

**Magmatic characteristics and geochronology of Ordovician igneous rocks from the Cadia–Neville region, New South Wales: implications for tectonic evolution\***

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**SUPPLEMENTARY PAPERS**

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\* Appendices 1 and 2 [indicated by an asterisk (\*) in the text and listed at the end of the paper] are Supplementary Papers; copies may be obtained from the Geological Society of Australia's website (<http://www.gsa.org.au>) or from the National Library of Australia's Pandora archive (<http://nla.gov.au/nla.arc-25194>).

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**APPENDIX 1: LOCATIONS AND RESULTS OF A REPRESENTATIVE SUBSET OF XRF ANALYSES.**

**APPENDIX 2: LOCATIONS AND RESULTS OF ICP-MS ANALYSES.**

Appendix 1: Locations and results of a representative subset of XHF analyses.

Sample	Sample location	AMG E	AMG N	Unit	SiO2%	TiO2%	Al2O3%	Fe2O3%	MnO%	MgO%	CaO%	Na2O%	K2O%	P2O5%	Loss inc S	Total	S
147716	Surface	693790	6278290	bMPBM	56.45	0.64	17.18	6.97	0.09	4.01	5.84	4.49	3.79	0.53	1.50	99.88	0.01
147719	Surface	687930	6275550	bMPBM	54.46	0.74	19.60	7.50	0.11	3.15	5.64	4.90	3.39	0.51	3.06	99.68	0.05
147720	Surface	694860	6278550	bMPBM	55.68	0.68	17.24	7.73	0.11	5.41	3.96	3.77	4.86	0.56	2.21	99.88	<0.01
147714	Surface	690930	6278720	uMPBM	53.53	0.64	15.09	8.71	0.14	6.38	7.95	3.30	3.79	0.49	2.81	99.75	0.01
147717	Surface	687580	6276460	uMPBM	54.76	0.63	14.81	8.42	0.14	6.65	7.26	3.21	3.66	0.47	2.10	100.16	0.02
147718	Surface	687710	6276040	uMPBM	52.77	0.71	15.56	9.60	0.17	6.65	8.19	3.80	2.13	0.42	2.25	100.22	0.01
MB61	Surface	694504	6285437	Sp. Pptic NLM	60.49	0.35	18.25	5.32	0.14	1.56	2.86	4.71	6.06	0.24	0.91		
147743	Surface	693070	6284440	Sp. Pptic NLM	59.77	0.37	18.40	5.60	0.13	1.78	3.26	4.49	5.93	0.26	0.91	99.93	0.01
147798	FRNC6, 467.1 m	692784	6296207	Sp. Pptic NLM	56.75	0.59	17.82	7.17	0.11	2.37	3.53	2.97	8.11	0.58	1.28	99.96	0.02
147799	FRNC6, 587.6 m	692734	6296148	Sp. Pptic NLM	60.07	0.46	18.54	4.93	0.07	1.52	2.81	5.14	6.17	0.29	0.66	100.34	0.04
