



**BUREAU
VERITAS**

Bureau Veritas Minerals Pty Ltd

MINERAL TESTING & LABORATORY SERVICES

ABN: 30 008 127 802

35-37 Stirling Street
Thebarton SA 5031

Telephone (08) 8416 5200
Facsimile (08) 8234 0355

Reference: **aa036412.f**
Date Finished: 10/08/2018
Order: NC_016
Project: Arunta Project
Date Received: 12/07/2018
Type of Sample: Soil
Samples Analysed: **97**

FINAL ANALYSIS REPORT

Analysis of Mineral Samples

for

Northern Cobalt Ltd

67 Goodwood Road WAYVILLE SA 5034

Attention: Mr Duncan Chessell

Authorised By:

Vaughn Noble
Senior Chemist

Christopher Abbott
Senior Chemist

Jenet Hwende
Technical Quality
Manager



Reference: aa036412.f Order Number: NC_016 Page 1 of 22

Method	PF102	PF102	PF101	PF102	PF102	PF101	PF102	PF102
Result Name	Ag	As	Ba	Be	Bi	Ca	Cd	Co
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	5	5	5	1	1	1000	10	10
BLANK 1	<5	<5	<5	<1	<1	<1000	<10	<10
SA2395	<5	<5	370	2	<1	3000	<10	<10
SA2396	<5	<5	380	3	<1	2600	<10	<10
SA2397	<5	<5	435	2	<1	2000	<10	<10
SA2398	<5	<5	395	1	<1	2400	<10	<10
Std Nominal	<5	675	2.94%					730
Determined	<5	685	2.94%	<1	18	3.44%	<10	740
SA2399	<5	<5	420	2	<1	3000	<10	<10
SA2399REP	<5	<5	425	2	<1	2800	<10	<10
SA2400	<5	<5	330	2	<1	2400	<10	<10
SA2401	<5	10	330	3	<1	2200	<10	<10
SA2402	<5	<5	310	3	<1	2300	<10	<10
SA2403	<5	<5	315	3	<1	2200	<10	<10
SA2404	<5	<5	320	3	<1	2500	<10	<10
SA2405	<5	<5	330	2	<1	2600	<10	<10
SA2406	<5	<5	375	2	<1	3600	<10	<10
SA2407	<5	<5	345	2	<1	2500	<10	<10
SA2408	<5	<5	370	3	<1	3000	<10	<10
SA2409	<5	<5	320	2	<1	2000	<10	<10
SA2410	<5	<5	360	3	<1	2200	<10	<10
SA2411	<5	<5	345	2	<1	1600	<10	<10
Std Nominal	50	305		2	21	1.31%	<10	<10
Determined	60	330	4010	2	23	1.34%	<10	<10
SA2412	<5	<5	315	2	<1	2200	<10	<10
SA2413	<5	<5	320	3	<1	3000	<10	<10
SA2413 Rpt	<5	<5	320	3	<1	2600	<10	<10
SA2414	<5	<5	315	3	<1	2300	<10	<10
SA2415	<5	<5	355	2	<1	2200	<10	<10
SA2416	<5	<5	290	3	<1	3200	<10	<10
SA2417	<5	<5	380	3	<1	2600	<10	<10
SA2418	<5	<5	350	3	<1	2800	<10	<10
SA2419	<5	<5	365	3	<1	3100	<10	<10
SA2420	<5	<5	315	2	<1	2800	<10	<10
SA2420 Rpt	<5	<5	340	3	<1	2600	<10	<10
SA2421	<5	<5	330	2	<1	2100	<10	<10
SA2422	<5	<5	420	2	<1	2600	<10	<10
SA2423	<5	<5	340	2	<1	1200	<10	<10
SA2424	<5	<5	290	2	<1	1400	<10	<10
SA2425	<5	<5	385	2	<1	2400	<10	<10
SA2426	<5	<5	345	3	<1	2700	<10	<10
SA2427	<5	<5	380	3	<1	2300	<10	<10



Reference: aa036412.f Order Number: NC_016 Page 2 of 22

Method	PF102	PF102	PF101	PF102	PF102	PF101	PF102	PF102
Result Name	Ag	As	Ba	Be	Bi	Ca	Cd	Co
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	5	5	5	1	1	1000	10	10
SA2428	<5	<5	300	2	<1	1500	<10	<10
SA2429	<5	<5	380	2	<1	1800	<10	<10
SA2430	<5	<5	330	2	<1	1600	<10	<10
SA2431	<5	10	335	2	<1	1700	<10	<10
SA2432	<5	<5	325	3	<1	1500	<10	<10
Std Nominal	<5	5	430	3	1	5600		10
Determined	<5	10	420	3	<1	5500	<10	20
SA2433	<5	<5	350	3	<1	1800	<10	<10
SA2434	<5	<5	325	3	<1	1700	<10	<10
SA2435	<5	<5	300	3	<1	1000	<10	<10
SA2436	<5	<5	295	2	<1	1200	<10	<10
SA2437	<5	<5	330	2	<1	1700	<10	<10
Std Nominal	<5	10	710	2	5	2.74%	<10	20
Determined	<5	10	730	2	5	2.74%	<10	20
SA2438	<5	<5	330	2	<1	1600	<10	<10
SA2439	<5	<5	335	2	<1	1600	<10	<10
SA2440	<5	<5	310	2	<1	1200	<10	<10
SA2441	<5	<5	310	2	<1	1200	<10	<10
SA2442	<5	<5	335	2	<1	1200	<10	<10
SA2443	<5	<5	330	2	<1	1300	<10	<10
BLANK 2	<5	<5	<5	<1	<1	<1000	<10	<10
SA2444	<5	<5	340	2	<1	1300	<10	<10
Std Nominal	<5	675	2.94%					730
Determined	<5	690	2.94%	<1	18	3.51%	<10	740
SA2445	<5	<5	355	1	<1	1000	<10	<10
SA2446	<5	<5	335	2	<1	1200	<10	<10
SA2447	<5	<5	315	2	<1	<1000	<10	<10
Std Nominal	50	305		2	21	1.31%	<10	<10
Determined	50	310	4130	3	21	1.31%	<10	<10
SA2448	<5	<5	340	2	<1	<1000	<10	<10
SA2449	<5	<5	355	2	<1	1600	<10	<10
SA2449DUP	<5	<5	335	2	<1	1200	<10	<10
SA2450	<5	<5	300	1	<1	1200	<10	<10
SA2451	<5	<5	270	1	<1	<1000	<10	<10
SA2451 Rpt	<5	<5	290	1	<1	<1000	<10	<10
SA2452	<5	<5	355	2	<1	<1000	<10	<10
SA2453	<5	<5	265	1	<1	<1000	<10	<10
SA2454	<5	<5	375	2	<1	1300	<10	<10
SA2455	<5	<5	290	1	<1	<1000	<10	<10
SA2456	<5	<5	260	1	<1	<1000	<10	<10
SA2457	<5	<5	300	1	<1	<1000	<10	<10



Reference: aa036412.f Order Number: NC_016 Page 3 of 22

Method	PF102	PF102	PF101	PF102	PF102	PF101	PF102	PF102
Result Name	Ag	As	Ba	Be	Bi	Ca	Cd	Co
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	5	5	5	1	1	1000	10	10
SA2458	<5	<5	290	1	<1	<1000	<10	<10
SA2459	<5	10	335	1	<1	1500	<10	<10
SA2460	<5	<5	395	2	<1	1600	<10	<10
SA2461	<5	<5	400	2	<1	1600	<10	<10
SA2462	<5	<5	290	<1	<1	<1000	<10	<10
SA2463	<5	<5	300	1	<1	<1000	<10	<10
SA2464	<5	<5	295	1	<1	<1000	<10	<10
SA2465	<5	<5	300	2	<1	1800	<10	<10
SA2466	<5	<5	290	2	<1	1700	<10	<10
SA2467	<5	<5	335	2	<1	1300	<10	<10
SA2468	<5	<5	305	2	<1	1200	<10	<10
SA2469	<5	10	300	1	<1	<1000	<10	<10
SA3001	<5	<5	310	2	<1	5700	<10	<10
SA3002	<5	10	490	2	<1	3400	<10	<10
SA3003	<5	<5	655	3	<1	5500	<10	20
SA3004	<5	<5	290	2	<1	4100	<10	<10
SA3005	<5	<5	305	2	<1	3800	<10	<10
SA3006	<5	<5	290	2	<1	5300	<10	<10
Std Nominal	<5	5	430	3	1	5600		10
Determined	<5	10	420	4	3	6000	<10	20
SA3007	<5	<5	710	2	<1	3700	<10	<10
SA3008	<5	<5	770	2	<1	3700	<10	20
SA3009	<5	<5	395	1	<1	4800	<10	<10
Std Nominal	<5	10	710	2	5	2.74%	<10	20
Determined	<5	15	730	2	4	2.74%	<10	20
SA3010	<5	<5	360	2	<1	3700	<10	<10
SA3011	<5	<5	390	2	<1	3500	<10	<10
SA3012	<5	<5	870	2	<1	2500	<10	<10
SA3013	<5	<5	670	1	<1	3000	<10	20
SA3014	<5	<5	1230	1	<1	2300	<10	20
SA3015	<5	<5	675	2	<1	4700	<10	20
SA3016	<5	<5	605	2	<1	2100	<10	<10
SA3017	<5	<5	345	1	<1	2900	<10	<10
SA3018	<5	<5	355	1	<1	3600	<10	<10
SA3019	<5	<5	550	2	<1	3200	<10	<10
SA3019 Rpt	<5	<5	550	2	<1	2900	<10	<10
SA3020	<5	<5	1060	2	<1	3100	<10	20



