O'BRIEN RESOURCES CORPORATION
154 HUGHES ROAD • SUITE 4
GRASS VALLEY, CALIFORNIA 95945
(916) 272-7203

MEMO: TEMPERATURE LOGS OF AMAX 1981 PROSPECTS

TO: FRANK DELLECHAIE

FROM: GARRY MAURATH

CC: BILL TEPLOW

DATE: FEBRUARY 19, 1982

The attached temperature/lithologic logs contain data gathered from December, 1981 through January, 1982 for the following prospects:

1. Needles, Arizona
2. Noquez, Nevada
3. Poinsettia, Nevada
4. Cina, Utah

figures 1 through 4 respectively. A second temperature log of the Crater, California prospect was not made due to inclement weather. Noquez DH #3 could not be relocated and was not measured a second time. The similarity between initial and final logs of DH #1 and #4 on the Noquez prospect indicate the original data is sufficient for our purposes.

The similarity of temperature measurements taken at a four week interval indicate no change, within the error of our thermal conductivity estimates, in the heat flow values reported to AMAX. The heat flow values for the Noquez drill holes were re-evaluated using Eckstein's conductivity data and the most recent temperature logs (Figures 2a and 2b).

Figures 2c and 3c have been included to show the uniformity of heat flow over the Noquez and Poinsettia prospects respectively. This is a very rough comparison since there are lithologic changes between individual drill holes.

A noticeable increase in the influence of microclimatic effects on temperature measurements as re-equilibration proceeded was observed. If this is actually the case I recommend that "final" logs be taken within one month of hole completion. If more accurate results are desired, a minimum of six months should be allowed to elapse between hole completion and logging. Environmental effects should then be mathematically removed from the data. The latter procedure is clearly not consistent with O'Brien's current exploration methodology of timely data acquisition.