147709	Surface	694360	6287750	Highly Pptic NLM	57.00	0.53	17.57	7.52	0.16	3.17	4.19	4.68	4.77	0.40	1.70	100.04	0.04
147721	Surface	694470	6285440	Highly Pptic NLM	57.40	0.49	18.19	6.98	0.15	2.37	4.72	4.30	5.08	0.33	1.16	99.78	0.02
147749	Surface	692780	6284920	Highly Pptic NLM	60.08	0.38	18.06	5.48	0.12	1.79	2.75	5.31	5.76	0.25	1.64	99.86	0.01
147751	Surface	693260	6284680	Highly Pptic NLM	59.37	0.40	18.41	5.68	0.13	1.88	3.42	4.55	5.88	0.27	1.09	100.09	0.18
147704	Surface	694980	6265810	Eagle Hawk Basalt	50.98	0.42	12.25	10.40	0.19	10.36	11.20	1.56	2.28	0.41	1.76	100.16	<0.01
147707	Surface	698160	6271450	Eagle Hawk Basalt	52.69	0.46	14.48	9.61	0.18	7.28	9.97	1.94	2.96	0.47	1.50	100.05	0.04
147789	NC497, 1053.8 m	687871.1	6295110.2	Burnt Yards Basalt	55.22	0.85	16.21	9.04	0.24	5.88	9.00	2.01	1.33	0.27	3.77	99.43	1.41
147752	Surface	686880	6283160	Burnt Yards Basalt	53.70	0.73	16.04	11.17	0.18	5.35	6.87	2.22	3.42	0.32	4.50	99.43	0.03
147754	Surface	687260	6285270	Burnt Yards Basalt	52.61	0.59	16.18	9.98	0.14	6.83	7.07	5.03	1.31	0.26	3.33	99.97	0.06
147767	Surface	684660	6288960	Burnt Yards Basalt	54.35	0.62	14.22	10.02	0.17	8.03	7.62	1.60	3.08	0.30	3.36	100.01	0.02
147774	NC484, 844.0 m	683644.4	6298251.2	Burnt Yards Basalt	53.99	0.63	14.87	9.46	0.16	6.75	8.48	2.66	2.73	0.29	1.45	99.82	0.01
147712	Surface	693780	6279480	Hbl Bas.And. intrusion	51.62	0.72	17.87	10.61	0.19	5.21	7.69	3.97	1.82	0.31	1.73	99.96	0.49
147715	Surface	690920	6278790	Hbl Bas.And. intrusion	52.15	0.68	16.79	10.56	0.17	5.08	8.33	5.58	0.35	0.29	2.59	100.08	0.02
147765	Surface	684280	6278500	Hbl Bas.And. intrusion	52.13	0.80	17.31	10.80	0.20	5.09	6.93	3.79	2.62	0.34	2.71	100.05	0.11
147711	Surface	695990	6279750	Sundew Bas. (old MPBM)	54.50	0.58	17.60	8.27	0.14	3.61	6.10	3.73	4.87	0.60	1.88	99.73	0.02
147760	Surface	689170	6291240	Sundew Basalt	50.35	0.68	14.68	11.31	0.20	8.69	7.54	1.90	4.21	0.43	3.77	99.87	0.01
147771	NC305425.9 m	685324.9	6297740	Sundew Basalt	52.82	0.60	14.09	10.16	0.19	8.67	6.89	2.19	4.00	0.42	2.93	99.73	0.01
147784	Surface	694550	6291800	Sundew Basalt	52.17	0.55	12.92	9.91	0.19	9.69	8.98	2.17	3.05	0.41	1.86	99.85	0.01
