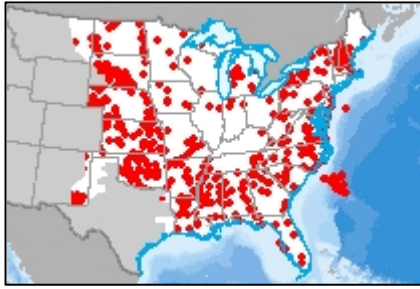# Well Locations (BHT C˚)

Western United States Geothermal Database

If you would like a copy of well information and cannot find the given reference, please contact
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The Header Row is grouped by:
a) Location & Drilling,
b) Temperature information,
c) Lithology & Comments,
d) Hole depth interval conductivity, gradient, heatflow, and quality

THE HEADER ROW

a) AREA, HOLE NAME, PUB REF, TWN/RNG-SEC, STATE/CNTRY, TECT PROV, N LAT (Deg), W LONG (Deg), MEAS DATE (m/d/y), DRILL DATE (m/d/y), COL ELEV (km), DRILL DEPTH (m), WAT TABLE (m), Sym,

b) SURF TEMP (°C), MAX TEMP (°C), BOT TEMP (°C),

 c) LITH INFO, COMMENT INFO,

d) DEPTH START (m), DEPTH END (m), AVG TCU (W/m/K), Sym, <SE>, UN GRAD (C/km), Sym, <SE>, CO GRAD (C/km), Sym, <SE>, UN HF (mW/m2), Sym, <SE>, CO HF (mW/m2), Sym, <SE>, BULK TCU (W/m/K), # TCU, Q HF, DEPTH START (m), DEPTH END (m), AVG TCU (W/m/K), Sym, <SE>, UN GRAD (C/km), Sym, <SE>, CO GRAD (C/km), Sym, <SE>, UN HF (mW/m2), Sym, <SE>, CO HF (mW/m2), Sym, <SE>, BULK TCU (W/m/K), # TCU, Q HF, DEPTH START

DETAILS ON EACH GROUP
Location
AREA - is based on either the closest geothermal area or the AMS sheet (1:250,000 scale) used for topography maps.

HOLE NAME - the most common name used in reports. Some holes have more than one name and the other name(s) are given in the comments section.

PUB REF - Publication code for journal if hole data have been published. The code is composed of 4 parts:
(1). Author code This is the first four letters of the major author. If author's name is less than four characters, then the remaining spaces are left blank.
(2). Year published code This is the last two digits of the year published.
(3). Number of authors on paper If there is only one author then leave blank, if nine or more authors use 9.
(4). Sub-Year code If more than one paper was published with identical Author, Year code and number of authors, then use letters starting with A to unique them.

Ex. BLAC782B refers to the second paper published in 1978 by Blackwell and another author

Note: Materials were also coded according to the type of information and this code is used when no specific author is given. Separate files of references can be accessed using the above code to retrieve the complete journal reference on the web site for the reference lists www.smu.edu/~geothermal/georesou/masrefnc.txt.

TWN/RNG-SEC -Township/Range-Section - This is the break-down of the hole location by local map usage (i.e., 15' quad or 7.5' quad). The township, range, section numbers, and their respective compass direction. The section is sub- divided from 1/4 section down to as small as 1/32 of a section. The sub-section divisions are indicated by a combinations of the letters A,B,C,D. This is done using the following pattern:

             B   A
             C   D

The location should only be divided down to its most detailed known actual position based on the quad used or surveyed location. If the hole is in the center (or nearly) of the section then no sub-section division is given. This is also true of the hole that is known to be in the section, but there is no knowledge of its exact location. In this type of case, one could put a number in the last position of the sub-section code to refer to a related number in the Comment Data Group. If the township or range number is larger than 2 digits, then the @ symbol of the template indicates that a special symbol can be used to indicate the difference. Instead of a / to separate the township/range specification, an * is used. The full specification of the township/range-sec-sub should then be given in the Comments Data Group.
Ex. 2N/15E- 2AAC
Ex. 12S*18E-14B 1 This is really 12S/18.5E-14B. The 1 indicates to see note 1 in Comment Group

STATE - What State the well is in.

TECT PROV - What tectonic province or physiographic region the well is in.

N LAT (Deg), W LONG (Deg) - Latitude and Longitude (longitude are negative) the values are in decimal degrees.

MEAS DATE (m/d/y) - This is the measured date of the temperature log from which the thermal results were determined. It is in the form MM/DD/YY. Ex. 5/ 6/85 is May 6th, 1985

DRILL DATE (m/d/y) - Date drilling of hole was completed. It is in the form MM/DD/YY.