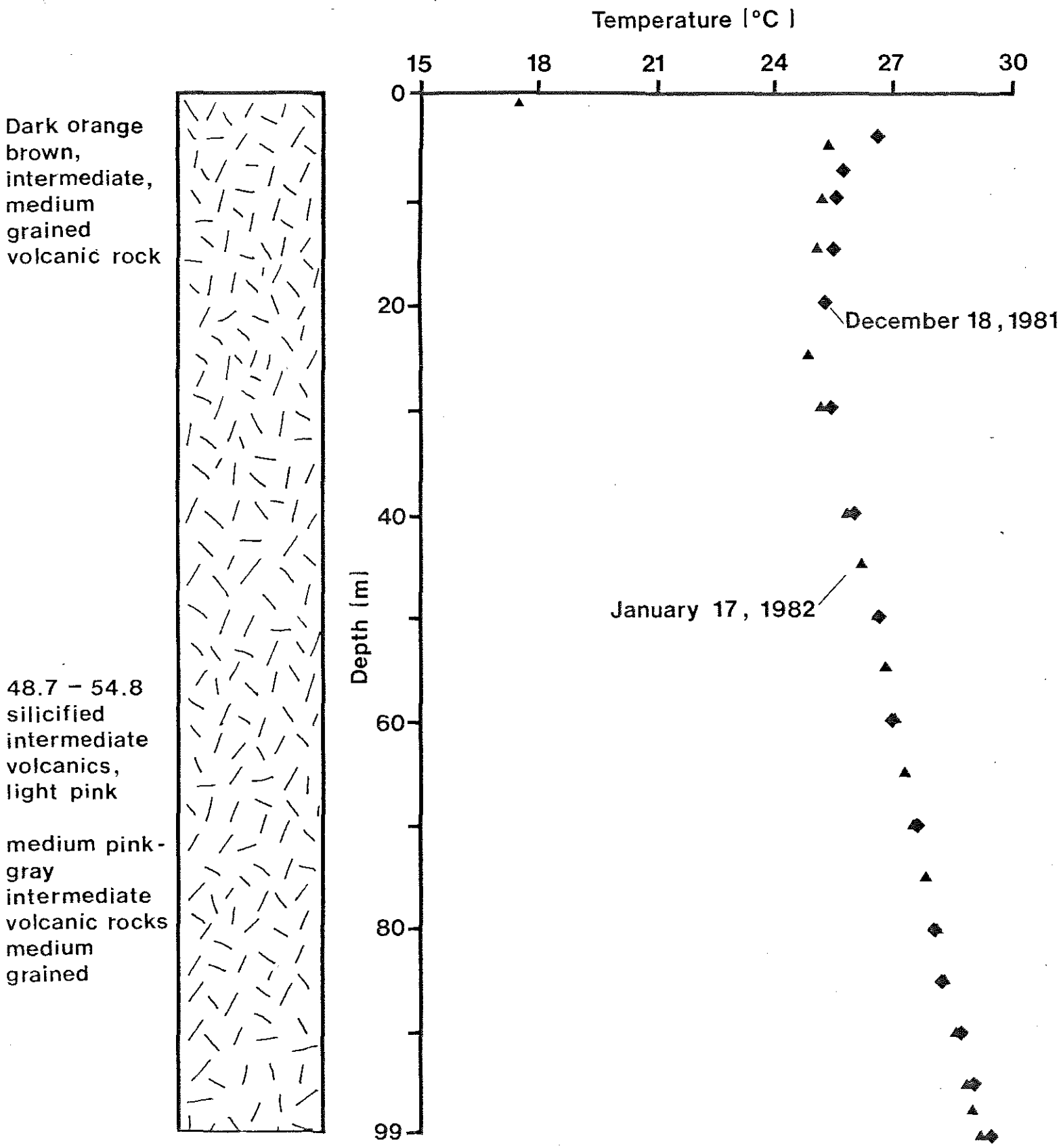

Figure 1. Lithologic Log and Thermal Gradient Curve D.H. #1 Needles Prospect. Mohave County, Arizona (December 18, 1981).
T = 46°C/km; k = 7.5 T.C.U.; q = 3.5 H.F.U. 0-60 meters
T = 56°C/km; k = 6.3 T.C.U.; q = 3.5 H.F.U. 60-100 meters.