147710	Surface	691300	6291030	Gooleys Basalt	53.34	0.72	18.20	9.11	0.20	3.99	8.77	2.95	2.43	0.34	2.43	99.99	<0.01
147776	NC549, 795.5 m	683498	6298543	Gooleys Basalt	55.35	0.69	19.10	7.56	0.09	4.69	5.11	4.48	2.69	0.24	2.80	99.04	0.49
147794	FOD2, 463.5 m	689126.1	6293954.5	Cadia Intru. Complex	55.15	0.54	15.63	8.37	0.15	5.89	7.20	3.32	3.36	0.40	2.23	100.14	0.01
147777	5695RL uground	684438	6297800	Cadia Intru. Complex	60.83	0.45	17.04	6.08	0.08	2.53	2.36	4.33	5.99	0.30	2.15	99.78	0.19
147793	FOD2330.8 m	689080.8	6293906	Cadia Intru. Complex	60.67	0.40	16.73	5.61	0.09	3.29	4.35	4.10	4.57	0.19	3.71	99.38	0.93
147701	Surface	689900	6287670	Errowan Intru. Complex	55.50	0.58	16.22	9.48	0.16	4.40	5.50	3.41	4.39	0.37	1.87	99.92	0.02
147744	Surface	691700	6285080	Errowan Intru. Complex	57.75	0.49	16.66	7.39	0.14	3.33	5.40	3.89	4.62	0.33	1.42	99.96	<0.01
147756	Surface	693970	6280840	Glen Ayre Syenite	56.93	0.46	18.08	6.78	0.14	2.62	4.71	4.37	5.57	0.34	1.37	99.80	<0.01
147757	Surface	694100	6280500	Glen Ayre Syenite	58.47	0.41	18.56	6.00	0.15	2.00	3.17	4.89	6.04	0.30	1.23	99.83	0.01
MB454	FRNC8, 324.5 m	694707.7	6295229.4	Mt Olive Diorite	57.40	0.64	18.09	7.76	0.18	3.78	5.92	3.34	2.58	0.32	1.38		
MB464	FRNC5, 585.6 m	694433.2	6295061	Mt Olive Diorite	59.75	0.55	17.89	6.87	0.08	2.70	4.87	3.80	3.17	0.31	2.18		
MB50	Surface	697285	6293532	Tallwood Intru. Complex	58.65	0.51	17.52	7.16	0.13	2.81	6.57	3.53	2.83	0.29	1.18		
147800	FDRCD3, 227.7 m	696650	6292969	Tallwood Intru. Complex	58.32	0.48	16.63	7.17	0.12	3.22	5.03	3.83	4.88	0.33	1.96	100.00	0.05
147801	FDRCD13, 159.1 m	696450	6292997	Tallwood Intru. Complex	57.22	0.46	16.84	8.11	0.07	3.13	4.99	3.86	5.01	0.32	1.72	99.94	0.31
147761	Surface	686370	6278920	Tettenhall Intru. Complex	56.12	0.73	18.37	3.62	0.12	8.15	10.71	5.41	0.90	0.24	1.76	100.17	0.01
147763	Surface	684900	6281350	Tettenhall Intru. Complex	54.28	0.66	17.35	9.36	0.19	4.42	8.15	2.94	2.40	0.28	1.15	100.13	<0.01
147706	Surface	697870	6271570	Cu Hill-type Dacite	67.60	0.58	15.23	5.31	0.12	1.88	3.70	2.93	2.54	0.14	1.81		
MB41	Surface	700150	6288160	Cu Hill-type Dacite	62.62	0.44	15.85	6.18	0.10	3.99	6.40	3.34	0.94	0.12	2.66		

