

ALASKA CONTRACT

61009104

UNIV. OF

UNIVERSITY OF UTAH RESEARCH INSTITUTE

79ET27034
GEOPHYS. INSTITUTE

UURI

COMPLETED 8/82.

EARTH SCIENCE LABORATORY
420 CHIPETA WAY, SUITE 120
SALT LAKE CITY, UTAH 84108
TELEPHONE 801-581-5283

MEMORANDUM

September 1, 1982

TO: Susan M. Prestwich, Program Manager
FROM: Carl A. Ruschetta, Technical Program Coordinator
SUBJECT: Alaska Geophysical Institute
Geothermal RA Contract DE-FC07-79ET27034

The final report, "Geothermal Energy Resource Assessment of Parts of Alaska", by Eugene M. Wescott and Donald L. Turner (August 1982) has been received at ESL/UURI, and I have reviewed it from the standpoint of deliverables as listed in the subject contract.

This final report contains summaries of area and topical reports already published by the Geophysical Institute that are on file in Idaho Falls and/or ESL, and which include geothermal investigations of:

Pilgrim Springs
Central Seward Peninsula
Chena Hot Springs
Manley Hot Springs
Lower Susitna Basin

In addition, the report contains results of geophysical surveys and helium and mercury surveys accomplished for the Akutan and Unalaska Islands, not previously published. The results of these surveys will also be published in a joint report with the Alaska Department of Natural Resources, Division of Geological and Geophysical Surveys as part of Contract DE-FC07-79ET27105. A bibliography of Geophysical Institute and other Alaska geothermal publications was also included in this final report.

I have enclosed an updated copy of the contract summary and deliverables report for the subject contract. In my opinion, the requirements of this contract have been met with the publication of this final report.


Carl A. Ruschetta

CAR:gm
enclosure
cc: D. Foley

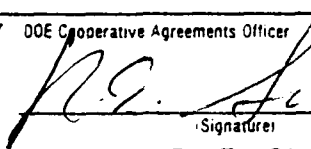
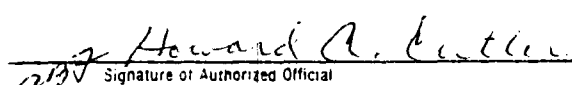
U. S. DEPARTMENT OF ENERGY COOPERATIVE AGREEMENT PURSUANT TO AUTHORITY OF PL 93-410, PL 93-438, PL 93-473, PL 93-577, and PL 95-91		1.a. Agreement No. DE-FC07-79ET27034	1.b. Modification No.								
3. Participant Name and Address Alaska Geophysical Institute University of Alaska Fairbanks, Alaska 99701		2. Agreement Period From: March 7, 1979 To: March 6, 1980									
5. Project Title Geothermal Assessment and Reservoir Definition in Alaska		4. Participant Type <input checked="" type="checkbox"/> Educational <input type="checkbox"/> Nonprofit <input type="checkbox"/> State or Local Government <input type="checkbox"/> Profit									
9. Principal Investigator(s) or Program Director(s) Name and Address Donald L. Turner Alaska Geophysical Institute University of Alaska Fairbanks, Alaska Telephone: 907-479-7198		6. Project Will Be Conducted Per See Article <u>II</u>									
10. Accounting and Appropriation Data 89X0210.91		7. Technical Reports Are Required See Article <u>VII</u>									
12. Submit Vouchers, if any, to Agreements Officer Unless Otherwise Specified in this Block Director, Contracts Management Division, DOE-ID, 550-2nd St. Idaho Falls, Idaho 83401		9. DOE Program Officer (Name and Address) Leland L. Mink, E&T Division Idaho Operations Office, DOE 550 Second Street Idaho Falls, Idaho 83401 Telephone No. 208-526-0638									
11. Method of Payment <input type="checkbox"/> % At Award. <input type="checkbox"/> % When Requested. 5% Upon Receipt of Final Report <input type="checkbox"/> Letter of Credit <input type="checkbox"/> Reimbursement <input checked="" type="checkbox"/> Other (specify) See Article <u>IV</u>		13. Funding Sources									
<table border="1"> <thead> <tr> <th>Source</th> <th>Amount</th> </tr> </thead> <tbody> <tr> <td>DOE:</td> <td>\$ 320,081.00</td> </tr> <tr> <td>Participant:</td> <td>\$ 8,357.00</td> </tr> <tr> <td>Total Funding</td> <td>\$ 328,438.00</td> </tr> </tbody> </table>		Source	Amount	DOE:	\$ 320,081.00	Participant:	\$ 8,357.00	Total Funding	\$ 328,438.00	14. Remarks:	
Source	Amount										
DOE:	\$ 320,081.00										
Participant:	\$ 8,357.00										
Total Funding	\$ 328,438.00										
15. Amount Obligated By This Action \$ 248,661.00		16. DOE Issuing Office (Name and Address) Idaho Operations Office 550 Second Street Idaho Falls, Idaho 83401									
17. DOE Cooperative Agreements Officer  (Signature) _____ (Date) <u>5/15/79</u> Name (typed) <u>R. E. Simonds</u> Title <u>Director, Contracts Management Div.</u> Telephone No <u>208-526-1347</u>		18. Participant Acceptance UNIVERSITY OF ALASKA By  (Signature of Authorized Official) Name (typed) <u>Howard A. Cutler</u> Title <u>Chancellor, UAF</u>									

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COOPERATIVE AGREEMENT

THIS AGREEMENT, entered into the 15th day of May 1979 (effective as of the 7th day of March 1979), by and between the UNITED STATES OF AMERICA (hereinafter called the "Government"), acting through the DEPARTMENT OF ENERGY (hereinafter called "DOE") with its Idaho Operations Office located at 550 Second Street in Idaho Falls, Idaho 83401, and the UNIVERSITY OF ALASKA (hereinafter called the "Participant") located at Fairbanks, Alaska 99701;

WITNESSETH THAT:

WHEREAS, the Government is interested in the evaluation and development of geothermal reservoirs in Alaska; and

WHEREAS, the Participant has submitted an unsolicited proposal and proposed to undertake such a program and DOE desires to provide certain financial assistance for the accomplishment of such a program; and

WHEREAS, this Agreement is authorized by the Department of Energy Organization Act (Public Law 95-91), Sections 7(a)(2) and 8 of Public Law 93-577, and Sections 103(5) and 107(a) of Public Law 93-438;

NOW, THEREFORE, DOE and the Participant agree as follows:

ARTICLE I - STATEMENT OF JOINT OBJECTIVE

The direct application of geothermal energy at various sites located within Alaska can be a significant factor in the Government's efforts to achieve energy independence. The research provided for in this Agreement is important to both the Government and the Participant for estimating the potential of geothermal energy utilization and for fostering its use in Alaska.

ARTICLE II - DESCRIPTION OF RESPONSIBILITIES

The Participant is responsible to assure that the research is accomplished in a manner consistent with the provisions of this Agreement. The Participant's proposal identified as "Alaskan Geothermal Resource Definition," as it may have been amended, is made a part of this Agreement by this reference; however, if there is any conflict between the content of the proposal and the content of this Agreement, the content of this Agreement governs. The specific tasks provided for in the proposal are to be accomplished. A final report will be issued which will include, as a minimum, the information resulting from the following tasks:

ARTICLE II - DESCRIPTION OF RESPONSIBILITIES (Cont'd)

- Task 1. Continuation of resource assessment of any newly-discovered areas.
- Task 2. Temperature and gravity studies around prospect reservoirs.
- Task 3. Geochronologic studies in selected geothermal prospect areas.
- Task 4. Active seismic probing of selected geothermal reservoir areas.
- Task 5. Electromagnetic studies at selected sites to determine the extent of geothermal reservoirs

The Participant is also responsible for cost-sharing to the extent provided for in Article III, "Financial Support of the Project."

ARTICLE III - FINANCIAL SUPPORT OF THE PROJECT

A. The total estimated cost of performing the work under this Agreement is Three Hundred Twenty-Eight Thousand Four Hundred Thirty-Eight Dollars (\$328,438.00). The Participant shall be reimbursed by DOE for not more than 97% of the costs of the project determined to be allowable in accordance with Article A-I of the General Provisions entitled "Allowable Costs." The remaining 3% or more of the costs of the project so determined shall constitute the Participant's share for which it will not be reimbursed by DOE. The total cost to DOE is hereby established as Three Hundred Twenty Thousand Eighty-One Dollars (\$320,081.00), and this amount is also the maximum amount of the project which is subject to reimbursement by DOE unless such maximum cost is changed in writing by the Contracting Officer.

B. In regard to any increase or decrease in the total estimated cost of this Agreement, as a result of any change in the original Statement of Work, as may be agreed upon by the parties during the term of this Agreement, the appropriate sharing of the funding, if any, of such increase or decrease shall be shared at the ratio of 97% DOE and 3% Participant.

C. The amount of funds obligated under this Agreement by DOE for the period from March 5, 1979 through March 6, 1980 is Three Hundred Twenty Thousand Eighty-One Dollars (\$320,081.00). Future funding will be provided for in future years when and if available.

ARTICLE IV - METHOD AND BASIS OF PAYMENT

A. Once each month the Participant shall submit an invoice to DOE supported by a detailed statement of current costs incurred for performance of work under this Agreement and claimed to constitute allowable costs. Allowable costs will be determined in accordance with Article A-I of Appendix A. If any of the costs included in the monthly invoice are determined to be unallowable, the invoice will be appropriately reduced. DOE will pay invoices promptly.

B. Final payment will not be made until the Final Report is received and accepted by the Contracting Officer. In no event will the final 5% of the amount of obligated funds be paid to the Participant until DOE has received the Final Report and the Final Cost Report identified in Article VII of this Agreement.

ARTICLE V - TERM OF AGREEMENT

The work under the Geothermal Assessment and Reservoir Definition in Alaska project is anticipated to take several years. The Participant has submitted a proposal for funding for each of the first three years. The initial term of this Agreement is for the first year from March 7, 1979 through March 6, 1980. It is currently anticipated that the subsequent years will be financially supported by DOE and, therefore, the term of this Agreement may be extended as mutually agreed upon by DOE and the Participant.

ARTICLE VI - PROJECT MANAGEMENT

A. In addition to DOE personnel, the Participant agrees to permit non-DOE personnel who are under contract with DOE, and identified from time to time by the Contracting Officer, to assist the DOE representative in performance of his duties and to have necessary access to the Participant's and major subcontractors' records pertaining to the project. DOE correspondence, if any, with subcontractors shall be routed through the Participant.

B. (1) DOE's Program Officer on this project and the person who shall be the Participant's contact for all matters pertaining to this Agreement shall be the following-named person or such other person(s) as may be designated by the Contracting Officer:

Leland L. Mink
Energy and Technology Division
Idaho Operations Office, DOE
550 Second Street
Idaho Falls, Idaho 83401
Telephone (208) 526-0638

ARTICLE VI - PROJECT MANAGEMENT (Cont'd)

(2) The Participant's Project Director for the work under this Agreement will, be the following person or such other person(s) as may be mutually acceptable to the parties:

Donald L. Turner
Principal Investigator
Alaska Geophysical Institute
University of Alaska
Fairbanks, Alaska 99701
Telephone 907-479-7198

C. The term "DOE" means the United States Department of Energy or any duly authorized representative thereof, including the Contracting Officer, except for the purpose of deciding an appeal under the article entitled "Disputes."

D. The term "Contracting Officer" means the person executing this Agreement on behalf of DOE, and includes his successors or any duly authorized representative of such person.

ARTICLE VII - PROJECT INFORMATION

A. All Project Information Reports, as required by DOE Uniform Contractor Reporting System, Volume 1, dated September 1978, and as indicated on the attached DOE Form CR-537, shall be submitted to the DOE Program Officer in accordance with the special instructions.

B. The Final Technical Report shall be due at the end of DOE's support for the project. DOE will advise the Participant one hundred eighty (180) days in advance of the termination of support for the project and the Final Technical Report shall be due as noted in the special instructions.

C. A semi-annual progress meeting will be held which the Participant is required to attend. DOE will fund travel expenses for one member of the Participant's team.

ARTICLE VIII - CHANGES AND MODIFICATIONS

Any changes or modifications to this Agreement or in the scope of work to be performed shall be made by mutual written agreement of the parties. A change may be initiated by either party to this Agreement. The Contracting Officer shall have the authority to determine what constitutes a change.

ARTICLE IX - TERMINATION

A. It is the express intent of DOE and the Participant to fund their respective cost participation for the project.

B. Notwithstanding the foregoing, it is understood that DOE or the Participant may at any time upon giving sixty (60) days prior written notice to the other party terminate this Agreement for its convenience for any reason.

C. In the event of termination, it is expected that the parties will cooperate with each other to reasonably phase out the Participant's costs and cost commitments, including cost liabilities to third parties; provided, however, that the total amount obligated by the Government under this Agreement shall not be exceeded. Moreover, upon any such termination the Participant agrees to promptly, upon DOE's request, transfer to DOE all information resulting from the work performed to the date of the termination notice.

D. In the event of termination, the Government agrees to pay the Participant all allowable costs incurred prior to receipt of the termination notice, and the Participant, after receipt of the termination notice, shall:

(1) Place no further orders or subcontracts for materials, services, or facilities intended to be invoiced to the Government for its contribution.

(2) Cancel all orders and subcontracts to the extent that they relate to the performance of work terminated by the Notice of Termination and intended to be invoiced to the Government against its contribution.

(3) Notwithstanding subparagraphs D.(1) and (2) above, the Participant has the right to proceed with such orders and subcontracts should it decide to continue performance of the work at its expense alone.

E. After a termination, the Participant shall submit to the Contracting Officer its termination claim. Such claim shall be submitted promptly but in no event later than one (1) year from the effective date of termination unless one or more extensions in writing are granted by the Contracting Officer. Upon failure of the Participant to submit its termination claim within the time allowed, the Contracting Officer may determine, on the basis of information available to him, the amount, if any, due to the Participant by reason of the termination and shall thereupon pay to the Participant the amount so determined.

ARTICLE IX - TERMINATION (Cont'd)

F. Costs claimed, agreed to, or determined pursuant to this article must constitute allowable costs as defined in Article A-1 of the Appendix A of this Agreement.

G. Any termination notice rendered by either DOE or the Participant shall be sent by registered mail with return receipt requested.

ARTICLE X - LIABILITY AND INDEMNIFICATION

The Government will not be liable for payment of damages for injuries to any person, or loss of life or personal property, or loss suffered or sustained and arising from the work performed under this Agreement. The Participant agrees to indemnify and save the Government harmless from any and all claims, demands, damages, actions, costs, or charges against the Government arising as the result of the above-mentioned injuries, damages, or loss, except for any such damages or claims arising out of the negligent act of the Government or its employees in the course of their official duties.

ARTICLE XI - USE OF INFORMATION

All data and information generated, derived or obtained from the activities provided for herein, and this Agreement, will be public information.

ARTICLE XII - PROPERTY

A. Title to all materials, supplies, and equipment purchased or otherwise acquired by the Participant for this Agreement shall vest in the Government. Said materials, supplies, and equipment shall be used for the benefit of research under this Agreement and any extensions or successor agreements. Title to Government property shall not be affected by the incorporation or attachment thereof to any property not owned by the Government nor shall any such property, or any part thereof, be or become a fixture or lose its identity as personalty by reason of affixation to any realty.

B. To the extent practicable, the Participant shall cause all items of Government property to be suitably marked with an identifying mark or symbol indicating that the items are the property of the Government. The Participant shall maintain at all times and in a manner satisfactory to DOE records showing the use and disposition of Government property. Such records shall be subject to the DOE inspection at all reasonable times and DOE shall at all reasonable times have access to the premises wherein any items of Government property are located. Unless otherwise

ARTICLE VII - PROPERTY (Cont'd)

authorized in writing by DOE, the Participant shall use Government Property only for the purposes of this Agreement: Provided, however, That the Participant is hereby authorized to use items of equipment constituting Government property for other Federal research agreements to the extent such use (1) does not interfere with its work under this Agreement, (2) is not prohibited by provisions of the other Federal agreements, and (3) is promptly reported by the Participant to DOE under this Agreement.

C. The Participant shall promptly notify DOE of any loss or destruction of or damage to Government property. It is understood that the Participant shall not be liable for any such loss, destruction, or damage, unless same results from willful misconduct or lack of good faith on the part of any corporate officer of the Participant, or of one or more of the Participant's representatives having supervision or direction of all or substantially all of the activities under this Agreement. If the Participant is liable for any such loss, destruction, or damage, it shall promptly account therefor to the satisfaction of DOE; if the Participant is not liable therefor, and is indemnified, reimbursed, or otherwise compensated for such loss, destruction, or damage, it shall promptly account therefor to the satisfaction of DOE.

D. With the written approval of DOE, the Participant may sell, transfer, or otherwise dispose of items of Government property to such parties and upon such terms as so approved, or itself acquire title to items of Government property upon such terms as may be mutually agreed upon in writing by the Participant and DOE. The proceeds of any such disposition, and any agreed price of any such Participant acquisition, shall be paid by the Participant to the Government, or credited on account of DOE payments to be made under this Agreement, as DOE may direct. Subject to the other provisions of this Agreement, the Participant shall deliver Government property to DOE upon request (suitably packed and shipped at the Government's expense).

E. The Participant shall utilize for the benefit of the work under this Agreement such items of property available to the Participant by reason of its activities under other Federal research agreements as are appropriate for utilization under this Agreement pursuant to the provisions of the pertinent Federal agreements.

ARTICLE VIII - DATE OF INCURRENCE OF COSTS

The Participant shall be entitled to reimbursement for costs incurred in an amount not to exceed Seventy-one Thousand Four Hundred

ARTICLE XIII - DATE OF INCURRENCE OF COSTS (Cont'd)

Twenty Dollars (\$71,420.00) on or after March 7, 1979, which if incurred after this Agreement had been entered into, would have been reimbursable under the provisions of the Agreement.

ARTICLE XIV - ADDITIONAL AGREEMENT PROVISIONS

Appendix A, attached hereto and made a part hereof, sets forth additional general provisions of this Agreement.

APPENDIX A
GENERAL PROVISIONS
COOPERATIVE AGREEMENTS

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APPENDIX A

GENERAL PROVISIONS

COOPERATIVE AGREEMENTS

ARTICLE A-I - ALLOWABLE COST

Costs shall constitute allowable costs as specified in Title 41, Code of Federal Regulations Part 1-15 of the Code of Federal Regulations in effect on the date of this Agreement.

ARTICLE A-II - APPROVAL OF SUBCONTRACTS

All subcontracts and purchase orders in excess of \$10,000 shall require the written approval of the Contracting Officer.

ARTICLE A-III - PUBLIC INFORMATION RELEASES

The parties agree that public disclosure or dissemination of new data or information arising out of the feasibility assessment will be coordinated by the parties, it being understood that the intent of both the Participant and DOE is to release all data and information to the greatest practicable extent in order to achieve the objective of obtaining maximum public value from the results of this project. It is understood that the foregoing is not intended to afford either party the right to prevent a public release by the other; however, nothing in this article shall impair the rights of the parties set forth elsewhere in this Agreement.

ARTICLE A-IV - AUDIT

A. The Participant shall maintain, and the Contracting Officer or his representative shall have the right to examine books, records, documents, and other evidence and accounting procedures and practices, sufficient to reflect properly all direct and indirect costs of whatever nature claimed to have been incurred and anticipated to be incurred for the performance of this Agreement. Such right of examination shall include inspection at all reasonable times of the Participant's plants, or such parts thereof, as may be engaged in the performance of this Agreement.

B. The materials described above, shall be made available at the office of the Participant, at all reasonable times, for inspection, audit or reproduction, until the expiration of three (3) years from the date of final payment under this Agreement or such lesser time specified in Title 41, Code of Federal Regulations Part 1-20 and for such lesser period, if any, as is required by applicable statute, or by other articles of this Agreement, or by subparagraphs (1) and (2) below:

ARTICLE A-IV - AUDIT (Cont'd)

(1) If this Agreement is completely or partially terminated, the records relating to the work terminated shall be made available for a period of three (3) years from the date of any resulting final settlement.

(2) Records which relate to appeals under the "Disputes" article of this Agreement, or litigation or the settlement of claims arising out of the performance of this Agreement, shall be made available until such appeals, litigation, or claims have been disposed of.

ARTICLE A-V - OFFICIALS NOT TO BENEFIT

No member of or delegate to Congress, or resident commissioner, shall be admitted to any share or part of this Agreement, or to any benefit that may arise therefrom; but this provision shall not be construed to extend to this Agreement if made with a corporation for its general benefit.

ARTICLE A-VI - COVENANT AGAINST CONTINGENT FEES

The Participant warrants that no person or selling agency has been employed or retained to solicit or secure this Agreement upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by the Participant for the purpose of securing business. For breach or violation of this warranty the Government shall have the right to annul this Agreement without liability or in its discretion to deduct from the Agreement price or consideration, or otherwise recover, the full amount of such commission, percentage, brokerage, or contingent fee.

ARTICLE A-VII - EXAMINATION OF RECORDS BY COMPTROLLER GENERAL

A. The Participant agrees that the Comptroller General of the United States or any of his duly authorized Government employees shall, until the expiration of three (3) years after final payment under this Agreement, unless DOE authorizes their prior disposition, have access to and the right to examine any directly pertinent books, documents, papers, and records of the Participant involving transactions related to this Agreement.

B. The Participant further agrees to include in all its subcontracts hereunder a provision to the effect that the subcontractor agrees that the Comptroller General of the United States or any of his duly authorized Government employees shall, until the expiration of three (3) years after

ARTICLE A-VII - EXAMINATION OF RECORDS BY COMPTROLLER GENERAL (Cont'd)

final payment under the subcontract or such lesser time specified in either Appendix M of the Armed Services Procurement Regulation or the Federal Procurement Regulations Part 1-20, as appropriate, have access to and the right to examine any directly pertinent books, documents, papers, and records of such subcontractor, involving transactions related to the subcontract. The term "subcontract" as used in this article excludes (1) purchase orders not exceeding \$10,000 and (2) subcontracts or purchase orders for public utility services at rates established for uniform applicability to the general public.

C. The periods of access and examination described in paragraphs A. and B., above, for records which relate to (1) appeals under the "Disputes" article of this Agreement, (2) litigation or the settlement of claims arising out of the performance of this Agreement, or (3) costs and expenses of this Agreement as to which exception has been taken by the Comptroller General or any of his duly authorized representatives, shall continue until such appeals, litigation, claims or exceptions have been disposed of.

ARTICLE A-VIII - ASSIGNMENT OF CLAIMS

Pursuant to the provisions of the Assignment of Claims Act of 1940, as amended (31 U.S.C. 203, 41 U.S.C. 15), claims for moneys due or to become due the Participant from the Government under this Agreement may be assigned to a bank, trust company, or other financing institution, including any Federal lending agency, and may thereafter be further assigned and reassigned to any such institution. Any such assignment or reassignment shall cover all amounts payable under this Agreement and not already paid, and shall not be made to more than one party, except that any such assignment or reassignment may be made to one party as agent or trustee for two or more parties participating in such financing. Unless otherwise provided in this Agreement, payments to assignee of any moneys due or to become due under this Agreement shall not, to the extent provided in said Act, as amended, be subject to reduction or setoff.

ARTICLE A-IX - PERMITS

Except as otherwise directed by the Contracting Officer, the Participant shall procure all necessary permits or licenses and abide by all applicable laws, regulations, and ordinances of the United States and of the State, territory, and political subdivision in which the work under this Agreement is performed.

ARTICLE A-X - DISPUTES

A. This Agreement is subject to the Contract Disputes Act of 1978 (41 U.S.C. 601, et seq.). If a dispute arises relating to the Agreement, the Participant may submit a claim to the Contracting Officer who shall issue a written decision on the dispute in the manner specified in DAR 1-314 (FPR 1-1.318).

B. "Claim" means:

- (1) a written request submitted to the Contracting Officer;
- (2) for payment of money, adjustment of Agreement terms, or other relief;
- (3) which is in dispute or remains unresolved after a reasonable time for its review and disposition by the Government; and
- (4) for which a Contracting Officer's decision is demanded.

C. In the case of disputed requests or amendments to such requests for payment exceeding \$50,000, or with any amendment causing the total request in dispute to exceed \$50,000, the Participant shall certify, at the time of submission as a claim, as follows:

I certify that the claim is made in good faith, that the supporting data are accurate and complete to the best of my knowledge and belief; and that the amount requested accurately reflects the Agreement adjustment for which the Participant believes the Government is liable.

(Participant's Name) _____

(Title) _____

D. The Government shall pay the Participant interest:

- (1) on the amount found due on claims submitted under this article;
- (2) at the rates fixed by the Secretary of the Treasury, under the Renegotiation Act, Public Law 92-41;
- (3) from the date the Contracting Officer receives the claim, until the Government makes payment.

E. The decision of the Contracting Officer shall be final and conclusive and not subject to review by any forum, tribunal, or Government agency unless an appeal or action is timely commenced within the times specified by the Contract Disputes Act of 1978.