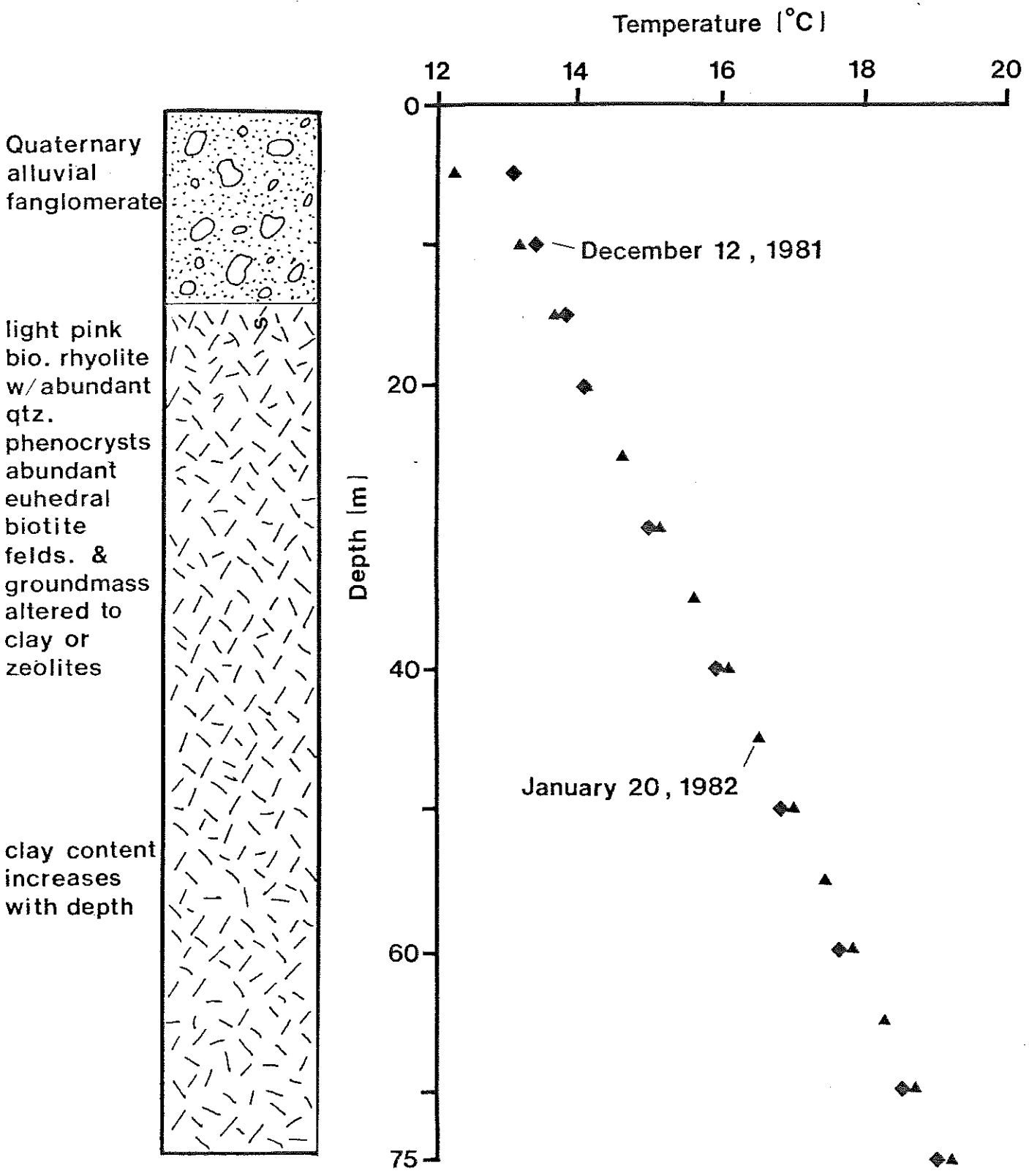

Figure 2a. Lithologic Log and Thermal Gradient Curve D.H. #1. Noquez Prospect. Mineral County, Nevada. T = 95°C/km; k = 7.7 T.C.U.; q = 7.3 H.F.U. 20-74 meters. (December 12, 1981) T = 91°C/km; k = 5.5 T.C.U.; q = 5.0 H.F.U. 35-75 meters. (January 19, 1982).

