

Attachment 2
TABLE 2C
RZ-D Background Comparison

Chemical Name	Depth Interval	Background								RZ-D								Two-Sample	Gehan	Quantile	Slippage	Greater than Background?	Background Qualifier
		No. of	Total	%	Minimum	Maximum	Median	Mean	Standard	No. of	Total	%	Minimum	Maximum	Median	Mean	Standard	T-test	Test	Test (0.8)	Test		
		Detects	Samples	Detects	Detect	Detect	Detect	Detect	Deviation	Detects	Samples	Detects	Detect	Detect	Detect	Detect	Deviation	p	p	p	p		
Aluminum	0_10	31	31	100%	7340	11400	8970	9020	890	128	128	100%	5830	11900	8630	8750	1350	0.9759	0.9601	0.3667	0.6471	No	1
Aluminum	10_UMCf	13	13	100%	7290	18400	10600	10300	2900	55	55	100%	2950	23800	8140	9350	4090	0.9365	0.9927	0.7923	0.6519	No	1
Antimony	0_10	3	31	10%	0.6	3.4	0.9	1.63	1.54	28	119	24%	0.11	0.8	0.2	0.303	0.198	0.9989	1	0.9998	1	No	1
Antimony	10_UMCf	5	13	38%	0.7	1.4	0.9	0.92	0.286	19	54	35%	0.076	0.2	0.15	0.149	0.0292	0.9995	1	0.9861	1	No	1 2
Arsenic	0_2	16	16	100%	1.6	4.25	2	2.19	0.645	65	65	100%	1.17	10.8	2.38	3.02	2.01	0.003846	0.03662	0.1181	0.0953	Yes	3
Arsenic	2_10	15	15	100%	2.05	3.13	2.54	2.59	0.321	63	63	100%	1.82	13.4	4.01	4.43	2.08	2.334E-09	4.69E-06	0.0213	1.295E-07	Yes	
Arsenic	10_UMCf	13	13	100%	2.49	22.5	11.6	11.9	6.51	55	55	100%	3.63	37.5	13.8	15.3	8.55	0.1127	0.1933	0.4661	0.129	No	
Barium	0_10	31	31	100%	111	213	162	166	22.4	128	128	100%	115	1780	180	206	165	0.005656	0.004207	0.02376	0.0095	Yes	
Barium	10_UMCf	13	13	100%	79.9	217	97.8	117	42.9	55	55	100%	40.8	830	142	171	133	0.01709	0.0567	0.1884	0.129	Yes	3
Beryllium	0_10	31	31	100%	0.362	0.588	0.459	0.464	0.0475	128	128	100%	0.268	0.678	0.487	0.481	0.0799	0.07381	0.09495	0.004463	0.08427	Yes	3
Beryllium	10_UMCf	13	13	100%	0.328	0.642	0.423	0.442	0.0919	55	55	100%	0.152	1.24	0.375	0.447	0.216	0.5692	0.879	0.7438	0.3337	No	
Boron	0_10	7	31	23%	3.6	11.7	6.2	6.67	2.68	37	128	29%	1.2	551	13.4	37.5	96.5	0.04625	0.05396	0.0422	0.01564	Yes	3
Boron	10_UMCf	11	13	85%	12.5	29.6	16.2	18.2	5.63	44	55	80%	1.8	49.1	15.7	17.6	10.7	0.7875	0.9308	0.7923	0.2093	No	
Cadmium	0_10	25	31	81%	0.11	0.48	0.19	0.197	0.0853	64	128	50%	0.04	0.9	0.115	0.148	0.137	0.9999	1	1	0.805	No	1
