

**TABLE S13: OG1 LA-ICPMS U-Pb ZIRCON GEOCHRONOLOGY**

Zircon #	Composition					Ages											
	U (ppm 204Pb)	206Pb/207Pb	U/Th	206Pb/235U	2σ (%)	207Pb/235U	2σ (%)	206Pb/238U	2σ (%)	Error Corr.	206Pb/238U (Ma)	2σ (Ma)	207Pb/235U (Ma)	2σ (Ma)	206Pb/238U (Ma)	2σ (Ma)	% Disc.
<b>OG1 no CA Run 1</b>																	
OG-1-1	74	31041	1.60	3.371	1.3	29.9557	2.8	0.73268	2.5	0.892	3543.4	68.7	3485.4	27.8	3452.2	19.8	-2.6
OG-1-2	168	36470	1.66	3.287	1.6	29.6563	3.0	0.70724	2.6	0.843	3448.0	68.4	3475.5	29.9	3491.3	25.3	1.2
OG-1-3	165	389311	0.99	3.331	1.3	29.3484	3.0	0.70940	2.6	0.892	3456.2	70.5	3465.2	29.0	3470.5	20.6	0.4
OG-1-4	162	40292	1.60	3.373	1.6	29.5789	3.1	0.72391	2.7	0.850	3510.7	71.9	3472.9	30.7	3451.2	25.5	-1.7
OG-1-5	125	81494	1.21	3.345	1.2	29.0931	2.9	0.70611	2.7	0.908	3443.8	71.0	3456.7	28.8	3464.1	19.0	0.6
OG-1-6	105	38584	1.13	3.331	1.6	30.5919	3.0	0.73928	2.5	0.846	3567.9	68.4	3506.0	29.0	3470.8	24.3	-2.8
OG-1-7	108	56194	1.12	3.320	1.7	29.1868	3.1	0.70315	2.6	0.843	3432.6	69.6	3459.8	30.5	3475.6	25.9	1.2
OG-1-8	148	46190	2.12	3.360	1.8	29.1605	3.5	0.71084	3.0	0.866	3461.6	81.6	3458.9	34.5	3457.4	27.2	-0.1
OG-1-9	142	32896	0.97	3.350	1.6	30.2669	3.4	0.73578	2.9	0.875	3554.9	80.3	3495.5	33.0	3461.6	25.2	-2.7
OG-1-10	120	34149131	1.78	3.335	1.7	29.2525	3.0	0.70782	2.5	0.828	3450.2	66.5	3462.0	29.5	3468.9	26.1	0.5
OG-1-11	124	56427	1.03	3.382	1.6	29.4470	3.1	0.72260	2.7	0.862	3505.8	71.9	3468.5	30.3	3447.1	24.2	-1.7
OG-1-12	108	39078	1.24	3.342	1.7	29.1036	3.2	0.70576	2.8	0.857	3442.5	73.4	3457.0	31.5	3465.5	25.6	0.7
OG-1-13	82	490223	1.82	3.381	1.8	27.9712	3.7	0.68619	3.3	0.878	3368.1	85.6	3418.1	36.5	3447.5	27.6	2.3
OG-1-14	137	106206	0.96	3.360	1.3	30.0052	3.0	0.73141	2.7	0.897	3538.7	74.1	3487.0	29.8	3457.4	20.7	-2.4
OG-1-15	234	82184	0.78	3.361	2.4	30.0373	4.1	0.73247	3.3	0.815	3542.6	90.5	3488.0	40.0	3456.8	36.6	-2.5
<b>OG1 no CA Run 2</b>																	
OG-1 1	151	1456089	1.21	3.503	1.7	27.0289	3.4	0.68709	2.9	0.861	3371.5	77.2	3385	33.4	3392.2	27	0.6
OG-1 10	149	732527	1.08	3.448	1.7	27.9491	3.3	0.69928	2.9	0.862	3417.9	75.9	3417	32.6	3416.9	26.2	0.0
OG-1 11	103	189122	1.29	3.498	1.6	26.5579	3.6	0.67403	3.2	0.898	3321.4	84	3367	35.3	3394.7	24.7	2.2
OG-1 12	149	12448337	0.81	3.488	1.8	28.6768	3.7	0.72568	3.2	0.878	3517.3	88	3443	36.3	3399.3	27.6	-3.5
OG-1 13	168	333264	1.07	3.5	1.7	27.4592	3.1	0.69725	2.5	0.823	3410.2	66.7	3400	30	3393.9	27	-0.5
OG-1 14	101	1972914	2.04	3.425	2.1	28.3406	4	0.70441	3.4	0.853	3437.4	90.8	3431	39.2	3427.2	32.4	-0.3