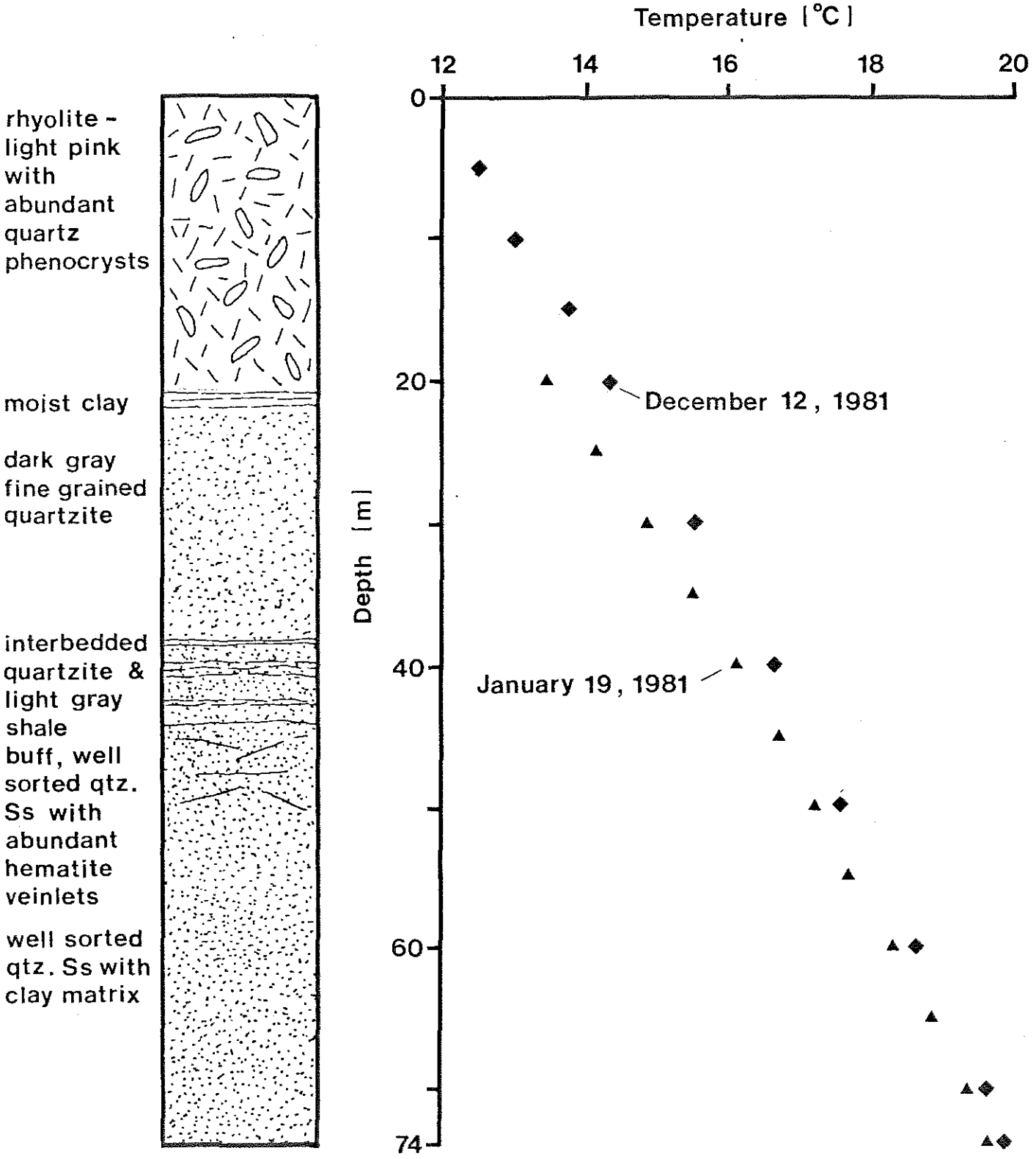

Figure 2b. Lithologic Log and Thermal Gradient Curve D.H. #4.
Noquez Prospect. Mineral County, Nevada. T = 90°C/km;
k = 10 T.C.U.; q = 9.0 H.F.U. 40-74 meters (December 12, 1981)
T = 100°C/km; k = 5.6 T.C.U.; q = 5.6 H.F.U. 40-65 meters (January 19, 1982).

