

Brenton Siggs**Vale Australia**

PO Box 731
Brisbane
QLD 4001
Australia

Lab Ref WM138332

Client Ref **10657**

Project *

Cost Code

Status Final

Received 05/01/12

Reported 08/05/12

Samples 43

First Sample VGDD0001

Last Sample VGDD0043

Pages 14

Copy

Notes



Authorised by

On behalf of:

Graeme Farrant
Laboratory Manager

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ANALYTICAL REPORT

Scheme	FAM303	FAM303	FAM303	FAM303	ICP40Q	ICP40Q
Units	PPB	PPB	PPB	PPB	PPM	PPM
Detection Limit	1	1	0.5	0.5	0.5	100
Upper Limit	2000	2000	2000	2000	200	400000
	Au	Au(R)	Pd	Pt	Ag	Al
VGDD0001	2		<0.5	<0.5	<0.5	7.00%
VGDD0002	2		<0.5	<0.5	<0.5	7.82%
VGDD0003	2		<0.5	<0.5	<0.5	8.26%
VGDD0004	2		<0.5	<0.5	<0.5	8.49%
VGDD0005	2		<0.5	0.8	<0.5	6.78%
VGDD0006	3		<0.5	<0.5	<0.5	7.88%
VGDD0007	2		<0.5	<0.5	<0.5	6.82%
VGDD0008	2		<0.5	<0.5	<0.5	7.15%
VGDD0009	2		<0.5	<0.5	<0.5	9.04%
VGDD0010	3		<0.5	<0.5	<0.5	8.47%
VGDD0011	2		<0.5	<0.5	<0.5	7.95%
VGDD0012	4		0.6	<0.5	<0.5	7.58%
VGDD0013	2		0.6	<0.5	<0.5	7.92%
VGDD0014	2		<0.5	<0.5	<0.5	6.53%
VGDD0015	3	3	0.5	<0.5	<0.5	7.60%
VGDD0016	2		<0.5	<0.5	<0.5	7.82%
VGDD0017	2		<0.5	<0.5	<0.5	7.01%
VGDD0018	2		<0.5	<0.5	<0.5	6.81%
VGDD0019	2		<0.5	<0.5	<0.5	7.12%
VGDD0020	2		1.2	1.2	<0.5	7.91%
VGDD0021	2		<0.5	<0.5	<0.5	6.71%
VGDD0022	2		<0.5	<0.5	<0.5	7.21%
VGDD0023	1		<0.5	<0.5	<0.5	7.46%
VGDD0024	1		<0.5	<0.5	<0.5	7.38%
VGDD0025	1		<0.5	<0.5	<0.5	7.31%
VGDD0026	1		<0.5	<0.5	<0.5	6.91%
VGDD0027	2		<0.5	<0.5	<0.5	6.91%
VGDD0028	2		<0.5	<0.5	<0.5	6.96%
VGDD0029	1		<0.5	<0.5	<0.5	7.43%
VGDD0030	2		0.6	0.6	<0.5	7.64%
VGDD0031	2		<0.5	<0.5	<0.5	7.18%
VGDD0032	2		<0.5	<0.5	<0.5	6.79%
VGDD0033	1		<0.5	<0.5	<0.5	6.98%
VGDD0034	1		<0.5	<0.5	<0.5	6.72%
VGDD0035	1		<0.5	<0.5	<0.5	6.87%
VGDD0036	2		<0.5	<0.5	<0.5	7.18%
VGDD0037	2		<0.5	<0.5	<0.5	7.56%
VGDD0038	2		<0.5	<0.5	<0.5	7.49%

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	FAM303 PPB 1 2000 Au	FAM303 PPB 1 2000 Au(R)	FAM303 PPB 0.5 2000 Pd	FAM303 PPB 0.5 2000 Pt	ICP40Q PPM 0.5 200 Ag	ICP40Q PPM 100 400000 Al
VGDD0039	2		<0.5	<0.5	<0.5	7.06%
VGDD0040	2		<0.5	<0.5	<0.5	7.24%
VGDD0041	1		<0.5	<0.5	<0.5	6.54%
VGDD0042	1		<0.5	<0.5	<0.5	6.63%
VGDD0043	1		<0.5	<0.5	<0.5	7.21%
D - VGDD0009	2		<0.5	<0.5	1.2	9.22%

