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## DETRITAL ZIRCON U-PB GEOCHRONOLOGY

Random splits of the zircons obtained from the separation process were incorporated into an epoxy mount together with fragments of Sri Lanka (SL2) standard zircon ( $563.5 \pm 3.2$  Ma; 2-sigma) (Gehrels et al., 2008). The mounts were then sanded down through zircon grains to a depth of ~20 microns, polished, imaged, and acid washed prior to isotopic analysis. U-Pb geochronology was conducted by LA-MC-ICPMS at the Arizona LaserChron Center following the procedures described by Gehrels et al. (2008).

The analyses involved ablation of zircon with a Photon Machines Analyte G2 excimer laser using a spot diameter of 30 microns. The ablated material is carried by helium gas into the plasma source of a Nu HR ICPMS, which is equipped with a flight tube of sufficient width that U, Th, and Pb isotopes are measured simultaneously. All measurements are made in static mode, using Faraday detectors with  $3 \times 10^{11}$  ohm resistors for  $^{238}\text{U}$ ,  $^{232}\text{Th}$ ,  $^{208}\text{Pb}$ - $^{206}\text{Pb}$ , and discrete dynode ion counters for  $^{204}\text{Pb}$  and  $^{202}\text{Hg}$ . Ion yields are ~0.8 mv per ppm. Each analysis consists of one 15-second integration on peaks with the laser off (for backgrounds), 15 one-second integrations with the laser firing, and a 30 second delay to purge the previous sample and prepare for the next analysis. The ablation pit is ~15 microns deep.

In samples that contain a cluster of analyses with concordant to slightly discordant ages, we use  $^{206}\text{Pb}/^{238}\text{U}$  ages up to 1000 Ma and  $^{206}\text{Pb}/^{207}\text{Pb}$  ages if the  $^{206}\text{Pb}/^{238}\text{U}$  ages are >1000 Ma. Additional details about analytical procedures are described by Gehrels et al. (2008). A compilation of zircon U-Pb ages from potential sources is presented in Figure 2 and used for comparison. After data reduction, 616 of the total 700 grains analyzed produced acceptable databased on the degree of discordance (<20%), in-run fractionation, and precision.

## DETRITAL APATITE FISSION TRACK AND (U-TH)/HE THERMOCHRONOLOGY

The apatite grains were mounted, polished and chemically etched (using Donelick's (1993) etching protocol) before they were dated using the EDM method (Hurford and Green, 1983). 100 grains were targeted per sample for AFT analysis; sample River 3 only yielded 29 good quality apatites (Table DR3). Analyses were performed with an Olympus microscope (with reflected and transmitted light at 1600x magnification) with drawing tube located above a digitizing tablet and a Kinetek computer-controlled stage driven by the FTStage program (Dumitru, 1993) at the University of Arizona Fission Track Laboratory. Samples were irradiated at Oregon State University. Before irradiation, samples were etched in 5.5 molar nitric acid at 21 °C for 20 seconds; following irradiation, the mica external detectors were etched at 21 °C in 40% hydrofluoric acid for 45 min. Additional information is available in the Data Repository (Table DR3).

Ten apatite grains per sample were targeted for (U-Th)/He analyses (Table DR4) to assess the youngest cooling component. All apatites were dated using the methods described by House et al. (2000). Fish Canyon Tuff ( $28.48 \pm 0.06$  Ma) and Durango Apatite ( $31.9 \pm 2.2$  Ma) were used as apatite standards (Reiners et al. 2004). Apatite grains were selected on the basis of

clarity, lack of visible inclusions, and half-widths greater than 60 µm (Farley et al. 1996). Analyses were conducted at the Arizona Radiogenic Helium Dating Laboratory. Apatites were placed in 1mm Nb foil envelopes to avoid volatilization of parent nuclides during He extraction. A Nd:YAG laser, cryogenic purification and quadrupole mass spectrometry were used for He extraction and analysis. Following He measurements, the Nb foil packets were transferred to Teflon vials for isotope dilution and HR-ICP-MS for U, Th, and Sm analysis. For isotope dilution, all samples were spiked with a 50 ml shot of a mixed spike containing  $7.55 \pm 0.10$  ng/ml  $^{233}\text{U}$  and  $12.3 \pm 0.10$  ng/ml  $^{229}\text{Th}$  and with 50 ml of a 97%-enriched  $^{147}\text{Sm}$  with  $10.8 \pm 0.10$  ng/ml Sm. Apatite is dissolved in 20% warm  $\text{HNO}_3$  and diluted with 2.5 ml of 18 MO  $\text{H}_2\text{O}$  to final concentrations of  $\sim 0.1\text{--}0.2$  ppb  $^{229}\text{Th}$  and  $^{233}\text{U}$ . Element 2 ICP-MS analysis follows the procedures outlined in Reiners and Nicolescu (2006). Data are reported in Data Repository (Table DR2).

## REFERENCES CITED

- Donelick, R.A., 1993, A method of fission track analysis utilizing bulk chemical etching of apatite: Patent No. 5 267 274.
- Dumitru, T.A., 1993, A new computer-automated microscope stage system for fission-track analysis: Nuclear Tracks and Radiation Measurements, v. 21, p. 575–580, doi:10.1016/1359-0189(93)90198-I.
- Farley, K.A., Wolf, R.A., and Silver, L.T., 1996, The effects of long alpha-stopping distances on  $^{610}\text{(U-Th)/He}$  ages: Geochimica et Cosmochimica Acta, v. 60, p. 4223–4229, doi:10.1016/S0016-7037(96)00193-7.
- Gehrels, G.E., Valencia, V.A., and Ruiz, J., 2008, Enhanced precision, accuracy, efficiency, and spatial resolution of U-Pb ages by laser ablation–multicollector–inductively coupled plasma–mass spectrometry: Geochemistry Geophysics Geosystems, v. 9, no. 3, doi:10.1029/2007GC001805.
- House, M.A., Farley, K.A., and Stockli, D.F., 2000, He chronometry of apatite and titanite using 625 Nd-YAG laser heating: Earth and Planetary Science Letters, v. 183, p. 365–368, doi:10.1016/S0012-821X(00)00286-7.
- Hurford, A.J., and Green, P.F., 1983, The zeta age calibration of fission-track dating: Chemical Geology, v. 41, p. 285–317, doi:10.1016/S0009-2541(83)80026-6.
- Reiners, P.W., and Nicolescu, S., 2006, Measurement of parent nuclides for  $(\text{U-Th})/\text{He}$  chronometry by solution sector ICP-MS: ARHDL Report, v. 1, p. 1–33.
- Reiners, P.W., Spell, T.L., Nicolescu, S., Zanetti, K.A., 2004, Zircon  $(\text{U-Th})/\text{He}$  thermochronometry: He diffusion and comparisons with  $^{40}\text{Ar}/^{39}\text{Ar}$  dating: Geochim Cosmochim Acta, v. 68, p. 1857–1887.

## DATA REPOSITORY TABLES

Table DR1. Percentage of different geological units within each catchment area drained by sampled rivers.

Table DR2. Zircon U-Pb geochronology data.

Table DR3. Apatite fission track data.

Table DR4. Apatite  $(\text{U-Th})/\text{He}$  data.

Table DR1.

<b>River 1</b>			<b>River 5</b>		
Regional Geology	Area (Sq. Kilometers)	Area (%)	Regional Geology	Area (Sq. Kilometers)	Area (%)
Gangdese arc plutonic rocks	91.99	2	Gangdese arc plutonic rocks	95.56	17
Tethyan Himalayan	3,488.92	72	Cenozoic Sed. Rocks	269.16	48
Cenozoic Sed. Rocks	463.99	10	Kailas Formation	75.51	13
Gneiss Domes	425.27	9	Sed. Rocks and Mélanges	101.26	18
Ophiolite	95.52	2	Xigaze Forearc	24.47	4
Sed. Rocks and Mélanges	102.86	2	<b>Total Area</b>	565.95	100
Xigaze Forearc	171.59	3	percent of ages between 0-120 Ma = 64%		
<b>Total Area</b>	4,840.14	100			

percent of ages between 0-120 Ma = 3.37%

<b>River 2</b>			<b>River 6</b>		
Regional Geology	Area (Sq. Kilometers)	Area (%)	Regional Geology	Area (Sq. Kilometers)	Area (%)
Gangdese arc plutonic rocks	371.03	28	Gangdese arc plutonic rocks	74.77	39
Cenozoic Sed. Rocks	235.83	17	Kailas Formation	110.72	58
Linzizong Volcanics	272.80	20	Sed. Rocks and Mélanges	6.55	3
Xigaze Forearc	470.79	35	<b>Total Area</b>	192.04	100
<b>Total Area</b>	1,350.43	100	percent of ages between 0-120 Ma = 45%		

percent of ages between 0-120 Ma = 37%

<b>River 3</b>			<b>River 7</b>		
Regional Geology	Area (Sq. Kilometers)	Area (%)	Regional Geology	Area (Sq. Kilometers)	Area (%)
Gangdese arc plutonic rocks	216.54	12	Gangdese arc plutonic rocks	92.23	53
Tethyan Himalayan	12.33	1	Cenozoic Sed. Rocks	13.41	8
Kailas Formation	552.40	33	Kailas Formation	66.93	39
Linzizong Volcanics	160.91	9	<b>Total Area</b>	172.53	100
Sed. Rocks and Mélanges	234.89	14	percent of ages between 0-120 Ma = 85%		
Xigaze Forearc	524.24	31			
<b>Total Area</b>	1,719.65	100			

percent of ages between 0-120 Ma = 33%

<b>River 4</b>		
Regional Geology	Area (Sq. Kilometers)	Area (%)
Gangdese arc plutonic rocks	454.13	9
Cenozoic Sed. Rocks	1,130.31	21
Kailas Formation	1,053.86	20
Linzizong Volcanics	719.19	14
Ophiolite	220.81	4
Sed. Rocks and Mélanges	501.44	9
Xigaze Forearc	1,212.97	23
<b>Total Area</b>	5,292.72	100

percent of ages between 0-120 Ma = 33%

Table DR2.U-Pb geochronologic analyses.

Analysis	U (ppm)	206Pb 204Pb	Isotope ratios						Apparent ages (Ma)						Best age (Ma)	± (Ma)	Conc (%)		
			206Pb*	± (%)	207Pb*	± (%)	206Pb*	± (%)	error	206Pb*	± (%)	207Pb*	± (Ma)	206Pb*	± (%)	207Pb*	± (Ma)		
			207Pb*	± (%)	235U*	± (%)	238U*	± (%)	corr.	238U*	(Ma)	235U*	(Ma)	207Pb*	(Ma)	206Pb*	(Ma)		
<b>River 1</b>																			
RIVER1-95	729	11072	18.5	21.2418	15.4	0.0258	15.7	0.0040	3.0	0.19	25.6	0.8	25.9	4.0	53.1	370.3	25.6	0.8	NA
RIVER1-6	143	3727	1.4	28.3614	30.2	0.0541	30.6	0.0100	5.1	0.17	63.8	3.2	53.5	15.9	-388.1	799.9	63.8	3.2	NA
RIVER1-73	87	9177	1.1	21.2134	28.5	0.0983	28.8	0.0151	4.7	0.16	86.7	4.5	95.2	26.2	56.3	691.0	96.7	4.5	NA
RIVER1-81	0.1	18850	1.1	21.9546	33.0	0.1090	33.6	0.0173	6.6	0.20	110.9	7.2	105.0	33.5	-26.2	817.6	110.9	7.2	NA
RIVER1-43	359	95340	4.3	17.4101	1.2	0.5910	1.9	0.0746	1.4	0.75	464.0	6.5	471.5	7.1	508.4	27.2	464.0	6.3	91.3
RIVER1-61	325	125663	2.7	17.7980	1.5	0.5902	1.7	0.0760	0.9	0.53	472.3	4.2	471.0	6.6	484.7	32.6	472.3	4.2	101.6
RIVER1-8	409	78754	1.3	17.3422	1.0	0.6104	2.2	0.0768	1.9	0.89	476.9	8.9	483.8	8.4	516.9	22.0	476.9	8.9	92.2
RIVER1-47	637	41998	6.9	17.5132	0.6	0.6051	1.0	0.0769	0.7	0.78	477.4	3.4	480.5	3.6	495.4	13.2	477.4	3.4	96.4
RIVER1-52	468	168416	0.6	17.3078	0.4	0.6139	0.8	0.0771	0.7	0.89	478.6	3.2	486.0	3.0	521.3	7.8	478.6	3.2	91.8
RIVER1-56	223	94153	2.0	17.4101	1.7	0.6142	2.1	0.0776	1.3	0.60	481.5	5.9	486.2	8.2	508.4	37.5	481.5	5.9	94.7
RIVER1-3	984	285330	3.5	17.4992	0.4	0.6220	1.0	0.0789	0.9	0.90	489.8	4.2	491.1	3.9	497.2	9.7	489.8	4.2	98.5
RIVER1-49	381	66491	0.9	17.5032	0.9	0.6227	3.5	0.0790	3.4	0.96	490.4	15.8	491.5	13.6	496.7	20.7	490.4	15.8	98.7
RIVER1-86	178	63059	2.4	17.5347	2.3	0.6252	2.5	0.0795	1.2	0.45	493.2	5.5	493.1	9.9	492.7	49.8	493.2	5.5	100.1
RIVER1-48	147	68346	1.2	17.3988	2.0	0.6334	2.2	0.0799	0.9	0.39	495.7	4.1	498.2	8.6	509.8	44.4	495.7	4.1	97.2
RIVER1-60	258	20343	2.1	16.1173	1.3	0.6891	8.4	0.0805	8.3	0.99	499.4	39.8	532.2	34.7	675.7	28.1	499.4	39.8	73.9
RIVER1-14	399	231343	0.9	17.4198	0.8	0.6389	2.8	0.0807	2.6	0.95	500.4	12.7	501.6	10.9	507.1	18.0	500.4	12.7	98.7
RIVER1-28	55	18975	0.9	18.0480	7.4	0.6175	7.6	0.0808	1.5	0.20	501.1	7.2	488.3	29.3	428.7	165.3	501.1	7.2	116.9
RIVER1-70	55	36448	0.4	17.8900	8.6	0.6255	8.8	0.0812	1.9	0.21	503.0	9.0	493.3	34.5	448.3	192.2	503.0	9.0	112.2
RIVER1-35	206	78476	1.0	17.3791	1.7	0.6479	2.2	0.0817	1.3	0.61	506.1	6.5	507.2	8.7	512.3	37.8	506.1	6.5	98.8
RIVER1-2	84	14147	0.7	16.9633	2.3	0.6707	2.5	0.0825	0.9	0.36	511.1	4.4	521.1	10.2	565.3	50.8	511.1	4.4	90.4
RIVER1-64	286	138588	9.6	13.2932	3.8	0.8602	8.3	0.0829	7.3	0.88	513.6	36.1	630.2	38.8	1074.6	77.3	513.6	36.1	47.8
RIVER1-97	308	79646	2.4	17.4942	1.0	0.6647	4.2	0.0843	4.1	0.97	522.0	20.7	515.7	17.2	497.8	21.4	522.0	20.7	104.9
RIVER1-20	710	355937	6.0	17.1576	0.5	0.6816	0.8	0.0848	0.7	0.84	524.8	3.6	527.7	3.5	540.4	9.9	524.8	3.6	97.1
RIVER1-83	261	72979	3.0	16.9212	1.7	0.7020	5.5	0.0862	5.2	0.95	532.8	26.6	540.0	23.0	570.7	37.6	532.8	26.6	93.4
RIVER1-94	98	36057	0.3	17.0603	5.2	0.6973	5.5	0.0863	1.6	0.30	533.5	8.4	537.2	22.9	552.9	114.5	533.5	8.4	96.5
RIVER1-46	234	75613	2.2	16.9369	2.6	0.7031	2.7	0.0864	0.6	0.24	534.0	3.3	540.6	11.1	568.7	56.1	534.0	3.3	93.9
RIVER1-85	53	33203	1.0	16.5273	8.3	0.7245	8.8	0.0868	3.0	0.33	536.8	15.2	553.3	37.7	621.7	179.8	536.8	15.2	86.4
RIVER1-80	112	55918	1.1	17.0321	4.1	0.7286	4.3	0.0900	1.3	0.29	555.6	6.7	555.8	18.4	555.6	8.9	555.6	6.7	99.8
RIVER1-67	64	74910	2.4	17.6905	5.0	0.7017	5.3	0.0900	1.7	0.33	555.7	9.2	539.8	22.1	473.1	110.1	555.7	9.2	117.4
RIVER1-59	334	143932	3.9	16.9813	0.9	0.7314	1.1	0.0901	0.7	0.60	556.0	3.6	557.4	4.9	563.0	20.0	556.0	3.6	98.8
RIVER1-68	234	134694	5.5	16.6629	1.1	0.7632	2.0	0.0922	1.7	0.85	568.8	9.5	575.9	9.0	604.0	23.3	568.8	9.5	94.2
RIVER1-40	86	40882	0.8	15.9628	2.4	0.8438	3.2	0.0977	2.1	0.67	600.8	12.3	621.2	14.9	696.2	50.8	600.8	12.3	86.3
RIVER1-78	392	42759	1.8	16.3709	0.8	0.8655	1.5	0.1028	1.3	0.85	630.6	7.5	633.1	7.0	642.2	16.7	630.6	7.5	98.2
RIVER1-22	242	215109	3.5	15.8597	1.0	0.9373	1.8	0.1078	1.5	0.84	660.0	9.5	671.5	8.8	710.0	20.8	660.0	9.5	93.0
RIVER1-65	636	81541	3.2	14.9725	0.7	1.1111	2.8	0.1207	2.7	0.96	734.3	19.0	758.7	15.2	831.2	15.6	734.3	19.0	88.3
RIVER1-21	371	68115	1.6	15.0585	0.8	1.1178	2.8	0.1221	2.7	0.96	742.5	18.9	761.9	15.0	819.3	16.1	742.5	18.9	90.6
RIVER1-38	120	93341	1.8	15.7885	1.8	1.0820	2.8	0.1239	2.1	0.77	753.0	15.1	744.6	14.6	719.5	37.7	753.0	15.1	104.6
RIVER1-1	22	11790	1.5	15.4391	6.8	1.1313	7.8	0.1267	3.8	0.49	768.9	27.8	768.4	42.3	766.9	14.4	768.9	27.8	100.3
RIVER1-89	56	31887	0.5	15.3127	4.5	1.1700	5.2	0.1299	2.7	0.52	787.5	19.9	786.7	28.5	784.2	93.5	787.5	19.9	100.4
RIVER1-100	409	26216	6.3	15.4723	0.6	1.2366	4.1	0.1307	4.1	0.99	791.8	30.3	817.3	23.1	887.5	12.8	791.8	30.3	89.2
RIVER1-4	274	233374	6.6	14.8205	2.2	1.3432	3.4	0.1391	2.7	0.78	839.7	21.1	864.6	20.0	929.1	44.2	839.7	21.1	90.4
RIVER1-29	204	120369	0.7	14.6581	0.3	1.3412	1.0	0.1426	1.0	0.95	859.3	8.0	863.8	6.1	875.3	6.5	859.3	8.0	98.2
RIVER1-19	138	88021	1.0	14.3956	0.9	1.4635	2.0	0.1528	1.8	0.89	916.6	15.1	915.4	12.0	912.6	18.6	912.6	18.6	100.4
RIVER1-27	226	273343	3.2	13.5475	0.8	1.7376	1.0	0.1727	0.6	0.59	1026.9	5.4	1030.0	6.2	1036.4	15.6	1036.4	15.6	99.1
RIVER1-58	327	273455	1.5	13.4217	0.6	1.7355	1.1	0.1709	1.0	0.83	1017.0	8.9	1029.2	7.4	1055.3	12.8	1055.3	12.8	96.4
RIVER1-84	96	55119	1.0	13.3392	1.4	1.7765	2.0	0.1719	1.5	0.75	1022.4	14.5	1036.9	13.3	1067.6	27.3	1067.6	27.3	95.8
Unknown between 64 and 65																			
RIVER1-53	97	80601	0.4	13.2472	2.2	1.8830	2.6	0.1809	1.4	0.53	1072.0	13.4	1075.1	16.9	1081.5	43.4	1081.5	43.4	99.1
RIVER1-15	186	74871	21.1	13.2305	0.6	1.9108	4.8	0.1834	4.8	0.99	1085.3	48.0	1084.8	32.3	1084.0	12.3	1084.0	12.3	100.1
RIVER1-45	72	68877	0.4	13.1765	2.0	1.8569	2.4	0.1775	1.3	0.55	1053.1	13.1	1065.9	16.1	1092.2	40.8	1092.2	40.8	96.4
RIVER1-71	141	81061	2.5	13.1666	1.6	1.7444	5.7	0.1666	5.5	0.96	993.2	50.3	1025.1	36.8	1093.8	32.4	1093.8	32.4	90.8
RIVER1-26	193	98860	1.5	12.9545	0.7	1.2093	1.8	0.1935	1.6	0.91	1140.2	16.7	1135.4	12.1	1126.2	14.8	1126.2	1	

