

Table S1. Comparison of isotope measurements of USGS 34, USGS 35 and USGS 32, with and without ion chromatographic (IC) separation.

Sample	With IC separation					Without IC separation				
	n	$\delta^{15}\text{N}$	$\delta^{17}\text{O}$	$\delta^{18}\text{O}$	$\Delta^{17}\text{O}$	n	$\delta^{15}\text{N}$	$\delta^{17}\text{O}$	$\delta^{18}\text{O}$	$\Delta^{17}\text{O}$
USGS34	2	-1.4 ± 0.10	-13.0 ± 0.2	-25.4 ± 0.3	0.2 ± 0.0	12	-1.8 ± 0.10	-14.5 ± 0.3	-27.7 ± 0.3	0.0 ± 0.1
USGS35	2	2.7 ± 0.04	51.1 ± 0.2	57.0 ± 1.2	21.5 ± 0.4	12	2.7 ± 0.1	51.7 ± 0.5	57.7 ± 0.6	21.7 ± 0.2
USGS32	2	179.1 ± 0.06	13.4 ± 0.1	25.8 ± 0.6	0.0 ± 0.4	8	180.0 ± 0.2	12.4 ± 0.4	24.8 ± 0.9	-0.4 ± 0.1

n : number of measurements, uncertainties: one- σ .