

Appendix 1a: Full sample list for this study: Eyreville B drill core (RG-).

Table 1: Eyreville B drill core

Sample #	Depth	Designation	Unit	Lithology
RG7	1393.12	Exmore breccia		Sedimentary-clast breccia
RG8	1393.69	Exmore breccia		Sedimentary-clast breccia
RG9	1395.13	Exmore breccia		Sedimentary-clast breccia
RG10	1395.39	Exmore breccia		Sedimentary-clast breccia
RG11	1396.03	Exmore breccia		Sedimentary-clast breccia
RG12	1397.51	Upper impactite	Upper suevite (SU)	Suevitic breccia
RG13	1398.21	Upper impactite	Upper suevite (SU)	Suevitic breccia
RG14	1403.99	Upper impactite	Clast-rich impact melt rock (M2)	Impact melt
RG15	1405.25	Upper impactite	Clast-rich impact melt rock (M2)	Impact melt
RG16	1408.39	Upper impactite	Suevite (S3)	Suevitic breccia
RG16a	1409.73	Upper impactite	Suevite (S3)	Suevitic breccia
RG17	1410.37	Upper impactite	Suevite (S3)	Suevitic breccia
RG18	1413.71	Upper impactite	Suevite (S3)	Suevitic breccia
RG19	1414.15	Upper impactite	Suevite (S3)	Suevitic breccia
RG20	1417.41	Upper impactite	Suevite (S3)	Suevitic breccia
RG21	1419.12	Upper impactite	Suevite (S3)	Suevitic breccia
RG22	1420.23	Upper impactite	Suevite (S3)	Suevitic breccia
RG23	1420.32	Upper impactite	Suevite (S3)	Suevitic breccia
RG24	1420.51	Upper impactite	Suevite (S3)	Suevitic breccia
RG25	1424.42	Upper impactite	Suevite (S3)	Suevitic breccia
RG26	1424.85	Upper impactite	Suevite (S3)	Suevitic breccia
RG27	1427.38	Upper impactite	Suevite (S3)	Suevitic breccia
RG28	1427.76	Upper impactite	Suevite (S3)	Suevitic breccia
RG29	1428.02	Upper impactite	Suevite (S3)	Suevitic breccia
RG30	1430.90	Upper impactite	Suevite (S3)	Suevitic breccia
RG118	1431.71	Upper impactite	Cataclastic gneiss boulder (BC)	Cataclastic gneiss
RG117	1436.81	Upper impactite	Suevite (S2)	Suevitic breccia
RG116	1439.01	Upper impactite	Suevite (S2)	Suevitic breccia
RG115	1440.39	Upper impactite	Suevite (S2)	Suevitic breccia
RG114	1444.36	Upper impactite	Suevite (S2)	Suevitic breccia
RG113	1446.79	Upper impactite	Suevite (S2)	Suevitic breccia
RG112	1447.97	Upper impactite	Suevite (S2)	Suevitic breccia
RG111	1450.07	Upper impactite	Suevite (S2)	Suevitic breccia
RG110	1451.73	Upper impactite	Suevite (S1)	Suevitic breccia
RG109	1452.51	Upper impactite	Suevite (S1)	Suevitic breccia
RG108	1453.16	Upper impactite	Suevite (S1)	Suevitic breccia
RG107	1453.91	Upper impactite	Suevite (S1)	Suevitic breccia
RG106	1454.61	Upper impactite	Suevite (S1)	Suevitic breccia
RG105	1455.15	Upper impactite	Suevite (S1)	Suevitic breccia
RG104	1456.84	Upper impactite	Suevite (S1)	Suevitic breccia
RG103	1458.99	Upper impactite	Suevite (S1)	Suevitic breccia
RG102	1463.80	Upper impactite	Suevite (S1)	Suevitic breccia
RG101	1464.91	Upper impactite	Suevite (S1)	Suevitic breccia
RG100	1466.88	Upper impactite	Suevite (S1)	Suevitic breccia
RG99	1468.56	Upper impactite	Suevite (S1)	Suevitic breccia
RG98	1468.68	Upper impactite	Suevite (S1)	Suevitic breccia
RG97	1470.20	Upper impactite	Suevite (S1)	Suevitic breccia

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Sample #	Depth	Designation	Unit	Lithology
RG96	1476.79	Lower impactite	Cataclastic gneiss block (B5)	Cataclastic gneiss
RG95	1484.64	Lower impactite	Polymict impact breccia (P4)	Polymict lithic breccia
RG94	1489.86	Lower impactite	Cataclastic gneiss block (B4)	Cataclastic gneiss
RG93	1494.39	Lower impactite	Cataclastic gneiss block (B4)	Cataclastic gneiss
RG92	1499.08	Lower impactite	Cataclastic gneiss block (B4)	Cataclastic gneiss
RG91	1504.42	Lower impactite	Polymict impact breccia (P3)	Polymict lithic breccia
RG90	1506.89	Lower impactite	Polymict impact breccia (P3)	Polymict lithic breccia
RG89	1511.49	Lower impactite	Polymict impact breccia (P3)	Polymict lithic breccia
RG88	1512.22	Lower impactite	Polymict impact breccia (P3)	Polymict lithic breccia
RG87	1513.76	Lower impactite	Cataclastic gneiss block (B3)	Cataclastic gneiss
RG86	1519.37	Lower impactite	Cataclastic gneiss block (B3)	Cataclastic gneiss
RG85	1528.91	Lower impactite	Polymict impact breccia (P2)	Polymict lithic breccia
RG84	1530.61	Lower impactite	Polymict impact breccia (P2)	Polymict lithic breccia
RG83	1532.46	Lower impactite	Polymict impact breccia (P2)	Polymict lithic breccia
RG82	1534.38	Lower impactite	Polymict impact breccia (P2)	Polymict lithic breccia
RG81	1535.66	Lower impactite	Polymict impact breccia (P2)	Polymict lithic breccia
RG80	1537.15	Lower impactite	Polymict impact breccia (P2)	Polymict lithic breccia
RG79	1537.67	Lower impactite	Polymict impact breccia (P2)	Polymict lithic breccia

Appendix 1a/2

Appendix 1b: Main lithologies recognized throughout the Eyreville B drill core, and their defining characteristics.

Rock type	Description
Suevite	Polymict impact breccia that includes melt particles (altered) in a clastic matrix containing lithic and mineral clasts, in various stages of shock metamorphism, as well as melt particles.
Polymict lithic impact breccia	An impact breccia that contains shocked and unshocked clasts of multiple progenitors, but that lacks cogenetic melt particles.
Cataclasite	A fault rock that is cohesive with a poorly developed or absent schistosity, or that is incohesive, characterized by generally angular porphyroclasts and lithic fragments in a finer-grained matrix of similar composition.
Shale	A fine-grained, fissile sedimentary rock composed of clay- and silt-sized particles of unspecified mineral composition. Commonly appears dark grey-black, and may be iron stained, and is commonly laminated.
Phyllite	Regional metamorphic rock, light silvery-grey in colour, and is metamorphic rock intermediate to slate and schist. Sericite gives sheen to rock. Similar to both a shale and metapelite, but contains a schistose fabric, defined by fine-grained phyllosilicates.
Schist	Metamorphic rock that is not defined by mineral composition but rather by the well-developed parallel orientation of more than 50% of the minerals present, especially those of elongate habit.
Sandstone	A medium-grained, sedimentary rock composed of quartz, feldspar and micas. Grains may be cemented by silica, calcite or iron oxides.

Definitions after: Stöffler and Grieve (2007); Stöffler and Reimold (2006).

Appendix 1b/1

Appendix 1c: Hand specimen and thin section descriptions of samples from the Eyreville B drill core collected by R.L. Gibson.

