement of work or similar document. It will contain management methodologies, control systems, and procedures he will use. Includes milestones and other planning schedules, organizational identification and descriptions, and special and critical plans, such as test plans, plans for handling of Government owned property. Work breakdown structures, key personnel identification, and methods for monitoring progress toward objectives may be required.
- 3.A.2 *Milestone Schedule and Status Report* — The contractor's milestone schedule for all work breakdown structure items, line items, or deliverables specified in the contract. Updated periodically (usually monthly) with status, progress toward completion, and percent completion of each line item and of the total contract.
- 3.A.3 *Cost Plan* — A baseline plan for incurring costs on a contract or agreement to measure progress in terms of cost; update and forecast contract fund requirements; plan funding changes; and develop fund requirements and budget estimates.
- 3.A.4 *Manpower Plan* — A baseline plan to allocate manpower to each reporting category identified in the contract or agreement.
- 3.A.5 *Contract Management Summary Report* — A single-page graphic presentation of integrated cost, major milestones, and manpower for rapid visual analysis and trend forecasting.
- 3.A.6 *Project Status Report* — A periodic report to communicate to DOE management an assessment of contract status, to explain variances and problems, and to discuss any other areas of concern or achievements.
- 3.A.7 *Cost Management Report* — A periodic report of the status of costs compared to the Cost Plan. Data is used to: report actual and projected accrued costs; evaluate performance against plan; identify actual and potential problem areas; construct cost experience for projects and budgeting efforts; and, to verify the reasonableness of contractors' invoices.
- 3.A.8 *Manpower Management Report* — A periodic report of the status of actual and projected manpower expenditure against the Manpower Plan. Data is used to evaluate performance against plan; identify actual and potential problem areas; and to construct manpower experience for projections and planning efforts.
- 3.A.9 *Conference Record* — Documentation of the contractor's understanding of significant decisions, direction or redirection or required actions resulting from any meeting with DOE representatives.
- 3.A.10 *Hot Line Report* — A hardcopy report by the fastest means available, (TWX, etc) documenting critical problems, emergency situations, and important technical breakthroughs.

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

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

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

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

3.C PMS/Mini-PMS

1) *Cost Performance Report (PMS Application)*

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

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

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

Format 5 — Provides a narrative analysis of contract variances.

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

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

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

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

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

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

Item 5 — Check appropriate blocks.

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

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

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

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



ID F-129 (Rev. 08-79)
 Ref. DOE 13302
 (use with DOE CR-537)

U.S. DEPARTMENT OF ENERGY
 IDAHO OPERATIONS OFFICE
REPORT DISTRIBUTION LIST

Contract No.	Report Distribution List														
	Milestone Schedule & Status Report Management Plan	Contract Management & Status Report	Manpower Management Summary Report	Project Status Report	Manpower Plan	Cost Management Report	Notice of Energy Management Report	Conference Report	Technical Progress Report (SSIE)	Technical Progress Report (SSIE) Hol Line Report	Final Technical Report	Topical Report	Cost/Schedule Status Report	Summary System Description	WBS Dictionary
Contract No.	Number of Report Copies														
DE-AC07-79ET27014 Mod. A008	U. S. Department of Energy Idaho Operations Office 550 Second Street Idaho Falls, ID 83401 ATTN: R. Eldon Bray, Prog.Mgr. ATTN: Kent Hastings, CMD ATTN: Earl Jones, FMD												1	8	8
													1	1	1
	U. S. Department of Energy Forrestal Bldg., CE-324 1000 Independence Avenue, S.W. Washington, D.C. 20585 ATTN: Ron Toms													6	6
	University of Utah Research Institute Earth Science Laboratory 391 Chipeta Way, Suite C Salt Lake City, UT 84108 ATTN: Duncan Foley													1	1
	U. S. Department of Energy Technical Information Center P. O. Box 62 Oak Ridge, TN 37830													1	
Special Instructions															

UNIFORM DOE CONTRACTOR SCIENTIFIC, TECHNICAL AND ENGINEERING REPORT NUMBERING SYSTEM

Effective with the implementation of the Procurement/Contract numbering system as shown in the example below, the following guidelines are established for identifying scientific and technical reports (progress, interim, final topical, etc.) conference papers, proceedings, theses, and translations.

1. All DOE contractors now applying uniquely identifying codes and systems approved by TIC are to continue using such codes and systems.
2. DOE Field Office codes such as ALO, IDO, COO, HCP, NVO, ORO, RLO, SAN, and SRO; and program codes such as FE, DSE, etc., are no longer approved for use by contractors.
3. Contractors having no approved unique codes are to number information products as shown below. All contractors in this category should create unique report numbers by (a) identifying the report with a DOE code, (b) selecting the final seven characters from the applicable contract number (two alphabetic and five numerals), and (c) adding suffix numbers sequentially for each report generated under the contract. For new contracts, the sequential number should begin with 1. For existing contracts the established sequence should continue. Slash marks and hyphens should be applied as shown in the examples.

Examples: Report numbers generated from contract number DE-AC03-79ET01834.M001:

DOE/ET/01834-1; DOE/ET/01834-2; DOE/ET/01834-3; etc.

Note: It is essential that both the final five-digit numeral and the two preceding alphabetical characters be extracted from the contract number as shown. The modification number, if any, normally shown as M001, etc., following the basic five-digit number is NOT used in the report number.

4. Reports issued in more than one binding, or reissued as revisions or later editions, are to be identified by adding the following additional suffixes to the basic number: Rev. - Revision; Vol. - Volume; Pt. - part; Add. - Addenda; Ed. - Edition, etc.

Examples: DOE/ET-01834-1 Rev.
DOE/ET/01834-1 Rev. 2

DOE/ET-01834-1 Pt. 1
DOE/ET/01834-1 Pt. 2

It is intended that report numbers be structured exactly as specified in the examples insofar as possible. If modification to this basic format is essential, it is to be approved through normal channels before being used.

