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THE UNIVERSITY OF UTAH
COLLEGE OF MINES AND MINERAL INDUSTRIES
SALT LAKE CITY 84112

DEPARTMENT OF GEOLOGY
AND GEOPHYSICS

717 MINERAL SCIENCE BUILDING

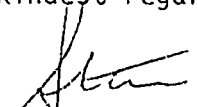
November 4, 1977

Dr. Jack Salisbury
ERDA
Division of Geothermal Energy
3rd Floor
20 Massachusetts Avenue, N.W.
Washington, DC 20545

Dear Jack,

Enclosed is my review of the unsolicited proposal submitted by American Geological Enterprises, Inc. The proposal has been referred to Howard Ross for a second review. By copy of this letter I am asking Howard to communicate his review to you with copy to me.

Kindest regards,


Stanley H. Ward
Chairman

CW

cc: Dr. Howard Ross

encl.

PROPOSAL NO. _____
COPY 1 OF 1
#11

UNSOLICITED PROPOSAL

Submitted to

Energy Research and Development Administration

by

American Geological Enterprises, Inc.
Company Name

Suite 1102 Walker Bank Building, Salt Lake City, Utah, 84111
Address

For

Study of Geothermal Potential in the Roosevelt Hot Springs Area
Title of Proposal

David J. Atkinson 702/322-4173
Project manager or principal investigator (phone no.)

333 Flint Street, Reno, Nevada 89501
Address of project manager if different from above

Dr. Paul Walton, 1102 Walker Bank Building, Salt Lake City, 801/363-3283
Proposer's business or contracting official (phone no.)

or

Milton Fisher, 295 Madison Avenue, New York City, 212/LE2-3678

July 8, 1977
Date

PROPOSAL FOR STUDY OF GEOTHERMAL POTENTIAL
IN THE ROOSEVELT HOT SPRINGS AREA

Abstract

The proposer, American Geological Enterprises, Inc. (AGE), 1102 Walker Bank Building, Salt Lake City, Utah, 84111, is the holder (lessee) of geothermal leases on approximately 29,681 acres of land in the Roosevelt Hot Springs area in Millard and Beaver Counties in the state of Utah. The basic purpose of the proposal study would be to appraise the geothermal potential of the AGE acreage as well as others in the area on which permission may be obtained to perform a study, to assess the relationship between that area and the known production zone, and to determine what final steps need to be taken in order to start a program of exploration test drilling of favorable targets. The work would be performed in three or four stages under the direction of qualified geologists. The expected result of the study would be to provide a better understanding of the structure and hydrogeology of the Escalante graben and would lead to a better perspective on the setting of the known geothermal field at Roosevelt, and would enable AGE (and others) to appraise the geothermal potential of the area studied.

NARRATIVE

1. Purpose and objective

A. Area selected

1) As indicated in the Abstract, the primary purpose of the proposal study is to evaluate the geothermal potential of certain acreage in the Roosevelt Hot Springs area. The legal description of the area proposed is given as lands lying with sections, townships and ranges set forth below:

Acreage under lease by American Geological Enterprises, Inc.:

a) Legal description of area proposed - 29.681.042 net acres under lease in Millard and Beaver Counties, Utah, Salt Lake Base and Meridian, lying within the following described sections:

<u>Township</u>	<u>Range</u>	<u>Sections</u>
25 South	10 West	1,3,7,8,10,11,12,13,14,15,16,19,21,22,24, 25,26,28,32,33, and 36.
26 South	9 West	5,6,7,17,18,19,20,29,30,31,32, and 34.
26 South	10 West	5,6,7,8,9,15,17,18,19,20,21,22,23,24,26, 27,28,29,30,31,32,33,34, and 35.
27 South	9 West	4,5, and 7.
27 South	10 West	3,4,5,6,7,10,11,13,14,15,17,20,21,23,27, 28,29,32,33,34,35, and 36.
28 South	10 West	3,5,8,9,10,11,25,26, and 27.

Acreage under lease by an individual:

b) Legal description - 5401.26 acres, all or part of following described sections, Beaver County, Utah:

(Salt Lake Base & Meridian)

<u>Township</u>	<u>Range</u>	<u>Sections</u>
26 South	10 West	11,12,13,14, and 25.
27 South	9 West	30 and 31.
27 South	10 West	1,12,13, and 24.

2) Ownership of land - The ownership of lands described in 1a) is various but all of the land is accessible under the terms of leases.

