

GL01926



**Department of Energy**

Idaho Operations Office  
785 DOE Place  
Idaho Falls, Idaho 83402

April 1, 1986

Mr. Bruce Sibbett  
University of Utah Research Institute  
Earth Science Laboratory  
391 Chipeta Way, Suite C  
Salt Lake City, UT 84108

SUBJECT: Technical Advisory Committee to the Source Evaluation Panel  
SCAP No. DE-SC07-86ID12632 for Geothermal Research Holes in  
the Cascades Region of Washington, Oregon, and California

Dear Mr. Sibbett:

You are requested to serve as a member of the subject Committee. We are enclosing a Statement of Confidentiality and Freedom from Conflict of Interest which must be executed by you and returned to me prior to your participation in the Committee activities. By returning the executed Statement to me, you are accepting appointment to the subject Committee with the conditions and restrictions imposed by this letter and the enclosed Statement.

I recommend that you keep a copy of your executed Statement for your own information and future reference.

The Committee will convene at 1 p.m. Monday, June 2, 1986, for proposal review. We will meet at DOE-ID Headquarters Building, Conference Room E. It is anticipated that the Committee will be in session until noon, Friday, June 6, 1986.

Should you decide not to accept the appointment, you are requested to return the enclosed Statement to me unsigned.

Very truly yours,

A handwritten signature in cursive script, appearing to read "Susan".

Susan M. Prestwich, Chairman  
Technical Advisory Committee

Enclosure

*Bruce*

UNIVERSITY OF UTAH RESEARCH INSTITUTE

**UURI**

EARTH SCIENCE LABORATORY  
391 CHIPETA WAY, SUITE C  
SALT LAKE CITY, UTAH 84108-1295  
TELEPHONE 801-524-3422

April 16, 1986

Ms. Susan Prestwich  
Department of Energy  
Idah Operations Office  
785 DOE Place  
Idaho Falls, ID 83402

Subject: Technical Advisory Committee to the Source Evaluation Panel SCAP  
No. DE-SC07-86ID12632 for Geothermal Research Holes in the Cascades  
Region of Washington, Oregon, and California

Dear Ms. Prestwich:

Enclosed is the signed Statement of Confidentiality and Freedom from Conflict of Interest. The delay in returning the statement was due to my trip to Ascension Island from which I returned on the 11th of April. My schedule in June is a little uncertain because of the Ascension Island geothermal drilling, but at this time, it appears that I will be available for the committee meetings.

Thank you for the opportunity to participate on the Technical Advisory Committee.

Sincerely,

*Bruce S. Sibbett*

Bruce S. Sibbett  
Geologist

BSS/jp

enclosure

CERTIFICATE OF CONFIDENTIALITY AND FREEDOM FROM CONFLICT OF  
INTEREST FOR EVALUATION OF PROPOSALS FROM SOLICITATION FOR  
PROPOSALS FOR CASCADES REGIONAL THERMAL GRADIENT DRILLING - FY-86

In anticipation of my participation on the Technical Advisory Committee to the Source Evaluation Panel formed to evaluate proposals submitted in response to the subject solicitation, I certify that I will not disclose, except pursuant to the order of a court of competent jurisdiction, any information either during the proceedings of the Committee or any subsequent time concerning the evaluation or other activities of the Committee to anyone who is not also participating in the same proceedings or who is not also authorized access to the information by law or regulation, and then only to the extent that such information is required in connection with such proceedings or in connection with such person's official responsibilities. Furthermore, I will report to the Chairman of the Panel any communication concerning the solicitation or the Committee's or Panel's composition and activities directed to me from any source outside the Committee or the Panel.

I certify that I am not aware of any matter which might reduce my ability to participate in the subject Technical Advisory Committee proceedings and activities in an objective and unbiased manner or which might place me in a position of conflict, real or apparent, between my responsibilities as a member of the Committee and other interests.

I also certify that to my knowledge neither I, my spouse, minor children, nor any member of my immediate family has any stock, bond, or other financial interest in, or any employment arrangement with any person, firm, or other organization which has submitted a proposal or otherwise has an interest in the project which is subject of the solicitation. I also agree that in the event that subsequent to the execution of this certification by me, any person, firm, or organization in which, to my knowledge I (including my spouse, minor children and other members of my immediate household) have a financial interest or with which I have (or had) an employment arrangement, submits a proposal or otherwise becomes involved in the subject project, I will notify the Chairman of the Panel, and thereafter, until advised to the contrary, I will not participate further in any way, by rendering advice, making recommendations, voting, or otherwise in the work of this Committee.