Reference: aa036412.f Order Number: NC_016 Page 4 of 22

Method	PF101	PF102	PF102	PF101	PF102	PF102	PF102	PF101
Result Name	Cr	Cs	Cu	Fe	Ge	Hf	In	K
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	10	1	10	100	20	2	0.2	1000
BLANK 1	<10	<1	<10	100	<20	<2	<0.2	<1000
SA2395	100	2	20	2.73%	<20	12	<0.2	2.10%
SA2396	100	2	20	2.39%	<20	14	<0.2	2.20%
SA2397	100	2	20	2.33%	<20	12	<0.2	2.90%
SA2398	60	<1	<10	1.77%	<20	14	<0.2	2.30%
Std Nominal	30	<1	2.53%			2	0.6	2.50%
Determined	30	<1	2.43%	28.7%	<20	<2	0.8	2.50%
SA2399	290	2	10	2.04%	<20	14	<0.2	3.30%
SA2399REP	80	2	20	1.53%	<20	8	<0.2	3.50%
SA2400	120	2	20	2.32%	<20	20	<0.2	2.30%
SA2401	60	3	20	2.49%	<20	16	<0.2	2.60%
SA2402	70	3	30	2.54%	<20	18	<0.2	2.50%
SA2403	50	3	20	2.43%	<20	16	<0.2	2.40%
SA2404	50	2	20	2.68%	<20	14	<0.2	2.60%
SA2405	60	2	20	2.41%	<20	14	<0.2	2.20%
SA2406	70	3	20	2.53%	<20	14	<0.2	2.40%
SA2407	70	2	20	2.10%	<20	16	<0.2	2.50%
SA2408	70	3	30	2.69%	<20	12	<0.2	2.20%
SA2409	50	3	20	2.57%	<20	14	<0.2	2.70%
SA2410	70	3	20	2.81%	<20	16	<0.2	2.90%
SA2411	60	2	20	2.36%	<20	14	<0.2	2.40%
Std Nominal	40	7	1010	2.48%	<20	4	1.8	2.10%
Determined	60	7	1030	2.52%	<20	4	1.6	2.10%
SA2412	90	3	20	2.31%	<20	14	<0.2	2.30%
SA2413	70	3	30	2.62%	<20	14	<0.2	2.10%
SA2413 Rpt	70	4	30	2.52%	<20	14	<0.2	2.20%
SA2414	60	2	20	2.47%	<20	12	<0.2	2.20%
SA2415	50	2	20	2.16%	<20	14	<0.2	2.20%
SA2416	100	2	20	2.41%	<20	14	<0.2	2.40%
SA2417	90	2	20	2.77%	<20	18	<0.2	3.00%
SA2418	100	2	20	2.23%	<20	14	<0.2	2.50%
SA2419	90	2	20	2.27%	<20	12	<0.2	2.40%
SA2420	120	2	20	2.05%	<20	12	<0.2	2.50%
SA2420 Rpt	110	2	20	2.09%	<20	12	<0.2	2.50%
SA2421	40	3	20	2.60%	<20	14	<0.2	2.30%
SA2422	140	2	20	2.37%	<20	16	<0.2	2.60%
SA2423	60	2	20	2.01%	<20	16	<0.2	2.30%
SA2424	70	2	20	2.01%	<20	14	<0.2	2.10%
SA2425	80	2	20	2.57%	<20	12	<0.2	2.90%
SA2426	80	3	20	2.37%	<20	12	<0.2	2.40%
SA2427	70	2	20	2.60%	<20	12	<0.2	2.70%



Reference: aa036412.f Order Number: NC_016 Page 5 of 22

Method	PF101	PF102	PF102	PF101	PF102	PF102	PF102	PF101
Result Name	Cr	Cs	Cu	Fe	Ge	Hf	In	K
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	10	1	10	100	20	2	0.2	1000
SA2428	60	2	20	1.90%	<20	12	<0.2	2.30%
SA2429	80	2	20	1.91%	<20	16	<0.2	2.70%
SA2430	90	2	20	2.14%	<20	16	<0.2	2.50%
SA2431	70	2	20	1.91%	<20	16	<0.2	2.60%
SA2432	70	3	20	2.09%	<20	12	<0.2	2.50%
Std Nominal	100	6	260	4.34%		4		2.90%
Determined	90	7	280	4.24%	<20	4	<0.2	2.90%
SA2433	80	3	20	2.24%	<20	14	<0.2	2.90%
SA2434	100	3	30	1.93%	<20	12	<0.2	2.90%
SA2435	50	3	30	1.77%	<20	14	<0.2	2.50%
SA2436	90	2	20	1.81%	<20	12	<0.2	2.50%
SA2437	80	3	20	2.34%	<20	12	<0.2	2.70%
Std Nominal	70	5	1.11%	7.33%		<2	0.8	2.90%
Determined	100	4	9830	7.50%	<20	<2	0.8	2.90%
SA2438	140	2	30	1.99%	<20	14	<0.2	2.40%
SA2439	50	3	20	2.19%	<20	12	<0.2	2.40%
SA2440	80	3	20	2.05%	<20	12	<0.2	2.40%
SA2441	40	3	20	2.28%	<20	12	<0.2	2.00%
SA2442	90	3	30	2.31%	<20	12	<0.2	2.00%
SA2443	50	3	30	2.50%	<20	12	<0.2	2.20%
BLANK 2	<10	<1	<10	100	<20	<2	<0.2	<1000
SA2444	70	2	30	2.31%	<20	12	<0.2	2.10%
Std Nominal	30	<1	2.53%			2	0.6	2.50%
Determined	30	<1	2.54%	28.3%	<20	2	0.8	2.50%
SA2445	40	3	50	2.62%	<20	10	<0.2	1.90%
SA2446	50	2	20	2.08%	<20	12	<0.2	1.60%
SA2447	30	2	<10	1.84%	<20	14	<0.2	1.90%
Std Nominal	40	7	1010	2.48%	<20	4	1.8	2.10%
Determined	40	6	970	2.56%	<20	4	2.0	2.10%
SA2448	50	5	30	2.96%	<20	18	<0.2	1.90%
SA2449	40	3	20	2.32%	<20	14	<0.2	1.40%
SA2449DUP	30	3	20	2.26%	<20	14	<0.2	1.40%
SA2450	60	3	20	2.06%	<20	16	<0.2	1.00%
SA2451	50	2	20	1.97%	<20	18	<0.2	1.10%
SA2451 Rpt	50	2	20	2.09%	<20	18	<0.2	1.10%
SA2452	30	3	20	2.68%	<20	12	<0.2	1.00%
SA2453	50	2	20	2.06%	<20	12	<0.2	1.00%
SA2454	50	2	20	3.45%	<20	18	<0.2	1.50%
SA2455	60	2	<10	2.83%	<20	16	<0.2	1.40%
SA2456	30	2	<10	2.52%	<20	14	<0.2	1.00%
SA2457	80	2	20	2.99%	<20	16	<0.2	1.40%



