

600968

HAWAII

4/11/78
W. J. Maguire

Contract No. EW-78-S-07-1713

file M. 2.13

CONTRACT BETWEEN

THE UNIVERSITY OF HAWAII AT MANOA

AND

THE DEPARTMENT OF ENERGY

THIS AGREEMENT, entered into the 7th day of April, 1978 (effective as of February 1, 1978), by and between the UNITED STATES OF AMERICA (hereinafter called the "Government"), acting through the DEPARTMENT OF ENERGY (hereinafter called "DOE"), and UNIVERSITY OF HAWAII AT MANOA (hereinafter called the "Contractor"), a corporation organized and existing under the laws of the State of Hawaii, with its principal office at 2525 Correa Road, Honolulu, Hawaii 96822.

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

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.

ARTICLE II - THE PERIOD OF PERFORMANCE

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

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 anytime 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 will require the 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.

I, Tatsuki Shiramizu, certify that I am the Asst Secretary Board of Regents of the Contractor named under this document, that V. Carl Bloede, who signed this document on behalf of the Contractor, was then Contracts Officer 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 31st day of March 1978.

/s/ Tatsuki Shiramizu

(SEAL)

CONTRACTOR: University of Hawaii at Monoa

APPENDIX A

For the Contract Period February 1, 1978 through September 30, 1978.

Article A-1 RESEARCH TO BE PERFORMED BY CONTRACTOR

(a) The scope of work under this contract is unclassified, and the Contractor under this agreement with the DOE shall perform research consisting of the following.

1. Provide to DOE a summary of the available data for all wells of potential geothermal significance within the State, including water chemistry data where available.
2. Initiate a quality control program for spot checking the existing temperature and chemical data set.
3. Assist in the compilation of geological and geophysical data pertinent to the geothermal resources of Hawaii.
4. Commence a field program aimed at refinement of the temperature and water chemistry of selected areas of greatest geothermal interest.
5. Undertake a geophysical field program aimed at definition of the source of the warm waters observed in west Maui.
6. Formulate a plan for further exploration of other areas of high geothermal interest.

(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:

I. Project Management and Data Synthesis

1. Salaries

C. E. Helsley, Project Director, 1 mo.	\$ 3,663
Dale Erlandson, 8 mos.	9,000
Donald Thomas, 6 mos.	7,700
David Epp, Research Assistant, 4 mos. @ 50%	
2 mos. @ 100%	4,208
Secretary, 8 mos.	<u>7,560</u>

Total Salaries and Wages

\$32,131

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

2. Fringe Benefits (23% of Salaries and Wages)		\$ 7,390
3. Permanent Equipment		
Typewriter	\$ 895	
File Cabinets, 2 @ \$125	<u>250</u>	
Total Permanent Equipment		1,145
4. Expendable Supplies		500
5. Computer Time		1,500
6. Communications		800
7. Travel - mainland meetings		
Air fare	\$2,000	
Per diem, 20 days @ \$40/day	<u>800</u>	
Total Travel		2,800
8. Publications		<u>800</u>
Total Direct Costs		\$47,066
9. Indirect Costs (48.2% of Salaries & Wages)		<u>15,487</u>
Total Item I		\$62,553
II. <u>Water Chemistry and Temperature Field Program</u>		
1. Salaries		
Donald Thomas, 2 mos.	\$2,567	
Dave Epp, Research Assistant, 2 mos. @ 100%	2,104	
Field Assistant, 3 mos.	<u>3,000</u>	
Total Salaries and Wages		\$ 7,671
2. Fringe Benefits (23% of Salaries and Wages)		1,764
3. Expendable Supplies and Equipment		2,000
4. Computer		500
5. Publications		500
6. Communications		200

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

7. Travel		
25 round trips to other islands	\$ 1,500	
Per diem @ \$30/day for 60 mandays	1,800	
Field transportation @ \$20/day	<u>1,200</u>	
Total Travel		\$ 4,500
8. Chemical Analyses		<u>3,000</u>
Total Direct Costs		\$20,135
9. Indirect Costs (48.2% of Salaries & Wages)		<u>3,697</u>
Total Item II		\$23,832