I agree to use information contained in proposals which I receive for evaluation only for DOE evaluation purposes and to treat the information obtained in confidence. This obligation shall not apply to information obtainable from any source, including the proposer, without restriction. Any notice or restriction placed on the proposal by either DOE or the originator of the proposal shall be conspicuously affixed by me to any reproduction or abstract thereof and its provisions will be strictly complied with. Upon completion of the Technical Advisory Committee activities, I will return all copies of the proposal and abstracts, if any, to the DOE office which initially furnished the proposal for evaluation. Unless authorized by the Panel Chairman, I will not contact the originator of the proposal concerning any aspect of its contents.

Bruce E. Sibbett  
Name

April 15, 1986  
Date

UNIVERSITY OF UTAH RESEARCH INSTITUTE

# UURI

EARTH SCIENCE LABORATORY  
391 CHIPETA WAY, SUITE C  
SALT LAKE CITY, UTAH 84108-1295  
TELEPHONE 801-524-3422

April 30, 1986

Dr. Frank Stehli  
DOSECC, Inc.  
601 Elm Street, 438C  
Normal, OK 73019

Dear Frank:

I am submitting the enclosed abstract on an existing drilling program in the Cascades for presentation at the Rapid City workshop. Since this is an on-going program, this abstract is being submitted for the following purposes:

- a. to inform other scientists of the location and extent of the present program,
- b. to present a scientific data base which other scientific proposals will build upon, and
- c. to encourage scientific studies on the cores which are presently available.

I'm looking forward to this year's workshop.

Sincerely,



Dennis L. Nielson  
Associate Director

DLN/jp

enclosure

cc: P. M. Wright  
S. M. Prestwich  
M. J. Reed

DEPARTMENT OF ENERGY CASCADES GEOTHERMAL GRADIENT DRILLING:  
DRILLING PLAN AND RESULTS FROM COREHOLE N-1,  
NEWBERRY VOLCANO, OREGON

Dennis L. Nielson, Phillip M. Wright and Bruce S. Sibbett  
University of Utah Research Institute,  
Susan M. Prestwich, U. S. Department of Energy,  
Idaho Falls Operations Office,  
Marshall Reed, U. S. Department of Energy,  
Washington, D.C.

The U. S. Department of Energy has established a program of cooperative drilling with industry to investigate the geothermal potential of the Cascades volcanic province. Young volcanism and the association of high-temperature geothermal systems with similar geologic environments on a world-wide basis have focused preliminary exploration efforts on the province. However, few deep holes have been drilled, and much of the data accumulated is not in the public domain. This program is designed to provide fundamental scientific data on the Cascades which will be of use for both industry and basic science. At the present time, one 4000 foot core hole has been drilled on the southern flank of Newberry volcano, in Deschutes County, Oregon. Another corehole is planned for the northern flank of Newberry, and it will also be cored to a depth of 4000 feet. A third hole will be drilled at Blue Lake to the east of Santiam Pass in Jefferson County. This hole will be drilled to a depth of 4000 feet with core collected between 3000 feet and 4000 feet. The fourth hole under the present program will be cored to a depth of 5000 feet near Breitenbush Hot Springs in Marion County, Oregon. Altogether, these holes will provide a sampling of a shield volcano, the High Cascades province, and the boundary between the High Cascades and the Western Cascades provinces.

N-1, drilled by GEO Operator Corp., is the fourth hole into the Newberry volcanic pile for which all data are in the public domain. This corehole is located along the southern rift about three kilometers south of the summit caldera. It was drilled to test the depth of the "rain curtain", the downward and lateral flow of meteoric water which is thought to obscure thermal anomalies associated with Cascade volcanos. The thermal profile of the hole shows that the downward flow of meteoric water depresses the temperature profile to a depth of 1000 meters. Below this zone the temperature gradient is high to the bottom of the hole. The well has achieved its objective of documenting the extent of cold water overflow and the efficiency with which it masks the thermal anomaly of the Newberry magma-hydrothermal system. The well has been cased and is available for scientific measurements for one year.

In-progress scientific studies on N-1 include hydrothermal alteration, age dating, petrochemistry, and stratigraphy. In addition, data from this well is being used to calibrate geophysical characteristics of young volcanic rocks. In particular, electrical resistivity surveys are commonly used in volcanic environments to explore for hidden high-temperature geothermal systems. Induction logging of N-1 has resolved the presence of at least 15 horizons of moderate to high electrical conductivity between 2800 feet and 4000 feet. Resistivities in these horizons are in the range 1 to 10 ohm-m in a background of  $\pm 50$  ohm-m. Mineralogical studies on the core from N-1 have

shown that the low-resistivity zones are produced by smectite-rich units. The mineralogy further shows that the clays have formed as low-temperature alteration products in ash and tuff units in a section dominated by flows of basaltic andesite. This has several important implications: care must be taken in ascribing a hydrothermal origin to low resistivity zones, and electrical resistivity may be used as an important volcanological look that can outline areas of deposition of pyroclastic units which have altered to smectites.

Core from this program is stored at the Geothermal Sample Library at the University of Utah Research Institute and is available for study by interested scientists.