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

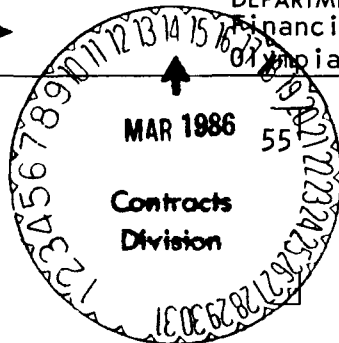
 COMMISSIONER OF PUBLIC LANDS

210712
 INVOICE
 No. 013730

PLEASE REMIT BY CHECK OR MONEY ORDER
 AND FORWARD WITH COPY TO →

DEPARTMENT OF NATURAL RESOURCES
 Financial Services QW-21
 Olympia WA 98504

US Dept. of Energy
 Contracts Management Division
 550 Second Street
 Idaho Falls ID 83401
 Attn: Mr. Joe Lee



DATE: March 11, 1986
Prompt Payment Act

Yes
 No

Due Date _____

DESCRIPTION OF CHARGES	QUANTITY	UNIT COST	AMOUNT
Billing for expenses incurred on US Department of Energy Geothermal Resource Assessment Contract No. DE-AC07-79ET27014 for the period April 1, 1985 through March 31, 1986.			<u>187,029.24</u>
Total Invoiced _____ Less Amount Withheld \$ _____ Total Approved Payment \$ _____			
_____ CMD Authorized Signature Date Program 187	Work covered by this invoice was performed satisfactorily to the best of my knowledge.		
	Approved by: _____ Technical Monitor		
	Date: _____		
J Eric Schuster 459-6372		TOTAL	\$187,029.24



WASHINGTON STATE DEPARTMENT OF
Natural Resources

BRIAN BOYLE
Commissioner of Public Lands

OLYMPIA, WA 98504

March 6, 1986

Joe Lee
Contracts Management Division
USDOE/ID
550 Second Street
Idaho Falls, ID 83401

RE: U.S. Department of Energy
Contract No. DE-AC07-79ET27014

Dear Mr. Lee:

On this date we have sent to our finance section a request for final billing on the U.S. Department of Energy Geothermal Assessment program to cover costs incurred from April 1, 1985 through February 28, 1986. You should receive that invoice in about ten (10) days.

A detailed breakdown of expenditures is attached for your information.

Sincerely,

A handwritten signature in cursive script that reads "J. Eric Schuster".

J. Eric Schuster
Assistant State Geologist
Division of Geology &
Earth Resources

JES:fn

U.S. DEPARTMENT OF ENERGY CONTRACT NO. DE-AC07-79ET27014

Department of Natural Resources
 Division of Geology and Earth Resources
 Olympia, Washington 98504

GEOHERMAL ASSESSMENT PROGRAM

Breakdown of Expenditures

April 1, 1985 through February 28, 1986

SALARIES	\$22,234.88
BENEFITS	5,336.37
TRAVEL EXPENSES	2,900.00
CAPITAL EQUIPMENT	Not Applicable
GOODS AND SERVICES	Not Applicable
SUBCONTRACTS	<u>130,000.00</u>
	\$160,471.25
Overhead (15.66% of noncapital equipment)	<u>26,557.99</u>
TOTAL	<u><u>\$187,029.24</u></u>

\$ Avail
 117,679 new
 73,046. carry over

 190,725

\$ left
 3695.76



WASHINGTON STATE DEPARTMENT OF
Natural Resources

BRIAN BOYLE
Commissioner of Public Lands

OLYMPIA, WA 98504

January 12, 1987

U S Department of energy
Idaho Operations Office
550 Second Street
Idaho Falls, ID 83401

Subject: Contract No. DE-AC07-79ET27014

Dear Peggy Brookshier:

This is a request for a no cost extension of modification 010 of contract No. DE-AC07-79ET27014. The two deliverables needed to complete the contract requirements, the 1:100,000 of the Hood River and Mount Adams quadrangles, are in the final stages of preparation and should be released by the Division during the next two months. On Howard Ross's advice, we would like to amend the contract deadline to April 30, 1987. That should provide more than enough time to open-file and send to you these final products. If this should result in any complications, please call me at 206-459-6372.

Sincerely,

A handwritten signature in cursive script that reads "Michael A. Korosec".

Michael Korosec
Geologist
Division of Geology &
Earth Resources

MK:tm

cc: Howard Ross UUR1



WASHINGTON STATE DEPARTMENT OF
Natural Resources

BRIAN BOYLE
Commissioner of Public Lands

OLYMPIA, WA 98504

May 23, 1986

Peggy Brookshier
U.S. Department of Energy
550 Second Street
Idaho Falls, Idaho 83401

Contract # DE-AC07-79ET27014

Dear Ms. Brookshier:

Through phone conversations with Duncan Foley over the last few weeks, it was decided that the geologic mapping from the contract work would best be released as either Division Open-Files or Geologic Maps for the Mount Adams and Hood River 1:100,000 quadrangles. We expect that these maps, along with their keys, chemical tables, and (possibly) detailed information pamphlets will be ready for release late this year. These maps, which will be primarily compilations, will note all sources and delineate areas of detailed and reconnaissance mapping by the Division staff.

As our publication schedule becomes more certain, we will contact your office with information on publication numbers and release dates. I hope this clarifies our plans for the final contract deliverable.

Sincerely,

A handwritten signature in cursive script that reads "Michael Korosec".

Michael Korosec
Geologist
Division of Geology and
Earth Resources

MK:fn

RECEIVED

MAY 27 1986

ADVANCED TECHNOLOGY
BRANCH

CONTRACT DELIVERABLES

ORGANIZATION Washington Department of Natural Resources

PRINCIPAL CONTACT J. Eric Schuster PHONE 206-459-6376

CONTRACT NO. DE-AC07-79ET27014 COMPLETION DATE 2-28-86
Mod. 008 start
all previous tasks completed

MOD 8	* OBLIGATED	PAID	RETAINED	REMAINING	NOTES
DOE	117,679			117,679	1, 2
STATE	22,609			22,609	

* DATA UPDATED 7-31-85

- * NOTES
1. Carryover of \$73,046 from prior funding on this contract bring the total from DOE for Mod 008 tasks to \$190,725.
 2. Progress report of 7-1-85 shows \$7,700 spent, versus \$11,000 planned (? billed).

CONTRACT	START	TASKS
Mod 008	9-25-84	Generally in support of the Cascades program, but no specific sites or areas have been identified for any of the tasks 1. drill shallow gradient holes, log cuttings, log temperatures, analyze waters 2. Hg surveys 3. collect and analyze previously un-sampled thermal and mineral springs 4. geologic mapping in most important areas of study 5. report preparation 6. management

COMMENTS 4-29-85

A geologist to oversee the drilling program has been hired; bid preparation is underway.