Table 1: Core Eyreville B drill core: descriptions of hand specimens and thin sections

Sample #	Depth (m)	Lithology	Description based on macroscopic and microscopic observations
RG7	1393.13	E.B	80% light grey matrix; rounded to sub-rounded to elongated clasts; shale, secondary calcite, quartz, silty claystone, altered light brown melt. Maximum clast size: 2.8 cm.
RG8	1393.69	E.B	Hand specimen is dominated by one large (> 5 cm) light grey, fine-grained felsic gneiss clast. Calcite and quartz veining is evident
RG9	1395.13	E.B	Hand specimen is dominated by one large (> 5 cm) light grey, fine-grained felsic gneiss clast. Dominant calcite and quartz veins are observed.
RG10	1395.39	E.B	Light to dark grey matrix; large calcite and quartz vein (> 4 cm). Maximum clast size: 4.0 cm
RG11	1396.03	E.B	Hand specimen is dominated by one large (> 4 cm) light grey, fine-grained felsic gneiss clast. Calcite and quartz veining is evident. Maximum clast size: 4.9 cm.
RG12	1397.51	S	70% dark grey matrix; elongated to rounded, white to light grey clasts; fine-grained felsic gneiss. Maximum clast size: 4.2 cm.
RG13	1398.21	S	Light grey matrix; angular to rounded, white to black clasts; calcite, shale. Altered, light green to brown melt clasts. Maximum clast size: 4.9 cm.
RG14	1403.99	I.M	Dark grey matrix; elongated clasts; light brown to green, highly fluidal melt clasts. Maximum clast size: 5.5 cm.
RG15	1405.25	I.M	Hand specimen is dominated by one large, light to dark grey, felsic gneiss. Altered, dark green, melt clasts. Maximum clast size: 5.7 cm.
RG16	1408.39	S	Dark grey matrix; angular to elongated clasts; white to black, shale, phyllite. Light to dark green, altered melt clasts. Maximum clast size: 5.2 cm.
RG16a	1409.73	S	40% light grey matrix; elongated to angular clasts; shale, secondary calcite, mudstone, granitoid and quartz. Light to dark brown, altered melt clasts.
RG17	1410.37	S	30% light grey to brown matrix; angular to rounded clasts; mafic gneiss, secondary calcite and quartz veining, shale, siltstone, arkose; light brown melt clasts.
RG18	1413.71	S	Dark grey matrix; angular to sub-rounded clasts; shale, felsic gneiss, granitoid, quartz; fluidal, highly altered, light brown to dark grey melt clasts.
RG19	1414.15	S	Light brown, highly fluidal melt clasts; highly rounded to angular clasts; shale, mudstone, mafic gneiss, quartz and calcite.
RG20	1417.41	S	Elongated to angular clasts; felsic and mafic gneiss. Light brown to dark grey, elongated, altered melt clasts.
RG21	1419.12	S	Dark grey, melt-rich suevite; angular to rounded clasts; felsic gneiss, granitoid, mafic gneiss and quartz. Brown melt is altered to smectite. Maximum clast size: 8.9 cm.

Sample #	Depth (m)	Lithology	Description based on macroscopic and microscopic observations
RG22	1420.23	S	Dominated by one large, black, angular shale; sub-angular to elongated clasts; felsic gneiss, conglomerate and quartz clasts. Light brown, altered melt clasts.
RG23	1420.32	S	Dark grey matrix; angular to rounded clasts; felsic gneiss with quartz veins, shale, phyllite and calcite. Light brown, fluidal melt clasts. Maximum clast size: 4.1 cm.
RG24	1420.51	S	Angular to rounded clasts; white, dark grey to black, calcite, quartz, mafic gneiss, shale. Highly altered, light brown to green melt clasts.
RG25	1424.42	S	60% dark grey matrix; angular to rounded clasts; shale, phyllite and mudstone. Melt clasts altered to smectite. Maximum clast size: 4 cm.
RG26	1424.85	S	Highly altered, melt-rich suevite; evident fluidal melt clasts. Elongated, black shale. Maximum clast size: 5.9 cm.
RG27	1427.38	S	80% light to dark grey matrix; dominated by large, elongated conglomerate, with angular felsic and mafic gneiss, shale, phyllite, mudstone and quartz. Light brown melt clasts.
RG28	1427.76	S	70% light to dark grey matrix; elongated to angular clasts; phyllite, shale, granitoid, conglomerate and quartz clasts. Highly altered melt clasts.
RG29	1428.02	S	Highly altered, light to dark brown to green melt clasts with white carbonate rims. Angular to rounded clasts; felsic gneiss, shale, phyllite.
RG30	1430.90	S	60% light greyish-brown matrix; rounded to angular clasts; shale, phyllite, mafic gneiss, calcite and quartz. Maximum clast size: 10.1 cm.
RG118	1431.71	C.G	Fine-grained, light grey cataclasite gneiss with angular shale, phyllite, quartz and calcite clasts. Maximum clast size: 14.8 cm.
RG117	1436.81	S	Light grey, fine-grained felsic gneiss clast with evident quartz and calcite veining. Melt clasts altered to smectite. Maximum clast size: 4.6 cm
RG116	1439.01	S	Abundant quartz and calcite clasts and veins. Rounded to elongated clasts; shale, phyllite, sandstone, claystone and arkose.
RG115	1440.39	S	70% light to dark grey matrix; elongated clasts; shale, greywacke, sandstone, quartz and calcite clasts and veins. Highly altered dark brown melt clasts. Maximum clast size: 4.5 cm.
RG114	1444.36	S	60% light grey matrix; fine-grained, light grey, felsic gneiss. Angular clasts; shale, quartz and calcite. Maximum clast size: 4.7 cm.
RG113	1446.79	S	70% light to dark grey matrix; rounded to angular clasts; shale, phyllite, quartz and calcite. Melt clasts altered to smectite.
RG112	1447.97	S	Highly altered suevite; dark brown melt clasts altered to smectite. Angular to rounded clasts; shale, felsic gneiss, quartz and calcite clasts and veining. Maximum clast size: 4.9 cm.
RG111	1450.07	S	60% light to dark grey matrix; angular to rounded clasts. Light grey to dark grey, shale, phyllite, conglomerate, felsic and mafic gneiss, granitoid.
RG110	1451.73	S	Melt-rich, dark grey suevite; fluidal, dark brown melt clasts with evident flow structures. Angular to rounded to elongated clasts. Light brown to grey to black, shale, phyllite, quartz pegmatoid, sandstone, mudstone and mafic gneiss.