ARTICLE A-X - DISPUTES (Cont'd)

F. The Participant shall proceed diligently with performance of this Agreement, pending final resolution of any request for relief, claim, appeal or action related to the Agreement, and comply with any decision of the Contracting Officer.

ARTICLE A-XI - PAYMENT OF INTEREST ON PARTICIPANTS' CLAIMS

A. If an appeal is filed by the Participant from a final decision of the Contracting Officer under the "Disputes" article of this Agreement, denying a claim arising under the Agreement, simple interest on the amount of the claim finally determined owed by the Government shall be payable to the Participant. Such interest shall be at the rate determined by the Secretary of the Treasury pursuant to Public Law 92-41, 85 Stat. 97, from the date the Participant furnishes to the Contracting Officer its written appeal under the "Disputes" article of this Agreement, to the date of (1) a final judgment by a court of competent jurisdiction, or (2) mailing to the Participant of a supplemental agreement for execution either confirming completed negotiations between the parties or carrying out a decision of a board of Agreement appeals.

B. Notwithstanding paragraph A., above, (1) interest shall be applied only from the date payment was due, if such date is later than the filing of appeal, and (2) interest shall not be paid for any period of time that the Contracting Officer determines the Participant has unduly delayed in pursuing its remedies before a board of Agreement appeals or a court of competent jurisdiction.

ARTICLE A-XII - SEX DISCRIMINATION PROHIBITED

No person shall on the ground of sex be excluded from participation in, be denied a license under, be denied the benefits of, or be subjected to discrimination under any program or activity carried on or receiving Federal assistance under any title of this Act (P. L. 93-438).

ARTICLE A-XIII - CIVIL RIGHTS

The Participant agrees that no person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity for which the Participant receives Federal financial assistance from DOE.

ARTICLE A-XIV - DISCRIMINATION AGAINST HANDICAPPED PROHIBITED

The Participant agrees that no otherwise qualified handicapped individual in the United States shall, solely by reason of his handicap,

ARTICLE A-XIV - DISCRIMINATION AGAINST HANDICAPPED PROHIBITED (Cont'd)

be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.

ARTICLE A-XV - SMALL AND MINORITY BUSINESS PARTICIPATION

It is the policy of DOE to ensure that small and minority businesses have a reasonable opportunity to participate in the projects which it supports. In accordance with this policy, the Participant will make a reasonable effort to ensure fair consideration and utilization of small and minority businesses in purchases and subcontracts awarded by the Participant under this Agreement.

ARTICLE A-XVI - PREFERENCE FOR U. S. FLAG AIR CARRIERS

A. It is the policy of the United States that all Federal agencies and Government contractors and subcontractors utilize U.S. flag air carriers for international air transportation of personnel and cargo.

B. The Participant agrees to utilize U. S. flag air carriers to the maximum extent practicable in connection with the performance of this Agreement in the transportation by air of any personnel and cargo between the United States and a foreign country, or between foreign countries.

C. The terms used in this article have the following meanings:

(1) "International air transportation" means transportation by air of personnel and cargo from the United States to a foreign country, between two or more foreign countries, and between a foreign country and the United States.

(2) "U. S. flag air carrier" means one of a class of air carriers holding a certificate of public convenience and necessity issued by the Civil Aeronautics Board, approved by the President, authorizing operations between the United States and/or its territories and one or more foreign countries.

(3) The term "United States" includes the fifty States, Commonwealth of Puerto Rico, possessions of the United States and the District of Columbia.

(4) "Practicable" includes (i) satisfactory servicing of agency programs, and (ii) timely deliveries at fair and reasonable prices.

D. The Participant shall include the substance of this article, including this paragraph D. in each subcontract or purchase order hereunder which may involve air transportation between the United States and a foreign country, or between foreign countries.

ARTICLE A-XVII - CLEAN AIR AND WATER

A. The Participant agrees as follows:

(1) To comply with all the requirements of section 114 of the Clean Air Act, as amended (42 U.S.C. 1857, et seq., as amended by P. L. 91-604) and section 308 of the Federal Water Pollution Control Act (33 U.S.C. 1251, et seq., as amended by P. L. 92-500), respectively, relating to inspection, monitoring, entry, reports and information, as well as other requirements specified in section 114 and section 308 of the Air Act and the Water Act, respectively, and all regulations and guidelines issued thereunder before the award of this Agreement.

(2) That no portion of the work required by this Agreement will be performed in a facility listed on the Environmental Protection Agency List of Violating Facilities on the date when this Agreement was awarded unless and until the EPA eliminates the name of such facility or facilities from such listing.

(3) To use its best efforts to comply with clean air standards and clean water standards at the facility in which the Agreement is being performed.

(4) To insert the substance of the provisions of this article into any nonexempt subcontract, including this subparagraph A.(4).

B. The terms used in this article have the following meanings:

(1) The term "Air Act" means the Clean Air Act, as amended (42 U.S.C. 1857, et seq., as amended by P. L. 91-604).

(2) The term "Water Act" means Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq., as amended by P. L. 92-500).

(3) The term "clean air standards" means any enforceable rules, regulations, guidelines, standards, limitations, orders, controls, prohibitions, or other requirements which are contained in, issued under, or otherwise adopted pursuant to the Air Act or Executive Order 11738, an applicable implementation plan as described in section 110(d) of the Clean Air Act [42 U.S.C. 1857c-5(d)], an approved implementation procedure or plan under section 111(c) or section 111(d), respectively, of the Air Act [42 U.S.C. 1857(c)-6(c) or (d)], or an approved implementation procedure under section 112(d) of the Air Act [42 U.S.C. 1857c-7(d)].

ARTICLE A-XVII - CLEAN AIR AND WATER (Cont'd)

(4) The term "clean water standards" means any enforceable limitation, control, condition, prohibition, standard, or other requirement which is promulgated pursuant to the Water Act or contained in a permit issued to a discharger by the Environmental Protection Agency or by a State under an approved program, as authorized by section 402 of the Water Act (33 U.S.C. 1342), or by local government to ensure compliance with pretreatment regulations as required by section 307 of the Water Act (33 U.S.C. 1317).

(5) The term "compliance" means compliance with clean air or water standards. Compliance shall also mean compliance with a schedule or plan ordered or approved by a court of competent jurisdiction, the Environmental Protection Agency or an air or water pollution control agency in accordance with the requirements of the Air Act or Water Act and regulations issued pursuant thereto.

(6) The term "facility" means any building, plant, installation, structure, mine, vessel, or other floating craft, location, or site of operations, owned, leased, or supervised by a contractor or subcontractor, to be utilized in the performance of an agreement or subcontract. Where a location or site of operations contains or includes more than one building, plant, installation, or structure, the entire location or site shall be deemed to be a facility except where the Director, Office of Federal Activities, Environmental Protection Agency, determines that independent facilities are collocated in one geographical area.

ARTICLE A-XVIII - RIGHTS IN TECHNICAL DATA - SHORT FORM

A. Definitions. The definitions of terms set forth in 41 CFR 9-9.201 apply to the extent these terms are used herein.

B. Allocation of Rights.

(1) The Government shall have:

(i) Unlimited rights in technical data first produced or specifically used in the performance of this Agreement;

(ii) The right of the Contracting Officer or his representatives to inspect at all reasonable times up to three (3) years after final payment under this Agreement all technical data first produced or specifically used in the Agreement (for which inspection the Participant or its subcontractor shall afford proper facilities to DOE);

ARTICLE A-XVIII - RIGHTS IN TECHNICAL DATA - SHORT FORM (Cont'd)

(iii) The right to have any technical data first produced or specifically used in the performance of this Agreement delivered to the Government as the Contracting Officer may from time to time direct during the progress of the work or in any event as the Contracting Officer shall direct upon completion or termination of this Agreement.

(2) The Participant shall have: The right to use for its private purposes, subject to patent, security or other provisions of this Agreement, technical data it first produces in the performance of this Agreement provided the data requirements of this Agreement have been met as of the date of the private use of such data. The Participant agrees that to the extent it receives or is given access to proprietary data or other technical, business or financial data in the form of recorded information from DOE or a DOE contractor or subcontractor, the Participant shall treat such data in accordance with any restrictive legend contained thereon, unless use is specifically authorized by prior written approval of the Contracting Officer.

C. Copyrighted Material.

(1) The Participant agrees to, and does hereby grant to the Government, and to its officers, agents, servants and employees acting within the scope of their duties:

(i) A royalty-free nonexclusive, irrevocable license to reproduce, translate, publish, use, and dispose of and to authorize others so to do, all copyrightable material first produced or composed in the performance of this Agreement by the Participant, its employees or any individual or concern specifically employed or assigned to originate and prepare such material; and

(ii) A license as aforesaid under any and all copyrighted or copyrightable works not first produced or composed by the Participant in the performance of this Agreement but which are incorporated in the material furnished under the Agreement, provided that such license shall be only to the extent the Participant now has, or prior to completion or final settlement of the Agreement may acquire, the right to grant such license without becoming liable to pay compensation to others solely because of such grant.

ARTICLE A-XVIII - RIGHTS IN TECHNICAL DATA - SHORT FORM (Cont'd)

(2) The Participant agrees that it will not knowingly include any material copyrighted by others in any written or copyrightable material furnished or delivered under this Agreement without a license as provided for in subparagraph C.(1)(ii) hereof, or without the consent of the copyright owner, unless it obtains specific written approval of the Contracting Officer for the inclusion of such copyrighted material.

ARTICLE A-XIX - REPORTING OF ROYALTIES

If this Agreement is in an amount which exceeds \$10,000 and if any royalty payments are directly involved in the Agreement or are reflected in the Agreement price to the Government, the Participant agrees to report in writing to the Patent Counsel (with notification by Patent Counsel to the Contracting Officer) during the performance of this Agreement and prior to its completion or final settlement the amount of any royalties or other payments paid or to be paid by it directly to others in connection with the performance of this Agreement together with the names and addresses of licensors to whom such payments are made and either the patent numbers involved or such other information as will permit the identification of the patents or other basis on which the royalties are to be paid. The approval of DOE of any individual payments or royalties shall not stop the Government at any time from contesting the enforceability, validity or scope of, or title to, any patent under which a royalty or payments are made.

ARTICLE A-XX - NOTICE AND ASSISTANCE REGARDING PATENT AND COPYRIGHT INFRINGEMENT

(The provisions of this article shall be applicable only if the amount of this Agreement exceeds \$10,000.)

A. The Participant shall report to the Contracting Officer, promptly and in reasonable written detail, each notice or claim of patent or copyright infringement based on the performance of this Agreement of which the Participant has knowledge.

B. In the event of any claim or suit against the Government on account of any alleged patent or copyright infringement arising out of the performance of this Agreement or out of the use of any supplies furnished or work or services performed hereunder, the Participant shall furnish to the Government when requested by the Contracting Officer, all evidence and information in possession of the Participant pertaining to such suit or claim. Such evidence and information shall be furnished at the expense of the Government except where the Participant has agreed to indemnify the Government.

C. This article shall be included in all subcontracts.

ARTICLE A-XXI - AUTHORIZATION AND CONSENT

The Government hereby gives its authorization and consent for all use and manufacture of any invention described in and covered by a patent of the United States in the performance of this Agreement or any part hereof or any amendment hereto or any subcontract hereunder (including any lower-tier subcontract).

U. S. DEPARTMENT OF ENERGY

REPORTING REQUIREMENTS CHECK

Form CR-537
(1-78)

(See Instructions on Reverse)

FORM APPROVED
OMB NO. 38R-0190

1. IDENTIFICATION Cooperative Agreement DE-FC07-79ET27034	2. OBLIGATION INSTRUMENT:
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REPORTING REQUIREMENTS

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

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

SPECIAL INSTRUCTIONS

Submit ten (10) copies of each report to the DOE Program Officer due at Idaho Operations Office as indicated below:

- A - Within 5 days after event that indicates report.
- F - 45 days prior to the end (completion date) of the Cooperative Agreement submit in draft. After 30 days for DOE review, submit in final format.
- M - Within 15 calendar days after end of the calendar month.
- O - Within 15 calendar days after Cooperative Agreement award.
- Q - Within 15 calendar days after end of calendar quarter.
- Y - 45 calendar days prior to completion of the yearly term.

ATTACHED HEREWITH:

- Report Distribution List
- WBS/Reporting Category

PREPARED BY (Signature and date):

7. REVIEWED BY (Signature and date):

file M-

O FORM-182 Rev. 10-77 U. S. DEPARTMENT OF ENERGY COOPERATIVE AGREEMENT PURSUANT TO AUTHORITY OF PL. 93-410, PL. 93-438, PL. 93-473, PL. 93-577, and PL. 95-81		1.a. Agreement No. DE-FC07-79EC27034	1.b. Modification No.								
1. Participant Name and Address Alaska Geophysical Institute University of Alaska Fairbanks, Alaska 99701		2. Agreement Period From: March 7, 1979 To: March 6, 1980									
3. Project Title Geothermal Assessment and Reservoir Definition in Alaska		4. Participant Type <input checked="" type="checkbox"/> Educational <input type="checkbox"/> Nonprofit <input type="checkbox"/> State or Local Government <input type="checkbox"/> Profit									
5. Principal Investigator(s) or Program Director(s) Name and Address Donald L. Turner Alaska Geophysical Institute University of Alaska Fairbanks, Alaska Telephone: 907-479-7198		6. Project Will Be Conducted Per See Article <u>II</u>									
10. Accounting and Appropriation Data 89X0210.91		7. Technical Reports Are Required See Article <u>VII</u>									
12. Submit Vouchers, if any, to Agreements Officer Unless Otherwise Specified in this Block Director, Contracts Management Division, DOE-ID, 550-2nd St. Idaho Falls, Idaho 83401		9. DOE Program Officer (Name and Address) Leland L. Mink, E&T Division Idaho Operations Office, DOE 550 Second Street Idaho Falls, Idaho 83401 Telephone No. 208-526-0638									
13. Funding Sources <table border="0"> <thead> <tr> <th>Source</th> <th>Amount</th> </tr> </thead> <tbody> <tr> <td>DOE:</td> <td>\$ <u>320,081.00</u></td> </tr> <tr> <td>Participant:</td> <td>\$ <u>8,357.00</u></td> </tr> <tr> <td>Total Funding:</td> <td>\$ <u>328,438.00</u></td> </tr> </tbody> </table>		Source	Amount	DOE:	\$ <u>320,081.00</u>	Participant:	\$ <u>8,357.00</u>	Total Funding:	\$ <u>328,438.00</u>	11. Method of Payment <input type="checkbox"/> % At Award. % When Requested. % Upon Receipt of Final Report <input type="checkbox"/> Letter of Credit <input type="checkbox"/> Reimbursement <input checked="" type="checkbox"/> Other (specify) See Article <u>IV</u>	
Source	Amount										
DOE:	\$ <u>320,081.00</u>										
Participant:	\$ <u>8,357.00</u>										
Total Funding:	\$ <u>328,438.00</u>										
15. Amount Obligated by This Action: \$ <u>248,661.00</u>		14. Remarks:									
16. DOE Issuing Office (Name and Address) Idaho Operations Office 550 Second Street Idaho Falls, Idaho 83401		18. Participant Acceptance UNIVERSITY OF ALASKA By <u>Howard A. Cutler</u> Signature of Authorized Official Name (typed) <u>Howard A. Cutler</u> Title <u>Chancellor, UAF</u>									
17. DOE Cooperative Agreements Officer <u>R. E. Simonds</u> 5/15/79 Signature (Date) Name (typed) <u>R. E. Simonds</u> Title <u>Director, Contracts Management Div.</u> Telephone No. <u>208-526-1347</u>		18. Participant Acceptance (continued) Name (typed) <u>Howard A. Cutler</u> Title <u>Chancellor, UAF</u>									

U. S. DEPARTMENT OF ENERGY
PROCUREMENT/FINANCIAL ASSISTANCE REQUEST-AUTHORIZATION

TO J.P. Anderson Chief Contracts Administration Branch

FROM INITIATING OFFICE R.F. Wood Director Energy Technology Division

INITIAL: [X] UPDATE: [] 4. PROCUREMENT: [] FINANCIAL ASSISTANCE: []
PR NUMBER: 01-80 ET 27034.501 5. PR CORRECTION LETTER: _____ 7. RELATED PR NUMBER: _____

IDENTIFICATION
TITLE: Geothermal Resource Assessment in Alaska

UNSOLICITED PROPOSAL NO: _____ 10. PROJECT NO: _____ 11. CFDA NO: _____
12. PRODUCT OR SERVICE: AG-3X 13. SUPPORT SERVICES: YES [] NO [X] 14. CONSULTANT AWARD: YES [] NO [X]
15. CONTROLLED DELIVERABLE: Alb 16. REPORT/DRAWING REQ: YES [X] NO [] IF YES, ATTACH DETAILS.
17. CLASSIFICATION OF MATERIALS/WORK: U U - UNCLASSIFIED C - CONFIDENTIAL S - SECRET T - TOP SECRET
18. GOVERNMENT PROPERTY: N F - FURNISHED P - PURCHASED N - NOT INVOLVED IF CODE F OR P, ATTACH DETAILS.

AWARD PLANNING
19. AWARD AS ORDER UNDER BIN: DE-FC07-79 ET 27030 IF CODE T, _____
20. DESIRED AWARD DATE: 03 07 80 21. KIND OF AWARD ACTION: IP 22. TYPE OF AWARD: I ATTACH DETAILS
IF MULTI-YEAR AWARD, INDICATE NUMBER OF YEARS: _____ 24. TYPE SOLICITATION INSTRUMENT: _____
23. EXTENT OF COMPETITION: _____ IF COMPETITIVE, ATTACH TECHNICAL EVALUATION PLAN. IF NON-COMPETITIVE, ATTACH JUSTIFICATION. REF: DOE-PR 7-3, 305, 31 or 7-3, 709(4).
25. SOURCE SELECTION PROCEDURE: 4 1 - A-E 2 - SEB 3 - OTHER 4 - NONE
26. FOR A-E, SHOW ESTIMATED CONSTRUCTION COST IN DOLLARS: _____

AWARDEE
27. IF COMPETITIVE, HAS LIST OF SOURCES BEEN ATTACHED? YES [] NO [X] IF NON-COMPETITIVE, COMPLETE 28-32
33. NAME: University of Alaska 34. ADDRESS: 913 Avery Building, U. of Alaska Fairbanks, AK 99701
35. DIVISION: Geophysical Institute
36. GOCO/LAB: D A - GOCO/LAB B - GOCO/NON-LAB C - NON-GOCO/LAB D - NOT APPLICABLE

FINANCIAL				PROJECT MANAGER			
AWARD VALUE				PROJECT MANAGER			
37. GOVT SHARE			<u>150,000</u>	37. NAME:	<u>Rou Mink</u>		
38. TOTAL			<u>155,410</u>	38. SIGNATURE:	<u>Margaret A. Hedway</u>		
39. CONSIDERATION IN KIND, LOAN, OR LOAN GUARANTEE DATA REPORTED ON PR-799C: []				39. DATE:	<u>02 08 80</u>	40. OFFICE CODE:	<u>1000138</u>
41. PROJECT PERIOD: FROM <u>03 07 80</u> THRU <u>03 06 81</u>				41. FTS TELEPHONE NUMBER:	_____		
CURRENT FY FUNDS COMMITTED							
42. B&R NUMBER	43. FUND CLASS	44. DOLLAR AMOUNT		42. NAME:	<u>R.F. Wood</u>		
<u>AM-15-10000</u>	<u>E</u>	<u>150,000</u>		43. SIGNATURE:	<u>R.F. Wood</u>		
45. FROM PR-799B (PART A)				44. DATE:	<u>02 08 80</u>		
46. TOTAL THIS PR			<u>150,000</u>	PROGRAM OFFICIAL:			
47. FUNDING PERIOD: FROM <u>03 03 80</u> THRU <u>03 06 81</u>				45. NAME:	<u>T.S. Smith</u>		
48. APPROPRIATION SYMBOL:			<u>89X0224.91</u>	46. I HEREBY CERTIFY THAT THE FUNDS LISTED ABOVE ARE AVAILABLE.			
49. ALLOTMENT SYMBOL:			<u>FD-04-91</u>	47. SIGNATURE:	<u>T.S. Smith</u>		
50. OBJECT CLASS:			<u>253</u>	48. DATE:	<u>2 8 80</u>		

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. AMENDMENT/MODIFICATION NO. A001	2. EFFECTIVE DATE 3/7/80	3. REQUISITION/PURCHASE REQUEST NO.	4. PROJECT NO. (If applicable)
---------------------------------------	-----------------------------	-------------------------------------	--------------------------------

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

7. CONTRACTOR NAME AND ADDRESS Alaska Geophysical Institute University of Alaska Fairbanks, Alaska 99701 Attn: Donald L. Turner	8. AMENDMENT OF SOLICITATION NO. MODIFICATION OF CONTRACT/ORDER NO. DE-FC07-79ET27034 DATED 3/7/79
---	--

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 ACKNOWLEDGMENT 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)

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 Public Law 95-91 et. al
It modifies the above numbered contract as set forth in block 12.

12. DESCRIPTION OF AMENDMENT/MODIFICATION

1. Article II - DESCRIPTION OF RESPONSIBILITIES, is revised to incorporate, by reference, the Participant's proposal entitled "Geothermal Program for the Period March 7, 1980 to March 6, 1981," and to add the following tasks:

Task 6. A regional reconnaissance study will be conducted in the area surrounding Chena Hot Springs to determine regional geology, location of lineaments and faults, and groundwater hydrology of the area. A report of the geothermal potential of the region around Chena Hot Springs will be prepared.

Task 7. Geological and geophysical reconnaissance of the geothermal potential of the island of Unalaska will include conductivity, helium, ground temperature, and resistivity surveys of selected sites throughout the island. K-Ar dating of select volcanic units will also be obtained. A detailed report of the interpretations of this work will be prepared.

Continued...

13. CONTRACTOR/OFFEROR IS NOT REQUIRED TO SIGN THIS DOCUMENT CONTRACTOR/OFFEROR IS REQUIRED TO SIGN THIS DOCUMENT AND RETURN 3 COPIES TO ISSUING OFFICE

14. NAME OF CONTRACTOR/OFFEROR BY <u>H. A. Cutler</u> (Signature of person authorized to sign)	17. UNITED STATES OF AMERICA BY <u>J. P. Anderson</u> (Signature of Contracting Officer)		
15. NAME AND TITLE OF SIGNER (Type or print) H. A. Cutler, Chancellor, UAF	16. DATE SIGNED	18. NAME OF CONTRACTING OFFICER (Type or print) J. P. Anderson, Chief Contract Administration Branch	19. DATE SIGNED 3/19/80

2. Paragraph A. of Article III - FINANCIAL SUPPORT OF THE PROJECT, is revised as follows:

The total estimated cost is increased by \$154,681.00 to a new total of Four Hundred Eighty-Three Thousand One Hundred Nineteen Dollars (\$483,119.00). The total cost to DOE is increased by \$149,271.00 to a new total of Four Hundred Sixty-Nine Thousand Three Hundred Fifty-Two Dollars (\$469,352.00).

The estimated cost and share totals are summarized below:

	<u>U. of Alaska Share</u>	<u>DOE Share</u>	<u>Estimated Cost</u>
Orig. Contract	\$ 8,357	\$320,081	\$328,438
Inc. per Mod A001	5,410	149,271	154,681
Total	<u>\$13,767</u>	<u>\$469,352</u>	<u>\$483,119</u>
Percentage Share	3%	97%	

3. Paragraph C. of Article III - FINANCIAL SUPPORT OF THE PROJECT, is revised to read as follows:

"C. The amount of funds obligated under this Agreement by DOE for the period from March 5, 1979, through March 6, 1981, is Four Hundred Sixty-Nine Thousand Three Hundred Fifty-Two Dollars (\$469,351.00). Future funding will be provided for future years when and if available. "

4. Article V - TERM OF AGREEMENT, is revised to extend the term from March 6, 1980, to March 6, 1981.
5. Article VII - PROJECT INFORMATION, Paragraph A. is changed to refer to the revised DOE Form CR-537 attached this Modification A001. In addition, a summary report of the first year's effort is due September 31, 1980.

REPORTING REQUIREMENTS CHECKLIST

Form CR-537
(1-78)

(See Instructions on Reverse)

FORM APPROVED
OMB NO. 38R-0190

1. IDENTIFICATION Alaska Geophysical Institute	2. OBLIGATION INSTRUMENT: DE-FC07-79ET27034
---	--

REPORTING REQUIREMENTS

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

FREQUENCY CODES:

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

SPECIAL INSTRUCTIONS

Submit all reports to the DOE Program Officer at Idaho Operations Office (ID) as indicated below:

- and 6 - Six copies are due at ID within fifteen days after end of the calendar month.
- Two copies are due at ID within fifteen days after Cooperative Agreement Award.
- Six copies are due at ID within fifteen days after end of the calendar quarter.
- Six copies are due not less than forty-five days prior to completion of the yearly term.
- Submit in draft forty-five days prior to completion date of Cooperative Agreement. After thirty days for DOE review, submit eleven copies including one camera-ready copy.