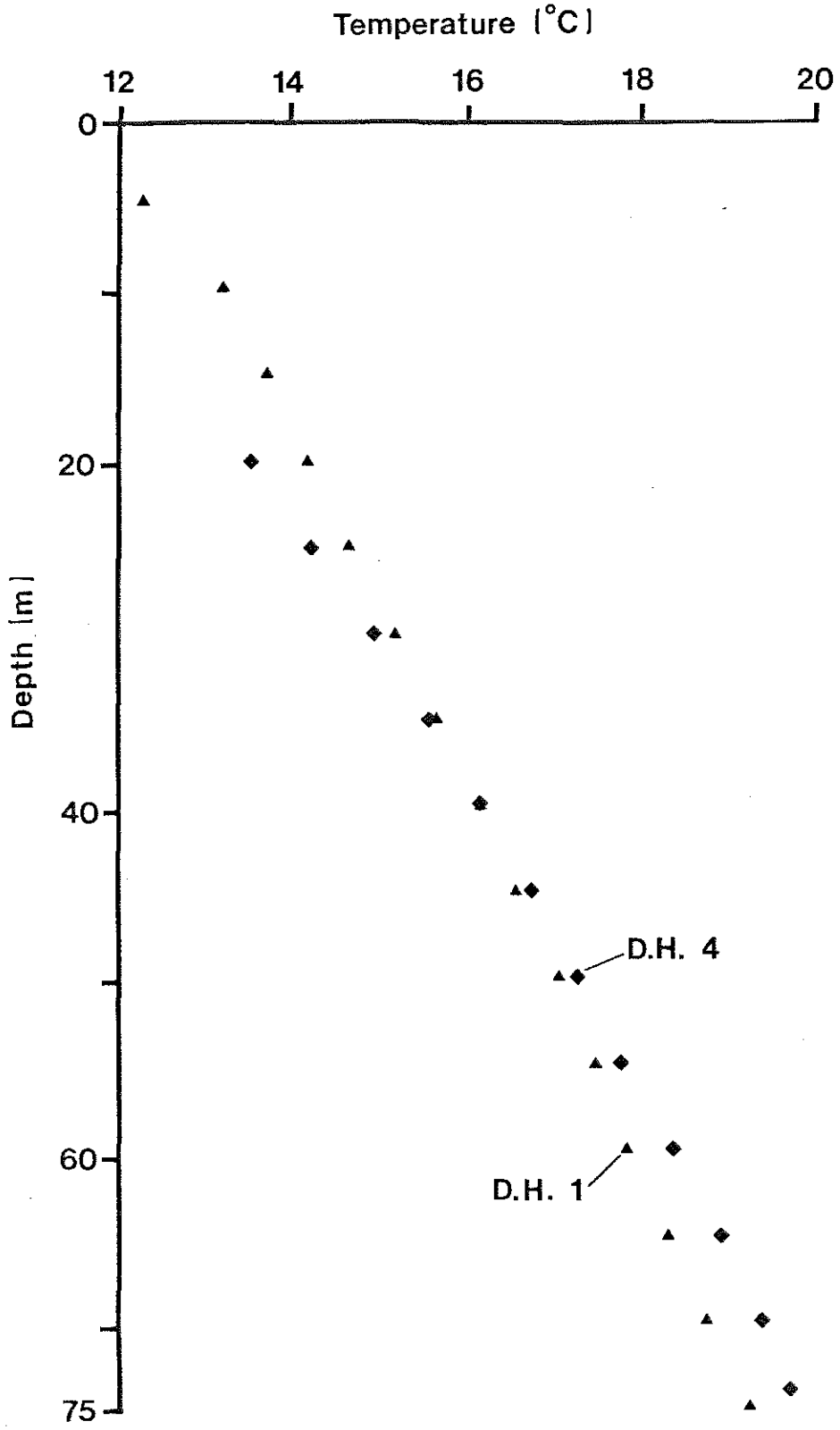

Figure 2c. Temperature logs of Noquez D.H. #1 and D.H. #4. Mineral County, Nevada. January 19, 1982.