Appendix 1c/2

Sample #	Depth (m)	Lithology	Description based on macroscopic and microscopic observations
RG109	1452.51	S	Melt-rich, dark grey suevite; melt clasts altered to smectite. Rounded to elongated clasts. Light grey to black, felsic gneiss, siltstone, mudstone and shale. Maximum clast size: 6.3 cm.
RG108	1453.16	S	70% dark grey matrix; highly altered, dark brown, elongated melt clasts. Angular to rounded clasts. Light to dark brown to black, shale, phyllite, siltstone, claystone, felsic gneiss, quartz and calcite. Maximum clast size: 9.3 cm.
RG107	1453.91	S	40% dark grey matrix; Angular to elongated clasts. Dark grey to black, mafic gneiss, shale, claystone with evident quartz veining. Maximum clast size: 6.5 cm.
RG106	1454.61	S	30% dark grey matrix; angular to elongated clasts. Light to dark brown to black, shale, phyllite, conglomerate, mudstone, siltstone and quartz. Maximum clast size: 9.0 cm.
RG105	1455.15	S	Melt-rich suevite; with fluidal, highly altered, dark brown to grey melt clasts with evident flow structures. Angular clasts. Grey to dark brown to black, shale, mudstone, quartz and calcite. Maximum clast size: 8.0 cm.
RG104	1456.84	S	30% dark grey matrix; highly altered, light to dark brown to green melt clasts. Angular to rounded clasts. Granitoid, quartz pegmatoid, siltstone, claystone, mudstone with evident quartz and calcite veining. Maximum clast size: 8.0 cm.
RG103	1458.99	S	Clast-rich suevite; angular to rounded clasts. Light grey to brown to black, granitoid, quartz pegmatoid, shale, phyllite, sandstone, quartz and calcite clasts. Maximum clast size: 8.3 cm.
RG102	1463.80	S	20% light to dark grey matrix; Angular to sub-rounded clasts. Light brown to black, shale, siltstone, quartz and calcite. Maximum clast size: 7.0 cm.
RG101	1464.91	S	30% dark grey matrix; highly altered, light brown to green melt clasts. Angular to rounded clasts. Shale, phyllite, mafic gneiss, quartz and calcite. Maximum clast size: 8.3 cm.
RG100	1466.88	S	20% light to dark grey matrix; highly altered, brown to green melt clasts. Angular, light brown to grey to black, shale, phyllite, sandstone and siltstone. Maximum clast size: 8.5 cm.
RG99	1468.56	S	Elongated, light brown, altered melt clasts. Light brown sandstone and arkose. Abundant quartz and calcite clasts in melt. Maximum clast size: 9.1 cm.
RG98	1468.68	S	Clast-rich breccia; melt clasts altered to smectite. Angular to rounded clasts. Mafic gneiss, phyllite, shale, quartz pegmatoid, granitoid, claystone and quartz. Maximum clast size: 12.1 cm.
RG97	1470.20	S	Light grey, fine-grained felsic gneiss with quartz veining. Altered, light to dark brown melt clasts. Maximum clast size: 9.6 cm.
RG96	1476.79	C.G	Light to dark grey, fine-grained, cataclasite gneiss with quartz and shale clasts. Maximum clast size: 11.0 cm.
RG95	1484.64	P.I.B	Fine-grained, light grey, clast-supported breccia; angular to elongated clasts. Felsic gneiss and shale. Maximum clast size: 11.2 cm.
RG94	1489.86	C.G	Light to dark grey, fine-grained, cataclasite gneiss with quartz and calcite veining. Maximum clast size: 8.0 cm.

Appendix 1c/3

Sample #	Depth (m)	Lithology	Description based on macroscopic and microscopic observations
RG93	1494.39	C.G	Fine-grained, light grey, cataclasite gneiss with graphitic and quartz veining. Maximum clast size: 6.7 cm.
RG92	1499.08	C.G	Light grey, fine-grained cataclasite gneiss with evident quartz and calcite veining. Maximum clast size: 16.9 cm.
RG91	1504.42	P.I.B	Dark grey, clast-supported breccia; angular to rounded clasts. Shale, phyllite, mafic gneiss, mudstone, quartz and calcite clasts and veining. Maximum clast size: 8.3 cm.
RG90	1506.89	P.I.B	Light to dark grey, clast-supported breccia; rounded to angular clasts. Conglomerate, mafic gneiss, felsic gneiss, sandstone, phyllite, quartz and calcite clasts. Maximum clast size: 6.9 cm.
RG89	1511.49	P.I.B	Fine-grained, light brown to green, felsic gneiss with quartz clasts. Maximum clast size: 7.1 cm.
RG88	1512.22	P.I.B	Light to dark grey, clast-supported breccia; angular to rounded clasts. Light to dark grey, white to dark brown, mafic and felsic gneiss, quartz and calcite. Angular, dark brown, altered melt clasts. Maximum clast size: 6.3 cm.
RG87	1513.76	C.G	Fine-grained, light grey cataclasite gneiss with evident calcite veining; Maximum clast size: 25.8 cm.
RG86	1519.37	C.G	Fine-grained, light grey cataclasite gneiss. Maximum clast size: 10.7 cm.
RG85	1528.91	P.I.B	Highly fluidal, light brown melt clasts. Angular to rounded clasts. Shale, and felsic gneiss. Maximum clast size: 7.9 cm.
RG84	1530.61	P.I.B	Clast-rich breccia; elongated to rounded to angular clasts. Shale, mica schist, mafic and felsic gneiss, mudstone, quartz and calcite veining. Highly altered melt clasts. Maximum clast size: 9.0 cm.
RG83	1532.46	P.I.B	Clast-rich breccia; angular to elongated to rounded clasts. Shale, felsic and mafic gneiss, mica schist, granitoid, sandstone, quartz and calcite veining. Small, altered melt clasts. Maximum clast size: 27.2 cm.
RG82	1534.38	P.I.B	Graphitic-rich breccia; angular clasts. Mafic gneiss, phyllite, felsic gneiss, mica schist, quartz and calcite clasts and veins. Maximum clast size: 6.5 cm.
RG81	1535.66	P.I.B	Light grey, clast-supported breccia; angular to rounded clasts. Felsic gneiss, quartz pegmatoid and quartz. Small, altered melt clasts. Maximum clast size: 6.5cm.
RG80	1537.15	P.I.B	Highly altered, light grey, fine-grained felsic gneiss. Maximum clast size: 9.5 cm.
RG79	1537.67	P.I.B	Light grey, fine-grained felsic gneiss and black, fine-grained graphite. Maximum clast size: 5.5 cm.

* *E.B* = *Exmore breccia*, *S* = *suevite*, *I.M* = *impact melt*, *C.G* = *cataclasite gneiss*, *P.I.B* = *polymict lithic impact breccia*.

Appendix 1c/4

Appendix 2a: Geochemical Data: Major element (wt%) and trace element (ppm) data for samples from the impactite sequence, from the Eyreville B drill core, determined by XRF (major elements) and ICP-MS (trace elements).

Sample #	RG11	RG12	RG16	RG19	RG20	RG23	RG26	RG28	RG83	RG84	RG88	RG90
Depth (m)	1396.03	1397.51	1408.39	1414.15	1417.41	1420.32	1424.85	1427.76	1450.07	1451.73	1452.51	1453.16
Lithology	SU	SU	S3	S3	S3	S3	S3	S3	M1	S1	S1	S1
SiO₂	73.53	61.76	71.43	67.86	69.11	68.09	79.54	69.83	64.73	65.43	56.27	65.99
TiO₂	0.88	0.65	0.74	0.74	0.80	0.58	0.16	0.77	0.93	1.01	0.96	0.88
Al₂O₃	12.43	15.97	12.90	13.70	13.37	12.94	4.51	12.66	14.36	14.50	18.93	13.86
Fe₂O₃	4.66	3.82	4.82	5.44	4.55	4.18	3.35	5.28	6.82	6.24	8.45	5.54
MnO	0.07	0.07	0.07	0.07	0.08	0.07	0.01	0.08	0.11	0.09	0.07	0.12
MgO	1.96	1.22	0.77	1.47	1.32	1.10	0.30	1.69	2.76	1.82	2.05	1.49
CaO	1.00	0.44	1.29	1.53	1.12	2.06	1.03	1.34	1.43	1.03	1.14	1.41
Na₂O	2.49	1.32	1.38	1.70	1.57	2.15	2.57	1.65	1.17	1.32	0.63	1.02
K₂O	2.12	3.66	3.53	2.97	3.05	3.28	0.20	2.26	3.15	3.89	6.05	3.07
P₂O₅	0.15	0.09	0.12	0.13	0.12	0.16	0.10	0.14	0.14	0.14	0.09	0.15
LOI	2.29	10.77	2.89	4.87	3.50	3.62	8.26	5.08	4.73	4.51	6.57	6.04
Total	101.58	99.77	99.94	100.48	98.59	98.23	100.03	100.78	100.33	99.98	101.21	99.57
P	786.4	504.3	576.8	652.1	568.5	607.4	449.7	712.9	823.2	730.9	806.3	711.5
Sc	6.7	6.0	7.9	12.2	7.8	6.7	2.3	9.0	14.0	3.5	8.3	7.6
Ti	5432.3	4449.6	4952.6	4892.9	5085.4	3609.5	933.6	4688.5	5575.0	6203.0	6476.0	5330.3
V	83.6	116.6	84.8	98.4	92.9	84.7	15.9	84.9	92.3	108.8	123.2	101.4
Cr	115.2	75.5	59.8	57.8	73.3	39.8	10.5	63.9	64.2	70.9	82.4	67.9
Co	14.2	10.5	14.1	12.3	15.9	15.0	8.4	16.6	17.3	17.9	18.1	15.1
Ni	45.2	30.8	34.1	39.7	41.1	24.0	14.6	36.6	41.0	39.7	42.2	34.5
Cu	15.0	35.6	21.8	20.3	19.5	13.1	5.4	22.6	30.7	27.9	31.0	26.7
Ga	17.4	25.3	17.7	19.6	19.3	18.4	6.0	17.0	20.5	22.4	26.0	22.4
As	0.3	0.8	3.9	2.3	2.1	7.6	52.1	2.4	7.0	5.8	4.7	4.1
Rb	45.5	76.0	60.5	124.6	59.7	47.6	21.7	89.2	77.0	15.2	44.4	46.5

