

Table S1: Z test results to determine if the means of the pre-mine and post-mine log-transformed discharge populations are different and the null hypothesis, H₀, can be rejected. Negative variance of the difference, x1-x2, indicates a statistically significant increase in the post-mine geometric mean and positive variance of the difference indicates a statistically significant decrease in the post-mine geometric mean. Data compared to published critical values of z at alpha = 0.05 and fit to a two-tailed test.

Site ID	x1	s1	n1	x2	s2	n2	μ1-μ2	critical value (α/2) ⁽¹⁾		z	p-value	Confidence Interval		Decision
1	2.16	0.85	62	2.42	0.80	90	0	0.025	1.96	(1.90)	0.0574	(0.53)	0.01	accept H ₀
2	1.74	1.27	73	1.73	1.33	79	0	0.025	1.96	0.05	0.9602	(0.40)	0.42	accept H ₀
3	1.80	1.05	40	1.99	1.00	80	0	0.025	1.96	(0.95)	0.3422	(0.58)	0.20	accept H ₀
4	0.90	1.22	71	2.11	0.66	93	0	0.025	1.96	(7.56)	<.01	(1.52)	(0.90)	reject H ₀ ; increase to geometric mean
5	1.48	1.17	67	0.75	1.45	94	0	0.025	1.96	3.53	<.01	0.32	1.14	reject H ₀ ; decrease to geometric mean
6	0.75	0.91	116	0.70	1.01	117	0	0.025	1.96	0.40	0.6892	(0.20)	0.30	accept H ₀
7	0.83	1.05	43	0.26	1.38	35	0	0.025	1.96	2.01	0.0444	0.02	1.12	reject H ₀ ; decrease to geometric mean
8	0.83	0.75	44	1.03	0.92	38	0	0.025	1.96	(1.07)	0.2846	(0.57)	0.17	accept H ₀
9														
10	0.93	1.30	51	0.10	1.41	109	0	0.025	1.96	3.66	<.01	0.39	1.27	reject H ₀ ; decrease to geometric mean
11	0.95	1.08	62	0.52	1.34	114	0	0.025	1.96	2.31	0.0208	0.07	0.79	reject H ₀ ; decrease to geometric mean
12	0.74	1.05	48	0.41	1.11	115	0	0.025	1.96	1.80	0.0718	(0.03)	0.69	accept H ₀
13	0.47	0.83	45	(0.16)	1.01	111	0	0.025	1.96	4.03	<.01	0.32	0.94	reject H ₀ ; decrease to geometric mean
14	1.42	1.93	82	2.87	1.24	91	0	0.025	1.96	(5.81)	<.01	(1.94)	(0.96)	reject H ₀ ; increase to geometric mean
15	1.76	1.39	82	2.94	1.01	105	0	0.025	1.96	(6.47)	<.01	(1.54)	(0.82)	reject H ₀ ; increase to geometric mean
16	1.87	1.08	147	2.60	0.55	31	0	0.025	1.96	(5.49)	<.01	(0.99)	(0.47)	reject H ₀ ; increase to geometric mean
17	1.63	0.98	101	2.45	0.63	39	0	0.025	1.96	(5.84)	<.01	(1.10)	(0.54)	reject H ₀ ; increase to geometric mean
18	1.48	1.50	131	2.08	0.67	36	0	0.025	1.96	(3.48)	<.01	(0.94)	(0.26)	reject H ₀ ; increase to geometric mean
19	0.08	1.37	114	1.35	1.01	71	0	0.025	1.96	(7.23)	<.01	(1.61)	(0.93)	reject H ₀ ; increase to geometric mean
20	1.05	1.14	89	1.54	0.63	66	0	0.025	1.96	(3.41)	<.01	(0.77)	(0.21)	reject H ₀ ; increase to geometric mean
21	0.76	0.60	62	1.59	0.48	68	0	0.025	1.96	(8.66)	<.01	(1.02)	(0.64)	reject H ₀ ; increase to geometric mean