ATTACHED HEREWITH:

Report Distribution List

WBS/Reporting Category

6. PREPARED BY (Signature and date): <i>Margaret B. Hadmayer 2/8/80</i>	7. REVIEWED BY (Signature and date):
--	--------------------------------------

MOD A002

File
M 2.11



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

May 8, 1980

TO: Memo to the Files

FROM: K. R. Thurman (original signed by
Property Management Specialist K. R. Thurman)
Property Management Branch
Contracts Management Division

SUBJECT: UNIVERSITY OF ALASKA COOPERATIVE AGREEMENT
CONTRACT NO. DE-FC07-79ET27034, MOD. A003

On this date, R. A. Long signed off on the modification to the subject Cooperative Agreement.

The Property Articles of this Cooperative Agreement do not conform to the requirements of Attachment N of OMB Circular A-110; however, the articles do conform to a Special Research Contract.

Prior to the next modification of this agreement, a policy determination will be required to determine if this document is in fact a Cooperative Agreement, in which case a modification of Property Articles would be required or a Special Research Contract, which would require a modification of the procurement document.

The Property Management Branch is prepared to assist in this situation to alleviate this problem with this document and any other that may be in the same situation.

cc: L. L. Mink, RDB
E. M. Hyster, R&DCB

RECEIVED

MAY 12 1980

GEOHERMAL ENERGY
BRANCH

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. AMENDMENT/MODIFICATION NO. M002	2. EFFECTIVE DATE 5/16/80	3. ACQUISITION/PURCHASE REQUEST NO.	4. PROJECT NO. (If applicable)
5. ISSUED BY U. S. Department of Energy Idaho Operations Office 550 Second Street Idaho Falls, Idaho 83401		6. ADMINISTERED BY (If other than block 5) M.2.11	

7. CONTRACTOR NAME AND ADDRESS Alaska Geophysical Institute University of Alaska Fairbanks, Alaska 99701 ATTENTION: Donald L. Turner	8. AMENDMENT OF SOLICITATION NO. DATED _____ (See block 9)	MODIFICATION OF CONTRACT/ORDER NO. DE-FC07-79ET27034 DATED 3/7/79 (See block 11)
--	---	---

9. THIS BLOCK APPLIES ONLY TO AMENDMENTS OF SOLICITATIONS

The above mentioned solicitation is amended as set forth in block 12. The hour and date specified for receipt of Offers is extended. is not extended. Offers 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 a copy 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 ACKNOWLEDGMENT 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 closing hour and date specified.

10. ACCOUNTING AND APPROPRIATION DATA (If required)

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 mentioned contract/order.

(b) The above mentioned 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 Public Law 95-91 et. al.
It modifies the above mentioned contract as set forth in block 12.

12. DESCRIPTION OF AMENDMENT/MODIFICATION

1. Task 7 of Article II - Description of Responsibilities is revised to read as follows:

"Geological and geophysical reconnaissance of the geothermal potential of the suspected regional rift system on the Seward Peninsula, including the Pilgram Springs area. This study will include regional geology and K- Ar Geochronology, location of faults, and gravity, magnetic, and helium surveys. Resistivity and seismic surveys will also be conducted near Pilgrim Springs. A detailed report of the interpretation of this work will be prepared."

2. The parties agree that this Modification No. M002 does not increase either the total estimated cost of \$483,119 or the total cost to DOE of \$469,352.

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

<input type="checkbox"/> CONTRACTOR/OFFICE IS NOT REQUIRED TO SIGN THIS DOCUMENT		<input checked="" type="checkbox"/> CONTRACTOR/OFFICE IS REQUIRED TO SIGN THIS DOCUMENT AND RETURN <u>2</u> COPIES TO ISSUING OFFICE	
14. NAME OF CONTRACTOR/OFFICE BY <u>H. A. Cutler</u> (Signature of person authorized to sign)	17. UNITED STATES OF AMERICA BY <u>J. F. Marmo</u> (Signature of Contracting Officer)	15. NAME AND TITLE OF SIGNER (Type or print) H. A. Cutler, Chancellor, UAF	19. DATE SIGNED 5/6/80
16. DATE SIGNED 5/15/80	18. NAME OF CONTRACTING OFFICER (Type or print) J. F. Marmo, Acting Director Contracts Management Division		

U.S. DEPARTMENT OF ENERGY
PROCUREMENT/FINANCIAL ASSISTANCE REQUEST-AUTHORIZATION

File
M.2.11

TO: J.P. Anderson, Chief, Contract Administration Branch

FROM INITIATING OFFICE: R.E. Wood, Director, Energy Technology Division

INITIAL: UPDATE: PROCUREMENT: FINANCIAL ASSISTANCE:

PR NUMBER: _____ 5. PR CORRECTION LETTER: _____ 7. RELATED PR NUMBER: _____

SECTION IDENTIFICATION
TITLE: GEOTHERMAL ASSESSMENT IN ALASKA
CAPITAL EQUIPMENT ADDED TO EXISTING CONTRACT

UNSOLICITED PROPOSAL NO: _____ 10. PROJECT NO: _____ 11. CFDA NO: _____
PRODUCT OR SERVICE: AG3X 13. SUPPORT SERVICES: YES NO 14. CONSULTANT AWARD: YES NO
CONTROLLED DELIVERABLE: AGY 15. REPORT/DRAWING REQ: YES NO IF YES, ATTACH DETAILS.
CLASSIFICATION OF MATERIALS/WORK: U U - UNCLASSIFIED C - CONFIDENTIAL S - SECRET T - TOP SECRET
GOVERNMENT PROPERTY: P P - FURNISHED Q - PURCHASED N - NOT INVOLVED IF CODE F OR P, ATTACH DETAILS.

AWARD PLANNING
AWARD AS ORDER UNDER BIN: DE-FC07-79 ET 27034 IF CODE T, _____
DESIRED AWARD DATE: 04 30 80 21. KIND OF AWARD ACTION: 1P 22. TYPE OF AWARD: _____ ATTACH DETAILS.
IF MULTI-YEAR AWARD, INDICATE NUMBER OF YEARS: _____ 24. TYPE SOLICITATION INSTRUMENT: _____
EXTENT OF COMPETITION: _____ IF COMPETITIVE, ATTACH TECHNICAL EVALUATION PLAN. IF NON-COMPETITIVE, ATTACH JUSTIFICATION. REF: DOE-88 9-3, 305, 51 or 9-4, 709 (1).
SOURCE SELECTION PROCEDURE: _____ 1 - A-E 2 - SES 3 - OTHER 4 - NONE
FOR A-E, SHOW ESTIMATED CONSTRUCTION COST IN DOLLARS: _____

AWARDEE
IF COMPETITIVE, HAS LIST OF SOURCES BEEN ATTACHED? YES NO IF NON-COMPETITIVE, COMPLETE 23-31:
NAME: University of Alaska 29. ADDRESS: C.T. Elvey Building, U of Alaska
DIVISION: Geophysical Institute Fairbanks, AK 99701
GOCO/LAB: _____ A - GOCO/LAB B - GOCO/NON-LAB C - NON-GOCO/LAB D - NOT APPLICABLE

FINANCIAL
AWARD VALUE
GOVT SHARE: _____ DOLLAR AMOUNT
TOTAL: 18,200
CONSIDERATION IN KIND, LOAN, OR LOAN GUARANTEE DATA REPORTED ON PR-799C:
PROJECT PERIOD: FROM 04 30 80 THRU 03 06 81
CURRENT FY FUNDS COMMITTED
36. S&R NUMBER 37. FUND CLASS 38. DOLLAR AMOUNT
CE 35AM15 - 18,200
FROM PR-799B (PART 1) _____
TOTAL THIS PR: 18,200
FUNDING PERIOD: FROM 04 30 80 THRU 03 06 81
APPROPRIATION SYMBOL: _____
ALLOTMENT SYMBOL: _____
OBJECT CLASS: _____

PROJECT MANAGER
39. NAME: M.A.W. Dwyer
40. SIGNATURE: Margaret R. Dwyer
47. DATE: 04 23 80 48. OFFICE CODE: _____
49. FTS TELEPHONE NUMBER: _____

PROGRAM OFFICIAL
50. NAME: R.E. Wood
51. SIGNATURE: Zeland White
52. DATE: 04 23 80

CERTIFYING OFFICIAL
53. NAME: F.S. Smith
I HEREBY CERTIFY THAT THE FUNDS LISTED IN ITEM 36 ARE AVAILABLE.
54. SIGNATURE: _____
55. DATE: _____

DEPARTMENT OF ENERGY
PROCUREMENT/FINANCIAL ASSISTANCE REQUEST-AUTHORIZATION

File
M.2.11

TO: J. P. Anderson, Chief, Contract Administration Branch

FROM INITIATING OFFICE: R.E. Wood, Director, Energy Technology Division

INITIAL: [] UPDATE: [] 4. PROCUREMENT: [] FINANCIAL ASSISTANCE: []
PR NUMBER: _____ 5. PR CORRECTION LETTER: _____ 7. RELATED PR NUMBER: _____

SECTION IDENTIFICATION
TITLE: Geothermal Resource Development in Alaska
more program money to rent equipment

UNSOLICITED PROPOSAL NO: _____ 10. PROJECT NO: _____ 11. CFOA NO: _____
PRODUCT OR SERVICE: AG3X 13. SUPPORT SERVICES: YES [] NO [X] 14. CONSULTANT AWARD: YES [] NO []
CONTROLLED DELIVERABLE: Abv 16. REPORT/DRAWING REQ: YES [X] NO [] IF YES, ATTACH DETAILS.
CLASSIFICATION OF MATERIALS/WORK: U U - UNCLASSIFIED C - CONFIDENTIAL S - SECRET T - TOP SECRET
GOVERNMENT PROPERTY: N F - FURNISHED P - PURCHASED N - NOT INVOLVED IF CODE F OR P, ATTACH DETAILS.

AWARD PLANNING
AWARD AS ORDER UNDER BIN: DE - FCO7-79ET27034 IF CODE T, _____
DESIRED AWARD DATE: 05 15 80 21. KIND OF AWARD ACTION: IP 22. TYPE OF AWARD: _____ ATTACH DETAILS.
IF MULTI-YEAR AWARD, INDICATE NUMBER OF YEARS: _____ 24. TYPE SOLICITATION INSTRUMENT: _____
EXTENT OF COMPETITION: _____ IF COMPETITIVE, ATTACH TECHNICAL EVALUATION PLAN. IF NON-COMPETITIVE, ATTACH JUSTIFICATION. REF: DOE-PR 7-3,305.51 OF 7-6,509(1).
SOURCE SELECTION PROCEDURE: 1 1 - A-E 2 - SES 3 - OTHER 4 - NONE
FOR A-E, SHOW ESTIMATED CONSTRUCTION COST IN DOLLARS: _____

IF COMPETITIVE, HAS LIST OF SOURCES BEEN ATTACHED: YES [] NO [] IF NON-COMPETITIVE, COMPLETE 28-31.
NAME: Univ of ALASKA 29. ADDRESS: C.T. Elvey Bld, Univ of ALASKA
DIVISION: Geophysical Institute FAIRBANKS, AK 99701
GOCO/LAB: A A - GOCO/LAB B - GOCO/NON-LAB C - NON-GOCO/LAB D - NOT APPLICABLE

FINANCIAL		AWARD VALUE		DOLLAR AMOUNT	
GOV'T SHARE				<u>5,000</u>	
TOTAL				<u>\$10,075</u>	
CONSIDERATION IN KIND, LOAN, OR LOAN GUARANTEE DATA REPORTED ON PR-799C:	[]				
PROJECT PERIOD: FROM	<u>05 15 80</u>	THRU	<u>03 06 81</u>		
CURRENT FY FUNDS COMMITTED					
36. B&R NUMBER	37. FUND CLASS	38. DOLLAR AMOUNT			
<u>AM510</u>	<u>F</u>	<u>5,000</u>			
FROM PR-799B (PART A)					
TOTAL THIS PR		<u>5,000</u>			
FUNDING PERIOD: FROM	<u>05 15 80</u>	THRU	<u>03 06 81</u>		
APPROPRIATION SYMBOL:					
ALLOTMENT SYMBOL:					
OBJECT CLASS:					

SEE BACK OF FORM FOR CODES

PROJECT MANAGER
45. NAME: Margaret A. Widmayer
46. SIGNATURE: Margaret A. Widmayer
47. DATE: 05 06 80 48. OFFICE CODE: _____
49. FTS TELEPHONE NUMBER: _____

PROGRAM OFFICIAL
50. NAME: R.E. Wood
51. SIGNATURE: R.E. Wood
52. DATE: 5 1 80

CERTIFYING OFFICIAL
53. NAME: F.S. SMITH
I HEREBY CERTIFY THAT THE FUNDS CITED IN ITEM 40 ARE AVAILABLE.
54. SIGNATURE: _____
55. DATE: _____

AGREEMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. AMENDMENT/MODIFICATION NO. A003
2. EFFECTIVE DATE 5/21/80
3. ACQUISITION/PURCHASE REQUEST NO.
4. PROJECT NO. (If applicable) M.2.11

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

7. CONTRACTOR NAME AND ADDRESS: Alaska Geophysical Institute
University of Alaska
Fairbanks, Alaska 99701
Attention: Donald L. Turner
8. AMENDMENT OF SOLICITATION NO.
MODIFICATION OF CONTRACT/ORDER NO. DE-FC07-79ET2703
DATED 3/7/79

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 amended, is not amended.
OFFERS 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 express letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT 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)

11. THIS BLOCK APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS
(a) This Change Order is issued pursuant to...
(b) The above numbered contract/order is modified to reflect the administrative changes (such as change in paying office, appropriation date, etc.) set forth in block 12.
(c) This Supplemental Agreement is entered into pursuant to authority of Public Law 95-91 et al.

2. DESCRIPTION OF AMENDMENT/MODIFICATION
1. Article II - DESCRIPTION OF RESPONSIBILITIES is revised to add the following task:
Task 8. Equipment will be purchased and leased in accordance with Participant's Letters dated April 10, 1980 and April 14, 1980. Title shall vest in accordance with Article XII - PROPERTY.
2. Article III - FINANCIAL SUPPORT OF THE PROJECT is revised to read as follows:
A. The total estimated cost of performing the work under this Agreement is Five Hundred Eleven Thousand Three Hundred Ninety-Four Dollars (\$511,394.00). The Participant shall be reimbursed by DOE for not more than 96.3% of the costs of the project determined to be allowable in accordance with Article A-I of the General Provisions entitled, "Allowable Costs." The remaining 3.7% or more of the costs of the project so determined shall constitute the Participant's share for which it will not be reimbursed by DOE. The total cost to DOE is hereby established as Four Hundred Ninety-Two Thousand Five Hundred Fifty-Two Dollars (\$492,552.00), and this amount is also the maximum amount of the project which is subject to reimbursement by DOE unless such maximum cost is changed in writing by the Contracting Officer.

not 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.
 CONTRACTOR/OFFEROR IS NOT REQUIRED TO SIGN THIS DOCUMENT CONTRACTOR/OFFEROR IS REQUIRED TO SIGN THIS DOCUMENT AND RETURN 3 COPIES TO ISSUING OFFICE

NAME OF CONTRACTOR/OFFEROR: H.A. Cutler / K.C.
17. UNITED STATES OF AMERICA
18. NAME OF CONTRACTING OFFICER (Type or print): Neil W. Fraser, Director
19. DATE SIGNED: 1980 05 21

B. In regard to any increase or decrease in the total estimated cost of this Agreement, as a result of any change in the original Statement of Work, as may be agreed upon by the parties during the term of this Agreement, the appropriate sharing of the funding, if any, of such increase or decrease shall be shared at the ratio of 96.3% DOE and 3.7% Participant.

C. The amount of funds obligated under this Agreement by DOE is Four Hundred Ninety-Two Thousand Five Hundred Fifty-Two Dollars (\$492,552.00). Future funding will be provided for in future years when and if available.

The estimated cost and share totals are summarized below:

	<u>U. of Alaska Share</u>	<u>DOE Share</u>	<u>Estimated Cost</u>
Orig. Contract	\$ 8,357	\$320,081	\$328,438
Inc. per Mod A001	5,410	149,271	154,681
Inc. per Mod M002	-0-	-0-	-0-
Inc. per Mod A003	<u>5,075</u>	<u>23,200</u>	<u>28,275</u>
Total	\$18,842	\$492,552	\$511,394
Percentage Share:	3.7%	96.3%	

M.2.11

RECEIVED

MAR 11 1981

GEOHERMAL ENERGY
BRANCH

MAR 9 1981

Alaska Geophysical Institute
University of Alaska
Fairbanks, Alaska 99701

ATTENTION: Donald L. Turner

SUBJECT: MODIFICATION NO. M004 TO COOPERATIVE AGREEMENT
NO. DE-FC07-79ET27034

Gentlemen:

Enclosed for your retention and files is one fully executed copy
of the subject modification.

Very truly yours,

(sgd.) William C. Drake

William C. Drake
Contracting Officer
Chief, R&D Contracts Branch
Contracts Management Division

Enclosure

bcc: E. G. Jones, w/enc.
R. L. Combs, w/enc.
M. A. Widmayer, w/enc. ✓

RECORD NOTE: No staff review as E&T concurred via PR, extension does
not cross FY's, and no-cost mod.

R&DCB
EMHyster
3-9-81

R&DCB
WCDrake

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. AMENDMENT/MODIFICATION NO. M004	2. EFFECTIVE DATE 3-6-81	3. REQUISITION/PURCHASE REQUEST NO. 07-81ET27034.502	4. PROJECT NO. (If applicable)
ISSUED BY S. Department of Energy Idaho Operations Office 200 Second Street Idaho Falls, Idaho		6. ADMINISTERED BY (If other than block 5)	

CONTRACTOR NAME AND ADDRESS Alaska Geophysical Institute University of Alaska Fairbanks, Alaska 99701 Attn: Donald L. Turner	CODE	FACILITY CODE	8. AMENDMENT OF SOLICITATION NO. DATED _____ (See block 9) MODIFICATION OF CONTRACT/ORDER NO. DE-FC07-79ET27034 DATED _____ (See block 11)
--	------	---------------	---

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.

ACCOUNTING AND APPROPRIATION DATA (If required)

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 mutual agreement of the parties.
It modifies the above numbered contract as set forth in block 12.

DESCRIPTION OF AMENDMENT/MODIFICATION

In accordance with Participant's letter of February 19, 1981, the term of the Agreement is hereby extended to April 15, 1981 with no increase in the total estimated cost of \$511,394 or the DOE share of \$492,552.

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.

<input checked="" type="checkbox"/> CONTRACTOR/OFFEROR IS NOT REQUIRED TO SIGN THIS DOCUMENT	<input type="checkbox"/> CONTRACTOR/OFFEROR IS REQUIRED TO SIGN THIS DOCUMENT AND RETURN _____ COPIES TO ISSUING OFFICE
NAME OF CONTRACTOR/OFFEROR	17. UNITED STATES OF AMERICA
(Signature of person authorized to sign)	BY <u>William C. Drake</u> (Signature of Contracting Officer)
NAME AND TITLE OF SIGNER (Type or print)	16. DATE SIGNED
	18. NAME OF CONTRACTING OFFICER (Type or print) William C. Drake
	19. DATE SIGNED 3/9/81

GEOPHYSICAL INSTITUTE

C. T. ELVEY BUILDING
UNIVERSITY OF ALASKA
FAIRBANKS, ALASKA 99701

RECEIVED

MAR 21 1980

GEOHERMAL ENERGY
BRANCH

M.2.11

March 18, 1980

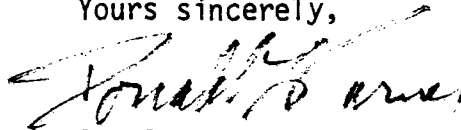
Dr. Leland Mink
U.S. Dept. of Energy
Idaho Operations Office
550 Second St.
Idaho Falls, ID 83401

Dear Roy:

As agreed upon in our recent telephone discussions, I request that Task 7 of Article II of our contract No. DE-FC07-79ET 27034, Mod. A001 be revised as follows:

Task 7. Geological and geophysical reconnaissance of the geothermal potential of the suspected regional rift system on the Seward Peninsula, including the Pilgrim Springs area. This study will include regional geology and K-Ar geochronology, location of faults, and gravity, magnetic and helium surveys. Resistivity and seismic surveys will also be conducted near Pilgrim Springs. A detailed report of the interpretations of this work will be prepared.

Yours sincerely,



Donald L. Turner
Professor of Geology

DLT:prt

cc: Eugene Wescott
Juergen Kienle
Neta Stilkey
Elizabeth Hyster

This change in scope is
APPROVED, AND WILL BE
MODIFIED BY CONTRACTS 4/15/80

STANDARD FORM 30, JULY 1966 GENERAL SERVICES ADMINISTRATION FED. PROC. REG. (41 CFR) 1-16.101		AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT		PAGE 1	OF 3
1. AMENDMENT/MODIFICATION NO. A005		2. EFFECTIVE DATE 4-15-81	3. REQUISITION/PURCHASE REQUEST NO. 07-81ET27034.501	4. PROJECT NO. (If applicable)	
5. ISSUED BY U. S. Department of Energy Idaho Operations Office 550 Second Street Idaho Falls, Idaho 83401		6. ADMINISTERED BY (If other than block 5) RECEIVED MAY 4 1981	CODE		
7. CONTRACTOR NAME AND ADDRESS Alaska Geophysical Institute University of Alaska Fairbanks, Alaska 99701 Attn: Donald L. Turner		FACILITY CODE	8. AMENDMENT OF CONTRACT SOLICITATION NO. DATED _____ (See block 9) MODIFICATION OF CONTRACT/ORDER NO. DE-FC07-79ET27034 DATED 3-7-79 (See block 11)		
9. THIS BLOCK APPLIES ONLY TO AMENDMENTS OF SOLICITATIONS <input type="checkbox"/> The above numbered solicitation is amended as set forth in block 12. The hour and date specified for receipt of Offers <input type="checkbox"/> is extended, <input type="checkbox"/> 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) B&R No.: AM15100000 Allotment: ID-14-91 Appropriation: 89X224.91					
11. THIS BLOCK APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS (a) <input type="checkbox"/> This Change Order is issued pursuant to _____ The Changes set forth in block 12 are made to the above numbered contract/order. (b) <input type="checkbox"/> 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) <input checked="" type="checkbox"/> This Supplemental Agreement is entered into pursuant to authority of <u>Public Law 95.91 et. al.</u> It modifies the above numbered contract as set forth in block 12.					
12. DESCRIPTION OF AMENDMENT/MODIFICATION 1. Article II - <u>DESCRIPTION OF RESPONSIBILITIES</u> is revised to add the following tasks: <u>Task 9.</u> The Participant will conduct a regional reconnaissance study over the Lower Susitna Basin to determine the geothermal potential of the area. <ul style="list-style-type: none"> ◦ Work will include bedrock mapping of granites in the area, location of pegmatites, and a preliminary projection of their occurrence under the basin. ◦ Analyze drill cuttings and surface samples for Uranium, Thorium, and Potassium in addition to bulk composition. ◦ Conduct a helium survey over the Lower Susitna Basin and integrate the results with the granite and pegmatite mapping studies. ◦ Run a gravity survey and construct a depth to crystalline basement map of the area. 					
-----Continued-----					
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. <input type="checkbox"/> CONTRACTOR/OFFEROR IS NOT REQUIRED TO SIGN THIS DOCUMENT <input checked="" type="checkbox"/> CONTRACTOR/OFFEROR IS REQUIRED TO SIGN THIS DOCUMENT AND RETURN 3 COPIES TO ISSUING OFFICE					
14. NAME OF CONTRACTOR/OFFEROR BY <u>H. A. Cutler</u> (Signature of person authorized to sign)			17. UNITED STATES OF AMERICA BY <u>William C. Drake</u> (Signature of Contracting Officer)		
15. NAME AND TITLE OF SIGNER (Type or print) H. A. Cutler, Chancellor, UAF		16. DATE SIGNED 4/20/81	18. NAME OF CONTRACTING OFFICER (Type or print) William C. Drake		19. DATE SIGNED 4/20/81

- Collect all available well information in the basin including performing temperature logging of all available wells.
- Publish the results of these studies in a joint report with the Alaska Division of Geological and Geophysical Surveys (DGGs) as a Geophysical Institute report.

Task 10. In conjunction with the Alaska Division of Geological and Geophysical Surveys (DGGs), the Participant will conduct geological and geophysical surveys on Akutan and Unalaska in the Eastern Aleutian Islands Region. On Akutan, this work will include geological mapping, helium and mercury soil surveys, electromagnetic profiles and resistivity depth profiles. On Unalaska, this work will include helium and mercury soil surveys, electromagnetic profiles, geologic mapping and age dating. The Participant will contribute and cooperate as needed to produce a joint report with DGGs on the results of this research. It will be the responsibility of DGGs to publish the report under a separate agreement with DOE.

