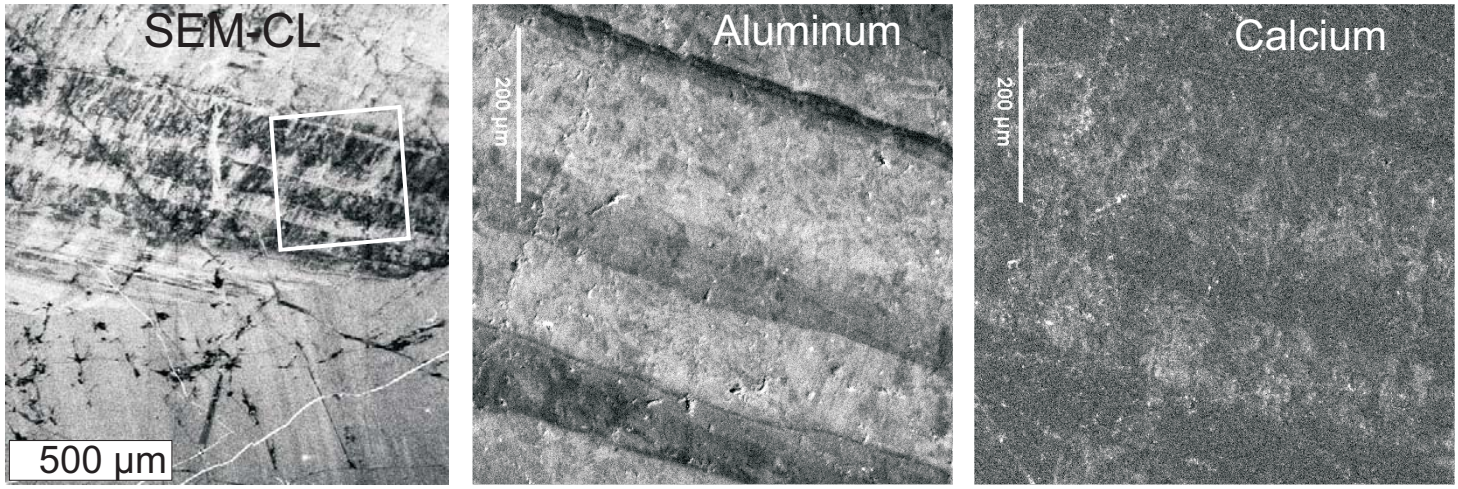
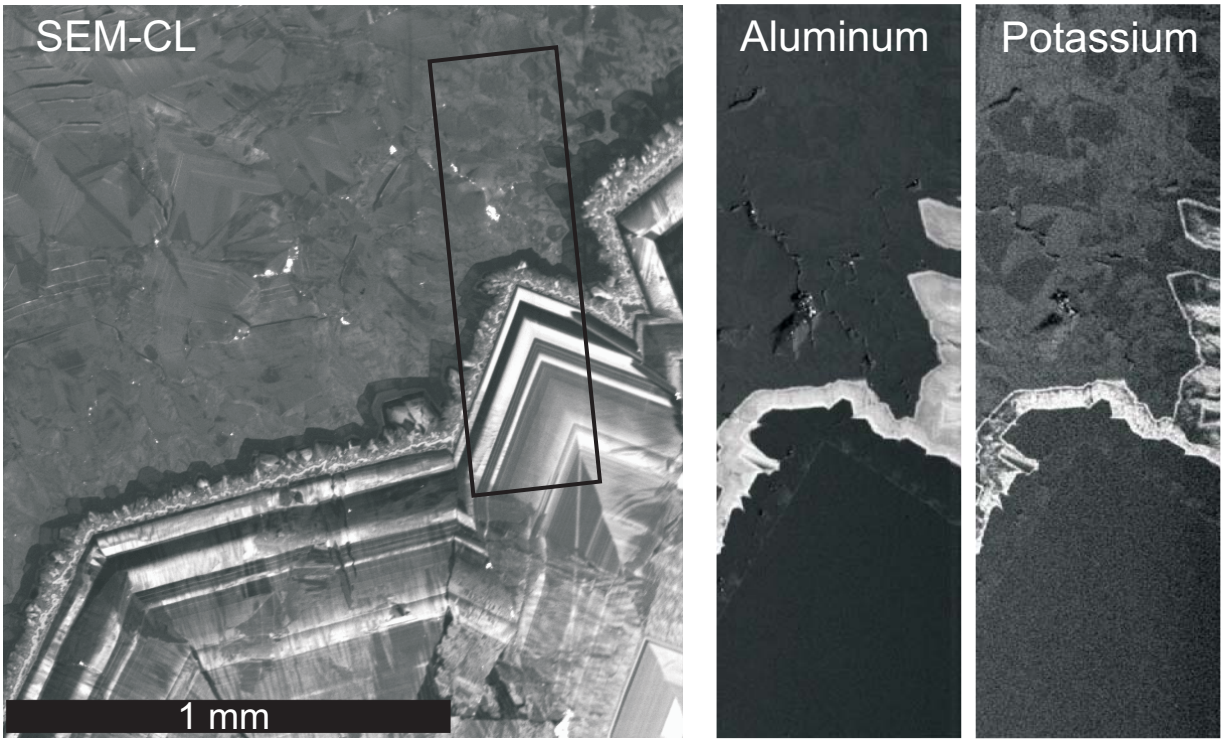
Data Repository Figure 1