COMMENT 7-31-85

Hole sites have been selected, a driller has been contracted, and drilling should begin in early August.

TASK	DELIVERABLES	DATE DUE	REC'D
1 (&5)	topical report on temperature gradient study	2-28-86	
2,3,4 (&5)	final report with maps, logs, tables on tasks (may also include task 1)	2-28-86	
6	quarterly reports	1-15-85	1-7-85
		4-15-85	4-8-85
		7-15-85	7-15-85
		10-15-85	
		1-15-86	



WASHINGTON STATE DEPARTMENT OF
Natural Resources

Mar 31, 1986

BRIAN BOYLE
Commissioner of Public Lands

OLYMPIA, WA 98504

March 18, 1986

Duncan Foley
University of Utah Research Institute
Earth Science Laboratory
391 Chipeta Way, Suite C
Salt Lake City, UT 84108

Dear Mr. Foley:

Please find enclosed 1 copy of the final technical report; The 1985 Geothermal Gradient Drilling Project for the State of Washington, Open File Report 86-2, prepared under U.S. Department of Energy Contract No. DE-AC07-79ET27014. We are sending this preliminary copy for your viewing until final copies arrive from our printers. We will forward final copies to you when we receive them. Other recipients of the report are:

- Peggy A.M. Brookshier
U.S. Department of Energy
Idaho Operations Office 8 copies

- Joe Lee
U.S. Department of Energy
Idaho Operations Office 1 copy

- Ron Toms
U.S. Department of Energy
Washington, D.C. 6 copies

Please contact me if there are any questions.

Sincerely,

Brent Barnett
Geologist
Division of Geology &
Earth Resources

BB:fn

Enclosure

U.S. Department of Energy
Procurement Request-Authorization

1. To Awarding Office <i>Contract Management Division</i>		3. PR Number <i>01-740-1052-600</i>	
2. From Initiating Office <i>Energy Technology & Conservation Advanced Technology Division</i>		4. Change/Correction to a PR in Process? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
8. Action Description/Title (180 char. max.) <i>State of Washington Dept Natural Resources FY 84 Grant for Geothermal Resource Characterization</i>		5. If item 4 is yes, enter PR correction Letter	
		6. <input type="checkbox"/> Procurement <input checked="" type="checkbox"/> Assistance	
		7. Consistent with Principal Purpose of Program? <input type="checkbox"/> Yes <input type="checkbox"/> No	

If award is competitive, has list of sources been attached? Yes No If Non-Competitive, Complete Items 9-11.

9. Name <i>State of Washington</i>	11. Address <i>Olympia, Washington 98504</i>
10. Division <i>Dept. Natural Resources</i>	
12. For Procurement Actions Only: Product or Service Code	
13. For Assistance Actions Only: CFDA Number	14. Cooperative Agreement <input type="checkbox"/>
	15. Grant <input checked="" type="checkbox"/>
16. Controlled Deliverable For All Actions	17. Kind of Award Action (Recommended)
	18. Master Bin
19. Desired Award Date Mo Day-Year <i>ASAP</i>	
20. Unsolicited Proposal Number	21. Project Number
22. Government Property <input type="checkbox"/> F-Furnished, P-Purchased, N-Not involved	

FINANCIAL DATA

23. Government Share <i>127,000</i>	24. Awardee Share <i>—</i>	25. Total <i>127,000</i>
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FY FUNDS COMMITTED

26. Approp. Symbol	27. BR Number	28. Dollar Amt.	29. Allotment	30. Object Class	31. AFP	32. CFA

From Continuation Grant	35. Project Period from _____ thru _____
Total Funds <i>127,000</i>	36. Budget Period from _____ thru _____

PROJECT MANAGER/INITIATOR

37. Name <i>R. Eldon Bray</i>	38. Signature <i>R. Eldon Bray</i>	39. Date <i>4-2-84</i>	40. Office Code
			41. FTS Telephone Number <i>503-0086</i>

PROGRAM REVIEWING OFFICIAL

42. Name <i>Charles E. Gilmore</i>	43. Signature <i>Charles E. Gilmore</i>	44. Date <i>4-3-84</i>
---------------------------------------	--	---------------------------

PROGRAM OFFICE BUDGET OFFICIAL

45. Name <i>Dennis R. Bell</i>	46. Signature <i>Dennis R. Bell</i>
-----------------------------------	--

CERTIFYING OFFICIAL. I hereby certify that the funds cited in item 34 are available

47. Name <i>Frank S. Smith</i>	48. Signature	49. Date
-----------------------------------	---------------	----------

RECEIVED

APR 16 1984

**ADVANCED TECHNOLOGY
BRANCH**

INITIATING OFFICE

TECHNICAL EVALUATION
OF GRANT PROPOSAL

Received @ ESL
6 Apr. '84

TITLE: Geothermal Resource Characterization of the Washington Cascade Range
1984-1985

SUBMITTED TO: Department of Energy, Idaho Operations Office

SUBMITTED BY: State of Washington
Department of Natural Resources
Olympia, Washington 98504

AMOUNT REQUESTED: \$127,000

PROPOSED DURATION: 12 months to April 15, 1985

PROJECT DESCRIPTION: The proposer offers to conduct a research program to develop heat flow data in specific areas of the Cascade Mountains of Washington. This effort would be directed primarily at drilling and measuring temperatures of shallow temperature gradient holes in promising areas. Minor efforts would include geologic mapping, sample collection and analyses, and report writing.

GENERAL REMARKS:

1. Work Statement: The grantee's proposed work statement and schedule are compatible with DOE technical requirements.
2. Task Changes: The research efforts of the proposed work tasks will be stressed.
3. The cost information which is provided is adequate for evaluation.