2.6-4 mi²

26-30-10-11-12-13-14-15-16-19-21-22-24-25-26-28-32-33-36
26-9-5-6-7-17-18-19-20-29-30-31-32-34
26-10-5-6-7-8-9-15-17-18-19-20-21-22-23-24-26-27-28-29-30-31-32-33-34-35
27-9-4-5-7
27-10-3-4-5-6-7-10-11-13-14-15-17-20-21-23-27-28-29-32-33-34-35-36
28-10-3-5-8-9-10-11-25-26-27

8.4 mi²

21
17
30
3
14

- 3) Geology - The area involves the main portion of the Escalante graben of about 20 miles from north to south, lying immediately west of the known geothermal reservoir at Roosevelt Hot Springs.
- 4) Leased area - The leased area was selected on the basis of its proximity to Roosevelt Hot Springs, the probable presence of favorable structural conditions, the existence of nearby heat sources, and the probability of favorable hydrogeologic conditions.
- 5) Data offered - The data offered is surface data, the results of geologic and geophysical investigations. The discovery of the Roosevelt field may have hinged on the fact that the crystalline rocks of the reservoir are relatively shallow there, and have leaked to surface in historic times. An understanding of the structure and hydrogeology of the Escalante graben would lead to a better perspective on the setting of the known geothermal field at Roosevelt, and would enable us to appraise the geothermal potential of the acreage studied.
- 6) Potential benefits and interest - The potential benefits of such a study would be to provide data that would lead to the tapping of the geothermal energy potential in that area. Such energy would be sold to commercial and/or private users. There is currently a great deal of interest in the Milford-Roosevelt Hot Springs area. Phillips Petroleum, for example, has drilled several test wells and initiated the formation of a federal geothermal unit.

Another source of H.G.R.H. is under path.

General geologic history of the area is discussed in the proposal.

2. Nature of the Work

The work will be new. The type of work is geological and geophysical as discussed in other parts of the proposal.

3. Statement of work

The work would be in three stages, as outlined below. The first stage would last four months; the second, three months; and the third, four months, for a total of eleven months.

The data would be available for release within less than twelve months after completion.

The first stage of the study would emphasize structure and hydrogeology, and would include geologic work on air photos and on the ground, delineating fault systems in the valley and developing an understanding of zones within the valley where structural and hydrogeologic conditions present at Roosevelt could be repeated, or where similar favorable geothermal potential may exist.

The second stage of the work would emphasize geophysics and would consist of detailed gravity work in an area of about 200 square miles, designed to determine the shape of the floor of the graben and to solve structural problems posed by results in the first stage of the work; electrical work, mostly bipole-dipole surveying and dipole-dipole profiling, based on the geologic interpretations of the first stage; plus other techniques that are determined to be appropriate, probably including active seismic.

The third stage of the study would involve comparison of our newly developed data with existing information to establish the relationship between the Roosevelt productive zone and the rest of the graben in the area of ACE's leases. The final product of our work would be a report describing in detail what we had done, what we found, and what we concluded.

A fourth stage, which is not included here, would be the final program needed to define drilling targets for deep tests. The exact program would depend on the results of the work described above, but might include temperature gradient holes, microseismic or seismic emission studies, gas geochemistry, further electrical work, and so on.

4. Organization, facilities, and qualifications of American Geological Enterprises, Inc.
- A. American Geological Enterprises, Inc. is a corporation organized and existing under the laws of the State of Utah, having its principal office and place of business in the city of Salt Lake City in the state of Utah.
- Corporate officers authorized to commit the company are Dr. Paul Walton, President and Milton Fisher, Chairman of Board of Directors.
- B. It employes six persons on a part-time basis.
- 1) It is not categorized as a "minority business" enterprise.
 - 2) It is categorized as a "small business" enterprise.
- C. Work proposed will be performed at the American Geological Enterprises' acreage in Escalante Valley west of Roosevelt Hot Springs and other nearby acreage or which permission may be obtained to work has available qualified personnel for the performance of the work or services called for within the time specified.
- D. It is currently engaged in work or services of the type required herein and is fully qualified for the performance of the work or services hereunder as the result of its experience in the field involved.
- F. If a contract is awarded as a result of this proposal, it is the intention of the proposer to subcontract the following work or services:
- | <u>Work, Services, or
Major Equipment Purchases
to be Subcontracted</u> | <u>Cost</u> | <u>Prospective
Subcontractor(s)</u> |
|-----------------------------------------------------------------------------------------------------------------------|-------------|-----------------------------------------|
| Field work studies outlined
under schedule of work
(Subcontractor selected on basis of competency in the field) | \$61,800 | Hydro-Search, Inc. |
- G. It has not employed or retained a company or person (other than a full-time employee) to solicit or secure this contract, and agrees to furnish information relating thereto as requested by the contracting officer.
- H. It has not the necessary financial capacity, working capital, and other resources to perform the contract without assistance from any outside source. Anticipated contract from ERDA in the amount of \$81,000.