Table DR2, continued.

	U	206Pb	U/Th	206Pb*	$\pm$	207Pb*	$\pm$	206Pb*	$\pm$	error	206Pb*	$\pm$	207Pb*	$\pm$	206Pb*	$\pm$	Best age	$\pm$	Conc
	(ppm)	204Pb		207Pb*	(%)	235U	(%)	238U	(%)	corr.	238U*	(Ma)	235U	(Ma)	207Pb*	(Ma)	(Ma)	(Ma)	(%)
River 1																			
River 1 Tibet extra-Spot 7	1353	14601	57.3	21.7821	1.0	0.0269	2.1	0.0042	1.9	0.88	27.3	0.5	26.9	0.6	7.1	24.2	27.3	0.5	NA
River 1 Tibet extra-Spot 77	1489	38388	3.0	21.1294	0.8	0.0912	2.0	0.0140	1.8	0.92	89.5	1.6	88.6	1.7	65.8	18.4	89.5	1.6	NA
River 1 Tibet extra-Spot 52	131	6903	1.8	21.2226	1.6	0.0931	2.7	0.0143	2.2	0.82	91.8	2.0	90.4	2.4	55.3	37.7	91.8	2.0	NA
River 1 Tibet extra-Spot 20	189	28576	3.3	18.1480	0.9	0.5192	5.1	0.0683	5.0	0.98	426.1	20.6	424.6	17.6	416.4	19.9	426.1	20.6	102.3
River 1 Tibet extra-Spot 105	427	35315	2.9	17.7746	0.9	0.5835	2.3	0.0752	2.2	0.93	467.5	9.7	466.7	8.7	462.7	19.5	467.5	9.7	101.1
River 1 Tibet extra-Spot 51	261	19026	2.2	17.2782	1.0	0.6057	2.8	0.0759	2.6	0.93	471.6	11.9	480.8	10.7	525.1	21.9	471.6	11.9	89.6
River 1 Tibet extra-Spot 5	2748	339510	2.0	17.7977	0.8	0.5888	2.1	0.0760	1.9	0.93	472.2	8.6	470.1	7.7	459.8	17.2	472.2	8.6	102.7
River 1 Tibet extra-Spot 58	406	57711	4.8	17.7754	1.0	0.5979	2.3	0.0771	2.0	0.89	478.7	9.3	475.9	8.6	462.6	22.8	478.7	9.3	103.5
River 1 Tibet extra-Spot 24	302	50040	3.0	17.0599	0.6	0.6343	2.2	0.0785	2.1	0.96	487.0	10.0	498.8	8.8	552.9	14.0	487.0	10.0	88.1
River 1 Tibet extra-Spot 98	357	89783	6.1	17.2226	0.7	0.6417	2.0	0.0802	1.9	0.93	497.1	9.1	503.4	8.1	532.2	16.1	497.1	9.1	93.4
River 1 Tibet extra-Spot 95	383	160795	2.3	17.4947	0.7	0.6423	2.2	0.0815	2.1	0.95	505.0	10.1	503.7	8.7	497.7	15.6	505.0	10.1	101.5
River 1 Tibet extra-Spot 21	773	72287	1.5	17.3165	0.7	0.6494	1.9	0.0816	1.8	0.93	505.4	8.5	508.1	7.5	520.2	14.7	505.4	8.5	97.2
River 1 Tibet extra-Spot 83	529	148351	1.8	17.5792	0.7	0.6434	1.9	0.0820	1.7	0.92	508.2	8.4	504.4	7.4	508.2	8.4	104.3		
River 1 Tibet extra-Spot 70	79	36889	0.7	17.1706	1.1	0.6597	3.4	0.0822	3.3	0.95	509.0	15.9	514.4	13.9	538.8	24.5	509.0	15.9	94.5
River 1 Tibet extra-Spot 42	82	12837	1.0	17.2464	1.4	0.6576	2.9	0.0823	2.5	0.88	509.6	12.3	513.2	11.5	529.1	30.2	509.6	12.3	96.3
River 1 Tibet extra-Spot 69	76	12238	0.7	17.3091	1.2	0.6714	3.1	0.0843	2.9	0.93	512.1	14.4	521.6	25.6	521.7	14.4	100.1		
River 1 Tibet extra-Spot 1	121	16582	0.8	17.3234	0.7	0.6754	2.4	0.0849	2.3	0.95	525.1	11.6	524.0	9.9	519.3	16.2	525.1	11.6	101.1
River 1 Tibet extra-Spot 60	846	91292	12.0	17.1350	0.7	0.6841	1.9	0.0850	1.8	0.93	526.0	8.9	529.3	7.8	543.3	15.3	526.0	8.9	96.8
River 1 Tibet extra-Spot 4	154	68531	1.4	17.2072	0.8	0.6822	2.1	0.0851	2.0	0.92	526.7	9.9	528.1	8.7	526.7	9.9	98.6		
River 1 Tibet extra-Spot 106	665	216247	3.5	17.2540	0.6	0.6921	2.3	0.0866	2.2	0.96	535.5	11.5	534.1	9.6	528.2	13.6	535.5	11.5	101.4
River 1 Tibet extra-Spot 43	616	46226	2.7	17.3138	0.7	0.6993	1.9	0.0878	1.8	0.94	542.6	9.5	538.4	8.1	520.5	14.4	542.6	9.5	104.2
River 1 Tibet extra-Spot 10	294	67933	3.2	17.1203	0.7	0.7094	2.0	0.0881	1.8	0.94	544.2	9.5	544.4	8.2	545.2	15.1	544.2	9.5	99.8
River 1 Tibet extra-Spot 2	259	250728	4.5	17.1976	0.7	0.7115	2.3	0.0887	2.2	0.96	548.1	11.4	545.6	9.6	535.3	14.5	548.1	11.4	102.4
River 1 Tibet extra-Spot 85	525	949864	5.5	16.7315	0.8	0.7650	2.1	0.0928	1.9	0.92	572.3	10.4	591.9	9.1	595.2	17.0	572.3	10.4	96.2
River 1 Tibet extra-Spot 19	557	54430	1.6	16.4456	0.7	0.8061	1.8	0.0962	1.7	0.93	591.8	9.6	600.3	8.3	632.4	14.4	591.8	9.6	93.6
River 1 Tibet extra-Spot 40	1192	443831	6.0	16.6058	0.7	0.8052	2.0	0.0970	1.9	0.93	596.7	10.7	599.8	9.1	611.5	15.5	596.7	10.7	97.6
River 1 Tibet extra-Spot 62	777	115761	7.0	16.6506	0.6	0.8143	1.7	0.0983	1.6	0.94	604.6	9.5	604.9	8.0	605.6	12.8	604.6	9.5	99.8
River 1 Tibet extra-Spot 88	297	91095	1.6	16.5614	0.8	0.8219	1.8	0.0987	1.7	0.91	606.9	9.6	617.2	16.4	606.9	9.6	98.3		
River 1 Tibet extra-Spot 86	425	119187	2.0	16.6238	0.7	0.8215	1.9	0.0990	1.8	0.94	608.8	10.4	608.9	8.8	609.1	14.1	608.8	10.4	100.0
River 1 Tibet extra-Spot 107	855	88123	11.2	16.5225	0.6	0.8270	2.3	0.0991	2.2	0.96	609.1	12.7	611.9	10.5	622.3	14.0	609.1	12.7	97.9
River 1 Tibet extra-Spot 18	244	54771	2.7	16.2856	0.8	0.9310	2.0	0.1100	1.8	0.92	672.5	11.8	668.1	9.8	653.4	16.4	672.5	11.8	102.9
River 1 Tibet extra-Spot 102	789	1431841	20.5	15.5515	0.5	0.1076	1.5	0.1217	1.5	0.95	749.1	10.2	742.9	8.0	751.6	9.6	740.1	10.2	98.5
River 1 Tibet extra-Spot 75	385	54677	3.3	15.7707	0.7	0.10641	2.4	0.1217	2.3	0.96	740.4	15.8	735.8	12.3	721.9	14.3	740.4	15.8	102.6
River 1 Tibet extra-Spot 36	157	63438	1.3	15.1645	0.7	1.1453	2.0	0.1260	1.9	0.93	764.8	13.7	775.0	11.0	804.6	15.3	764.8	13.7	95.1
River 1 Tibet extra-Spot 15	185	1135127	1.9	15.2894	0.7	1.1689	1.9	0.1296	1.7	0.92	785.7	12.9	786.1	10.4	787.4	15.7	785.7	12.9	99.8
River 1 Tibet extra-Spot 32	26	15244	0.8	14.4980	1.2	1.2401	4.3	0.1304	4.1	0.96	787.0	30.6	818.9	24.2	896.3	25.3	790.0	30.6	88.0
River 1 Tibet extra-Spot 94	1143	288674	7.1	15.0229	0.7	1.2202	2.0	0.1324	1.9	0.94	804.6	14.3	809.9	11.2	824.2	14.1	804.6	14.3	97.6
River 1 Tibet extra-Spot 109	688	506726	5.5	14.7353	0.7	1.3088	2.3	0.1345	2.2	0.96	813.7	16.7	849.6	13.1	813.7	17.1	861.1		
River 1 Tibet extra-Spot 76	635	278697	0.7	14.6959	0.6	1.2940	1.9	0.1379	1.8	0.95	832.9	14.2	843.1	10.9	889.9	12.0	832.9	14.2	95.7
River 1 Tibet extra-Spot 78	88	63515	3.5	14.4452	0.8	1.4494	2.4	0.1519	2.3	0.94	911.3	19.4	908.6	14.6	905.5	17.2	905.5	17.2	100.6
River 1 Tibet extra-Spot 31	445	155975	2.6	14.3756	0.7	1.4291	2.5	0.1490	2.4	0.96	895.4	19.8	901.2	14.7	915.5	14.3	915.5	14.3	97.8
River 1 Tibet extra-Spot 59	298	134577	0.7	14.2832	0.7	1.4695	2.3	0.1522	2.2	0.96	913.4	19.0	917.9	14.0	928.7	13.4	98.4		
River 1 Tibet extra-Spot 47	757	182387	11.9	14.2631	0.7	1.4556	1.7	0.1506	1.6	0.92	904.2	13.4	912.2	10.4	916.1	13.5	916.1	13.5	97.1
River 1 Tibet extra-Spot 29	297	904060	0.9	14.1701	0.6	1.5382	4.0	0.1581	3.9	0.99	946.1	34.6	948.5	24.5	945.0	12.5	945.0	12.5	100.1
River 1 Tibet extra-Spot 84	695	352933	5.2	14.1632	0.7	1.3980	1.5	0.1436	1.3	0.88	865.0	10.9	888.1	9.0	946.0	14.7	946.0	14.7	91.4
River 1 Tibet extra-Spot 16	207	26770	0.7	14.1614	0.7	1.5520	2.3	0.1594	2.2	0.95	953.5	19.3	951.3	14.2	946.3	15.2	946.3	15.2	100.8
River 1 Tibet extra-Spot 6	184	56302	0.7	14.1005	0.8	1.5374	2.5	0.1572	2.4	0.95	941.4	21.1	945.5	15.6	955.1	16.3	955.1	16.3	98.6
River 1 Tibet extra-Spot 34	142	145652	0.9	14.0696	0.9	1.5700	2.3	0.1602	2.2	0.93	957.9	19.4	958.4	14.5	959.6	17.6	959.6	17.6	99.8
River 1 Tibet extra-Spot 55	360	168500	3.6	14.0673	0.6	1.5184	1.8	0.1549	1.7	0.94	928.5	14.6	937.9	11.0	959.9	12.8	959.9	12.8	96.7
River 1 Tibet extra-Spot 25	1075	9224364	1.6	14.0583	0.6	1.5469	1.6	0.1577	1.4	0.92	944.1	12.6	949.3	9.6	961.2	12.8	961.2	12.8	98.2
River 1 Tibet extra-Spot 61	371	48722	1.8	14.0438	0.5	1.5073	2.5	0.1535	2.4	0.98	920.7	20.8	933.4	15.2	963.3	11.1	963.3	11.1	95.6
River 1 Tibet extra-Spot 91	232	305630	2.7	13.9407	0.8	1.4749	2.3	0.1491	2.2	0.94	896.0	18.2	920.1	13.9	978.3	15.3	978.3	15.3	91.6
River 1 Tibet extra-Spot 36	82	55393	1.2	13.9156	0.9	1.6588	3.2	0.1674	3.1	0.96	997.8	28.7	992.9	20.5	982.0	18.3	982.0	18.3	101.6
River 1 Tibet extra-Spot 80	63	15027	0.9	13.															

Table DR2, continued.