Appendix 2a/1

Sample #	RG11	RG12	RG16	RG19	RG20	RG23	RG26	RG28	RG83	RG84	RG88	RG90
Depth (m)	1396.03	1397.51	1408.39	1414.15	1417.41	1420.32	1424.85	1427.76	1450.07	1451.73	1452.51	1453.16
Lithology	SU	SU	S3	S3	S3	S3	S3	S3	M1	S1	S1	S1
Sr	148.8	48.1	101.1	223.4	118.5	193.3	972.4	230.1	174.8	96.1	132.9	123.2
Y	20.7	15.6	31.2	33.4	30.9	28.5	21.5	35.1	36.2	27.2	25.0	26.5
Zr	244.4	151.6	220.4	223.2	137.5	110.8	62.4	237.6	255.8	275.6	241.2	188.1
Nb	19.4	16.7	16.1	16.5	18.2	12.3	3.4	16.5	17.3	19.9	18.7	17.3
Ba	251.9	211.8	259.1	375.4	187.1	314.5	1751.2	319.1	422.2	44.8	133.8	125.6
Cs	2.3	8.1	8.8	12.3	10.9	8.3	12.7	13.5	11.4	10.5	25.3	19.3
La	21.6	27.5	26.1	32.7	24.2	22.4	21.2	30.4	38.0	16.1	17.9	21.5
Ce	81.0	71.0	68.6	74.9	81.5	57.4	42.2	75.1	82.1	80.1	82.9	76.3
Pr	5.6	7.2	7.3	8.5	7.1	6.2	5.1	8.3	9.8	4.4	4.4	5.8
Nd	21.1	27.0	28.5	32.6	28.7	24.5	19.8	32.8	37.1	18.0	16.6	23.1
Sm	4.2	5.1	5.9	6.5	5.9	5.2	5.2	6.8	7.5	3.7	3.4	4.7
Eu	1.0	0.8	1.3	1.4	1.3	1.2	1.8	1.5	1.5	0.7	0.7	0.9
Gd	4.8	5.1	6.2	6.5	6.3	5.2	4.6	7.0	7.7	4.7	4.2	5.2
Tb	0.6	0.6	0.9	0.9	0.9	0.8	0.7	1.0	1.1	0.7	0.6	0.7
Dy	3.7	2.8	5.0	5.3	5.0	4.5	3.8	5.9	6.2	4.1	3.3	4.1
Ho	0.7	0.5	1.0	1.1	1.0	0.9	0.7	1.1	1.2	0.9	0.7	0.8
Er	2.1	1.4	2.9	3.0	2.8	2.5	1.9	3.3	3.3	2.5	2.1	2.4
Tm	0.3	0.2	0.4	0.5	0.4	0.4	0.3	0.5	0.5	0.4	0.4	0.4
Yb	2.3	1.5	2.9	3.1	2.8	2.5	1.3	3.1	3.2	2.7	2.5	2.5
Lu	0.3	0.2	0.4	0.5	0.4	0.4	0.2	0.5	0.5	0.4	0.4	0.4
Hf	6.5	4.1	5.7	5.9	3.7	3.0	1.7	6.3	6.6	7.3	6.4	5.1
Ta	1.3	1.2	1.2	1.4	1.3	0.9	0.3	1.2	1.3	1.5	1.3	1.3
W	1.4	5.3	1.7	1.7	1.8	1.1	0.8	1.3	2.3	2.4	2.4	2.0
Pb	20.3	14.5	19.4	23.9	19.5	26.0	8.9	28.7	39.4	32.5	28.7	26.6
Th	8.8	8.2	7.4	9.3	6.3	5.5	2.5	8.6	11.3	5.6	4.4	6.3
U	3.0	2.9	2.7	3.3	2.6	1.9	0.9	2.9	3.6	3.7	4.6	3.7

Appendix 2a/2

Sample #	RG93	RG98	RG101	RG105	RG108	RG109	RG110	RG111
Depth (m)	1455.15	1464.91	1468.68	1494.39	1506.89	1512.22	1530.61	1532.75
Lithology	S1	S1	S1	B4	P3	P3	P2	P2
SiO₂	65.04	80.29	66.04	63.27	64.75	62.22	65.05	70.86
TiO₂	0.90	0.53	1.04	0.92	0.83	1.06	0.97	0.85
Al₂O₃	15.67	7.18	15.08	15.37	14.03	16.81	14.56	13.29
Fe₂O₃	6.73	4.50	5.57	6.80	6.03	8.03	6.43	5.91
MnO	0.08	0.09	0.08	0.09	0.08	0.09	0.09	0.09
MgO	2.97	0.79	1.45	1.44	1.40	1.85	1.61	1.59
CaO	0.84	1.54	0.81	1.19	1.10	1.16	1.05	0.91
Na₂O	1.10	0.34	0.75	1.07	1.18	1.07	0.86	0.75
K₂O	3.61	1.77	3.46	1.80	2.38	2.06	2.59	2.24
P₂O₅	0.12	0.10	0.16	0.14	0.13	0.16	0.14	0.15
LOI	3.22	3.23	6.14	8.23	7.63	7.08	5.77	4.10
Total	100.28	100.36	100.58	100.32	99.54	101.59	99.12	100.74
P	753.6	832.3	498.4	588.5	684.9	474.9	643.6	633.6
Sc	13.2	5.2	6.2	7.0	8.5	4.9	6.8	6.0
Ti	6115.1	6505.6	3370.2	5593.6	5080.5	6175.0	5806.7	5326.1
V	108.4	109.9	58.7	113.4	87.9	193.9	108.0	96.6
Cr	73.4	69.0	29.1	128.7	58.6	127.7	89.7	89.6
Co	17.8	19.8	11.4	22.7	16.3	25.2	19.4	17.4
Ni	39.4	38.8	27.6	65.8	36.7	80.1	43.9	49.3
Cu	27.3	27.0	13.9	32.1	25.5	59.9	26.8	19.4
Ga	24.6	22.5	11.4	23.1	19.4	28.7	22.2	19.1
As	5.2	3.8	5.0	0.9	2.4	4.5	3.5	3.3
Rb	64.7	79.9	88.8	68.9	127.5	88.3	89.1	62.8