Reference: aa036412.f Order Number: NC_016 Page 6 of 22

Method	PF101	PF102	PF102	PF101	PF102	PF102	PF102	PF101
Result Name	Cr	Cs	Cu	Fe	Ge	Hf	In	K
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	10	1	10	100	20	2	0.2	1000
SA2458	40	2	20	2.80%	<20	16	<0.2	1.10%
SA2459	110	2	20	2.83%	<20	20	<0.2	1.10%
SA2460	80	3	20	2.79%	<20	16	<0.2	1.40%
SA2461	100	4	20	2.64%	<20	16	<0.2	1.20%
SA2462	60	<1	20	2.31%	<20	18	<0.2	1.10%
SA2463	80	2	<10	2.49%	<20	14	<0.2	1.10%
SA2464	40	<1	<10	2.64%	<20	12	<0.2	1.40%
SA2465	80	3	20	3.20%	<20	12	<0.2	1.40%
SA2466	50	2	20	2.90%	<20	10	<0.2	1.10%
SA2467	90	3	20	3.49%	<20	10	<0.2	1.10%
SA2468	90	3	20	3.16%	<20	10	<0.2	1.50%
SA2469	120	2	20	2.92%	<20	10	<0.2	1.50%
SA3001	110	2	20	3.92%	<20	6	<0.2	1.20%
SA3002	120	<1	20	2.88%	<20	12	<0.2	1.60%
SA3003	120	2	30	4.09%	<20	10	<0.2	1.60%
SA3004	110	2	20	3.57%	<20	10	<0.2	1.00%
SA3005	80	2	20	3.43%	<20	12	<0.2	1.10%
SA3006	70	3	30	4.48%	<20	10	<0.2	1.20%
Std Nominal	100	6	260	4.34%		4		2.90%
Determined	90	7	280	4.26%	<20	4	<0.2	2.80%
SA3007	50	2	20	3.04%	<20	12	<0.2	1.80%
SA3008	100	2	20	2.96%	<20	12	<0.2	2.00%
SA3009	90	2	20	3.27%	<20	8	<0.2	1.10%
Std Nominal	70	5	1.11%	7.33%		<2	0.8	2.90%
Determined	70	4	1.02%	7.47%	<20	<2	0.8	3.00%
SA3010	130	2	30	3.06%	<20	12	<0.2	1.20%
SA3011	90	2	20	3.25%	<20	10	<0.2	1.40%
SA3012	100	2	20	3.80%	<20	14	<0.2	2.30%
SA3013	90	2	20	3.03%	<20	14	<0.2	2.10%
SA3014	230	<1	20	6.05%	<20	14	<0.2	2.30%
SA3015	140	2	20	3.74%	<20	12	<0.2	2.00%
SA3016	170	2	20	3.50%	<20	12	<0.2	2.20%
SA3017	190	<1	20	3.08%	<20	12	<0.2	1.10%
SA3018	230	<1	20	2.54%	<20	12	<0.2	1.10%
SA3019	100	<1	<10	3.01%	<20	12	<0.2	1.90%
SA3019 Rpt	90	<1	20	2.94%	<20	12	<0.2	2.00%
SA3020	150	2	20	3.25%	<20	10	<0.2	2.00%



Reference: aa036412.f Order Number: NC_016 Page 7 of 22

Method	PF101	PF101	PF101	PF102	PF102	PF102	PF101	PF102
Result Name	Li	Mg	Mn	Mo	Nb	Ni	P	Pb
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	10	100	10	5	5	20	100	10
BLANK 1	<10	<100	40	<5	<5	<20	<100	<10
SA2395	<10	2800	450	<5	20	<20	400	20
SA2396	10	2100	380	<5	20	<20	300	20
SA2397	<10	1800	340	<5	15	<20	400	20
SA2398	<10	1800	270	<5	10	<20	300	20
Std Nominal				390	5	80	1000	40
Determined	<10	9800	4600	405	5	80	1100	50
SA2399	10	1900	380	<5	25	20	300	30
SA2399REP	<10	1600	260	<5	15	<20	200	30
SA2400	20	2100	350	<5	20	<20	300	30
SA2401	<10	2300	340	<5	20	<20	400	30
SA2402	<10	2000	370	<5	30	<20	200	30
SA2403	<10	1900	330	<5	25	<20	200	30
SA2404	20	2400	500	<5	20	<20	200	30
SA2405	20	1800	360	<5	15	<20	200	20
SA2406	<10	3800	330	<5	15	<20	300	30
SA2407	<10	1600	310	<5	20	<20	400	20
SA2408	20	2800	560	<5	15	<20	500	30
SA2409	<10	2000	380	<5	20	<20	300	30
SA2410	<10	2500	480	<5	40	<20	300	30
SA2411	30	1700	680	<5	15	<20	200	30
Std Nominal	20	3900	480	<5	15	20	500	330
Determined	10	4100	500	<5	15	20	500	350
SA2412	<10	2100	310	<5	15	<20	300	30
SA2413	10	2600	460	<5	20	20	500	30
SA2413 Rpt	<10	2700	450	<5	20	20	300	30
SA2414	30	2500	460	<5	15	<20	300	20
SA2415	<10	2100	320	<5	20	<20	400	30
SA2416	20	1800	320	<5	20	<20	200	30
SA2417	<10	2100	420	<5	25	<20	400	30
SA2418	20	2000	330	<5	20	<20	400	30
SA2419	<10	2500	360	<5	15	<20	300	30
SA2420	<10	1700	320	<5	20	<20	300	30
SA2420 Rpt	<10	1700	320	<5	20	<20	300	30
SA2421	<10	2200	340	<5	20	<20	300	30
SA2422	10	1900	310	<5	20	<20	300	20
SA2423	<10	1700	380	<5	20	<20	300	20
SA2424	20	1700	250	<5	15	<20	300	30
SA2425	<10	2200	400	<5	20	<20	200	20
SA2426	10	2100	210	<5	15	<20	400	30
SA2427	10	2200	370	<5	15	<20	300	30



Reference: aa036412.f Order Number: NC_016 Page 8 of 22

Method	PF101	PF101	PF101	PF102	PF102	PF102	PF101	PF102
Result Name	Li	Mg	Mn	Mo	Nb	Ni	P	Pb
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	10	100	10	5	5	20	100	10
SA2428	<10	1800	300	<5	15	<20	300	30
SA2429	<10	1700	270	<5	15	<20	200	20
SA2430	<10	1800	220	<5	15	<20	200	30
SA2431	30	1600	220	<5	15	<20	300	30
SA2432	20	1800	280	<5	15	<20	300	30
Std Nominal	30	1.57%	700		15	40	700	<10
Determined	20	1.50%	670	<5	20	40	700	<10
SA2433	10	1700	280	<5	15	<20	200	30
SA2434	<10	1800	270	<5	15	<20	100	30
SA2435	<10	1500	330	<5	15	<20	100	30
SA2436	20	1700	250	<5	10	<20	300	30
SA2437	<10	2000	270	<5	15	<20	300	30
Std Nominal	20	1.66%	540	500	10	40	1000	30
Determined	<10	1.73%	560	470	10	40	900	30
SA2438	<10	1500	280	<5	15	<20	300	30
SA2439	<10	1700	300	<5	15	<20	300	30
SA2440	20	1700	280	<5	10	<20	300	30
SA2441	<10	2100	330	<5	10	<20	100	30
SA2442	<10	1900	350	<5	15	<20	300	30
SA2443	20	2400	380	<5	15	20	400	30
BLANK 2	<10	<100	<10	<5	<5	<20	<100	<10
SA2444	10	2000	420	<5	10	<20	300	30
Std Nominal				390	5	80	1000	40
Determined	20	9800	4510	380	5	80	900	50
SA2445	<10	2700	420	<5	10	<20	200	20
SA2446	<10	2100	370	<5	10	<20	300	20
SA2447	10	1600	180	<5	15	<20	300	30
Std Nominal	20	3900	480	<5	15	20	500	330
Determined	<10	4100	510	<5	15	20	300	310
SA2448	<10	2300	370	<5	20	<20	200	30
SA2449	<10	3600	370	<5	10	<20	200	50
SA2449DUP	<10	3600	350	<5	10	<20	300	30
SA2450	<10	3100	330	<5	10	<20	400	20
SA2451	<10	1900	240	<5	10	<20	300	20
SA2451 Rpt	<10	1900	260	<5	10	<20	300	20
SA2452	<10	2400	310	<5	10	<20	300	20
SA2453	<10	1400	180	<5	10	<20	400	20
SA2454	20	2500	320	<5	10	<20	300	20
SA2455	<10	2100	180	<5	10	<20	300	<10
SA2456	20	1800	240	<5	5	<20	400	<10
SA2457	<10	1900	270	<5	10	<20	200	20