III. Passive Seismology Field Program

1. Salaries		
C. E. Hensley, 1 mo.	\$ 3,663	
Joe Gettrust, 1 mo.	1,524	
Student Assistant for analysis, 5 mos. @ 50%, 3 mos. @ 100%	<u>5,786</u>	
Total Salaries and Wages		\$10,973
2. Fringe Benefits		1,540
3. Expendable Supplies (batteries, tape, etc.)		600
4. Field Travel		
6 round trips to other islands	\$ 360	
Per diem, 2 men x 15 days @ \$30/man day	900	
Field transportation @ \$20/day for 15 days	<u>300</u>	
Total Travel		\$ 1,560
5. Publications		400
6. Computer		<u>1,500</u>
Total Direct Costs		\$16,573
7. Indirect Costs (48.2% of Salaries & Wages)		<u>5,289</u>
Total Items III		\$21,862
TOTAL ITEMS I, II and III		<u>\$108,247</u>

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

(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 to DOE for the performance of all work under Article A-II is \$108,247.00. An amount of \$75,000 is hereby obligated for the period from February 1, 1978 through September 30, 1978 to start the work. The balance of \$33,247.00 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 \$33,247.00 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 \$33,247.00 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 - Charles E. Helsley

DOE Program Manager - John L. Griffith - Geothermal Energy Branch
Idaho Operations Office, Idaho Falls, Idaho

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

(b) Reports

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:

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

	<u>Frequency</u>	<u>Draft to Program Manager for Concurrence</u>	<u>Distribution Program Manager</u>	<u>TIC</u>
Administrative Letter Report	-----	N/A	10	N/A
Technical Progress Report	-----	3 weeks after end of report- ing period	10	1 camera- ready copy
Final Report	Completion of contract effort	3 weeks after end of reporting period	10	1 camera- ready copy
Topical Reports	As required	As agreed with Program Manager	10	1 camera- ready copy

2. Reports Format

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

- (a) The cover page will be supplied by DOE/DGE 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.

3. Content of Reports

Administrative Letter Reports -- Progress memo to Program manager on personnel and fiscal matters, including such information as rate of expenditures, equipment ordering/availability/receipt, loss or 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,

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

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 -- Comprehensive report of objectives, results and conclusions of task effort, should identify accomplishments, problems encountered and solutions applied, conclusions reached and recommendations for applications of results. It shall also include a summary of the available geological, geochemical, geophysical, hydrological, and environmental data relevant to the distribution of the low and moderate temperature geothermal resources in Hawaii. The report shall contain a prioritized list and map of candidate sites for reservoir confirmation studies during follow-on work, if any.

file M.2.13

MAR 15 1978

The University of Hawaii at Manoa
Office of Research Administration
Spalding Hall 357 - 2540 Maile Way
Honolulu, Hawaii 96822

Attention: Philip Helfrich, Associate Dean, Research

Subject: CONTRACT NO. EW-78-S-07-1713 - ASSESSMENT OF LOW
TEMPERATURE GEOTHERMAL ENERGY RESOURCES FOR
STATE OF HAWAII

Gentlemen:

Enclosed are four copies of the subject contract.

You will notice that the total budget for the work under this contract is \$108,247; however, only \$75,000 has been authorized in FY 1978. The University of Hawaii is not to exceed the total expenditure of \$75,000 until authorized by DOE. In particular, Item III, "Passive Seismology Field Program," under Article A-II, "Ways and Means of Performance," of Appendix A to the contract amounting to \$21,862 is not to be performed, and research amounting to \$11,385 under Items I and II should not be performed until authorized by DOE. The work amounting to \$11,385 under Items I and II that is to be delayed shall be left to the discretion of The University of Hawaii.

If the contract is satisfactory to you, please have three copies signed by an authorized official of The University of Hawaii, 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,
ORIGINAL SIGNED

W. C. Kendall

W. C. Kendall, Chief
Contracts Branch

Contracts and Procurement Division

C&P

Enclosures:
Contract No. EW-78-S-07-1713 (4)

CPC
JOLee:mh
3/13/78

bcc w/encl: ✓
M. A. Widmayer
Mary Parks
WCKendall
RECORD NOTE: See
attached hand-written memo
from Maggie Widmayer
of GEB.