Data Repository Figure 2



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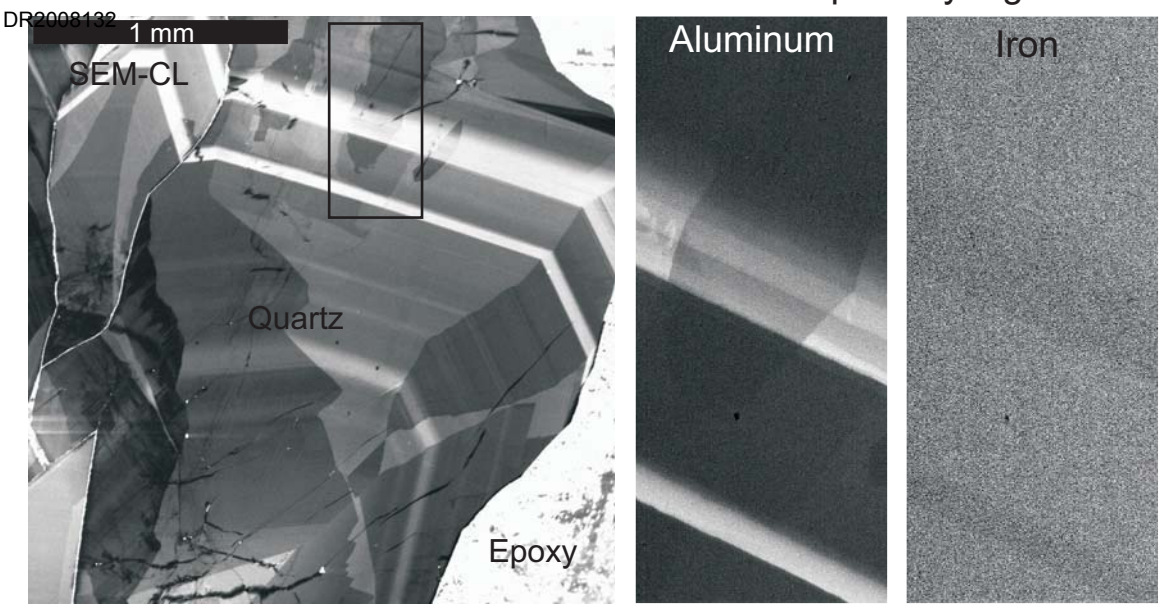