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Scheme	ICP40Q PPM 3 10000 As	ICP40Q PPM 5 10000 Ba	ICP40Q PPM 50 400000 Ca	ICP40Q PPM 1 5000 Cd	ICP40Q PPM 1 10000 Co	ICP40Q PPM 10 20000 Cr
Units						
Detection Limit						
Upper Limit						
VGDD0001	4	699	5570	<1	6	40
VGDD0002	5	691	9530	<1	9	50
VGDD0003	6	669	1.10%	<1	9	50
VGDD0004	<3	725	1.64%	<1	7	50
VGDD0005	5	524	1.85%	<1	7	60
VGDD0006	<3	757	3790	<1	10	60
VGDD0007	3	579	4620	<1	9	60
VGDD0008	5	453	1.86%	<1	9	70
VGDD0009	<3	871	2460	<1	12	70
VGDD0010	<3	757	3570	<1	11	60
VGDD0011	3	627	5260	<1	11	50
VGDD0012	<3	617	8110	<1	11	60
VGDD0013	3	566	6070	<1	11	60
VGDD0014	<3	469	5660	<1	9	50
VGDD0015	3	578	4580	<1	10	60
VGDD0016	<3	573	3.44%	1	33	180
VGDD0017	<3	1030	1.19%	<1	8	30
VGDD0018	4	992	1.19%	<1	7	30
VGDD0019	5	938	6970	<1	8	30
VGDD0020	4	1100	1.07%	<1	9	30
VGDD0021	3	929	8870	<1	8	40
VGDD0022	<3	986	1.06%	<1	7	20
VGDD0023	<3	908	1.51%	<1	8	30
VGDD0024	4	680	1.36%	<1	8	20
VGDD0025	<3	1030	1.25%	<1	8	30
VGDD0026	<3	1020	1.17%	<1	7	30
VGDD0027	<3	1010	1.01%	<1	7	30
VGDD0028	<3	990	1.11%	<1	8	30
VGDD0029	4	1060	1.30%	<1	7	20
VGDD0030	<3	1110	1.02%	<1	8	30
VGDD0031	<3	1030	1.07%	<1	7	20
VGDD0032	<3	1000	2.33%	<1	7	30
VGDD0033	<3	914	1.08%	<1	7	30
VGDD0034	<3	838	9480	<1	7	30
VGDD0035	<3	917	1.25%	<1	7	30
VGDD0036	<3	992	1.10%	<1	7	30
VGDD0037	6	1000	9980	<1	12	20
VGDD0038	6	1140	8010	<1	7	30

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	ICP40Q PPM 3 10000 As	ICP40Q PPM 5 10000 Ba	ICP40Q PPM 50 400000 Ca	ICP40Q PPM 1 5000 Cd	ICP40Q PPM 1 10000 Co	ICP40Q PPM 10 20000 Cr
VGDD0039	<3	983	8950	<1	7	30
VGDD0040	3	1050	1.24%	<1	7	30
VGDD0041	<3	950	1.12%	<1	7	30
VGDD0042	3	1100	1.11%	<1	7	30
VGDD0043	<3	1090	1.15%	<1	7	30
D - VGDD0009	3	883	2510	<1	12	60