Appendix 2a/3

Sample #	RG93	RG98	RG101	RG105	RG108	RG109	RG110	RG111
Depth (m)	1455.15	1464.91	1468.68	1494.39	1506.89	1512.22	1530.61	1532.75
Lithology	S1	S1	S1	B4	P3	P3	P2	P2
Sr	254.9	116.5	69.2	120.0	272.3	51.9	91.8	92.8
Y	39.6	29.4	17.1	20.8	33.8	23.5	22.2	23.5
Zr	294.0	284.6	107.3	191.4	261.8	204.2	256.6	201.3
Nb	21.8	19.8	8.6	19.6	16.2	21.4	19.4	18.8
Ba	277.7	149.7	217.9	188.8	239.7	135.3	198.0	134.1
Cs	17.4	21.8	7.5	4.9	16.2	14.1	13.6	9.6
La	38.3	24.4	16.5	27.5	30.0	12.6	24.7	21.3
Ce	89.8	83.3	38.3	92.0	78.5	73.9	86.7	76.4
Pr	10.0	6.0	4.6	6.5	8.1	3.1	6.1	5.2
Nd	38.3	23.5	18.2	24.7	31.7	12.3	23.5	20.1
Sm	7.6	4.4	3.8	4.2	6.4	2.5	4.3	3.7
Eu	1.5	0.8	0.8	0.8	1.3	0.6	0.8	0.7
Gd	8.0	5.1	3.8	5.1	6.8	3.5	5.0	4.3
Tb	1.2	0.7	0.5	0.6	1.0	0.5	0.6	0.6
Dy	6.6	4.2	3.0	3.4	5.7	3.1	3.5	3.5
Ho	1.3	0.9	0.6	0.7	1.1	0.7	0.7	0.7
Er	3.8	2.6	1.6	1.9	3.2	2.1	2.1	2.1
Tm	0.6	0.4	0.2	0.3	0.5	0.4	0.3	0.4
Yb	3.6	2.8	1.6	1.9	3.2	2.4	2.2	2.3
Lu	0.6	0.4	0.2	0.3	0.5	0.4	0.3	0.3
Hf	7.9	7.4	2.8	5.2	6.8	5.4	6.8	5.4
Ta	1.8	1.4	0.6	1.3	1.2	1.5	1.3	1.4
W	2.1	2.9	1.4	1.6	2.1	1.5	2.2	1.8
Pb	45.6	32.4	20.6	17.6	55.5	20.4	30.5	25.0
Th	12.1	6.2	4.8	5.7	9.3	3.1	6.5	5.7
U	4.4	3.8	1.5	2.7	3.1	5.1	3.4	2.7

Appendix 2a/4

Appendix 2b: Geochemical EMPA Data: Major element oxide (in wt%) data set for the samples from the impactite sequence of the Eyreville B drill core.

Sample #	Depth (m)	Lithology	SiO ₂	TiO ₂	Al ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	Total
RG11	1396.03	SU	55.09	0.05	13.20	23.05	0.20	7.01	0.70	0.35	0.34	99.99
RG11	1396.03	SU	53.94	5.18	18.01	4.94	0.22	0.70	6.56	2.78	2.11	94.44
RG12	1397.51	SU	63.68	0.17	18.32	0.46	0.00	0.11	0.26	2.20	11.50	96.70
RG12	1397.51	SU	68.73	0.11	15.23	0.80	0.01	0.04	0.15	0.53	11.72	97.32
RG16	1408.39	S3	72.73	0.96	13.85	1.04	0.07	0.04	2.10	2.31	5.42	98.52
RG16	1408.39	S3	74.67	8.02	0.24	0.44	0.01	0.03	9.08	0.01	0.01	92.51
RG16	1408.39	S3	75.83	0.32	13.04	1.50	0.02	0.35	0.50	1.33	6.14	99.03
RG16	1408.39	S3	37.05	1.21	15.41	18.63	0.35	5.80	3.28	0.97	0.95	83.64
RG16	1408.39	S3	52.50	0.00	27.17	1.40	0.00	0.16	8.69	3.99	1.38	95.29
RG16	1408.39	S3	47.24	0.04	14.43	0.17	0.00	0.03	1.41	4.49	6.10	73.92
RG16	1408.39	S3	60.13	0.20	16.51	0.35	0.00	0.04	0.60	1.63	10.99	90.45
RG16	1408.39	S3	30.51	0.05	12.39	6.92	0.20	2.04	0.55	1.70	1.63	55.98
RG16	1408.39	S3	13.42	0.44	3.98	1.10	0.03	0.18	0.33	0.13	0.97	20.57
RG16	1408.39	S3	53.80	0.07	18.48	8.23	0.11	2.29	0.27	0.41	1.12	84.78
RG16	1408.39	S3	49.44	0.21	16.34	5.85	0.03	1.73	0.39	0.51	1.29	75.80
RG16	1408.39	S3	55.59	0.03	1.42	0.03	0.00	4.57	6.06	7.50	0.97	76.15
RG16	1408.39	S3	57.39	0.01	1.36	0.05	0.00	4.50	5.93	8.19	0.92	78.36
RG16	1408.39	S3	41.56	0.03	1.14	0.03	0.00	3.17	5.01	6.03	1.01	57.97
RG16	1408.39	S3	57.27	0.06	1.35	0.06	0.00	4.70	5.46	9.32	0.87	79.09
RG16	1408.39	S3	57.05	0.00	1.40	0.07	0.00	4.68	6.19	9.94	0.85	80.16
RG16	1408.39	S3	56.81	0.00	1.30	0.08	0.00	4.70	5.95	9.56	0.77	79.17
RG16	1408.39	S3	56.58	0.01	1.37	0.01	0.00	4.71	5.52	9.59	0.83	78.62
RG16	1408.39	S3	56.55	0.01	1.35	0.13	0.00	3.88	6.22	5.86	0.95	74.96
RG16	1408.39	S3	50.93	0.00	1.30	0.09	0.00	4.38	6.38	6.79	1.24	71.10
RG16	1408.39	S3	6.37	0.01	0.19	0.12	0.00	2.96	5.32	6.35	1.70	23.01
RG16	1408.39	S3	9.38	0.28	2.88	1.20	0.01	0.30	0.48	1.07	0.57	16.15
RG16	1408.39	S3	50.02	0.11	16.21	6.69	0.05	1.87	0.23	0.33	1.33	76.83
RG19	1417.15	S3	45.74	0.91	30.04	6.56	0.03	1.62	0.20	1.72	7.16	93.98
RG19	1417.15	S3	44.73	0.78	29.26	8.07	0.04	1.94	0.19	1.81	7.38	94.20
RG19	1417.15	S3	53.21	1.80	14.85	8.98	0.13	2.72	1.12	0.56	0.27	83.65
RG19	1417.15	S3	60.15	0.41	6.28	4.98	0.08	1.71	0.57	0.92	1.23	76.34
RG19	1417.15	S3	56.18	0.45	10.28	6.78	0.09	1.95	0.90	0.76	1.11	78.50
RG19	1417.15	S3	50.98	0.39	8.66	5.89	0.04	2.07	0.72	0.42	0.55	69.73
RG19	1417.15	S3	96.40	0.02	0.03	0.09	0.02	0.02	0.02	0.11	0.01	96.70
RG19	1417.15	S3	40.86	3.36	8.14	7.88	0.14	2.68	0.53	0.52	1.50	65.62
RG19	1417.15	S3	51.30	0.46	16.24	7.31	0.07	2.25	1.03	1.43	5.73	85.81
RG19	1417.15	S3	49.66	0.19	11.10	6.98	0.02	2.01	0.61	0.93	1.12	72.63
RG19	1417.15	S3	65.91	0.27	8.06	4.99	0.04	1.25	0.61	0.61	0.68	82.42
RG19	1417.15	S3	47.25	0.12	7.76	5.51	0.12	2.21	0.47	0.46	0.80	64.71

