

**Supplemental Table 1.** Calculated equilibrium constants for values reported in manuscript Table 2. <sup>a</sup> Equilibrium constants used in calculation of equilibrium carbon enrichment between calcite and CO<sub>2(g)</sub>, equilibrium  $\delta^{13}\text{C}$  CO<sub>2(g)</sub>. <sup>b</sup> Equilibrium carbonate oxygen isotope composition.

Name, outflow distance	Depth below fluid surface	Notes, sample description	year	equilibrium constant $\delta^{13}\text{C}$ ‰ <sup>a</sup>	equilibrium constant $\delta^{18}\text{O}$ ‰ <sup>b</sup>	
<b>ML1</b>	<b>0m</b>	30 cm	Source sedi.	2012	1.00909	1.00005
	<b>0m</b>	30 cm	Source sedi.	2013	1.00909	1.00005
	<b>0m</b>	30 cm	Source sedi.	2017	1.00909	1.00005
<b>ML2</b>	<b>0m</b>	20 cm	Source sedi.	2012	1.00908	1.00005
	<b>1.5m</b>	10 cm	Spill pool	2012	1.00909	1.00005
	<b>10m</b>	10 cm	Grey sedi.	2012	1.00914	1.00006
	<b>10m</b>	10 cm	Carb. mound	2012	1.00914	NA
	<b>10m</b>	10 cm	Rimstone	2012	1.00914	NA
	<b>0m</b>	20 cm	Source sedi.	2013	1.00908	1.00005
	<b>1.5m</b>	10 cm	Spill pool	2013	NA	NA
	<b>10m</b>	10 cm	Grey sedi.	2013	1.00927	1.00008
	<b>10m</b>	10 cm	Rimstone	2013	1.00927	NA
	<b>17.7m</b>	5 cm	Above apron	2013	NA	NA
	<b>18.3m</b>	5 cm	Apron	2013	NA	NA
	<b>19.5m</b>	5 cm	Below apron	2013	1.00927	1.00008
	<b>0m</b>	20 cm	Source sedi.	2017	1.00908	1.00005
	<b>1.5m</b>	10 cm	Spill pool	2017	1.00910	1.00005
	<b>10m</b>	10 cm	Grey sedi.	2017	1.00917	1.00007
<b>10m</b>	10 cm	Rimstone	2017	1.00917	NA	
<b>PB1</b>	10 cm	Main pool	2012	1.00938	1.00011	
	2 cm	Minor pool	2012	NA	NA	
	0.25 cm	Terrace	2012	NA	NA	
	10 cm	Main pool	2013	1.00949	1.00013	
	2 cm	Minor pool	2013	NA	NA	
	0.25 cm	Micro-terracette	2013	NA	NA	
	0.25 cm	Terrace	2013	NA	NA	
	2 cm	Muddy pot	2013	NA	NA	
<b>PB2</b>	15 cm	'Star Pool' terraces	2012	1.00982	1.00019	
	2 cm	'Waterfall'	2012	1.00984	1.00019	
	20 cm	'Ice cube'	2012	1.00987	1.00020	
	N/A	Litter ref.	2012	NA	NA	
	N/A	Soil ref.	2012	NA	NA	
<b>PB3</b>	5 cm	Main pool, red sedi.	2012	1.00945	1.00012	
	3 cm	Minor seep, white sedi.	2012	1.00968	1.00016	
<b>MF</b>	<b>0m</b>	5 cm	Source sedi.	2012	1.00933	1.00010
	<b>60cm</b>	0.5 cm	Outflow	2012	NA	NA
	<b>2.2m</b>	0.5 cm	Outflow	2012	NA	NA
	<b>4.3m</b>	0.5 cm	Outflow	2012	NA	NA
<b>PF1</b>	5 cm	'Pig' pool	2017	1.00896	1.00003	
<b>PF2</b>	15 cm	'Apron' pool	2017	1.00896	1.00003	

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<b>GS</b>	<b>0m</b>	10 cm	Source exit	2017	1.00864	0.99996
	<b>0.5m</b>	10 cm	Spill pool	2017	1.00865	0.99997
	<b>4.5m</b>	3 cm	Outflow	2017	1.00870	0.99998
	<b>5.0m</b>	2 cm	Outflow	2017	1.00872	0.99998
	<b>10.3m</b>	2 cm	Outflow	2017	1.00875	0.99999
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<b>NWD</b>		10 cm	Source pool carbonate	2017	1.00961	1.00015
	<b>5m</b>	4 cm	Outflow	2017	1.00941	1.00011
	<b>12m</b>	1 cm	Outflow	2017	NA	NA
	<b>12m</b>	1 cm	Black biofilm	2017	NA	NA