Representative subset of XRF results from Squire (2001)

## Appendix 1: L

Sample	Nb (ppm)	Zr (ppm)	Sr (ppm)	Cr (ppm)	Ba (ppm)	Sc (ppm)	V (ppm)	La (ppm)	Ce (ppm)	Nd (ppm)	Y (ppm)	Rb (ppm)	Ni (ppm)	Pb (ppm)	Zn (ppm)	Cu (ppm)
147716	7.3	104	1071	123	622	16	233	15	37	18	15.1	49	51	6	60	191
147719	6.8	115	583	9	566	13	232	15	35	18	17.5	42	12	7	88	242
147720	7.7	113	974	144	626	17	261	20	34	19	16.5	68	54	5	59	180
147714	5.7	90	883	277	544	21	246	12	30	14	14.3	46	97	6	76	170
147717	4.9	91	790	286	546	20	241	13	28	16	13.8	46	96	8	76	168
147718	4.8	84	839	315	945	22	257	15	28	17	17.3	28	131	10	84	222
MB61	7.9	111	726	5	1031	6	74				16.0	102	3			
147743	7.6	108	818	7	965	6	90	23.2	42	18	15.6	101	4	15	74	51
147798	6.6	86	980	6	1029	10	191	24.5	42	17	14.9	114	7	10	48	258
147799	7.2	95	896	4	1005	6	73	20	42	16	13.7	87	3	13	69	112
147709	5.7	96	826	18	1044	13	160	21	50	25	17.6	74	7	13	93	89
147721	6.1	91	1046	9	984	12	131	24	45	20	15.4	87	5	11	81	62
147749	7.4	107	615	11	908	8	89	21.5	39	17	15.3	91	5	14	68	51
147751	7.7	105	838	8	964	7	94	21.2	42	19	15.8	96	5	15	69	52
147704	2.6	23	666	484	808	38	262	8	17	9	10.8	32	91	4	85	115
147707	2.7	28	868	279	936	33	267	9	19	10	12.2	54	49	5	107	133
147789	3.7	61	515	149	313	39	308	8	16	9	19.3	28	26	5	108	20
147752	4.0	64	476	112	1238	36	284	9.7	20	11	15.6	42	29	<1.5	111	89
147754	1.8	34	514	130	525	30	254	7.2	19	7	11.6	19	41	2	77	64
147767	2.6	57	357	346	973	33	266	11.4	27	11	14.6	30	102	5	81	120
147774	3.8	54	572	213	847	33	275	8	21	14	16.0	52	50	3	90	227
147712	3.0	47	994	52	1090	38	343	8	22	13	16.6	28	18	5	96	127
147715	2.9	49	562	75	143	27	252	10	18	11	16.2	2	23	6	94	131
147765	5.7	63	557	57	1293	39	321	14	25	11	18.8	37	17	2	75	118
147711	4.8	67	1316	70	875	14	210	21	46	21	14.7	77	34	12	89	216
147760	5.0	50	866	291	731	28	304	18.1	31	15	15.0	65	104	6	83	74
147771	3.7	58	638	411	1216	27	232	15	27	15	13.2	75	123	4	75	139
147784	3.9	53	737	469	651	25	241	13	29	15	13.0	58	161	6	83	162
147710	9.4	74	892	11	487	21	241	16	36	16	16.1	38	12	8	92	134
147776	7.0	62	739	18	677	23	198	6.9	19	9	15.4	50	12	3	65	4400
147794	5.5	68	1170	180	714	19	204	17	36	15	12.6	51	54	4	75	95
147777	8.1	136	539	18	1078	14	129	23.3	43	20	17.8	94	7	6	38	46
147793	4.9	82	1195	41	1073	13	116	11	32	14	12.7	67	13	4	35	34
147701	5.7	89	668	52	900	24	214	24.1	40	20	18.6	75	20	15	80	115
147744	5.7	98	926	41	1000	15	151	18.5	34	16	16.1	80	16	11	76	161
147756	6.0	65	1307	21	1439	11	134	25.9	44	15	13.4	87	9	10	65	50
147757	7.1	88	1079	13	1031	8	90	27.6	47	18	14.8	113	4	27	125	52
MB454	12.4	92	922	15	690	21	211	16	36	15	16.4	37	8	5	54	115
MB464	11.7	91	839	10	794	16	146	15	27	13	14.8	45	7	4	43	93
MB50	4.2	98	839	14	746	13	151				18.0	38	10			
147800	6.4	108	873	49	983	16	146	19.4	36	15	16.5	83	13	10	50	75
147801	6.7	93	713	34	917	14	143	22.4	39	15	15.4	62	12	6	30	68
147761	4.9	70	798	6	294	28	172	5.6	19	9	18.5	18	5	4	50	60
147763	3.3	59	593	68	966	25	227	10	26	14	17.4	35	24	9	109	84
147706	7.7	140	296	27	739	15	108	19	41	20	21.3	57	7	10	208	63
MB41	3.5	69	417	89	295	23	161				13.0	22	21			