Task 11. The Participant will perform reconnaissance studies in the vicinity of Manley Hot Springs. These studies will include geologic mapping, temperature data collection from any available springs and wells in the study area, a soil helium survey, and VLF resistivity and magnetic surveys. The Participant will publish the findings as a report on the geothermal potential of the study area.

Monthly, topical, and annual reports will be prepared and distributed in accordance with Article VII - PROJECT INFORMATION.

2. Article III - FINANCIAL SUPPORT OF THE PROJECT is revised to read as follows:

"A. The total estimated cost of performing the work under this Agreement is Six Hundred Eighty-Four Thousand Eight Hundred Seventy-Five Dollars (\$684,875.00). The Participant shall be reimbursed by DOE for not more than 95.2% of the costs of the project determined to be allowable in accordance with Article A-I of the General Provisions entitled "Allowable Costs." The remaining 4.8% or more of the costs of the project so determined shall constitute the Participant's share for which it will not be reimbursed by DOE. The total cost to DOE is hereby established as Six Hundred Fifty-One Thousand Nine Hundred Fifty-Two Dollars (\$651,952.00), and this amount is also the maximum amount of the project which is subject to reimbursement by DOE unless such maximum cost is changed in writing by the Contracting Officer."

The estimated cost and share totals are summarized below:

	<u>U of Alaska Share</u>	<u>DOE Share</u>	<u>Estimated Cost</u>
Original Contract	\$ 8,357	\$320,081	\$328,438
Inc. per Mod. A001	5,410	149,271	154,681
Inc. per Mod. M002	-0-	-0-	-0-
Inc. per Mod. A003	5,075	23,200	28,275
Inc. per Mod. M004	-0-	-0-	-0-
Inc. per Mod. A005	14,081	159,400	173,481
Total	<u>\$32,923</u>	<u>\$651,952</u>	<u>\$684,875</u>
Percentage Share	4.8%	95.2%	

- B. The total amount of funds obligated by DOE under this Agreement is Six Hundred Fifty-One Thousand Nine Hundred Fifty-Two Dollars (\$651,952.00). Future funding will be provided for in future years when and if available.
3. Article V - TERM OF AGREEMENT is revised to extend the term from April 15, 1981 to April 15, 1982.
 4. Article VII - PROJECT INFORMATION is revised to refer to the revised DOE Form CR-537 attached to this Modification No. A005.

REPORTING REQUIREMENTS CHECKLIST

DOE Form CR-537
(1-78)

(See Instructions on Reverse)

FORM APPROVED
OMB NO. 38R-0190

1. IDENTIFICATION University of Alaska Geothermal Resource Assessment	2. OBLIGATION INSTRUMENT: DE-FC07-79ET27034
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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 checked="" 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	 X X M	1. <input type="checkbox"/> Notice of Energy RD&D Project (SSIE) 2. <input checked="" 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	 M Y Y

FREQUENCY CODES:

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

4. SPECIAL INSTRUCTIONS

A.7. - Copies are due within fifteen days after end of the calendar month.

B.2. - Copies are due within fifteen days after end of the calendar month.

B.3. - Submit 2 copies in draft forty-five days prior to completion of the yearly term. After DOE approval is received, submit copies as required on attached "Report Distribution List."

B.4. - Submit 2 copies in draft forty-five days prior to completion date of contract term. After DOE approval is received, submit eleven copies including one camera-ready copy.

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>Elizabeth H. H. H.</i> 4-10-81	7. REVIEWED BY (Signature and date):
---	--------------------------------------



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. DE-FC07-79ET27034	Milestone Schedule & Status Report Management Plan Contract Management & Status Report Cost Plan Manpower Management Report Project Status Report Cost Management Report Manpower Management Report Conference Report Notice of Energy RD&D Project Hot Line Report Technical Progress Report Final Technical Report Topical Report Cost/Schedule Status Report Summary System Description WBS Dictionary
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Addressees	Number of Report Copies																			
M. A. Widmayer, Program Manager Resource Definition Branch U. S. Department of Energy Idaho Operations Office 550 Second Street Idaho Falls, Idaho 83401					2	2					2	2	11							
Bob Gray U. S. Department of Energy Division of Geothermal Energy, MS 3344 Federal Building 12th and Penn., N.W. Washington, DC 20461					2	2						2	2							
Duncan Foley UURI 420 Chipeta Way, Suite 120 Salt Lake City, UT 84108					1	1						1	1							

Special Instructions

UNIVERSITY OF UTAH RESEARCH INSTITUTE

UURI

EARTH SCIENCE LABORATORY
420 CHIPETA WAY, SUITE 120
SALT LAKE CITY, UTAH 84108
TELEPHONE 801-581-5283

April 14, 1982

Dr. Eugene Wescott
Geophysical Institute
University of Alaska
Fairbanks, AK 99701

Re: Completion Date and Deliverables: DOE Contract DE-FC07-79ET27034

Dear Dr. Wescott:

I am sorry you were not able to attend the Roundup Technical Conference in Salt Lake. The meeting went very well and the papers presented were generally excellent. Earth Science Laboratories will be publishing the proceedings and if you have a paper ready that you would like to publish, I would be pleased to include it in the proceedings. At any rate, I am asking all of the state teams to submit an up-dated bibliography of all geothermal RA publications which have been generated as a result of DOE contract work throughout the course of the program. I have asked that camera ready copies of papers and bibliographies be sent to my attention by April 30, 1982. My goal is to have proceedings edited and published by July 1, 1982.

During the course of the conference, contract reviews were conducted by Susan Prestwich and the state teams, with special emphasis on the status of various deliverables as stipulated in each contract. To assist in this review, I prepared summaries of each contract, listing modifications, tasks, deliverables (where such were specifically delineated) and contract completion dates. When I could find copies of reports, etc. in E.S.L. files, I indicated this on the summaries. I made no attempt to ascertain if monthly and quarterly reports had been issued as required by most contracts.

You will find enclosed a copy of the summary I prepared for your contract with notations of some deliverables that have been received and are on file at ESL. Please review this summary and let us know of any errors or omissions. Also, please indicate when you expect to finish each task and publish reports corresponding to the tasks or specific deliverables. This work is necessary so that DOE-Idaho can accurately close out each contract and assure adherence to contract requirements. If any tasks, time extensions or deliverables have been changed by verbal or letter agreements, not covered in formal modifications, it will be important for you to provide details of such changes to Susan Prestwich or me as soon as possible.

I note in your contract a termination date of April 15, 1982. If all work and deliverables have not been completed by that date, it will be advisable for you to formally request a time extension by contacting Ms. Prestwich.

Please do not hesitate to call me on (801) 581-5414 if you have any questions.

Best regards,

Carl A. Ruscetta
Technical Program Coordinator

encl.
cc. S. Prestwich
Idaho Falls, ID.

ALASKA - U. OF

COMPLETED
CONTRACT

J. Griffith
Contract No. EW-78-S-07-1720
RECEIVED
File 2.11
MAR 30 1978

CONTRACT BETWEEN
UNIVERSITY OF ALASKA
AND
THE DEPARTMENT OF ENERGY

GEOHERMAL ENERGY
BRANCH
March

THIS AGREEMENT, entered into the 17th day of March 1978 (effective as of January 1, 1978), by and between the UNITED STATES OF AMERICA (hereinafter called the "Government"), acting through the DEPARTMENT OF ENERGY (hereinafter called "DOE"), and the UNIVERSITY OF ALASKA (hereinafter called the "Contractor"), a corporation organized and existing under the laws of the State of Alaska, with its principal office at Fairbanks, Alaska;

WITNESSETH THAT:

WHEREAS, DOE desires to have the Contractor perform certain research work, as hereinafter provided; and

WHEREAS, this agreement is authorized by Section 302(c)(5) of the Federal Property and Administrative Services Act of 1949, as amended, and the Department of Energy Organization Act of 1977 (Public Law 95-91), and other applicable laws;

NOW, THEREFORE, the parties hereto agree as follows:

ARTICLE I - THE RESEARCH TO BE PERFORMED

(a) The Contractor shall, to the best of its ability, furnish personnel, facilities, equipment, materials, supplies, and services, except such as are furnished by the Government, necessary for the performance of the research provided for in Appendix A hereto, and shall perform the research and report thereon pursuant to the provisions of this contract. It is understood that Appendix A, a guide to the performance of this contract, may be deviated from by the Contractor subject to the specific requirements of this contract.

(b) This work shall be conducted under the direction of Donald L. Turner or such other member(s) of the Contractor's staff as may be mutually satisfactory to the parties.

ARTICLE II - THE PERIOD OF PERFORMANCE

The period of performance under this contract shall commence on January 1, 1978 and expire on September 30, 1978. Performance may be extended for additional periods by the mutual written agreement of the parties.

021778
br:AA-B-7

CONFORMED COPY

ARTICLE III - CONSIDERATION

(a) In full consideration of the Contractor's performance hereunder, DOE shall furnish the equipment, supplies, materials, and services, if any, listed in Article A-II(b), and pay the Contractor the sum of Seventy-Five Thousand Dollars (\$75,000.00), hereinafter called the "Support Ceiling" which sum shall be subject to adjustment as hereinafter provided.

(b) Payments to the Contractor shall equal the "Cumulative Support Cost" of the performance of this contract, as the term "Cumulative Support Cost" is defined in Article B-V; Provided, however, and notwithstanding any other provisions of this contract, that the Government's monetary liability under this contract shall not exceed the Support Ceiling specified in (a) above. DOE shall not pay more than the Support Ceiling or an amount equal to the Cumulative Support Cost, whichever is less. The Contractor shall be obligated to perform under this contract throughout the agreed-upon period of performance, and to bear all costs which DOE has not agreed to pay; Provided, however, That the Contractor shall have the right to cease to perform the research provided for in this contract, upon written notice to DOE to that effect, at any time when or after the Cumulative Support Cost equals or exceeds the Support Ceiling.

(c) The Support Ceiling specified in (a) above, may be increased unilaterally by DOE by written notice to the Contractor and may be increased or decreased by written agreement of the parties (whether or not by formal modification to this contract). In the event the stated period of contract performance is extended, the Support Ceiling may be revised to reflect any increased DOE support for the extended period or periods.

(d) Upon termination, or expiration of the total period of performance, the Contractor shall promptly refund to DOE (or make such disposition as DOE may in writing direct) any sums paid by DOE to the Contractor under this contract, through direct payment or under letter of credit, in excess of the Cumulative Support Cost incurred in performance under the contract.

ARTICLE IV - GOVERNMENT PROPERTY

The following items of property procured or fabricated by the Contractor are hereby listed as "Government property":

None

ARTICLE V - ADDITIONAL CONTRACT PROVISIONS

(a) All subcontracts and consultant agreements require the review and written approval of the Contracting Officer.

(b) Appendix B, attached hereto and made a part hereof, sets forth additional general contract provisions of this contract.

IN WITNESS WHEREOF, the parties hereto have executed this Supplemental Agreement as of the day and year first above written.

THE UNITED STATES OF AMERICA

BY THE DEPARTMENT OF ENERGY

By /s/ R. E. Simonds
R. E. Simonds, Director
Contracts and Procurement Division
Idaho Operations Office
Contracting Officer

UNIVERSITY OF ALASKA

Witnesses as to signature of Contractor:

/s/ Albert E. Belon
(Signature)

Albert E. Belon
Name (typed)

Associate Director
Geophysical Institute
(Address)

UNIVERSITY OF ALASKA, FAIRBANKS

(Signature)

Name (typed)

(Address)

By /s/ H. A. Cutler

H. A. Cutler
Name (typed)

Title Chancellor

Fairbanks, Alaska
(Business Address)

I, A.B. Frol, certify that I am the Director of Administrative Services of the Contractor named under this document, that H.A. Cutler, who signed this document on behalf of the Contractor, was then Chancellor of said Contractor; that said document was duly signed for and in behalf of said Contractor by authority of its governing body, and is within the scope of its legal powers.

IN WITNESS WHEREOF, I have hereunto affixed my hand and the seal of said Contractor this 15th day of March 1978.

/s/ A. B. Frol
A.B. Frol

(SEAL)

CONTRACTOR: UNIVERSITY OF ALASKA

APPENDIX A

For the contract period January 1, 1978 through September 30, 1978.

Article A-1 RESEARCH TO BE PERFORMED BY CONTRACTOR

(a) The scope of the work under this contract is unclassified, and the Contractor under this contract with the Department of Energy will perform research consisting of the following in accordance with the Contractor's Proposal No. GI 78-52, dated January 1978, incorporated herein by reference:

The Contractor shall assemble data describing low- and moderate-temperature resources in the State of Alaska from existing U.S.G.S., University of Alaska, Alaska Division of Geological and Geophysical Surveys, and Alaska Division of Oil and Gas reports and well log files; as well as from petroleum company sources, unpublished Geophysical Institute work and other geothermal data sources. Relevant Geophysical Institute geochronologic laboratory studies which have already been initiated, but are not complete due to lack of funding, shall also be completed and the results incorporated into the data base. The data shall be published in a report designed for the use of energy planners, energy companies and potential users of non-electric geothermal energy.

(b) The scope of work shall include such other studies, investigations, and services as may be mutually agreed upon.

Article A-II - WAYS AND MEANS OF PERFORMANCE

(a) Items for which support will be provided as indicated in Article A-III:

Salaries

Principal Investigator, D. Turner, Assoc.	\$14,148
Prof. of Geology (4 mo. at \$3,537)	
Prof. Lab Technician (4 mo. at \$2,296)	9,184
Laboratory Assistant (3 mo. at \$1,178)	3,534
Electronics Tech. (1 mo. at \$2,130)	2,130
Student Assistant (2 mo. at \$1,178)	2,356
Draftsman (1/2 mo. at \$2,058)	1,029
Labor for preparation of reports and publications (1 mo. at \$1,777)	<u>1,777</u>

Subtotal \$ 34,158

Article A-II WAYS AND MEANS OF PERFORMANCE (Cont'd)

Salaries (Cont'd)

10% salary increment	3,416
Reserve for annual leave 12%	4,509
Holiday and sick leave 9.5%	<u>3,570</u>
Total Salaries	\$ 45,653

Staff Benefits

Hospitalization, Social Security, Retirement 12% of total salaries	5,478
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Overhead

57.9% of total salaries	26,433
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Laboratory Supplies

Liquid nitrogen, heavy liquids for mineral separations, ultra-high vacuum valves, and other miscellaneous expenables	6,820
---	-------

Travel

1 round trip (Turner) to Miami for Spring AGU meeting, including 7 days sub- sistence at \$30/day	926
1 round trip, Lopez-Menlo Park, CA. (Forbes) including 5 days subsistence at \$30/day	364
1 round trip (Turner) Fairbanks - Lopez, - Menlo Park, CA., including 5 days at \$30/day	630
1 round trip (Turner) Fairbanks - Idaho Falls - Menlo Park, CA., including 7 days at \$30/day	707
2 round trips (Forbes) Lopez - Fairbanks, including 5 days subsistence each at \$30/day	912
4 round trips, Fairbanks - Anchorage, including 5 days subsistence each at \$30/day	<u>988</u>
Total Travel	\$ 4,527

Article A-II - WAYS AND MEANS OF PERFORMANCE (Cont'd)

Other Direct Costs

Co-Principal Investigator/Consultant, R. Forbes (2 mo. at \$4,393/mo.)	\$ 8,786
Communications	800
Freight	453
Xeroxing	450
Computer usage	<u>600</u>

Other Direct Costs \$ 11,089

TOTAL \$100,000

(b) Items, if any, significant to the performance of this contract, but excluded from computation of Support Cost and from consideration in proportioning costs:

None

(c) Time or effort of Principal Investigator(s) including indirect cost and fringe benefits contributed by the Contractor but excluded from computation of Support Cost and consideration in proportioning costs:

None

Article A-III - FUNDING

The total estimated cost to DOE for the performance of all work under Article A-II is \$100,000.00. An amount of \$75,000.00 is hereby obligated for the period from January 1, 1978 through September 30, 1978 to start the work. The balance of \$25,000.00 will be obligated when and if funds are available. The Contractor shall perform the research set forth under Article A-I until 90% of the \$75,000.00 is obligated. At that time if the balance of \$25,000.00 has not been authorized, the Contractor shall discontinue work and notify DOE that work has been stopped until additional funds are authorized. If the balance of \$25,000.00 will not be authorized, DOE will notify the Contractor in writing within 30 days, and at that time the Contractor shall submit a final report for the work that has been performed. DOE will pay 100% of the actual costs enumerated in Article A-II subject to the provisions contained in this article, Article III, and Article B-V.

Article A-IV - ADMINISTRATION AND REPORTS

(a) Principal Investigator - Donald L. Turner

DOE Technical Administrator - John L. Griffith
Energy and Technology Division
Idaho Operations Office

Article A-IV - ADMINISTRATION AND REPORTS (Cont'd)

The Principal Investigator shall direct the work as outlined in discussions and in periodic letters from the Technical Administrator.

(b) The Principal Investigator shall prepare and submit reports to the Technical Administrator as follows:

1. General - General reporting requirements for DOE/DGE contractors are presented in ERDA-76-72, "Requirements and Procedures for Reporting Geothermal Information", dated July 1976. Reports should be prepared for this contract as follows:

	<u>Frequency</u>	<u>Draft to Technical Administrator for Concurrence</u>	<u>Distribution Technical Administrator</u>	<u>TIC</u>
Administrative Letter Report		N/A	10	N/A
Technical Progress Report		3 weeks after end of reporting period	10	N/A
Final Report	Completion of contract effort	3 weeks after end of reporting period	10	1 camera-ready copy

2. Reports

The following will apply to all technical progress reports, topical reports and final reports:

- (a) The cover page will be supplied by DOE unless the Contractor intends to use its corporate cover.
- (b) Reports under this contract will all carry the number prescribed by the Program Manager. Report numbers will be assigned sequentially.
- (c) The distribution category for reports prepared under this contract will be UC-66A as defined on page 16 of ERDA-76/72.

Article A-IV - ADMINISTRATION AND REPORTS (Cont'd)

3. Content of Reports

Administrative Letter Reports -- Progress memo to Technical Administrator on personnel and fiscal matters, including such information as rate of expenditures, equipment ordering availability-receipt, loss of gain of personnel, etc.

Technical Progress Reports -- Full account of progress, problems encountered, plans for future reporting periods, and an assessment of prospects for future progress, identifying clearly all facts with both positive and negative impact on expectations for completely achieving task objectives on schedule and within contract funds, should include, as appropriate, accounts of activities aimed at utilization of task results.

Final Report -- The report shall emphasize the known geographic distribution and the geologic, geochemical, geochronologic and geophysical data for the resources which appear suitable for direct heat applications.

The report shall include a map of the State of Alaska showing the geographic distribution of these resources. Specific items to be included on the map are: population centers, thermal springs, granitic plutons, Tertiary and younger volcanic fields, sedimentary basins having potential for geopressured reservoirs and wells in which hydrothermal fluids were encountered during petroleum exploration. Temperature and radiometric age data shall be shown in the cases where the appropriate data are available.

The report shall also identify candidate sites for reservoir confirmation activities to be carried out in Phase Two, as well as sites for which basic geothermal data are lacking. Pertinent data from the report will be turned over the U. S. Geological Survey for incorporation into the U.S.G.S. Geotherm Data Base.

M. Widmayer
EIT
file 472.11

MAY 23 1978

RECEIVED

MAY 23 1978

GEOTHERMAL ENERGY
BRANCH

University of Alaska
Geophysical Institute
C. T. Elvey Building
Fairbanks, Alaska 99701

Attention: Donald L. Turner, Associate Professor of Geology

Subject: CONTRACT NO. EW-78-S-07-1720

Gentlemen:

The "Support Ceiling" set forth in paragraph (a) of Article III - Consideration, is hereby increased from \$75,000.00 to \$100,000.00, and the amount obligated under Article A-III - Funding of Appendix A is also increased from \$75,000.00 to \$100,000.00.

Very truly yours,

Original Signed By
R. E. Simonds

R. E. Simonds, Director
Contracts and Procurement Division

C&P

bcc: E. G. Jones
M. A. Widmayer ✓
Mary Parks
Ruth Nelson

CPC
JOLee:mh
WCKendall
5/19/78

P&B
AEHymer

FM
EGJones

C&P
RESimonds

Maggie J. Griffith
EIT GEB

U. S. DEPARTMENT OF ENERGY
IDAHO OPERATIONS OFFICE

REFERENCE:
IDM 1301

FUND REQUIREMENTS AND IDENTIFICATION OF OBLIGATION

1720 FR 2
(ACTION NO.)

EW-78-S-07-1720
CONTRACT OR PURCHASE ORDER NUMBER _____ MODIFICATION NUMBER R.E. Simonds Letter
NAME OF CONTRACTOR OR VENDOR UNIVERSITY OF ALASKA
TYPE OF CONTRACT (COST - TYPE OR LUMP - SUM) SRSA

BUDGET PROJECT NO.	SUB - PROJECT TITLE	PA&D	OBLIGATIONS		
			PREVIOUS	THIS ACTION	REVISED
UNAFECTED ITEMS PLANT	XXX	XXX		XXX	
UNAFECTED ITEMS CAPITAL EQUIP.	XXX	XXX		XXX	
UNAFECTED ITEMS OPERATIONS	XXX	XXX		XXX	
UNAFECTED ITEMS PROC. DIRECTIVES	XXX	XXX		XXX	

AE 02 02 00 (I-285) Assessment of Low
Temperature Geothermal Energy Resources
for Alaska 75,000 25,000 100,000

- cc: E. Jones
- D. Lewis
- M. Parks
- J. Griffith ✓
- J. Lee
- D. Bell

RECEIVED
MAY 25 1978
GEOLOGICAL ENGINEERING
BRANCH

BUDGET CLEARANCE _____
DATE 5-22-78 _____

U.S. ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION
PROCUREMENT REQUEST

*Please Type

(See Instructions on Reverse of Last Sheet)

<p>1. TO: Procurement Office</p> <p>Contracts Management Div.</p> <p>DOE-ID</p>	<p>2. From</p> <p style="text-align: center;">Office of Geothermal Energy</p> <p>Activity Title:</p> <p>Division: Energy & Technology Div.</p> <p>Project:</p>	<p>3. Procurement Request Number</p> <p style="text-align: center;">- -</p>
---	--	---

<p>4. <input type="checkbox"/> Contract</p> <p><input type="checkbox"/> Grant</p> <p><input type="checkbox"/> Special Research Support Agreement (SRSA)</p> <p><input type="checkbox"/> Other</p>	<p><input checked="" type="checkbox"/> Modification of <u>EW-78-S-07-1720</u> Contract Number</p> <p><input type="checkbox"/> Change Order</p> <p><input type="checkbox"/> Supplemental Agreement</p>	<p>5. Priority Rating (Ref. FPR 1-1.311)</p> <p style="text-align: center;">Routine</p>	<p>6. Desired Award Date</p> <p style="text-align: center;"><u>07/31/78</u></p>	<p>7. Security Classification (ERDAM APP 3401)</p> <p><input checked="" type="checkbox"/> Unclass. <input type="checkbox"/> Secret</p> <p><input type="checkbox"/> Conf. <input type="checkbox"/> Top Secret</p>
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8. SERVICES, ARTICLES, MODIFICATIONS OR OTHER ACTION REQUIRED

TITLE Dr. Donald L. Turner, Geophysical Institute, Univ. of Alaska, Fairbanks, Alaska

a. Item No.	b. Brief Description (As required, attach detailed Statement of work, including place(s) and time(s) of delivery(ies) or Schedule of work. State basis for estimated cost or price. Include detailed cost estimate, if available.)	c. Quantity	d. Estimated Cost or Price
1.	Data compilation and resource assessment work for state wide geothermal assessment program		\$15,000
2.	Investigate recent igneous activity and its geothermal implication near Fairbanks Alaska as part of the Alaskan Low Temperature Geothermal Assessment.		\$10,000

e. TOTAL ESTIMATED AMOUNT OF THIS ACTION \$ 25,000.00

<p>9. Competitive Procurement Non-Competitive Procurement <input type="checkbox"/></p> <p><input checked="" type="checkbox"/></p> <p>If competitive, attach technical evaluation plan. If non-competitive, attach justification. Ref.: FPR 1-3.101(d) & ERDA-PR 9-55.2</p>	<p>10. Is Source Evaluation Board Required?</p> <p><input type="checkbox"/> YES</p> <p><input checked="" type="checkbox"/> NO</p> <p>Ref.: ERDA Source Evaluation and Selection Handbook</p>	<p>11. Procurement Request Resulting From Unsolicited Proposal</p> <p>If yes, attach copy of proposal and determination Ref.: ERDA-PR 9-4.52 and 9-4.51</p> <p><input type="checkbox"/> YES</p> <p><input checked="" type="checkbox"/> NO</p> <p>UNSOLICITED PROPOSAL NUMBER</p>
--	--	--

<p>12. Cost Sharing Contract</p> <p><input type="checkbox"/> YES</p> <p><input checked="" type="checkbox"/> NO</p> <p>If yes, attach details of cost sharing. Ref.: ERDA-PR 9-4.56</p>	<p>13. Government Furnished Equipment and Facilities Required?</p> <p><input type="checkbox"/> YES</p> <p><input checked="" type="checkbox"/> NO</p> <p>If yes, attach details of requirements.</p>	<p>14. Recommended Source(s)</p> <p>Attach name(s) and address(es) of source(s).</p>
--	---	--

<p>15. Report and Drawings Requirements</p> <p><input checked="" type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>If yes, attach details of requirements.</p>	<p>16. Budget Activity Program, Subprogram, and Activity (ERDAM Appendix 1101, Part II)</p> <p style="text-align: center;"><u>AE 02 02 00</u></p> <p style="text-align: center;">I-285</p> <p style="text-align: right;">\$ <u>125,000.00</u></p> <p style="text-align: right;">Amount of Funds Authorized</p>
--	--

<p>17. Requestor (Typed name, title, location, telephone number, date)</p> <p>Leland L. Mink, Resource Engr., DOE-ID; <u>6-0087; 7/25/78</u></p> <p style="text-align: center;">(Name)</p> <p style="text-align: center;"><i>Leland L. Mink</i> (Signature)</p>	<p>19. Certifying Official (Typed name, title, location, telephone number, date)</p> <p style="text-align: center;"><u> </u> (Date)</p> <p>I hereby certify that funds in the amount here stated are available for such purposes under allotment.</p>
---	--

<p>18. Authorizing Program Official (Typed name, title, location, telephone number, date)</p> <p>Richard E. Wood, Director, Energy & Tech. Div. DOE-ID; 6-1432; 7/25/78</p> <p style="text-align: center;"><u> </u> (Signature)</p>	<p>No. <u> </u></p> <p style="text-align: center;"><u> </u> (Signature)</p>
--	---

Mod 1 - 1720 .