River 2	U	206Pb	U/Th	206Pb*	$\pm$	207Pb*	$\pm$	206Pb*	$\pm$	error	206Pb*	$\pm$	207Pb*	$\pm$	206Pb*	$\pm$	Best age	$\pm$	Conc	
	(ppm)	204Pb		207Pb*	(%)	235U	(%)	238U	(%)	corr.	238U*	(Ma)	235U	(Ma)	207Pb*	(Ma)	(Ma)	(Ma)	(%)	
RIVER2-40	650	18666	2.3	21.5769	13.4	0.0406		13.5	0.0063	1.7	0.12	40.8	0.7	40.4	5.4	15.7	324.2	40.8	0.7	NA
RIVER2-42	220	3577	0.5	18.5625	16.4	0.0480		16.7	0.0065	3.2	0.19	41.5	1.3	47.6	7.8	365.7	372.4	41.5	1.3	NA
RIVER2-20	337	17320	0.9	22.0795	16.5	0.0407		17.0	0.0065	4.1	0.24	41.9	1.7	40.5	6.7	-40.0	403.1	41.9	1.7	NA
RIVER2-67	229	4097	0.5	20.2338	25.3	0.0461		25.7	0.0068	4.8	0.18	43.5	2.1	45.8	11.5	167.9	598.7	43.5	2.1	NA
RIVER2-58	184	12536	0.5	23.0291	30.5	0.0441		31.8	0.0074	8.9	0.28	47.3	4.2	43.8	13.6	-143.3	771.2	47.3	4.2	NA
RIVER2-90	152	5839	0.6	18.9470	108.9	0.0537		109.2	0.0074	8.2	0.08	47.4	3.9	53.1	56.5	319.3	861.1	47.4	3.9	NA
RIVER2-58	416	43906	0.9	22.5465	13.2	0.0466		13.4	0.0076	2.3	0.17	48.9	1.1	46.2	6.1	-91.1	325.9	48.9	1.1	NA
RIVER2-30	1173	4456	0.7	19.1494	9.8	0.0549		10.4	0.0076	3.7	0.35	49.0	1.8	54.3	5.5	295.1	223.0	49.0	1.8	NA
RIVER2-25	225	7891	0.9	24.2876	25.0	0.0439		25.2	0.0077	3.3	0.13	49.6	1.6	43.6	10.8	-276.8	644.6	49.6	1.6	NA
RIVER2-8	207	10613	0.5	22.4025	29.9	0.0476		30.3	0.0077	5.1	0.17	49.6	2.5	47.2	14.0	-75.4	744.3	49.6	2.5	NA
RIVER2-45	151	1441	0.6	21.1703	35.3	0.0504		35.4	0.0077	2.8	0.08	49.7	1.4	49.9	17.3	61.2	864.9	49.7	1.4	NA
RIVER2-33	525	21265	8.6	20.6778	9.5	0.0517		10.0	0.0078	3.0	0.30	49.8	1.5	51.2	5.0	117.0	224.6	49.8	1.5	NA
RIVER2-86	197	9097	0.9	21.2824	41.8	0.0503		41.9	0.0078	2.7	0.06	49.9	1.3	49.8	20.4	48.6	1038.5	49.9	1.3	NA
RIVER2-16	119	4294	0.9	20.4850	52.4	0.0523		52.8	0.0078	6.0	0.11	49.9	3.0	51.7	26.6	139.0	1316.9	49.9	3.0	NA
RIVER2-77	109	6693	0.6	26.0845	63.4	0.0411		63.7	0.0078	6.0	0.09	50.0	3.0	40.9	25.5	-461.8	1849.6	50.0	3.0	NA
RIVER2-96	114	8959	0.6	22.5072	37.5	0.0480		38.7	0.0078	9.6	0.25	50.3	4.8	47.6	18.0	-86.8	948.2	50.3	4.8	NA
RIVER2-37	168	7923	0.7	31.8523	57.6	0.0339		57.7	0.0078	3.2	0.06	50.3	1.6	33.9	19.2	-1021.4	1847.6	50.3	1.6	NA
RIVER2-78	110	363	0.5	19.3251	27.4	0.0578		28.8	0.0081	8.8	0.31	52.0	4.6	57.1	16.0	274.2	638.8	52.0	4.6	NA
RIVER2-66	474	21866	1.0	20.9483	14.7	0.0540		14.9	0.0082	2.4	0.16	52.7	1.3	53.4	7.7	86.3	349.7	52.7	1.3	NA
RIVER2-73	202	8441	0.9	28.3167	41.6	0.0411		41.7	0.0084	2.7	0.07	54.1	1.5	40.9	16.7	-683.8	1194.0	54.1	1.5	NA
RIVER2-35	1280	71694	1.2	21.1943	1.8	0.0595		2.5	0.0091	1.8	0.71	58.7	1.0	58.5	4.2	58.7	1.0	NA		
RIVER2-65	123	13431	1.1	24.7025	29.3	0.0593		29.9	0.0106	5.9	0.20	68.2	4.0	58.5	17.0	-320.1	766.8	68.2	4.0	NA
RIVER2-38	110	13091	0.6	26.2668	31.2	0.0619		32.0	0.0118	7.0	0.22	75.6	5.2	61.0	18.9	-480.3	843.9	75.6	5.2	NA
RIVER2-18	77	3692	0.4	23.3855	43.0	0.0764		43.3	0.0130	5.4	0.13	83.0	4.5	74.7	31.2	-181.5	1117.9	83.0	4.5	NA
RIVER2-83	370	41223	1.2	20.7215	7.6	0.0888		7.8	0.0134	1.7	0.22	85.5	1.5	86.4	6.5	112.0	179.4	85.5	1.5	NA
RIVER2-61	129	8857	1.0	21.0485	19.7	0.0889		19.8	0.0136	2.0	0.10	86.8	1.7	86.4	16.4	74.9	472.3	86.8	1.7	NA
RIVER2-5	181	1137	0.6	21.6120	22.5	0.0939		22.9	0.0147	4.1	0.18	94.2	3.8	91.1	20.0	11.8	548.0	94.2	3.8	NA
RIVER2-71	337	27074	0.7	20.5430	8.1	0.0995		8.2	0.0148	1.3	0.15	94.9	1.2	96.3	7.5	132.4	190.2	94.9	1.2	NA
RIVER2-10	232	17842	0.8	20.7973	8.0	0.1098		8.3	0.0166	1.9	0.23	105.9	2.0	105.8	8.3	103.4	190.2	105.9	2.0	NA
RIVER2-48	67	4864	1.1	24.2375	73.3	0.0592		73.4	0.0167	4.2	0.06	107.0	4.5	92.3	64.8	-271.6	2164.4	107.0	4.5	NA
RIVER2-91	51	4222	1.0	20.4732	29.2	0.1316		29.7	0.0195	5.3	0.18	124.7	6.6	125.5	35.0	140.3	698.2	124.7	6.6	NA
RIVER2-249	58	5518	0.7	20.5041	23.7	0.1355		24.1	0.0202	4.1	0.17	128.6	5.2	129.0	29.2	136.8	564.7	128.6	5.2	NA
RIVER2-28	166	10059	0.7	22.9840	13.4	0.1231		14.0	0.0205	4.1	0.29	130.9	5.3	117.9	15.6	-136.2	332.2	130.9	5.3	NA
RIVER2-322	3136	68898	3.9	20.3142	0.8	0.1454		1.4	0.0214	1.1	0.81	136.6	1.5	137.8	1.7	-158.6	187	136.6	1.5	NA
RIVER2-7	279	132844	1.3	20.0863	5.1	0.1672		5.3	0.0244	1.7	0.31	155.1	2.5	157.0	7.8	185.0	118.4	155.1	2.5	NA
RIVER2-27	157	35578	4.3	15.6599	5.7	0.3634		8.2	0.0413	6.0	0.72	260.7	15.2	314.8	22.3	736.9	120.1	260.7	15.2	NA
RIVER2-52	248	105469	1.2	18.5997	2.2	0.4383		3.0	0.0856	2.0	0.66	366.6	7.0	365.9	9.2	361.2	50.7	366.6	7.0	NA
RIVER2-74	173	92472	0.8	17.9309	1.4	0.6048		2.0	0.0781	1.4	0.61	488.1	6.6	443.2	3.6	443.2	31.4	488.1	6.6	110.1
RIVER2-46	54	34047	0.9	17.1342	9.6	0.6625		9.7	0.0823	1.8	0.19	510.0	8.9	516.1	39.4	543.4	209.4	510.0	8.9	93.8
RIVER2-24	107	62969	0.6	17.0502	4.3	0.6787		4.4	0.0839	1.3	0.29	519.5	6.4	526.0	18.3	554.1	92.9	519.5	6.4	93.8
RIVER2-39	209	54787	0.5	17.3314	2.2	0.6737		2.4	0.0847	0.9	0.37	524.0	4.5	523.0	9.8	518.3	49.1	524.0	4.5	101.1
RIVER2-12	88	16106	0.7	16.3036	4.9	0.7237		5.1	0.0856	1.2	0.24	529.3	6.1	525.9	21.6	651.0	105.6	529.3	6.1	81.3
RIVER2-54	103	97997	0.9	17.1130	3.0	0.6926		3.5	0.0860	1.8	0.52	531.6	9.4	534.3	14.7	546.1	66.1	531.6	9.4	97.3
RIVER2-29	285	166379	11.8	16.2360	2.1	0.7618		3.7	0.0897	3.0	0.82	553.8	16.1	575.1	16.1	660.0	44.6	553.8	16.1	83.9
RIVER2-68	183	65030	20.9	16.6768	1.6	0.7507		3.4	0.0908	3.0	0.88	560.2	15.9	568.6	14.6	602.2	34.7	560.2	15.9	93.0
RIVER2-17	37	11843	1.1	17.8319	9.3	0.7165		10.1	0.0927	3.9	0.39	571.2	21.2	548.6	42.7	455.5	206.8	571.2	21.2	125.4
RIVER2-80	12	15568	0.4	17.4668	33.5	0.7333		33.8	0.0929	4.3	0.13	572.6	23.5	558.5	14.6	501.3	75.3	572.6	23.5	114.2
RIVER2-100	101	40842	1.1	16.9631	5.3	0.7663		6.1	0.0943	3.0	0.50	580.8	16.9	577.7	27.0	565.3	115.7	580.8	16.9	102.7
RIVER2-88	190	70302	1.0	16.6043	1.3	0.8117		1.7	0.0978	1.2	0.69	601.2	6.9	603.4	8.0	611.7	27.4	601.2	6.9	98.3
RIVER2-11	296	289814	1.6	16.7428	1.2	0.8080		1.4	0.0981	0.8	0.55	603.4	4.6	601.4	6.6	593.7	26.1	603.4	4.6	101.6
RIVER2-53	345	290601	4.1	16.2387	0.9	0.8659		2.2	0.1020	2.0	0.91	626.0	12.1	633.0	10.5	659.6	19.3	626.0	12.1	94.9
RIVER2-72	483	303355	9.0	14.0489	1.4	1.3463		2.5	0.1372	2.1	0.83	828.7	16.1	866.0	14.5	828.7	16.1	86.1		
RIVER2-14	91	375601	0.5	14.5488	1.9	1.4058		3.0	0.1483	2.4	0.78	891.6	19.6	89.8	17.8	89.8	38.5	891.6	19.6	100.1
RIVER2-2	94	67993	1.6	14.3554	2.2	1.4863		3.1	0.1547	2.1	0.69	92.7	18.5	92.8	18.7	918.4	45.6	918.4	45.6	101.0
RIVER2-62	384	336884	3.6	14.1736	0.5	1.5257		1.9	0.1568	1.9	0.97	93.9	16.3							

Table DR2, continued.

River 3	U	206Pb	U/Th	206Pb*	$\pm$	207Pb*	$\pm$	206Pb*	$\pm$	error	206Pb*	$\pm$	207Pb*	$\pm$	206Pb*	$\pm$	Best age	$\pm$	Conc
	(ppm)	204Pb		207Pb* (%)		235U (%)		238U (%)		corr.	238U* (Ma)		235U (Ma)		207Pb* (Ma)		(Ma)	(Ma)	(%)
RIVER3-3	2581	80854	0.7	20.8503	2.6	0.0380	3.0	0.0057	1.4	0.48	36.9	0.5	37.8	1.1	97.3	61.6	36.9	0.5	NA
RIVER3-4	560	6920	1.0	19.7836	23.8	0.0491	24.2	0.0064	4.6	0.19	41.2	1.9	48.7	11.5	436.7	536.0	41.2	1.9	NA
RIVER3-11	2937	55049	2.3	21.2221	2.2	0.0432	2.5	0.0066	1.2	0.48	42.7	0.5	42.9	1.1	55.4	53.2	42.7	0.5	NA
RIVER3-78	1363	32378	1.0	21.6351	3.6	0.0448	4.6	0.0070	2.9	0.62	45.2	1.3	44.5	2.0	9.2	86.9	45.2	1.3	NA
RIVER3-86	1232	66741	1.3	21.4573	8.8	0.0456	8.9	0.0071	1.0	0.11	45.6	0.4	45.3	3.9	29.0	212.0	45.6	0.4	NA
RIVER3-14	362	6016	0.7	19.7671	23.4	0.0505	24.5	0.0072	7.1	0.29	46.5	3.3	50.0	11.9	222.2	548.0	46.5	3.3	NA
RIVER3-25	301	6201	0.8	21.4649	17.5	0.0468	17.9	0.0073	4.0	0.22	46.8	1.9	46.4	8.1	28.1	421.1	46.8	1.9	NA
RIVER3-95	629	14689	1.4	22.6061	11.1	0.0446	11.2	0.0073	1.7	0.16	47.0	0.8	44.3	4.9	-97.5	272.3	47.0	0.8	NA
RIVER3-85	679	23986	0.9	21.6907	9.0	0.0469	9.1	0.0074	1.5	0.16	47.4	0.7	46.6	4.2	3.0	217.5	47.4	0.7	NA
RIVER3-72	3433	122689	6.3	20.7665	2.4	0.0501	3.0	0.0076	1.8	0.61	48.5	0.9	49.7	1.5	106.9	56.6	48.5	0.9	NA
RIVER3-39	635	29713	1.4	21.9717	7.9	0.0474	8.4	0.0076	2.9	0.34	48.5	1.4	47.1	3.9	-28.1	191.2	48.5	1.4	NA
RIVER3-28	656	18129	1.0	21.1768	7.3	0.0506	7.9	0.0078	3.0	0.38	49.9	1.5	50.2	3.9	60.4	174.2	49.9	1.5	NA
RIVER3-10	111	2748	0.7	29.7889	51.5	0.0361	51.8	0.0078	4.8	0.09	50.0	2.4	36.0	18.3	-826.2	1558.8	50.0	2.4	NA
RIVER3-51	259	6256	0.6	30.2384	27.1	0.0376	27.4	0.0082	3.7	0.13	52.9	1.9	37.4	10.1	-869.1	793.0	52.9	1.9	NA
RIVER3-2	350	1374	1.3	19.1250	14.7	0.0629	15.0	0.0087	3.0	0.20	56.0	1.7	61.9	9.0	298.0	336.1	56.0	1.7	NA
RIVER3-70	135	5112	1.2	25.9490	49.4	0.0473	49.7	0.0089	5.1	0.10	57.1	2.9	46.9	22.8	-448.1	1375.3	57.1	2.9	NA
RIVER3-67	91	1047	1.4	28.6446	89.3	0.0431	89.7	0.0090	8.9	0.10	57.4	5.1	42.8	37.7	-715.7	3304.1	57.4	5.1	NA
RIVER3-27	216	12227	1.0	21.7516	24.5	0.0592	24.8	0.0093	3.8	0.15	60.0	2.3	58.4	14.1	-3.7	598.3	60.0	2.3	NA
RIVER3-49	332	31404	0.9	21.1162	11.4	0.0675	11.8	0.0103	3.2	0.27	66.3	2.1	66.3	7.6	67.2	272.3	66.3	2.1	NA
RIVER3-6	120	6544	0.9	20.2915	19.2	0.0833	20.1	0.0123	6.0	0.30	78.6	4.7	81.3	15.7	161.3	453.1	78.6	4.7	NA
RIVER3-94	198	15857	1.0	23.5262	19.4	0.0838	19.8	0.0143	4.2	0.21	91.5	3.8	81.7	15.6	-197.1	489.1	91.5	3.8	NA
RIVER3-21	136	8005	1.4	21.2790	15.3	0.0928	15.5	0.0143	2.3	0.15	91.7	2.1	90.1	13.4	48.9	367.7	91.7	2.1	NA
RIVER3-91	124	5976	1.0	20.6048	20.4	0.1013	20.5	0.0151	2.1	0.10	96.8	2.0	97.9	19.2	125.3	485.4	96.8	2.0	NA
RIVER3-56	198	18512	0.4	19.9261	14.3	0.1068	14.4	0.0154	5.1	0.13	98.7	1.8	103.0	14.1	203.6	332.4	98.7	1.8	NA
RIVER3-52	82	2025	0.9	17.8377	23.5	0.1297	24.7	0.0168	7.6	0.31	107.2	8.1	123.8	28.8	454.8	528.1	107.2	8.1	NA
RIVER3-30	74	3377	1.0	22.8977	50.4	0.1087	50.7	0.0180	5.7	0.11	115.3	6.5	104.7	50.5	-129.1	1320.7	115.3	6.5	NA
RIVER3-74	44	11401	1.6	21.3549	15.2	0.2498	16.3	0.0387	5.9	0.36	244.7	14.3	226.4	33.2	40.5	366.0	244.7	14.3	NA
RIVER3-76	265	59672	3.4	17.7398	2.7	0.4863	3.2	0.0626	1.6	0.51	391.2	6.1	402.4	10.5	467.0	604	391.2	6.1	NA
RIVER3-99	2111	66421	1.4	17.5501	0.4	0.5271	4.9	0.0671	4.9	1.00	418.6	19.9	429.9	17.3	490.8	8.9	418.6	19.9	85.3
RIVER3-46	1286	413200	105.4	17.5953	0.5	0.5737	1.2	0.0732	1.1	0.90	455.5	4.8	460.4	4.5	485.1	11.7	455.5	4.8	93.9
RIVER3-12	497	117788	4.1	17.6105	1.2	0.5822	1.3	0.0744	0.6	0.41	462.4	2.5	465.9	5.0	483.2	26.8	462.4	2.5	95.7
RIVER3-36	458	141471	1.4	17.5289	0.8	0.6058	1.8	0.0770	1.6	0.90	478.3	7.6	480.9	7.0	493.4	17.9	478.3	7.6	96.9
RIVER3-55	650	101234	3.0	17.6679	0.5	0.6063	1.7	0.0777	1.6	0.96	482.3	7.4	481.2	6.3	476.0	10.4	482.3	7.4	101.3
RIVER3-84	98	19314	0.6	17.1307	3.5	0.6557	3.7	0.0815	1.2	0.32	504.9	5.8	512.0	14.9	543.9	76.5	504.9	5.8	92.8
RIVER3-58	234	39971	1.5	17.2049	1.8	0.6687	2.2	0.0834	1.3	0.60	516.6	6.6	519.9	9.0	534.4	38.8	516.6	6.6	96.7
RIVER3-44	145	94969	1.1	17.0506	2.8	0.6767	3.2	0.0837	1.6	0.50	518.4	8.1	524.8	13.2	552.6	61.0	518.4	8.1	95.8
RIVER3-65	604	80311	1.1	17.1081	0.6	0.6967	0.7	0.0864	0.4	0.55	524.4	2.1	536.8	3.1	547.0	13.5	534.4	2.1	97.7
RIVER3-36	91	37777	0.8	17.0479	2.0	0.7357	2.5	0.0910	1.4	0.56	561.2	7.4	559.9	0.6	554.5	44.4	561.2	7.4	101.2
RIVER3-100	576	150383	1.1	15.3623	1.0	0.8225	5.8	0.0916	5.7	0.98	565.3	30.8	609.5	26.5	774	21.6	565.3	30.8	72.7
RIVER3-40	445	119923	5.3	16.2975	0.8	0.7946	5.2	0.0599	5.2	0.99	578.7	28.6	593.8	23.5	651.9	18.1	578.7	28.6	88.8
RIVER3-53	485	159388	2.2	16.9222	0.8	0.7671	1.0	0.0942	0.7	0.63	580.0	3.6	578.1	4.6	570.6	17.4	580.0	3.6	101.7
RIVER3-17	186	80058	1.1	16.0336	3.1	0.8687	3.3	0.1010	1.3	0.40	620.4	7.9	634.9	15.8	686.8	65.3	620.4	7.9	90.3
RIVER3-15	149	100179	1.5	15.1320	1.8	1.1308	2.6	0.1241	1.9	0.73	754.2	13.6	768.2	14.1	809.0	37.3	754.2	13.6	93.2
RIVER3-13	186	88414	7.6	14.5427	1.3	1.3973	4.3	0.1465	4.1	0.95	881.1	34.1	887.8	25.7	904.4	27.5	881.1	34.1	97.4
RIVER3-38	121	92141	0.5	14.4080	1.8	1.4805	4.6	0.1547	4.3	0.92	927.3	36.8	924.4	28.0	910.8	36.4	910.8	36.4	101.8
RIVER3-1	283	259416	1.5	14.2804	0.5	1.4889	1.0	0.1542	0.9	0.87	924.5	7.4	925.9	6.0	929.1	10.0	929.1	10.0	99.5
RIVER3-31	119	46876	0.7	13.9555	1.0	1.6518	1.5	0.1672	1.1	0.73	996.6	9.8	990.2	9.2	976.2	20.3	976.2	20.3	102.1
RIVER3-5	326	229295	1.4	13.9543	0.5	1.6197	1.2	0.1639	1.1	0.91	978.6	10.1	977.9	7.6	974.6	10.2	976.4	10.2	100.2
RIVER3-47	514	372233	3.9	13.8979	0.4	1.5985	2.0	0.1611	1.9	0.98	963.0	17.1	969.6	12.2	984.6	8.4	984.6	8.4	97.8
RIVER3-19	178	22097	0.4	13.7414	0.8	1.7189	3.5	0.1713	3.4	0.98	1019.3	32.4	1015.6	22.6	1007.6	15.3	1007.6	15.3	101.2
RIVER3-50	317	235603	5.2	13.5915	0.9	1.5256	2.4	0.1504	2.2	0.93	903.1	18.5	940.7	14.4	1029.8	17.4	87.7	17.4	101.2
RIVER3-71	342	161802	1.0	13.5595	0.9	1.7894	1.4	0.1760	1.0	0.75	1045.0	9.9	1041.6	9.0	1034.6	18.6	1034.6	18.6	101.0
RIVER3-68	199	48811	1.2	13.3307	0.9	1.5933	2.4	0.1889	2.3	0.97	1154.5	23.6	1136.5	16.2	1174.5	10.7	1174.5	10.7	95.0
RIVER3-8	164	144878	1.4	13.2031	0.9	1.9044	1.9	0.1827	1.7	0.89	1081.9	16.9	1082.6	12.7	1084.1	17.6	1084.1	17.6	99.8
RIVER3-73	270	102147	0.9	12.3462	0.5	2.2769	1.5	0.2039	1.5	0.95	1196.1	15.9	1205.2	10.8	1221.4	9.2	1221.4	9.2	97.9
RIVER3-32	321	61311	1.2	11.8651	2.9	2.4092	3.7	0.2073	2.4										

Table DR2, continued.