Reference: aa036412.f Order Number: NC_016 Page 9 of 22

Method	PF101	PF101	PF101	PF102	PF102	PF102	PF101	PF102
Result Name	Li	Mg	Mn	Mo	Nb	Ni	P	Pb
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	10	100	10	5	5	20	100	10
SA2458	<10	2100	180	<5	10	<20	300	20
SA2459	30	1700	270	<5	10	<20	400	20
SA2460	10	2200	280	<5	10	<20	300	20
SA2461	20	2200	180	<5	10	<20	400	20
SA2462	<10	1700	190	<5	5	<20	300	20
SA2463	10	1700	170	<5	5	<20	200	20
SA2464	<10	1700	240	<5	5	<20	300	<10
SA2465	10	2500	390	<5	10	20	300	20
SA2466	20	2300	300	<5	5	<20	300	20
SA2467	30	2600	340	<5	10	<20	300	20
SA2468	20	2400	360	<5	10	<20	300	20
SA2469	10	2000	250	<5	10	<20	200	20
SA3001	10	5700	480	<5	10	20	400	20
SA3002	<10	3300	520	<5	5	<20	400	20
SA3003	20	6700	560	<5	10	20	300	20
SA3004	30	5000	360	<5	5	20	200	<10
SA3005	10	4100	540	<5	10	20	300	20
SA3006	20	5700	480	<5	10	20	300	20
Std Nominal	30	1.57%	700		15	40	700	<10
Determined	30	1.53%	680	<5	20	40	700	<10
SA3007	10	4000	420	<5	10	20	500	20
SA3008	<10	3600	470	<5	10	20	400	30
SA3009	<10	5000	430	<5	5	20	300	<10
Std Nominal	20	1.66%	540	500	10	40	1000	30
Determined	30	1.70%	560	460	10	40	900	30
SA3010	20	4100	480	<5	10	20	400	20
SA3011	20	3500	530	<5	5	20	400	20
SA3012	<10	3100	400	<5	15	20	500	30
SA3013	<10	3100	440	<5	10	20	400	30
SA3014	<10	2600	830	<5	15	20	1000	70
SA3015	<10	4200	570	<5	10	20	200	30
SA3016	10	3100	450	<5	10	20	400	30
SA3017	20	3100	430	<5	5	20	200	<10
SA3018	<10	2600	350	<5	5	20	200	20
SA3019	10	2500	270	<5	5	<20	300	20
SA3019 Rpt	10	2700	260	<5	5	<20	400	20
SA3020	<10	3500	550	<5	5	20	600	30



Reference: aa036412.f Order Number: NC_016 Page 10 of 22

Method	PF102	PF102	PF101	PF102	PF101	PF101	PF102	PF102
Result Name	Rb	Re	S	Sb	Sc	Si	Sn	Sr
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	0.5	1	100	10	10	100	10	1
BLANK 1	<0.5	<1	100	<10	<10	100	<10	<1
SA2395	183	<1	400	<10	<10	29.7%	<10	104
SA2396	138	<1	500	<10	<10	32.6%	<10	63
SA2397	184	<1	600	<10	<10	33.2%	<10	60
SA2398	146	<1	400	<10	<10	30.0%	<10	62
Std Nominal	67.0		5.58%		<10		10	287
Determined	67.0	<1	5.43%	10	<10	12.1%	20	285
SA2399	257	<1	400	<10	<10	33.4%	<10	67
SA2399REP	279	<1	600	<10	<10	33.9%	<10	67
SA2400	178	<1	700	<10	<10	34.2%	<10	69
SA2401	254	<1	600	<10	<10	35.0%	<10	64
SA2402	212	<1	800	<10	<10	34.4%	<10	69
SA2403	246	<1	500	<10	<10	34.3%	<10	60
SA2404	200	<1	600	<10	<10	33.0%	<10	58
SA2405	188	<1	800	<10	<10	35.4%	<10	63
SA2406	158	<1	200	<10	<10	35.3%	<10	54
SA2407	223	<1	600	<10	<10	37.4%	<10	67
SA2408	168	<1	700	<10	<10	32.7%	<10	69
SA2409	210	<1	800	<10	<10	35.8%	<10	61
SA2410	264	<1	500	<10	<10	34.6%	<10	63
SA2411	189	<1	400	<10	<10	34.6%	<10	63
Std Nominal	97.0	<1	1.07%	30	<10	32.4 %	<10	230
Determined	106	<1	1.10%	30	<10	33.6%	<10	250
SA2412	196	<1	500	<10	<10	33.6%	<10	65
SA2413	187	<1	100	<10	<10	34.3%	<10	69
SA2413 Rpt	193	<1	<100	<10	<10	34.8%	<10	69
SA2414	166	<1	400	<10	<10	35.1%	<10	63
SA2415	188	<1	900	<10	<10	35.8%	<10	57
SA2416	191	<1	600	<10	<10	32.9%	<10	63
SA2417	187	<1	<100	<10	<10	40.7%	<10	58
SA2418	196	<1	<100	<10	<10	36.6%	<10	62
SA2419	188	<1	500	<10	<10	43.2%	<10	60
SA2420	175	<1	200	<10	<10	34.9%	<10	59
SA2420 Rpt	179	<1	300	<10	<10	34.6%	<10	60
SA2421	192	<1	500	<10	<10	34.3%	<10	61
SA2422	193	<1	200	<10	<10	32.6%	<10	61
SA2423	172	<1	600	<10	<10	35.1%	<10	54
SA2424	197	<1	<100	<10	<10	31.8%	<10	62
SA2425	205	<1	300	<10	<10	37.4%	<10	58
SA2426	204	<1	<100	<10	<10	32.6%	<10	58
SA2427	201	<1	<100	<10	<10	37.3%	<10	54



Reference: aa036412.f Order Number: NC_016 Page 11 of 22

Method	PF102	PF102	PF101	PF102	PF101	PF101	PF102	PF102
Result Name	Rb	Re	S	Sb	Sc	Si	Sn	Sr
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	0.5	1	100	10	10	100	10	1
SA2428	215	<1	500	<10	<10	30.9%	<10	58
SA2429	214	<1	300	<10	<10	38.1%	<10	58
SA2430	213	<1	500	<10	<10	34.7%	<10	59
SA2431	218	<1	400	<10	<10	37.9%	<10	58
SA2432	227	<1	500	<10	<10	32.7%	<10	58
Std Nominal	198		800	<10	10	31.6 %	<10	35
Determined	189	<1	700	<10	10	31.6%	<10	37
SA2433	234	<1	500	<10	<10	38.3%	<10	58
SA2434	278	<1	800	<10	<10	36.3%	<10	63
SA2435	291	<1	200	<10	<10	31.7%	<10	65
SA2436	220	<1	300	<10	<10	33.3%	<10	44
SA2437	236	<1	300	<10	<10	33.7%	<10	54
Std Nominal	106	<1	1.31%	<10			10	423
Determined	104	<1	1.31%	<10	10	27.6%	10	416
SA2438	206	<1	600	<10	<10	36.3%	<10	54
SA2439	200	<1	<100	<10	<10	35.8%	<10	59
SA2440	214	<1	200	<10	<10	29.1%	<10	60
SA2441	184	<1	<100	<10	<10	30.4%	<10	63
SA2442	177	<1	300	<10	<10	35.4%	<10	63
SA2443	188	<1	700	<10	<10	34.0%	<10	73
BLANK 2	<0.5	<1	100	<10	<10	<100	<10	<1
SA2444	165	<1	400	<10	<10	33.5%	<10	65
Std Nominal	67.0		5.58%		<10		10	287
Determined	70.5	<1	5.30%	10	<10	12.3%	20	298
SA2445	128	<1	400	<10	<10	32.2%	<10	58
SA2446	100	<1	400	<10	<10	32.3%	<10	52
SA2447	150	<1	200	<10	<10	34.6%	<10	54
Std Nominal	97.0	<1	1.07%	30	<10	32.4 %	<10	230
Determined	94.0	<1	1.12%	30	<10	33.2%	<10	239
SA2448	195	<1	100	<10	<10	32.7%	<10	63
SA2449	84.5	<1	600	<10	<10	33.0%	<10	82
SA2449DUP	88.0	<1	200	<10	<10	32.4%	<10	82
SA2450	83.0	<1	700	<10	<10	33.0%	<10	71
SA2451	74.5	<1	300	<10	<10	32.8%	<10	58
SA2451 Rpt	73.5	<1	<100	<10	<10	33.3%	<10	54
SA2452	79.0	<1	400	<10	<10	32.7%	<10	63
SA2453	73.0	<1	300	<10	<10	35.1%	<10	61
SA2454	73.5	<1	300	<10	<10	39.4%	<10	61
SA2455	67.5	<1	700	<10	<10	38.2%	<10	44
SA2456	62.0	<1	100	<10	<10	36.5%	<10	44
SA2457	71.5	<1	400	<10	<10	36.7%	<10	48