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Scheme	ICP40Q PPM 5 10000 Cu	ICP40Q PPM 100 1000000 Fe	ICP40Q PPM 100 200000 K	ICP40Q PPM 1 10000 Li	ICP40Q PPM 20 1000000 Mg	ICP40Q PPM 5 10000 Mn
VGDD0001	13	2.17%	2.88%	17	6160	223
VGDD0002	19	2.74%	2.98%	19	5960	303
VGDD0003	20	2.90%	2.93%	18	6040	285
VGDD0004	14	2.63%	2.65%	15	5180	300
VGDD0005	35	2.75%	1.95%	12	4550	357
VGDD0006	12	3.31%	3.58%	20	6160	263
VGDD0007	11	2.94%	2.93%	16	5660	240
VGDD0008	7	3.12%	1.82%	16	7290	367
VGDD0009	15	4.10%	4.68%	25	1.30%	258
VGDD0010	24	3.78%	4.02%	24	1.19%	281
VGDD0011	12	3.50%	3.31%	25	1.02%	281
VGDD0012	41	3.68%	3.65%	27	1.10%	361
VGDD0013	47	3.74%	3.37%	30	1.11%	345
VGDD0014	9	3.00%	2.57%	22	8660	269
VGDD0015	22	3.45%	3.08%	23	9970	273
VGDD0016	134	6.55%	2.29%	40	3.42%	920
VGDD0017	16	3.27%	3.90%	15	6900	400
VGDD0018	25	3.22%	4.22%	18	8300	434
VGDD0019	32	3.42%	3.90%	23	8790	417
VGDD0020	18	3.72%	4.32%	18	7980	457
VGDD0021	15	3.22%	3.87%	21	9170	425
VGDD0022	9	3.25%	4.85%	22	1.03%	471
VGDD0023	12	3.24%	3.76%	22	1.09%	515
VGDD0024	5	3.03%	2.72%	21	1.01%	350
VGDD0025	12	3.49%	3.83%	16	6380	421
VGDD0026	9	3.20%	3.91%	19	6380	388
VGDD0027	13	3.30%	3.89%	19	6540	351
VGDD0028	7	3.29%	3.98%	20	6400	372
VGDD0029	11	3.37%	4.61%	25	8360	438
VGDD0030	11	3.69%	4.57%	23	8500	393
VGDD0031	12	3.31%	4.16%	19	8330	441
VGDD0032	14	3.15%	4.27%	22	1.17%	866
VGDD0033	11	3.26%	3.85%	18	7020	375
VGDD0034	13	3.29%	3.26%	17	7190	356
VGDD0035	19	3.00%	3.51%	23	8180	421
VGDD0036	18	3.35%	3.84%	17	7460	406
VGDD0037	10	3.26%	4.18%	22	1.01%	361
VGDD0038	11	3.52%	3.98%	20	9720	444

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	ICP40Q PPM 5 10000 Cu	ICP40Q PPM 100 1000000 Fe	ICP40Q PPM 100 200000 K	ICP40Q PPM 1 10000 Li	ICP40Q PPM 20 1000000 Mg	ICP40Q PPM 5 10000 Mn
VGDD0039	11	3.35%	3.80%	15	6570	376
VGDD0040	12	3.47%	3.92%	17	6140	453
VGDD0041	10	3.11%	3.60%	14	5440	397
VGDD0042	15	3.22%	3.74%	15	6190	450
VGDD0043	11	3.45%	3.98%	17	6510	439
D - VGDD0009	15	4.14%	4.70%	25	1.32%	263