	U	206Pb	U/Th	206Pb*	$\pm$	207Pb*	$\pm$	206Pb*	$\pm$	error	206Pb*	$\pm$	207Pb*	$\pm$	206Pb*	$\pm$	Best age	$\pm$	Conc	
	(ppm)	(ppm)		(%)	(%)	(%)	(%)	(%)	(%)	corr.	(Ma)	(Ma)	(%)	(Ma)	(Ma)	(Ma)	(Ma)	(%)		
RIVER4-31	931	36304	1.5	20.7307	8.4	0.0384		8.8	0.0058	2.6	0.29	37.1	0.9	38.3	3.3	110.9	198.0	37.1	0.9	NA
RIVER4-13	1009	3940	1.0	20.4892	7.8	0.0391		8.7	0.0058	4.0	0.45	37.3	1.5	38.9	3.3	138.5	183.0	37.3	1.5	NA
RIVER4-61	2166	50436	3.5	21.8481	3.3	0.0376		3.8	0.0060	1.9	0.51	38.3	0.7	37.5	1.4	-14.4	79.0	38.3	0.7	NA
RIVER4-91	1179	19386	3.8	22.0613	6.1	0.0411		6.3	0.0066	1.5	0.24	42.3	0.6	40.9	2.5	-38.0	148.7	42.3	0.6	NA
RIVER4-62	3363	5056	6.6	19.3348	10.1	0.0470		10.2	0.0066	1.5	0.15	42.4	0.6	46.7	4.6	273.0	231.4	42.4	0.6	NA
RIVER4-67	1593	13679	0.6	19.6842	6.3	0.0480		6.7	0.0069	2.2	0.33	44.0	1.0	47.6	3.1	231.8	146.5	44.0	1.0	NA
RIVER4-73	772	21605	1.0	20.4167	7.5	0.0468		7.7	0.0069	1.9	0.24	44.5	0.8	46.5	3.5	146.9	176.6	44.5	0.8	NA
RIVER4-47	279	5190	0.7	19.1690	35.0	0.0519		35.7	0.0072	6.6	0.19	46.3	3.1	51.3	17.9	292.8	822.8	46.3	3.1	NA
RIVER4-86	1075	10749	0.4	21.6122	5.9	0.0465		6.1	0.0073	1.7	0.27	46.9	0.8	46.2	2.8	11.7	142.2	46.9	0.8	NA
RIVER4-4	788	19370	1.3	21.5420	6.4	0.0470		6.7	0.0073	2.0	0.30	47.1	0.9	46.6	3.0	19.5	153.5	47.1	0.9	NA
RIVER4-68	321	17636	0.7	20.9325	21.3	0.0483		21.7	0.0073	4.0	0.18	47.1	1.9	47.9	10.2	88.0	510.5	47.1	1.9	NA
RIVER4-93	430	18156	1.4	21.1269	12.6	0.0483		13.2	0.0074	3.9	0.30	47.5	1.9	66.1	6.2	301.9	47.5	1.9	NA	
RIVER4-7	569	22991	1.7	20.2980	13.7	0.0505		14.0	0.0074	2.8	0.20	47.7	1.3	50.0	6.8	160.5	322.0	47.7	1.3	NA
RIVER4-85	735	15926	0.9	21.5458	7.3	0.0478		7.8	0.0075	2.5	0.32	48.0	1.2	47.4	3.6	19.1	176.7	48.0	1.2	NA
RIVER4-84	571	16231	1.3	20.7612	6.8	0.0499		6.9	0.0075	1.4	0.20	48.2	0.7	49.4	3.4	107.5	160.9	48.2	0.7	NA
RIVER4-81	913	40207	0.6	20.4558	6.0	0.0507		6.2	0.0075	1.8	0.28	48.3	0.9	50.2	3.1	142.4	140.4	48.3	0.9	NA
RIVER4-46	591	5963	1.2	21.6520	13.9	0.0480		14.1	0.0075	2.4	0.17	48.4	1.1	47.6	6.6	7.3	335.5	48.4	1.1	NA
RIVER4-60	179	11261	0.9	30.3887	60.6	0.0342		60.8	0.0075	5.4	0.09	48.5	2.6	34.2	20.4	-883.4	1905.8	48.5	2.6	NA
RIVER4-24	270	8110	0.6	21.7640	14.2	0.0482		14.8	0.0076	4.0	0.27	48.9	2.0	47.8	6.9	-5.1	343.9	48.9	2.0	NA
RIVER4-90	287	9949	0.5	21.3877	14.3	0.0494		14.5	0.0077	2.7	0.18	49.2	1.3	49.0	6.9	36.8	342.7	49.2	1.3	NA
RIVER4-100	583	21192	0.6	21.4954	8.6	0.0498		9.1	0.0078	2.8	0.30	49.8	1.4	49.3	4.4	24.8	207.6	49.8	1.4	NA
RIVER4-95	559	582	1.1	16.0489	27.2	0.0673		28.1	0.0078	7.1	0.25	50.3	3.6	66.1	18.0	684.8	591.5	50.3	3.6	NA
RIVER4-89	1351	38432	1.4	21.1532	5.5	0.0519		5.6	0.0080	1.0	0.18	51.2	0.5	51.4	2.8	63.1	131.4	51.2	0.5	NA
RIVER4-76	341	19332	1.0	20.6854	13.8	0.0603		14.1	0.0090	2.8	0.20	58.1	1.6	59.5	8.1	116.1	326.4	58.1	1.6	NA
RIVER4-34	429	24502	0.8	21.1482	7.2	0.0591		7.7	0.0146	2.9	0.38	93.4	2.7	92.3	6.8	63.6	170.6	93.4	2.7	NA
RIVER4-6	66	7893	0.9	15.9588	21.6	0.1423		22.7	0.0165	6.8	0.30	105.3	7.1	135.1	28.7	696.8	466.0	105.3	7.1	NA
RIVER4-70	1896	189858	53.9	17.9818	1.0	0.2049		8.5	0.0267	8.4	0.99	170.0	14.1	189.2	14.6	436.9	21.4	170.0	14.1	NA
RIVER4-18	74	9446	1.5	21.5018	19.9	0.1822		20.4	0.0284	5.5	0.22	180.6	8.1	169.9	32.0	24.0	481.8	180.6	8.1	NA
RIVER4-3	1333	14327	0.9	14.7797	0.8	0.4808		5.1	0.0515	5.0	0.99	323.9	15.8	398.6	16.8	858.1	17.6	323.9	15.8	NA
RIVER4-74	172	24964	1.8	17.5605	3.2	0.5466		3.9	0.0696	2.1	0.55	433.8	9.0	442.8	13.9	489.4	71.5	433.8	9.0	88.6
RIVER4-9	497	47039	0.5	17.4131	2.1	0.5940		9.3	0.0750	9.1	0.97	466.3	4.8	473.4	35.3	508.0	47.3	466.3	4.8	91.8
RIVER4-48	429	96064	5.4	17.6862	1.2	0.5946		1.7	0.0763	1.2	0.71	473.8	6.4	473.8	26.7	473.8	5.5	100.0		
RIVER4-33	334	151482	3.7	17.6078	1.8	0.6079		2.2	0.0776	1.3	0.58	482.0	5.9	482.3	8.4	493.5	39.6	492.0	5.9	99.7
RIVER4-64	1031	131591	1.3	17.4738	0.9	0.6181		3.3	0.0783	3.2	0.97	486.2	14.8	488.6	12.7	500.4	18.7	486.2	14.8	97.2
RIVER4-1	1599	283335	8.3	17.5069	0.3	0.6319		4.6	0.0802	4.6	1.00	497.5	21.9	497.3	18.1	497.5	21.9	100.3		
RIVER4-16	124	15077	0.6	17.5984	5.3	0.6356		5.6	0.0811	1.9	0.34	502.8	9.1	499.6	22.1	484.7	116.4	502.8	8.1	103.7
RIVER4-87	764	229807	1.3	17.5955	0.8	0.6424		8.0	0.0820	8.0	0.99	508.0	39.1	503.8	32.0	485.1	18.8	508.0	39.1	104.7
RIVER4-26	66	19504	0.4	18.3103	4.4	0.6344		4.9	0.0842	2.2	0.45	521.4	11.2	498.6	9.4	521.4	11.2	131.5		
RIVER4-28	148	4580	0.9	16.3502	7.5	0.7235		7.8	0.0856	2.0	0.26	530.6	10.4	552.7	33.2	644.9	161.6	530.6	10.4	82.3
RIVER4-88	611	8574	6.1	16.8294	0.9	0.7085		1.3	0.0865	1.0	0.75	534.7	4.9	543.9	5.4	582.5	18.5	534.7	4.9	91.8
RIVER4-78	169	78466	0.8	17.6366	3.0	0.6790		3.1	0.0869	0.7	0.23	536.9	3.7	526.2	12.9	479.9	67.4	536.9	3.7	111.9
RIVER4-5	248	39267	2.6	15.7672	1.6	0.7983		5.4	0.0913	5.1	0.95	563.2	27.6	595.9	24.2	722.4	35.0	563.2	27.6	78.0
RIVER4-94	171	82753	120.4	16.6354	3.4	0.7577		7.6	0.0914	6.7	0.89	563.9	36.4	572.7	33.1	607.6	73.9	563.9	36.4	92.8
RIVER4-38	477	106347	1.7	15.1518	1.6	1.0863		4.7	0.1194	4.4	0.94	727.0	30.3	746.7	24.7	806.3	32.7	727.0	30.3	90.2
RIVER4-12	556	136536	2.9	14.2549	1.3	1.1910		3.2	0.1231	2.9	0.91	748.6	20.4	796.4	17.5	932.8	26.6	748.6	20.4	80.3
RIVER4-35	55	17253	0.5	15.0174	4.0	1.1693		5.4	0.1274	3.6	0.67	772.8	26.2	786.3	29.6	825.0	84.1	772.8	26.2	93.7
RIVER4-72	510	151850	1.5	14.8719	0.6	1.2780		2.5	0.1378	2.4	0.97	832.5	18.6	836.0	14.0	845.2	13.0	832.5	18.6	98.5
RIVER4-69	113	66821	1.2	14.8322	2.2	1.3038		2.4	0.1402	0.9	0.36	846.1	6.8	847.4	13.6	850.8	45.8	846.1	6.8	99.4
RIVER4-40	33	23718	1.3	14.3150	4.9	1.3893		5.8	0.1442	3.1	0.53	868.6	25.0	884.4	34.4	924.2	101.5	868.6	25.0	94.0
RIVER4-50	117	90232	1.3	14.5119	1.7	1.4212		2.3	0.1496	1.6	0.70	898.6	13.4	897.9	13.7	896.0	34.2	898.6	13.4	100.3
RIVER4-22	429	76807	2.4	14.2968	0.8	1.4255		1.9	0.1478	1.7	0.91	888.7	14.3	899.7	11.3	926.8	15.9	926.8	15.9	95.9
RIVER4-20	170	134393	0.6	14.1395	0.9	1.5798		2.5	0.1620	2.3	0.93	967.9	20.9	962.3	15.6	949.4	19.1	949.4	19.1	101.9
RIVER4-39	437	69412	2.5	14.0877	0.4	1.5412		2.3	0.1575	2.2	0.98	942.7	19.5	947.0	13.9	956.9	8.6	956.9	8.6	98.5
RIVER4-59	216	192988	1.9	13.9881	1.0	1.6136		1.5	0.1637	1.1	0.73	977.3	9.8	975.5	9.3	971.5	20.8	971.5	20.8	100.6
RIVER4-80	160	100730	6.8	13.9369	1.7	1.4918		1.2	0.1712	1.0	0.84	1018.7	9.1	1015.3	7.4	1008.1	12.8	1018.7	9.1	102.4
R																				

Table DR2, continued.