OG-1 15	107	2672274	1.33	3.44	1.7	27.7134	3.1	0.69169	2.6	0.839	3389	68	3409	30.1	3420.8	26	0.9
OG-1 16	115	7947051	2.07	3.435	2.1	27.9595	4.1	0.69686	3.5	0.851	3408.7	91.6	3418	39.9	3422.9	33.2	0.4
OG-1 17	110	1033510	1.26	3.46	2	27.7295	3.6	0.69615	3	0.834	3406	79	3410	35.1	3411.6	30.7	0.2
OG-1 18	104	1644932	1.52	3.42	1.9	28.4781	3.4	0.70672	2.8	0.828	3446.1	75.1	3436	33.3	3429.6	29.6	-0.5
OG-1 19	109	283161	1.57	3.43	1.5	28.5432	2.9	0.71046	2.5	0.852	3460.2	65.7	3438	28.2	3425	23.5	-1.0
OG-1 2	59	392504	1.7	3.413	1.9	28.9708	3.9	0.71737	3.4	0.87	3486.2	90.9	3453	38.1	3433.1	29.8	-1.5
OG-1 20	117	8027831	2.32	3.466	1.5	28.0342	3.2	0.70508	2.8	0.878	3439.9	74.4	3420	31.2	3408.8	23.7	-0.9
OG-1 21	128	320372	1.28	3.48	1.5	27.522	3.1	0.6949	2.7	0.882	3401.3	72.3	3402	30.4	3402.7	22.8	0.0
OG-1 22	203	244000	1.05	3.506	1.5	27.2082	2.9	0.69224	2.5	0.856	3391.2	65.8	3391	28.5	3390.9	23.4	0.0
OG-1 23	89	1129186	1.86	3.443	1.6	28.2374	3	0.70537	2.6	0.851	3441	68.4	3427	29.6	3419.4	24.6	-0.6
OG-1 24	131	220508	0.96	3.468	2.2	27.7448	4	0.69814	3.4	0.833	3413.6	89.1	3410	39.6	3408.1	34.8	-0.2
OG-1 25	203	176861	0.93	3.542	1	26.768	2.1	0.68799	1.9	0.873	3375	48.8	3375	20.8	3375	16.2	0.0
OG-1 26	136	415488	1.15	3.483	1.4	27.4646	2.6	0.69414	2.2	0.837	3398.4	58.4	3400	25.9	3401.2	22.5	0.1
OG-1 27	89	254817	2.97	3.451	1.8	27.3878	3	0.68588	2.4	0.793	3366.9	62.7	3397	29.5	3415.5	28.6	1.4
OG-1 28	113	314606	1.85	3.462	1.7	27.9509	3.1	0.70215	2.6	0.841	3428.8	70.1	3417	30.7	3410.7	26.4	-0.5
OG-1 29	105	11011109	1.43	3.441	2	28.2678	3.2	0.70578	2.5	0.79	3442.5	68	3428	31.7	3420.2	30.8	-0.7

OG-1 3	135	173329	1.35	3.481	1.7	27.3708	3.5	0.69135	3	0.866	3387.8	78.9	3397	33.9	3402.2	26.9	0.4
OG-1 30	117	364464	2	3.459	2	27.5723	2.8	0.69193	1.9	0.702	3390	51.1	3404	27.1	3412.3	30.6	0.7
OG-1 4	91	1140402	1.88	3.441	1.5	28.094	3.7	0.70149	3.3	0.908	3426.3	88.8	3422	36.1	3420.1	24	-0.2
OG-1 5	207	14853207	0.98	3.569	2	27.2014	3.6	0.70449	3	0.829	3437.7	79.2	3391	35.1	3363.1	31.3	-2.2
OG-1 6	181	790308	0.96	3.515	1.5	26.9445	3.2	0.68724	2.8	0.881	3372.1	74.8	3381	31.7	3387	23.8	0.4
OG-1 7	159	3914788	1.2	3.508	2	27.2128	3.3	0.69264	2.6	0.791	3392.7	68.2	3391	32	3390.2	31.2	-0.1
OG-1 8	158	541263	1.14	3.501	1.8	27.4365	3.7	0.69703	3.3	0.877	3409.4	86.1	3399	36.3	3393.2	27.8	-0.5
OG-1 9	91	192062	1.22	3.45	1.8	27.7848	3.7	0.6955	3.2	0.871	3403.6	85.5	3412	36.4	3416.2	28.4	0.4

Composition										Ages							
Zircon	U	206Pb/	U/Th	206Pb/	2σ	207Pb/	2σ	206Pb/	2σ	Error	206Pb/	2σ	207Pb/	2σ	206Pb/	2σ	%