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Scheme	ICP40Q PPM 5 10000 Mo	ICP40Q PPM 50 200000 Na	ICP40Q PPM 5 10000 Ni	ICP40Q PPM 20 100000 P	ICP40Q PPM 5 5000 Pb	ICP40Q PPM 20 50000 S
Units						
Detection Limit						
Upper Limit						
VGDD0001	<5	7990	14	180	18	40
VGDD0002	<5	1.33%	26	360	22	50
VGDD0003	<5	1.42%	23	330	21	50
VGDD0004	<5	1.79%	20	350	27	60
VGDD0005	<5	1.53%	23	430	23	60
VGDD0006	<5	1.04%	24	330	25	30
VGDD0007	<5	1.02%	20	310	14	30
VGDD0008	<5	2.01%	21	450	25	150
VGDD0009	<5	6100	28	360	9	30
VGDD0010	<5	1.00%	28	390	11	30
VGDD0011	<5	1.36%	20	430	13	40
VGDD0012	<5	1.00%	20	350	15	230
VGDD0013	<5	1.47%	21	360	14	420
VGDD0014	<5	1.26%	17	370	18	40
VGDD0015	<5	1.25%	21	430	19	80
VGDD0016	<5	1.15%	70	490	8	900
VGDD0017	<5	1.37%	8	560	19	130
VGDD0018	<5	1.14%	10	550	15	90
VGDD0019	<5	1.54%	8	580	15	80
VGDD0020	<5	1.52%	7	620	23	120
VGDD0021	<5	1.26%	9	570	15	90
VGDD0022	<5	1.24%	8	620	15	70
VGDD0023	<5	1.64%	8	620	16	100
VGDD0024	<5	1.93%	11	610	15	70
VGDD0025	<5	1.59%	7	610	26	110
VGDD0026	<5	1.44%	6	580	22	100
VGDD0027	<5	1.51%	7	580	20	100
VGDD0028	<5	1.42%	7	580	21	130
VGDD0029	<5	1.31%	7	620	24	110
VGDD0030	<5	1.45%	9	650	22	120
VGDD0031	<5	1.42%	5	580	26	130
VGDD0032	<5	1.14%	6	570	22	170
VGDD0033	<5	1.44%	8	590	21	100
VGDD0034	<5	1.58%	8	560	19	100
VGDD0035	<5	1.49%	7	580	21	110
VGDD0036	<5	1.56%	7	610	30	140
VGDD0037	<5	1.57%	6	640	18	120
VGDD0038	<5	1.64%	9	660	17	60

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	ICP40Q PPM 5 10000 Mo	ICP40Q PPM 50 200000 Na	ICP40Q PPM 5 10000 Ni	ICP40Q PPM 20 100000 P	ICP40Q PPM 5 5000 Pb	ICP40Q PPM 20 50000 S
VGDD0039	<5	1.52%	14	590	24	90
VGDD0040	<5	1.55%	10	600	39	130
VGDD0041	<5	1.41%	8	550	33	140
VGDD0042	<5	1.42%	7	560	49	180
VGDD0043	<5	1.53%	9	600	38	150
D - VGDD0009	<5	6060	24	370	9	20

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Scheme	ICP40Q	ICP40Q	ICP40Q	ICP40Q	ICP40Q	ICP40Q
Units	PPM	PPM	PPM	PPM	PPM	PPM
Detection Limit	0.5	1	10	10	10	1
Upper Limit	500	10000	10000	20000	10000	10000
	Sc	Sr	Th	Ti	U	V
VGDD0001	7.0	85	30	1480	<10	28
VGDD0002	8.9	144	30	2250	<10	40
VGDD0003	9.8	159	30	2580	<10	48
VGDD0004	8.9	255	30	2320	<10	39
VGDD0005	8.4	231	20	2530	<10	40
VGDD0006	10.4	83	20	2370	<10	54
VGDD0007	9.7	80	20	2330	<10	50
VGDD0008	10.1	230	10	2930	<10	54
VGDD0009	14.5	42	20	2480	<10	64
VGDD0010	13.6	56	20	2730	<10	63
VGDD0011	13.0	59	20	2910	<10	62
VGDD0012	12.3	46	20	2540	<10	55
VGDD0013	11.9	59	20	2330	<10	51
VGDD0014	10.0	41	20	2510	<10	50
VGDD0015	12.1	36	20	2990	<10	59
VGDD0016	26.2	129	10	4120	<10	142
VGDD0017	10.6	111	20	2800	<10	34
VGDD0018	10.9	101	20	2830	<10	36
VGDD0019	10.5	88	20	2840	<10	32
VGDD0020	12.0	109	20	3150	<10	37
VGDD0021	10.9	83	20	2760	<10	36
VGDD0022	11.0	74	20	2970	<10	33
VGDD0023	11.0	111	20	3020	<10	33
VGDD0024	11.0	142	20	3040	<10	32
VGDD0025	11.0	135	20	3020	<10	33
VGDD0026	10.2	107	20	2850	<10	32
VGDD0027	10.5	107	20	2870	<10	31
VGDD0028	10.3	103	20	2830	<10	32
VGDD0029	11.0	93	20	2980	<10	34
VGDD0030	11.4	92	20	3170	<10	36
VGDD0031	10.7	92	20	2890	<10	32
VGDD0032	10.1	78	20	2800	<10	32
VGDD0033	10.4	104	20	2840	<10	31
VGDD0034	9.8	108	20	2690	<10	30
VGDD0035	10.0	102	20	2760	<10	33
VGDD0036	10.9	110	20	3000	<10	33
VGDD0037	11.3	112	20	3160	<10	34
VGDD0038	11.5	111	20	3120	<10	33