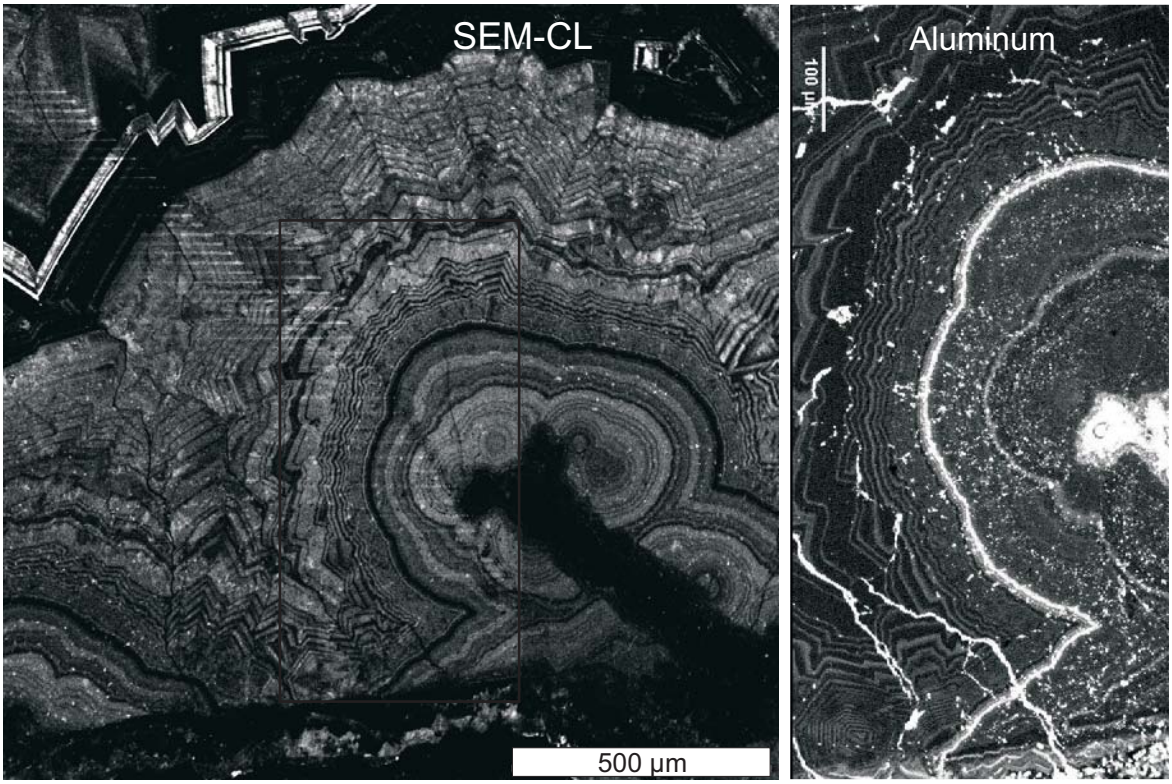
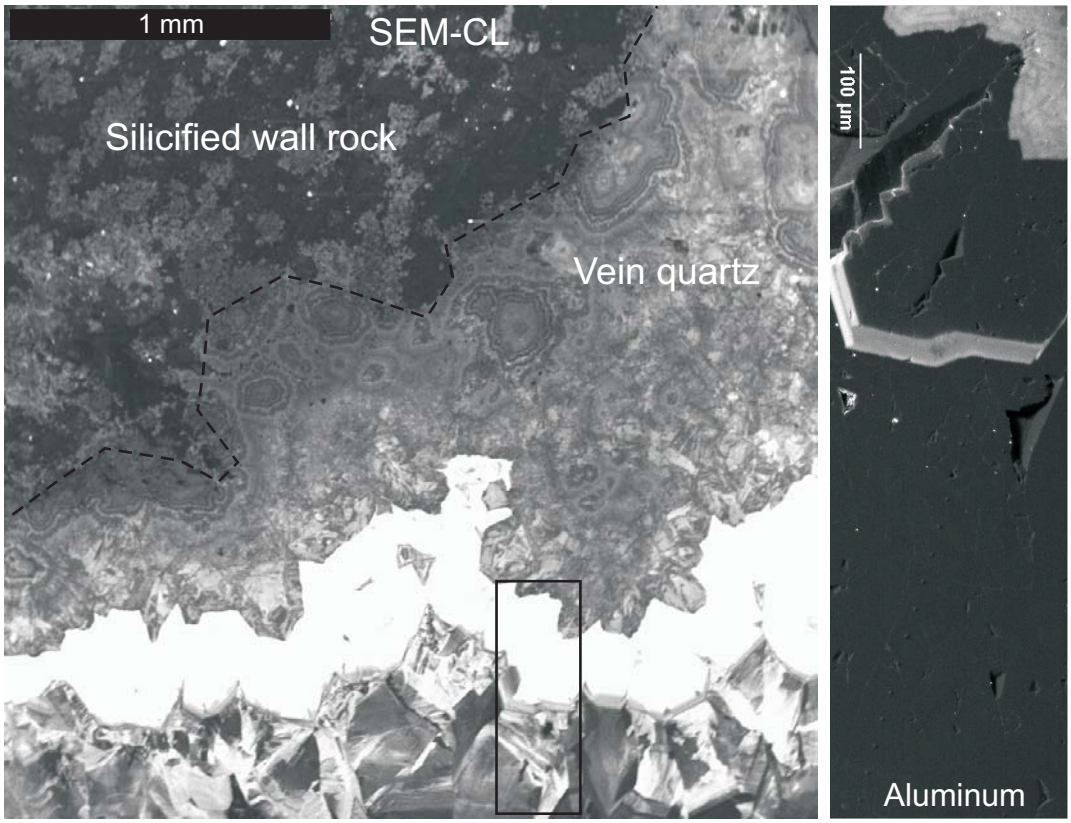