River 5	U	206Pb	U/Th	206Pb*	$\pm$	207Pb*	$\pm$	206Pb*	$\pm$	error	206Pb*	$\pm$	207Pb*	$\pm$	206Pb*	$\pm$	Best age	$\pm$	Conc	
	(ppm)	204Pb		207Pb*	(%)	235U*	(%)	238U*	(%)	corr.	238U*	(Ma)	235U	(Ma)	207Pb*	(Ma)	(Ma)	(Ma)	(%)	
RIVER5-51	280	3518	72.5	24.2146	33.3	0.0170		34.2	0.0030	7.7	0.23	19.2	1.5	17.1	5.8	-269.2	866.6	19.2	1.5	NA
RIVER5-98	1899	29803	2.9	21.2141	3.3	0.0366		4.5	0.0056	3.0	0.68	36.2	1.1	36.5	1.6	56.2	78.4	36.2	1.1	NA
RIVER5-45	1171	31089	5.2	21.4554	8.8	0.0366		9.0	0.0057	1.9	0.22	36.6	0.7	36.5	3.2	29.2	210.6	36.6	0.7	NA
RIVER5-35	2787	77518	5.3	20.9682	2.8	0.0374		4.8	0.0057	4.0	0.82	36.6	1.4	37.3	1.8	84.0	65.3	36.6	1.4	NA
RIVER5-52	3418	20924	4.2	20.3112	3.3	0.0387		15.0	0.0057	14.6	0.97	36.7	5.4	38.6	5.7	159.0	78.4	36.7	5.4	NA
RIVER5-54	676	28964	0.7	20.5418	10.4	0.0383		10.7	0.0057	2.4	0.23	36.7	0.9	38.2	4.0	132.5	245.1	36.7	0.9	NA
RIVER5-10	3554	194014	6.3	21.1402	1.7	0.0375		3.9	0.0057	3.5	0.90	36.9	1.3	37.3	1.4	64.6	39.5	36.9	1.3	NA
RIVER5-36	1602	29945	2.1	21.1796	5.8	0.0378		7.1	0.0058	4.0	0.57	37.3	1.5	37.6	2.6	60.1	139.2	37.3	1.5	NA
RIVER5-1	2114	37834	1.5	20.7206	3.0	0.0387		3.3	0.0058	1.5	0.46	37.3	0.6	38.5	1.3	112.1	69.8	37.3	0.6	NA
RIVER5-71	1135	36583	2.0	20.5182	6.3	0.0392		6.5	0.0058	1.2	0.18	37.5	0.4	39.1	2.5	135.2	149.3	37.5	0.4	NA
RIVER5-25	2078	61859	5.4	20.8583	4.8	0.0390		5.0	0.0059	1.5	0.30	37.9	0.6	38.8	1.9	96.5	113.4	37.9	0.6	NA
RIVER5-9	1216	22610	2.1	20.9978	4.7	0.0388		4.8	0.0059	1.3	0.27	38.0	0.5	38.6	1.8	80.6	110.8	38.0	0.5	NA
RIVER5-30	2116	32600	2.3	21.7316	2.9	0.0377		3.1	0.0059	1.1	0.37	38.1	0.4	37.5	1.1	-1.5	69.0	38.1	0.4	NA
RIVER5-99	1249	50306	1.8	22.2713	5.2	0.0368		5.5	0.0059	1.7	0.31	38.2	0.7	36.7	2.0	-61.0	127.5	38.2	0.7	NA
RIVER5-49	577	17513	0.8	20.7990	15.5	0.0394		15.8	0.0060	3.0	0.19	38.2	1.1	39.3	6.1	103.2	368.0	38.2	1.1	NA
RIVER5-80	1150	46122	2.1	20.8883	6.1	0.0395		6.7	0.0060	2.7	0.41	38.5	1.0	39.4	2.6	93.0	144.0	38.5	1.0	NA
RIVER5-70	2016	40371	1.0	21.1433	4.5	0.0393		4.7	0.0060	1.5	0.32	38.8	0.6	39.2	1.8	64.2	106.5	38.8	0.6	NA
RIVER5-90	834	6024	1.1	20.9903	20.9	0.0396		21.4	0.0060	4.8	0.22	38.8	1.8	39.5	8.3	81.5	499.6	38.8	1.8	NA
RIVER5-100	1093	16500	1.1	21.2929	6.2	0.0394		6.9	0.0061	3.0	0.44	39.1	1.2	39.2	2.6	47.4	147.5	39.1	1.2	NA
RIVER5-64	2442	11448	1.3	20.8781	3.2	0.0402		3.7	0.0061	1.8	0.48	39.1	0.7	40.0	1.5	94.2	76.9	39.1	0.7	NA
RIVER5-74	3007	74020	6.2	21.0810	2.4	0.0407		4.8	0.0062	4.2	0.87	40.0	1.7	40.5	1.9	71.3	57.4	40.0	1.7	NA
RIVER5-43	3275	84155	6.3	21.0062	3.6	0.0417		4.0	0.0063	1.7	0.42	40.8	0.7	41.4	1.6	79.7	86.4	40.8	0.7	NA
RIVER5-72	2973	73771	5.3	21.0986	2.2	0.0428		2.4	0.0066	1.0	0.43	42.1	0.4	42.6	1.0	69.3	52.2	42.1	0.4	NA
RIVER5-89	1801	42026	4.0	20.7777	5.7	0.0438		6.3	0.0066	2.5	0.41	42.5	1.1	43.6	2.7	105.6	135.4	42.5	1.1	NA
RIVER5-18	501	13765	1.5	23.3433	10.1	0.0398		10.7	0.0067	3.4	0.32	43.3	1.5	39.7	4.2	-176.9	253.4	43.3	1.5	NA
RIVER5-85	239	147509	5.4	21.1302	1.9	0.0441		2.2	0.0068	1.1	0.48	43.4	0.5	43.8	0.9	65.7	46.0	43.4	0.5	NA
RIVER5-76	1068	72737	2.8	21.1936	5.6	0.0444		5.8	0.0068	1.5	0.26	43.8	0.7	44.1	2.5	58.6	133.3	43.8	0.7	NA
RIVER5-42	2174	70534	4.6	21.2669	2.8	0.0455		3.0	0.0070	1.2	0.39	45.1	0.5	45.2	1.3	50.3	66.5	45.1	0.5	NA
RIVER5-91	1021	19575	2.4	21.9908	5.9	0.0441		6.1	0.0070	1.5	0.24	45.2	0.7	45.8	2.6	-30.2	143.3	45.2	0.7	NA
RIVER5-29	302	7431	2.1	17.8256	27.0	0.0545		28.1	0.0071	7.9	0.28	45.3	3.6	45.6	60.9	45.3	3.6	NA		
RIVER5-62	807	3895	1.1	20.6344	6.7	0.0481		7.1	0.0072	2.4	0.33	46.2	1.1	47.7	3.3	121.9	158.9	46.2	1.1	NA
RIVER5-66	238	10702	1.5	24.9980	30.5	0.0397		30.9	0.0072	4.7	0.15	46.3	2.2	39.6	12.0	-350.7	803.6	46.3	2.2	NA
RIVER5-22	697	23237	0.6	22.7566	6.3	0.0438		7.3	0.0072	3.6	0.49	46.4	1.7	43.5	3.1	-113.8	155.6	46.4	1.7	NA
RIVER5-81	417	1228	0.4	22.3047	17.4	0.0448		17.7	0.0072	3.6	0.20	46.5	1.7	44.5	7.7	-64.7	426.3	46.5	1.7	NA
RIVER5-15	424	13930	0.5	22.6556	9.6	0.0446		10.5	0.0073	4.2	0.40	47.1	1.9	44.3	4.5	-102.9	237.0	47.1	1.9	NA
RIVER5-59	897	39125	1.4	21.5762	10.5	0.0476		10.8	0.0074	2.5	0.23	47.8	1.2	47.2	5.0	57.7	253.7	47.8	1.2	NA
RIVER5-7	194	11185	2.4	21.9908	5.9	0.0441		45.6	0.0075	4.6	0.09	48.1	2.2	39.0	17.4	-491.3	1261.7	48.1	2.2	NA
RIVER5-44	2869	10539	0.6	20.8239	2.1	0.0501		2.6	0.0076	1.6	0.61	49.6	0.8	49.6	1.3	100.3	48.6	48.6	0.8	NA
RIVER5-95	697	16900	0.5	21.4544	8.9	0.0490		9.2	0.0076	2.1	0.23	49.0	1.0	48.6	4.4	31.6	214.4	49.0	1.0	NA
RIVER5-50	805	2157	1.6	16.6223	23.1	0.0635		23.7	0.0077	5.3	0.22	49.2	2.6	62.5	14.4	609.3	505.7	49.2	2.6	NA
RIVER5-97	349	10385	0.8	19.7738	13.5	0.0535		13.9	0.0077	3.3	0.24	49.2	1.6	52.9	7.1	221.3	313.0	49.2	1.6	NA
RIVER5-38	269	9531	0.7	19.9716	19.2	0.0532		19.5	0.0077	3.5	0.18	49.5	1.7	52.6	10.0	198.3	449.8	49.5	1.7	NA
RIVER5-41	135	9514	1.3	12.2757	89.7	0.0870		90.5	0.0077	12.3	0.14	49.7	6.1	84.7	73.7	1232.6	85.5	49.7	6.1	NA
RIVER5-39	140	3496	1.0	23.5136	41.7	0.0471		43.7	0.0080	13.2	0.30	51.6	6.8	46.7	20.0	-195.1	1083.8	51.6	6.8	NA
RIVER5-19	320	262	0.9	12.8075	49.3	0.0878		51.6	0.0082	15.2	0.29	52.3	7.9	85.4	42.3	1148.9	1046.6	52.3	7.9	NA
RIVER5-34	359	1506	1.0	18.5777	32.7	0.0609		33.3	0.0082	6.3	0.19	52.7	3.3	60.0	19.4	363.8	756.0	52.7	3.3	NA
RIVER5-26	258	16516	1.5	21.2922	25.6	0.0533		26.0	0.0082	4.2	0.16	52.9	2.2	52.8	13.4	47.5	621.3	52.9	2.2	NA
RIVER5-63	1397	40243	1.1	20.7105	3.6	0.0551		4.4	0.0083	2.6	0.59	53.2	1.4	54.5	2.4	113.3	84.6	53.2	1.4	NA
RIVER5-13	3865	14081	3.2	18.6953	22.7	0.0631		23.1	0.0086	4.3	0.18	54.9	2.3	62.1	13.9	349.6	520.0	54.9	2.3	NA
RIVER5-69	3846	81801	1.8	20.9216	1.3	0.0592		3.2	0.0090	2.9	0.91	57.7	1.7	58.4	1.8	89.3	31.2	57.7	1.7	NA
RIVER5-78	3867	20165	2.8	20.7931	2.4	0.0599		8.4	0.0090	8.1	0.96	58.0	4.7	59.1	4.8	103.8	57.6	58.0	4.7	NA
RIVER5-61	3877	149188	5.5	21.0751	0.7	0.0732		3.2	0.0112	3.1	0.98	71.8	2.2	71.8	2.2	71.8	16.0	71.8	2.2	NA
RIVER5-23	264	9438	1.2	21.3611	12.0	0.0775		13.6	0.0120	6.2	0.46	77.0	4.8	75.8	9.9	39.8	288.7	77.0	4.8	NA
RIVER5-68	311	10401	0.7	20.5497	14.7	0.0864		8.1	0.0129	7.1	0.43	82.4	5.8	84.1	13.2	131.6	347.8	82.4	5.8	NA
RIVER5-47	88	18923	0.7	17.0960	4.2	0.6937		4.5	0.0860	1.7	0.37	531.9	8.6	535.0	18.8	548.3	91.5	531.9	8.6	97.0
RIVER5-12	62	23882	0.6	17.0975	5.0	0.6948		5.6	0.0862	2.6	0.45									

Table DR2, continued.

	U	206Pb	U/Th	206Pb*	$\pm$	207Pb*	$\pm$	206Pb*	$\pm$	error	206Pb*	$\pm$	207Pb*	$\pm$	206Pb*	$\pm$	Best age	$\pm$	Conc		
	(ppm)	(ppm)		(%)	(%)	(%)		(%)	(%)		(Ma)	(Ma)	(%)	(Ma)	(Ma)	(Ma)	(Ma)	(%)			
RIVER6-78	2938	38861	73.8	22.4213	8.5	0.0150		8.7	0.0024	1.7	0.20	15.7	0.3	15.1	1.3	-77.4	208.0	15.7	0.3	NA	
RIVER6-6	510	7953	0.5	21.6710	17.8	0.0245		18.4	0.0038	4.6	0.25	24.8	1.1	24.6	4.5	5.2	432.4	24.8	1.1	NA	
RIVER6-25	129	2875	0.6	8.0096	147.5	0.0733		147.9	0.0043	9.8	0.07	27.4	2.7	71.8	102.9	2026.6	107.5	27.4	2.7	NA	
RIVER6-9	867	12154	0.8	21.4840	8.3	0.0400		8.5	0.0062	1.6	0.19	40.1	0.6	39.9	3.3	26.0	200.4	40.1	0.6	NA	
RIVER6-19	1554	33866	2.1	20.6494	4.0	0.0436		4.4	0.0065	1.9	0.44	42.0	0.8	43.3	1.9	120.2	93.8	42.0	0.8	NA	
RIVER6-84	185	1711	0.5	19.7936	62.1	0.0465		62.8	0.0067	9.8	0.16	42.9	4.2	46.1	28.3	219.1	1591.6	42.9	4.2	NA	
RIVER6-60	523	12354	1.0	19.7608	10.9	0.0468		11.7	0.0067	4.3	0.36	43.1	1.6	46.4	5.3	222.9	253.7	43.1	1.8	NA	
RIVER6-54	283	2345	0.6	14.3066	54.2	0.0649		55.5	0.0067	11.6	0.21	43.3	5.0	63.9	34.4	925.3	1207.4	43.3	5.0	NA	
RIVER6-96	638	42576	5.1	21.9253	11.7	0.0435		11.8	0.0069	1.5	0.13	44.5	0.7	43.3	5.0	-23.0	285.2	44.5	0.7	NA	
RIVER6-42	116	1859	1.1	16.8041	33.0	0.0591		34.2	0.0072	8.9	0.26	46.3	4.1	58.3	19.4	585.8	735.2	46.3	4.1	NA	
RIVER6-17	176	8873	0.7	26.8295	29.9	0.0376		30.4	0.0073	5.3	0.17	47.0	2.5	37.5	11.2	-536.8	818.3	47.0	2.5	NA	
RIVER6-33	271	19459	0.7	21.5857	9.3	0.0471		9.9	0.0074	3.5	0.35	47.4	1.7	46.8	4.5	14.6	223.5	47.4	1.7	NA	
RIVER6-86	225	9857	0.6	23.4606	23.1	0.0440		23.3	0.0075	2.6	0.11	48.0	1.2	43.7	10.0	-189.5	585.3	48.0	1.2	NA	
RIVER6-63	256	8602	0.6	21.9128	21.8	0.0480		22.4	0.0076	5.1	0.23	49.0	2.5	47.6	10.4	-21.6	533.4	49.0	2.5	NA	
RIVER6-27	235	4982	7.0	26.9041	21.6	0.0391		22.1	0.0076	4.7	0.21	49.0	2.3	38.9	8.5	-544.2	586.9	49.0	2.3	NA	
RIVER6-56	980	37928	0.4	21.9160	4.0	0.0480		4.2	0.0076	1.2	0.28	49.0	0.6	47.6	1.9	-21.9	97.2	49.0	0.6	NA	
RIVER6-72	219	3374	0.8	21.4728	16.6	0.0497		17.9	0.0077	6.7	0.37	49.7	3.3	49.3	8.6	27.3	399.4	49.7	3.3	NA	
RIVER6-33	337	7785	1.1	26.3719	17.1	0.0406		18.1	0.0078	5.8	0.32	49.9	2.9	40.4	7.2	-490.9	457.0	49.9	2.9	NA	
RIVER6-74	223	2194	1.0	28.9358	40.8	0.0372		41.4	0.0078	7.2	0.17	50.1	3.6	37.1	15.1	-744.0	1183.0	50.1	3.6	NA	
RIVER6-62	405	11795	0.8	22.2080	15.9	0.0489		16.2	0.0079	3.1	0.19	50.5	1.5	48.4	7.7	-54.1	390.3	50.5	1.5	NA	
RIVER6-88	321	12196	0.7	22.5750	13.7	0.0482		14.0	0.0079	3.1	0.22	50.7	1.6	47.8	6.5	-94.1	336.4	50.7	1.6	NA	
RIVER6-7	329	4402	1.1	24.4613	18.4	0.0448		18.6	0.0079	2.6	0.14	51.0	1.3	44.5	8.1	-295.0	472.5	51.0	1.3	NA	
RIVER6-12	219	8263	1.3	26.5905	32.3	0.0413		32.4	0.0080	2.1	0.07	51.1	1.1	41.1	13.0	-512.9	881.8	51.1	1.1	NA	
RIVER6-37	155	11145	1.1	18.2903	43.2	0.0586		44.3	0.0080	9.8	0.22	51.6	5.0	57.8	24.9	32.5	1024.8	51.6	5.0	NA	
RIVER6-90	298	10891	0.9	25.1408	26.0	0.0442		26.3	0.0081	3.7	0.14	51.7	1.9	43.9	11.3	-365.5	683.7	51.7	1.9	NA	
RIVER6-73	276	2535	2.7	18.8429	13.2	0.0593		14.0	0.0081	4.6	0.33	52.0	2.4	58.5	8.0	331.8	301.4	52.0	2.4	NA	
RIVER6-23	134	5439	0.8	28.6693	82.8	0.0402		82.9	0.0084	4.6	0.06	53.7	2.5	40.1	32.6	-718.1	2846.0	53.7	2.5	NA	
RIVER6-36	360	15742	1.0	20.2982	14.0	0.0577		14.2	0.0085	2.3	0.16	54.5	1.2	57.0	7.9	160.5	329.0	54.5	1.2	NA	
RIVER6-100	688	23773	1.3	19.7134	5.2	0.0629		5.5	0.0090	1.6	0.30	57.8	0.9	62.0	3.3	228.5	120.6	57.8	0.9	NA	
RIVER6-38	116	3942	1.3	8.5624	405.5	0.0164		405.7	0.0091	10.2	0.03	58.4	5.9	138.8	582.6	1907.6	1024.0	58.4	5.9	NA	
RIVER6-77	1901	10588	1.1	21.0058	2.4	0.0626		4.0	0.0095	3.2	0.80	61.2	1.9	61.6	2.4	-79.7	56.4	61.2	1.9	NA	
RIVER6-45	187	6980	0.7	20.2333	8.7	0.0703		9.2	0.0113	3.1	0.34	72.4	2.3	75.3	6.7	-167.9	202.9	72.4	2.3	NA	
RIVER6-20	146	11156	0.8	21.2542	25.3	0.0864		25.4	0.0133	2.9	0.11	85.3	2.5	84.1	20.5	51.7	61.2	85.3	2.5	NA	
RIVER6-65	209	5445	1.1	22.0420	19.3	0.0857		19.6	0.0137	3.6	0.18	87.7	3.2	83.5	15.7	-35.8	47.2	87.7	3.2	NA	
RIVER6-9	190	15972	0.9	21.7597	9.1	0.0908		9.5	0.0143	2.6	0.27	91.8	2.4	88.3	8.0	-4.6	219.9	91.8	2.4	NA	
RIVER6-5	440	10800	2.2	15.9646	5.3	0.1259		6.4	0.0146	3.5	0.55	93.3	3.3	120.4	7.2	696.0	113.5	93.3	3.3	NA	
RIVER6-31	147	14501	0.9	23.0248	13.3	0.0905		13.4	0.0151	1.4	0.09	96.7	1.3	88.0	11.3	-142.8	330.6	96.7	1.3	NA	
RIVER6-14	416	26607	0.8	21.9873	10.2	0.0549		10.3	0.0151	1.4	0.13	96.8	1.3	92.0	9.0	-29.5	247.6	96.8	1.3	NA	
RIVER6-67	124	5670	1.0	19.7306	14.5	0.1074		14.9	0.0154	3.1	0.21	98.3	3.0	103.6	14.6	226.4	337.3	98.3	3.0	NA	
RIVER6-69	414	40446	2.7	17.6350	0.6	0.5837		2.0	0.0747	1.9	0.95	464.1	8.4	466.8	7.4	480.1	4.2	480.1	4.2	100.1	
RIVER6-51	155	25530	3.6	17.2755	2.0	0.6058		2.2	0.0759	0.9	0.40	471.6	3.9	480.9	8.2	525.4	43.3	471.6	3.9	89.8	
RIVER6-52	277	53340	6.8	17.4451	1.5	0.5999		2.9	0.0759	2.4	0.85	471.6	11.1	477.2	10.9	503.9	33.6	471.6	11.1	93.6	
RIVER6-11	1564	252930	12.8	17.5207	0.2	0.5991		1.3	0.0761	1.2	0.99	472.9	5.6	476.6	4.8	494.4	4.1	472.9	5.6	95.6	
RIVER6-64	201	53026	6.4	17.8132	1.9	0.5902		2.0	0.0762	0.6	0.33	473.7	3.0	471.0	7.5	45.8	41.5	473.7	3.0	103.5	
RIVER6-39	778	200840	4.4	17.4155	1.4	0.6079		2.3	0.0768	1.8	0.78	476.9	8.3	482.3	8.9	507.7	31.7	476.9	8.3	93.9	
RIVER6-91	428	173604	10.6	17.5914	1.6	0.6069		2.3	0.0774	1.6	0.70	480.8	7.4	481.6	8.8	485.6	36.2	480.8	7.4	99.0	
RIVER6-32	677	428117	8.0	17.6317	0.5	0.6058		1.0	0.0775	0.9	0.87	481.0	4.2	480.9	4.0	480.5	11.3	481.0	4.2	100.1	
RIVER6-76	132	55895	2.7	17.3455	2.8	0.6368		3.0	0.0801	1.1	0.38	484.5	5.5	500.3	12.0	516.5	61.8	496.8	5.5	96.2	
RIVER6-70	505	48109	1.4	17.1325	1.0	0.6593		5.2	0.0819	5.1	0.98	507.6	25.0	514.2	21.1	543.6	22.4	507.6	25.0	93.4	
RIVER6-34	64	6699	0.9	16.5781	4.7	0.7657		5.2	0.0921	2.3	0.44	567.7	12.5	577.3	23.1	615.1	101.8	567.7	12.5	92.3	
RIVER6-16	613	445960	7.7	15.7610	1.1	0.8619		4.0	0.0985	3.8	0.96	605.8	22.1	631.2	18.7	723.3	23.5	605.8	22.1	83.8	
RIVER6-3	75	8488	1.7	14.7564	5.2	0.12052		6.8	0.1200	4.3	0.64	782.1	31.7	803.0	37.7	861.4	108.8	782.1	31.7	90.8	
RIVER6-8	38	29814	0.5	14.3882	4.2	0.1250		4.7	0.1341	2.1	0.44	811.2	15.7	839.1	26.8	813.6	86.7	811.2	15.7	88.8	
RIVER6-57	240	82115	5.5	14.8833	0.5	0.12781		1.2	0.1300	1.1	0.90	833.1	8.2	836.0	6.7	843.7	10.7	833.1	8.2	98.8	
RIVER6-44	587	83527	1.8	14.7796	0.5	0.12980		1.4	0.1391	1.3	0.93	839.8	10.0	844.8	7.9	858.2	10.8	839.8	10.0</		

Table DR2, continued.