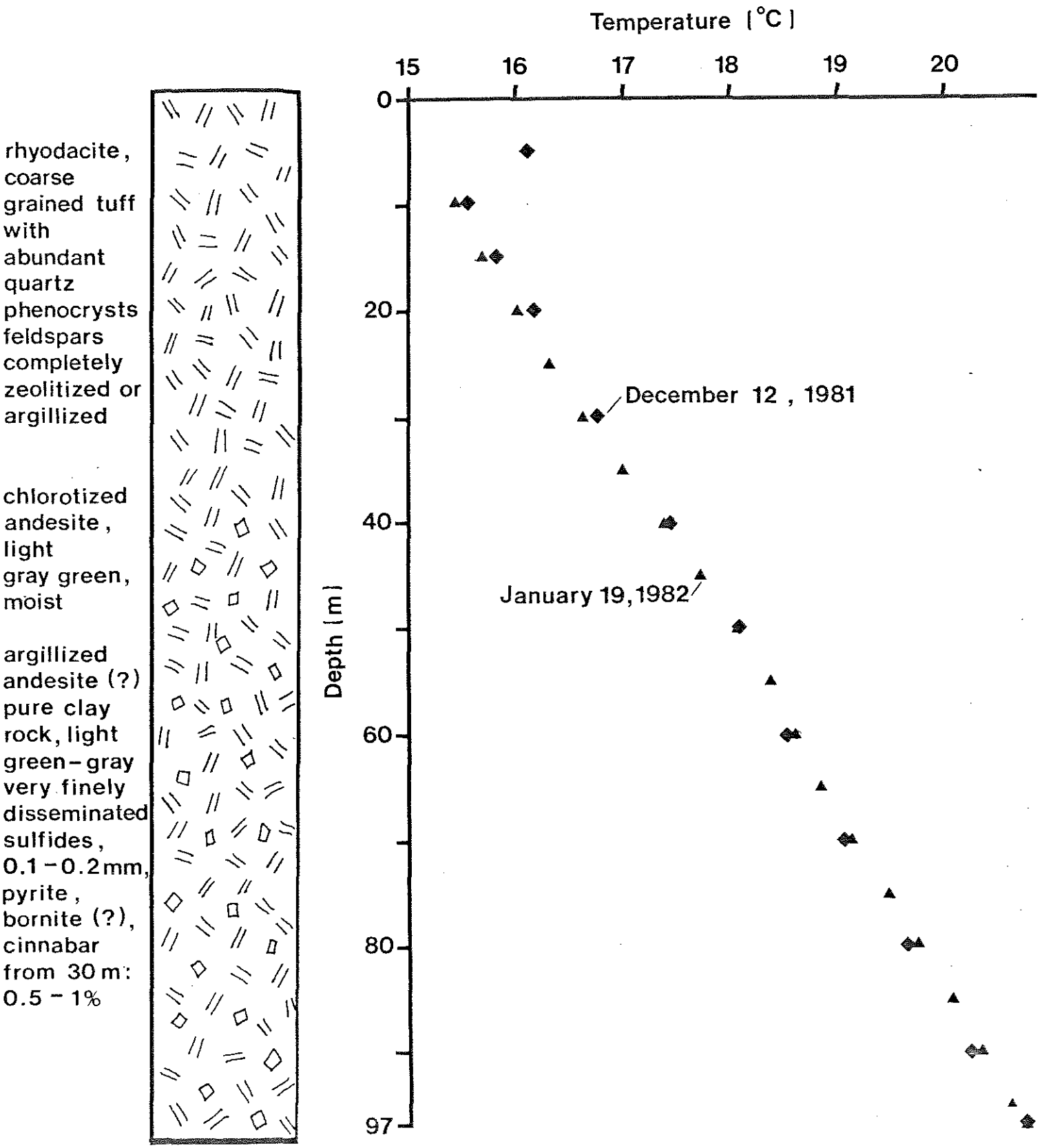

Figure 3a. Lithologic Log and Thermal Gradient Curve D.H. #1.
Poinsettia Prospect. Mineral County, Nevada. (December 12, 1981).
0-20 meters T = 67°C/km; k = 6.0 T.C.U.; q = 4.0 H.F.U.
20-97 meters T = 57°C/km; k = 7.0 T.C.U.; q = 4.0 H.F.U.

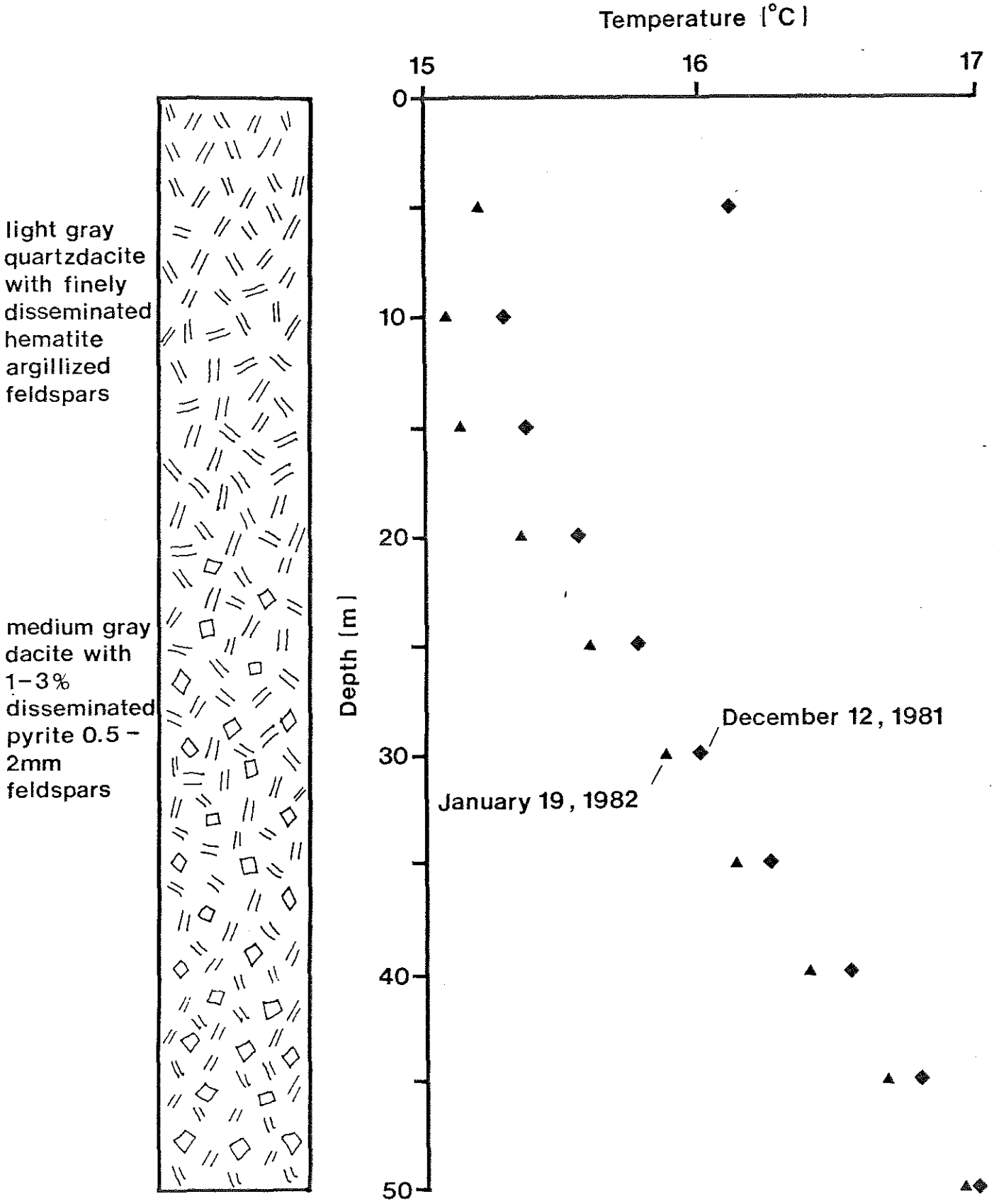

Figure 3b. Lithologic Log and Thermal Gradient Curve D.H. #5. Poinsettia Prospect. Mineral County, Nevada (December 12, 1981). T = 48°C/km; k = 7.5 T.C.U.; q = 3.6 H.F.U.