Cadmium	10_UMCf	9	13	69%	0.13	0.26	0.18	0.184	0.0413	29	55	53%	0.04	0.18	0.121	0.113	0.0402	0.9943	0.9983	1	1	No	1 2
Chromium (Total)	0_2	16	16	100%	5.57	8.63	7.24	7.11	0.718	65	65	100%	3.48	157	8.04	11.5	20.2	0.04053	0.01497	0.01929	0.0004419	Yes	
Chromium (Total)	2_10	15	15	100%	5.6	10.7	8.12	8.43	1.23	63	63	100%	5.83	31.1	8.33	8.66	3.34	0.295	0.5379	0.3561	0.4176	No	
Chromium (Total)	10_UMCf	13	13	100%	6.59	41.7	17.3	17.8	8.56	55	55	100%	4.04	55.9	15	18.6	12.6	0.5883	0.8625	0.4661	0.4188	No	
Chromium (VI)	0_10	1	31	3%	0.29	0.29	0.29	0.29	NA	15	128	12%	0.21	15.4	0.455	1.88	4	0.03965	0.7534	0.3141	0.06662	No	
Chromium (VI)	10_UMCf	0	13	0%	NA	NA	NA	NA	NA	14	55	25%	0.11	3.06	0.925	1.11	0.862	0.01124	0.7787	0.03533	NA	Yes	3
Cobalt	0_10	31	31	100%	5.4	9.1	7.3	7.34	0.758	128	128	100%	4.2	27.2	6.95	7.13	2.29	0.8783	0.9902	0.7733	0.1688	No	1
Cobalt	10_UMCf	13	13	100%	4.1	7.3	5.3	5.65	1.04	55	55	100%	1.7	7.6	4.2	4.35	1.39	0.9996	0.9989	0.9969	0.6519	No	1
Copper	0_10	31	31	100%	15.8	140	19.1	23.1	21.8	128	128	100%	10.3	65.6	16.9	18.6	7.44	0.8958	1	0.9648	1	No	1
Copper	10_UMCf	13	13	100%	11.8	21.2	15.6	15.8	2.8	55	55	100%	5.8	29.3	11.8	13.3	4.5	0.9989	0.9992	0.9799	0.5235	No	1
Iron	0_10	31	31	100%	11300	20600	15700	15500	2140	128	128	100%	9560	21800	14300	14300	2240	0.9991	0.999	0.9997	0.805	No	1
Iron	10_UMCf	13	13	100%	8770	16100	13100	13000	2530	55	55	100%	4000	18900	10600	11000	3340	0.9965	0.9963	0.9799	0.4188	No	1
Lead	0_10	31	31	100%	7.1	72.8	8.9	11.3	11.6	128	128	100%	5.5	88.8	8.83	13	12.8	0.2916	0.627	0.195	0.6471	No	
Lead	10_UMCf	13	13	100%	5.2	11.2	6.5	7.14	1.77	55	55	100%	2.2	16.5	6.15	6.42	2.29	0.8508	0.9359	0.7438	0.6519	No	
Magnesium	0_2	16	16	100%	7700	11500	9120	9300	1110	65	65	100%	5900	76000	9270	14200	13400	0.006583	0.5	0.01929	0.008137	Yes	
Magnesium	2_10	15	15	100%	9230	13000	10500	10700	1140	63	63	100%	6390	16600	11900	11800	2090	0.02469	0.05866	0.0213	0.0213	Yes	
Magnesium	10_UMCf	13	13	100%	7890	30000	19200	19100	6140	55	55	100%	4590	72000	15200	22700	16800	0.3206	0.8881	0.1884	0.129	No	