	U	206Pb	U/Th	206Pb*	$\pm$	207Pb*	$\pm$	206Pb*	$\pm$	error	206Pb*	$\pm$	207Pb*	$\pm$	206Pb*	$\pm$	Best age	$\pm$	Conc
	(ppm)	(ppm)		207Pb*	(%)	238U	(%)	corr.	238U*	(Ma)	238U	(Ma)	207Pb*	(Ma)	207Pb*	(Ma)	(Ma)	(%)	
RIVER7-90	424	15971	0.7	22.3447	14.3	0.0366	14.9	0.0059	4.3	0.29	38.1	1.6	36.5	5.3	-69.0	350.3	38.1	1.6	NA
RIVER7-95	1079	20486	0.9	20.7534	5.5	0.0394	5.7	0.0059	1.4	0.24	38.1	0.5	39.3	2.2	108.4	130.2	38.1	0.5	NA
RIVER7-14	819	28768	33.1	21.4907	7.0	0.0381	7.3	0.0059	2.0	0.28	38.2	0.8	38.0	2.7	25.3	168.8	38.2	0.8	NA
RIVER7-8	499	17358	0.8	22.7347	14.9	0.0364	15.0	0.0060	2.0	0.13	38.5	0.8	36.3	5.3	-111.5	367.5	38.5	0.8	NA
RIVER7-5	430	9696	0.7	22.2120	16.3	0.0373	16.8	0.0060	4.1	0.24	38.6	1.6	37.2	6.1	-54.5	400.1	38.6	1.6	NA
RIVER7-96	480	11900	0.8	23.4143	10.9	0.0354	11.6	0.0060	4.1	0.35	38.7	1.6	35.3	4.0	-184.5	271.9	38.7	1.6	NA
RIVER7-92	1806	54828	0.7	21.2534	3.9	0.0393	4.2	0.0061	1.5	0.36	38.9	0.6	39.1	1.6	51.8	94.3	38.9	0.6	NA
RIVER7-28	1117	23333	2.1	22.8086	4.7	0.0369	4.9	0.0061	1.2	0.25	39.2	0.5	36.8	1.8	-119.5	116.2	39.2	0.5	NA
RIVER7-54	2470	76033	3.4	20.9527	3.4	0.0404	3.6	0.0061	1.1	0.32	39.5	0.4	40.2	1.4	85.8	80.3	39.5	0.4	NA
RIVER7-34	1284	37042	2.0	20.7237	5.1	0.0411	5.8	0.0062	2.7	0.46	39.7	1.1	40.9	2.3	111.7	121.2	39.7	1.1	NA
RIVER7-86	976	22598	1.1	22.2706	3.8	0.0385	4.2	0.0062	1.7	0.41	39.9	0.7	38.3	1.6	-60.9	93.1	39.9	0.7	NA
RIVER7-94	495	624	0.8	16.5855	33.9	0.0528	34.1	0.0063	3.6	0.10	40.8	1.5	52.2	17.3	614.1	752.4	40.8	1.5	NA
RIVER7-3	378	6941	0.7	20.4855	15.5	0.0484	16.5	0.0072	5.6	0.34	46.2	2.6	48.0	7.7	138.9	365.1	46.2	2.6	NA
RIVER7-41	182	3015	0.7	27.1274	39.8	0.0370	40.4	0.0073	6.9	0.17	46.8	3.2	36.9	14.7	-566.5	1112.5	46.8	3.2	NA
RIVER7-87	243	1330	0.7	19.1125	22.4	0.0530	23.6	0.0073	7.3	0.31	47.2	3.5	52.4	12.0	299.5	516.8	47.2	3.5	NA
RIVER7-28	464	18919	0.8	20.2073	7.9	0.0505	8.6	0.0074	3.3	0.38	47.6	1.6	50.1	4.2	170.9	185.4	47.6	1.6	NA
RIVER7-83	332	7029	0.7	19.6323	11.4	0.0521	11.5	0.0074	1.5	0.13	47.6	0.7	51.6	5.8	238.0	264.7	47.6	0.7	NA
RIVER7-70	861	42597	0.4	20.7564	5.3	0.0493	6.0	0.0074	2.6	0.44	47.6	1.3	48.8	2.8	108.0	126.4	47.6	1.3	NA
RIVER7-25	267	8304	0.8	22.9849	18.1	0.0446	18.3	0.0074	2.5	0.14	47.7	1.2	44.3	7.9	-138.5	451.8	47.7	1.2	NA
RIVER7-31	381	5955	0.7	19.9278	17.5	0.0514	17.7	0.0074	2.7	0.15	47.7	1.3	50.9	8.8	203.4	408.3	47.7	1.3	NA
RIVER7-58	273	7154	0.6	22.9830	16.0	0.0448	16.2	0.0075	2.9	0.18	47.9	1.4	44.5	7.1	-138.3	397.9	47.9	1.4	NA
RIVER7-36	504	22066	0.6	21.3251	14.4	0.0483	14.5	0.0075	1.9	0.13	48.0	0.9	47.9	6.8	43.8	344.5	48.0	0.9	NA
RIVER7-47	328	4949	0.6	23.0649	15.9	0.0437	16.2	0.0075	3.3	0.20	48.0	1.6	43.4	6.9	-204.8	401.0	48.0	1.6	NA
RIVER7-71	300	9980	0.7	22.1995	21.6	0.0466	21.8	0.0075	3.0	0.14	48.2	1.4	46.2	9.3	-53.1	530.9	48.2	1.4	NA
RIVER7-72	221	8464	0.8	20.4054	23.1	0.0507	23.5	0.0075	4.4	0.19	48.2	2.1	50.2	11.5	148.2	547.9	48.2	2.1	NA
RIVER7-77	252	7799	0.7	22.5250	40.1	0.0460	40.4	0.0075	4.4	0.11	48.2	2.1	45.6	18.0	-88.7	1019.7	48.2	2.1	NA
RIVER7-2	257	5190	0.8	25.8016	27.8	0.0402	27.9	0.0075	3.0	0.11	48.3	1.5	40.0	11.0	-433.1	740.6	48.3	1.5	NA
RIVER7-24	661	21745	0.6	19.9662	7.7	0.0524	8.4	0.0076	3.2	0.38	48.7	1.6	51.8	4.2	198.9	179.9	48.7	1.6	NA
RIVER7-11	144	6321	0.8	30.4496	49.5	0.0344	49.9	0.0076	6.0	0.12	48.7	2.9	34.3	16.8	-889.2	1510.2	48.7	2.9	NA
RIVER7-59	204	7398	0.8	31.9844	62.1	0.0328	62.3	0.0076	5.9	0.09	48.8	2.9	32.8	20.1	-1033.7	2026.3	48.8	2.9	NA
RIVER7-63	283	10688	0.8	24.4386	34.8	0.0428	34.9	0.0076	3.4	0.10	48.9	1.7	42.7	14.6	-292.6	910.2	48.9	1.7	NA
RIVER7-6	225	6196	0.6	18.4918	26.6	0.0568	27.3	0.0076	6.3	0.23	48.9	3.1	56.1	14.9	608.4	48.9	3.1	NA	
RIVER7-26	807	30888	0.4	22.6961	3.8	0.0463	4.3	0.0076	2.0	0.47	48.9	1.0	45.9	2.0	-107.3	94.5	48.9	1.0	NA
RIVER7-91	226	10699	0.8	22.7461	26.5	0.0463	27.1	0.0076	5.3	0.20	49.0	2.6	45.9	12.2	-112.7	663.7	49.0	2.6	NA
RIVER7-77	216	7698	0.9	23.7181	29.5	0.0444	29.6	0.0076	2.0	0.07	49.1	1.0	44.1	12.8	-216.8	755.6	49.1	1.0	NA
RIVER7-42	323	8677	0.7	27.7681	24.3	0.0380	24.5	0.0076	3.7	0.15	49.1	1.8	37.8	9.1	-629.9	617.5	49.1	1.8	NA
RIVER7-20	233	40043	0.5	27.0105	36.5	0.0390	36.6	0.0076	2.6	0.07	49.1	1.3	38.9	14.0	-554.9	1010.6	49.1	1.3	NA
RIVER7-93	589	27813	0.6	21.0542	8.9	0.0501	9.2	0.0076	2.1	0.23	49.2	1.0	49.6	4.1	69.8	212.7	49.2	1.0	NA
RIVER7-16	261	8021	0.8	17.5704	15.1	0.0603	15.6	0.0077	4.0	0.26	49.3	2.0	59.4	9.0	488.2	334.0	49.3	2.0	NA
RIVER7-22	267	9377	0.9	21.5841	22.5	0.0491	22.9	0.0077	4.0	0.18	49.3	2.0	48.7	10.9	14.9	547.3	49.3	2.0	NA
RIVER7-56	1091	5498	0.2	20.4176	9.5	0.0520	11.4	0.0077	6.4	0.56	49.5	3.1	51.5	5.7	146.8	222.5	49.5	3.1	NA
RIVER7-4	780	14746	0.9	23.1026	10.3	0.0460	10.4	0.0077	1.7	0.17	49.5	0.8	45.6	4.7	-151.2	255.7	49.5	0.8	NA
RIVER7-13	328	1648	0.5	25.3782	29.7	0.0419	29.9	0.0077	3.9	0.13	49.5	1.9	41.6	12.2	-389.9	787.0	49.5	1.9	NA
RIVER7-55	671	11625	0.6	21.5257	8.1	0.0495	8.3	0.0077	1.8	0.22	49.6	0.9	49.0	4.0	21.4	195.0	49.6	0.9	NA
RIVER7-99	224	8147	0.8	22.3469	21.2	0.0477	21.8	0.0077	5.2	0.24	49.6	2.6	47.3	10.1	-69.3	521.9	49.6	2.6	NA
RIVER7-37	578	18899	1.2	21.0387	9.1	0.0507	9.5	0.0077	2.8	0.30	49.7	1.4	50.2	4.7	7.6	216.0	49.7	1.4	NA
RIVER7-84	547	11624	1.0	20.5394	7.8	0.0520	8.0	0.0077	1.8	0.22	49.7	0.9	51.5	4.0	132.8	182.4	49.7	0.9	NA
RIVER7-97	884	40839	1.0	21.4200	6.2	0.0499	6.5	0.0078	1.9	0.30	49.8	0.9	49.5	3.1	33.2	147.7	49.8	0.9	NA
RIVER7-18	1125	20953	0.4	20.7268	3.5	0.0516	3.8	0.0078	1.5	0.40	49.8	0.7	51.1	1.9	111.4	81.7	49.8	0.7	NA
RIVER7-1	383	17784	0.7	19.6129	14.8	0.0547	15.0	0.0078	2.5	0.17	50.0	1.3	54.1	7.9	240.2	343.2	50.0	1.3	NA
RIVER7-9	616	5749	0.6	20.7435	9.9	0.0519	10.2	0.0078	2.4	0.24	50.2	1.2	51.4	5.1	109.5	234.3	50.2	1.2	NA
RIVER7-49	172	5177	0.5	23.6190	30.9	0.0456	31.2	0.0078	4.9	0.16	50.2	2.5	45.3	13.9	-206.3	790.1	50.2	2.5	NA
RIVER7-21	235	7471	0.7	19.4987	26.2	0.0553	26.3	0.0078	2.1	0.08	50.3	1.1	54.7	14.0	253.7	612.7	50.3	1.1	NA
RIVER7-45	857	40871	1.7	20.5713	6.4	0.0525	6.5	0.0078	1.5	0.22	50.3	0.7	51.9	3.3	129.2	150.4	50.3	0.7	NA
RIVER7-68	234	7215	0.8	20.4633	15.5	0.0535	16.8	0.0079	6.4	0.38	51.0	3.3	52.9	8.7	141.5	365.5	51.0	3.3	NA
RIVER7-48	377	10046	0.4	23.9910	17.4	0.0460	17.8	0.0080	3.8	0.21	51.3	1.9	45.6	7.9	-245.7	442.1	51.3	1.9	NA
RIVER7-66	1665	50707	1.5	21.3088	3.2	0.0518	3.4	0.0080	1.1	0.33	51.4	0.6	51.3	1.7	45.6				

Table DR3

Table DR3, continuation.

Sample Number	River 4	Mineral	Apatite
Position (#)	37-38	Glass (U ppm)	11
Area of Graticule Square	3.949E-07	Irradiation	UA13_01
No. of Crystals	20	Analyst	FH
Zeta Factor + Error	354.9	Count Date	20/3/2014
Rho d (% Relative Error)	1.5633E+06	Locality	
N d	3207	Rock Type	
3	49	100	
7	60	100	
1	47	100	
6	90	100	
1	15	100	
8	98	100	
8	83	100	
6	66	100	
7	92	100	
3	37	100	
3	17	100	
1	10	100	
4	35	100	
2	37	100	
2	20	100	
2	16	100	
1	15	100	
4	17	100	
4	17	100	
1	8	100	
1	16	100	
4	40	100	
3	19	100	
9	48	100	
1	3	100	
4	23	100	
2	15	100	
7	41	100	
5	29	100	
4	19	100	
1	7	100	
1	15	100	
3	11	100	
6	29	100	
10	42	100	
3	10	100	
3	2	100	
8	36	100	
1	4	100	
11	27	100	
8	36	100	
1	4	100	
6	34	100	
13	36	100	
7	16	100	
4	15	100	
16	28	100	
8	19	100	
4	10	100	
3	6	100	
3	30	100	
4	21	100	
1	2	100	
5	23	100	
1	4	100	
2	12	100	
2	28	100	
8	31	100	
6	36	100	
1	6	100	
4	28	100	
2	11	100	
2	11	100	
15	66	100	
10	80	100	
4	28	100	
3	15	100	
2	14	100	
3	30	100	
1	6	100	
2	53	100	
5	100		
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4	28		
2	11		
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15	66		
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5	100		
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2	11		
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15	66		
10	80		
4	28		
3	15		

Table DR3, continuation.