Data Repository Figure 4

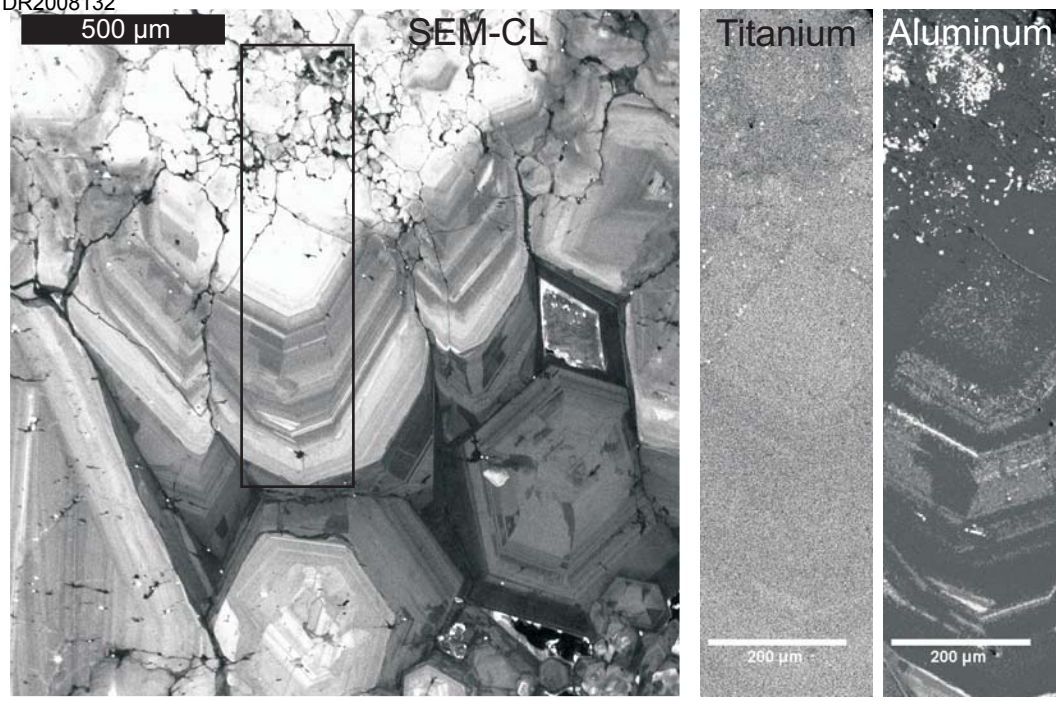


Data Repository Figure 5



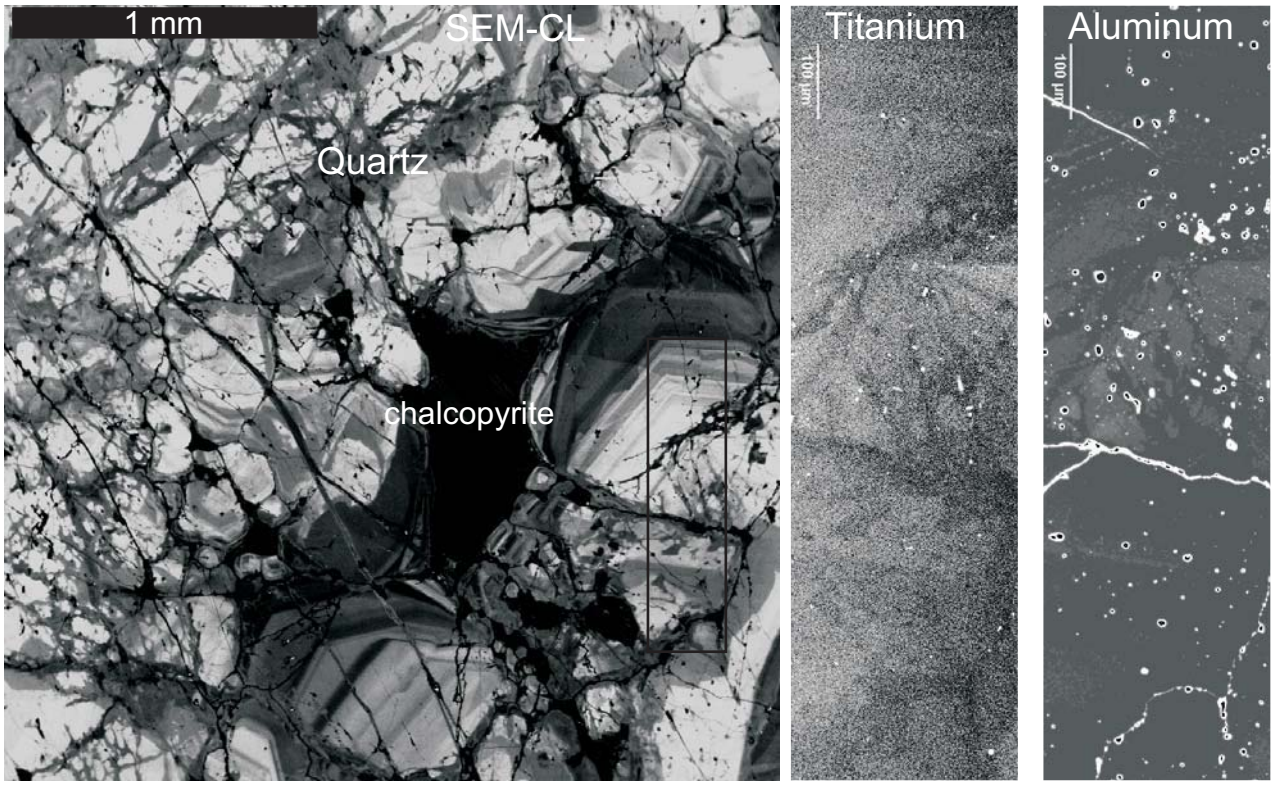
Data Repository Figure 6

DR2008132

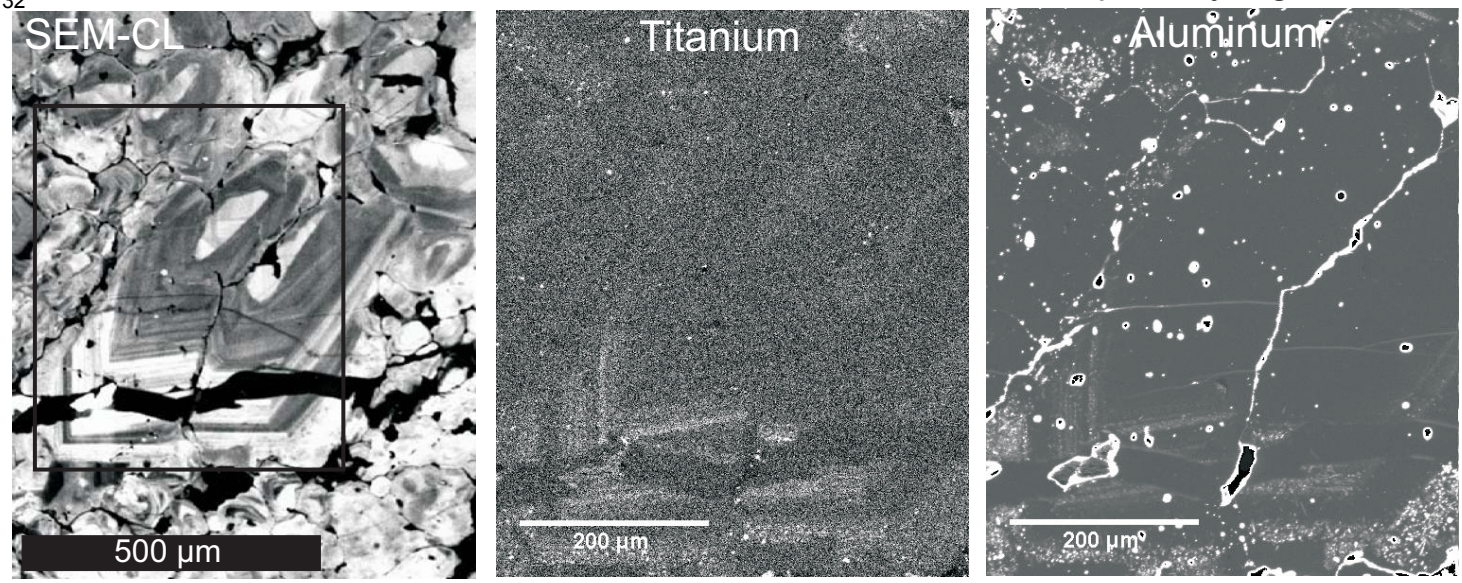


DR2008132

Data Repository Figure 7



Data Repository Figure 8



Data repository Appendix. Methods of microprobe trace element analyses.

Trace element distribution and CL textures in quartz from 12 ore deposits spanning a range of formation temperatures between ~100 and 700°C were compared. SEM-CL images were acquired on JEOL 5800LV SEM equipped with a Centarus CL detector and photomultiplier. This photomultiplier has a spectral range from ~300 to ~650 nm, however, it is more efficient at