#	(ppm	204Pb		207Pb	(%)	235U	(%)	238U	(%)	Corr.	238U	(Ma)	235U	(Ma)	207Pb	(Ma)	Disc.
OG1 CA Run 1																	
OG-1-1	223	72506	1.08	3.276	1.8	28.6802	3.1	0.68169	2.5	0.815	3350.9	65.6	3442.6	30.2	3496.5	27.6	4.2
OG-1-2	215	77233	2.00	3.297	1.9	29.7917	3.3	0.71275	2.7	0.807	3468.8	71.1	3480.0	32.3	3486.4	30.0	0.5
OG-1-3	207	31715	1.01	3.295	2.0	29.3078	4.3	0.70073	3.8	0.881	3423.4	101.2	3463.9	42.5	3487.4	31.7	1.8
OG-1-4	237	24627	1.02	3.283	1.8	29.7451	3.8	0.70849	3.3	0.877	3452.8	87.9	3478.4	36.8	3493.2	27.9	1.2
OG-1-5	262	63669	0.87	3.288	1.7	28.7367	3.5	0.68558	3.1	0.880	3365.7	80.7	3444.6	34.4	3490.7	25.8	3.6
OG-1-6	188	43529	1.07	3.293	1.8	29.4500	3.3	0.70375	2.8	0.835	3434.9	73.7	3468.6	32.6	3488.2	28.2	1.5
OG-1-7	240	164076	0.88	3.319	1.5	28.2929	3.2	0.68140	2.8	0.881	3349.7	73.4	3429.3	31.3	3476.1	23.4	3.6
OG-1-8	174	31108	1.99	3.311	1.9	29.4110	3.4	0.70660	2.8	0.825	3445.6	74.8	3467.3	33.4	3479.9	29.7	1.0
OG-1-9	183	145609	0.88	3.347	1.7	27.9691	4.4	0.67927	4.1	0.926	3341.6	105.7	3418.0	42.9	3463.1	25.7	3.5
OG-1-10	162	2208756	1.06	3.320	1.4	28.7629	2.9	0.69287	2.5	0.877	3393.6	67.3	3445.5	28.5	3475.8	21.7	2.4
OG-1-12	258	61601	1.65	3.327	2.2	29.3154	3.9	0.70758	3.3	0.835	3449.3	87.4	3464.1	38.5	3472.7	33.5	0.7
OG-1-13	196	35636	1.25	3.330	1.8	28.4372	3.6	0.68719	3.1	0.869	3371.9	82.3	3434.3	35.4	3470.9	27.6	2.9
OG-1-14	126	61923	1.48	3.370	1.9	28.5770	3.5	0.69869	2.9	0.835	3415.7	76.5	3439.1	33.9	3452.8	29.5	1.1
OG-1-15	147	28665	1.87	3.359	1.5	28.4023	3.0	0.69213	2.5	0.858	3390.7	66.8	3433.1	29.0	3457.9	23.5	1.9
OG1 CA Run 1 (discordant)																	
OG-1-11	995	25627	5.50	17.040	2.1	0.7325	3.4	0.09056	2.8	0.802	558.9	14.8	558.0	14.8	554.4	44.8	-0.8
OG1 CA Run 2																	
OG-1 1	271	2134663	1.04	3.355	1.7	29.0162	3.7	0.70631	3.3	0.883	3444.5	87	3454	36.2	3459.6	26.9	0.4
OG-1 10	137	137257	1.11	3.373	2.2	29.2304	4.3	0.71536	3.7	0.862	3478.6	98.9	3461	41.9	3451.3	33.5	-0.8
OG-1 11	189	1739853	1.7	3.413	2.4	29.145	4.3	0.72171	3.5	0.828	3502.4	95.6	3458	42	3433	37.3	-2.0
OG-1 12	229	29212251	2.02	3.357	2.1	29.2441	3.4	0.71236	2.7	0.782	3467.4	71.3	3462	33.4	3458.5	32.8	-0.3
OG-1 13	206	1625390	1.25	3.349	1.5	29.4544	3.9	0.71581	3.6	0.923	3480.3	97.2	3469	38.4	3462.1	23.3	-0.5
OG-1 14	126	118534	1.4	3.377	1.6	29.8246	4.1	0.73083	3.7	0.918	3536.5	101.9	3481	40.1	3449.3	25.1	-2.5