SPECIFIC REMARKS:

1. Manhours: The proposed quantity of manhours and the manpower to be utilized are reasonable and appropriate for the proposed activities.
2. Materials: The materials and supplies will be provided by the grantee at no cost to DOE.
3. Subcontracts: There will be one or more subcontracts let for the drilling of gradient holes.
4. Travel and Per Diem: The proposed mileage, cost per mile, days on per diem and cost of per diem are appropriate and necessary to task fulfillment.
5. Other Direct Costs: No other direct costs are specified for DOE payment. The Grantee will provide additional support in the form of Geologist's and manager's time and report preparation.
6. Proposers Capability to Meet the Objectives: The proposer possesses unique personnel expertise developed through previous DOE contracts and other agency involvements. The proposer is fully capable of meeting the key objectives of the proposal.

7. Key Personnel Qualifications: The key personnel who will assume responsibility for this activity have extensive experience and training in the required disciplines and are fully qualified for this work. J. Eric Schuster, the Principal Investigator, and Mike Korosec both have the necessary educational experience to perform this work and have performed very well under an earlier contract DE-AC07-79ET27014. One additional Geologist will be hired to perform some of the tasks associated with this grant; his qualifications will be reviewed by the P.I. and he will be directed by qualified supervisors.

8. Anticipated Objectives and Probability of Success: The anticipated objectives of this program are to obtain heat flow data and to publish the results and interpretations of these efforts. The proposer has the capability to meet these objectives and should succeed in accomplishing them.

March 26, 1984
DATE

R Eldon Bray
R. Eldon Bray
General Engineer
Advanced Technology Branch
Energy Technology Division
U.S. Department of Energy
Idaho Operations Office

JUSTIFICATION FOR NON-COMPETITIVE AWARDS

I recommend that negotiations be conducted only with those organizations listed below for the services described herein in accordance with DOE-PR 9-3.805-501.

Organization

State of Washington, Department of Natural Resources
State of Washington, Energy Office
State of Oregon, Dept. of Geology & Mineral Industries
State of Oregon, Department of Energy
State of Alaska, Department of Commerce & Economic Development, Office of Energy
University of Alaska, Geophysical Institute
State of Alaska, Department of Natural Resources
New Mexico State University, Energy Institute
State of New Mexico Energy & Minerals Department
Idaho Department of Water Resources
State of Utah, Utah Geological & Mineral Survey
State of Utah, Division of Water Rights
State of Montana, Dept. of Natural Resources & Conservation
State of Montana, College of Mineral Science & Technology

1. Description of Supplies or Services to be Supported

- A. The actions with the above named universities and state government agencies are for geothermal resource assessment and to promote geothermal technology transfer within the participating states. Emphasis will be placed on detailed studies within areas with high temperature resources and/or expansion of work previously conducted within the states.
- B. The work to be provided by each university or state agency will be tailored to the needs within each state and DOE objectives for continued resource assessment and technology transfer.

2. History, Estimated Future Requirements, and Long-Range Objectives

- A. The State Teams Programs were initiated approximately seven years ago. At the program peak DOE-ID was administering 39 geothermal contracts, cooperative agreements, or grants with universities and state agencies. Eight of the above mentioned organizations are at present in the final phases of their agreements with DOE; the remainder have completed the work, and their agreements were closed out.
- B. This work is a continuation of the previous program in the sense that it is for geothermal resource assessment and technology transfer. However, the new emphasis will be in accordance with the generic guidelines set forth in C below and will investigate higher temperature systems.
- C. All work will be within the generic guidelines of DOE which are to implement these activities within states which:
 - 1. Have potential for high temperature geothermal resources
 - 2. Whose resource assessment efforts will support R&D investigations required by magma and Cascades research programs
 - 3. Have existing resource and energy groups actively supporting geothermal development
 - 4. Are currently providing outstanding technology transfer and institutional problem mitigation activities
- D. It is not anticipated that DOE will be able to develop competition for this work. The performing state agencies and universities were designated by the Governor's Office of each participating state. An attempt to stimulate competition would be contrary to DOE's policy of cooperation with state governments.

3. Estimated Cost

- A. The program funding level of \$1,925,000 was designated by the FY-84 Appropriations Bill and DOE-HQ. The funding levels for the individual states range from \$ 90,000 to \$145,000 and were established by ID and HQ based on the prior state teams annual funding levels, the amount and quality of work previously accomplished at these levels, and the amount of productive work remaining to be done.
- B. The FY-84 funding level for the portion of the program to be administered at DOE-ID is \$1,295,000 of the total program funding of \$1,925,000. This level of funding is lower than any of the previous seven years; the amount to be funded in future years is uncertain.
- C. It is the intent of this program to expand the knowledge of higher temperature resources within individual states. This work was performed in previous years by the organizations within each state which were designated by the respective Governor's Office. Any change in contractors at this time would increase costs and delay the program and could only be undertaken with the consent of the Governor's Office in each state.

4. Schedule Requirements

- A. The basis for the rapid emplacement of the subject program is the imminent close-out of the agreements DOE now has with several of the organizations we wish to have perform under the FY-84 program. The agreements presently in place are scheduled for various completion dates ranging from almost immediately to September 1984.
- B. It is important to get the work started as soon as possible because the existing expertise may be disbanded if the work presently contracted for is completed prior to the emplacement of this subject program. The existing expertise has been developed to a great extent under the previous DOE-ID contracts and a lapse in DOE funding could result in lack of financial support for the organizations. This cadre of experienced expertise is critical for high quality resource assessment and technology transfer, and it is doubtful that any other organizations can perform as well in the respective states as those which are listed above. Rapid emplacement of this program will help ensure the retention of the existing expertise.
- C. It is doubtful that any savings can be realized or that competition can be increased by relaxing schedules.

5. Exclusive Capacity & Capability

It was determined at the beginning of the previous program to use universities and state agencies to perform the work because these organizations had already performed research in the particular areas, had basic staffs and departments capable of performing the research, and were designated by the state executives. The experience of these organizations has been further enhanced by the work they have conducted for DOE during the past seven years.