Reg. Mark *J. Griffith*

file M. 2. 13 RECEIVED

AUG 7 1978

GEOTHERMAL ENERGY
BRANCH

August 4, 1978

University of Hawaii at Manoa
Hawaii Institute of Geophysics
2525 Correa Road
Honolulu, Hawaii 96822

Attention: Philip Helfrich, Associate Dean, Research

Subject: MODIFICATION NO. A001 - CONTRACT NO. EW-78-S-07-1713

Gentlemen:

We are enclosing four copies of the subject modification to your contract. If the modification is satisfactory to you, please have three copies signed by an authorized official of the University of Hawaii, 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/ W. C. Kendall

W. C. Kendall, Assistant Director
for Contracts
Contracts Management Division

CM

Enclosures:
Modification No. A001 (4)

bcc: J. L. Griffith

CAB
JOLee:mh
JPAnderson
8/4/78

CM
WCKendall

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")(formerly the Energy Research and Development Administration "ERDA"), and the UNIVERSITY OF HAWAII AT MONOA (hereinafter called the "Contractor"), a corporation organized and existing under the laws of the State of Hawaii with its principal office at 2525 Correa Road, Honolulu, Hawaii 96822;

WITNESSETH THAT:

WHEREAS, on April 7, 1978, effective as of the 1st day of February 1978, the Government and the Contractor entered into Contract No. EW-78-S-07-1713 for the Contractor to perform certain research work; and

WHEREAS, the parties desire to modify said contract as hereinafter 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 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 July 14, 1978 and expire on March 13, 1979. 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."

Modification No. A001 (Cont'd)
Supplemental Agreement to
Contract No. EW-78-S-07-1713

- C. ARTICLE III, "CONSIDERATION", paragraph (a), is hereby revised to increase the contract Support Ceiling to a total of One Hundred Thirty-Eight Thousand Five Hundred Forty-Seven Dollars (\$138,547.00) (this includes \$75,000.00 obligated by the original contract, \$25,000.00 obligated by letter dated May 26, 1978, and \$38,547.00 obligated by this Modification No. A001).
- D. ARTICLE IV, "GOVERNMENT PROPERTY," is amended to list the following equipment which was procured by the Contractor under Appendix A and this Appendix A1, and are hereby identified as "Government Property":
1. Typewriter
 2. File cabinets (2 each)
 3. Mercury analyzer for AA Spectrophotometer

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-07-1713 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 _____

Contracts Management Division
Idaho Operations Office
Contracting Officer

UNIVERSITY OF HAWAII AT MONOA

Witnesses as to signature of
Contractor:

By _____

(Signature)

Name (typed)

Name (typed)

Title

(Address)

(Business Address)

(Signature)

Name (typed)

(Address)

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 HAWAII AT MONOA

APPENDIX A1

For the Contract Period July 14, 1978 through March 13, 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 an extensive literature search of all existing geologic information on the Lualualei area. Structural and petrologic mapping will be performed to characterize the Waianae caldera and to identify the caldera boundaries. The locations of active and fossil hydrothermal alternation will be defined. Sampling and geochemical analyses will be performed on the 30 or so shallow well and ground waters in and near the caldera. Isotopic compositions of the waters will also be determined, and the hydrology of the system will be modeled. Tasks are summarized as follows:

- Task 1. Field mapping of hydrothermal alteration in the Lualualei district.
- Task 2. Petrological and geochemical study of fresh and altered basalts from Lualualei.
- Task 3. Water geochemical study of thermal and cold ground water in the area, and hydrologic modeling of the system.
- Task 4. Data interpretation and analysis for the area, and publication of results.