Appendix 2b/1

Sample #	Depth (m)	Lithology	SiO ₂	TiO ₂	Al ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	Total
RG20	1417.41	S3	52.29	0.70	28.65	5.80	0.05	1.47	0.10	1.18	9.40	99.64
RG20	1417.41	S3	44.04	0.98	24.02	11.45	0.14	3.72	1.34	0.47	5.51	91.67
RG20	1417.41	S3	47.13	0.38	8.22	8.10	0.07	2.50	1.55	0.68	1.55	70.18
RG20	1417.41	S3	24.14	49.88	6.35	4.00	0.13	1.01	2.04	0.46	0.47	88.49
RG20	1417.41	S3	50.97	2.17	2.69	1.70	0.07	0.69	0.68	0.29	0.34	59.59
RG20	1417.41	S3	77.48	0.48	6.09	2.91	0.04	0.82	0.27	0.37	0.68	89.14
RG20	1417.41	S3	43.99	10.09	12.27	7.54	0.08	2.20	1.14	0.66	0.45	78.42
RG20	1417.41	S3	54.44	0.16	3.31	1.84	0.06	0.50	0.38	0.29	0.31	61.29
RG20	1417.41	S3	23.37	3.97	4.41	0.55	0.00	0.21	1.56	1.26	0.30	35.62
RG25	1424.42	S3	93.49	0.01	1.31	0.00	0.00	0.01	0.23	0.40	0.45	95.90
RG25	1424.42	S3	89.36	0.02	1.21	0.14	0.00	0.04	0.21	0.16	0.48	91.62
RG25	1424.42	S3	90.64	0.02	1.86	0.67	0.03	0.24	0.35	0.21	0.38	94.40
RG26	1424.85	S3	49.74	0.71	28.47	8.78	0.05	1.84	1.24	0.36	0.38	91.57
RG26	1424.85	S3	49.10	1.33	31.14	5.36	0.03	1.37	0.17	1.69	7.95	98.14
RG26	1424.85	S3	45.19	1.04	30.24	7.51	0.04	1.81	0.04	0.98	8.82	95.67
RG26	1424.85	S3	65.70	0.21	17.32	0.18	0.00	0.00	0.17	0.78	13.29	97.65
RG28	1427.76	S3	52.51	1.12	24.97	6.36	0.04	1.39	0.37	1.74	7.84	96.34
RG28	1427.76	S3	51.60	0.85	28.14	5.62	0.04	1.41	0.41	2.13	7.98	98.18
RG28	1427.76	S3	41.83	0.38	10.90	5.72	0.00	1.76	0.66	0.37	0.57	62.18
RG28	1427.76	S3	61.15	0.19	6.01	3.51	0.09	1.23	0.46	0.39	0.55	73.58
RG28	1427.76	S3	53.72	0.24	3.30	1.79	0.06	0.54	14.50	0.48	0.56	75.18
RG28	1427.76	S3	72.70	0.45	4.96	2.97	0.05	0.99	0.42	0.35	0.92	83.80
RG28	1427.76	S3	82.90	0.47	4.85	1.99	0.08	0.53	0.31	0.48	0.96	92.56
RG28	1427.76	S3	74.81	0.51	6.51	4.35	0.05	1.37	0.63	0.55	1.57	90.35
RG118	1444.36	BC	69.45	0.11	15.76	1.09	0.01	0.36	0.42	0.56	6.65	94.41
RG118	1444.36	BC	62.81	0.10	18.48	2.91	0.09	1.57	1.20	1.22	8.12	96.50
RG118	1444.36	BC	61.07	0.36	13.67	1.54	0.05	0.67	1.71	2.83	6.42	88.32
RG118	1444.36	BC	64.30	0.12	18.50	1.53	0.06	0.61	0.59	1.74	8.73	96.18
RG118	1444.36	BC	59.28	0.01	21.00	3.09	0.06	0.86	1.40	9.85	0.35	95.90
RG118	1444.36	BC	49.76	0.51	31.32	2.34	0.03	1.61	0.31	0.78	8.57	95.23
RG118	1444.36	BC	69.50	0.16	12.95	2.13	0.04	0.29	0.32	0.44	6.48	92.31
RG118	1444.36	BC	87.75	0.02	4.96	0.32	0.03	0.12	0.14	0.34	2.33	96.01
RG118	1444.36	BC	61.68	0.34	17.01	2.32	0.01	1.42	0.33	0.88	6.23	90.22
RG118	1444.36	BC	41.17	2.74	24.72	6.28	0.11	1.75	0.17	0.42	7.62	84.98
RG114	1444.36	S2	87.39	0.01	4.00	0.15	0.01	0.05	0.06	0.33	3.02	95.01
RG114	1444.36	S2	61.25	0.04	17.99	0.13	0.01	0.05	0.07	1.65	13.00	94.18
RG114	1444.36	S2	62.28	0.04	17.26	0.17	0.00	0.02	0.14	0.36	15.28	95.55
RG114	1444.36	S2	63.67	0.09	16.87	3.30	0.08	1.72	0.16	0.23	4.57	90.68
RG114	1444.36	S2	78.86	0.09	12.14	1.75	0.01	0.66	0.15	1.12	3.11	97.88
RG114	1444.36	S2	95.88	0.01	1.11	0.14	0.00	0.06	0.06	0.20	0.27	97.71
RG114	1444.36	S2	87.69	6.64	0.50	1.48	0.43	0.10	0.19	0.07	0.08	97.17
RG114	1444.36	S2	85.98	8.11	0.84	1.17	0.52	0.02	0.28	0.12	0.29	97.33
RG114	1444.36	S2	59.90	0.11	20.60	4.44	0.06	1.54	0.12	0.43	5.98	93.19

Appendix 2b/2

Sample #	Depth (m)	Lithology	SiO₂	TiO₂	Al₂O₃	FeO	MnO	MgO	CaO	Na₂O	K₂O	Total
RG114	1444.36	S2	80.11	0.11	9.35	0.91	0.01	0.45	0.23	1.26	2.52	94.96
RG114	1444.36	S2	90.30	0.00	0.06	0.03	0.00	0.03	0.04	0.09	0.05	90.60
RG114	1444.36	S2	97.07	0.00	0.08	0.05	0.00	0.01	0.01	0.06	0.03	97.31
RG114	1444.36	S2	5.31	39.42	0.77	25.74	4.30	0.13	4.11	0.97	0.62	81.36
RG114	1444.36	S2	26.62	19.04	9.52	10.41	0.20	5.70	13.20	0.18	0.13	84.99
RG114	1444.36	S2	25.40	0.03	20.46	24.01	0.38	14.84	0.06	0.18	0.18	85.52
RG114	1444.36	S2	49.88	0.00	9.68	0.35	0.03	0.00	0.07	0.00	8.08	68.09
RG114	1444.36	S2	40.98	0.05	13.48	14.72	0.24	8.11	0.28	0.47	0.95	79.28
RG114	1444.36	S2	45.93	0.01	22.46	0.89	0.03	0.62	0.29	3.74	5.30	79.27
RG114	1444.36	S2	51.07	0.00	13.08	2.10	0.03	1.46	0.49	4.80	3.53	76.55
RG114	1444.36	S2	42.40	0.05	23.81	1.77	0.05	1.08	0.41	2.39	6.06	78.02
RG114	1444.36	S2	52.54	3.43	5.03	6.99	0.18	3.56	0.48	0.51	0.49	73.20
RG114	1444.36	S2	68.34	0.01	0.36	0.53	0.01	0.06	0.28	0.37	0.45	70.41
RG114	1444.36	S2	43.37	0.04	0.92	0.44	0.01	0.09	0.16	0.44	0.60	46.07
RG114	1444.36	S2	38.18	0.01	8.93	10.24	0.13	5.08	0.17	0.45	0.57	63.76
RG114	1444.36	S2	21.14	0.03	18.59	23.73	0.32	14.41	0.04	0.05	0.10	78.42
RG114	1444.36	S2	20.69	0.14	18.50	23.72	0.44	13.21	0.10	0.12	0.15	77.04
RG114	1444.36	S2	14.64	14.83	5.82	6.36	0.17	2.84	14.05	0.73	0.85	60.28
RG114	1444.36	S2	21.50	0.10	15.58	1.32	0.03	0.60	0.35	1.10	3.24	43.82
RG114	1444.36	S2	56.51	0.07	1.10	1.38	0.02	0.59	0.96	0.92	0.83	62.39

Appendix 2b/3

Appendix 2c: Geochemical Data: Major element oxide (in wt%) data set for the lithic clasts from the impactite sequence and the basement section of the Eyreville B drill core (basement data from Schmitt et al., 2009 and Townsend et al., 2009).