RECOMMENDED:

R E Wood

R. E. Wood, Director
Energy and Technology Division

CONCUR:

George C. Wingerson

George C. Wingerson
Office of the Chief Counsel

J. F. Marmo 2/5/84

J. F. Marmo, Director
Contracts Management Division

APPROVED:

Troy E. Wade

Troy E. Wade, Manager
Idaho Operations Office

2/7/84

Date

STATEMENT OF WORK

The purpose of these Geothermal Energy Investigations will be accomplished by performing the following tasks:

- TASK 1. Drill several shallow temperature gradient holes, collect drill cuttings, log the cuttings, measure the down-hole temperatures, sample the water from any artesian holes, and analyze all samples for parameters of interest.
- TASK 2. Conduct area specific mercury surveys.
- TASK 3. Locate and collect water samples from thermal and mineral springs not previously sampled and perform analyses of these samples.
- TASK 4. Construct geologic maps for the most important geothermal areas of study.
- TASK 5. Analyze and interpret all the available data derived from Tasks 1 through 4 and prepare reports, maps, logs, and tables, etc. for the purpose of ultimately making the results of these investigations available to the public. The information reported for the mercury surveys, for example, will include such information as a sample location map, analytical values for each sample, and descriptions of samples and analytical techniques. A topical report on the temperature gradient activities (Task 1) will be a deliverable, but it may be included in the final report. A final report of all the investigations will be one of the major results and deliverable of this grant. It will cover all the work of Tasks 2, 3, and 4 and may include the temperature gradient activities (Task 1).
- TASK 6. Provide overall project management and complete and report on tasks in a timely manner. Management reports shall be provided as defined by the attached DOE Form CR-537 Reporting Requirements Checklist. The required reports are also summarized as follows:
 1. Form DOE 538 Notice of Energy R&D Due 30 days after award of grant
 2. Quarterly Management Summary Report Due 15 days after calendar quarter end
 3. Quarterly Project Status Report Due 15 days after calendar quarter end
 4. Topical Report Due prior to or accompanying final report in both draft and in final form including one camera-ready copy

- | | |
|--|---------------------------------------|
| 5. Final Rpt. (Draft) | Due 45 days prior to completion date. |
| 6. Final Rpt. | Due on completion date. |
| 7. Financial Stat. Rpt., OMB
Form 269 | Due on completion date. |



U.S. DEPARTMENT OF ENERGY
IDAHO OPERATIONS OFFICE
REPORT DISTRIBUTION LIST

Addressees	Number of Report Copies													
	Fed. Tech. Report	Technical Progress Report	Notice of Energy R050	Technical Status Report, OMB Form 209	Federal Status Report, Project Status Report	Federal Assistance Management Summary Form	Federal Assistance Budget Information Form	Federal Assistance Information Plan						
U. S. Department of Energy Idaho Operations Office 550 Second Street Idaho Falls, ID 83401 Attn: R. Eldon Bray, Program Mgr. Energy & Technology Division				2	2								8	8
Attn: Elizabeth M. Hyster Contracts Management Div.				1	1	1	1						1	1
Attn: E. G. Jones, Director Financial Management Div.				1										
U. S. Department of Energy Forrestal Bldg., CE-324 1000 Independence Ave, S.W. Washington, DC 20585 Attn: Ron Toms				1	1								6	6
University of Utah Research Institute Earth Science Laboratory 391 Chipeta Way, Suite C Salt Lake City, UT 84108 Attn: Duncan Foley				1	1								1	1
U. S. Department of Energy Technical Information Center P. O. Box 62 Oak Ridge, TN 37830												1		

Special Instructions

**U.S. DEPARTMENT OF ENERGY
FEDERAL ASSISTANCE REPORTING CHECKLIST**

FORM EIA 450A
11/80

FORM APPROVED
OME NO. 1800-0127

1. Identification Number: DE-FG07	2. Program/Project Title: Geothermal
---	---

3. Recipient:

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		
<input checked="" type="checkbox"/> Federal Assistance Program/Project Status Report	Q		
<input checked="" type="checkbox"/> Financial Status Report, OMB Form 269	F		
TECHNICAL INFORMATION REPORTING			
<input checked="" type="checkbox"/> Notice of Energy RD&D	O		
<input type="checkbox"/> Technical Progress Report			
<input checked="" type="checkbox"/> Topical Report	A		
<input checked="" type="checkbox"/> Final Technical Report	F		

FREQUENCY CODES AND DUE DATES:

A - As Necessary; within 5 calendar days after events.
 F - Final; Upon completion date
 Q - Quarterly; within 5 days after end of calendar quarter or portion thereof.
 O - 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:

6. Prepared by: (Signature and Date)	7. Reviewed by: (Signature and Date)
--------------------------------------	--------------------------------------

U.S. DEPARTMENT OF ENERGY

DOE F 4220.2 (6-80) (Formerly PR-415)		I.D. NO.	
SMALL BUSINESS/LABOR SURPLUS SET-ASIDE REVIEW			
ITEM TITLE/DESCRIPTION <i>State of Washington Department of Natural Resources FY 84 Grant - Geothermal</i>		SMALL BUSINESS SIZE STANDARD RECOMMENDED BY S.B. SPECIALIST EMPLOYEES NUMBER _____ DOLLAR \$ _____ SIC CODE: _____	
PROGRAM OFFICE: <i>Energy Tech & Cons.</i>		PROCURING ACTIVITY: <i>Contracts Mgmt Div.</i>	
SB/LS PARTICIPATION WAS CONSIDERED IN THE PREPARATION OF THIS PROCUREMENT ITEM AND FOLLOWING IS RECOMMENDED: <input type="checkbox"/> Small Business Set-Aside _____% \$ _____ <input type="checkbox"/> Labor Surplus Set-Aside _____% \$ _____ <input type="checkbox"/> SBA Section 8(a) Procurement <input checked="" type="checkbox"/> Set-Aside Action Not Recommended		NAME AND LOCATION OF PROPOSED SOURCE: (If Sole Source) <i>State of Washington Dept. of Natural Resources</i> <input type="checkbox"/> Small Business <input type="checkbox"/> Minority <input type="checkbox"/> Labor Surplus Firm <input checked="" type="checkbox"/> Other	
SET-ASIDE NOT FEASIBLE BECAUSE: <input type="checkbox"/> No Reasonable Expectation of Receiving Sufficient Offers from SB/LS Firms to Assure Award* <input type="checkbox"/> Program Objectives Dictate Broadest Possible Solicitation to Obtain "Best Available" Expertise* <input type="checkbox"/> Solicitation if for "Best Idea/Approach" R&D Effort <input type="checkbox"/> Continuing and Directly Related R&D Effort. Competitive Procurement Not Feasible for Economic and/or Technical Reasons <input type="checkbox"/> Procurement is for Completion or Within-Scope Expansion of Current Contract <input type="checkbox"/> This is for Extension of Current Services to Allow Preparation/Award of Competitive Follow on Procurement <input type="checkbox"/> Sole Source as Determined Under Current DOE Policy Directives <input type="checkbox"/> Funding of Unsolicited Proposal Under Current DOE Policy Directives <input checked="" type="checkbox"/> Other* *Explanation Required		EXPLANATION/ADDITIONAL COMMENT: <i>Supplementary Appropriation by Congress FY84 for State Teams Geothermal activity in promoting technology utilization within participating states.</i>	
		SMALL BUSINESS SPECIALIST CONSULTED (Check One) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
		<i>R. Eldon Bray</i> P.R. REQUESTOR <u>523-0086</u> TELEPHONE <u>4-2-84</u> DATE	
SMALL BUSINESS SPECIALIST'S ENDORSEMENT <input type="checkbox"/> Accepts <input type="checkbox"/> Requests Reevaluation <input type="checkbox"/> Request Solicitation of SB/LS Sources Attached <input type="checkbox"/> Request Special SB/LS/MB Incentive Provisions (Attached) <input type="checkbox"/> Other Comments/Attached			
		SMALL BUSINESS SPECIALIST _____ DATE _____	
REEVALUATION OF RECOMMENDATIONS/FINDINGS <input type="checkbox"/> Reaffirmed <input type="checkbox"/> Set-Aside Feasible		REVIEWED BY SBA <input type="checkbox"/> Request Solicitation of SB Sources Attached SBA Form 70 Attached <input type="checkbox"/> Yes <input type="checkbox"/> No	
AUTHORIZING PROGRAM OFFICIAL _____ DATE _____		SBA REPRESENTATIVE _____ DATE _____	
PROCUREMENT OFFICER'S ACTION <input type="checkbox"/> SB/LB Set-Aside <input type="checkbox"/> Set-Aside Not Initiated <input type="checkbox"/> Other Recommendations/Request Noted and Appropriate Action Taken		CONTRACT NO.(S) _____ SB/MB/OTHER _____	
PROCUREMENT OFFICER _____ DATE _____			