(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:

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

1. Salaries and Wages

P. F. Fan - 100% of time for 1 mo. @ \$2,291	\$ 2,291
D. M. Thomas - 35% of time for 6 mo. @ \$1,389	2,917
J. M. Sinton - 100% for 1 mo. @ \$1,562	1,562
Graduate Student - 50% of time for 7 mos. @ \$982/mo.	3,437
Support personnel	
Laboratory Technician - 100% of time for 6 months @ \$1,052	6,312
Field Assistant - 100% of time for 3 mos. @ \$982/mo.	2,946
	<u>19,465</u>

Staff Benefits 3,090

Total Salaries, Wages and Staff Benefits 22,555

2. Permanent Equipment - "Jerome" Mercury Detector 5,500

3. Expendable Equipment and Supplies

a) Expendable equipment	500
b) Isotope analysis, charges (T, ¹³ C, ¹⁸ O, H/D, ³ He/ ⁴ He)	2,000
c) Chemical analysis charges (Na, ⁺ K, ⁺ Ca, ⁺² Mg, ⁺² Hg, ⁺² Cl, ⁻ S, ⁻² , SO ₄ ⁻² , HCO ₃ ⁻¹ , F ⁻ , SiO ₂)	2,000

Total Expendable Equipment and Supplies 4,500

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

4. Travel	750
5. Publication Cost	900
6. Computer Charges 6 hrs. @ 243/hr.	1,447
7. Other Direct Costs: Communications	<u>200</u>
Total Direct Costs	35,852
Indirect Costs: 48.2% of \$19,465	<u>9,382</u>
TOTAL COST	<u>45,234</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 to DOE for the performance of all work under Article A-II of this Appendix A1 is \$45,234.00. An amount of \$38,547.00 is hereby obligated for the period from July 14, 1978 through March 13, 1979 to start the work. The balance of \$6,687.00 will be obligated when and if funds are available. The Contractor shall perform the research set forth under Article A-I of this Appendix A1 until 90% of the \$38,547.00 is obligated. At that time, if the balance of \$6,687.00 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 \$6,687.00 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 under this Appendix A1. DOE will pay 100% of the actual costs enumerated in Article A-II above, subject to the provisions contained in this article, Article III, and Article B-V.

Article A-IV ADMINISTRATION AND REPORTS

(a) Principal Investigator - Charles E. Helsley

DOE Technical Administrator - J. L. Griffith, GEB
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 follows:

	<u>Frequency</u>	<u>Draft to Technical Administrator for Concurrence</u>	<u>Distribution Technical Administrator</u>	<u>TIC</u>
Administrative and Technical Progress Report	Monthly	N/A	10	N/A
Final Report	Completion of contract effort	3 weeks after end of reporting period	10	1 camera- ready copy
Topical Reports	As required	As agreed with Technical Administrator	10	1 camera- ready copy

2. Reports Formats

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

- (a) The cover page will be supplied by DOE/DGE 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.

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

(c) The distribution category for reports prepared under this contract will be UC-66A as defined on page 16 of ERDA-76/72.

3. Content of Reports

Administrative and Technical Progress Reports -- Letter to Technical Administrator on personnel and fiscal matters, including such information as rate of expenditures, equipment ordering/availability/receipt, loss or gain of personnel, etc. The letter shall include a 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 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 -- Comprehensive report of objectives, results and conclusions of task effort, should identify accomplishments, problems encountered and solutions applied, conclusions reached and recommendations for applications of results. It shall also include a summary of the available geological, geochemical, geophysical, hydrological, and environmental data relevant to the distribution of the low and moderate temperature geothermal resources in Colorado. The report will contain a prioritized list of candidate sites for reservoir confirmation studies during follow-on work, if any. A map will be prepared in cooperation with NOAA which will graphically portray the distribution of the resource. The report should be in sufficient detail that the work could be duplicated by others.

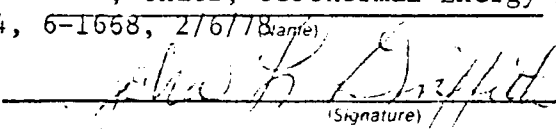
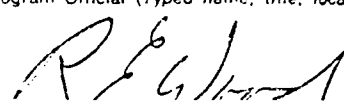
Topical Reports -- A special technical report prepared when a project has reached a point at which a milestone or a significant phase has been completed, when unexpected results have been achieved, or when a new scientific or technological finding is deemed to warrant prompt publication.