COL ELEV (km) - Elevation of the surface location of the hole is given in meters above sea level.
Ex. 2,100 meters elevation

DRILL DEPTH (m) - Total drilled depth in meters of well. Ex. 800.5 meters deep.

WAT TABLE (m), Sym -Water Table Depth - Measured or inferred water table depth in the hole.
Ex. 100 * is approx. 100 meters water table depth. Note: printed as (100.0)

Temperature information
SURF TEMP (°C) - Surface Temperature - Calculated surface temperature of the hole.
MAX TEMP (°C) - Maximum Hole Temperature - Measured maximum temperature.
BOT TEMP (°C) - Bottom Hole Temperature - Temperature recorded at bottom of hole.

Lithology & Comments
LITH INFO - This is a generalized listing of the formations starting at the surface and working down hole. Where there is specific listings, there is usually more detailed information about the formation and depths if desired.

COMMENT INFO - This is information on the other references used for the well information when more than one was available. The references here go by a code that we followed for cross-referencing. To find the authors search using the code in either reference list.

Hole depth interval conductivity, gradient, heatflow, and quality
DEPTH START (m) & DEPTH END (m) - Starting &Ending depth of the gradient interval in meters. When there are more than one depth interval given, usually the deepest interval is shown first, then the most shallow to deepest. This is done because the deepest interval is given as an average of the entire well.

AVG TCU (W/m/K), Sym, <SE> - Average Thermal Conductivity & Standard Error -Laboratory or estimated in situ thermal conductivity measurement for the depth interval Depth Start to Depth End. Sym -Symbols used (i.e., <, >, or *) refer to greater than, less than or estimate of conductivity value. If a statistical mean method is used, then the standard error (SE) of the mean is included. The unit is Watts/meter Kelvin.

UN GRAD (C/km), Sym, <SE> -Uncorrected Gradient & Standard Error - Calculated or estimated uncorrected thermal gradient measurement for the depth interval Depth Start to Depth End. Uncorrected refers to non-terrain corrected gradient. Sym - Symbols used (i.e., <, >, or *) refer to greater than, less than or estimate of gradient If a statistical mean method is used, then the standard error (SE) of the mean is included. The unit is °C/Km.

CO GRAD (C/km), Sym, <SE> - Corrected Gradient & Standard Error - Calculated or estimated corrected thermal gradient measurement for the depth interval Depth Start to Depth End. Corrected refers to terrain corrected gradient. Sym -Symbols used (i.e., <, >, or *) refer to greater than, less than or estimate of gradient. If a statistical mean method is used, then the standard error (SE) of the mean is included. The unit is °C/Km.

UN HF (mW/m2), Sym, <SE> - Uncorrected Heat Flow & Standard Error - Calculated or estimated uncorrected heat flow value for the depth interval Depth Start to Depth End. Uncorrected refers to non-terrain corrected heat flow. Sym -Symbols used (i.e., <, >, or *) refer to greater than, less than or estimate of heatflow. If a statistical mean method is used, then the standard error (SE) of the mean is included.
The unit is milli-Watts/square meter.

CO HF (mW/m2), Sym, <SE> - COHF   Corrected Heat Flow & Standard Error - Calculated or estimated corrected heat flow value for the depth interval Depth Start to Depth End. Corrected refers to terrain corrected heat flow. Sym -Symbols used (i.e., <, >, or *) refer to greater than, less than or estimate of heatflow. If a statistical mean method is used, then the standard error (SE) of the mean is included. The unit is milli-Watts/square meter.

TCU - This is the number of measured values of conductivities used to derive the TCU value.

Q HF - Quality of Heat Flow - This is a single digit code to indicate the quality (or confidence) of the gradient or heat flow value presented in the interval Depth Start to Depth End. Very few wells in this data base are given quality because of lack of data. In general they are assumed to be a G - Geothermal system.
A - High Quality Data: Deeper than 100 meters At least a 50 meter linear gradient
B - Medium Quality Data: Deeper than 50 meters (Some problems)
C -Poor Quality Data: Shallow; Isothermal
G - Geothermal System
D - Check Again
X - No Hope

DEPTH START (m) - "END" represents that there are no more intervals for gradient, heatflow and conductivity. Many wells have more than one depth interval and the information continues in the same row until the END is given in the Depth Start column.

Not every hole has all the types information given below. When there are multiple intervals for one hole, it is often just the gradient that has more than one depth range.