Reference: aa036412.f Order Number: NC_016 Page 12 of 22

Method	PF102	PF102	PF101	PF102	PF101	PF101	PF102	PF102
Result Name	Rb	Re	S	Sb	Sc	Si	Sn	Sr
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	0.5	1	100	10	10	100	10	1
SA2458	71.0	<1	400	<10	<10	37.3%	<10	51
SA2459	69.5	<1	300	<10	<10	34.7%	<10	51
SA2460	82.0	<1	300	<10	<10	37.6%	<10	74
SA2461	75.5	<1	<100	<10	<10	34.7%	<10	100
SA2462	64.0	<1	300	<10	<10	40.4%	<10	48
SA2463	69.5	<1	200	<10	<10	39.1%	<10	49
SA2464	65.0	<1	300	<10	<10	41.0%	<10	43
SA2465	75.0	<1	<100	<10	<10	40.2%	<10	58
SA2466	68.5	<1	500	<10	<10	36.0%	<10	52
SA2467	74.0	<1	300	<10	<10	34.8%	<10	48
SA2468	109	<1	500	<10	<10	34.3%	<10	54
SA2469	104	<1	700	<10	<10	35.3%	<10	44
SA3001	78.5	<1	400	<10	10	31.4%	<10	86
SA3002	83.0	<1	100	<10	<10	36.1%	<10	103
SA3003	135	<1	800	<10	10	31.9%	<10	142
SA3004	62.0	<1	500	<10	10	34.0%	<10	66
SA3005	78.0	<1	400	<10	<10	34.5%	<10	84
SA3006	86.0	<1	600	<10	10	31.2%	<10	111
Std Nominal	198		800	<10	10	31.6 %	<10	35
Determined	198	<1	900	<10	10	31.6%	10	40
SA3007	104	<1	500	<10	<10	35.1%	<10	205
SA3008	109	<1	500	<10	<10	35.0%	<10	118
SA3009	61.5	<1	200	<10	<10	33.7%	<10	80
Std Nominal	106	<1	1.31%	<10			10	423
Determined	101	<1	1.31%	<10	10	27.0%	10	381
SA3010	67.5	<1	500	<10	<10	35.4%	<10	78
SA3011	73.0	<1	<100	<10	<10	35.4%	<10	76
SA3012	177	<1	200	<10	<10	34.5%	<10	150
SA3013	127	<1	100	<10	<10	35.7%	<10	115
SA3014	135	<1	400	<10	<10	32.7%	<10	153
SA3015	114	<1	500	<10	<10	33.1%	<10	99
SA3016	152	<1	300	<10	<10	35.7%	<10	82
SA3017	62.5	<1	400	<10	<10	33.4%	<10	58
SA3018	65.5	<1	<100	<10	<10	35.0%	<10	66
SA3019	100	<1	200	<10	<10	34.1%	<10	78
SA3019 Rpt	104	<1	<100	<10	<10	33.0%	<10	78
SA3020	118	<1	200	<10	<10	34.0%	<10	205



Reference: aa036412.f Order Number: NC_016 Page 13 of 22

Method	PF102	PF102	PF101	PF102	PF102	PF101	PF102	PF102
Result Name	Ta	Th	Ti	Tl	U	V	W	Y
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	0.5	0.5	100	2	0.5	50	5	1
BLANK 1	<0.5	<0.5	<100	<2	<0.5	<50	<5	<1
SA2395	2.0	46.0	4400	<2	8.5	<50	<5	45
SA2396	1.5	30.0	4600	<2	8.0	<50	<5	25
SA2397	1.0	34.0	4500	<2	8.0	<50	<5	22
SA2398	1.0	25.5	3300	<2	5.0	<50	<5	20
Std Nominal	0.5	8.0			59.0	100	175	17
Determined	<0.5	8.0	2900	<2	61.0	50	170	16
SA2399	2.0	54.0	3700	<2	8.0	<50	<5	30
SA2399REP	1.5	26.0	2400	<2	5.0	<50	<5	20
SA2400	1.5	48.5	3800	<2	10.0	<50	<5	33
SA2401	1.5	44.0	3700	<2	8.0	<50	<5	35
SA2402	2.0	55.0	3900	<2	9.5	<50	<5	39
SA2403	1.5	47.5	3800	<2	8.0	<50	<5	35
SA2404	1.0	52.0	3800	<2	9.5	<50	<5	35
SA2405	1.0	43.5	3700	<2	9.5	<50	<5	39
SA2406	1.0	26.0	3700	<2	6.5	<50	<5	35
SA2407	1.5	47.0	3700	<2	8.5	<50	<5	39
SA2408	1.5	30.0	3800	<2	6.5	<50	<5	35
SA2409	1.5	45.0	3800	<2	9.0	<50	<5	35
SA2410	3.0	67.5	4000	<2	14.0	<50	<5	45
SA2411	1.0	37.0	3700	<2	7.5	<50	<5	29
Std Nominal	1.0	11.5	1800	<2	4.0	<50	5	11
Determined	1.0	12.0	1900	<2	4.5	<50	10	12
SA2412	1.0	40.0	3600	<2	7.0	<50	<5	35
SA2413	1.5	41.0	3800	<2	8.5	<50	<5	45
SA2413 Rpt	2.0	39.0	3800	<2	8.5	<50	<5	46
SA2414	1.5	32.0	3800	<2	6.5	<50	<5	32
SA2415	1.5	43.0	3500	<2	7.5	<50	<5	34
SA2416	1.5	37.5	3400	<2	8.5	<50	<5	29
SA2417	2.5	54.0	4400	<2	11.0	<50	<5	37
SA2418	1.5	39.0	3300	<2	7.5	<50	<5	28
SA2419	1.0	29.5	3300	<2	7.5	<50	<5	28
SA2420	1.5	30.5	3100	<2	7.5	<50	<5	30
SA2420 Rpt	1.5	30.5	3100	<2	7.5	<50	<5	30
SA2421	2.0	61.5	3700	<2	10.0	<50	<5	46
SA2422	1.5	44.5	3600	<2	7.5	<50	<5	35
SA2423	1.5	37.5	3300	<2	6.5	<50	<5	30
SA2424	1.5	33.0	3000	<2	6.5	<50	<5	33
SA2425	1.0	33.0	3800	<2	7.0	<50	<5	27
SA2426	1.0	37.5	3400	<2	7.5	<50	<5	25
SA2427	1.0	35.5	3700	<2	6.0	<50	<5	24



Reference: aa036412.f Order Number: NC_016 Page 14 of 22

Method	PF102	PF102	PF101	PF102	PF102	PF101	PF102	PF102
Result Name	Ta	Th	Ti	Tl	U	V	W	Y
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	0.5	0.5	100	2	0.5	50	5	1
SA2428	1.5	34.0	3000	<2	6.0	<50	<5	23
SA2429	1.0	30.0	3500	<2	7.0	<50	<5	22
SA2430	1.0	35.0	3300	<2	6.5	<50	<5	22
SA2431	1.0	35.5	3200	<2	7.0	<50	<5	24
SA2432	1.0	33.5	3200	<2	6.0	<50	<5	22
Std Nominal	1.0	16.0	4400	<2	3.5		<5	26
Determined	1.0	17.0	4300	<2	3.5	<50	<5	27
SA2433	1.0	39.0	3300	<2	6.0	<50	<5	20
SA2434	1.0	33.5	2900	<2	6.0	<50	<5	24
SA2435	1.0	41.0	2700	<2	8.5	<50	<5	41
SA2436	1.0	29.0	2900	<2	6.0	<50	<5	25
SA2437	1.0	30.5	3200	<2	6.5	<50	<5	21
Std Nominal	0.5	8.5	3600	<2	2.5	150	<5	18
Determined	1.0	7.5	3700	<2	2.5	100	<5	15
SA2438	1.0	34.0	3200	<2	5.0	<50	<5	25
SA2439	1.0	27.5	3500	<2	5.0	<50	<5	24
SA2440	1.0	34.5	3000	<2	5.0	<50	<5	25
SA2441	1.0	28.5	3500	<2	5.0	<50	<5	25
SA2442	1.0	27.5	3300	<2	5.0	<50	<5	24
SA2443	1.0	34.0	3000	<2	5.0	<50	<5	27
BLANK 2	<0.5	<0.5	<100	<2	<0.5	<50	<5	<1
SA2444	1.0	31.0	2800	<2	4.5	<50	<5	26
Std Nominal	0.5	8.0			59.0	100	175	17
Determined	<0.5	8.0	2900	<2	57.0	<50	180	17
SA2445	1.0	19.5	2900	<2	3.0	<50	<5	21
SA2446	1.0	27.0	2800	<2	3.5	<50	<5	22
SA2447	1.0	41.0	2700	<2	4.5	<50	<5	23
Std Nominal	1.0	11.5	1800	<2	4.0	<50	5	11
Determined	1.0	11.5	1800	<2	4.0	<50	10	10
SA2448	1.5	54.0	3400	<2	5.0	<50	<5	30
SA2449	1.0	43.0	3200	<2	4.5	<50	<5	26
SA2449DUP	1.0	46.5	3300	<2	4.5	<50	<5	26
SA2450	1.0	21.0	3000	<2	4.0	<50	<5	21
SA2451	1.0	22.5	3000	<2	3.5	<50	<5	26
SA2451 Rpt	1.0	22.0	3300	<2	3.5	<50	<5	26
SA2452	1.0	15.5	3100	<2	3.0	<50	<5	23
SA2453	1.0	15.5	2400	<2	2.5	<50	<5	18
SA2454	1.0	21.0	3900	<2	3.0	<50	<5	25
SA2455	1.0	15.5	3500	<2	3.0	<50	<5	20
SA2456	1.0	19.0	2900	<2	3.0	<50	<5	18
SA2457	1.0	18.5	3500	<2	3.0	<50	<5	21