gathering light in ultraviolet and blue wavelengths than in red and infrared wavelengths. WDS maps of selected CL areas were acquired on a JEOL JXA 8900 electron microprobe operating at 20 kV accelerating voltage, 100 nA current (cup), and a focused beam with dwell times of one second per pixel. Typical map sizes were 500 x 500 pixels which took, on average, 90 hours to acquire. Automated stage motion allowed for quantitative spot analyses of selected map positions. The operating conditions for spot analyses were 20 kV, 50 nA (cup), a beam defocused to 5 µm to minimize specimen damage, and count times of 10 minutes on peak and 5 minutes on each the high and low background. Ti (TiO_2 standard) was simultaneously collected on three spectrometers using LiF crystals while Al (plagioclase standard) was collected on two spectrometers simultaneously using TAP crystals. Aggregate intensities of the on and off peak positions of the duplicate elements were used to improve the counting statistics. Alternating on and off peak acquisition was used to account for carbon contamination build up during the long analysis time. When analyzed, all other elements were acquired using only one spectrometer and count times of 10 minutes on peak and 5 minutes on each of the high and low background. Calculated detection limits on spot analyses are: Ti (10 ppm), Al (4 ppm), K (7 ppm), Ca (18 ppm), Fe, (70 ppm), Ge (40 ppm), and Mg (30 ppm).

