Table S1. Saturation indices of minerals in water samples of a stream entering the surface of the tailings dump from the decay (1), pond on the surface of the tailings (5), Shahtama River (8), drinking water well (9).

Saturation index	**1**	**5**	**8**	**9**
Diaspore	3,389	3,455	2,694	2,025
Gibbsite	2,522	2,588	1,827	1,158
$Al(OH)_3$	1,972	2,038	1,277	0,608
Boehmite	1,684	1,75	0,989	0,32
$Al_2O_3(s)$	0,871	1,004	-0,519	-1,857
$Al_4(OH)_{10}SO_4(s)$	0,599	4,305	-2,419	-6,618
Alunite	-1	5,399	-2,639	-7,163
$PbMoO_4(s)$	-0,633	-0,246	0,387	-1,024
Hydroxyapatite	-7,294	-12,714	-1,362	0,341
Dolomite	-4,236	-6,71	-0,92	0,292
Calcite	-2,057	-3,208	-0,356	0,273
Aragonite	-2,201	-3,351	-0,499	0,129

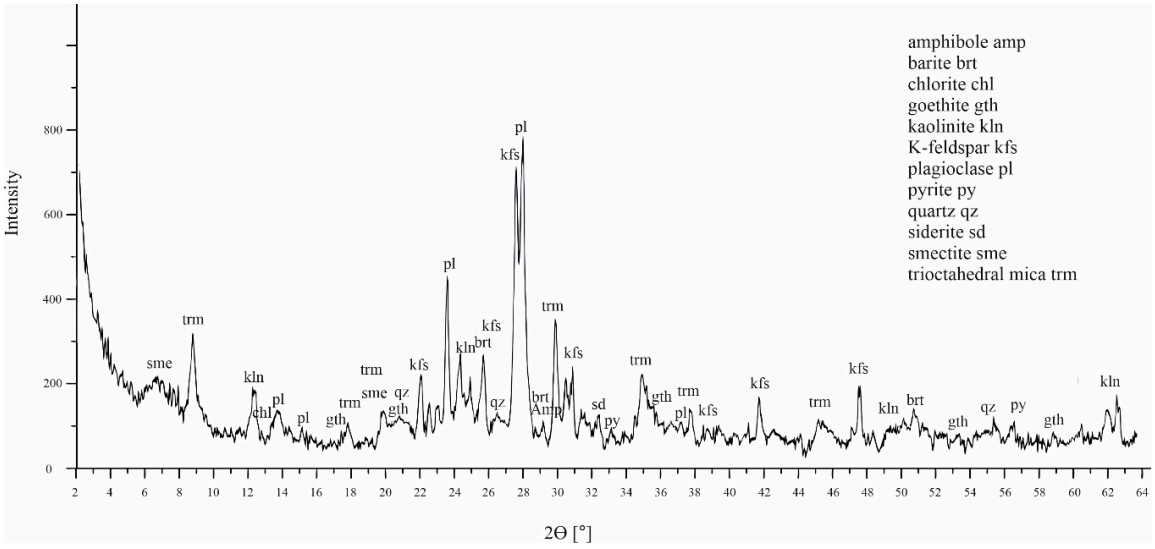

Figure S1. The XRD patterns for the phase composition of crystalline substances and their quantitative phase ratios

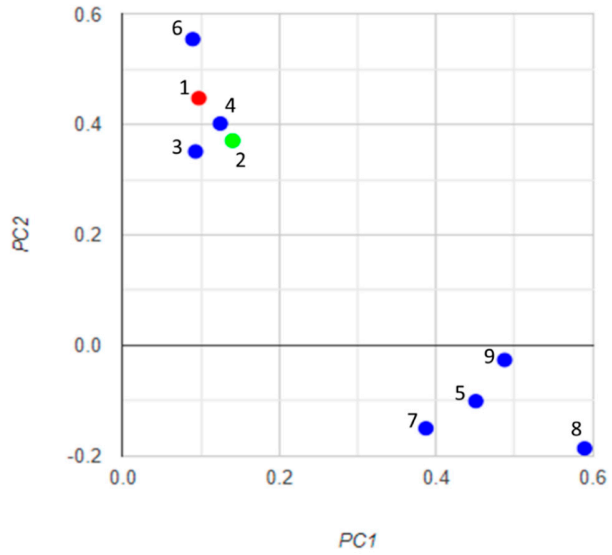

Figure. S2. Principal component plot as a result of the principal component analysis for the microelement composition of the surface waters in the surrounding area of the Shahtama tailings (samples 1-9, Table 3)