U.S. Department of Energy
Procurement Request-Authorization

1. To Awarding Office <i>Contract Management Division</i>		3. PR Number — •
2. From Initiating Office <i>Energy Technology & Conservation Advanced Technology Division</i>		4. Change/Correction to a PR in Process? <input type="checkbox"/> Yes <input type="checkbox"/> No
8. Action Description/Title (180 char. max) <i>State of Washington, Dept Natural Resources FY 84 Grant for Geothermal Resource Characterization</i>		5. If item 4 is yes, enter PR correction Letter _____
		6. <input type="checkbox"/> Procurement <input type="checkbox"/> Assistance
		7. Consistent with Principal Purpose of Program? <input type="checkbox"/> Yes <input type="checkbox"/> No

If award is competitive, has list of sources been attached? Yes No If Non-Competitive, Complete Items 9-11.

9. Name <i>State of Washington</i>	11. Address <i>Olympia, Washington 98504</i>
10. Division <i>Dept Natural Resources</i>	
12. For Procurement Actions Only: Product or Service Code	
13. For Assistance Actions Only: CFDA Number	14. Cooperative Agreement <input type="checkbox"/>
15. Grant <input type="checkbox"/>	
16. Controlled Deliverable For All Actions	17. Kind of Award Action (Recommended)
18. Master Bin	19. Desired Award Date Mo Day Year <i>ASAP</i>
20. Unsolicited Proposal Number	21. Project Number
22. Government Property — F-Furnished, P-Purchased, N-Not involved	

FINANCIAL DATA

23. Government Share <i>127,000</i>	24. Awardee Share —	25. Total <i>127,000</i>
-------------------------------------	---------------------	--------------------------

FY FUNDS COMMITTED

26. Approp. Symbol	27. B&R Number	28. Dollar Amt.	29. Allotment	30. Object Class	31. AFP	32. CFA

3. From Continuation Sheet	35. Project Period from _____ thru _____
4. Total Funds this PR	36. Budget Period from _____ thru _____

PROJECT MANAGER/INITIATOR

37. Name <i>R. Eldon Bray</i>	38. Signature <i>R. Eldon Bray</i>	39. Date <i>4-2-84</i>	40. Office Code
			41. FTS Telephone Number <i>583-0086</i>

PROGRAM REVIEWING OFFICIAL

42. Name <i>Charles E. Gilmore</i>	43. Signature	44. Date
---------------------------------------	---------------	----------

PROGRAM OFFICE BUDGET OFFICIAL

45. Name <i>Dennis R. Bell</i>	46. Signature
-----------------------------------	---------------

CERTIFYING OFFICIAL. I hereby certify that the funds cited in item 34 are available

47. Name <i>Frank S. Smith</i>	48. Signature	49. Date
-----------------------------------	---------------	----------



Department of Natural Resources
OLYMPIA, WASHINGTON
98504

BRIAN BOYLE
Commissioner of Public Lands

March 14, 1984

Mr. Eldon Gray
USDOE/ID
550 - 2nd St.
Idaho Falls, ID 83401

Dear Mr. Gray:

Enclosed please find a preliminary draft containing ideas on how we would propose to conduct a geothermal program of one year duration if federal funds are available. The enclosed materials respond only to the third of the potential projects that we talked about on the telephone - that of fielding a short-term geothermal program. The second item - producing a summary publication of what the geothermal program in Washington has accomplished over the years is being addressed in the form of a summary open-file report that Mike Korosec has been working on for some weeks. That report will be finished shortly and I will send a copy to you. It may suggest to you some logical routes that might be taken toward the type of publication that you outlined. The first item - the geothermal guide to the states - is, as I understand it, being done by EG & G and needs no attention from us.

The enclosed is the only copy of the preliminary draft proposal that we have sent out. I have forgotten if you asked me to send it to others. If so, please let me know.

We will look forward to your observations with regard to a possible contract.

Sincerely,

J. Eric Schuster
Assistant State Geologist
Division of Geology
& Earth Resources

JES:la

Enclosures

RECEIVED

MAR 15 1984

U.S. DEPARTMENT OF ENERGY
WASHINGTON, D.C.