J. Griffith

RECEIVED

SEP 11 1978

GEOHERMAL ENERGY
BRANCH

September 8, 1978

University of Alaska
Geophysical Institute
C. T. Elvey Building
Fairbanks, Alaska 99701

Attention: Donald L. Turner, Associate Professor of Geology

Subject: MODIFICATION NO. A001 - CONTRACT NO. EW-78-S-07-1720

Gentlemen:

We are enclosing four copies of the above-subject modification to your contract. If satisfactory to you, please have three copies signed by an authorized official, have this signature witnessed by two persons, and affix your legal seal. These three signed copies should then be returned to this office for signature by the Contracting Officer (at which time the "entered into date" will be filled in). The fourth copy is for your files pending receipt from this office of one fully executed copy.

Very truly yours,

/s/ K. R. Hastings

K. R. Hastings, Acting Chief
Contract Negotiation Branch
Contracts Management Division

CM

Enclosures:
Modification No. A001 (4)

bcc: J. L. Griffith, w/encl.

CAB
JOLee:mh
JPAnderson
9/8/78

CNB
KRHastings

SUPPLEMENTAL AGREEMENT

THIS SUPPLEMENTAL AGREEMENT, entered into the _____ day of _____ 1978, by and between the UNITED STATES OF AMERICA (hereinafter called the "Government"), acting through the DEPARTMENT OF ENERGY (hereinafter called "DOE") and the UNIVERSITY OF ALASKA (hereinafter called the "Contractor"), a corporation organized and existing under the laws of the State of Alaska with its principal office at Fairbanks, Alaska;

WITNESSETH THAT:

WHEREAS, on March 17, 1978, effective as of the 1st day of January 1978, the Government and the Contractor entered into Contract No. EW-78-S-07-1720 for the Contractor to perform certain research work; and

WHEREAS, sufficient funds were not authorized under Appendix A of the original contract; and

WHEREAS, the parties desire to modify said contract as hereinafter provided by adding additional funds to complete the work under Appendix A and to add a new scope of work included under Appendix A1; and

WHEREAS, DOE certifies that this Supplemental Agreement is authorized by and executed under Section 302(c)(5) of the Federal Property and Administrative Services Act of 1949, as amended, and the Department of Energy Organization Act of 1977 (Public Law 95-91), and other applicable laws;

NOW, THEREFORE, said contract is hereby amended as follows:

- A. ARTICLE I, "THE RESEARCH TO BE PERFORMED," is amended by adding a new paragraph as follows:

"Appendix A1, attached to this Supplemental Agreement and made a part hereof, provides for the research to be performed by the Contractor during the contract period specified therein."

- B. ARTICLE II, "THE PERIOD OF PERFORMANCE," is amended as follows:

"The period of performance for the work performed under this Supplemental Agreement shall commence on September 1, 1978 and expire on December 31, 1978. The period of time for performing the research work under Appendix A1 may be extended for additional periods by the mutual written agreement of the parties."

- C. ARTICLE III, "CONSIDERATION", paragraph (a), is hereby revised to increase the contract Support Ceiling to a total of One Hundred Twenty-Five Thousand Dollars (\$125,000.00) (this includes \$75,000.00 obligated by the original contract, \$25,000.00 obligated by letter dated May 23, 1978, and \$25,000.00 obligated by this Modification No. A001).
- D. ARTICLE A-II, "WAYS AND MEANS OF PERFORMANCE", of Appendix A to original contract, is amended to add paragraph (d) for the following additional funding for the original scope of work.

- (d) Items for which support may be provided as indicated in Article A-III:

Salaries

Principal Investigator, Donald L. Turner,		
Assoc. Prof. of Geology, 1 mo. @\$3,659	\$3,659	
Student Assistant, 3-1/2 mo. @ \$1,031	<u>3,608</u>	
Subtotal	7,267	
Reserve for annual leave 12%	872	
Holiday and sick leave 9.5%	<u>690</u>	
Total Salaries		\$8,829

Staff Benefits

Hospitalization, Social Security, Retirement		
12% of total salaries		1,059

Overhead

57.9% of total salaries		<u>5,112</u>
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TOTAL BUDGET		<u>\$15,000</u>
--------------	--	-----------------

Except only to the extent modified by this Supplemental Agreement or to the extent rendered inconsistent herewith, all of the terms and provisions of said Contract No. EW-78-S-07-1720 shall remain unchanged and continue in full force and effect.

Modification No. A001 (Cont'd)
Supplemental Agreement to
Contract No. EW-78-S-07-1720

IN WITNESS WHEREOF, the parties hereto have executed this Supplemental Agreement as of the day and year first above written.

THE UNITED STATES OF AMERICA
BY THE DEPARTMENT OF ENERGY

By _____

Contracts Management Division
Idaho Operations Office
Contracting Officer

UNIVERSITY OF ALASKA

Witnesses as to signature of
Contractor:

By _____

(Signature)

Name (typed)

Name (typed)

Title

(Address)

(Business Address)

(Signature)

Name (typed)

(Address)

Modification No. A001 (Cont'd)
Supplemental Agreement to
Contract No. EW-78-S-07-1720

I, _____, certify that I am the _____
_____ of the Contractor named under this document, that
_____, who signed this document on
behalf of the Contractor, was then _____
of said Contractor; that said document was duly signed for and in behalf of
said Contractor by authority of its governing body, and is within the scope
of its legal powers.

IN WITNESS WHEREOF, I have hereunto affixed my hand and the seal of
said Contractor this _____ day of _____ 1978.

(SEAL)

CONTRACTOR: UNIVERSITY OF ALASKA

APPENDIX A1

For the Contract Period September 1, 1978 through December 31, 1978.

Article A-I RESEARCH TO BE PERFORMED BY CONTRACTOR

(a) The scope of the work under this contract is unclassified, and the Contractor under this contract with the Department of Energy will evaluate three igneous bodies aligned in a northeast-southwest line extending 23 miles into central Alaska to determine the geologic history and if they possess value as geothermal resources. The three areas are: Sugar Loaf Mountain at 45 N. lat. 148 18 long., Jumbo Dome at 45 28 N. lat. 148 38 long., and two volcanic cinder cones at 64 3 N lat. 147 24 long.

The evaluation process shall include the following work:

The first stage will be an examination of the area by remote sensing data. This will include: (1) recent low level air photos (available); (2) LANDSAT image coverage (available); and (3) Infra-red coverage (which began in Spring 1978).

The next step of the project will be a low level air reconnaissance of the area by fixed wing aircraft to locate suitable exposures, etc. This will be followed by a field check of the areas of interest by whatever transportation is available.

This reconnaissance of the whole area will be followed by detailed mapping and sampling of the three domes. Particular attention will be paid to obtaining samples for dating studies, because if the intrusives are as young as they appear, they may indicate a relatively shallow high temperature source suitable for geothermal exploitation. The two dating techniques available at the University of Alaska are K-Ar and Carbon-14.

The three known occurrences, with any new occurrences, will be re-mapped and interpreted in terms of regional geology and tectonic history.

(b) The scope of work shall include such other studies, investigations, and services as may be mutually agreed upon.

Article A-II WAYS AND MEANS OF PERFORMANCE

(a) Items for which support will be provided as indicated in Article A-III:

081678

Article A-II WAYS AND MEANS OF PERFORMANCE (Cont'd)

Budget

Fixed wing aircraft: 3 hrs @ \$40/hr	\$ 120.00
Helicopter: 2 hrs @ \$350/hr	700.00
C-14 dating - 6 samples @ \$333 ea	2,000.00
Auto travel: 400 mi @ 25¢/mi.	100.00
Field food for geologist and field assistant	400.00
Misc. field equipment (tent, etc.)	300.00
Photography, drafting materials, etc.	226.00
Intra-red and LANDSAT Imagery	100.00
Rock thin sections and chemical analyses	1,200.00
Stipend for field assistant	800.00
Stipend for M. Ross: 6 mos 1/2 time @ \$1178/mo	3,534.00
Staff benefits: 12% of above stipends	<u>520.00</u>
TOTAL	<u>\$10,000.00</u>

(b) Items, if any, significant to the performance of this contract, but excluded from computation of Support Cost and from consideration in proportioning costs:

None

(c) Time or effort of Principal Investigator(s) including indirect costs and fringe benefits contributed by the Contractor but excluded from computation of Support Cost and consideration in proportioning costs:

None

Article A-III - FUNDING

The total estimated cost of items under A-II(a) above, for the contract period stated in this Appendix A1 is \$10,000.00, DOE will pay 100% of the actual costs of these items incurred during the contract period stated in this Appendix A1, subject to the provisions of Article III and Article B-V. The estimated DOE Support Cost for the contract period stated in this Appendix is \$10,000.00.

The estimated DOE Support Cost is funded as follows:

(a) Estimated unexpended balance from prior period(s)	\$ <u>-0-</u>
(b) New funds for the current period	\$ <u>10,000.00</u>

Article A-IV - ADMINISTRATION AND REPORTS

- (a) Principal Investigator - Mary D. Ross under Direction
of Dr. D. L. Turner

DOE Technical Administrator - Leroy Mink, RDB
Department of Energy, ID
550 Second Street
Idaho Falls, ID 83401

The Principal Investigator shall direct the work as outlined in discussions and in periodic letters from the Technical Administrator.

- (b) The Principal Investigator shall prepare and submit 10 copies and one camera ready copy of a final report to the Technical Administrator which shall include the following:

- (1) Description of the volcanic cones and shallow intrusives in the area, including a search for additional occurrences and confirmation of rejection of the NE-SW trend as a genetically significant feature;
- (2) description of their compositions and petrology including chemical analyses;
- (3) determination of their ages;
- (4) interpretation of the origin of the bodies and their relationship to regional tectonics and geologic history;
- and (5) to determine whether there are any practical applications. These could include possible upgrading of tertiary coal beds in the area, and the potential for geothermal energy resources;
- (6) a detailed map of the area.

MOD 002 - 1720

C. I. 112

RECEIVED

OCT 1 1978

U.S. DEPARTMENT OF ENERGY

September 27, 1978

University of Alaska
Geophysical Institute
C. T. Elvey Building
Fairbanks, Alaska 99701

Attention: Donald L. Turner, Associate Professor of Geology

Subject: MODIFICATION NO. A002 - CONTRACT NO. EW-78-S-07-1720

Gentlemen:

We are enclosing three copies of the subject modification which have been signed on behalf of DOE. If satisfactory to you, please have the three copies signed by an authorized official of the University, have this signature witnessed by two persons, affix your legal seal, and return two fully executed copies to this office. The third fully executed copy is for your retention.

Very truly yours,

R. E. Simonds, for

R. E. Simonds, Director
Contracts Management Division

CM

Enclosures:
Modification No. A002 (3)

bcc: J. L. Griffith, w/encl.

CAB
JOLee:mh
JPAnderson
9/27/78

CM
RESimonds

Modification No. A002
Supplemental Agreement to
Contract No. EW-78-S-07-1720

SUPPLEMENTAL AGREEMENT

THIS SUPPLEMENTAL AGREEMENT, entered into the 27th day of September 1978, by and between the UNITED STATES OF AMERICA (hereinafter called the "Government"), acting through the DEPARTMENT OF ENERGY (hereinafter called "DOE") and the UNIVERSITY OF ALASKA (hereinafter called the "Contractor"), a corporation organized and existing under the laws of the State of Alaska with its principal office at Fairbanks, Alaska;

WITNESSETH THAT:

WHEREAS, on March 17, 1978, effective as of the 1st day of January 1978, the Government and the Contractor entered into Contract No. EW-78-S-07-1720 for the Contractor to perform certain research work; and

WHEREAS, said contract has been amended by Modification No. A001; and

WHEREAS, the parties desire to further modify said contract as herein-after provided; and

WHEREAS, DOE certifies that this Supplemental Agreement is authorized by and executed under Section 302(c)(5) of the Federal Property and Administrative Services Act of 1949, as amended, and the Department of Energy Organization Act of 1977 (Public Law 95-91), and other applicable laws;

NOW, THEREFORE, said contract is hereby amended as follows:

- A. ARTICLE I, "THE RESEARCH TO BE PERFORMED," is amended by adding a new paragraph as follows:

"Appendix A2, attached to this Supplemental Agreement and made a part hereof, provides for the research to be performed by the Contractor during the contract period specified therein."

- B. ARTICLE II, "THE PERIOD OF PERFORMANCE," is amended as follows:

"The period of performance for the work performed under this Supplemental Agreement shall commence on October 1, 1978 and expire on June 30, 1979. The period of time for performing the research work under Appendix A2 may be extended for additional periods by the mutual written agreement of the parties."

C. ARTICLE III, "CONSIDERATION", paragraph (a), is hereby revised to increase the contract Support Ceiling to a total of One Hundred Seventy Thousand Dollars (\$170,000.00) (this includes \$75,000.00 obligated by the original contract, \$25,000.00 obligated by letter dated May 23, 1978, \$25,000.00 obligated by Modification No. A001 and \$45,000.00 obligated by this Modification No. A002).

Except only to the extent modified by this Supplemental Agreement or to the extent rendered inconsistent herewith, all of the terms and provisions of said Contract No. EW-78-S-07-1720, as previously amended, shall remain unchanged and continue in full force and effect.

IN WITNESS WHEREOF, the parties hereto have executed this Supplemental Agreement as of the day and year first above written.

THE UNITED STATES OF AMERICA

BY THE DEPARTMENT OF ENERGY

By /s/ J. F. Marmo
J. F. Marmo, Chief, Procurement Branch
Contracts Management Division
Idaho Operations Office
Contracting Officer

UNIVERSITY OF ALASKA

Witnesses as to signature of
Contractor:

(Signature)

Name (typed)

(Address)

(Signature)

Name (typed)

(Address)

By _____

Name (typed)

Title _____

(Business Address)

Modification No. A002 (Cont'd)
Supplemental Agreement to
Contract No. EW-78-S-07-1720

I, _____, certify that I am the _____
_____ of the Contractor named under this document, that
_____, who signed this document on
behalf of the Contractor, was then _____
of said Contractor; that said document was duly signed for and in behalf of
said Contractor by authority of its governing body, and is within the scope
of its legal powers.

(SEAL)

CONTRACTOR: UNIVERSITY OF ALASKA

APPENDIX A2

For the Contract Period October 1, 1978 through June 30, 1979.

Article A-I RESEARCH TO BE PERFORMED BY CONTRACTOR

(a) The scope of the work under this contract is unclassified, and the Contractor under this contract with the Department of Energy will perform the following:

Aerial photographs will be made during the spring of 1979 or sooner for the summit and northeast flank of Mt. Wrangell, Alaska. Photogrammetric maps and digital cross sections of stereographic models will be prepared from the aerial photography. All necessary ground control stations will be established in the summit and northeast flank areas. A final report will be prepared for incorporation into the geothermal data base for Alaska.

This project will be coordinated with all related projects in the Mt. Wrangell Caldera which are being funded by the National Science Foundation and the U. S. Geological Survey. These tasks are to be an integral part of the overall study of the Mt. Wrangell Caldera, Alaska.

Task 1. Collection of aerial photogrammetry data.

Task 2. Establishing ground control network.

Task 3. Preparation of a report on this phase of the Mt. Wrangell Caldera Project.

(b) The scope of work shall include such other studies, investigations, and services as may be mutually agreed upon.

Article A-II WAYS AND MEANS OF PERFORMANCE

(a) Items for which support may be provided as indicated in Article A-III, below:

Salaries

Principal Investigator, C. Benson, Prof. of Geophysics and Geology, 1 mo. @ \$4,485	\$ 4,485	
Research Assistant, 6 mo. @ \$1,376	8,256	
Research Assistant, 1-1/2 mo. @ \$1,653	2,480	
Field Assistant, 6 weeks @ \$294/wk.	1,764	
Subtotal		\$16,985

10% salary increment FY 79	\$ 1,699
Subtotal	18,684
Reserve for annual leave 12% of \$6,875	825
Holiday and sick leave 9.5% of \$6,875	654
Total Salaries	<u>\$20,163</u>

Staff Benefits

Hospitalization, Social Security, Retirement 12% of total salaries	2,420
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Overhead

57.9% of \$8,353	4,837
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Other Costs

Charter flying	\$ 8,000
Photogrammetry	6,000
Field expenses	2,080
Field subsistence, 100 man-days @ \$10/day	1,000
Local truck transportation, 2000 miles @ \$.25 mile	<u>500</u>
	<u>\$17,580</u>

Total Costs	<u>\$45,000</u>
-------------	-----------------

(b) Items, if any, significant to the performance of this contract, but excluded from computation of Support Cost and from consideration in proportioning costs:

None

(c) Time or effort of Principal Investigator(s) including indirect costs and fringe benefits contributed by the Contractor but excluded from computation of Support Cost and consideration in proportioning costs:

None

Article A-III - FUNDING

The total estimated cost of items under A-II(a) above, for the contract period stated in this Appendix A2 is \$45,000.00; DOE will pay 100% of the actual costs of these items incurred during the contract period stated in this Appendix A2, subject to the provisions of Article III and Article B-V. The estimated DOE Support Cost for the contract period stated in this Appendix is \$45,000.00.

Article A-III - FUNDING

The estimated DOE Support Cost is funded as follows:

- (a) Estimated unexpended balance from prior period(s) \$ -0-
- (b) New funds for the current period \$ 45,000.00

Article A-IV - ADMINISTRATION AND REPORTS

- (a) Principal Investigator - Dr. D. L. Turner
 Co-Principal Investigator - Carl S. Benson

DOE Technical Administrator - Clayton Nichols
 Department of Energy, ID
 550 Second Street
 Idaho Falls, ID 83401

The Principal Investigator shall direct the work as outlined in discussions and in periodic letters from the Technical Administrator.

- (b) The Principal Investigator shall prepare and submit reports to the Technical Administrator as follows:

	<u>Frequency</u>	<u>Draft to Technical Administrator for Concurrence</u>	<u>Distribution</u>	
			<u>Technical Administrator</u>	<u>TIC</u>
Contract Management Summary Report	Quarterly	N/A	10	N/A
Technical Progress Report	Quarterly	N/A	10	N/A
Hot Line Report	As required	N/A	10	N/A
Final Report	Completion of contract	3 weeks after end of report period	10	1 camera Ready Copy

(c) Content of Reports

- (1) Contract Management Summary Report - A single-page graphic presentation of integrated costs, major milestones, and manpower for rapid visual analysis and trend forecasting.

Article A-IV - ADMINISTRATION AND REPORTS (Cont'd)

(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 during conduct of and/or at project completion.

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

(4) Final Technical Report - Very comprehensive report outlining objectives, accomplishments, problems encountered, and steps taken to overcome problems.

file M. 2. 11

1. AMENDMENT/MODIFICATION NO. M003	2. EFFECTIVE DATE 6/30/79	3. REQUISITION/PURCHASE REQUEST NO.	4. PROJECT NO. (If applicable)
---------------------------------------	------------------------------	-------------------------------------	--------------------------------

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

7. CONTRACTOR NAME AND ADDRESS <i>(Street, city, county, state, and ZIP Code)</i> University of Alaska Geophysical Institute C. T. Elvey Bldg. Fairbanks, Alaska 99701 Attn: Donald L. Turner, Assoc. Professor of Geology	8. AMENDMENT OF SOLICITATION NO. _____ DATED _____ (See block 9) MODIFICATION OF CONTRACT/ORDER NO. <u>DE-AS07-78ID01720</u> (formerly No. EW-78-S-07-1720) DATED <u>3/7/78</u> (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.

Offers 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 ACKNOWLEDGMENT 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)

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 Public Law 95-91.
It modifies the above numbered contract as set forth in block 12.

12. DESCRIPTION OF AMENDMENT/MODIFICATION

As requested in Donald L. Turner's letter dated May 30, 1979, the period of performance under appendices A and A1 is hereby extended from June 30, 1979 to September 30, 1979.

RECEIVED
JUN 14 1979
GEOTHERMAL ENERGY
BRANCH

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 _____ COPIES TO ISSUING OFFICE

14. NAME OF CONTRACTOR/OFFEROR BY _____ <small>(Signature of person authorized to sign)</small>	17. UNITED STATES OF AMERICA BY <u>J. P. Anderson</u> <small>(Signature of Contracting Officer)</small>
---	---

15. NAME AND TITLE OF SIGNER (Type or print)	16. DATE SIGNED	18. NAME OF CONTRACTING OFFICER (Type or print) J. P. Anderson, Chief Contract Adm. Br., CMD	19. DATE SIGNED 6-14-79
--	-----------------	--	----------------------------

U. S. DEPARTMENT OF ENERGY

PROCUREMENT/FINANCIAL ASSISTANCE REQUEST-AUTHORIZATION

1. TO Lars D. Anderson, chief CONTRACTS NEGOTIATION BRANCH

2. FROM INITIATING OFFICE R.E. Wood, DIRECTOR, ENERGY TECHNOLOGY DIVISION

3. INITIAL: [X] UPDATE: [] 4. PROCUREMENT: [] FINANCIAL ASSISTANCE: []
5. PR NUMBER: _____ 6. PR CORRECTION LETTER: _____ 7. RELATED PR NUMBER: _____

ACTION IDENTIFICATION

8. TITLE: Assessment of Low Temperature Geothermal Energy Resources for Alaska

9. UNSOLICITED PROPOSAL NO: _____ 10. PROJECT NO: _____ 11. CPOA NO: _____
12. PRODUCT OR SERVICE: AG3 13. SUPPORT SERVICES: YES [] NO [X] 14. CONSULTANT AWARD: YES [] NO [X]
15. CONTROLLED DELIVERABLE: AGY 16. REPORT/DRAWING REQ: YES [] NO [X] IF YES, ATTACH DETAILS.
17. CLASSIFICATION OF MATERIALS/WORK: M U - UNCLASSIFIED C - CONFIDENTIAL S - SECRET T - TOP SECRET
18. GOVERNMENT PROPERTY: N F - FURNISHED P - PURCHASED N - NOT INVOLVED IF CODE F OR P, ATTACH DETAILS.

