TEMPERATURE EXERCISE

This exercises uses data from the Elysian Field.

Well: 24-1X

Depth Range: 2900 – 3300 m

Lithology: Variable

Several logs have been run in well 24-1X of the Elysian Field between depths of 2900 m and 3300 m (the bottom of the borehole).

The following data were collected:

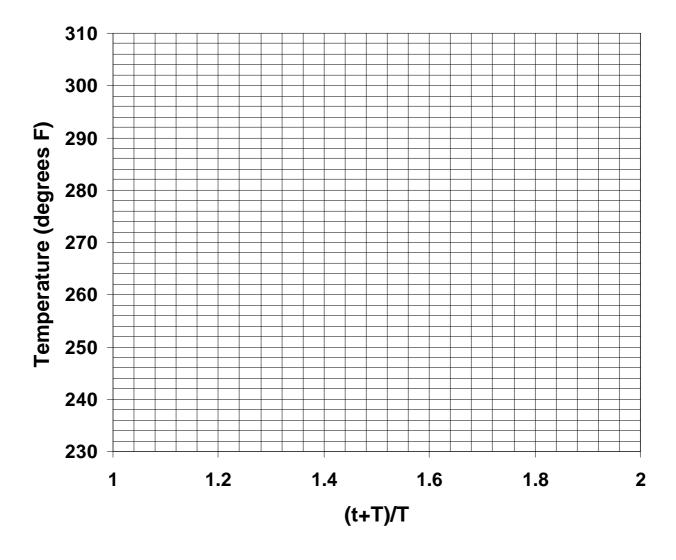
	Process	Depth (m)	Temp.	Time & Date	T (hours)	(t+T)/T
1 2 3 4	Drilling Stopped Mud Circulation Stopped DIL log FDC log SNP log Dipmeter	3300 - 3300 3300 3300 3300	241 257 266 273	22:00/15 th 04:00/16 th 12:15/16 th 15:00/16 th 17:30/16 th 20:30/16 th	-	-

(a) Calculate the mud circulation time, t, in hours t = t

t =

- (b) Calculate the recovery time, *T* (hours), for each logging run and fill in last but one column. Note: remember to use decimal time in hours.
- (c) Calculate (t+T)/T, and fill in the table.
- (d) Make a Horner plot of temperature on the y-axis (linear, 230 to 310° F) against (t + T)/T on the x-axis (linear 1.0 to 2.0).
- (e) What is the true formation temperature at 3300 m in °F and in °C? (Note that to convert °F to °C subtract 32, divide the result by 9, and then multiply by 5.)
- (f) Given that the mean annual temperature of the sea-floor is 10°C and that the sea-floor is 300 m below the logging depth measurement point, calculate the mean temperature gradient in the well in °C/m and in °F/m.
- (g) What is the temperature in °F and in °C at 3100 m?

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