Department of Natural Resources

OLYMPIA, WASHINGTON

98504

BRIAN BOYLE
Commissioner of Public Lands

March 14, 1984

Mr. Eldon Gray
USDOE/ID
550 - 2nd St.
Idaho Falls, ID 83401

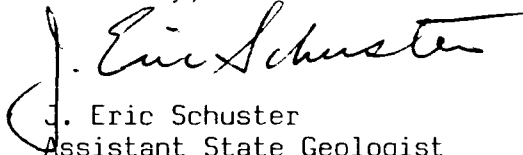
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Assistant State Geologist
Division of Geology
& Earth Resources

JES:la

Enclosures

RECEIVED

MAR 15 1984

U.S. DEPARTMENT OF ENERGY
WASHINGTON, D.C.

A Preliminary Draft Proposal for Geothermal Resource Assessment
of the Washington Cascade Range, 1984-1985.

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. The Division of Geology and Earth Resources proposes to conduct exploratory drilling in the Cascade province for temperature gradient and heat flow information, in an effort to further stimulate interest in the state's geothermal resources.

Through the U.S. Department of Energy's state-coupled exploration program, the Division has completed preliminary surveys of the Cascade province. Work included gravity surveys, water sampling and analysis for the thermal and mineral springs, site specific geologic mapping, and limited heat flow drilling. As part of the Division's program to produce a new geologic map for the entire state of Washington, geology for the Cascade Range is being compiled at a scale of 1:100,000. At this stage, the most significant contribution the Division can make toward an understanding and delineation of the Cascade's geothermal resources would include the gathering of additional temperature information at depth. Large areas remain untested by heat flow and temperature gradient drill holes. In addition, there are no existing wells which extend significantly deep enough to characterize the true intermediate temperature gradients in the region or within the vicinity of the most favorable geothermal target areas. As such, the Division proposes to re-enter into a contract with the USDOE to provide a portion of this information.

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The Division's preliminary exploration plan includes the drilling of five 150 meter, cased holes in areas suspected to be underlain by geothermal resources, but where no down-hole temperature information currently exists. In addition, two 400 meter holes are proposed; one in an area of unconfirmed but suspected potential, the other in the vicinity of high temperature gradients demonstrated by shallower holes from earlier drilling programs.

To oversee the drilling, the Division proposes to hire a Geologist II, preferably one with geothermal experience, for a period of about 1 year. In addition to collecting core or cuttings, petrologic logging, measuring down-hole temperatures, and water sampling, the geologist will also conduct regional and area specific mercury surveys, investigate leads on thermal and mineral springs not previously reported by the Division, sample new springs, assist Geologist III with water analyses in the Division lab, construct geologic maps for the most important geothermal areas, and prepare project reports generated by the activities described above.

Aside from drilling costs and the geologist's salary, benefits, and travel, no other cost would be charged to the contract, except for a mandatory overhead charge imposed by the state. The Division will be contributing additional support, in the form of Geologist III's time, manager's time, supplies, and report preparation. Amounts will be specified in future drafts of this proposal.

(1) Geologist II

Project geologist hired for 1 year to oversee drilling program and conduct additional surveys which relate to the geothermal exploration program. Salary and benefits will be charged, along with 2,000 miles travel and 50 days per diem.

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(2) Drilling Program:

- 2 400 meter holes, at about \$30 per foot = \$40 K each
- 5 150 meter holes, at about \$20 per foot = \$10 K each

- 400 meter sites
- X (1) Trout Creek Hill
 - (2) Walupt Lake

- 150 meter sites
- (1) Orr Creek
 - (2) Soda Peaks

- Alternatives
- OK (3) Soda Peaks
 - OK (4) Marble Mountain
 - X HI. (5) Mt. Baker

- (3) Salmon Hatchery
- (4) Laurel (King Mtn. Fissure Zone)
- (5) Mosquito Valley (Tumac Area)

- Alternatives
- (6) Garland Mineral Spring
 - (7) Little Wenatchee River
 - (8) White Chuck Drainage
(Glacier Peak)

Summary of Costs

Geologist II Salary	\$22,452	
Benefits (20%)	4,490	
	<u>\$26,942</u>	\$26,942
Travel: 20¢/mile x 2,000 miles		400
Per Diem: 50 days at \$50/day		2,500
Drilling:		
2 400 meter holes		80,000
5 150 meter holes		<u>50,000</u>
	Subtotal	\$159,842
	Overhead 16.56%	<u>26,470</u>
	TOTAL	\$186,312

(2) Drilling Program:

2 400 meter holes, at about \$30 per foot = \$40 K each
5 150 meter holes, at about \$20 per foot = \$10 K each

400 meter sites

- X (1) Trout Creek Hill
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150 meter sites

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- (2) Soda Peaks
- (3) Salmon Hatchery
- (4) Laurel (King Mtn. Fissure Zone)
- (5) Mosquito Valley (Tumac Area)

Alternatives

- bc (3) Soda Peaks
- oc (4) Marble Mountain
- 7- 11. (5) Mt. Baker

Alternatives

- (6) Garland Mineral Spring
- (7) Little Wenatchee River
- (8) White Chuck Drainage
(Glacier Peak)

Summary of Costs

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Drilling:		
2 400 meter holes		80,000
5 150 meter holes		<u>50,000</u>
	Subtotal	\$159,842
	Overhead 16.56%	<u>26,470</u>
	TOTAL	\$186,312

memorandum

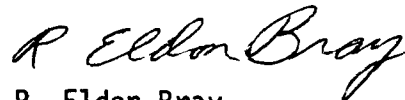
DATE: July 2, 1984

SUBJECT: Combining FY-84 Grant Funds with Present Contract, Washington State
Dept. of Natural Resources

TO: File

FY-84 Grant Funds of \$127,000 are being added to contract DE-AC07-79ET-27014, the tasks expanded, and time extended to February 28, 1986. A separate grant for \$127,000 will not be emplaced. The contract was being modified and extended anyhow to make use of approximately \$70,000 of funds still available in the contract. The reason for this action is to eliminate the cost and time involved in implementing a new grant.

Originally, Ron Toms thought it best to implement the new grant because of political needs. However, because of the large workload of the Contracts Management Division, it is desirable to combine the grant with the contract modification. Marshall Reed, who is now handling the State Teams effort for Ron Toms, agreed in a June 21 telecon with Clay Nichols and on June 29 with Eldon Bray that it would be alright to add the grant funds to the contract.



