Table S1. Data on the statistical significance of the values obtained for the water standard solutions depending on the calibration standard used, obtained by ANOVA.

Elem.	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6	Step 7
Li	0.065	0.277	0.107	0.524	0.386	0.267	0.088
Be	0.210	0.323	0.964	0.442	0.060	0.948	0.641
B	0.547	0.415	0.547	0.693	0.990	0.754	0.333
Sc	0.350	0.950	0.350	0.667	0.908	0.637	0.351
Na	0.654	0.979	0.682	0.644	0.510	0.905	0.967
Mg	0.005	0.309	0.269	0.227	0.048	0.984	0.964
Al	0.466	0.083	0.701	0.049	0.946	0.673	0.760
Si	0.667	0.667	0.560	0.905	0.945	0.174	0.975
P	0.283	0.466	0.530	0.620	0.221	0.040	0.498
K	0.483	0.188	0.422	0.795	0.981	0.227	0.991
Ca	0.483	0.211	0.262	0.667	0.281	0.221	0.761
Ti	0.630	0.269	0.484	0.665	0.120	0.185	0.242
V	0.652	0.670	0.357	0.681	0.209	0.872	0.068
Cr	0.447	0.404	0.252	0.079	0.688	0.818	0.341
Mn	0.738	*	0.113	0.077	0.965	0.775	0.196
Fe	0.425	0.794	0.463	0.312	0.967	0.053	0.226
Co	0.562	0.813	0.992	0.346	0.479	0.395	0.911
Ni	0.975	0.421	0.114	0.664	0.618	0.691	0.843
Cu	0.947	0.763	0.993	0.076	0.418	0.589	0.726
Zn	0.868	0.934	0.958	0.861	0.706	0.255	0.570
Ga	0.888	0.537	0.505	0.095	0.919	0.191	0.426
Ge	0.866	0.866	0.662	0.343	0.449	0.466	0.114
As	0.283	0.559	0.868	0.412	0.984	0.771	0.261
Se	0.743	0.105	0.972	0.300	0.195	0.337	0.052
Rb	0.408	0.703	0.799	0.333	0.192	0.973	0.354
Sr	0.363	0.455	0.684	0.904	0.277	0.726	0.421
Y	0.751	0.382	0.501	0.832	0.929	0.963	0.680
Zr	0.620	0.870	0.389	0.115	0.640	0.974	0.737
Nb	0.732	0.038	0.605	0.522	0.604	0.767	0.214
Mo	0.264	0.656	0.281	0.548	0.036	0.795	0.646
Ru	0.752	0.360	0.808	0.432	0.425	0.340	0.406
Rh	0.784	0.221	0.203	0.784	0.919	0.997	0.989
Pd	0.699	0.912	0.263	0.159	0.375	0.117	0.925
Ag	0.147	0.657	0.709	0.255	0.747	0.230	0.207
Cd	0.908	0.633	0.818	0.016	0.064	0.970	0.683
In	0.066	0.880	0.592	0.100	0.174	0.311	0.938
Sn	0.044	0.980	0.468	0.087	0.202	0.639	0.647
Sb	0.191	0.449	0.496	0.255	0.267	0.805	0.960
Te	0.991	0.330	0.863	0.280	0.214	0.485	0.762
Cs	0.589	0.425	0.833	0.782	0.453	0.929	0.372
Ba	0.041	0.224	0.763	0.883	0.063	0.124	0.380