22	0.14	1.09	48	(0.75)	0.62	67	0	0.025	1.96	5.10	<.01	0.55	1.23	reject H ₀ ; decrease to geometric mean
23	1.15	1.27	257	2.27	0.51	72	0	0.025	1.96	(11.26)	<.01	(1.31)	(0.93)	reject H ₀ ; increase to geometric mean
24	1.31	1.12	118	1.54	0.98	76	0	0.025	1.96	(1.51)	0.131	(0.53)	0.07	accept H ₀
25	1.28	0.95	83	1.37	0.86	58	0	0.025	1.96	(0.59)	0.5552	(0.39)	0.21	accept H ₀
26	0.97	0.67	112	1.01	0.82	57	0	0.025	1.96	(0.32)	0.749	(0.29)	0.21	accept H ₀
27	0.92	1.47	85	1.49	1.34	32	0	0.025	1.96	(2.00)	0.0456	(1.13)	(0.01)	reject H ₀ ; increase to geometric mean
28	1.05	0.92	88	1.87	0.76	32	0	0.025	1.96	(4.93)	<.01	(1.15)	(0.49)	reject H ₀ ; increase to geometric mean
29	1.26	0.86	56	1.85	0.69	62	0	0.025	1.96	(4.08)	<.01	(0.87)	(0.31)	reject H ₀ ; increase to geometric mean
30	1.19	0.78	111	1.75	0.48	36	0	0.025	1.96	(5.14)	<.01	(0.77)	(0.35)	reject H ₀ ; increase to geometric mean
31	1.18	0.81	35	0.14	1.11	100	0	0.025	1.96	5.90	<.01	0.69	1.39	reject H ₀ ; decrease to geometric mean
32	0.46	0.69	40	(0.63)	0.60	104	0	0.025	1.96	8.79	<.01	0.85	1.33	reject H ₀ ; decrease to geometric mean
33	0.45	0.79	97	0.54	0.85	64	0	0.025	1.96	(0.68)	0.4966	(0.35)	0.17	accept H ₀
34	0.45	0.83	130	(0.83)	0.60	64	0	0.025	1.96	12.25	<.01	1.08	1.48	reject H ₀ ; decrease to geometric mean
35	1.79	0.96	188	1.78	1.00	85	0	0.025	1.96	0.08	0.9362	(0.24)	0.26	accept H ₀
36	1.13	1.07	49	1.79	0.61	79	0	0.025	1.96	(3.94)	<.01	(0.99)	(0.33)	reject H ₀ ; increase to geometric mean
37	0.74	0.95	61	0.84	0.86	72	0	0.025	1.96	(0.63)	0.5286	(0.41)	0.21	accept H ₀
38	0.73	1.05	99	(0.35)	1.07	70	0	0.025	1.96	6.51	<.01	0.76	1.40	reject H ₀ ; decrease to geometric mean
39	0.07	0.96	56	(0.21)	0.76	59	0	0.025	1.96	1.73	0.0836	(0.04)	0.60	accept H ₀
40	3.02	0.92	55	3.03	0.63	48	0	0.025	1.96	(0.07)	0.9442	(0.31)	0.29	accept H ₀
41	3.10	0.79	103	3.09	0.71	34	0	0.025	1.96	0.07	0.9442	(0.27)	0.29	accept H ₀
42	3.19	1.00	39	3.01	0.63	31	0	0.025	1.96	0.92	0.3576	(0.20)	0.56	accept H ₀
43	1.01	1.15	109	1.44	0.78	48	0	0.025	1.96	(2.73)	<.01	(0.74)	(0.12)	reject H ₀ ; increase to geometric mean
44	0.90	1.03	108	0.84	1.11	56	0	0.025	1.96	0.34	0.7338	(0.29)	0.41	accept H ₀
45	0.55	1.17	128	0.38	1.08	55	0	0.025	1.96	0.95	0.3422	(0.18)	0.52	accept H ₀
46	1.81	0.86	39	1.68	0.92	40	0	0.025	1.96	0.65	0.5156	(0.26)	0.52	accept H ₀
47	1.84	0.84	39	1.54	1.12	37	0	0.025	1.96	1.32	0.1868	(0.15)	0.75	accept H ₀
48	1.52	0.82	31	1.66	0.57	34	0	0.025	1.96	(0.79)	0.4296	(0.49)	0.21	accept H ₀
49	1.28	0.75	30	1.51	0.55	38	0	0.025	1.96	(1.41)	0.1586	(0.55)	0.09	accept H ₀
50	1.31	1.50	104	1.51	1.37	52	0	0.025	1.96	(0.83)	0.4066	(0.67)	0.27	accept H ₀