Reference: aa036412.f Order Number: NC_016 Page 15 of 22

Method	PF102	PF102	PF101	PF102	PF102	PF101	PF102	PF102
Result Name	Ta	Th	Ti	Tl	U	V	W	Y
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	0.5	0.5	100	2	0.5	50	5	1
SA2458	1.0	15.0	3400	<2	3.0	<50	<5	21
SA2459	1.0	17.0	4400	<2	3.0	<50	<5	24
SA2460	1.0	17.0	4200	<2	3.0	<50	<5	22
SA2461	1.0	17.5	4200	<2	3.0	<50	<5	23
SA2462	1.0	15.5	3100	<2	2.5	<50	<5	17
SA2463	1.0	16.0	2900	<2	2.5	<50	<5	19
SA2464	1.0	14.0	3000	<2	2.5	<50	<5	16
SA2465	1.0	14.0	3100	<2	3.0	<50	<5	20
SA2466	1.0	12.0	3200	<2	2.0	<50	<5	18
SA2467	1.0	13.5	3700	<2	2.5	<50	<5	18
SA2468	1.0	18.0	3600	<2	3.0	<50	<5	19
SA2469	1.0	15.5	3600	<2	2.5	<50	<5	17
SA3001	1.0	12.5	4200	<2	1.5	<50	<5	17
SA3002	1.0	23.0	4300	<2	2.5	<50	<5	22
SA3003	1.0	38.0	4700	<2	3.0	<50	<5	29
SA3004	1.0	13.5	4300	<2	2.0	<50	<5	17
SA3005	1.0	14.5	4200	<2	2.5	<50	<5	20
SA3006	1.0	17.5	4700	<2	3.0	50	<5	20
Std Nominal	1.0	16.0	4400	<2	3.5		<5	26
Determined	1.5	16.5	4300	<2	3.5	<50	<5	27
SA3007	1.0	30.5	4300	<2	3.0	<50	<5	29
SA3008	1.0	43.0	4200	<2	3.0	<50	<5	25
SA3009	<0.5	14.0	3900	<2	2.0	<50	<5	18
Std Nominal	0.5	8.5	3600	<2	2.5	150	<5	18
Determined	0.5	7.5	3700	<2	2.5	100	<5	17
SA3010	1.0	14.5	4300	<2	2.5	<50	<5	21
SA3011	1.0	15.5	4200	<2	2.0	<50	<5	20
SA3012	1.0	52.0	4900	<2	4.0	<50	<5	27
SA3013	1.0	40.0	4400	<2	3.0	<50	<5	26
SA3014	1.0	488	8400	<2	13.5	100	<5	84
SA3015	1.0	69.5	5900	<2	3.5	<50	<5	27
SA3016	1.0	59.5	4500	<2	3.5	<50	<5	35
SA3017	<0.5	14.5	4000	<2	2.0	<50	<5	18
SA3018	1.0	17.0	4000	<2	2.5	<50	<5	18
SA3019	<0.5	28.5	4200	<2	3.0	<50	<5	18
SA3019 Rpt	0.5	28.5	4200	<2	3.0	<50	<5	19
SA3020	<0.5	29.0	4300	<2	3.0	<50	<5	22



Reference: aa036412.f Order Number: NC_016 Page 16 of 22

Method	PF102	PF102	PF102	PF102	PF102	PF102	PF102	PF102
Result Name	Zn	Zr	La	Ce	Pr	Nd	Sm	Eu
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	10	10	0.5	0.5	0.2	0.5	0.5	0.2
BLANK 1	<10	<10	<0.5	<0.5	<0.2	<0.5	<0.5	<0.2
SA2395	50	660	62.0	121	13.8	47.0	8.0	1.4
SA2396	30	500	45.0	83.5	9.4	32.5	6.0	0.6
SA2397	30	350	36.5	69.5	8.0	26.5	5.0	0.8
SA2398	20	500	32.0	63.5	8.0	26.0	4.5	0.8
Std Nominal	60	100	286	201	12.8	32.5	4.5	2.0
Determined	70	90	271	202	13.6	32.5	4.0	4.6
SA2399	30	490	50.5	94.0	10.8	36.0	7.0	0.8
SA2399REP	30	280	33.0	61.5	7.2	24.0	4.5	0.8
SA2400	30	640	49.0	96.5	12.8	42.0	8.0	1.0
SA2401	40	480	53.0	91.5	11.6	39.5	8.0	0.8
SA2402	30	580	57.0	103	15.0	47.5	10.0	1.0
SA2403	40	510	53.0	92.0	11.6	40.0	8.0	0.8
SA2404	30	480	58.0	120	14.8	46.0	9.5	1.0
SA2405	30	520	47.0	85.0	10.8	37.0	8.0	0.8
SA2406	30	470	36.0	77.5	9.4	31.5	6.5	0.8
SA2407	30	540	47.0	92.0	10.6	36.0	7.0	0.8
SA2408	40	410	47.5	100	12.6	41.0	8.0	1.2
SA2409	30	480	51.5	107	13.0	42.0	7.5	1.0
SA2410	30	540	79.0	154	17.0	56.0	11.0	1.0
SA2411	30	530	41.0	98.0	10.8	35.5	7.0	1.0
Std Nominal	1330	160	31.0	63.0	7.6	27.0	5.0	1.2
Determined	1440	180	33.5	63.0	7.4	29.0	5.5	1.4
SA2412	30	480	47.0	96.5	11.8	38.5	7.0	1.0
SA2413	50	470	45.5	96.5	12.0	40.0	8.5	1.2
SA2413 Rpt	40	480	46.0	99.0	12.6	41.0	8.5	1.2
SA2414	30	460	40.0	84.0	10.0	34.0	7.0	1.0
SA2415	30	500	45.0	76.0	9.6	32.5	6.5	0.8
SA2416	30	500	41.0	77.5	10.2	34.0	6.5	1.0
SA2417	30	600	44.0	83.0	9.6	32.5	6.5	0.8
SA2418	30	470	39.0	76.5	9.6	32.0	6.0	1.0
SA2419	30	450	36.0	71.5	8.8	30.0	5.5	1.0
SA2420	40	410	36.5	75.0	9.2	31.5	6.0	1.0
SA2420 Rpt	30	440	36.0	73.0	8.8	30.0	6.0	0.8
SA2421	40	480	64.0	113	13.6	45.0	9.0	0.8
SA2422	30	520	47.0	91.5	11.2	36.5	7.0	1.0
SA2423	40	570	37.0	80.5	9.4	31.0	6.0	0.8
SA2424	30	460	40.0	83.0	10.0	34.5	6.5	1.0
SA2425	30	420	42.5	79.0	10.6	35.0	6.0	1.0
SA2426	30	440	43.0	84.5	10.8	35.0	6.5	0.8
SA2427	30	410	44.0	86.0	11.0	35.5	6.5	1.0



Reference: aa036412.f Order Number: NC_016 Page 17 of 22

Method	PF102	PF102	PF102	PF102	PF102	PF102	PF102	PF102
Result Name	Zn	Zr	La	Ce	Pr	Nd	Sm	Eu
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	10	10	0.5	0.5	0.2	0.5	0.5	0.2
SA2428	30	460	36.5	70.0	8.8	30.0	5.5	0.8
SA2429	30	530	32.0	67.5	7.8	26.5	4.5	0.8
SA2430	30	520	34.5	70.0	8.4	27.5	5.0	0.8
SA2431	30	530	33.5	68.5	8.4	28.0	5.0	0.8
SA2432	30	470	42.0	79.0	10.0	33.0	5.5	1.0
Std Nominal	70	210	44.0	89.0	10.2	37.0	7.0	1.2
Determined	60	210	43.0	92.5	11.2	39.0	7.0	1.4
SA2433	40	460	36.0	72.0	8.8	29.0	5.0	1.0
SA2434	30	430	40.5	72.5	9.8	32.5	5.5	1.0
SA2435	30	480	58.5	96.0	13.8	46.5	8.5	1.4
SA2436	30	390	43.0	81.5	10.6	34.0	6.0	1.0
SA2437	30	380	33.0	61.0	8.2	27.0	4.5	0.8
Std Nominal	110	60	19.5	38.5	4.6	17.5	3.5	1.0
Determined	100	110	18.0	36.5	4.6	17.0	3.0	0.8
SA2438	30	470	39.5	80.5	9.8	32.5	5.5	1.0
SA2439	40	450	41.5	82.0	10.8	35.5	6.5	1.0
SA2440	30	410	50.5	100	12.0	39.0	7.0	1.2
SA2441	30	430	40.0	80.5	10.0	33.5	6.0	1.2
SA2442	30	470	40.5	83.0	10.0	33.0	6.5	1.2
SA2443	40	460	48.5	100	12.4	40.0	7.0	1.4
BLANK 2	<10	<10	<0.5	<0.5	<0.2	<0.5	<0.5	<0.2
SA2444	30	440	46.0	96.0	11.6	37.5	7.0	1.2
Std Nominal	60	100	286	201	12.8	32.5	4.5	2.0
Determined	70	100	283	217	14.0	34.0	4.0	4.0
SA2445	30	340	35.0	76.5	9.2	31.0	5.5	1.0
SA2446	30	410	38.0	79.5	9.2	30.0	5.5	0.8
SA2447	30	480	55.5	114	13.0	40.0	7.0	0.8
Std Nominal	1330	160	31.0	63.0	7.6	27.0	5.0	1.2
Determined	1330	170	28.5	60.0	7.0	24.5	4.0	1.2
SA2448	30	590	62.0	123	14.2	46.0	8.0	1.2
SA2449	30	500	70.0	137	15.8	48.0	8.0	1.2
SA2449DUP	30	540	76.5	147	17.0	51.5	9.5	1.2
SA2450	30	570	48.0	98.0	11.8	37.5	7.0	1.0
SA2451	30	650	40.0	82.0	10.0	33.0	6.0	0.8
SA2451 Rpt	30	650	39.5	80.0	9.8	33.0	6.0	0.8
SA2452	30	470	36.5	79.0	9.6	34.0	6.0	1.2
SA2453	30	400	38.0	68.5	8.0	28.0	5.5	0.6
SA2454	30	610	53.5	98.5	11.6	41.0	8.0	1.0
SA2455	30	550	30.5	61.5	7.4	25.5	4.0	0.8
SA2456	20	500	37.5	71.5	8.2	29.0	5.0	0.6
SA2457	30	530	34.0	68.5	8.4	29.5	5.0	0.8