Lithic clast	SiO₂	TiO₂	Al₂O₃	Fe₂O₃	MnO	MgO	CaO	Na₂O	K₂O	LOI	Totals
Granitoid	62.17	0.09	24.02	0.38	0.02	0.27	1.00	11.63	2.68	2.29	104.55
Granitoid	75.85	0.04	13.68	0.09	0.02	0.00	0.54	7.27	0.27	1.63	99.39
Granitoid	78.63	0.22	18.35	0.98	0.02	1.12	0.11	0.52	6.28	3.28	109.51
Granitoid	62.72	0.07	26.77	3.06	0.04	0.95	0.67	7.96	3.55	4.85	110.64
Granitoid	71.68	0.05	18.29	1.44	0.03	0.89	0.06	0.35	5.19	2.76	100.74
Granitoid	72.73	3.69	0.12	1.06	15.08	0.00	6.19	0.03	0.58	2.26	101.74
Granitoid	67.74	0.02	18.74	0.07	0.00	0.00	0.52	10.92	0.65	4.87	103.53
Granitoid	73.63	0.25	13.76	2.06	0.04	0.21	1.45	3.56	5.07	3.50	103.53
Granitoid	74.76	0.24	13.89	2.50	0.04	0.27	2.41	4.51	2.36	3.62	104.60
Granitoid	73.44	0.19	13.89	1.95	0.04	0.18	1.40	3.68	5.04	4.56	104.37
Granitoid	75.58	0.08	12.85	1.06	0.02	0.00	0.62	3.53	5.88	5.08	104.70
Pegmatite	75.59	0.16	12.09	1.72	0.03	0.00	0.74	2.47	6.42	4.73	103.95
Pegmatite	74.37	0.17	13.34	2.14	0.02	0.02	0.70	2.92	6.85	4.51	105.04
Pegmatite	77.80	0.12	10.87	1.55	0.02	0.00	0.58	2.72	5.07	6.57	105.30
Pegmatite	71.21	0.32	14.24	2.88	0.04	0.42	1.87	3.46	4.69	6.04	105.17
Shale	64.25	1.66	16.95	0.97	0.01	0.11	0.58	0.37	11.49	4.77	101.16
Shale	82.99	0.00	4.49	5.43	0.05	1.51	0.10	0.58	0.14	1.02	96.31
Shale	68.13	0.01	20.61	0.84	0.01	0.23	0.41	10.62	2.44	1.01	104.31
Shale	74.24	0.01	12.09	0.35	0.03	0.08	0.01	0.84	9.05	3.41	100.11
Sandstone	59.44	0.02	19.56	2.02	0.04	0.62	3.78	3.44	1.62	2.33	92.87
Sandstone	61.40	0.39	17.62	0.89	0.00	0.08	0.99	1.51	11.79	6.03	100.70
Sandstone	61.57	0.02	19.38	2.67	0.00	0.73	0.09	1.95	11.08	1.11	98.60
Sandstone	64.99	0.00	19.62	0.77	0.00	0.30	0.23	1.50	13.41	2.89	103.71
Sandstone	65.06	0.00	19.26	0.09	0.01	0.01	0.00	1.52	13.67	1.10	100.72
Sandstone	40.07	0.78	21.02	29.62	0.14	5.26	1.08	0.54	0.06	3.27	101.84
Greywacke	68.06	0.23	17.36	2.53	0.01	0.84	0.27	3.12	4.36	2.90	99.68
Greywacke	84.38	0.07	10.08	1.28	0.06	0.43	0.21	0.47	2.28	1.68	100.94
Greywacke	78.13	0.11	9.25	1.15	0.00	0.35	0.37	0.94	2.63	5.94	98.87
Greywacke	75.34	0.39	14.85	3.88	0.03	1.09	0.27	0.73	3.62	2.31	102.51
Calc-silicate	52.37	0.53	11.06	4.60	0.22	1.03	20.39	0.17	1.01	7.99	99.37
Calc-silicate	58.52	0.72	13.61	6.18	0.11	1.81	10.82	0.81	4.10	4.53	101.21
Amphibolite	46.02	0.02	22.15	20.77	0.30	9.44	0.07	0.18	0.14	1.05	100.14
Amphibolite	54.42	0.70	13.13	5.71	0.18	1.21	11.32	1.66	2.27	8.43	99.03
Amphibolite	47.82	1.06	20.10	10.13	0.13	5.69	5.37	1.82	2.26	3.71	98.09
Amphibolite	48.04	1.21	19.00	11.80	0.15	6.45	9.10	2.46	0.13	2.63	100.97

Lithic clast	SiO₂	TiO₂	Al₂O₃	Fe₂O₃	MnO	MgO	CaO	Na₂O	K₂O	LOI	Totals
Mica schist	66.44	0.00	21.45	0.38	0.00	0.06	1.74	7.95	3.44	3.23	104.69
Mica schist	65.75	0.01	20.96	0.97	0.05	0.43	1.37	7.51	2.55	1.05	100.65
Mica schist	66.23	0.00	20.32	1.00	0.01	0.21	1.08	9.60	1.29	3.44	103.18
Mica schist	67.72	0.03	19.88	0.16	0.02	0.00	0.57	10.48	1.38	2.16	102.40
Mica schist	61.07	0.00	22.54	1.21	0.04	0.61	3.69	7.60	1.28	6.80	104.84
Mica schist	52.24	0.29	26.76	9.23	0.12	2.84	0.12	0.32	6.23	4.89	103.04
Mica schist	72.01	0.19	15.23	2.23	0.09	0.32	0.85	2.78	3.65	3.12	100.47
Mica schist	51.21	1.10	23.67	7.78	0.11	1.20	3.08	0.98	4.99	5.02	99.14
Phyllite	71.20	0.12	9.68	11.04	0.14	2.52	0.20	0.26	1.82	3.71	100.69
Phyllite	60.38	0.00	16.87	0.49	0.00	0.05	0.03	1.69	13.11	8.10	100.72
Felsic gneiss	66.97	0.00	21.59	0.24	0.00	0.04	1.24	9.97	0.66	1.02	101.73
Felsic gneiss	65.55	0.02	22.20	0.33	0.00	0.01	1.56	11.79	0.24	1.76	103.46
Felsic gneiss	78.26	0.02	5.22	7.03	0.06	1.23	0.11	0.42	0.80	7.93	101.08
Felsic gneiss	79.75	0.00	14.91	0.22	0.00	0.02	0.43	8.86	0.23	1.20	105.62
Felsic gneiss	83.39	0.03	9.83	0.61	0.01	0.09	0.21	4.72	0.80	2.33	102.02
Felsic gneiss	84.40	0.28	8.25	1.81	0.01	0.55	0.05	0.21	1.87	4.87	102.30
Mafic gneiss	57.76	0.06	11.81	16.04	0.21	7.16	0.25	0.41	0.28	4.76	98.74
Mafic gneiss	64.47	0.01	19.28	0.08	0.00	0.01	0.12	4.72	11.38	1.21	101.28
Mafic gneiss	59.54	0.01	21.51	0.47	0.03	0.13	1.44	8.33	4.42	5.90	101.78
Mafic gneiss	46.18	0.00	23.26	4.18	0.15	0.02	11.14	3.23	1.37	10.77	100.30
Mafic gneiss	63.95	0.00	19.10	0.09	0.01	0.00	0.46	11.24	0.13	3.33	98.31
Mafic gneiss	55.43	0.01	18.01	4.44	0.05	1.81	0.58	8.81	1.39	2.41	92.94
Mafic gneiss	61.55	0.00	18.69	0.08	0.05	0.00	0.65	11.15	0.18	6.22	98.57
Mafic gneiss	67.03	0.01	17.03	0.02	0.01	0.01	0.26	2.80	9.35	2.01	98.53
Mafic gneiss	60.51	0.15	22.49	1.12	0.00	0.50	4.61	6.89	1.13	7.54	104.94

Appendix 2c/2

Appendix 2d: Binary plots between major element oxides (in wt%) and trace elements (in ppm) in the impactite sequence, from the Eyreville B drill core.