51	1.78	0.69	146	1.21	1.46	81	0	0.025	1.96	3.31	<.01	0.23	0.91	reject H ₀ ; decrease to geometric mean
52	1.64	0.85	114	1.70	1.04	81	0	0.025	1.96	(0.43)	0.6672	(0.34)	0.22	accept H ₀
53	1.33	0.76	47	1.45	0.99	74	0	0.025	1.96	(0.75)	0.4532	(0.43)	0.19	accept H ₀
54	0.55	0.78	52	0.91	0.72	72	0	0.025	1.96	(2.62)	<.01	(0.63)	(0.09)	reject H ₀ ; increase to geometric mean
55	1.80	1.02	61	2.12	0.92	66	0	0.025	1.96	(1.85)	0.0644	(0.66)	0.02	accept H ₀
56	1.76	0.91	61	1.89	1.15	74	0	0.025	1.96	(0.73)	0.4654	(0.48)	0.22	accept H ₀
57	1.75	0.62	48	1.31	1.06	77	0	0.025	1.96	2.93	<.01	0.15	0.73	reject H ₀ ; decrease to geometric mean
58														
59	0.62	1.30	41	1.64	0.56	40	0	0.025	1.96	(4.61)	<.01	(1.45)	(0.59)	accept H ₀
60	0.18	0.99	30	0.19	1.28	45	0	0.025	1.96	(0.04)	0.968	(0.53)	0.51	accept H ₀
61	0.46	1.43	75	0.38	1.36	142	0	0.025	1.96	0.40	0.6892	(0.31)	0.47	accept H ₀
62	1.50	0.86	49	1.21	0.95	81	0	0.025	1.96	1.79	0.0734	(0.03)	0.61	accept H ₀
63	1.38	0.74	45	1.33	0.55	106	0	0.025	1.96	0.41	0.6818	(0.19)	0.29	accept H ₀
64														
65	0.41	1.26	32	0.71	0.77	63	0	0.025	1.96	(1.23)	0.2186	(0.78)	0.18	accept H ₀
66	(0.49)	0.81	39	(1.00)	0.00	64	0	0.025	1.96	3.93	<.01	0.26	0.76	reject H ₀ ; decrease to geometric mean
67	(0.09)	1.18	95	0.76	1.20	127	0	0.025	1.96	(5.27)	<.01	(1.17)	(0.53)	reject H ₀ ; increase to geometric mean
68														
69														
70	3.22	1.01	60	3.48	0.64	46	0	0.025	1.96	(1.62)	0.1802			accept H ₀
71	3.41	0.88	100	3.38	0.73	61				0.23	0.818			accept H ₀
72	3.42	0.91	77	3.40	0.72	62				0.14	0.8886			accept H ₀
73	3.22	1.01	53	3.27	0.63	54				(0.31)	0.7566			accept H ₀
74	2.76	1.04	114	3.39	0.55	45	0	0.025	1.96	(4.95)	<.01			reject H ₀ ; increase to geometric mean
75	3.32	0.94	137	3.35	0.68	60				(0.25)	0.8026			accept H ₀
76	3.44	0.78	118	3.37	0.67	60				0.62	0.5352			accept H ₀
77	3.31	0.92	117	3.32	0.60	55				(0.09)	0.9282			accept H ₀
78	3.36	0.92	53	3.26	0.59	59	0	0.025	1.96	0.68	0.4966	(0.19)	0.39	accept H ₀
79	3.59	0.67	84	3.11	0.74	65	0	0.025	1.96	4.09	<.01	0.25	0.71	reject H ₀ ; decrease to geometric mean
80	(0.04)	1.27	88	0.23	1.13	99	0	0.025	1.96	(1.53)	0.126	(0.62)	0.08	accept H ₀
81	0.27	1.11	94	1.19	0.57	124	0	0.025	1.96	(7.34)	<.01	(1.17)	(0.67)	reject H ₀ ; increase to geometric mean
82														
83														
84	0.71	0.60	51	0.75	0.56	36				(0.32)	0.749			accept H ₀
85														
86	1.31	1.14	86	1.55	1.46	43	0	0.025	1.96	(0.94)	0.3472	(0.74)	0.26	accept H ₀
87	1.58	1.04	153	1.36	1.40	41	0	0.025	1.96	0.94	0.3472	(0.24)	0.68	accept H ₀
88	0.54	1.25	84	0.67	1.29	70	0	0.025	1.96	(0.63)	0.5286	(0.53)	0.27	accept H ₀