Reference: aa036412.f Order Number: NC_016 Page 18 of 22

Method	PF102	PF102	PF102	PF102	PF102	PF102	PF102	PF102
Result Name	Zn	Zr	La	Ce	Pr	Nd	Sm	Eu
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	10	10	0.5	0.5	0.2	0.5	0.5	0.2
SA2458	30	550	31.5	64.0	7.8	27.5	4.5	0.8
SA2459	30	660	36.5	68.5	8.2	29.0	6.0	0.8
SA2460	30	550	38.5	73.5	9.0	33.0	7.0	0.8
SA2461	30	570	47.0	89.0	10.4	37.0	7.5	1.0
SA2462	30	600	26.5	55.0	6.6	21.5	4.0	0.6
SA2463	30	480	30.0	61.5	7.2	24.5	4.0	0.8
SA2464	20	460	26.5	53.5	6.6	22.0	3.5	0.8
SA2465	30	370	30.5	58.0	6.8	24.5	4.5	0.6
SA2466	30	320	25.5	53.5	6.6	22.5	4.0	0.8
SA2467	30	350	28.5	56.0	7.0	24.5	4.0	0.8
SA2468	40	340	27.5	57.5	6.8	24.5	4.0	0.8
SA2469	30	340	25.0	51.5	6.2	21.5	4.0	0.8
SA3001	50	270	27.0	53.5	6.8	23.5	4.0	0.8
SA3002	50	440	53.5	115	12.8	42.0	7.0	1.2
SA3003	70	340	73.5	139	17.2	55.5	9.5	1.6
SA3004	40	360	27.5	56.0	6.8	24.0	4.0	0.8
SA3005	40	400	29.0	61.5	7.2	25.5	4.5	0.8
SA3006	60	340	35.0	72.0	8.6	30.0	5.5	1.0
Std Nominal	70	210	44.0	89.0	10.2	37.0	7.0	1.2
Determined	70	200	43.5	94.5	11.0	38.5	7.0	1.4
SA3007	60	480	74.5	149	16.8	55.0	8.5	1.6
SA3008	40	450	84.0	175	19.4	60.5	10.0	1.4
SA3009	40	320	26.5	53.5	6.6	22.5	4.0	0.8
Std Nominal	110	60	19.5	38.5	4.6	17.5	3.5	1.0
Determined	100	100	18.5	35.5	4.4	16.0	3.0	0.8
SA3010	40	390	31.5	62.5	7.0	25.0	5.0	0.6
SA3011	50	380	39.5	78.5	8.8	31.5	6.0	1.0
SA3012	60	510	99.0	203	23.0	73.0	12.5	1.6
SA3013	50	520	75.0	158	17.6	57.0	10.0	1.4
SA3014	50	520	810	1520	162	499	75.0	3.6
SA3015	50	460	114	224	25.2	78.5	13.5	1.6
SA3016	50	420	91.5	210	21.4	69.0	12.5	1.6
SA3017	30	400	30.5	65.5	7.6	26.0	4.5	0.8
SA3018	30	440	32.0	68.0	7.8	27.0	5.0	0.8
SA3019	20	420	57.5	116	13.0	41.5	7.0	0.8
SA3019 Rpt	30	440	58.0	117	13.2	41.0	7.0	0.8
SA3020	40	360	89.5	183	19.2	60.5	8.5	1.6



Reference: aa036412.f Order Number: NC_016 Page 19 of 22

Method	PF102	PF102	PF102	PF102	PF102	PF102	PF102	PF102
Result Name	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	2	0.2	0.5	0.2	0.5	0.2	0.5	0.2
BLANK 1	<2	<0.2	0.0	<0.2	<0.5	<0.2	<0.5	<0.2
SA2395	8	1.2	8.0	1.6	4.0	0.6	4.0	0.4
SA2396	6	0.8	5.0	1.0	3.0	0.4	3.0	0.6
SA2397	4	0.8	4.0	0.8	2.5	0.4	2.5	0.4
SA2398	6	0.8	4.0	0.8	3.0	0.4	2.0	0.2
Std Nominal	4	0.6	3.0	0.6	2.0		2.0	0.2
Determined	4	0.8	3.0	0.6	2.0	0.2	1.5	0.2
SA2399	6	1.0	5.5	1.2	3.5	0.6	3.5	0.6
SA2399REP	6	0.8	4.0	0.8	2.5	0.6	2.5	0.4
SA2400	10	1.4	7.0	1.2	4.5	0.6	3.0	0.4
SA2401	6	1.0	6.5	1.4	4.0	0.6	3.5	0.6
SA2402	10	1.8	8.0	1.6	6.0	0.8	3.5	0.4
SA2403	6	1.0	6.5	1.4	4.0	0.6	4.0	0.6
SA2404	10	1.6	7.5	1.4	5.0	0.6	3.5	0.4
SA2405	8	1.2	7.0	1.6	4.5	0.6	4.5	0.6
SA2406	8	1.2	6.5	1.2	5.0	0.8	4.0	0.4
SA2407	6	1.0	6.5	1.4	4.5	0.6	4.5	0.6
SA2408	10	1.6	7.0	1.2	4.5	0.6	3.5	0.4
SA2409	10	1.6	7.0	1.4	4.5	0.6	3.5	0.4
SA2410	10	1.8	11.5	2.2	7.0	1.0	6.0	0.8
SA2411	8	1.2	6.0	1.2	4.0	0.6	3.0	0.4
Std Nominal	4	0.6	2.5	0.4	1.0	<0.2	0.5	<0.2
Determined	6	0.8	2.5	0.4	1.0	<0.2	<0.5	<0.2
SA2412	8	1.4	6.5	1.2	4.0	0.6	3.5	0.4
SA2413	10	1.8	8.0	1.6	6.0	0.6	4.0	0.6
SA2413 Rpt	10	1.8	8.0	1.6	6.0	0.6	4.5	0.6
SA2414	8	1.4	6.0	1.2	4.0	0.6	3.0	0.4
SA2415	6	1.0	6.5	1.4	4.0	0.6	3.5	0.6
SA2416	8	1.4	6.0	1.2	4.0	0.6	2.5	0.4
SA2417	6	1.2	7.0	1.6	4.5	0.8	4.5	0.6
SA2418	8	1.2	5.5	1.2	4.0	0.6	2.5	0.6
SA2419	8	1.2	5.5	1.2	4.0	0.6	3.0	0.6
SA2420	8	1.2	5.5	1.2	4.5	0.6	3.0	0.6
SA2420 Rpt	8	1.2	5.5	1.2	4.0	0.6	3.0	0.6
SA2421	8	1.4	8.0	1.8	5.0	0.8	5.0	0.8
SA2422	8	1.4	7.0	1.2	5.0	0.6	3.5	0.6
SA2423	8	1.2	5.5	1.2	4.0	0.6	3.5	0.6
SA2424	8	1.2	6.0	1.2	4.5	0.6	3.5	0.6
SA2425	8	1.2	5.5	1.2	4.0	0.4	2.5	0.4
SA2426	8	1.2	5.5	1.0	3.5	0.4	2.0	0.4
SA2427	8	1.2	5.0	1.0	3.5	0.4	2.0	0.4