Manganese	0_10	31	31	100%	262	537	360	366	61.3	128	128	100%	180	2470	360	434	293	0.02176	0.5217	0.08027	0.0122	Yes	
Manganese	10_UMCf	13	13	100%	142	336	235	239	59.7	55	55	100%	102	519	200	220	88.7	0.8605	0.9442	0.7438	0.2093	No	
Mercury	0_2	16	16	100%	0.012	0.362	0.0175	0.0479	0.0871	57	65	88%	0.006	0.176	0.014	0.0237	0.0313	0.865	0.984	0.8279	1	No	1 2
Mercury	2_10	11	15	73%	0.006	0.094	0.012	0.0192	0.025	52	63	83%	0.002	0.054	0.007	0.00956	0.00989	0.8476	0.9999	0.9999	1	No	1 2
Mercury	10_UMCf	9	13	69%	0.004	0.044	0.008	0.0118	0.0124	33	55	60%	0.002	0.049	0.005	0.00727	0.00812	0.4128	0.9482	0.9799	0.8	No	1 2
Molybdenum	0_2	15	16	94%	0.31	32.7	0.43	2.56	8.34	65	65	100%	0.23	10.3	0.56	0.888	1.37	0.7745	0.000336	0.1181	1	Yes	3
Molybdenum	2_10	15	15	100%	0.34	2.83	0.6	0.791	0.603	59	63	94%	0.18	2.88	0.44	0.525	0.388	0.9503	0.9988	0.9895	0.8077	No	1
Molybdenum	10_UMCf	13	13	100%	0.37	1.82	0.78	1.02	0.594	49	55	89%	0.18	1.95	0.535	0.734	0.471	0.9764	0.9817	0.9969	0.6519	No	1
Nickel	0_10	31	31	100%	12.7	21.4	15.6	15.9	1.78	128	128	100%	10.3	23.9	14.4	14.7	2.31	0.9997	0.9999	0.9648	0.5193	No	1
Nickel	10_UMCf	13	13	100%	9.97	16.4	13.8	13.3	2.08	55	55	100%	3.91	17.7	10.6	10.8	2.84	0.9996	0.9996	1	0.5235	No	1
Platinum	0_10	19	31	61%	0.006	0.046	0.01	0.0119	0.00852	71	128	55%	0.006	0.15	0.01	0.0156	0.0202	0.9999	0.9988	0.2012	0.6582	No	1 2
Platinum	10_UMCf	8	13	62%	0.008	0.014	0.0105	0.0111	0.00203	21	55	38%	0.006	0.015	0.01	0.0102	0.00225	0.9891	0.9433	0.9135	0.82	No	1 2
Potassium	0_2	16	16	100%	1830	4210	2280	2510	726	65	65	100%	1550	12000	2520	2720	1320	0.2304	0.07144	0.6097	0.8025	No	
Potassium	2_10	15	15	100%	1450	2420	1740	1830	333	63	63	100%	1180	3560	1860	1950	439	0.1509	0.2013	0.3561	0.1652	No	
Potassium	10_UMCf	13	13	100%	1590	4250	2140	2270	723	55	55	100%	962	4160	2150	2270	695	0.649	0.6632	0.7438	1	No	1
Selenium	0_10	3	31	10%	0.8	0.9	0.8	0.833	0.0577	4	128	3%	0.8	1.2	0.9	0.95	0.173	0.8904	0.2413	0.8727	0.8108	No	
Selenium	10_UMCf	0	13	0%	NA	NA	NA	NA	NA	0	55	0%	NA	NA	NA	NA	NA	0.192	0.6206	1	NA	No	1
Silver	0_10	0	31	0%	NA	NA	NA	NA	NA	30	128	23%	0.025	7.6	0.183	0.81	1.8	0.05359	0.9231	0.1341	NA	No	1