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	ICP40Q PPM 0.5 500 Sc	ICP40Q PPM 1 10000 Sr	ICP40Q PPM 10 10000 Th	ICP40Q PPM 10 20000 Ti	ICP40Q PPM 10 10000 U	ICP40Q PPM 1 10000 V
VGDD0039	10.3	118	20	2910	<10	31
VGDD0040	10.8	117	20	3040	<10	34
VGDD0041	9.6	106	20	2660	<10	29
VGDD0042	9.9	107	20	2810	<10	30
VGDD0043	10.6	111	20	2910	<10	32
D - VGDD0009	14.6	42	20	2510	<10	65

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Scheme	ICP40Q PPM 0.5 5000 Y	ICP40Q PPM 5 10000 Zn	ICP40Q PPM 1 10000 Zr
VGDD0001	29.6	45	137
VGDD0002	30.3	47	181
VGDD0003	29.9	42	196
VGDD0004	25.7	38	196
VGDD0005	23.2	38	192
VGDD0006	29.9	55	161
VGDD0007	23.9	51	143
VGDD0008	21.2	48	190
VGDD0009	27.3	80	133
VGDD0010	26.3	67	150
VGDD0011	27.5	62	169
VGDD0012	24.6	68	150
VGDD0013	27.9	67	155
VGDD0014	21.3	55	162
VGDD0015	23.8	63	165
VGDD0016	24.9	98	130
VGDD0017	33.5	56	194
VGDD0018	31.7	47	190
VGDD0019	34.0	49	196
VGDD0020	38.0	59	203
VGDD0021	31.9	63	175
VGDD0022	35.7	53	206
VGDD0023	37.0	44	204
VGDD0024	35.4	41	198
VGDD0025	36.6	57	206
VGDD0026	34.2	54	179
VGDD0027	34.2	41	200
VGDD0028	34.4	49	185
VGDD0029	36.2	49	201
VGDD0030	36.7	51	204
VGDD0031	34.1	56	212
VGDD0032	35.1	53	184
VGDD0033	34.5	62	192
VGDD0034	32.4	53	186
VGDD0035	34.4	54	179
VGDD0036	35.4	55	195
VGDD0037	34.4	46	230
VGDD0038	35.0	48	216

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	ICP40Q PPM 0.5 5000 Y	ICP40Q PPM 5 10000 Zn	ICP40Q PPM 1 10000 Zr
VGDD0039	35.7	54	189
VGDD0040	35.5	57	188
VGDD0041	32.0	55	175
VGDD0042	32.0	71	188
VGDD0043	35.1	59	199
D - VGDD0009	27.3	86	134

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DESCRIPTION

CUT72 : Core Cutting, Per Hour
DIG40Q : Four Acid Digest, 0.2g-20ml
ENV01 : Environmental Levy
FAM303 : Au Pt Pd, FAS, ICPMS, 30g
ICP40Q : ICPAES after DIG40Q
PRP88 : Dry, Crush, Pulverise, 75µm, <3.5kg