5. Other information

A. Names, titles and resumes of principal investigator and key technical personnel.

- 1) David J. Atkinson, PhD., Director of Geothermal for Hydro-Search, Inc. (perspective subcontractor). Dr. Atkinson has had extensive training in geology, mathematics, chemistry and physics and has received several academic and research related awards, including the Wheeler Prize in Economic Geology and the Watkins Award of the Royal Geographic Society. He has performed field work in all parts of the world including the U.S., Canada, Africa, Iceland, Spitsbergen, Scandinavia and Europe. Dr. Atkinson has been a consultant in geology, hydrology and soil environment work since 1971 and would direct and coordinate each phase of the project.
- 2) Paul T. Walton, PhD., President of American Geological Enterprises, Inc. Dr. Walton has been President of AGE since 1973 and has been a director since 1966. He has been engaged, for over 25 years, as an independent geologist in connection with the exploration and development of oil and gas and other mineral properties. He is a member of a number of geological associations and has published numerous articles in this field. He holds a Bachelor of Science degree in Geological Engineering and a Master of Science degree in Geology from the University of Utah, and a Doctor of Philosophy degree in Geology from the Massachusetts Institute of Technology. Dr. Walton would be involved with site selection approval, field verification of air photo, progress review and consultation.
- 3) Mr. Milton Fisher, Chairman of the Board of Directors of American Geological Enterprises, Inc.
Mr. Fisher, President of A.D. Gilhart & Co., Inc., investment bankers, since 1959, has been a director of the Company since 1969 and now serves as Chairman of the Board. He holds a Doctor of Laws and is a member of the

3) -Continued-

Bar of the State of New York and presently serves as a director of several public companies. He has written and lectured in the field of business and finance.

Mr. Fisher is familiar with government contracts and would be involved with legal work and negotiations.

6. Location.

The work will be performed on the acreage outlined in the proposal. Equipment used will be provided by Hydro-Search, Inc., the prospective subcontractor.

CONTRACT PRICING PROPOSAL
(RESEARCH AND DEVELOPMENT)

APPENDIX B

American Geological Enterprises, Inc.		PAGE NO. 1	NO. OF PAGES 2
NAME OF OFFEROR 1102 Walker Bank Building	SUPPLIES AND/OR SERVICES TO BE FURNISHED		
HOME OFFICE ADDRESS Salt Lake City, Utah 84111			
DIVISION(S) AND LOCATION(S) WHERE WORK IS TO BE PERFORMED Escalante Valley, Utah	TOTAL AMOUNT OF PROPOSAL \$ 81,000	GOV'T SOLICITATION NO.	

DETAIL DESCRIPTION OF COST ELEMENTS

1. DIRECT MATERIAL (Itemize on Exhibit A)	EST COST (\$)	TOTAL EST COST	REFERENCE
a. PURCHASED PARTS			
b. SUBCONTRACTED ITEMS			
c. OTHER—(1) RAW MATERIAL			
(2) YOUR STANDARD COMMERCIAL ITEMS			
(3) INTERDIVISIONAL TRANSFERS (At other than cost)			
TOTAL DIRECT MATERIAL			
2. MATERIAL OVERHEAD (Rate % of base)			
3. DIRECT LABOR (Specify)	ESTIMATED HOURS	RATE/HOUR	EST COST (\$)
Dr. Paul T. Walton - inspection trips, site verification, etc.	315	40	12,600
TOTAL DIRECT LABOR			12,600
4. LABOR OVERHEAD (Specify Department or Cost Center)	O.H. RATE	X BASE =	EST COST (\$)
TOTAL LABOR OVERHEAD			
5. SPECIAL TESTING (Including field work at Government installations)		EST COST (\$)	
Study performed by Hydro-Search, Inc. (Subcontractor)		61,800	
TOTAL SPECIAL TESTING			61,800
6. SPECIAL EQUIPMENT (If direct charge) (Itemize on Exhibit A)			
7. TRAVEL (If direct charge) (Give details on attached Schedule)		EST COST (\$)	
a. TRANSPORTATION and out-of-pocket expenses		3,000	
b. PER DIEM OR SUBSISTENCE			
TOTAL TRAVEL			3,000
8. CONSULTANTS (Identify—purpose—rate)		EST COST (\$)	
Legal and accounting fees		2,500	
TOTAL CONSULTANTS			2,500
9. OTHER DIRECT COSTS (Itemize on Exhibit A)			
TOTAL DIRECT COST AND OVERHEAD			
11. GENERAL AND ADMINISTRATIVE EXPENSE (Rate % of cost element No.)			1,100
12. ROYALTIES			
TOTAL ESTIMATED COST			81,000
14. FEE OR PROFIT			
TOTAL ESTIMATED COST AND FEE OR PROFIT			81,000

This proposal is submitted for use in connection with and in response to (Describe RFP, etc.)

and reflects our best estimates as of this date, in accordance with the Instructions to Offerors and the Footnotes which follow.

TYPED NAME AND TITLE Paul T. Walton President	SIGNATURE
NAME OF FIRM American Geological Enterprises Inc.	DATE OF SUBMISSION 7/29/77