## Appendix 2: Locations and results of ICP-MS analyses.

Sample	Unit	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Yb	Lu	Sc	Rb
147719	basal MPBM	19.35	38.67	4.80	20.05	4.27	1.29	3.83	0.56	3.29	0.68	1.93	1.87	0.30	12.36	30.33
147716	basal MPBM	18.76	36.28	4.49	18.22	3.78	1.05	3.28	0.48	2.74	0.57	1.62	1.52	0.24	14.09	48.82
147720	basal MPBM	19.2	35.8	4.70	18.9	4.36	1.15	3.93	0.55	3.04	0.63	1.81	1.73	0.27	19.1	69
147714	Upper MPBM	16.49	32.02	4.05	16.74	3.59	1.01	3.18	0.47	2.64	0.54	1.52	1.48	0.23	19.13	44.63
147718	Upper MPBM	15.47	30.11	4.01	17.26	3.96	1.14	3.68	0.54	3.17	0.66	1.89	1.77	0.27	24.85	28.88
147721	High Pptic. NLM	25.43	44.08	5.02	19.49	3.93	1.17	3.41	0.50	2.84	0.58	1.67	1.66	0.26	9.62	85.33
147709	High Pptic. NLM	25.24	46.89	5.58	22.52	4.68	1.38	4.22	0.62	3.38	0.69	1.95	1.89	0.30	12.69	66.59
147798	Spar. Pptic. NLM	25.6	44.5	5.10	19.3	3.60	1.11	3.23	0.46	2.56	0.53	1.57	1.57	0.25	9.6	120
147743	Spar. Pptic. NLM	20.42	39.0	4.24	16.1	3.35	0.96	2.93	0.44	2.52	0.51	1.54	1.56	0.25	7.3	81
147789	Burnt Yards Bas.	8.12	16.92	2.26	10.06	2.60	0.84	2.97	0.53	3.44	0.76	2.25	2.09	0.32	36.25	28.52
147752	Burnt Yards Bas.	9.21	19.21	2.43	10.95	2.68	0.94	2.80	0.46	2.76	0.61	1.62	1.70	0.26	31.3	42.7
147754	Burnt Yards Bas.	8.37	15.43	1.83	8.05	1.91	0.72	2.19	0.36	2.24	0.49	1.34	1.39	0.21	35.3	19.3
147715	Hbl bas. and.	11.79	21.98	2.86	12.30	3.00	1.04	3.11	0.52	3.19	0.68	1.96	1.80	0.28	30.30	3.39
147765	Hbl bas. and.	11.5	21.0	2.73	11.4	3.22	1.07	3.45	0.55	3.35	0.72	2.11	2.05	0.33	41.6	38
147704	Eagle Hawk Basalt	9.33	15.84	1.82	7.30	1.71	0.55	1.86	0.31	1.87	0.39	1.17	1.11	0.17	39.84	28.69
147707	Eagle Hawk Basalt	10.05	16.79	1.95	7.90	1.88	0.62	2.08	0.33	2.05	0.45	1.32	1.27	0.20	34.50	54.41
147760	Sundew Basalt	17.5	32.0	3.92	15.9	3.65	1.15	3.53	0.51	2.86	0.57	1.62	1.50	0.23	34.6	67
147784	Sundew Basalt	16.56	29.52	3.50	14.11	3.05	0.92	2.84	0.43	2.47	0.51	1.45	1.38	0.21	26.41	55.86
147771	Sundew Basalt	14.78	26.47	3.14	12.69	2.81	0.78	2.65	0.40	2.29	0.49	1.41	1.36	0.21	23.32	73.48
147793	Cadia Intrus. Cmplx.	16.13	28.26	3.24	12.69	2.63	0.77	2.49	0.38	2.25	0.46	1.40	1.39	0.22	13.06	65.90
147794	Cadia Intrus. Cmplx.	20.18	34.75	3.99	15.47	3.22	0.98	2.98	0.43	2.50	0.51	1.46	1.41	0.23	20.26	54.23
147777	Cadia Intrus. Complex	21.9	38.3	4.57	17.5	4.16	1.10	3.69	0.54	3.12	0.64	1.93	1.99	0.32	12.2	98
147763	Tettenhall Intr. Cmplx.	11.26	21.82	2.76	11.89	2.90	0.91	2.96	0.50	3.08	0.66	1.95	1.88	0.29	25.24	36.15
147744	Errowan Intru. Cmplx.	17.4	29.9	3.70	14.7	3.79	1.11	3.46	0.51	2.85	0.58	1.70	1.70	0.27	16.7	79
147757	Glen Ayre Syenite	28.1	46.8	5.28	19.7	3.68	1.06	3.15	0.46	2.55	0.52	1.56	1.60	0.26	8.2	116