FORM ERDA-799
(3-75)
ERDA-PR 9-16

M.2.13

U.S. ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION
PROCUREMENT REQUEST
(See Instructions on Reverse of Last Sheet)

•Please Type

1. TO: Procurement Office Contracts & Procurement Division-ID		2. From Geothermal Energy Branch Activity Title: Division: Energy & Technology Project:		3. Procurement Request Number W07 78 0059		
4. <input checked="" type="checkbox"/> Contract <input type="checkbox"/> Grant <input type="checkbox"/> Special Research Support Agreement (SRSA) <input type="checkbox"/> Other		<input type="checkbox"/> Modification of Contract Number _____ TO/PA <input type="checkbox"/> Change Order <input type="checkbox"/> Supplemental Agreement		5. Priority Rating (Ref. FPR 1-1.311) N/A	6. Desired Award Date 3/1/78	7. Security Classification (ERDAM APP. 3401) <input checked="" type="checkbox"/> Unclass. <input type="checkbox"/> Secret <input type="checkbox"/> Conf. <input type="checkbox"/> Top Secret
8. SERVICES, ARTICLES, MODIFICATIONS OR OTHER ACTION REQUIRED						
TITLE <u>Hawaiian Geophysical Institute-State Assessment Program</u>						
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	To assess the low to moderate temperature resources of the State of Hawaii		75,000 \$107,247 75,000			
e. TOTAL ESTIMATED AMOUNT OF THIS ACTION				\$107,247		
9. Competitive Procurement Non-Competitive Procurement <input checked="" type="checkbox"/> If competitive, attach technical evaluation plan. If non-competitive, attach justification. Ref.: FPR 1-3.101(d) & ERDA-PR 9-55.2		10. Is Source Evaluation Board Required? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO Ref.: ERDA Source Evaluation and Selection Handbook		11. Procurement Request Resulting From Unsolicited Proposal If yes, attach copy of proposal and determination Ref.: ERDA-PR 9-4.52 and 9-4.51 <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO UNSOLICITED PROPOSAL NUMBER _____		
12. Cost Sharing Contract <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO If yes, attach details of cost sharing. Ref.: ERDA-PR 9-4 56		13. Government Furnished Equipment and Facilities Required? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO If yes, attach details of requirements.		14. Recommended Source(s) Attach name(s) and address(es) of source(s).		
15. Report and Drawings Requirements <input type="checkbox"/> YES <input type="checkbox"/> NO If yes, attach details of requirements.		16. Budget Activity Program, Subprogram, and Activity (ERDAM Appendix 1101, Part II) <u>AE020200</u> \$ <u>75,000</u> \$ 107,247 Amount of Funds Authorized				
17. Requestor (Typed name, title, location, telephone number, date) J.L.Griffith, Chief, Geothermal Energy Branch, Rm 104, 6-1658, 2/6/78 (Date)  (Signature)			19. Certifying Official (Typed name, title, location, telephone number, date) _____ (Date) I hereby certify that funds in the amount here stated are available for such purposes under Allotment			
18. Authorizing Program Official (Typed name, title, location, telephone number, date) 			No. _____			

U.S. ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION

PROCUREMENT REQUEST

(See Instructions on Reverse of Last Sheet)