AWARD PLANNING

19. AWARD AS ORDER UNDER BIN: (Formerly EW-78-S-07-1720) DE-AS0797810 01720 IF CODE T.
20. DESIRED AWARD DATE: 08 01 79 21. KIND OF AWARD ACTION: IP 22. TYPE OF AWARD: X ATTACH DETAILS.
23. IF MULTI-YEAR AWARD, INDICATE NUMBER OF YEARS: _____ 24. TYPE SOLICITATION INSTRUMENT: _____
25. EXTENT OF COMPETITION: _____ IF COMPETITIVE, ATTACH TECHNICAL EVALUATION PLAN. IF NON-COMPETITIVE, ATTACH JUSTIFICATION. REF: DOE-PR 7-3,303,51 or 9-6,309(1).
26. SOURCE SELECTION PROCEDURE: 4 1 - A-E 2 - SEB 3 - OTHER 4 - NONE
27. FOR A-E, SHOW ESTIMATED CONSTRUCTION COST IN DOLLARS: _____

AWARDEE

IF COMPETITIVE, HAS LIST OF SOURCES BEEN ATTACHED? YES [] NO [] IF NON-COMPETITIVE, COMPLETE 28-31.
28. NAME: Geophysical Institute 29. ADDRESS: University of Alaska Fairbanks, AK 99701
30. DIVISION: University of Alaska
31. GOCO/LAB: A A - GOCO/LAB B - GOCO/NON-LAB C - NON-GOCO/LAB D - NOT APPLICABLE

FINANCIAL

AWARD VALUE
32. GOVT SHARE 20,000
33. TOTAL 20,000
34. CONSIDERATION IN KIND, LOAN, OR LOAN GUARANTEE DATA REPORTED ON PR-799C: []
35. PROJECT PERIOD: FROM 08 01 79 THRU 09 30 79

CURRENT FY FUNDS COMMITTED

36. B&R NUMBER	37. FUND CLASS	38. DOLLAR AMOUNT
<u>AE 10-02020</u>	<u>E</u>	<u>20,000</u>
-----	---	-----
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39. FROM PR-7998 (PART A) _____
40. TOTAL THIS PR 20,000
41. FUNDING PERIOD: FROM 08 01 79 THRU 09 30 79

42. APPROPRIATION SYMBOL: 09X0210.91
43. ALLOTMENT SYMBOL: ID-90-91
44. OBJECT CLASS: _____

PROJECT MANAGER

45. NAME: L.L. Mink
46. SIGNATURE: Margaret A. Kidwayer for
47. DATE: 07 16 79 48. OFFICE CODE: _____
49. FTS TELEPHONE NUMBER: 583-0638

PROGRAM OFFICIAL

50. NAME: R.E. Wood, Director, ET
51. SIGNATURE: R.E. Wood
52. DATE: _____

CERTIFYING OFFICIAL

53. NAME: F.S. Smith, Director, P&B
I HEREBY CERTIFY THAT THE FUNDS CITED IN ITEM 40 ARE AVAILABLE.
54. SIGNATURE: _____
55. DATE: _____

* SEE BACK OF FORM FOR CODES

GEOPHYSICAL INSTITUTE

C. T. ELVEY BUILDING
UNIVERSITY OF ALASKA
FAIRBANKS, ALASKA 99701

RECEIVED

JUN 25 1979

ENERGY & TECHNOLOGY
DIVISION

June 19, 1979

Dr. Clay Nichols
Idaho Operations Office D.O.E.
550 2nd. Street
Idaho Falls, Idaho 83401

Dear Dr. Nichols:

I am writing in response to a call from Drs. B. DiBona and R. Gray. They have reviewed my proposal for continued research on Mt. Wrangell and although they are unable to cover the full cost of the project they have committed \$20,000 to help support the current field season.

There are two major goals. First, it is essential that we complete the measurements on glacier movement on the northeast flank of Mt. Wrangell. Since the marked increase in heat flux from Mt. Wrangell, glacier flow rates on the northeast flank of the mountain have increased anomalously, and the glacier termini are actually advancing on the order of 30 m per year. All other glaciers in the Wrangell Mountains appear to have been in steady-state equilibrium during the past twenty years. The anomalous behavior of glaciers on the northeast flank appears to be a result of the recent increases in geothermal heat flux. At the end of this field season we will have winter and summer flow rates as well as annual rates for these glaciers.

Second, we will continue the essential monitoring, by aerial photogrammetry, of rapidly changing, large-scale features caused by the increased volcanic heat flux. This has resulted in the disappearance of about 50×10^6 m³ of ice from a single crater at the summit in less than a decade. Our flights over the summit in April and early June show another lake to be forming in part of the North Crater now. Similar lakes formed in the West Crater in 1966 and in the North Crater in 1974. This lake will probably be a short-lived feature as were the others. Therefore, during 1979 we fortuitously have an excellent opportunity to observe the evolution of this special response to the changes in heat flux at the summit. Our photogrammetry permits us to measure these changes in detail both at the summit and on the flanks.

Dr. Nichols
June 19, 1979
Page 2

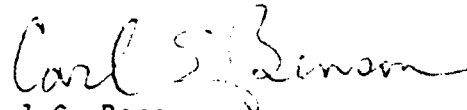
The flight lines in 1979 will be the same as those of 1978. Useful map products and volume-change calculations are possible for the East and West Craters, and the northeast flank as a result of the new photo control points established in 1978 (12 on the northeast flank and 5 at the summit). We will calculate volume changes for the East and West Craters as well as for the North Crater on the rim of the summit caldera. Also, the volume changes at the terminal region of the West Copper Glacier will be determined.

In addition to the primary goals mentioned above, we will drill thermistors to depths of 20 to 30 m into the ice along a profile perpendicular to one of the advancing ice fronts on the northeast flank. This will provide the first temperature data on these anomalously flowing ice lobes.

Dr. DiBona indicated that he would send you a copy of the original proposal. Please refer to it for a summary of our research so far, and a discussion of our plans for the future.

If you need any other information, my telephone number is (907) 479-7450. I appreciate your help which is so essential to providing continuity to our research. The budget summary is on the attached page. Thank you.

Sincerely,



Carl S. Benson
Professor of Geophysics and Geology

CSB:pvt

Enclosure

Budget

Salaries

Research Assistant, 1.30 mos. @ \$1,475/mo.	1,904	
Reserve for annual leave, 12%	228	
Holiday and sick leave, 9.5%	<u>181</u>	

Total Salaries		2,313
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Staff Benefits

Hospitalization, Social Security, Retirement, etc., 15% of total salaries		348
--	--	-----

Overhead

57.9% of total salaries		1,339
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Other Costs

Aerial Photogrammetry	10,000	
Fixed wing and helicopter charter	<u>6,000</u>	
		<u>16,000</u>

Total Budget		<u>20,000</u>
--------------	--	---------------

Modification to SRC # DE-AS07-78ID 0720 (Formerly EW-78-S-07-1720)

Geophysical Institute
University of Alaska
\$20,000

Statement of Added Work

1. Complete measurements of glacier movement on the northeast flank of m. Wrangell.
2. Continue air photogrammetry for monitoring large-scale features for rapid changes due to increased volcanic heat flux.

Mod 004 - 1720

RECEIVED

SEP 6 1979

ENERGY & TECHNOLOGY
DIVISION

Lee

SEP 4 1979

Geophysical Institute
C. T. Elvey Building
University of Alaska
Fairbanks, Alaska 99701

Attention: Neta Stilkey, Business Manager

Subject: MODIFICATION NO. A004 TO CONTRACT NO. DE-AS07-78ID01720

Gentlemen:

Enclosed is one fully executed copy of the subject Modification. I have initialled the date change under item 3. on page one and at the top of page 1 of Appendix A4, which changes the starting date from August 1, 1979 to July 1, 1979.

If you have further questions, please contact J. O. Lee of my staff, at telephone number 208-526-1838.

Very truly yours,

Original Signed by
J. P. Anderson

J. P. Anderson, Chief
Contract Administration Branch
Contracts Management Division

Enclosure:
As stated above

✓ bcc: M. A. Widmayer, w/Attach.

CAB
JOLee:ahb
9/4/79

CAB
JPAnderson

STANDARD FORM 30, JULY 1966 GENERAL SERVICES ADMINISTRATION FED. PROC. REG. (41 CFR) 1-16.101		AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT		PAGE 1	OF 2
1. AMENDMENT/MODIFICATION NO. A004		2. EFFECTIVE DATE 7/1/79	3. REQUISITION/PURCHASE REQUEST NO.	4. PROJECT NO. (If applicable)	
5. ISSUED BY U. S. Department of Energy Idaho Operations Office 550 Second Street Idaho Falls, Idaho 83401		6. ADMINISTERED BY (If other than block 5)	CODE		
7. CONTRACTOR NAME AND ADDRESS University of Alaska Geophysical Institute C. T. Elvey Building Fairbanks, Alaska 99701 Attn: D. L. Turner, Associate Professor of Geology		8. AMENDMENT OF SOLICITATION NO. _____ DATED _____ (See block 9)	<input type="checkbox"/> MODIFICATION OF CONTRACT/ORDER NO. DE-AS07-78ID01720 (formerly No. EW-78-S-07-1720) DATED 3/17/78 (See block 11)		
9. THIS BLOCK APPLIES ONLY TO AMENDMENTS OF SOLICITATIONS <input type="checkbox"/> The above numbered solicitation is amended as set forth in block 12. The hour and date specified for receipt of Offers <input type="checkbox"/> is extended, <input type="checkbox"/> 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 ACKNOWLEDGMENT 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)					
11. THIS BLOCK APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS (a) <input type="checkbox"/> This Change Order is issued pursuant to _____ The Changes set forth in block 12 are made to the above numbered contract/order. (b) <input type="checkbox"/> 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) <input checked="" type="checkbox"/> This Supplemental Agreement is entered into pursuant to authority of Public Law 95-91. It modifies the above numbered contract as set forth in block 12.					
12. DESCRIPTION OF AMENDMENT/MODIFICATION 1. Contract is hereby changed from a "Special Research Support Agreement" to a "Special Research Contract." Wherever the words "Special Research Support Agreement" are used, they shall mean "Special Research Contract." 2. Article I, " <u>THE RESEARCH TO BE PERFORMED,</u> " is amended by adding a new paragraph as follows: "Appendix A4, attached to this Supplemental Agreement and made a part hereof, provides for the research to be performed by the Contractor during the Contract period specified therein." 3. Article II, " <u>THE PERIOD OF PERFORMANCE,</u> " is amended as follows: "The period of performance for the work performed under this Supplemental Agreement shall commence on August 1, 1979 , and expire on December 30, 1979 . The period of time for performing the research work under Appendix A4 may be extended for additional periods by the mutual written agreement of the parties."					
CONTINUED.....					
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. <input type="checkbox"/> CONTRACTOR/OFFEROR IS NOT REQUIRED TO SIGN THIS DOCUMENT <input checked="" type="checkbox"/> CONTRACTOR/OFFEROR IS REQUIRED TO SIGN THIS DOCUMENT AND RETURN <u>2</u> COPIES TO ISSUING OFFICE					
14. NAME OF CONTRACTOR/OFFEROR BY <u>H. A. Cutler</u> (Signature of person authorized to sign)			17. UNITED STATES OF AMERICA BY <u>J. P. Anderson</u> (Signature of Contracting Officer)		
15. NAME AND TITLE OF SIGNER (Type or print) H. A. Cutler, Chancellor, UAF		16. DATE SIGNED 8/17/79	18. NAME OF CONTRACTING OFFICER (Type or print) J. P. Anderson		19. DATE SIGNED AUG 8 1979

Description - continued:

4. Article III, "CONSIDERATION," paragraph (a), is hereby revised to increase the contract Support Ceiling to a total of One Hundred Ninety Thousand Dollars (\$190,000.00). This includes \$75,000.00 obligated by the original contract, \$25,000.00 obligated by letter dated May 23, 1978, \$25,000.00 obligated by Modification No. A001, \$45,000.00 obligated by Modification No. A002, and \$20,000.00 obligated by this Modification No. A004.

CONTRACTOR: UNIVERSITY OF ALASKA

APPENDIX A4

For the Contract Period ~~August 1,~~ 1979 through December 30, 1979.

Article A-I RESEARCH TO BE PERFORMED BY CONTRACTOR

(a) The scope of the work under this contract is unclassified, and the Contractor under this contract with the Department of Energy shall continue the research on Mt. Wrangell, Alaska, that was started under Modification No. A002. The additional work to be performed is as follows:

1. Complete measurements of glacier movement on the northeast flank of Mt. Wrangell.
2. Continue air photogrammetry for monitoring large-scale features for rapid changes due to increased volcanic heat flux.

(b) The scope of work shall include such other studies, investigations, and services as may be mutually agreed upon.

Article A-II WAYS AND MEANS OF PERFORMANCE

(a) Items for which support may be provided as indicated in Article A-III, below:

Salaries

Research Assistant, 1.30 mos. @ \$1,475/mo.	\$1,904
Reserve for Annual leave, 12%	228
Holiday and sick leave, 9.5%	<u>181</u>
Total Salaries	\$2,313

Staff Benefits

Hospitalization, Social Security, Retirement, etc., 15% of total salaries	347
--	-----

Overhead

57.9% of total salaries	1,339
-------------------------	-------

Other Costs

Aerial Photogrammetry	10,000
Fixed wing and helicopter charter	<u>6,001</u>
	16,001

TOTAL BUDGET

\$20,000

Article A-III FUNDING

The total estimated cost of items under A-II(a) above, for the contract period stated in this Appendix A4 is \$20,000.00. DOE will pay 100% of the actual costs of these items incurred during the contract period stated in this Appendix A4, subject to the provisions of Article III and Article B-V. The estimated DOE Support Cost for the contract period stated in this Appendix is \$20,000.00.

The estimated DOE Support Cost is funded as follows:

(a) Estimated unexpended balance from prior period(s)	\$ <u>-0-</u>
(b) New funds for the current period	\$ <u>20,000.00</u>

Article A-IV ADMINISTRATION AND REPORTS

- (a) Principal Investigator - Dr. D. L. Turner
Co-Principal Investigator - Carl S. Benson

DOE Technical Administrator - L. L. Mink
Department of Energy, ID
550 Second Street
Idaho Falls, Idaho 83401

The Principal Investigator shall direct the work as outlined in discussions and in periodic letters from the Technical Administrator.

(b) The Principal Investigator shall prepare and submit reports to the Technical Administrator as set forth in paragraph (b) of Article A-IV - Administration and Reports of Appendix A2, to Modification No. A002, except the camera ready copy of the Final Report shall be sent to the Technical Administrator, rather than TIC.

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. AMENDMENT/MODIFICATION NO. M005	2. EFFECTIVE DATE 9/30/79	3. REQUISITION/PURCHASE REQUEST NO.	4. PROJECT NO. (If applicable)
5. ISSUED BY U.S. Department of Energy Idaho Operations Office 550 Second Street Idaho Falls, Idaho 83401		6. ADMINISTERED BY (If other than block 5) CODE	

file M. 2.11-
CONTRACT #1720

7. CONTRACTOR NAME AND ADDRESS CODE	FACILITY CODE	8. AMENDMENT OF SOLICITATION NO.
University of Alaska Geophysical Institute C. T. Elvey Building Fairbanks, Alaska 99701 Attn: Donald L. Turner, Associate Professor of Geology		<input type="checkbox"/> AMENDMENT OF SOLICITATION NO. DATED _____ (See block 9) <input checked="" type="checkbox"/> MODIFICATION OF CONTRACT/ORDER NO. DE-AS07-78ID01720 (Formerly EW-78-S-07-1720) DATED _____ (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 ACKNOWLEDGMENT 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)

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 mutual agreement between the parties.
It modifies the above numbered contract as set forth in block 12.

12. DESCRIPTION OF AMENDMENT/MODIFICATION

As requested in Donald L. Turner's letter dated August 27, 1979, the period of performance under Appendices A and A1 is hereby extended from September 30, 1979, through December 31, 1979.

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 _____ COPIES TO ISSUING OFFICE

14. NAME OF CONTRACTOR/OFFEROR	17. UNITED STATES OF AMERICA		
BY _____ (Signature of person authorized to sign)	BY <u>J. P. Anderson</u> (Signature of Contracting Officer)		
15. NAME AND TITLE OF SIGNER (Type or print)	16. DATE SIGNED	18. NAME OF CONTRACTING OFFICER (Type or print)	19. DATE SIGNED
		J. P. Anderson, Chief Contract Administration Branch	10/9/79

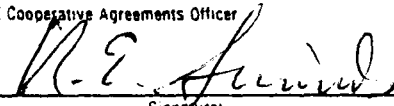
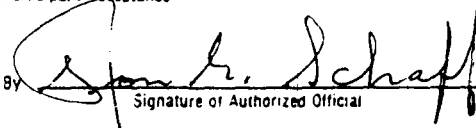
10 FORM-182 (Rev. 10-77) U. S. DEPARTMENT OF ENERGY COOPERATIVE AGREEMENT PURSUANT TO AUTHORITY OF PL 93-410, PL 93-438, PL 93-473, PL 93-577, and PL 95-91	1.a. Agreement No. DE-FC07-79ET27105	1.b. Modification No.								
3. Participant Name and Address State of Alaska Department of Natural Resources Division of Geological and Geophysical Survey Anchorage, Alaska 99501	2. Agreement Period From: June 1, 1979 To: May 31, 1980									
5. Project Title Geothermal Assessment and Reservoir Definition in Alaska	4. Participant Type <input type="checkbox"/> Educational <input type="checkbox"/> Nonprofit <input checked="" type="checkbox"/> State or Local Government <input type="checkbox"/> Profit									
8. Principal Investigator(s) or Program Director(s) Name and Address Ross Schaff, State Geologist State of Alaska Anchorage, Alaska 99501 Telephone: 907-277-6615	6. Project Will Be Conducted Per See Article <u>II</u>									
10. Accounting and Appropriation Data 89X0210.91	7. Technical Reports Are Required See Article <u>VII</u>									
12. Submit Vouchers, if any, to Agreements Officer Unless Otherwise Specified in this Block Director, Contracts Management Division, DOE-ID, 550 Second Street, Idaho Falls, Idaho 83401	9. DOE Program Officer (Name and Address) Leland L. Mink, E&T Division Idaho Operations Office, DOE 550 Second Street Idaho Falls, Idaho 83401 Telephone No. 208-526-0638									
13. Funding Sources <table border="0" style="width: 100%;"> <thead> <tr> <th style="text-align: left;">Source</th> <th style="text-align: right;">Amount</th> </tr> </thead> <tbody> <tr> <td>DOE:</td> <td style="text-align: right;">\$ <u>165,450.00</u></td> </tr> <tr> <td>Participant:</td> <td style="text-align: right;">\$ <u>75,285.00</u></td> </tr> <tr> <td>Total Funding:</td> <td style="text-align: right;">\$ <u>240,735.00</u></td> </tr> </tbody> </table>	Source	Amount	DOE:	\$ <u>165,450.00</u>	Participant:	\$ <u>75,285.00</u>	Total Funding:	\$ <u>240,735.00</u>	11. Method of Payment <input type="checkbox"/> % At Award. % When Requested. 5% Upon Receipt of Final Report <input type="checkbox"/> Letter of Credit <input type="checkbox"/> Reimbursement <input type="checkbox"/> Other (specify) See Article <u>IV</u>	
Source	Amount									
DOE:	\$ <u>165,450.00</u>									
Participant:	\$ <u>75,285.00</u>									
Total Funding:	\$ <u>240,735.00</u>									
15. Amount Obligated By This Action \$ <u>165,450.00</u>	14. Remarks: <div style="text-align: center; font-size: 2em; font-family: cursive;"> ALASKA, STATE OF CONTRACT D G G S </div>									
16. DOE Issuing Office (Name and Address) Idaho Operations Office 550 Second Street Idaho Falls, Idaho 83401										
17. DOE Cooperative Agreements Officer <div style="text-align: center;">  Signature) 5/15/79 (Date) </div> Name (typed) <u>R. E. Simonds</u> Title <u>Director, Contracts Management Div.</u> Telephone No. <u>208-526-1347</u>			18. Participant Acceptance <div style="text-align: center;">  Signature of Authorized Official </div> Name (typed) <u>Ross G. Schaff</u> Title <u>State Geologist</u>							

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	APPENDIX A - GENERAL PROVISIONS	

COOPERATIVE AGREEMENT

THIS AGREEMENT, entered into the 15th day of May 1979 (effective as of the 1st day of June 1979), by and between the UNITED STATES OF AMERICA (hereinafter called the "Government"), acting through the DEPARTMENT OF ENERGY (hereinafter called "DOE") with its Idaho Operations Office located at 550 Second Street in Idaho Falls, Idaho 83401, and the STATE OF ALASKA (hereinafter called the "Participant") located at Anchorage, Alaska 99501;

WITNESSETH THAT:

WHEREAS, the Government is interested in the evaluation and development of geothermal reservoirs in Alaska; and

WHEREAS, the Participant has submitted an unsolicited proposal and proposed to undertake such a program in cooperation with the University of Alaska and DOE desires to provide certain financial assistance for the accomplishment of such a program; and

WHEREAS, this agreement is authorized by the Department of Energy Organization Act (Public Law 95-91), Sections 7(a)(2) and 8 of Public Law 93-577, and Sections 103(5) and 107(a) of Public Law 93-438;

NOW, THEREFORE, DOE and the Participant agree as follows:

ARTICLE I - STATEMENT OF JOINT OBJECTIVE

The direct application of geothermal energy at various sites located within Alaska can be a significant factor in the Government's efforts to achieve energy independence. The research provided for in this Agreement is important to both the Government and the Participant for estimating the potential of geothermal energy utilization and for fostering its use in Alaska.

ARTICLE II - DESCRIPTION OF RESPONSIBILITIES

The Participant is responsible to assure that the research is accomplished in a manner consistent with the provisions of this Agreement. The Participant's proposal identified as "Geologic Atlas of Hot Spring Areas in Alaska," as it may have been amended, is made a part of this Agreement by this reference; however, if there is any conflict between the content of the proposal and the content of this Agreement, the content of this Agreement governs. The tasks provided for in the proposal are to be accomplished, and are to result in, a final feasibility assessment report which will include, as a minimum, the following information resulting from the following tasks:

ARTICLE II - DESCRIPTION OF RESPONSIBILITIES (Cont'd)

Task 1 - Continuation of resource assessment of low-temperature geothermal reservoirs in Alaska.

Task 2 - Ground water geochemistry of wells and springs in selected prospect areas.

The Participant is also responsible for cost-sharing to the extent provided for in Article III, "Financial Support of the Project."

ARTICLE III - FINANCIAL SUPPORT OF THE PROJECT

A. The total estimated cost of performing the work under this Agreement is Two Hundred Forty Thousand Seven Hundred Thirty-Five Dollars (\$240,735.00). For performance of work under this Agreement, the agreed share ratio of total allowable costs is 60% DOE, 40% Participant. The Participant shall be reimbursed by DOE for not more than 60% of the costs of the project determined to be allowable in accordance with Article A-I of the General Provisions entitled "Allowable Costs." The remaining 40% or more of the costs of the project so determined shall constitute the Participant's share for which it will not be reimbursed by DOE. The total cost to DOE is hereby established as One Hundred Sixty-Five Thousand Four Hundred Fifty Dollars (\$165,450.00), and this amount is also the maximum amount of the project which is subject to reimbursement by DOE unless such maximum cost is changed in writing by the Contracting Officer.

B. In regard to any increase or decrease in the total estimated cost of this Agreement, as a result of any change in the original Statement of Work, as may be agreed upon by the parties during the term of this Agreement, the appropriate sharing of the funding, if any, of any such increase or decrease shall be shared at the ratio of 60% DOE and 40% Participant.

C. The amount of funds obligated under this Agreement by DOE for the period from June 1, 1979 through May 31, 1980 is One Hundred Sixty-Five Thousand Four Hundred Fifty Dollars (\$165,450.00). Funding for continuation of the project will be provided for in future years when and if available.

ARTICLE IV - METHOD AND BASIS OF PAYMENT

A. Once each month the Participant shall submit an invoice to DOE supported by a detailed statement of current costs incurred for performance of work under this Agreement and claimed to constitute allowable costs. Allowable costs will be determined in accordance with Article A-I of Appendix A. If any of the costs included in the monthly invoice are determined to be unallowable, the invoice will be appropriately reduced. DOE will pay invoices promptly.

ARTICLE IV - METHOD AND BASIS OF PAYMENT (Cont'd)

B. Final payment will not be made until the Final Report is received and accepted by the Contracting Officer. In no event will the final 5% of the amount of obligated funds be paid to the Participant until DOE has received the Final Report and the Final Cost Report identified in Article VII of this Agreement.

ARTICLE V - TERM OF AGREEMENT

The work under the Geothermal Assessment and Reservoir Definition in Alaska project is anticipated to take several years. The Participant has submitted a proposal for funding for each of the first three years. The initial term of this Agreement is for the first year from June 1, 1979 through May 31, 1980. It is currently anticipated that the subsequent years will be financially supported by DOE and, therefore, the term of this Agreement may be extended as mutually agreed upon by DOE and the Participant.

ARTICLE VI - PROJECT MANAGEMENT

A. In addition to DOE personnel, the Participant agrees to permit non-DOE personnel who are under contract with DOE, and identified from time to time by the Contracting Officer, to assist the DOE representative in performance of his duties and to have necessary access to the Participant's and major subcontractors' records pertaining to the project. DOE correspondence, if any, with subcontractors shall be routed through the Participant.

B. (1) DOE's Program Officer on this project and the person who shall be the Participant's contact for all matters pertaining to this Agreement shall be the following-named person or such other person(s) as may be designated by the Contracting Officer:

Leland L. Mink
Energy and Technology Division
Idaho Operations Office, DOE
550 Second Street
Idaho Falls, Idaho 83401
Telephone (208) 526-0638

(2) The Participant's Project Director for the work under this Agreement will be the following person or such other person(s) as may be mutually acceptable to the parties:

Ross Schaff
State Geologist
Department of Natural Resources
Division of Geological and Geophysical Survey
State of Alaska
3001 Porcupine Drive
Anchorage, Alaska 99501
Telephone (907) 277-6615

ARTICLE VI - PROJECT MANAGEMENT (Cont'd)

C. The term "DOE" means the United States Department of Energy.

D. The term "Contracting Officer" means the person executing this Agreement on behalf of DOE, and includes his successors or any duly authorized representative of such person.