La	0.978	0.583	0.877	0.625	0.098	1.000	0.151
Ce	0.346	0.321	0.180	0.488	0.754	0.425	0.017
Pr	0.486	0.805	0.577	0.815	0.114	0.391	0.650
Nd	0.154	0.965	0.158	0.659	0.688	0.283	0.137
Sm	0.987	0.602	0.687	0.857	0.274	0.700	0.345
Eu	0.056	0.574	0.729	0.488	0.242	0.880	0.574
Gd	0.081	0.576	0.399	0.888	0.595	0.775	0.212
Tb	0.898	0.772	0.766	0.706	0.334	0.107	0.862
Dy	0.454	0.070	0.165	0.381	0.241	0.581	0.409
Ho	0.793	0.571	0.545	0.315	0.955	0.406	0.345
Er	0.776	0.678	0.244	0.489	0.142	0.607	0.705
Tm	0.385	0.513	0.957	0.870	0.674	0.736	0.939
Yb	0.723	0.822	0.271	0.118	0.277	0.480	0.037
Lu	0.648	0.706	0.863	0.336	0.938	0.345	0.004
Hf	0.191	0.157	0.672	0.606	0.768	0.821	0.236
Ta	0.090	0.711	0.212	0.668	0.601	0.867	0.878
W	0.129	0.862	0.159	0.565	0.617	0.822	0.286
Re	0.242	0.818	0.562	0.706	0.934	0.086	0.143
Os	0.422	0.347	0.237	0.495	0.595	0.898	0.012
Ir	0.699	0.419	0.106	0.508	0.005	0.639	0.110
Pt	0.642	0.372	0.824	0.623	0.636	0.755	0.886
Au	0.589	0.246	0.845	0.175	0.906	0.556	0.582
Hg	0.831	0.941	0.616	0.204	0.388	0.417	0.505
Tl	0.777	0.913	0.909	0.536	0.406	0.846	0.691
Pb	0.750	0.067	0.739	0.147	0.049	0.840	0.483
Bi	0.277	0.319	0.739	0.296	0.054	0.118	0.124
Th	0.616	0.160	0.854	0.990	0.375	0.139	0.873
U	0.092	0.883	0.101	0.104	0.456	0.468	0.559

* - P-value < 0.05

The elements not used for calibration are expressed in red lettering.

Table S2. P-values obtained by application of t-test for the certified elements in RM LGC 6177.

Elem.	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6	Step 7
B	0.136	0.529	*	*	*	*	*
Na	0.247	*	*	0.074	*	*	*
Mg	0.052	*	0.090	0.055	*	0.631	0.290
Si	0.215	0.073	0.162	0.308	0.090	0.333	0.063
P	0.050	0.058	0.071	*	0.059	0.195	0.076
K	*	0.184	0.613	*	*	*	*
Ca	*	*	0.075	*	*	*	*
Fe	0.057	0.742	0.074	0.537	0.057	0.094	0.057
Cr	0.192	*	0.183	0.529	0.478	0.808	0.478
Mn	0.742	0.901	0.827	0.712	0.578	0.383	*
Ni	0.225	*	0.159	*	0.053	*	0.097

* - P-value < 0.05
The elements not used for calibration are expressed in red lettering.

Table S3. P-values from applied t-test for the determination of the statistical significance of the data for ERM-CC144 obtained after calibration with water standard solution (WSS) and CRM 029.

Elem.	Calibration with WSS						Calibration with CRM 029				
	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6	Step 1	Step 2	Step 3	Step 4	Step 5
As	*	□	□	□	□	□	0.102	□	□	□	□
Cd	0.306	□	□	□	□	□	0.109	0.432	□	□	□
Co	0.369	0.580	0.456	*	□	□	0.085	□	□	□	□
Cr	*	□	□	□	□	□	0.306	0.125	□	□	□
Cu	0.323	□	□	□	□	□	*	□	□	□	□
Fe	0.194	*	0.110	*	*	□	*	*	*	□	□
Hg	0.144	0.189	0.177	*	□	□	0.334	□	□	□	□
Mn	*	*	*	*	□	□	*	□	□	□	□
Ni	*	*	*	□	□	□	*	*	□	□	□
Pb	0.121	0.160	□	□	□	□	0.301	0.209	0.059	0.278	0.594
Zn	0.166	0.182	□	□	□	□	0.223	0.199	0.263	0.418	-
Al	*	0.119	*	*	*	*	0.058	0.062	0.148	□	□
Ca	0.105	0.443	0.072	0.566	□	□	0.268	□	□	□	□
K	*	*	*	*	0.119	*	0.058	0.184	□	□	□
Mg	*	*	0.070	0.157	□	□	0.088	□	□	□	□
Na	0.486	0.335	*	*	*	□	0.132	□	□	□	□
P	*	*	*	*	□	□	0.094	0.085	□	□	□
Ti	*	*	*	□	□	□	0.140	0.273	0.879	0.277	□

* - P-value < 0.05

□ – the element does not present in the calibarion