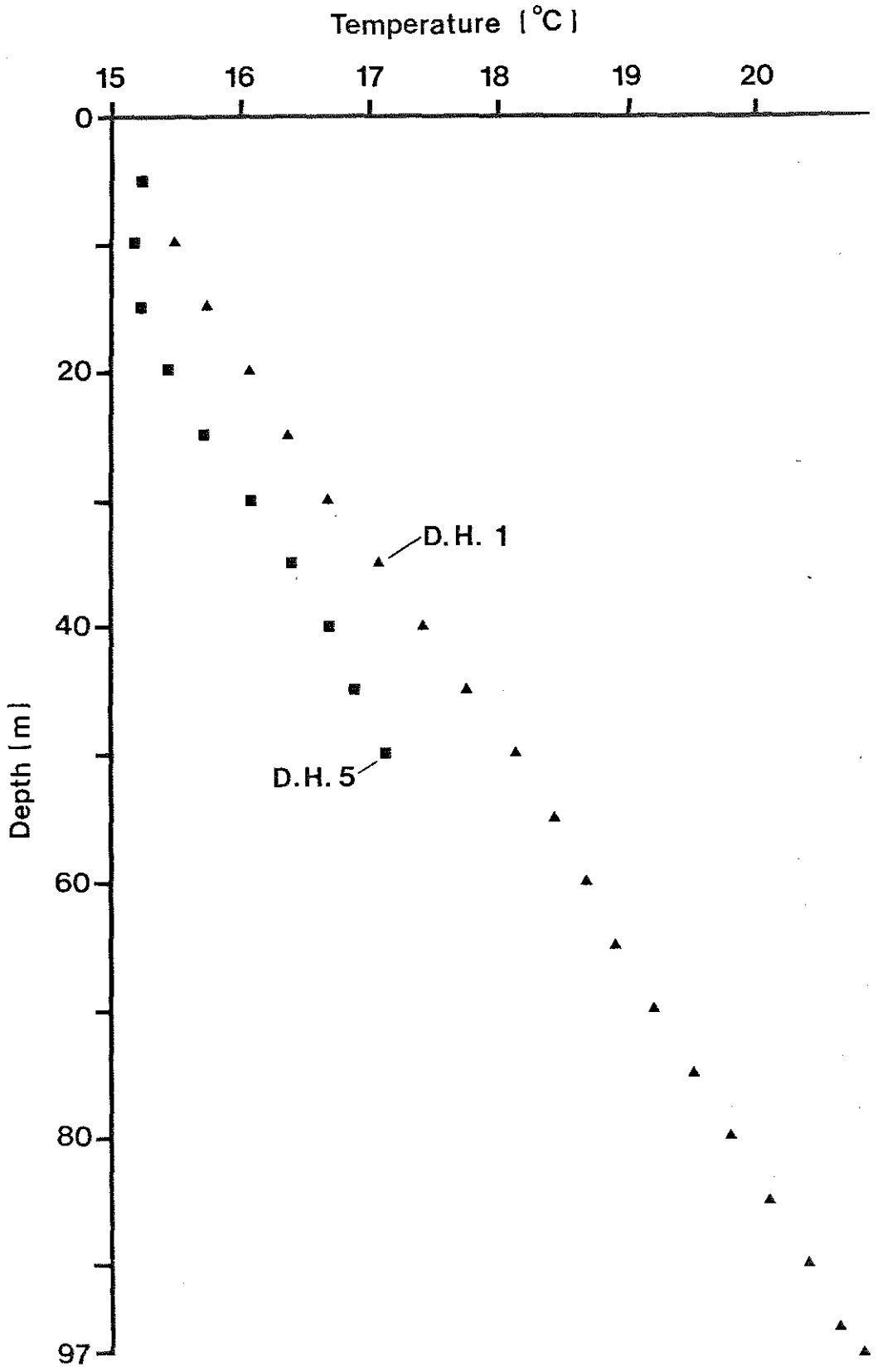

Figure 3c. Temperature logs of Poinsettia D.H. #1 and D.H. #5. Mineral County, Nevada. January 19, 1982