ARTICLE VII - PROJECT INFORMATION

A. All Project Information Reports, as required by DOE Uniform Contractor Reporting System, Volume 1, dated September 1978, and as indicated on the attached DOE Form CR-537, shall be submitted to the DOE Program Officer in accordance with the special instructions.

B. The Final Technical Report shall be due at the end of DOE's support for the project. DOE will advise the Participant one hundred eighty (180) days in advance of the termination of support for the project and the Final Technical Report shall be due as noted in the special instructions.

C. A semi-annual progress meeting will be held which the Participant is required to attend. DOE will fund travel expenses for one member of the Participant's team.

ARTICLE VIII - CHANGES AND MODIFICATIONS

Any changes or modifications to this Agreement or in the Scope of Work to be performed shall be made by mutual written agreement of the parties. A change may be initiated by either party to this Agreement. The Contracting Officer shall have the authority to determine what constitutes a change.

ARTICLE IX - TERMINATION

A. It is the express intent of DOE and the Participant to fund their respective cost participation for the project.

B. Notwithstanding the foregoing, it is understood that DOE or the Participant may at any time upon giving sixty (60) days prior written notice to the other party terminate this Agreement for its convenience for any reason.

C. In the event of termination, it is expected that the parties will cooperate with each other to reasonably phase out the Participant's costs and cost commitments, including cost liabilities to third parties; provided, however, that the total amount obligated by the Government under this Agreement shall not be exceeded. Moreover, upon any such termination the Participant agrees to promptly, upon DOE's request, transfer to DOE all information resulting from the work performed to the date of the termination notice.

ARTICLE IX - TERMINATION (Cont'd)

D. In the event of termination, the Government agrees to pay the Participant all allowable costs incurred prior to receipt of the termination notice, and the Participant, after receipt of the termination notice, shall:

(1) Place no further orders or subcontracts for materials, services, or facilities intended to be invoiced to the Government for its contribution.

(2) Cancel all orders and subcontracts to the extent that they relate to the performance of work terminated by the Notice of Termination and intended to be invoiced to the Government against its contribution.

(3) Notwithstanding subparagraphs D.(1) and (2) above, the Participant has the right to proceed with such orders and subcontracts should it decide to continue performance of the work at its expense alone.

E. After a termination, the Participant shall submit to the Contracting Officer its termination claim. Such claim shall be submitted promptly but in no event later than one (1) year from the effective date of termination unless one or more extensions in writing are granted by the Contracting Officer. Upon failure of the Participant to submit its termination claim within the time allowed, the Contracting Officer may determine, on the basis of information available to him, the amount, if any, due to the Participant by reason of the termination and shall thereupon pay to the Participant the amount so determined.

F. Costs claimed, agreed to, or determined pursuant to this article must constitute allowable costs as defined in Article A-1 of the Appendix A of this Agreement.

G. Any termination notice rendered by either DOE or the Participant shall be sent by registered mail with return receipt requested.

ARTICLE X - LIABILITY AND INDEMNIFICATION

The Government will not be liable for payment of damages for injuries to any person, or loss of life or personal property, or loss suffered or sustained and arising from the work performed under this Agreement. The Participant agrees to indemnify and save the Government harmless from any and all claims, demands, damages, actions, costs, or charges against the Government arising as the result of the above-mentioned injuries, damages, or loss, except for any such damages or claims arising out of the negligent act of the Government or its employees in the course of their official duties.

ARTICLE XI - USE OF INFORMATION

All data and information generated, derived or obtained from the activities provided for herein, and this Agreement, will be public information.

ARTICLE XII - PROPERTY

A. Title to all materials, supplies, and equipment purchased or otherwise acquired by the Participant using funds provided by DOE shall vest in the Government. Title to the X-ray Fluorescence System will vest in and will remain in the Government notwithstanding that some part of it will be paid for from funds furnished by the Participant. Said materials, supplies, and equipment shall be used for the benefit of research under this Agreement and any extensions or successor agreements. Title to Government property shall not be affected by the incorporation or attachment thereof to any property not owned by the Government nor shall any such property, or any part thereof, be or become a fixture or lose its identity as personalty by reason of affixation to any realty.

B. To the extent practicable, the Participant shall cause all items of Government property to be suitably marked with an identifying mark or symbol indicating that the items are the property of the Government. The Participant shall maintain at all times and in a manner satisfactory to DOE records showing the use and disposition of Government property. Such records shall be subject to DOE inspection at all reasonable times and DOE shall at all reasonable times have access to the premises wherein any items of Government property are located. Unless otherwise authorized in writing by DOE, the Participant shall use Government property only for the purposes of this Agreement: provided, however, that the Participant is hereby authorized to use items of equipment constituting Government property for other Federal research agreements to the extent such use (1) does not interfere with its work under this Agreement, (2) is not prohibited by provisions of the other Federal agreements, and (3) is promptly reported by the Participant to DOE under this Agreement.

C. The Participant shall promptly notify DOE of any loss or destruction of or damage to Government property. It is understood that the Participant shall not be liable for any such loss, destruction, or damage, unless same results from willful misconduct or lack of good faith on the part of any corporate officer of the Participant, or of one or more of the Participant's representatives having supervision or direction of all or substantially all of the activities under this Agreement. If the Participant is liable for any such loss, destruction, or damage, it shall promptly account therefor to the satisfaction of DOE; if the Participant is not liable therefor, and is indemnified, reimbursed, or otherwise compensated for such loss, destruction, or damage, it shall promptly account therefor to the satisfaction of DOE.

ARTICLE XII - PROPERTY (Cont'd)

D. With the written approval of DOE, the Participant may sell, transfer, or otherwise dispose of items of Government property to such parties and upon such terms as so approved, or itself acquire title to items of Government property upon such terms as may be mutually agreed upon in writing by the Participant and DOE. The proceeds of any such disposition, and any agreed price of any such Participant acquisition, shall be paid by the Participant to the Government, or credited on account of DOE payments to be made under this Agreement, as DOE may direct. Subject to the other provisions of this Agreement, the Participant shall deliver Government property to DOE upon request (suitably packed and shipped at the Government's expense).

E. The Participant shall utilize for the benefit of the work under this Agreement such items of property available to the Participant by reason of its activities under other Federal research agreements as are appropriate for utilization under this Agreement pursuant to the provisions of the pertinent Federal agreements.

ARTICLE XIII - ADDITIONAL AGREEMENT PROVISIONS

Appendix A, attached hereto and made a part hereof, sets forth additional general provisions of this Agreement.

APPENDIX A
GENERAL PROVISIONS
COOPERATIVE AGREEMENTS

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APPENDIX A

GENERAL PROVISIONS

COOPERATIVE AGREEMENTS

ARTICLE A-I - ALLOWABLE COST

Costs shall constitute allowable costs as specified in Title 41, Code of Federal Regulations Part 1-15 of the Code of Federal Regulations in effect on the date of this Agreement.

ARTICLE A-II - APPROVAL OF SUBCONTRACTS

All subcontracts and purchase orders in excess of \$10,000 shall require the written approval of the Contracting Officer.

ARTICLE A-III - PUBLIC INFORMATION RELEASES

The parties agree that public disclosure or dissemination of new data or information arising out of the feasibility assessment will be coordinated by the parties, it being understood that the intent of both the Participant and DOE is to release all data and information to the greatest practicable extent in order to achieve the objective of obtaining maximum public value from the results of this project. It is understood that the foregoing is not intended to afford either party the right to prevent a public release by the other; however, nothing in this article shall impair the rights of the parties set forth elsewhere in this Agreement.

ARTICLE A-IV - AUDIT

A. The Participant shall maintain, and the Contracting Officer or his representative shall have the right to examine books, records, documents, and other evidence and accounting procedures and practices, sufficient to reflect properly all direct and indirect costs of whatever nature claimed to have been incurred and anticipated to be incurred for the performance of this Agreement. Such right of examination shall include inspection at all reasonable times of the Participant's plants, or such parts thereof, as may be engaged in the performance of this Agreement.

B. The materials described above, shall be made available at the office of the Participant, at all reasonable times, for inspection, audit or reproduction, until the expiration of three (3) years from the date of final payment under this Agreement or such lesser time specified in Title 41, Code of Federal Regulations Part 1-20 and for such lesser period, if any, as is required by applicable statute, or by other articles of this Agreement, or by subparagraphs (1) and (2) below:

ARTICLE A-IV - AUDIT (Cont'd)

(1) If this Agreement is completely or partially terminated, the records relating to the work terminated shall be made available for a period of three (3) years from the date of any resulting final settlement.

(2) Records which relate to appeals under the "Disputes" article of this Agreement, or litigation or the settlement of claims arising out of the performance of this Agreement, shall be made available until such appeals, litigation, or claims have been disposed of.

ARTICLE A-V - OFFICIALS NOT TO BENEFIT

No member of or delegate to Congress, or resident commissioner, shall be admitted to any share or part of this Agreement, or to any benefit that may arise therefrom; but this provision shall not be construed to extend to this Agreement if made with a corporation for its general benefit.

ARTICLE A-VI - COVENANT AGAINST CONTINGENT FEES

The Participant warrants that no person or selling agency has been employed or retained to solicit or secure this Agreement upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by the Participant for the purpose of securing business. For breach or violation of this warranty the Government shall have the right to annul this Agreement without liability or in its discretion to deduct from the Agreement price or consideration, or otherwise recover, the full amount of such commission, percentage, brokerage, or contingent fee.

ARTICLE A-VII - EXAMINATION OF RECORDS BY COMPTROLLER GENERAL

A. The Participant agrees that the Comptroller General of the United States or any of his duly authorized Government employees shall, until the expiration of three (3) years after final payment under this Agreement, unless DOE authorizes their prior disposition, have access to and the right to examine any directly pertinent books, documents, papers, and records of the Participant involving transactions related to this Agreement.

B. The Participant further agrees to include in all its subcontracts hereunder a provision to the effect that the subcontractor agrees that the Comptroller General of the United States or any of his duly authorized Government employees shall, until the expiration of three (3) years after

ARTICLE A-VII - EXAMINATION OF RECORDS BY COMPTROLLER GENERAL (Cont'd)

final payment under the subcontract or such lesser time specified in either Appendix M of the Armed Services Procurement Regulation or the Federal Procurement Regulations Part 1-20, as appropriate, have access to and the right to examine any directly pertinent books, documents, papers, and records of such subcontractor, involving transactions related to the subcontract. The term "subcontract" as used in this article excludes (1) purchase orders not exceeding \$10,000 and (2) subcontracts or purchase orders for public utility services at rates established for uniform applicability to the general public.

C. The periods of access and examination described in paragraphs A. and B., above, for records which relate to (1) appeals under the "Disputes" article of this Agreement, (2) litigation or the settlement of claims arising out of the performance of this Agreement, or (3) costs and expenses of this Agreement as to which exception has been taken by the Comptroller General or any of his duly authorized representatives, shall continue until such appeals, litigation, claims or exceptions have been disposed of.

ARTICLE A-VIII - ASSIGNMENT OF CLAIMS

Pursuant to the provisions of the Assignment of Claims Act of 1940, as amended (31 U.S.C. 203, 41 U.S.C. 15), claims for moneys due or to become due the Participant from the Government under this Agreement may be assigned to a bank, trust company, or other financing institution, including any Federal lending agency, and may thereafter be further assigned and reassigned to any such institution. Any such assignment or reassignment shall cover all amounts payable under this Agreement and not already paid, and shall not be made to more than one party, except that any such assignment or reassignment may be made to one party as agent or trustee for two or more parties participating in such financing. Unless otherwise provided in this Agreement, payments to assignee of any moneys due or to become due under this Agreement shall not, to the extent provided in said Act, as amended, be subject to reduction or setoff.

ARTICLE A-IX - PERMITS

Except as otherwise directed by the Contracting Officer, the Participant shall procure all necessary permits or licenses and abide by all applicable laws, regulations, and ordinances of the United States and of the State, territory, and political subdivision in which the work under this Agreement is performed.

ARTICLE A-X - DISPUTES

A. This Agreement is subject to the Contract Disputes Act of 1978 (41 U.S.C. 601, et seq.). If a dispute arises relating to the Agreement, the Participant may submit a claim to the Contracting Officer who shall issue a written decision on the dispute in the manner specified in DAR 1-314 (FPR 1-1.318).

B. "Claim" means:

- (1) a written request submitted to the Contracting Officer;
- (2) for payment of money, adjustment of Agreement terms, or other relief;
- (3) which is in dispute or remains unresolved after a reasonable time for its review and disposition by the Government; and
- (4) for which a Contracting Officer's decision is demanded.

C. In the case of disputed requests or amendments to such requests for payment exceeding \$50,000, or with any amendment causing the total request in dispute to exceed \$50,000, the Participant shall certify, at the time of submission as a claim, as follows:

I certify that the claim is made in good faith, that the supporting data are accurate and complete to the best of my knowledge and belief; and that the amount requested accurately reflects the Agreement adjustment for which the Participant believes the Government is liable.

(Participant's Name) _____

(Title) _____

D. The Government shall pay the Participant interest:

- (1) on the amount found due on claims submitted under this article;
- (2) at the rates fixed by the Secretary of the Treasury, under the Renegotiation Act, Public Law 92-41;
- (3) from the date the Contracting Officer receives the claim, until the Government makes payment.

E. The decision of the Contracting Officer shall be final and conclusive and not subject to review by any forum, tribunal, or Government agency unless an appeal or action is timely commenced within the times specified by the Contract Disputes Act of 1978.

ARTICLE A-X - DISPUTES (Cont'd)

F. The Participant shall proceed diligently with performance of this Agreement, pending final resolution of any request for relief, claim, appeal or action related to the Agreement, and comply with any decision of the Contracting Officer.

ARTICLE A-XI - PAYMENT OF INTEREST ON PARTICIPANTS' CLAIMS

A. If an appeal is filed by the Participant from a final decision of the Contracting Officer under the "Disputes" article of this Agreement, denying a claim arising under the Agreement, simple interest on the amount of the claim finally determined owed by the Government shall be payable to the Participant. Such interest shall be at the rate determined by the Secretary of the Treasury pursuant to Public Law 92-41, 85 Stat. 97, from the date the Participant furnishes to the Contracting Officer its written appeal under the "Disputes" article of this Agreement, to the date of (1) a final judgment by a court of competent jurisdiction, or (2) mailing to the Participant of a supplemental agreement for execution either confirming completed negotiations between the parties or carrying out a decision of a board of Agreement appeals.

B. Notwithstanding paragraph A., above, (1) interest shall be applied only from the date payment was due, if such date is later than the filing of appeal, and (2) interest shall not be paid for any period of time that the Contracting Officer determines the Participant has unduly delayed in pursuing its remedies before a board of Agreement appeals or a court of competent jurisdiction.

ARTICLE A-XII - SEX DISCRIMINATION PROHIBITED

No person shall on the ground of sex be excluded from participation in, be denied a license under, be denied the benefits of, or be subjected to discrimination under any program or activity carried on or receiving Federal assistance under any title of this Act (P. L. 93-438).

ARTICLE A-XIII - CIVIL RIGHTS

The Participant agrees that no person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity for which the Participant receives Federal financial assistance from DOE.

ARTICLE A-XIV - DISCRIMINATION AGAINST HANDICAPPED PROHIBITED

The Participant agrees that no otherwise qualified handicapped individual in the United States shall, solely by reason of his handicap,

ARTICLE A-XIV - DISCRIMINATION AGAINST HANDICAPPED PROHIBITED (Cont'd)

be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.

ARTICLE A-XV - SMALL AND MINORITY BUSINESS PARTICIPATION

It is the policy of DOE to ensure that small and minority businesses have a reasonable opportunity to participate in the projects which it supports. In accordance with this policy, the Participant will make a reasonable effort to ensure fair consideration and utilization of small and minority businesses in purchases and subcontracts awarded by the Participant under this Agreement.

ARTICLE A-XVI - PREFERENCE FOR U. S. FLAG AIR CARRIERS

A. It is the policy of the United States that all Federal agencies and Government contractors and subcontractors utilize U.S. flag air carriers for international air transportation of personnel and cargo.

B. The Participant agrees to utilize U. S. flag air carriers to the maximum extent practicable in connection with the performance of this Agreement in the transportation by air of any personnel and cargo between the United States and a foreign country, or between foreign countries.

C. The terms used in this article have the following meanings:

(1) "International air transportation" means transportation by air of personnel and cargo from the United States to a foreign country, between two or more foreign countries, and between a foreign country and the United States.

(2) "U. S. flag air carrier" means one of a class of air carriers holding a certificate of public convenience and necessity issued by the Civil Aeronautics Board, approved by the President, authorizing operations between the United States and/or its territories and one or more foreign countries.

(3) The term "United States" includes the fifty States, Commonwealth of Puerto Rico, possessions of the United States and the District of Columbia.

(4) "Practicable" includes (i) satisfactory servicing of agency programs, and (ii) timely deliveries at fair and reasonable prices.

D. The Participant shall include the substance of this article, including this paragraph D. in each subcontract or purchase order hereunder which may involve air transportation between the United States and a foreign country, or between foreign countries.

ARTICLE A-XVII - CLEAN AIR AND WATER

A. The Participant agrees as follows:

(1) To comply with all the requirements of section 114 of the Clean Air Act, as amended (42 U.S.C. 1857, et seq., as amended by P. L. 91-604) and section 308 of the Federal Water Pollution Control Act (33 U.S.C. 1251, et seq., as amended by P. L. 92-500), respectively, relating to inspection, monitoring, entry, reports and information, as well as other requirements specified in section 114 and section 308 of the Air Act and the Water Act, respectively, and all regulations and guidelines issued thereunder before the award of this Agreement.

(2) That no portion of the work required by this Agreement will be performed in a facility listed on the Environmental Protection Agency List of Violating Facilities on the date when this Agreement was awarded unless and until the EPA eliminates the name of such facility or facilities from such listing.

(3) To use its best efforts to comply with clean air standards and clean water standards at the facility in which the Agreement is being performed.

(4) To insert the substance of the provisions of this article into any nonexempt subcontract, including this subparagraph A.(4).

B. The terms used in this article have the following meanings:

(1) The term "Air Act" means the Clean Air Act, as amended (42 U.S.C. 1857, et seq., as amended by P. L. 91-604).

(2) The term "Water Act" means Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq., as amended by P. L. 92-500).

(3) The term "clean air standards" means any enforceable rules, regulations, guidelines, standards, limitations, orders, controls, prohibitions, or other requirements which are contained in, issued under, or otherwise adopted pursuant to the Air Act or Executive Order 11738, an applicable implementation plan as described in section 110(d) of the Clean Air Act [42 U.S.C. 1857c-5(d)], an approved implementation procedure or plan under section 111(c) or section 111(d), respectively, of the Air Act [42 U.S.C. 1857(c)-6(c) or (d)], or an approved implementation procedure under section 112(d) of the Air Act [42 U.S.C. 1857c-7(d)].

ARTICLE A-XVII - CLEAN AIR AND WATER (Cont'd)

(4) The term "clean water standards" means any enforceable limitation, control, condition, prohibition, standard, or other requirement which is promulgated pursuant to the Water Act or contained in a permit issued to a discharger by the Environmental Protection Agency or by a State under an approved program, as authorized by section 402 of the Water Act (33 U.S.C. 1342), or by local government to ensure compliance with pretreatment regulations as required by section 307 of the Water Act (33 U.S.C. 1317).

(5) The term "compliance" means compliance with clean air or water standards. Compliance shall also mean compliance with a schedule or plan ordered or approved by a court of competent jurisdiction, the Environmental Protection Agency or an air or water pollution control agency in accordance with the requirements of the Air Act or Water Act and regulations issued pursuant thereto.

(6) The term "facility" means any building, plant, installation, structure, mine, vessel, or other floating craft, location, or site of operations, owned, leased, or supervised by a contractor or subcontractor, to be utilized in the performance of an agreement or subcontract. Where a location or site of operations contains or includes more than one building, plant, installation, or structure, the entire location or site shall be deemed to be a facility except where the Director, Office of Federal Activities, Environmental Protection Agency, determines that independent facilities are collocated in one geographical area.

ARTICLE A-XVIII - RIGHTS IN TECHNICAL DATA - SHORT FORM

A. Definitions. The definitions of terms set forth in 41 CFR 9-9.201 apply to the extent these terms are used herein.

B. Allocation of Rights.

(1) The Government shall have:

(i) Unlimited rights in technical data first produced or specifically used in the performance of this Agreement;

(ii) The right of the Contracting Officer or his representatives to inspect at all reasonable times up to three (3) years after final payment under this Agreement all technical data first produced or specifically used in the Agreement (for which inspection the Participant or its subcontractor shall afford proper facilities to DOE);

ARTICLE A-XVIII - RIGHTS IN TECHNICAL DATA - SHORT FORM (Cont'd)

(iii) The right to have any technical data first produced or specifically used in the performance of this Agreement delivered to the Government as the Contracting Officer may from time to time direct during the progress of the work or in any event as the Contracting Officer shall direct upon completion or termination of this Agreement.

(2) The Participant shall have: The right to use for its private purposes, subject to patent, security or other provisions of this Agreement, technical data it first produces in the performance of this Agreement provided the data requirements of this Agreement have been met as of the date of the private use of such data. The Participant agrees that to the extent it receives or is given access to proprietary data or other technical, business or financial data in the form of recorded information from DOE or a DOE contractor or subcontractor, the Participant shall treat such data in accordance with any restrictive legend contained thereon, unless use is specifically authorized by prior written approval of the Contracting Officer.

C. Copyrighted Material.

(1) The Participant agrees to, and does hereby grant to the Government, and to its officers, agents, servants and employees acting within the scope of their duties:

(i) A royalty-free nonexclusive, irrevocable license to reproduce, translate, publish, use, and dispose of and to authorize others so to do, all copyrightable material first produced or composed in the performance of this Agreement by the Participant, its employees or any individual or concern specifically employed or assigned to originate and prepare such material; and

(ii) A license as aforesaid under any and all copyrighted or copyrightable works not first produced or composed by the Participant in the performance of this Agreement but which are incorporated in the material furnished under the Agreement, provided that such license shall be only to the extent the Participant now has, or prior to completion or final settlement of the Agreement may acquire, the right to grant such license without becoming liable to pay compensation to others solely because of such grant.

ARTICLE A-XVIII - RIGHTS IN TECHNICAL DATA - SHORT FORM (Cont'd)

(2) The Participant agrees that it will not knowingly include any material copyrighted by others in any written or copyrightable material furnished or delivered under this Agreement without a license as provided for in subparagraph C.(1)(ii) hereof, or without the consent of the copyright owner, unless it obtains specific written approval of the Contracting Officer for the inclusion of such copyrighted material.

ARTICLE A-XIX - REPORTING OF ROYALTIES

If this Agreement is in an amount which exceeds \$10,000 and if any royalty payments are directly involved in the Agreement or are reflected in the Agreement price to the Government, the Participant agrees to report in writing to the Patent Counsel (with notification by Patent Counsel to the Contracting Officer) during the performance of this Agreement and prior to its completion or final settlement the amount of any royalties or other payments paid or to be paid by it directly to others in connection with the performance of this Agreement together with the names and addresses of licensors to whom such payments are made and either the patent numbers involved or such other information as will permit the identification of the patents or other basis on which the royalties are to be paid. The approval of DOE of any individual payments or royalties shall not stop the Government at any time from contesting the enforceability, validity or scope of, or title to, any patent under which a royalty or payments are made.

ARTICLE A-XX - NOTICE AND ASSISTANCE REGARDING PATENT AND COPYRIGHT INFRINGEMENT

(The provisions of this article shall be applicable only if the amount of this Agreement exceeds \$10,000.)

A. The Participant shall report to the Contracting Officer, promptly and in reasonable written detail, each notice or claim of patent or copyright infringement based on the performance of this Agreement of which the Participant has knowledge.

B. In the event of any claim or suit against the Government on account of any alleged patent or copyright infringement arising out of the performance of this Agreement or out of the use of any supplies furnished or work or services performed hereunder, the Participant shall furnish to the Government when requested by the Contracting Officer, all evidence and information in possession of the Participant pertaining to such suit or claim. Such evidence and information shall be furnished at the expense of the Government except where the Participant has agreed to indemnify the Government.

C. This article shall be included in all subcontracts.

ARTICLE A-XXI - AUTHORIZATION AND CONSENT

The Government hereby gives its authorization and consent for all use and manufacture of any invention described in and covered by a patent of the United States in the performance of this Agreement or any part hereof or any amendment hereto or any subcontract hereunder (including any lower-tier subcontract).