Reference: aa036412.f Order Number: NC_016 Page 20 of 22

Method	PF102	PF102	PF102	PF102	PF102	PF102	PF102	PF102
Result Name	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	2	0.2	0.5	0.2	0.5	0.2	0.5	0.2
SA2428	6	1.0	5.0	1.0	3.5	0.4	2.0	0.4
SA2429	6	1.0	4.5	0.8	3.0	0.4	2.0	0.4
SA2430	6	1.0	4.5	0.8	3.5	0.4	2.5	0.4
SA2431	6	1.0	4.5	0.8	3.5	0.4	2.5	0.4
SA2432	6	1.0	4.5	0.8	3.0	0.4	2.0	0.4
Std Nominal	6	0.8	5.0	1.0	3.0	0.4	2.5	0.4
Determined	8	1.2	5.5	1.0	3.5	0.4	2.5	0.4
SA2433	6	1.0	4.5	0.8	3.0	0.4	2.0	0.4
SA2434	6	1.0	4.5	1.0	3.5	0.4	2.5	0.4
SA2435	10	1.6	7.5	1.6	5.0	0.8	3.5	0.6
SA2436	6	1.0	5.0	1.0	3.5	0.4	2.5	0.4
SA2437	6	1.0	4.5	0.8	3.0	0.4	2.0	0.4
Std Nominal	4	0.6	3.5	0.6	2.0	0.2	2.0	0.2
Determined	4	0.6	3.0	0.6	2.0	0.2	1.5	0.2
SA2438	8	1.0	5.0	1.0	4.0	0.6	2.5	0.6
SA2439	8	1.2	5.0	1.0	3.5	0.4	2.5	0.4
SA2440	8	1.2	5.5	1.0	3.5	0.4	2.5	0.4
SA2441	8	1.2	5.0	1.0	3.5	0.4	2.5	0.4
SA2442	8	1.2	4.5	1.0	3.5	0.4	2.5	0.4
SA2443	8	1.4	5.5	1.2	4.0	0.4	2.5	0.4
BLANK 2	<2	<0.2	0.0	<0.2	<0.5	<0.2	<0.5	<0.2
SA2444	8	1.2	5.5	1.2	4.0	0.4	2.5	0.4
Std Nominal	4	0.6	3.0	0.6	2.0		2.0	0.2
Determined	4	0.8	3.0	0.6	2.0	0.2	2.0	0.6
SA2445	6	1.0	4.5	0.8	3.0	0.4	2.0	0.4
SA2446	6	1.0	4.5	0.8	3.0	0.4	2.5	0.4
SA2447	8	1.2	5.5	1.0	3.5	0.4	2.5	0.4
Std Nominal	4	0.6	2.5	0.4	1.0	<0.2	0.5	<0.2
Determined	4	0.6	2.0	0.4	1.0	<0.2	<0.5	<0.2
SA2448	10	1.6	6.5	1.2	4.0	0.6	3.0	0.6
SA2449	8	1.4	5.5	1.2	4.0	0.4	2.5	0.4
SA2449DUP	10	1.4	5.5	1.0	4.0	0.4	2.5	0.4
SA2450	8	1.0	4.5	0.8	3.0	0.4	2.0	0.4
SA2451	6	0.8	5.0	1.0	3.5	0.4	2.5	0.4
SA2451 Rpt	6	0.8	5.0	1.0	3.5	0.4	2.5	0.4
SA2452	8	1.0	5.0	1.0	3.5	0.4	2.5	0.4
SA2453	4	0.6	4.0	0.8	2.5	0.4	2.5	0.4
SA2454	6	1.0	5.5	1.2	3.5	0.6	3.5	0.6
SA2455	6	0.8	4.0	0.8	2.5	0.4	2.0	0.4
SA2456	4	0.6	4.0	0.8	2.5	0.4	2.5	0.4
SA2457	6	1.0	4.5	0.8	3.0	0.4	2.0	0.4



Reference: aa036412.f Order Number: NC_016 Page 21 of 22

Method	PF102	PF102	PF102	PF102	PF102	PF102	PF102	PF102
Result Name	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	2	0.2	0.5	0.2	0.5	0.2	0.5	0.2
SA2458	6	1.0	4.0	0.8	2.5	0.4	2.0	0.4
SA2459	6	0.8	5.0	1.0	3.0	0.4	2.5	0.4
SA2460	6	0.8	4.5	1.0	3.0	0.4	2.5	0.4
SA2461	6	1.0	5.0	1.0	3.0	0.4	2.5	0.4
SA2462	4	0.6	3.0	0.6	2.0	0.2	1.5	0.2
SA2463	6	0.8	4.0	0.6	2.5	0.2	1.5	0.4
SA2464	4	0.6	3.0	0.6	2.0	0.2	1.5	0.2
SA2465	4	0.6	3.5	0.8	2.0	0.4	2.0	0.4
SA2466	6	0.8	3.0	0.6	2.5	0.2	1.5	0.2
SA2467	6	0.8	3.0	0.6	2.5	0.2	1.5	0.2
SA2468	6	0.8	3.0	0.6	2.5	0.2	1.5	0.2
SA2469	4	0.8	3.0	0.6	2.5	0.2	1.5	0.2
SA3001	6	0.8	3.0	0.6	2.0	0.2	1.5	0.2
SA3002	8	1.2	4.5	0.8	3.0	0.4	1.5	0.4
SA3003	10	1.4	5.5	1.2	4.0	0.4	2.5	0.4
SA3004	6	0.8	3.0	0.6	2.0	0.2	1.5	0.2
SA3005	6	0.8	4.0	0.6	2.5	0.2	1.5	0.2
SA3006	6	1.0	4.5	0.6	2.5	0.2	1.5	0.2
Std Nominal	6	0.8	5.0	1.0	3.0	0.4	2.5	0.4
Determined	8	1.2	5.5	1.2	4.0	0.4	2.5	0.4
SA3007	10	1.4	5.5	1.0	4.0	0.4	2.5	0.4
SA3008	10	1.4	5.5	1.0	3.0	0.4	1.5	0.4
SA3009	4	0.6	3.0	0.6	2.0	0.2	1.5	0.2
Std Nominal	4	0.6	3.5	0.6	2.0	0.2	2.0	0.2
Determined	4	0.6	2.5	0.6	1.5	0.2	1.5	0.2
SA3010	4	0.6	4.0	0.8	2.5	0.4	2.5	0.4
SA3011	6	1.0	5.0	1.2	3.0	0.6	3.0	0.6
SA3012	12	1.6	6.0	1.0	3.5	0.4	2.0	0.4
SA3013	10	1.4	5.5	1.0	3.5	0.4	2.0	0.4
SA3014	50	5.6	25.0	3.8	8.0	0.8	4.5	0.6
SA3015	12	1.6	6.0	1.2	3.5	0.4	2.0	0.4
SA3016	12	1.6	7.0	1.4	4.5	0.6	3.5	0.6
SA3017	6	0.8	3.0	0.6	2.5	0.2	1.5	0.2
SA3018	6	0.8	3.0	0.6	2.5	0.2	1.5	0.2
SA3019	6	1.0	4.0	0.6	2.5	0.2	1.5	0.2
SA3019 Rpt	8	1.0	4.0	0.6	2.5	0.2	1.5	0.2
SA3020	8	1.2	4.5	0.8	3.0	0.4	1.5	0.2



Reference: aa036412.f Order Number: NC_016 Page 22 of 22

These results pertain to the samples as received at this laboratory.

Where standards are reported, the nominal value for the element is reported above the result found.

"%" Implies this result reported in %

Sample Storage

The excess material (Residue) will be held after 30 days

The pulp samples (Pulp) will be held after 60 days as per instructions.

Sample Preparation

Samples are dried and then the whole pulverised.

Digest and Analysis:

The samples have been fused with Sodium Peroxide and subsequently the melt has been dissolved in dilute Hydrochloric acid for analysis. Because of the high furnace temperatures, volatile elements are lost. This procedure is particularly efficient for determination of Major element composition (including Silica) in the samples or for the determination of refractory mineral species.

Ba,Ca,Cr,Fe,K,Li,Mg,Mn,P,S,Sc,Si,Ti,V

have been determined by Inductively Coupled Plasma (ICP) Optical Emission Spectrometry.

Ag,As,Be,Bi,Cd,Ce,Co,Cs,Cu,Dy,Er,Eu,Gd,Ge,Hf,Ho,In,La,Lu,Mo,Nb,Nd,Ni,Pb,Pr,Rb,Re,Sb,Sm,Sn,Sr,Ta,Tb,Th,Tl,Tm,U,W,Y,Yb,Zn,Zr

have been determined by Inductively Coupled Plasma (ICP) Mass Spectrometry.