

CONTRACTING AGENCY: TEXAS ENERGY AND NATURAL RESOURCES ADMINISTRATION (TENR)  
 CONTRACT NUMBER(S): EE-FC07-71012000  
 PRINCIPAL INVESTIGATOR: DAVID H. WISSE

CONTRACT PERIOD	CONTRIBUTION		WORK DESCRIPTION	LOCATION	REMARKS
	DOE	STATE			
1/28/79 - 3/30/79	170,000	50,000	<ul style="list-style-type: none"> <li>• GENERAL ANALYSIS</li> <li>• TECHNICAL REVIEW</li> <li>• BED-RIVER STUDY</li> <li>• DATA ANALYSIS</li> <li>• REPORTING</li> </ul>	<ul style="list-style-type: none"> <li>• DALLAS, TEXAS</li> <li>• HOUSTON, TEXAS</li> <li>• HOUSTON, TEXAS</li> <li>• HOUSTON, TEXAS</li> <li>• HOUSTON, TEXAS</li> </ul>	

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-FC07-79ID12080

1.b. Modification No.

2. Agreement Period

From: 9/28/79

To: 9/30/81

3. Participant Name and Address

Texas Energy and Natural Resources  
Advisory Council  
411 West 13th Street  
Austin, Texas 78701

4. Participant Type

- Educational
- State or Local Government
- Nonprofit
- Profit

5. Project Title

Geothermal Exploration in Trans Pecos,  
Texas/New Mexico

6. Project Will Be Conducted Per

See Article III

7. Technical Reports Are Required

See Article III

3. Principal Investigator(s) or Program Director(s) Name and Address

David M. White  
Texas Energy and Natural Resources  
Advisory Council  
411 West 13th Street, Room 902  
Austin, Texas 78701  
Telephone (512) 475-5588

9. DOE Program Officer (Name and Address)

Margaret A. Widmayer, Energy & Technology  
Division, DOE-ID  
550 Second Street  
Idaho Falls, Idaho 83401  
Telephone No. 208-526-1466

10. Accounting and Appropriation Data

AE-10-02-02 89X0210.91

11. Method of Payment

- % At Award. % When Requested. 5% Upon Receipt of Final Report
- Letter of Credit  Reimbursement
- Other (specify) See Article V

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

13. Funding Sources

Source	Amount
DOE:	\$ 170,000.00
Participant:	\$ 50,000.00
Total Funding:	\$ 220,000.00

14. Remarks:

15. Amount Obligated By This Action:

\$ 170,000.00

16. DOE Issuing Office (Name and Address)

Idaho Operations Office  
550 Second Street  
Idaho Falls, Idaho 83401

17. DOE Cooperative Agreements Officer

J. F. Marmo 12/13/79  
Signature (Date)

Name (typed) J. F. Marmo

Title Contracting Officer

Telephone No. 208-526-1475

18. Participant Acceptance

By Milton L. Holloway  
Signature of Authorized Official (Date)

Name (typed) Milton L. Holloway  
Director, Energy Analysis & Develop-  
ment Division, TENRAC

ARTICLE II - DEFINITIONS (Cont'd)

includes, except as otherwise provided in this Agreement, the authorized representative of a Contracting Officer acting within the limits of his authority.

C. Except as otherwise provided in this Agreement, the term "sub-contract" includes purchase orders under this Agreement.

ARTICLE III - STATEMENT OF WORK

Previous work in the region, supported by ERDA (1976-1977), the Texas Legislature (1975-77), the Texas Energy Advisory Council (TEAC, 1978-79), and two utilities has delineated several areas of potential for geothermal resources, and has identified two subregions in West Texas which should be investigated in detail. These are listed as the Hueco Tanks subregion to the east of El Paso, and the Presidio Bolson subregion.

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 "Geothermal Exploration in Trans Pecos, Texas/New Mexico," 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 following tasks are set forth in the proposal:

Task 1 - Establish Geologic setting and Review Existing Data. The objectives of this task are to review and compile existing geological and geochemical data related to the Hueco Tanks and Presidio Bolson subregions in order to assess potential sites for additional geothermal exploration.

Task 2 - Drilling Program. In the Hueco Tanks subregion during year 1 twelve shallow temperature gradient holes (50M) will be drilled followed by three 300M holes. Based on the results of year 1 drilling, one 750M hole will be drilled during year 2.

In the Presidio Bolson subregion, ten 50M holes will be drilled in year 2. Based on results one 300M hole will be drilled.

Task 3 - Data Aquisition. In the Hueco Tanks subregion the following projects will be undertaken: 1) measure thermal gradients in the boreholes completed in Task 2, and determine heat flow; 2) conduct a gravity survey over about 100 stations; 3) conduct a microearthquake survey using three stations for a minimum of two weeks; 4) analyze chemically any fluids encountered in the boreholes as feasible, and any other wells or springs in the area and 5) conduct an electrical resistivity survey. In the Presidio Bolson subregion projects 1), 3), and 4) will be conducted.

ARTICLE III -- STATEMENT OF WORK (Cont'd)

Task 4 - Data Analysis and Synthesis.

Task 5 - Project Reporting. Reports in accordance with the attached Appendix B DOE Form CR-537 Reporting Requirements Checklist shall be prepared and reviewed by a team under the direction of Mr. White of TEAC, and will include persons from the University of Texas at El Paso, the University of Texas at Austin (Bureau of Economic Geology), and the Southwest Research Institute.

ARTICLE IV - FINANCIAL SUPPORT OF THE PROJECT

A. The total estimated cost of performing work under this Agreement is Two Hundred Twenty Thousand Dollars (\$220,000.00) of which the Participant will pay Fifty Thousand Dollars (\$50,000.00) and DOE will pay One Hundred Seventy Thousand Dollars (\$170,000.00). The Participant will pay all direct salaries and wages and the applicable overhead costs for employees of the University of Texas at El Paso and the University of Texas at Austin (Bureau of Economic Geology). In addition, the Participant will pay for Two Thousand One Hundred Fifty Six Dollars (\$2,156.00) of Other Direct Costs for the Bureau of Economic Geology effort. DOE will reimburse the Participant for fringe benefits for these employees of University of Texas at El Paso and University of Texas at Austin and will also reimburse for Other Direct Costs including travel and subcontracts. DOE will also reimburse the Participant for all costs of the Southwest Research Institute subcontract. The total cost to DOE is hereby established as One Hundred Seventy Thousand Dollars (\$170,000.00), 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 77% DOE, 23% Participant.

C. The amount of funds obligated under this Agreement by DOE for the period from approximately September 28, 1979 through September 30, 1981 is One Hundred Seventy Thousand Dollars (\$170,000.00). The Participant shall notify DOE in writing when 90% of this obligation is reached with a description of the project status relative to the remaining funds.