•Please Type

1. TO: Procurement Office <i>Contracts & Procurement Div. ID</i>		2. From <i>Geothermal Energy Branch</i> Activity Title: Division: <i>Energy & Technology</i> Project:		3. Procurement Request Number <i>NE-778 CC-59</i>			
4. <input checked="" type="checkbox"/> Contract <input type="checkbox"/> Grant <input type="checkbox"/> Special Research Support Agreement (SRSA) <input type="checkbox"/> Other		<input type="checkbox"/> Modification of Contract Number _____ TO/PA _____ <input type="checkbox"/> Change Order <input type="checkbox"/> Supplemental Agreement		5. Priority Rating (Ref. FPR 1-1.311) <i>N/A</i>	6. Desired Award Date: <i>3/1/78</i> 2/1/78	7. Security Classification (ERDAM APP. 3401) <input checked="" type="checkbox"/> Unclass. <input type="checkbox"/> Secret <input type="checkbox"/> Conf. <input type="checkbox"/> Top Secret	
8. SERVICES, ARTICLES, MODIFICATIONS OR OTHER ACTION REQUIRED							
TITLE <i>Hawaiian Geophysical Inst. - State Assessment Program</i>							
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	<i>to assess the low to moderate temp. resources of the state of Hawaii</i>		<i>247</i> \$107,500 247				
e. TOTAL ESTIMATED AMOUNT OF THIS ACTION			<i>\$ 107,500</i>				
9. Competitive Procurement <input type="checkbox"/> Non-Competitive Procurement <input checked="" type="checkbox"/> Non-Competitive Procurement If competitive, attach technical evaluation plan. If non-competitive, attach justification. Ref.: FPR 1-3.101(d) & ERDA-PR 9-55.2		10. Is Source Evaluation Board Required? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO Ref.: ERDA Source Evaluation and Selection Handbook		11. Procurement Request Resulting From Unsolicited Proposal If yes, attach copy of proposal and determination Ref.: ERDA-PR 9-4.52 and 9-4.51 <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO UNSOLICITED PROPOSAL NUMBER _____			
12. Cost Sharing Contract <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO If yes, attach details of cost sharing. Ref.: ERDA-PR 9-4.56		13. Government Furnished Equipment and Facilities Required? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO If yes, attach details of requirements.		14. Recommended Source(s) Attach name(s) and address(es) of source(s).			
15. Report and Drawings Requirements If yes, attach details of requirements. <input type="checkbox"/> YES <input type="checkbox"/> NO		16. Budget Activity Program, Subprogram, and Activity (ERDAM Appendix 1101, Part II) <i>AE 020000</i> <i>\$ 107,247</i> Amount of Funds Authorized					
17. Requestor (Typed name, title, location, telephone number, date) _____ (Name) _____ (Signature)			19. Certifying Official (Typed name, title, location, telephone number, date) _____ (Date) <i>I hereby certify that funds in the amount here stated are available for such purposes under Allotment.</i>				
18. Authorizing Program Official (Typed name, title, location, telephone number, date) _____ (Signature)			No. _____ _____ (Signature)				

file M. 2. 13

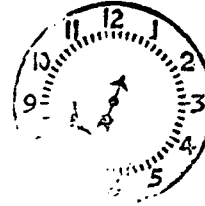
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US DOE IDAH

6-1668 AGM 101



MR JOHN GRIFFITH

U S DEPART OF ENERGY

550 SECOND ST

IDAHO FALLS IDAHO 83401

STATEMENT OF WORK

THE HAWAII INSTITUTE OF GEOPHYSICS OF THE UNIVERSITY OF HAWAII AS PART OF THE DOE WESTERN STATES COOPERATIVE DIRECT HEAT GEOTHERMAL PROGRAM WILL

1) PROVIDE TO DOE A SUMMARY OF THE AVAILABLE DATA FOR ALL WELLS OF POTENTIAL GEOTHERMAL SIGNIFICANCE WITHIN THE STATE, INCLUDING WATER CHEMISTRY DATA WHERE AVAILABLE:

2) INITIATE A QUALITY CONTROL PROGRAM FOR SPOT CHECKING THE EXISTING TEMPERATURE AND CHEMICAL DATA SET:

TWA-194

3) ASSIST IN THE COMPILATION OF GEOLOGICAL AND GEOPHYSICAL DATA PERTINENT TO THE GEOTHERMAL RESOURCES OF HAWAII:

4) COMMENCE A FIELD PROGRAM AIMED AT REFINEMENT OF THE TEMPERATURE AND WATER CHEMISTRY OF SELECTED AREAS OF GREATEST GEOTHERMAL INTEREST:

5) UNDERTAKE A GEOPHYSICAL FIELD PROGRAM AIMED AT DEFINITION OF THE SOURCE OF THE WARM WATERS OBSERVED IN WEST MAUI: AND

6) FORMULATE A PLAN FOR FURTHER EXPLORATION OF OTHER AREAS OF HIGH GEOTHERMAL INTEREST.

TASK LISTED UNDER ITEMS 1, 2 AND 3 WILL BE COMPLETED BY SEPTEMBER 1, 1978 WITH PROGRESS REPORTS TO BE SUBMITTED BIMONTHLY WITH THE FIRST REPORT BEING DUE APRIL 1.

SIGNED HELSLEY/ CY

BT

S DOE IDAH

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