Sample Number	River 5	Mineral	Apatite	Glass (U ppm)	11	Irradiation	UA13_01	Analyst	FH	Count Date	20/3/2014	Locality		Rock Type
Position (#)	39-40													
Area of Graticule Square	3.948E-07													
No. of Crystals	20													
Zeta Factor ± Error	354.9													
Rho d (% Relative Error)	1.5922E+06													
N d	3207													
N s	N l	N g	Dpar	Dper	Rho s	Rho i	Rho s / Rho i	U ppm	Age (Ma)	Age error	*95%	50% Age	*95%	
1	12	100			2.533E+04	3.040E+05	0.0833	2.1	23.50	24.48	0.55	40.53	157.20	
4	46	100			1.013E+04	1.165E+06	0.0870	8.1	24.52	12.82	6.42	28.84	66.94	
2	27	100			5.066E+04	6.840E+05	0.0741	4.7	20.90	15.34	2.41	28.27	82.75	
8	131	100			2.027E+05	3.318E+06	0.0611	22.9	17.23	6.31	7.29	18.72	34.92	
4	107	100			1.013E+04	2.711E+06	0.0374	18.7	10.55	5.39	2.83	12.36	27.78	
6	118	100			1.520E+04	2.989E+06	0.0508	20.7	14.38	6.03	5.17	16.00	32.13	
1	16	100			2.533E+04	4.053E+05	0.0625	2.8	17.63	18.19	0.42	30.20	112.68	
4	51	100			1.013E+04	1.292E+06	0.0784	8.9	22.12	11.52	5.81	26.00	60.01	
6	92	100			1.520E+04	2.331E+06	0.0652	16.1	18.40	7.79	6.59	20.53	41.53	
6	136	100			1.520E+05	3.445E+06	0.0441	23.8	12.45	5.22	4.49	13.88	27.78	
1	27	100			2.533E+04	6.840E+05	0.0370	4.7	10.46	10.66	0.26	17.76	63.18	
12	132	100			3.040E+05	3.344E+06	0.0909	23.1	25.63	7.80	12.93	27.13	46.23	
4	51	100			1.013E+04	1.292E+06	0.0784	8.9	22.12	11.52	5.81	26.00	60.01	
3	44	100			7.600E+04	1.115E+06	0.0688	7.7	19.24	11.50	3.83	23.72	59.82	
2	23	100			5.066E+04	5.826E+05	0.0870	4.0	24.52	18.10	2.81	33.25	98.67	
6	60	100			5.066E+04	1.520E+06	0.0333	9.5	9.41	6.74	1.14	12.65	35.44	
6	22	100			5.066E+05	5.579E+05	0.2727	3.8	76.00	35.41	25.51	86.39	193.04	
3	30	100			7.600E+04	0.1000	5.3	28.19	17.11	5.52	34.88	80.22		
3	33	100			7.600E+04	0.0598	0.0500	5.8	25.63	15.49	5.14	31.68	57.87	
3	52	100			7.600E+04	3.171E+06	0.0577	9.1	16.28	9.69	3.26	20.05	60.15	
4	59	100			1.013E+05	1.405E+06	0.0678	10.3	19.13	9.91	5.05	22.46	51.49	
1	12	100			2.533E+04	3.040E+05	0.0833	2.1	23.50	24.49	0.55	40.53	157.20	
3	45	100			7.600E+04	1.140E+06	0.0667	7.9	18.81	11.24	3.74	23.19	58.41	
7	74	100			1.773E+05	1.875E+06	0.0946	13.0	26.67	10.60	10.38	29.35	57.61	
4	49	100			1.013E+05	2.416E+06	0.0816	8.6	23.02	12.01	6.04	27.06	62.60	
6	39	100			1.520E+05	9.879E+05	0.1533	6.8	43.32	19.08	15.02	48.55	102.58	
4	58	100			1.013E+05	1.469E+06	0.0690	10.2	19.46	10.09	5.13	22.85	52.42	
1	18	100			2.533E+04	4.560E+05	0.0556	3.2	15.68	16.12	0.38	26.79	98.66	
10	124	100			5.237E+05	3.141E+06	0.0806	21.7	22.75	7.53	10.65	24.33	43.18	
5	60	100			1.267E+05	1.520E+06	0.0833	10.5	23.50	10.98	7.37	26.79	57.80	
4	47	100			1.013E+05	1.191E+06	0.0851	8.2	24.00	12.54	6.29	28.22	65.43	
6	90	100			1.520E+04	2.280E+06	0.0667	15.8	18.81	7.97	6.73	20.98	42.48	
7	84	100			1.773E+05	2.128E+06	0.0833	14.7	23.50	9.29	9.18	25.85	50.48	
3	45	100			7.600E+04	1.140E+06	0.0667	7.9	18.81	11.24	3.74	23.19	58.41	
3	35	100			7.600E+04	8.868E+05	0.0857	6.1	24.17	14.57	4.76	29.86	76.37	
6	69	100			1.520E+05	1.748E+06	0.0870	12.1	24.52	10.48	8.71	27.39	56.01	
4	32	100			1.013E+05	8.106E+05	0.1250	5.6	35.22	18.73	9.07	41.54	98.83	
8	96	100			2.027E+05	2.432E+06	0.0833	16.8	23.50	8.70	9.87	25.55	48.10	
4	39	100			1.013E+05	8.979E+05	0.1026	6.8	28.91	15.22	7.52	34.04	79.83	
2	25	100			5.066E+04	6.333E+05	0.0800	4.4	22.56	16.61	2.59	30.56	90.02	
7	81	100			1.773E+05	2.052E+06	0.0864	14.2	24.37	9.65	9.51	26.81	52.43	
4	46	100			1.013E+05	6.333E+05	0.0800	4.4	24.52	12.82	6.42	28.84	66.94	
5	57	100			1.267E+05	4.144E+06	0.0877	10.0	24.44	11.58	7.75	28.21	61.00	
8	77	100			2.027E+05	4.191E+06	0.1039	19.5	29.23	10.47	12.23	31.17	60.50	
4	46	100			2.027E+05	1.655E+06	0.0870	8.1	24.52	12.82	4.27	28.84	66.94	
2	13	100			5.098E+04	2.323E+05	0.1538	2.3	43.32	32.95	4.76	59.38	189.20	
4	65	100			1.013E+05	1.647E+06	0.0615	11.4	17.36	8.97	4.60	20.38	46.53	
3	31	100			7.600E+04	7.853E+05	0.0964	5.4	27.22	16.53	5.35	33.75	87.06	
7	75	100			1.773E+05	1.900E+06	0.0933	13.1	26.32	10.45	10.24	28.96	56.80	
6	95	100			1.520E+05	2.407E+06	0.0632	16.6	17.82	7.54	6.39	19.88	40.17	
3	34	100			7.600E+04	8.613E+05	0.0882	6.0	24.88	15.02	4.90	30.75	78.79	
2	31	100			5.096E+04	7.853E+05	0.0645	5.4	18.20	13.30	2.11	24.59	71.24	
8	97	100			2.027E+05	2.457E+06	0.0825	17.0	23.26	8.61	9.78	25.29	47.59	
3	38	100			7.600E+04	9.626E+05	0.0789	6.7	22.27	13.38	4.40	27.49	69.92	
6	58	100			1.520E+05	1.469E+06	0.1034	10.2	29.16	12.56	10.30	32.60	67.21	
2	34	100			5.066E+04	8.613E+05	0.0588	6.0	16.60	12.10	1.93	22.40	64.51	
4	38	100			1.013E+05	9.626E+05	0.1053	6.7	29.67	15.64	7.71	34.94	82.08	
3	30	100			7.600E+04	7.600E+05	0.1000	5.3	28.19	17.11	5.52	34.88	90.22	
2	14	100			5.066E+04	3.546E+05	0.1429	2.5	40.24	30.46	4.45	55.05	173.39	
2	13	100			5.066E+04	3.293E+05	0.1538	2.3	43.32	32.95	4.76	59.38	189.20	
2	18	100			5.066E+04	4.560E+05	0.1111	3.2	31.32	23.38	3.53	42.63	129.81	
4	50	100			1.013E+05	1.267E+06	0.0800	8.8	22.56	11.76	5.93	26.52	61.28	
2	32	100			5.066E+04	8.106E+05	0.0625	5.6	17.63	12.87	2.05	23.82	68.85	
5	69	100			1.267E+05	1.748E+06	0.0725	12.1	20.44	9.50	6.44	23.29	49.93	
3	36	100			7.600E+04	9.199E+05	0.0833	6.3	23.50	14.15	4.64	29.03	74.09	
7	71	100			1.773E+05	1.799E+06	0.0898	12.4	27.80	11.07	10.80	30.59	60.15	
7	74	100			1.773E+05	1.875E+06	0.0946	13.0	26.67	10.60	10.38	29.35	57.61	
2	18	100			5.066E+04	4.580E+05	0.1111	3.2	31.32	23.38	3.53	42.63	129.81	
3	8	100			2.027E+04	3.075E+05	1.4	10.55	71.38	15.05	133.50	426.99		
1	8	100			2.027E+04	4.089E+05	0.1500	4.2	35.22	21.61	6.80	61.57	258.19	
3	43	100			7.600E+04	1.089E+06	0.0698	7.5	19.68	11.70	3.91	24.27	63.69	
7	111	100			1.773E+05	2.812E+06	0.0631	19.4	17.79	6.97	7.00	19.55	37.84	
8	168	100			2.027E+05	4.256E+06	0.0476	29.4	13.44	4.89	5.71	14.59	27.07	
2	34	100			5.066E+04	8.613E+05	0.0588	6.0	16.60	12.10	1.93	22.40	64.51	
5	120	100			1.267E+05	3.040E+06	0.0417	21.0	11.76	5.39	3.75	13.37	28.18	
2	30	100			5.066E+04	7.600E+05	0.0667	5.3	18.81	13.76	2.18	25.42	73.81	
1	10	100			2.533E+04	2.533E+05	0.1000	1.8	28.19	29.59	0.			

Table DR3, continuation.

Sample Number	River	Mineral	Apatite	Glass (U ppm)	11	Irradiation	UA13_02	Analyst	FH	Count Date	25/3/2014	Locality	Rock Type	
N	s	N	g	Dpar	Dper	Rho s	Rho i	Rho s / Rho i	U ppm	Age (Ma)	Age error	*%95*	50% Age	*%95%
14	96	100		3.546E+05	2.432E+06	0.1458	18.5	37.25	10.76	19.66	39.16	65.45		
6	26	100		1.520E+05	6.586E+05	0.2308	5.0	58.85	26.76	19.87	66.23	145.23		
2	12	100		5.066E+04	3.040E+05	0.1667	2.3	42.56	32.55	4.64	58.46	189.00		
6	78	100		1.520E+05	1.976E+06	0.0769	15.1	19.65	8.37	7.01	21.96	44.71		
9	171	100		2.280E+05	4.332E+06	0.0526	33.0	13.47	4.64	6.06	14.50	26.15		
10	107	100		2.533E+05	2.711E+06	0.0935	20.7	23.90	7.96	11.15	25.57	45.61		
7	111	100		1.773E+05	2.812E+06	0.0631	21.4	16.14	6.32	6.35	17.73	34.32		
4	68	100		1.013E+05	1.723E+06	0.0588	13.1	15.05	7.77	3.99	17.66	40.26		
14	182	100		3.546E+05	4.610E+06	0.0769	35.1	19.65	5.51	10.55	20.65	33.84		
4	63	100		1.013E+05	1.596E+06	0.0635	12.2	16.28	8.40	4.30	19.07	43.60		
8	65	100		2.027E+05	1.647E+06	0.1231	12.5	31.46	11.85	13.05	34.25	65.55		
4	42	100		1.013E+05	1.604E+06	0.0952	8.1	24.38	12.78	6.35	28.66	66.90		
19	210	100		4.813E+05	5.320E+06	0.0903	40.5	23.14	5.62	13.67	23.99	37.01		
18	270	100		4.560E+05	6.840E+06	0.0667	52.1	17.06	4.21	9.96	17.71	27.46		
18	176	100		4.560E+05	4.498E+06	0.1023	34.0	26.15	6.55	15.16	27.17	42.49		
5	76	100		1.267E+05	4.949E+06	0.0568	14.7	16.83	7.80	5.32	19.47	40.95		
5	73	100		1.267E+05	4.849E+06	0.0895	14.1	17.52	8.13	5.53	19.96	42.71		
18	248	100		1.267E+05	6.232E+06	0.0726	47.9	16.47	4.94	11.43	19.28	29.94		
5	56	100		1.267E+05	4.149E+06	0.0893	10.8	22.83	10.70	7.15	26.04	36.38		
8	142	100		2.027E+05	3.597E+06	0.0563	27.4	14.42	5.27	6.11	15.66	29.16		
21	225	100		5.320E+05	5.700E+06	0.0933	43.4	23.87	5.53	14.50	24.66	37.34		
4	101	100		1.013E+05	2.559E+06	0.0396	19.5	10.14	5.18	2.71	11.88	26.74		
23	375	100		5.826E+05	9.499E+06	0.0613	72.4	15.65	3.43	9.83	16.16	23.89		
10	148	100		2.533E+05	3.749E+06	0.0676	28.6	17.29	5.69	8.13	18.48	32.66		
4	73	100		1.013E+05	1.849E+06	0.0545	14.1	14.02	7.22	3.72	16.45	37.40		
10	137	100		2.533E+05	3.470E+06	0.0730	26.4	18.67	6.16	8.76	19.97	35.35		
5	76	100		1.267E+05	1.925E+06	0.0658	14.7	16.83	7.80	5.32	19.17	40.95		
5	70	100		1.267E+05	1.773E+06	0.0714	13.5	18.27	8.49	5.76	20.82	44.62		
7	106	100		1.773E+05	2.685E+06	0.0660	20.5	16.90	6.63	6.64	18.57	35.99		
11	145	100		2.786E+05	3.673E+06	0.0759	28.0	19.41	6.12	9.48	20.63	35.72		
11	156	100		2.786E+05	3.952E+06	0.0705	30.1	18.04	5.67	8.83	19.18	33.14		
4	53	100		1.013E+05	1.343E+06	0.0755	10.2	19.31	10.04	5.08	22.68	52.28		
3	55	100		7.600E+04	1.393E+06	0.0545	10.6	13.96	8.29	2.80	17.19	42.89		
14	128	100		3.546E+05	3.242E+06	0.1094	24.7	27.96	7.95	14.88	29.37	48.57		
4	65	100		1.013E+05	1.647E+06	0.0615	12.5	15.75	8.14	4.17	18.48	42.20		
6	61	100		1.520E+05	1.545E+06	0.0984	11.8	25.15	10.81	8.90	28.11	57.82		
4	44	100		1.013E+05	1.151E+06	0.0903	8.5	23.25	12.18	6.07	27.35	63.67		
9	111	100		2.280E+05	2.812E+06	0.0811	21.4	20.74	7.24	9.25	22.34	40.75		
6	100	100		1.520E+05	2.533E+06	0.0600	19.3	15.38	6.48	5.51	17.12	34.56		
21	275	100		5.320E+05	6.966E+06	0.0764	53.1	19.53	4.49	11.91	20.18	30.44		
21	305	100		5.320E+05	7.000E+06	0.0688	50.9	17.62	4.04	10.75	18.19	27.39		
4	55	100		1.013E+05	1.393E+06	0.0727	10.6	16.81	9.66	4.90	21.85	50.28		
7	93	100		1.773E+05	2.456E+06	0.0753	17.4	16.45	7.45	2.11	21.7	41.20		
16	184	100		4.059E+05	4.914E+06	0.0605	37.4	10.20	5.55	1.63	22.01	36.40		
1	14	100		2.533E+04	3.546E+06	0.0714	2.7	16.27	18.93	0.43	31.39	39.17		
2	27	100		5.066E+04	6.840E+05	0.0741	5.2	18.95	13.91	2.19	25.64	45.08		
10	124	100		2.533E+05	3.141E+06	0.0806	23.9	20.63	6.83	9.66	22.06	39.17		
9	92	100		2.280E+05	2.313E+06	0.0973	17.8	25.01	8.79	11.10	26.97	49.49		
12	164	100		3.040E+05	4.154E+06	0.0732	31.7	18.72	5.65	9.48	19.80	33.55		
18	219	100		4.560E+05	5.548E+06	0.0822	42.3	21.03	5.22	12.24	21.83	33.98		
10	171	100		2.533E+05	6.332E+06	0.0585	33.0	14.98	4.91	7.05	16.00	28.17		
20	198	100		5.066E+05	5.016E+06	0.1010	38.2	25.83	6.15	15.45	26.73	40.93		
10	164	100		2.533E+05	4.154E+06	0.0610	31.7	15.60	5.12	7.35	16.68	29.40		
21	308	100		5.320E+05	7.802E+06	0.0682	59.4	17.44	4.00	10.65	18.02	27.12		
4	54	100		1.013E+05	1.368E+06	0.0741	10.4	18.95	9.85	4.99	22.26	51.26		
8	157	100		2.027E+05	3.977E+06	0.0510	30.3	13.04	4.76	5.54	14.16	26.31		
14	190	100		3.546E+05	4.813E+06	0.0737	36.7	18.85	5.27	10.12	19.78	32.38		
4	102	100		1.013E+05	2.584E+06	0.0392	19.7	10.04	5.13	2.69	11.76	26.47		
6	90	100		1.520E+05	2.280E+06	0.0667	17.4	17.06	7.22	6.10	19.03	38.53		
12	166	100		3.040E+05	4.205E+06	0.0723	32.0	18.49	5.58	9.37	19.56	33.14		
9	163	100		2.280E+05	4.129E+06	0.0552	31.5	14.13	4.87	6.35	15.21	27.46		
5	73	100		1.267E+05	1.849E+06	0.0685	14.1	17.52	8.13	5.53	19.96	42.71		
19	214	100		4.813E+05	5.421E+06	0.0884	41.3	22.71	5.51	13.42	23.54	36.30		
6	124	100		1.520E+05	3.141E+06	0.0484	23.9	12.38	5.20	4.46	13.80	27.70		
5	80	100		1.267E+05	2.027E+06	0.0625	15.4	15.99	7.40	5.06	18.21	38.83		
5	113	100		1.267E+05	2.862E+06	0.0442	21.8	11.33	5.20	3.61	12.88	27.19		
17	267	100		3.406E+05	4.205E+06	0.0637	31.5	16.29	4.13	9.36	16.95	26.56		
6	64	100		5.020E+05	2.405E+06	0.0614	16.2	18.72	7.76	6.53	20.84	41.39		
8	144	100		2.027E+05	3.649E+06	0.0556	27.8	14.22	5.20	6.03	15.44	28.74		
8	135	100		5.200E+05	3.620E+06	0.0593	26.8	15.16	5.55	6.42	16.47	31.71		
9	125	100		2.280E+05	3.168E+06	0.0720	24.1	16.42	6.40	8.24	19.84	36.05		
7	85	100		1.773E+05	2.153E+06	0.0824	16.4	21.06	8.33	8.23	23.17	45.23		
18	201	100		4.560E+05	5.092E+06	0.0898	38.8	22.90	5.71	13.31	23.79	37.09		
3	64	100		7.600E+04	1.621E+06	0.0469	12.4	12.00	7.10	2.41	14.76	36.60		
3	55	100		7.600E+04	1.393E+06	0.0545	10.6	13.96	8.29	2.80	17.19	42.89		
7	128	100		1.773E+05	3.242E+06	0.0547	24.7	14.00	5.46	5.52	15.37	29.64		
3	41	100		7.600E+04	1.039E+06	0.0732	7.9	18.72	11.22	3.71	23.09	58.49		
6	108	100		1.520E+05	2.736E+06	0.0556	20.8	14.22	5.99	5.11	15.85	31.92		
15	278	100		3.800E+05	7.042E+06	0.0540	53.7	13.81	3.70	7.63	14.44	23.16		
9	115	100		2.280E+05	2.913E+06	0.0783	22.2							