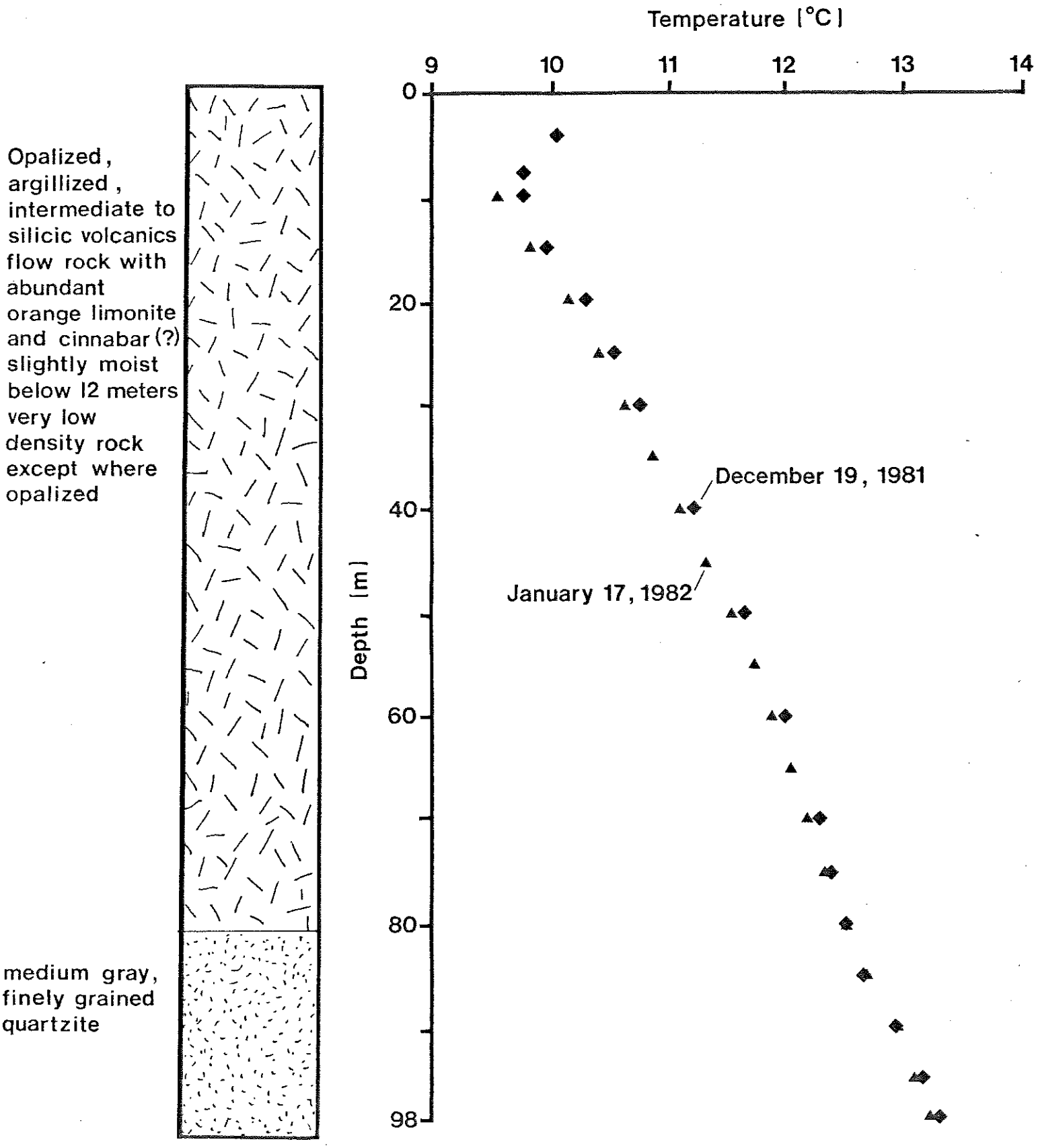

Figure 4. Lithologic Log and Thermal Gradient Curve D.H. #1. Cina Prospect. Iron County, Utah. (December 19, 1981). T = 38°C/km; k = 8 T.C.U.; q = 3 H.F.U.