



**CALENERGY COMPANY, INC.**

January 22, 1999

Mr. Jeff Hulen  
Energy & Geoscience Institute  
University of Utah  
423 Wakara Way Suite 341  
Salt Lake City, Utah 84108

RE: Telephone Flat - Medicine Lake geological data transmitted under EGI - CalEnergy  
Technical Data Gathering Agreement

Dear Jeff,

Transmitted herewith are confidential and proprietary data belonging to CalEnergy Company (CEC) for your study of the Telephone Flat geothermal system near Medicine Lake, CA. All are copies of originals retained by CEC. The goals CalEnergy envisions for your work, as a complement to your own, are:

- Preparation of a summary article on the geology, hydrothermal alteration, and permeability structure associated with the "capping rhyolite" of the Telephone Flat geothermal system (TFGS) for submission to the GRC *Bulletin* or an equivalent publication. Cooperation with Colin Williams of the USGS in the geologic interpretation of recently obtained TFGS temperature logs.
- Preparation of a site-specific TFGS science plan in support of a slim-hole coring effort being developed by Sandia National Laboratories for submittal to the U.S. Department of Energy's (DOE) Office of Geothermal Technologies for funding.
- Development of a comprehensive geological, geochemical, structural, and hydrologic understanding of the TFGS. Preparation, as an outgrowth of this work, of a detailed, site-specific science plan to guide spot-coring and logging efforts in selected, future CEC production wells

**INFORMATION TRANSMITTED**

1 – Analyses, tritium, University of Miami, rept. Dated Sept. 20 and Oct. 25, 1989

2 – Map, geologic, generalized, colored --- No date

3 – Report, geology, geochemistry, by Daniel Carrier, Nov. 16, 1987

4 – Report, integrated geology and geophysics, by Gregg Nordquist and Randolph Thompson, June 20, 1990

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- 5 – Map, geologic, explanation, by Brian Hausback, Sept. 1983
- 6 – XRD report, by JBH, Mar. 16, 1988
- 7 – XRD report, by JBH, Oct. 29, 1985
- 8 – Mud log, Unocal, well GMF 87-13 deepening, Oct. 9, 1991
- 9 – Well summary, 17 X 24", by Alex Schriener, Jan. 1985
- 10 – Mud log, Unocal, well 68-8 deepening, Aug. 2, 1988
- 11 – Mud Log and completion drawing, Unocal, well 68-8, Jul. 23, 1988
- 12 – Completion diagram, well 68-8
- 13 - Report, Subsurface Trace-Element and Whole-Rock Oxygen-18 Evaluation, by A. Schriener, Sept. 26, 1986
- 14 - Data Sheet, K-Ar Data on Young Rock Samples, no date.
- 15- Report, Analysis of 70 Felsite to Mafic-Composition Volcanic Rock Cuttings Samples by Jeff Hulen, Aug. 29, 1985
- 16 - Letter Report, XRD Analysis and Petrographic Analysis by Susan Lutz, Nov. 21, 1988
- 17 - Letter Report + maps, Structural Assessment of Medicine Lake Highland by Angela McDannel, Oct. 11, 1985
- 18 - Glass Mountain Borehole location map by Daniel Carrier, Apr. 26, 1989.
- 19 - Report, Integrated Geophysical and Geological Interpretation by Gregg Nordquist, June 20, 1990
- 20 - Completion drawing and geologic summary sheet, GMF 31-17 well, c. 1988
- 21 - Letter Report and data, petrography by Susan Lutz, Apr. 9, 1990
- 22 - Composite charts for lithology, metals, and geochemistry for wells and boreholes, author unknown and no date.
- 23 - Letter report, U decay -series for Medicine Lake Highlands rocks, by David Jacobs, Dec. 31, 1990
- 24 - Geological and Geochemical Results from the GMF 87 -13 Deepening by David de Witt, June 12, 1992
- 25 - Letter Report, K/Ar Ages for Medicine Lake Samples by Brian Smith, Jan. 26, 1982
- 26 - Letter Report and Map, Surficial Geology of the Medicine Lake Highland by Brian Hausback, Jan. 20, 1984

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- 27 - Letter Report, Fluid Inclusion Studies on Samples from Glass Mt. Wells by David Carrier, Dec. 20, 1989
- 28 - Updated Geophysical Interpretation of the Medicine Lake Volcano by G.A. Nordquist, Dec. 19, 1985
- 29 - Mud log and completion drawing, Federal 17-6 well, Occidental Geothermal, Nov. 1982
- 30 - Mud log, GMF 31-17 well, Unocal, August 1988
- 31 - Letter Report, XRD analyses of 17A-6 well samples by Jeff Hulen, Jan. 23, 1985
- 32 - Letter Report, Hydrothermal Alteration and Well Lithologies for GMF 68-8, 31-7 and 17A-6 by D.L. Carrier, Aug. 8, 1989
- 33 - Letter Report, Analysis of Mineralogy and Fluid Inclusion Data by D.L. Carrier, Nov. 30, 1987
- 34 - Letter Report, Prelim. MT Results by Gregg Nordquist, Oct. 9, 1989.
- 35 - Map, Generalized Geology of GM KGRA, no author, no date.
- 36- Copies of viewgraphs from presentation of Regional Water Quality Control Board, 1999
- 37 – Assorted copies of summary-presentation viewgraphs for the TFGS
- 38 – Map showing proposed well locations and directions, dated August 1996

These reports are stamped "Confidential" and are to be held in confidence by EGI in accord with our confidentiality agreement made June 15, 1998. Any references that may exist in the list of transmitted documents in regard to directional well surveys, production test data, and reservoir engineering are to be held in strict confidence and are not to be published, or disseminated in any way.

Also transmitted herewith are petrographic thin sections which CalEnergy is loaning you for your work. These are to be returned by August 1999, unless we agree to an extension of time.

The thin sections include:

- 37 sections of surface rocks
- 25 sections of Well 87-15 grain-mounts
- 67 sections of Well 31-17 grain-mounts and core
- 81 sections of Well 68-8 (OH) grain-mounts
- 10 sections from wells 68-8 and 17A-6 for fluid inclusions studies
- 21 sections of wells 68-8 and 17A-6 grain-mounts
- 23 sections of Well 68-8 grain mounts
- 37 sections of Well 31-17 and Group "8" grain mounts
- 80 sections from TGH's 28-31 and 45-36 core
- 88 sections from TGH's 14-23, 36-28, 65-26, 75-6 core
- 89 sections from wells 17-6 and 17A-6 grain-mounts
- 85 sections from TGH's 51-2, 52-30, 54-19, 57-11
- 88 sections from TGH's and wells 1-1981, 2-1981, 56-3, 87-13, 84-17, 44-33
- 10 sections from TGH 82-9 grain mounts

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Sincerely,



Mark Walters  
Geoscience Manager

ACCEPTANCE:

 Energy & Geoscience Institute  
Jeff Hulen

on Jan. 22, 1999 in Ridgecrest, CA 9355  
(date)