Table DR4\_AHe data

Sample name	pmol He	1s ± pmol He	ng U	1s ± ng U	ng Th	1s ± ng Th	Th/U	raw date (Ma)	1s ± date (Ma)	Ft 238U	Ft 235U	Ft 232Th	Ft 147Sm	Rs (um)
168764_BCRIVER1_Ap1	0.001918	3.76463E-05	0.034004	1.962311	0.002938	0.000224	0.39032	9.513066207	0.222025954	0.751	0.717	0.717	0.920	57.66
168765_BCRIVER1_Ap2	0.001751	4.13376E-05	0.03682	2.36092	0.070799	0.001023	1.972589	5.938082589	0.152918653	0.753	0.719	0.719	0.921	58.08
168766_BCRIVER1_Ap3	0.002795	4.13696E-05	0.044037	1.480326	0.016086	0.00029	0.374744	10.651197937	0.207278831	0.747	0.712	0.712	0.919	56.54
168767_BCRIVER1_Ap4	0.00085	2.52776E-05	0.028735	2.97428	0.002667	0.000124	0.095232	5.193138754	0.170145088	0.725	0.687	0.687	0.911	51.57
168770_BCRIVER1_Ap7	0.005867	6.38873E-05	0.11332	1.088971	0.017849	0.000256	0.161587	9.21622997	0.157354461	0.780	0.750	0.750	0.930	65.86
168771_BCRIVER1_Ap8	0.02481	0.000250227	0.09476	1.008593	0.006084	0.000884	0.658518	41.79822395	0.658546644	0.719	0.682	0.682	0.910	50.56
168772_BCRIVER1_Ap9	0.001925	3.80024E-05	0.102151	1.60008	0.005579	0.000102	0.056033	3.383518074	0.070425371	0.774	0.743	0.743	0.928	63.84
168773_BCRIVER1_Ap10	0.002207	2.85322E-05	0.122491	1.29256	0.007172	0.000116	0.606063	3.278893797	0.061129563	0.694	0.653	0.653	0.901	46.00
168774_BCRIVER1_Ap11	0.00103	2.90403E-05	0.009502	2.033978	0.018534	0.000281	2.01087	12.89975428	0.294925537	0.718	0.680	0.680	0.909	50.26
168775_BCRIVER1_Ap12	0.001889	2.30572E-05	0.037288	1.220616	0.034789	0.000497	0.957111	7.4461197406	0.123323485	0.772	0.740	0.740	0.927	63.26
168776_BCRIVER1_Ap13	0.01728	0.00016282	0.023208	0.942237	0.006632	0.000956	2.931393	80.923262499	1.113333038	0.739	0.703	0.703	0.916	54.63
168777_BCRIVER1_Ap14	0.001875	2.45131E-05	0.073186	1.307636	0.008008	0.000124	-0.11338	4.5799180964	0.086078458	0.689	0.648	0.648	0.899	45.19
168778_BCRIVER1_Ap15	0.008929	9.18995E-05	0.15256	1.029202	0.00291	0.179525	13.59493565	0.226076926	0.748	0.714	0.714	0.919	56.91	
15C239_BCRIVER3_Ap1	0.017092	0.00027758	0.118388	0.001688	3.346463	0.004957	3.00224	15.78	0.30	0.710	0.671	0.671	0.906	48.68
15C240_BCRIVER3_Ap2	0.003633	7.29026E-05	0.153785	0.002188	0.387253	0.005517	2.81791	2.74	0.06	0.734	0.696	0.698	0.914	53.57
15C241_BCRIVER3_Ap3	0.006691	0.000119228	0.059013	0.000843	0.804535	0.001211	1.469559	15.68	0.33	0.713	0.674	0.674	0.907	49.27
15C242_BCRIVER3_Ap4	0.00944	0.000157522	0.087441	0.001431	0.161345	0.002322	1.893984	13.88	0.28	0.714	0.675	0.675	0.908	49.50
15C243_BCRIVER3_Ap5	0.010362	0.000185102	0.064971	0.00093	0.205251	0.002932	3.240852	16.87	0.35	0.672	0.629	0.629	0.893	42.61
15C244_BCRIVER3_Ap6	0.007228	0.000135555	0.11208	0.001603	0.256999	0.004242	2.718318	7.33	0.16	0.690	0.649	0.649	0.900	45.32
15C245_BCRIVER3_Ap7	0.001882	6.22095E-05	0.025098	0.000385	0.111996	0.001616	4.577008	6.69	0.23	0.700	0.660	0.660	0.903	47.03
15C246_BCRIVER3_Ap8	0.000685	5.37072E-05	0.011178	0.000174	0.010208	0.541391	4.45	0.35	0.668	0.624	0.624	0.892	41.92	
15C247_BCRIVER3_Ap9	0.002815	6.52422E-05	0.032548	0.000852	0.114755	0.001748	3.616958	8.70	0.22	0.662	0.618	0.618	0.890	41.17
15C248_BCRIVER3_Ap10	0.00988	0.000166888	0.083974	0.001207	0.301581	0.004321	3.684268	11.46	0.22	0.781	0.750	0.750	0.930	66.02
15C249_BCRIVER4_Ap1	0.008085	0.000118238	0.072573	0.001049	0.179417	0.002565	2.5363178	12.99	0.23	0.692	0.651	0.651	0.900	45.57
15C250_BCRIVER4_Ap2	0.005972	8.61051E-05	0.072586	0.00104	0.115195	0.001651	1.628077	11.06	0.20	0.714	0.675	0.675	0.905	49.44
15C251_BCRIVER4_Ap3	0.003264	6.48166E-05	0.07209	0.001024	0.155204	0.002224	2.210476	5.48	0.12	0.680	0.638	0.638	0.896	43.72
15C252_BCRIVER4_Ap4	0.00971	3.92117E-05	0.009109	0.001043	0.019630	0.000284	2.18891	12.61	0.53	0.663	0.619	0.619	0.890	41.28
15C253_BCRIVER4_Ap5	0.004405	8.60557E-05	0.029521	0.000425	0.059394	0.001355	3.264805	15.64	0.34	0.699	0.656	0.658	0.902	46.75
15C254_BCRIVER4_Ap6	0.013613	0.000210303	0.109235	0.001563	0.531453	0.007571	4.991087	10.67	0.20	0.695	0.655	0.655	0.901	46.16
15C255_BCRIVER4_Ap7	0.014608	0.000212421	0.131125	0.001865	0.345095	0.004925	2.699882	12.69	0.22	0.720	0.682	0.682	0.910	50.65
15C256_BCRIVER4_Ap8	0.012031	0.000183282	0.123903	0.001768	0.366467	0.005218	3.034097	10.55	0.19	0.742	0.707	0.707	0.917	55.40
15C258_BCRIVER4_Ap10	0.0038	6.56241E-05	0.072917	0.001054	0.129331	0.001849	1.818166	6.78	0.14	0.706	0.666	0.666	0.905	47.96
15C260_BCRIVER5_Ap1	0.031319	0.000463455	0.065754	0.000949	0.0268278	0.00384	4.185618	44.75	0.80	0.622	0.573	0.573	0.876	36.21
15C261_BCRIVER5_Ap2	0.003398	8.50873E-05	0.038113	0.000549	0.138372	0.001998	3.724515	8.82	0.24	0.685	0.644	0.644	0.898	44.57
15C262_BCRIVER5_Ap3	0.003045	6.43152E-05	0.062164	0.0009	0.174987	0.002503	2.887745	5.40	0.13	0.675	0.632	0.632	0.894	43.02
15C263_BCRIVER5_Ap4	0.007056	7.50579E-05	0.008185	0.0009747	0.00241	0.112386	14.22	0.25	0.687	0.646	0.646	0.899	44.87	
15C264_BCRIVER5_Ap5	0.0012	0.000105642	0.014453	0.0002	0.051786	0.000758	3.675863	8.11	0.72	0.695	0.654	0.654	0.901	46.08
15C265_BCRIVER5_Ap6	0.002222	5.91672E-05	0.012905	0.000207	0.01783	0.000203	0.936868	25.30	0.75	0.697	0.656	0.656	0.902	46.42
15C266_BCRIVER5_Ap7	0.012171	9.46049E-05	0.10369	0.001499	0.208395	0.002988	2.061669	14.71	0.19	0.712	0.674	0.674	0.907	49.19
15C267_BCRIVER5_Ap8	0.010906	0.000127645	0.102709	0.001837	0.270962	0.003984	2.706441	12.09	0.20	0.687	0.645	0.645	0.898	44.81
15C268_BCRIVER5_Ap9	0.002371	5.14289E-05	0.020355	0.000299	0.072317	0.001034	3.644734	11.59	0.28	0.696	0.655	0.655	0.901	46.21
15C269_BCRIVER5_Ap10	0.004117	8.05722E-05	0.033716	0.000493	0.020664	0.000306	0.628746	19.52	0.45	0.660	0.616	0.616	0.889	40.90
15C270_BCRIVER7_Ap1	0.014352	0.000143587	0.353756	0.005087	0.553394	0.007951	1.604814	5.48	0.08	0.737	0.702	0.702	0.916	54.33
15C271_BCRIVER7_Ap2	0.013352	0.00014066	0.213511	0.003035	0.506895	0.007236	2.435528	7.42	0.11	0.739	0.704	0.704	0.916	54.75
15C272_BCRIVER7_Ap3	0.010662	0.000133221	0.224375	0.003205	0.908052	0.012981	4.151744	4.49	0.07	0.745	0.710	0.710	0.918	56.02
15C273_BCRIVER7_Ap4	0.014736	0.000169829	0.393259	0.005598	0.668673	0.009537	1.744334	4.95	0.08	0.735	0.699	0.699	0.915	53.72
15C274_BCRIVER7_Ap5	0.022465	0.000206278	0.411902	0.005904	0.73630	0.010559	1.834045	7.10	0.10	0.765	0.732	0.732	0.925	61.12
15C275_BCRIVER7_Ap6	0.01743	0.000168844	0.251184	0.003572	0.698647	0.010091	2.852652	7.73	0.11	0.764	0.731	0.731	0.924	60.84
15C276_BCRIVER7_Ap7	0.01472	0.000121999	0.239123	0.003421	0.690291	0.008955	2.961459	6.77	0.09	0.743	0.708	0.708	0.918	55.73
15C277_BCRIVER7_Ap8	0.011889	0.000129137	0.259721	0.003072	0.628316	0.008962	2.481789	5.38	0.08	0.746	0.711	0.711	0.918	56.26
15C278_BCRIVER7_Ap9	0.009715	8.16657E-05	0.301964	0.004315	0.515429	0.007341	1.751085	4.23	0.06	0.733	0.697	0.697	0.914	53.38
15C281_BCRIVER7_Ap10	0.006555	0.000188054	0.127957	0.001854	0.510513	0.007351	4.092945	4.87	0.15	0.707	0.668	0.668	0.905	48.25

Cryo took longer stability time at 16 degree K.

Table DR4. AHe data, continuation.

sample name	corr date (Ma)	1s ± date (Ma)	ppm eU (morph)	ppm U (morph)	ppm Th (morph)	ppm Sm (morph)	nmol 4He/g (morph)	morph comments
168764_BC_RIVER1_Ap1	12.70	0.30	6.09	0.08	2.13	46.86	0.32	Nice grain. Typical crystal habit of apatite. Slight ripple texture on surfaces. Slight roughness on side b edges. Some signs of very small amounts of abrasion.
168765_BC_RIVER1_Ap2	7.97	0.21	12.11	0.12	16.04	205.34	0.40	Some rounded crystal habit is typical of apatite. Some surface pitting; sign of abrasion but slight. Grain is clear.
168766_BC_RIVER1_Ap3	14.28	0.28	11.05	0.15	3.72	156.78	0.65	Surface pitting. Rounding. Egg shaped grain. Strong indication of abrasion.
168767_BC_RIVER1_Ap4	7.13	0.23	9.33	0.14	0.85	265.29	0.72	Rounded grain, oval in shape. Surface pitting. Slight "frosting". Abraded grain.
168770_BC_RIVER1_Ap7	11.83	0.20	17.75	0.24	2.70	70.55	0.89	Nice grain. Typical crystal habit of apatite. Surfaces have some small divets. Clear grain.
168771_BC_RIVER1_Ap8	58.43	0.93	34.00	0.42	18.96	168.61	7.74	Square-like crystal habit. Edges are sharp (possibly broken)? But looks whole with sharp edges, maybe no abrasion? Rounded inclusion. Slight ripple texture.
168772_BC_RIVER1_Ap9	4.36	0.09	16.72	0.24	0.90	287.98	0.31	Rounded, frosted, surface pitting, egg/oval shaped grain. Small rounded inclusion. Abraded grain.
168773_BC_RIVER1_Ap10	4.73	0.09	51.64	0.73	2.98	274.57	0.92	Rounded grain. Some reminance of crystal habit. Surface pitting/frosting is moderate. Rounded small inclusion-clear.
168774_BC_RIVER1_Ap11	17.98	0.41	4.73	0.05	6.33	255.12	0.35	Rounded grain with straight edges and rounded tips. Surface pitting and frosting is moderate. Moderately abraded grain.
168775_BC_RIVER1_Ap12	9.66	0.16	6.84	0.08	5.24	190.57	0.28	Surface pitting. Straight edges with rounded tips. Pitting is moderately deep. Moderate/heavy abrasion. Small rounded/oval inclusion- clear.
168776_BC_RIVER1_Ap13	111.26	1.54	9.60	0.08	16.40	98.62	4.27	Rounded with straight edges and rounded tips. Ripple like texture and surface pitting is moderate/heavy on side a. Side b is clearer than side a, surface pitting is less on side a.
168777_BC_RIVER1_Ap14	6.64	0.12	27.55	0.39	2.97	266.37	0.69	Slightly odd shaped grain, similar to an alien's head. Rounding at tips. Small rounded inclusion-clear. Surface pitting is deep. Heavy abrasion.
168778_BC_RIVER1_Ap15	18.16	0.30	28.65	0.39	4.82	351.47	2.13	Rounded grain. Similar to an egg in shape. Surface pitting/frosting is heavy.
15C239_BC_River3_Ap1	22.76	0.43	73.17	43.35	126.87	87.84	6.26	Ripple like texture. One small inclusion with dissimilar extinction-round. Abraded surfaces.
15C240_BC_River3_Ap2	3.81	0.09	67.48	42.40	106.72	67.23	1.00	Surface pitting. Rounded. Microinclusions. Abraded.
15C241_BC_River3_Ap3	22.32	0.47	29.36	21.97	31.47	23.25	2.49	Rounded opaque inclusions. Rounded grain. Surface pitting.
15C242_BC_River3_Ap4	19.78	0.41	42.32	29.51	54.49	96.21	3.19	Surface pitting. Rounded inclusion. Abraded.
15C243_BC_River3_Ap5	25.80	0.53	62.23	35.71	112.82	98.55	5.70	Surface pitting. Microinclusion. Abraded.
15C244_BC_River3_Ap6	10.87	0.23	70.74	43.59	115.51	140.37	2.81	Surface pitting. Rounding at tips. Microinclusions
15C245_BC_River3_Ap7	9.82	0.34	21.24	10.37	46.26	180.92	0.78	Surface pitting. Rounded grain. Micro inclusion. Bean shaped on side b.
15C246_BC_River3_Ap8	6.91	0.55	16.56	6.63	42.25	215.01	0.41	Surface pitting. Staining. Microinclusion.
15C247_BC_River3_Ap9	13.55	0.34	35.59	19.46	68.62	111.25	1.68	Clear grain. Micro inclusions. Slight abrasion.
15C248_BC_River3_Ap10	14.87	0.29	20.32	11.02	39.57	473.10	1.30	Surface pitting. Slight staining. Microinclusion cluster.
15C249_BC_River4_Ap1	19.20	0.34	49.07	31.04	76.74	108.93	3.46	Surface pitting. Small opaque inclusion. Rounding.
15C250_BC_River4_Ap2	15.74	0.28	33.30	24.26	38.50	67.32	2.00	Surface pitting. Abraded. Microinclusions.
15C251_BC_River4_Ap3	8.21	0.18	48.29	32.06	69.08	601.13	1.45	Slight surface pitting. Microinclusion
15C252_BC_River4_Ap4	19.22	0.80	8.12	5.38	11.64	251.60	0.57	Slight staining. Rounding at tips.
15C253_BC_River4_Ap5	22.92	0.50	22.07	12.63	40.19	142.49	1.88	Slight staining. Rounded grain. Small round opaque inclusion or divert?
15C254_BC_River4_Ap6	15.82	0.29	98.94	46.16	224.58	468.21	5.75	Slight surface pitting and rippling. Divet or chip? Micro inclusion.
15C255_BC_River4_Ap7	17.99	0.32	65.65	40.56	106.75	130.53	4.52	Surface ripple like texture. Microinclusion-opaque. Abraded.
15C256_BC_River4_Ap8	14.50	0.26	46.82	27.62	81.69	127.69	2.68	Surface pitting. Possible micro inclusion but didn't see.
15C258_BC_River4_Ap10	9.78	0.20	37.47	26.45	46.88	109.84	1.38	Surface pitting. Divet or small rounded inclusion? Clear otherwise
15C260_BC_River5_Ap1	74.83	1.34	109.65	55.98	228.39	92.40	26.66	Ripple like texture. Clear otherwise. Possible micro inclusion but doesn't change under polar.
15C261_BC_River5_Ap2	13.23	0.36	33.44	18.04	65.50	197.48	1.61	Surface pitting. Rounded inclusion. opaque.
15C262_BC_River5_Ap3	8.19	0.19	50.45	30.36	85.47	377.39	1.49	Clear grain. Slight ripple texture. 1 microinclusion
15C263_BC_River5_Ap4	20.70	0.36	42.70	41.63	4.56	296.51	3.30	Rounded grain. Slight surface pitting. Microinclusion.
15C264_BC_River5_Ap5	11.92	1.06	10.97	5.95	21.33	232.65	0.49	Surface pitting. Rounded. Tiny opaque inclusion.i
15C265_BC_River5_Ap6	36.33	1.07	6.60	5.43	4.96	200.94	0.94	Surface pitting. Clear otherwise. Rounding.
15C266_BC_River5_Ap7	21.03	0.28	50.51	34.31	68.95	78.06	4.03	Surface pitting. Abrasion. Microinclusion.
15C267_BC_River5_Ap8	18.03	0.30	77.86	48.06	126.80	121.24	5.10	Surface pitting. Rounding. Abraded. Microinclusion.
15C268_BC_River5_Ap9	17.08	0.41	15.54	8.47	30.09	143.99	0.99	Surface pitting. Micro inclusion. Abraded.
15C269_BC_River5_Ap10	29.74	0.69	21.06	18.41	11.28	215.63	2.25	Surface pitting and rounding near tips. Microinclusion.
15C270_BC_River7_Ap1	7.53	0.11	116.59	85.25	133.36	249.84	3.46	Slightly ripple-like texture, clear
15C271_BC_River7_Ap2	10.22	0.15	75.04	48.16	114.35	44.93	3.01	one inclusion, clear
15C272_BC_River7_Ap3	6.17	0.10	86.34	44.25	179.09	144.37	2.10	rounded edges, abraded surface
15C273_BC_River7_Ap4	6.84	0.11	115.52	82.54	140.34	162.24	3.09	some ripple-like texturing, mostly clear
15C274_BC_River7_Ap5	9.41	0.13	90.36	63.63	113.75	89.46	3.47	Ripple like texture. Clear grain otherwise. Micro inclusion with similar extinction.
15C275_BC_River7_Ap6	10.30	0.14	67.98	41.11	114.32	168.02	2.85	Tiny round opaque inclusion with similar extinction. Beautiful grain otherwise.
15C276_BC_River7_Ap7	9.29	0.12	94.77	56.47	163.01	98.39	3.48	Slight ripple texture. Microinclusion.
15C277_BC_River7_Ap8	7.34	0.11	82.76	52.76	127.65	225.95	2.42	Ripple like texture. Looks slightly abraded. Micro inclusion
15C278_BC_River7_Ap9	5.86	0.08	105.25	75.12	128.22	366.59	2.42	Ripple texture. Rounded inclusion with similar extinction
15C281_BC_River7_Ap10	7.09	0.22	88.05	45.44	181.30	137.67	2.33	Slight surface pitting. Microinclusion

35.17      89.32