**Attachment 2
TABLE 2C
RZ-D Background Comparison**

Chemical Name	Depth Interval	Background								RZ-D								Two-Sample T-test	Gehan Test	Quantile Test (0.8)	Slippage Test	Greater than Background?	Background Qualifier
		No. of Detects	Total Samples	% Detects	Minimum Detect	Maximum Detect	Median Detect	Mean Detect	Standard Deviation	No. of Detects	Total Samples	% Detects	Minimum Detect	Maximum Detect	Median Detect	Mean Detect	Standard Deviation	p	p	p	p		
Silver	10_UMCf	2	13	15%	0.6	0.8	0.7	0.7	0.141	26	55	47%	0.022	2.8	0.045	0.506	0.872	0.36	0.944	0.4661	0.6519	No	
Sodium	0_2	16	16	100%	307	864	468	533	181	65	65	100%	197	3420	678	1020	852	0.0001063	0.0675	0.01929	0.001724	Yes	
Sodium	2_10	15	15	100%	474	1050	729	714	166	63	63	100%	298	4540	1040	1510	1100	6.315E-07	0.003268	0.0213	0.0001721	Yes	
Sodium	10_UMCf	13	13	100%	612	1200	924	887	204	55	55	100%	324	4790	1230	1390	709	0.0002832	0.004197	0.03533	0.001166	Yes	
Strontium	0_2	16	16	100%	129	299	186	189	46.8	65	65	100%	76.3	978	146	183	126	0.7226	0.9883	0.8279	0.3224	No	1
Strontium	2_10	15	15	100%	177	339	255	257	45.3	63	63	100%	102	1570	301	335	188	0.005259	0.02224	0.0213	0.00505	Yes	
Strontium	10_UMCf	13	13	100%	153	2240	386	775	704	55	55	100%	120	4280	345	465	619	0.9263	0.8332	0.9969	0.8088	No	1
Thallium	0_10	31	31	100%	0.071	0.193	0.092	0.107	0.0329	122	128	95%	0.056	0.826	0.101	0.128	0.099	0.04863	0.2515	0.3667	0.04141	No	2
Thallium	10_UMCf	13	13	100%	0.061	0.203	0.103	0.112	0.0359	50	55	91%	0.044	0.254	0.102	0.115	0.0475	0.6869	0.8193	0.7438	0.4188	No	2
Tin	0_10	0	31	0%	NA	NA	NA	NA	NA	13	128	10%	0.36	11.9	11.9	11.9	NA	0.997	0.389	0.1341	NA	No	1
Tin	10_UMCf	1	13	8%	14.3	14.3	14.3	14.3	NA	9	55	16%	0.32	0.48	NA	NA	NA	0.9757	0.9898	0.5216	1	No	1
Titanium	0_10	31	31	100%	480	1080	829	793	162	128	128	100%	371	1220	740	738	140	0.9903	0.9952	0.9989	0.805	No	1
Titanium	10_UMCf	13	13	100%	405	844	664	664	147	55	55	100%	220	1030	606	615	170	0.9585	0.961	0.9799	0.3337	No	1
Tungsten	0_10	30	31	97%	0.12	0.62	0.17	0.214	0.11	116	128	91%	0.11	8.5	0.23	0.421	0.849	0.008502	0.001546	0.08027	0.04141	Yes	
Tungsten	10_UMCf	12	13	92%	0.16	0.39	0.285	0.288	0.0725	48	55	87%	0.14	0.67	0.27	0.308	0.0974	0.2292	0.3366	0.2739	0.1006	No	
Uranium	0_2	16	16	100%	0.655	1.01	0.829	0.817	0.116	65	65	100%	0.551	6	0.839	1.12	0.815	0.003408	0.1868	0.02546	0.008137	Yes	
Uranium	2_10	15	15	100%	0.913	1.94	1.34	1.34	0.332	63	63	100%	0.56	8.77	1.79	1.98	1.15	0.0003348	0.005918	0.0213	0.001026	Yes	
Uranium	10_UMCf	13	13	100%	1.07	4.74	3.47	3.32	1.06	55	55	100%	1.24	55.2	3.21	5.28	8.5	0.0945	0.798	0.4661	0.2093	No	
Vanadium	0_10	31	31	100%	28	54.9	46	43.8	7.58	128	128	100%	23.4	78	41.9	42	7.22	0.975	0.9902	0.9956	0.4161	No	1
Vanadium	10_UMCf	13	13	100%	29.4	49.8	41.6	40.5	6.22	55	55	100%	14	65.7	36.1	37.1	9.56	0.9856	0.9866	0.9799	0.3337	No	1
Zinc	0_10	31	31	100%	25.8	254	33.3	40.4	39.9	128	128	100%	18.6	269	30.8	35	23.8	0.8011	0.9937	0.8694	0.805	No	1
Zinc	10_UMCf	13	13	100%	21.9	39.1	27.9	29.1	5.74	51	55	93%	9.4	50.1	23.7	24.4	8.2	0.9985	0.9974	0.9799	0.6519	No	1

Notes:

p values in boldface indicate p < 0.025

p values less than 10^-10 shown as 0

NA - value not available because either chemical not detected, only detected in 1 sample, or the test is invalid for the given distribution

Background dataset is from RZ-A, excluding the 6 borings in LOU 62.

Background comparison tests use 1/2 the detection limit for non-detects.

Background Qualifiers:

¹ = Gilbert's Toolbox results imply Site data lower than Background data

² = Less than 25% frequency of detection in either site or background data sets

³ = Failed Gilbert's Toolbox in only 1 out of 4 tests

Depth Intervals:

0_2 - 0 feet below ground surface (bgs) to 2 feet bgs

2_10 - greater than 2 feet bgs to 10 feet bgs

0_10 - 0 feet bgs to 10 feet bgs

10_UMCf - greater than 10 feet bgs to the top of the Upper Muddy Creek formation