OG-1 15	143	141581	1.54	3.351	1.9	29.4882	3	0.71693	2.3	0.777	3484.5	63.2	3470	29.6	3461.5	29.4	-0.7
OG-1 16	183	125951	1.13	3.417	1.6	28.7861	3.7	0.7137	3.3	0.897	3472.4	88	3446	35.9	3431.1	25.1	-1.2
OG-1 17	252	387267	1.07	3.386	2.1	28.897	3.1	0.70995	2.3	0.739	3458.3	61.3	3450	30.4	3445.2	32.4	-0.4
OG-1 18	116	339147	1.6	3.363	1.5	29.9107	4	0.7299	3.7	0.925	3533	100.6	3484	39.3	3455.7	23.6	-2.2
OG-1 19	225	313161	1.3	3.33	1.4	29.5722	2.8	0.71462	2.5	0.87	3475.9	66	3473	27.8	3470.9	21.6	-0.1
OG-1 2	161	1602974	1.37	3.374	1.5	29.1643	3.3	0.71409	3	0.894	3473.9	79.3	3459	32.4	3450.5	23	-0.7
OG-1 20	171	349233	1.83	3.347	1.8	29.7542	3.4	0.72257	2.9	0.858	3505.7	79.3	3479	33.6	3463.2	27.2	-1.2
OG-1 21	132	382743	1.19	3.373	1.5	29.019	3	0.71015	2.6	0.868	3459	70.5	3454	29.8	3451.3	23.3	-0.2

OG-1 22	351	616713	0.79	3.341	1.5	28.9015	2.4	0.70062	1.9	0.772	3423	49.4	3450	23.7	3466	23.7	1.2
OG-1 23	327	576063	0.82	3.373	1.8	28.4621	3.4	0.69658	2.8	0.838	3407.7	74.7	3435	33	3451.2	28.5	1.3
OG-1 24	165	371690	1.78	3.374	1.3	28.8363	3	0.70594	2.7	0.901	3443.1	72	3448	29.4	3450.8	20.2	0.2
OG-1 25	230	701733	0.95	3.376	2.1	28.5796	3.3	0.70019	2.5	0.758	3421.4	65.5	3439	31.9	3449.6	32.9	0.8
OG-1 26	260	830019	1.86	3.354	1.6	29.0407	2.8	0.7068	2.4	0.837	3446.4	63.6	3455	27.9	3459.8	24.1	0.4
OG-1 27	222	777709	0.94	3.361	1.7	29.0183	2.7	0.70768	2.1	0.789	3449.7	56.7	3454	26.4	3456.7	25.6	0.2
OG-1 28	163	308155	1	3.354	1.3	28.2759	3.3	0.68814	3	0.914	3375.5	78.5	3429	32.1	3459.9	20.5	2.4
OG-1 29	327	718523	1.17	3.34	2.1	28.1684	3.7	0.68275	3.1	0.823	3354.9	80.5	3425	36.7	3466.2	32.9	3.2
OG-1 3	258	672577	0.92	3.309	1.8	28.7723	3.5	0.69081	3	0.851	3385.7	78.6	3446	34.4	3480.9	28.5	2.7
OG-1 30	277	308037	0.93	3.374	1.5	28.6633	3.3	0.70177	3	0.899	3427.4	79.5	3442	32.6	3450.6	22.6	0.7
OG-1 4	143	267750	1.31	3.389	2.1	28.6482	4.1	0.70441	3.6	0.867	3437.3	95.3	3442	40.5	3444	31.9	0.2
OG-1 5	267	490462	1.4	3.341	1.4	29.2091	2.9	0.70813	2.5	0.876	3451.4	67.6	3461	28.4	3465.9	21.6	0.4
OG-1 6	238	342434	1.82	3.324	1.9	28.6873	3.5	0.69195	2.9	0.829	3390.1	75.7	3443	34	3473.7	30	2.4
OG-1 7	178	196016	1.81	3.35	2	28.5833	3	0.69478	2.3	0.75	3400.8	60.4	3439	29.9	3461.8	31.2	1.8
OG-1 8	198	316443	1.92	3.337	2.1	28.606	3.2	0.69262	2.5	0.767	3392.6	65.1	3440	31.6	3467.9	32.1	2.2
OG-1 9	315	311377	1.23	3.352	1.9	28.8112	3.1	0.7008	2.5	0.791	3423.7	66.1	3447	30.9	3460.7	29.8	1.1