Results from ICP-MS analyses

## Appendix 2: Loc

Sample	Sr	Y	Zr	Nb	Mo	Sn	Sb	Cs	Ba	Hf	Ta	Pb	Th	U	59 Co	71 Ga
147719	492.63	18.58	114.10	7.63	1.98	1.44	0.27	0.23	473.44	3.04	0.47	17.50	3.40	1.71		
147716	1056.12	15.11	104.69	7.07	0.62	0.99	0.78	0.44	586.57	2.65	0.43	7.34	3.53	1.42		
147720		16.9	109	7.16	0.75	1.13	0.53	0.48		2.78	0.44	6.83	2.88	1.58	19.2	17.5
147714	889.81	14.03	91.54	6.01	0.94	0.97	0.36	0.33	470.89	2.32	0.37	7.60	2.94	1.67		
147718	840.62	17.49	84.00	5.63	0.65	0.99	0.42	0.16	730.51	2.28	0.34	9.82	2.41	1.36		
147721	983.26	15.32	96.53	7.23	2.77	1.23	0.76	0.92	953.36	2.40	0.41	16.63	5.90	2.73		
147709	766.07	17.50	98.59	6.15	1.68	1.14	0.89	0.90	961.44	2.47	0.35	18.38	4.22	1.63		
147798		14.0	84	7.07	1.74	1.36	2.60	0.66		2.21	0.47	15.4	5.49	2.00	8	18.1
147743	739	14.2	110	7.93	3.00	1.83	0.69	0.60	896	2.74	0.423	12	6.60	2.88	11	16.4
147789	485.89	19.38	59.08	3.95	0.32	2.29	2.68	1.81	312.04	1.66	0.25	4.32	1.27	0.69		
147752	457	16.1	63	3.8		0.86	8.868	0.603	1191	1.62	0.23	3.71	1.70	0.79	21	14.9
147754	539	13.0	34	2.6		0.33	1.352	0.541	460	0.95	0.16	2.82	1.12	0.43	37	13.5
147715	581.30	17.10	47.97	3.74	0.48	0.84	0.43	0.05	158.05	1.35	0.24	6.68	1.59	0.70		
147765		17.7	58	4.68	1.34	1.03	2.31	0.18		1.67	0.34	3.59	1.38	0.63	33.6	16.7
147704	632.34	10.12	20.28	2.78	0.46	0.54	0.57	0.63	648.98	0.62	0.16	4.05	2.09	0.64		
147707	843.17	11.32	28.69	3.63	0.67	0.71	0.67	2.23	771.29	0.82	0.21	5.51	1.79	0.65		
147760		14.7	49	5.00	0.92	0.88	2.37	0.99		1.40	0.29	10.48	2.70	0.93	39.4	15.2
147784	693.67	12.54	50.19	4.16	0.71	0.76	0.87	3.90	562.11	1.38	0.26	6.56	2.87	1.11		
147771	620.84	12.09	56.95	4.09	1.41	0.89	2.04	1.32	1107.76	1.56	0.24	4.72	3.46	1.35		
147793	1150.58	12.67	62.59	5.74	1.33	0.71	2.18	0.76	1020.20	1.71	0.37	6.18	3.45	1.63		
147794	1172.46	12.81	69.46	5.57	1.34	0.95	1.70	1.29	670.89	1.77	0.33	6.40	4.08	1.72		
147777		16.4	130	8.08	2.63	1.51	0.59	0.75		3.58	0.55	9.09	5.43	1.99	14.9	16.2
147763	565.99	16.82	58.85	4.10	0.78	0.67	0.28	1.38	889.07	1.65	0.25	10.68	1.77	0.79		
147744		14.6	93	5.88	1.62	1.10	1.46	0.84		2.49	0.39	13.10	3.47	1.75	19.3	16.4
147757		14.1	94	6.98	2.54	1.63	1.19	2.51		2.36	0.40	30.41	6.43	2.87	13.0	17.1