R. Eldon Bray
Geothermal Project Manager
Advanced Technology Division

cc:
C. E. Gilmore
Clay Nichols

U.S. Department of Energy
Procurement Request-Authorization

1. To Awarding Office <i>Contract Management Division</i>		3. PR Number	4. Change/Correction to a PR in Process? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
From Initiating Office <i>Energy Technology & Conservation Advanced Technology Division</i>		5. If Item 4 is yes, enter PR correction Letter <i>A</i>	6. <input checked="" type="checkbox"/> Procurement <input type="checkbox"/> Assistance
Action Description/Title (180 char. max.) <i>A Washington State Dept Nat Res. - Expanded Tasks, Add \$, Extend To 2/28-86</i>			
7. Consistent with Principal Purpose of Program? <input type="checkbox"/> Yes <input type="checkbox"/> No			

If award is competitive, has list of sources been attached? Yes No If Non-Competitive, Complete Items 9-11.

9. Name <i>State of Washington</i>	11. Address <i>Div of Geology & Earth Resources Olympia, Washington 98504</i>
10. Division <i>Dept Natural Resources</i>	
12. For Procurement Actions Only: Product or Service Code	
13. For Assistance Actions Only: CFDA Number	14. Cooperative Agreement <input type="checkbox"/>
15. Grant <input type="checkbox"/>	
16. Controlled Deliverable For All Actions	17. Kind of Award Action (Recommended) Master Bin
18. Desired Award Date Mo Day Year	
20. Unsolicited Proposal Number	21. Project Number <i>DE-AC07-79ET2101A</i>
22. Government Property <input type="checkbox"/> F-Furnished, P-Purchased, N-Not involved	

FINANCIAL DATA

23. Government Share <i>127,000</i>	24. Awardee Share	25. Total <i>127,000</i>
-------------------------------------	-------------------	--------------------------

FY FUNDS COMMITTED

26. Approp. Symbol	27. B&R Number	28. Dollar Amt.	29. Allotment	30. Object Class	31. AFP	32. CFA

33. From Continuation Sheet	35. Project Period from _____ thru _____
Total Funds this PR	36. Budget Period from _____ thru _____

PROJECT MANAGER/INITIATOR

37. Name <i>R. Eldon Bray</i>	38. Signature <i>R. Eldon Bray</i>	39. Date <i>6-29-84</i>	40. Office Code
			41. FTS Telephone Number <i>503-0086</i>

PROGRAM REVIEWING OFFICIAL

42. Name <i>Charles E. Gilmore</i>	43. Signature	44. Date
---------------------------------------	---------------	----------

PROGRAM OFFICE BUDGET OFFICIAL

45. Name <i>Dennis R. Bell</i>	46. Signature
-----------------------------------	---------------

CERTIFYING OFFICIAL. I hereby certify that the funds cited in item 34 are available

47. Name <i>Frank S. Smith</i>	48. Signature	49. Date
-----------------------------------	---------------	----------



WASHINGTON STATE DEPARTMENT OF
Natural Resources

BRIAN BOYLE
Commissioner of Public Lands

OLYMPIA, WA 98504

April 7, 1986

Peggy Brookshier
Technical Manager
Department of Energy
785 DOE Place
Idaho Falls, Idaho 83402

Contract DE-AC07-79ET27014
Modification A008

Dear Ms. Brookshier:

Duncan Foley has asked that I send you this letter on Geothermal Program Activities not covered in our Division of Geology Open File Report #86-2, "The 1985 Geothermal Gradient Drilling Project for the State of Washington." The drilling program dominated the activities (and expenses) during 1985, and therefore became the focus of attention for reporting purposes.

Water sampling and analysis: During the 1985 field season, no new thermal or mineral springs were added to our list of Known Springs. Reconnaissance work was carried out in the areas near the Green River Soda Springs, Ore Creek Warm Springs, Government Mineral Springs, and around Quaternary volcanic centers in the Soda Peaks, Lost Creek, East Canyon Creek, Blue Lake, Trout Creek Hill, and Midway areas, but no new springs were encountered. During the heat flow hole drilling project, only a few aquifers were encountered, all of which were cold and non-mineralized.

Soil mercury surveys: Through the course of the Geothermal Program, several soil mercury surveys were conducted in areas of the Cascade Mountains. With high background levels in the volcanic soils and relatively low peaks, including "peak" values from around our best thermal manifestations such as Mount Baker Hot Springs, the results have been statistically meaningless. We have concluded that soil mercury surveys are not a viable exploration tool for potential geothermal resources in most of the Washington Cascade Mountains.

Geologic Mapping: During the drilling project, the drilling supervisor conducted reconnaissance geologic mapping in the vicinity of the drill hole sites. This includes work around Spud Hill, East Canyon Creek, Cispus River valley, Green Mountain, Flattop Mountain, Trout Creek, and Soda Peaks. More detailed geologic mapping was carried out near Green Mountain and in the area between Big Lava Bed and the White Salmon River. The results of this work have been incorporated in 1:100,000 Geologic Map compilations (Hood River and Mount Adams 1:100,000 quadrangles) for the State Mapping Program. Some "near-site" information has been incorporated in the drilling report.

Continued

Peggy Brookshier
April 7, 1986
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During the summer of 1985, I conducted additional reconnaissance mapping in the Cascades, primarily for the State map program, but with a bias towards Quaternary volcanic centers and geothermally important structure. The work, which included 25 age dates for the Tertiary volcanic units, confirmation of a suspected major fault zone, and the discovery of three new Quaternary basaltic centers, has been incorporated in the 1:100,000 geologic maps mentioned above. These maps are scheduled for publication in Fall, 1986, as Division Geologic Maps or Open-File Reports. I am enclosing preliminary copies of these maps, with the areas studied during 1985 outlined in light blue. Preliminary keys to the maps are also included. If other USDOE officials need to see these maps, please forward your copies or let us know if we need to send additional copies. We would prefer to wait until our cartographers can redraft the maps before we release them to the public.

If you need additional information concerning contract work or its results, please call me at (206) 459-6372.

Sincerely,

Michael A. Korosec

Michael Korosec
Geologist
Division of Geology &
Earth Resources

MK:fn

Enclosures

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