Data Repository Table DR1. Trace element analyses of quartz presented in figure 2.

Los Pelambres, Chile		El Salvador, Chile		Grasberg, Indonesia		Butte, MT		El Tenien
Al	Ti	Al	Ti	Al	Ti	Al	Ti	Al
159	<10	6	50	205	187	264	90	666
98	<10	138	52	72	113	1869	91	224
287	14	198	32	304	215	558	89	119
166	30	89	34	346	267	94	24	137
133	22	63	10	246	194	52	16	286
121	18	61	23	285	217	58	35	475
123	27	34	19	<4	15	15	11	194
121	22	60	27	275	247	18	20	112
167	41	292	24	162	124	26	27	243
150	23	37	26	189	174	<4	25	902
130	34	5	10	1237	467	<4	11	629
134	30	57	58	1372	440	<4	17	577
131	36	20	51	116	138	<4	14	160
176	16	11	16	572	298	32	21	96
165	19	67	46	80	113	10	13	155
133	17	341	58	<4	151	63	<10	117
129	13	<4	22	<4	33	95	10	<4
131	24	11	65			<4	15	54
124	21	154	75					148
426	30	307	143					79
104	10	152	68					704
119	10	191	85					15
413	28	138	65					285
618	68	125	65					178
178	25	213	65					909
996	68	101	74					457
864	27	54	58					431
1019	57	67	56					331
144	12	52	50					157
127	25	19	24					286
178	17	37	51					406
348	75	11	55					88
225	47	4	52					260
124	10	10	41					122
460	45	24	38					97
673	75	4	19					96
181	30	4	10					333
311	54	56	41					<4
		72	81					
		143	85					
		38	116					
		29	73					
		154	196					
		149	148					
		262	168					
		322	231					
		294	153					
		143	45					
		147	100					
		146	128					
		84	113					
		188	135					
		142	166					
		61	129					
		278	169					
		4	25					

nte, Chile	Jerritt Canyon, Nevada	McLaughlin, CA	Butte Main Stage, MT	Magmont Mine, MO	Comstock Lode, NV
Ti	Al	Al	Al	Al	Al
<10	33	3353	659	88	113
204	88	3449	124	77	429
109	114	3223	948	67	544
54	169	3241	634	43	387
87	156	2481	902	63	315
132	3328	2691	40	941	353
68	3619	2866	244	951	1269
20	3813	2551	521	58	123
<10	4023	<4	36	94	1750
52	3811	32	2572	85	2303
71	3746	<4	2432	67	2269
69	3845	149	525	90	2474
79	3664	6	374	81	2468
82	3466	<4	336	137	2422
31	648	5	232	81	2161
39	72	53	5	101	1421
<10	88	6	18	122	768
<10	90	12	1345	1444	201
24	2630	24	3308	1189	56
50	160	12	3452	41	988
262	1968	9	1379	70	3422
22	3765	7	1198	43	590
136	3873	2582	3853	45	64
205	3942	3088	3625	28	1122
298	3642	2638	12	74	762
245	3615	2227	3099	88	1022
211	3528	2510	3558		260
206	3209	2466	61		1281
169	3782	3240	34		651
195	2938	2944	28		3858
203		3396			1423
17		3132			1614
176					1778
31					1871
15					917
35					608
186					690
<10					889
					1052
					868
					675
					650
					771
					1302
					1678
					1681
					1498
					1523
					1128
					765
					592
					535
					554
					666
					2038
					2391
					2476
					2387
					2479
					1822