U. S. DEPARTMENT OF ENERGY
REPORTING REQUIREMENTS CHECKLIST

(See Instructions on Reverse)

FORM APPROVED
 OMB NO. 38R-0190

1. IDENTIFICATION Cooperative Agreement
 No. DE-FC07-79ET27105

2. OBLIGATION INSTRUMENT:

3. REPORTING REQUIREMENTS

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

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

Submit ten (10) copies of each report to the DOE Program Officer due at Idaho Operations Office as indicated below:

- A - Within 5 days after event that indicates report.
- F - 45 days prior to the end (completion date) of the Cooperative Agreement submit in draft. After 30 days for DOE review, submit in final format.
- M - Within 15 calendar days after end of the calendar month.
- O - Within 15 calendar days after Cooperative Agreement award.
- Q - Within 15 calendar days after end of calendar quarter.
- Y - 45 calendar days prior to completion of the yearly term.

5. ATTACHED HERewith:

- Report Distribution List
- WBS/Reporting Category

-
-

6. PREPARED BY (Signature and date):

7. REVIEWED BY (Signature and date):

U. S. DEPARTMENT OF ENERGY
PROCUREMENT/FINANCIAL ASSISTANCE REQUEST-AUTHORIZATION

TO: J. P. Anderson, Chief, Contract Administration Branch

FROM INITIATING OFFICE: R. E. Wood, Director, Energy Technology Division

INITIAL: [X] UPDATE: [] 4. PROCUREMENT: [] FINANCIAL ASSISTANCE: []
PR NUMBER: _____ 6. PR CORRECTION LETTER: _____ 7. RELATED PR NUMBER: _____

PROJECT IDENTIFICATION
TITLE: Geological Atlas of Hot Springs Areas of Alaska
modification for new scope of work, more dollars

UNSOLICITED PROPOSAL NO: _____ 10. PROJECT NO: _____ 11. CFDA NO: _____
PRODUCT OR SERVICE: AG3X 13. SUPPORT SERVICES: YES [] NO [X] 14. CONSULTANT AWARD: YES [] NO []
CONTROLLED DELIVERABLE: AGY 16. REPORT/DRAWING REQ: YES [X] NO [] IF YES, ATTACH DETAILS.
CLASSIFICATION OF MATERIALS/WORK: U U - UNCLASSIFIED C - CONFIDENTIAL S - SECRET T - TOP SECRET
GOVERNMENT PROPERTY: N F - FURNISHED P - PURCHASED N - NOT INVOLVED IF CODE FOR P, ATTACH DETAILS.

AWARD PLANNING
AWARD AS ORDER UNDER BIN: DE-FC07-79 ET 27105
DESIRED AWARD DATE: 06 01 80 21. KIND OF AWARD ACTION: IP 22. TYPE OF AWARD: T IF CODE T, ATTACH DETAILS.
IF MULTI-YEAR AWARD, INDICATE NUMBER OF YEARS: _____ 24. TYPE SOLICITATION INSTRUMENT: _____
EXTENT OF COMPETITION: _____ IF COMPETITIVE, ATTACH TECHNICAL EVALUATION PLAN. IF NON-COMPETITIVE, ATTACH JUSTIFICATION. REF: DOE-PR 9-3,805.51 or 9-4,909(?).
SOURCE SELECTION PROCEDURE: _____ 1 - A-E 2 - SEB 3 - OTHER 4 - NONE
FOR A-E, SHOW ESTIMATED CONSTRUCTION COST IN DOLLARS: _____

AWARDEE
IF COMPETITIVE, HAS LIST OF SOURCES BEEN ATTACHED? YES [] NO [] IF NON-COMPETITIVE, COMPLETE 28 - 31.
NAME: State of Alaska 29. ADDRESS: PO Box 80007
DIVISION: Department of Natural Resources College, Alaska, 99708
GOCO/LAB: _____ A - GOCO/LAB B - GOCO/NON-LAB C - NON-GOCO/LAB D - NOT APPLICABLE

FINANCIAL AWARD VALUE
GOVT SHARE 53,519.50
TOTAL 278,426.50
CONSIDERATION IN KIND, LOAN, OR LOAN
GUARANTEE DATA REPORTED ON PR-799C: []
PROJECT PERIOD: FROM 06 01 80 THRU 05 31 81

CURRENT FY FUNDS COMMITTED

36. B&R NUMBER	37. FUND CLASS	38. DOLLAR AMOUNT
<u>AM15.10</u>	<u>-</u>	<u>53,519.50</u>
_____	_____	_____
_____	_____	_____

FROM PR-799B (PART A) _____
TOTAL THIS PR 53,519.50
FUNDING PERIOD: FROM 06 01 80 THRU 05 31 81
APPROPRIATION SYMBOL: _____
ALLOTMENT SYMBOL: _____
OBJECT CLASS: _____

PROJECT MANAGER
45. NAME: M. A. Wiomayer
46. SIGNATURE: Margaret A. Wiomayer
47. DATE: 04 01 80 48. OFFICE CODE: _____
49. FTS TELEPHONE NUMBER: _____

PROGRAM OFFICIAL
50. NAME: R. E. Wood
51. SIGNATURE: R.E.W.
52. DATE: 04 01 80

CERTIFYING OFFICIAL
53. NAME: F. S. Smith
I HEREBY CERTIFY THAT THE FUNDS CITED IN ITEM 40 ARE AVAILABLE.
54. SIGNATURE: _____
55. DATE: 04 01 80

Title to All CE will VEST WITH THE GOVERNMENT.

The capital equipment money is NOT AVAILABLE TO use yet (as of April 1, 1980). HOWEVER, PRIOR to contract execution, I hope to have funds for CE so as to Award a total dollar package as follows:

DOE Operating Funds FY80	\$ 53,519.50
DOE Capital Equipment FY80	<u>15,950.00</u>
Total DOE Share	69,469.50
Participant Share	<u>224,907.00</u>
Total procurement:	<u><u>\$ 294,376.50</u></u>

STATEMENT of Work

The original proposal entitled "Geological Atlas of Hot Springs Areas of Alaska" dated January 12, 1979, outlines a 3 year plan of work for Alaska resource assessment.

As per Article V "Term of Agreement," provisions were made for continued support for this work, should additional funds be made available.

In a letter dated 1/17/80, an outline of future work is provided as follows:

TASK I: Assemble and review all existing information on known thermal springs and wells in Alaska. These data will be distributed to USGS GEOTHERM file, and to Dr. Donald Turner of the Alaska Geophysical Institute for

Incorporation in their research efforts. A map of all known springs, wells, and thermal deposits will be compiled.

TASK II: Temperature analysis and water samples will be acquired for each of the state's geothermal springs and wells.

TASK III: Chemical analysis of rock and water samples from sites in task II will be performed, examined, and reduced to a compilation file. The data will be reviewed, interpreted, and published under this cooperative agreement, and as a Division open-file report.

TASK IV: All reporting requirements will be met in accordance with standards set forth in the original cooperative agreement.

STANDARD FORM 30, JULY 1966 GENERAL SERVICES ADMINISTRATION FED. PROC. REG. (41 CFR) 1-16.101		AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT		PAGE 1	OF 3
1. AMENDMENT/MODIFICATION NO. A001		2. EFFECTIVE DATE 6-1-80	3. REQUISITION/PURCHASE REQUEST NO. 07-80ET27105.502 & 3	4. PROJECT NO. (If applicable)	
5. ISSUED BY U. S. Department of Energy Idaho Operations Office 550 Second Street Idaho Falls, Idaho 83401		6. ADMINISTERED BY (If other than block 5)		CODE	
7. CONTRACTOR NAME AND ADDRESS State of Alaska Department of Natural Resources P. O. Box 80007 College, Alaska 99708		FACILITY CODE		8. AMENDMENT OF SOLICITATION NO. _____ DATED _____ (See block 9) MODIFICATION OF CONTRACT/ORDER NO. DE-FC07-79ET27105 DATED _____ (See block 11)	
9. THIS BLOCK APPLIES ONLY TO AMENDMENTS OF SOLICITATIONS <input type="checkbox"/> The above numbered solicitation is amended as set forth in block 12. The hour and date specified for receipt of Offers <input type="checkbox"/> is extended, <input type="checkbox"/> 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 ACKNOWLEDGMENT 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)					
11. THIS BLOCK APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS (a) <input type="checkbox"/> This Change Order is issued pursuant to _____ The Changes set forth in block 12 are made to the above numbered contract/order. (b) <input type="checkbox"/> 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) <input checked="" type="checkbox"/> This Supplemental Agreement is entered into pursuant to authority of <u>Public Law 95-91 et. al.</u> It modifies the above numbered contract as set forth in block 12.					
12. DESCRIPTION OF AMENDMENT/MODIFICATION 1. Article II - <u>DESCRIPTION OF RESPONSIBILITIES</u> is revised to add the following tasks: <u>Task 3</u> - Assemble and review all existing information on known thermal springs and wells in Alaska. Distribute these data to USGS GEOTHERM file, and to Dr. Donald Turner of the Alaska Geophysical Institute. Compile a map of all known springs, wells, and thermal deposits. <u>Task 4</u> - Acquire temperature analyses and water samples for each of the state's geothermal springs and wells. <u>Task 5</u> - Chemical analysis of rock and water samples from sites in Task 4 will be performed, examined, and reduced to a compilation file. The data will be reviewed, interpreted, and published under this cooperative agreement as a Division open-file report.					
Continued....					
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. <input type="checkbox"/> CONTRACTOR/OFFEROR IS NOT REQUIRED TO SIGN THIS DOCUMENT		<input checked="" type="checkbox"/> CONTRACTOR/OFFEROR IS REQUIRED TO SIGN THIS DOCUMENT AND RETURN		3 COPIES TO ISSUING OFFICE	
14. NAME OF CONTRACTOR/OFFEROR BY _____ (Signature of person authorized to sign)		17. UNITED STATES OF AMERICA BY <u>J. F. Marmo</u> (Signature of Contracting Officer)			
15. NAME AND TITLE OF SIGNER (Type or print) <u>STAFF CONTRACTOR</u>		16. DATE SIGNED		18. NAME OF CONTRACTING OFFICER (Type or print) <u>J. F. Marmo</u>	
				19. DATE SIGNED <u>9/22/80</u>	

Task 6 - Reports will be submitted in accordance with Article VII -
PROJECT INFORMATION.

2. Article III - FINANCIAL SUPPORT OF THE PROJECT is revised to read as follows:

A. The total estimated cost of performing the work under this Agreement is Five Hundred Thirty-One Thousand Nine Hundred Twenty-Three Dollars (\$531,923.00). For performance of work under this Agreement, the agreed share ratio of total allowable costs is 46% DOE, 54% Participant. The Participant shall be reimbursed by DOE for not more than 46% of the costs of the project determined to be allowable in accordance with Article A-I of the General Provisions entitled "Allowable Costs." The remaining 54% or more of the costs of the project so determined shall constitute the Participant's share for which it will not be reimbursed by DOE. The total cost to DOE is hereby established as Two Hundred Forty-Two Thousand Nine Hundred Dollars (\$242,900.00), and this amount is also the maximum amount of the project which is subject to reimbursement by DOE unless such maximum cost is changed in writing by the Contracting Officer.

B. The total amount of funds obligated under this Agreement by DOE is Two Hundred Forty-Two Thousand Nine Hundred Dollars (\$242,900.00). This total amount is inclusive of capital equipment funds into the amount of One Hundred Thirty-Six Thousand One Hundred Seventy-Five Dollars (\$136,175.00). The amount of capital equipment funds shall be treated as a separate ceiling which shall not be exceeded. Funding for continuation of the project will be provided for in future years when and if available.

The estimated cost and share totals are summarized below:

	<u>DOE Share</u>	<u>Alaska Share</u>	<u>Estimated Cost</u>
Basic Agreement	\$165,450	\$ 75,285	\$240,735
Mod A001	77,450	213,738	291,188
Total	<u>\$242,900</u>	<u>\$289,023</u>	<u>\$531,923</u>
Percentages	46%	54%	

4. Article V - TERM OF AGREEMENT is revised to extend the term from May 31, 1980 to May 31, 1981.
5. Article IV - METHOD AND BASIS OF PAYMENT is revised to add Paragraph C. as follows:

C. Capital equipment costs will be accounted for and detailed separately on the invoices.

6. Add Article XIII - DATE OF INCURRENCE OF COSTS to read as follows:

"The Participant shall be entitled to reimbursement for costs incurred in an amount not to exceed \$77,450 on or after June 1, 1980, which, if incurred after this modification had been entered into, would have been reimbursable under the provisions of this modification.

1. AMENDMENT/MODIFICATION NO. A002 2. EFFECTIVE DATE Blk 19 3. REQUISITION/PURCHASE REQUEST NO. 07-81ET27105.501 4. PROJECT NO. (If applicable)

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

7. CONTRACTOR NAME AND ADDRESS State of Alaska
 Department of Natural Resources
 P. O. Box 80007
 College, Alaska 99708 8. AMENDMENT OF SOLICITATION NO. _____
 DATED _____ (See block 9)
 MODIFICATION OF CONTRACT/ORDER NO. DE-FC07-79ET27105
 DATED 5-15-79 (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)
89X0224.91 ID-14-91 250 AM1510 10 (\$115,000 increase)

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 Public Law 95-91
 It modifies the above numbered contract as set forth in block 12.

12. DESCRIPTION OF AMENDMENT/MODIFICATION
 First: Article II - Description of Responsibilities is revised to add the following tasks:

 TASK 7. AKUTAN
 On the island of Akutan detailed geological mapping of the known hot springs area, geochemical studies, a helium survey, a VLF Resistivity Survey and a shallow-hole (10 to 30m) drilling program will be conducted to better define the resource potential. This work will be performed in cooperation with the University of Alaska Geophysical Institute. The results of these surveys will be published in an open-file report which will summarize the geothermal resource potential of the area, include recommendations for future work, and advise potential users of possible exploration drilling sites on the island.

 TASK 8. NORTHERN UNALASKA
 Studies will include a helium survey and a VLF Resistivity Survey of the Summer Bay area. The results, with recommendations for future work, will be published as an open-file report.

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 _____ COPIES TO ISSUING OFFICE

14. NAME OF CONTRACTOR/OFFEROR Wyatt G. Gilbert 17. UNITED STATES OF AMERICA
 BY William C. Drake BY William C. Drake
 (Signature of person authorized to sign) Signature of Contracting Officer

15. NAME AND TITLE OF SIGNER (Type or print) Wyatt G. Gilbert 16. DATE SIGNED 6/15/81 18. NAME OF CONTRACTING OFFICER (Type or print) WILLIAM C. DRAKE 19. DATE SIGNED 6/15/81
Deputy State Geologist CONTRACTING OFFICER

TASK 9. NORTHEAST ATKA

Work will include a continuation of reconnaissance investigations including identification of all geothermal manifestations on the island, and gas and water sampling and analysis. The results of the reconnaissance investigations and water and gas analyses together with recommendations for future work will be published in an open-file report.

TASK 10. WILLOW AREA, LOWER SUSITNA BASIN

In conjunction with research efforts being done by the University of Alaska Geophysical Institute, DGGs will help guide the geophysical and geochemical studies undertaken by the Geophysical Institute and will cooperate in the analyses of drill-hole cuttings and pegmatitic and granitic samples for radiogenic elements. Other DGGs field projects in the area will help provide helicopter support for the geophysical and geochemical studies. Geochemical analyses of waters and rocks from the proposed area will be conducted using DGGs lab facilities.

TASK 11. MANLEY HOT SPRINGS

Field research will include verification of the geology in the vicinity of Manley Hot Springs northwest of Fairbanks detailed water geochemistry studies, soil helium surveys, and VLF Resistivity Surveys. The latter two surveys, will be done in cooperation with the Geophysical Institute. The results of these studies will be published in a joint report with the Geophysical Institute.

TASK 12. GEOCHEMICAL ANALYSES

The DGGs laboratory will perform all whole rock geochemical analyses on rocks collected as part of the above studies, all geochemical analyses of water samples collected from thermal areas, and any necessary X-ray diffraction identification of hydrothermal alteration minerals. Isotope and dissolved gas analyses are expected to be conducted in cooperation with U.S. Geological Survey. Helium analyses of samples acquired in helium ground surveys will be conducted at a commercial laboratory.

TASK 13. GODDARD AND TENAKEE HOT SPRINGS

The DGGs will perform preliminary investigations in the area around Goddard Hot Springs on Baranof Island, and Tenakee Hot Springs on Chichagof Island. Work will include site geologic mapping and geochemical sampling and analyses. Initial findings will be presented in the report to DOE on work performed under this modification.

TASK 14. REPORTING REQUIREMENTS

All work performed as part of this modification will be presented in a year end final report to DOE in accordance with reporting requirements outlined in DOE CR-537. All monthly and topical reports will be prepared and distributed in accordance with the above-mentioned document.

Second: Article III - FINANCIAL SUPPORT OF THE PROJECT is revised to read as follows:

A. The total estimated cost of performing the work under this Agreement is Seven Hundred Eighty-Seven Thousand Eight Hundred Sixty-Nine

Dollars (\$787,869). For performance of work under this Agreement, the agreed share ratio of total allowable costs is 46% DOE, 54% Participant. The Participant shall be reimbursed by DOE for not more than 46% of the costs of the project determined to be allowable in accordance with Article A-I of the General Provisions entitled "Allowable Costs". The remaining 54% or more of the costs of the project so determined shall constitute the Participant's share for which it will not be reimbursed by DOE. The total cost to DOE is hereby established as Three Hundred Fifty Seven Thousand Nine Hundred Dollars (\$357,900), and this amount is also the maximum amount of the project which is subject to reimbursement by DOE unless such maximum cost is changed in writing by the Contracting Officer.

B. The total amount of funds obligated under this Agreement by DOE is Three Hundred Fifty Seven Thousand Nine Hundred Dollars (\$357,900). This total amount is inclusive of capital equipment funds into the amount of One Hundred Thirty-Six Thousand One Hundred Seventy-Five Dollars (\$136,175.00). The amount of capital equipment funds shall be treated as a separate ceiling which shall not be exceeded. Funding for continuation of the project will be provided for in future years when and if available.

The estimated cost and share totals are summarized below:

	<u>DOE Share</u>	<u>Alaska Share</u>	<u>Estimated Cost</u>
Basic Agreement	\$165,450	\$ 75,285	\$240,735
Mod A001	77,450	213,738	291,188
Mod A002	115,000	140,946	255,946
Total	<u>\$357,900</u>	<u>\$429,969</u>	<u>\$787,869</u>
Percentages	46%	54%	

Article V - TERM OF AGREEMENT is revised to extend the term from May 31, 1981 to May 31, 1982.

Third: Appendix A - REPORTING REQUIREMENTS CHECKLIST is hereby incorporated into this Agreement.

REPORTING REQUIREMENTS CHECKLIST

(See Instructions on Reverse)

1. IDENTIFICATION State of Alaska State-Coupled Resource Assessment Program	2. OBLIGATION INSTRUMENT:
--	---------------------------

3. REPORTING REQUIREMENTS

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

FREQUENCY CODES:

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

4. SPECIAL INSTRUCTIONS

A.5., A.6., and A.7. - Copies are due within fifteen days after end of the calendar month.

B.2. - Copies are due within fifteen days after end of the calendar month.

B.3. - Submit 2 copies in draft forty-five days prior to completion of the yearly term. After DOE approval is received, submit copies as required on attached "Report Distribution List."

B.4. - Submit 2 copies in draft forty-five days prior to completion date of contract term. After DOE approval is received, submit eleven copies including one camera-ready copy.

5. ATTACHED HERewith:

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

6. PREPARED BY (Signature and date):	7. REVIEWED BY (Signature and date):
--------------------------------------	--------------------------------------



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.

DE-FC07-79ET27105

- Milestone Schedule & Status Report
- Management Plan
- Contract Management & Status Report
- Cost Plan
- Manpower Management Report
- Project Status Report
- Cost Management Summary Report
- Manpower Plan
- Project Status Report
- Cost Management Report
- Notice of Energy PD&D Project
- Conference Record
- Hot Line Report
- Technical Progress Report (SSIE)
- Final Technical Report
- Topical Report
- Cost Performance Report
- Cost/Schedule Status Report
- Management Control System Report
- Summary System Description
- WBS Dictionary

Addressees

Number of Report Copies

Elizabeth Hyster
 U. S. Department Of Energy
 Idaho Operations Office
 550 Second Street
 Idaho Falls, Idaho 83401

1 1

M. A. Widmayer, Program Manager
 Resource Definition Branch
 U. S. Department of Energy
 Idaho Operations Office
 550 Second Street
 Idaho Falls, Idaho 83401

1 1

2 2 12

Bob Gray
 U. S. Department of Energy
 Division of Geothermal Energy MS3344
 Federal Building
 12th and Penn., N.W.
 Washington, D.C. 20461

2 2

2 2

Duncan Foley
 UURI
 420 Chipeta Way
 Suite 120
 Salt Lake City, UT 84108

1 1

1 1

Special Instructions

U. S. DEPARTMENT OF ENERGY
PROCUREMENT/FINANCIAL ASSISTANCE REQUEST-AUTHORIZATION

11001105
Recorded 7/15/82
CR.
MOD 003

1. TO CMD
2. FROM INITIATING OFFICE EET GEOTHERMAL

3. INITIAL: [X] UPOATE: [] 4. PROCUREMENT: [] FINANCIAL ASSISTANCE: []
5. PR NUMBER: 0726527105.503 6. PR CORRECTION LETTER: 7. RELATED PR NUMBER:

ACTION IDENTIFICATION
3. TITLE: State of Alaska - no cost time extension modification

9. UNSOLICITED PROPOSAL NO: 10. PROJECT NO: 11. CFDA NO:
12. PRODUCT OR SERVICE: 13. SUPPORT SERVICES: YES [] NO [] 14. CONSULTANT AWARD: YES [] NO []
15. CONTROLLED DELIVERABLE: 16. REPORT/DRAWING REQ: YES [] NO [] IF YES, ATTACH DETAILS.
17. CLASSIFICATION OF MATERIALS/WORK: U-UNCLASSIFIED C-CONFIDENTIAL S-SECRET T-TOP SECRET
18. GOVERNMENT PROPERTY: F-FURNISHED P-PURCHASED N-NOT INVOLVED IF CODE F OR P, ATTACH DETAILS.

AWARD PLANNING
19. AWARD AS ORDER UNDER BIN:
20. DESIRED AWARD DATE: 5 31 82 21. KIND OF AWARD ACTION: IP 22. TYPE OF AWARD: I IF CODE T, ATTACH DETAILS.
23. IF MULTI-YEAR AWARD, INDICATE NUMBER OF YEARS: 24. TYPE SOLICITATION INSTRUMENT:
25. EXTENT OF COMPETITION: IF COMPETITIVE, ATTACH TECHNICAL EVALUATION PLAN. IF NON-COMPETITIVE, ATTACH JUSTIFICATION. REF: DOE-PR 9-3,805.51 or 9-4,909(?).
26. SOURCE SELECTION PROCEDURE: 1-A-E 2-SEB 3-OTHER 4-NONE
27. FOR A-E, SHOW ESTIMATED CONSTRUCTION COST IN DOLLARS:

AWARDEE
IF COMPETITIVE, HAS LIST OF SOURCES BEEN ATTACHED? YES [] NO [] IF NON-COMPETITIVE, COMPLETE 28-31.
28. NAME: State of Alaska 29. ADDRESS: Dept Nat Resources Anchorage AK
30. DIVISION: Roe Schaff / Rens Motyhal
31. GOCO/LAB: A-GOCO/LAB B-GOCO/NON-LAB C-NON-GOCO/LAB D-NOT APPLICABLE

FINANCIAL
AWARD VALUE
32. GOV'T SHARE 0
33. TOTAL
34. CONSIDERATION IN KIND, LOAN, OR LOAN GUARANTEE DATA REPORTED ON PR-799C: []
35. PROJECT PERIOD: FROM 5 31 82 THRU 1 15 83
CURRENT FY FUNDS COMMITTED
36. B&R NUMBER 37. FUND CLASS 38. DOLLAR AMOUNT
39. FROM PR-799B (PART A)
40. TOTAL THIS PR 0
41. FUNDING PERIOD: FROM THRU
42. APPROPRIATION SYMBOL:
43. ALLOTMENT SYMBOL:
44. OBJECT CLASS:

PROJECT MANAGER
45. NAME: SM Prestwich
46. SIGNATURE: SM Prestwich
47. DATE: 5 21 82 48. OFFICE CODE: 1000107
49. FTS TELEPHONE NUMBER: 6-1147

PROGRAM OFFICIAL
50. NAME: RE Weed
51. SIGNATURE: RE Weed
52. DATE:

CERTIFYING OFFICIAL
53. NAME: FS Smith
I HEREBY CERTIFY THAT THE FUNDS CITED IN ITEM 40 ARE AVAILABLE.
54. SIGNATURE: FS Smith
55. DATE: 6 1 82

* SEE BACK OF FORM FOR CODES