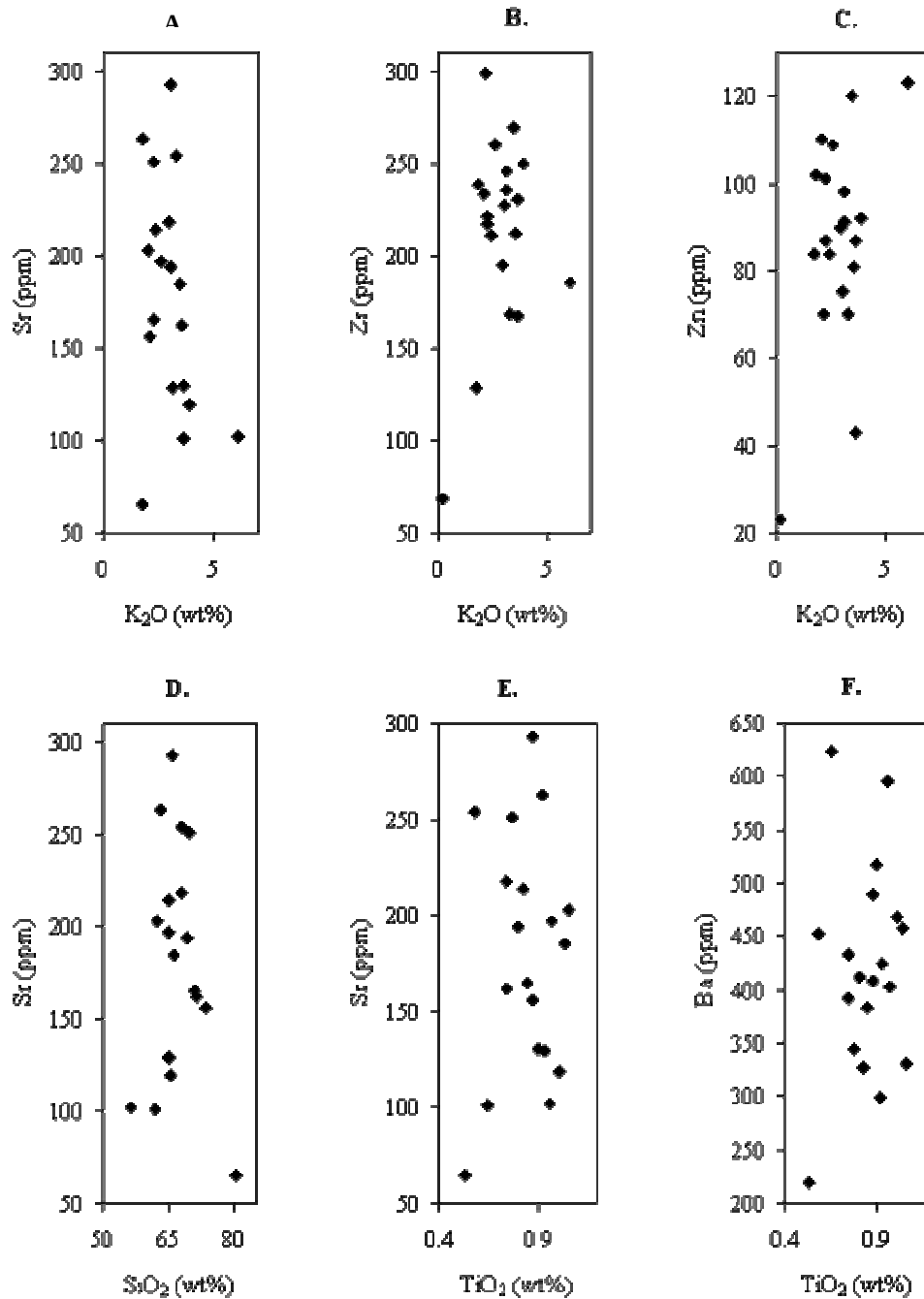


Figure 1: Harker diagrams of the contents (in ppm) of the trace elements from the impactite sequence versus K₂O, SiO₂ and TiO₂. A) Sr; B) Zr; C) Zn; D) Sr; E) Sr and F) Ba.

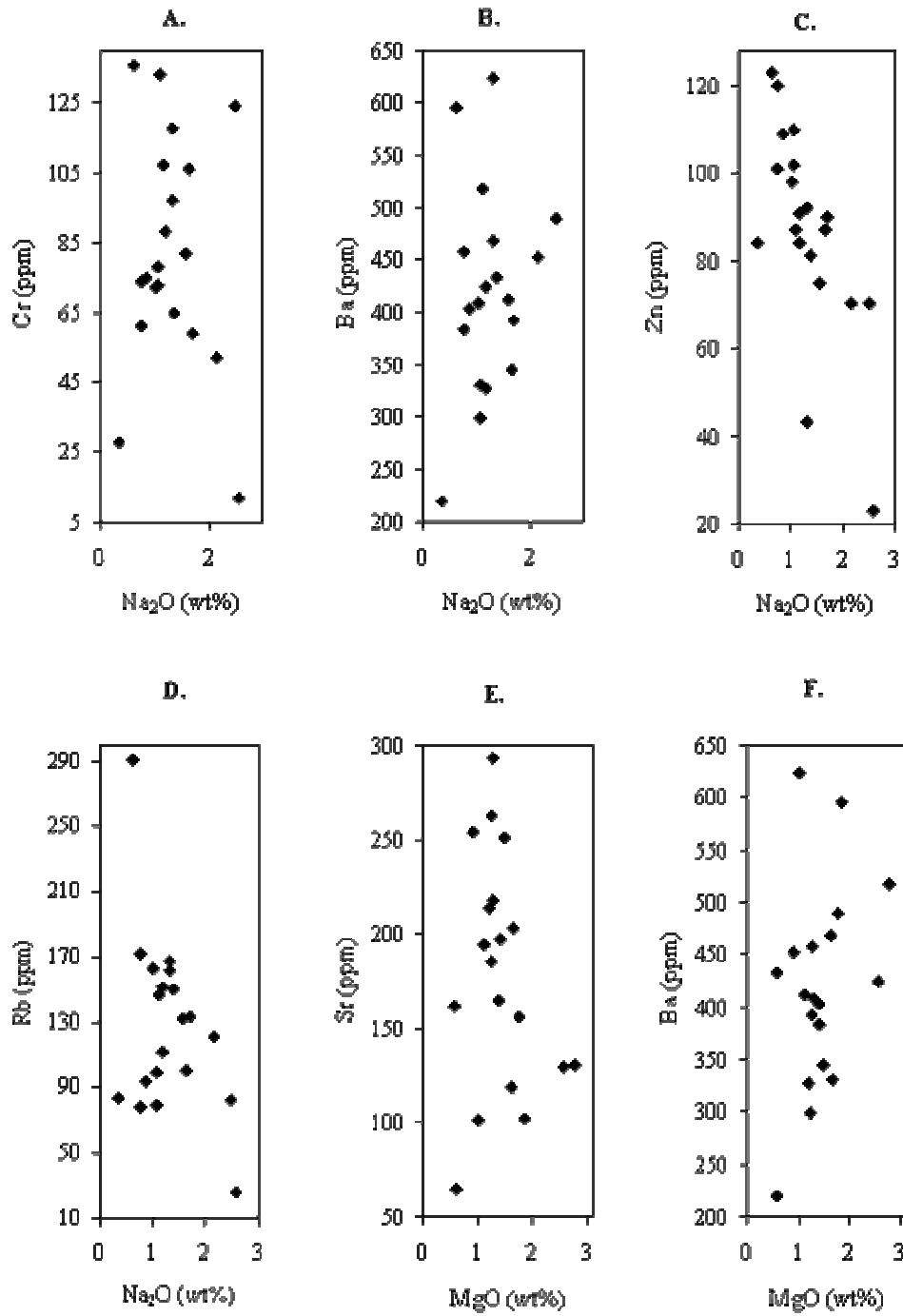


Figure 2: Harker diagrams of the contents (in ppm) of the trace elements from the impactite sequence versus Na₂O and MgO. A) Cr; B) Ba; C) Zn; D) Rb; E) Sr and F) Ba.

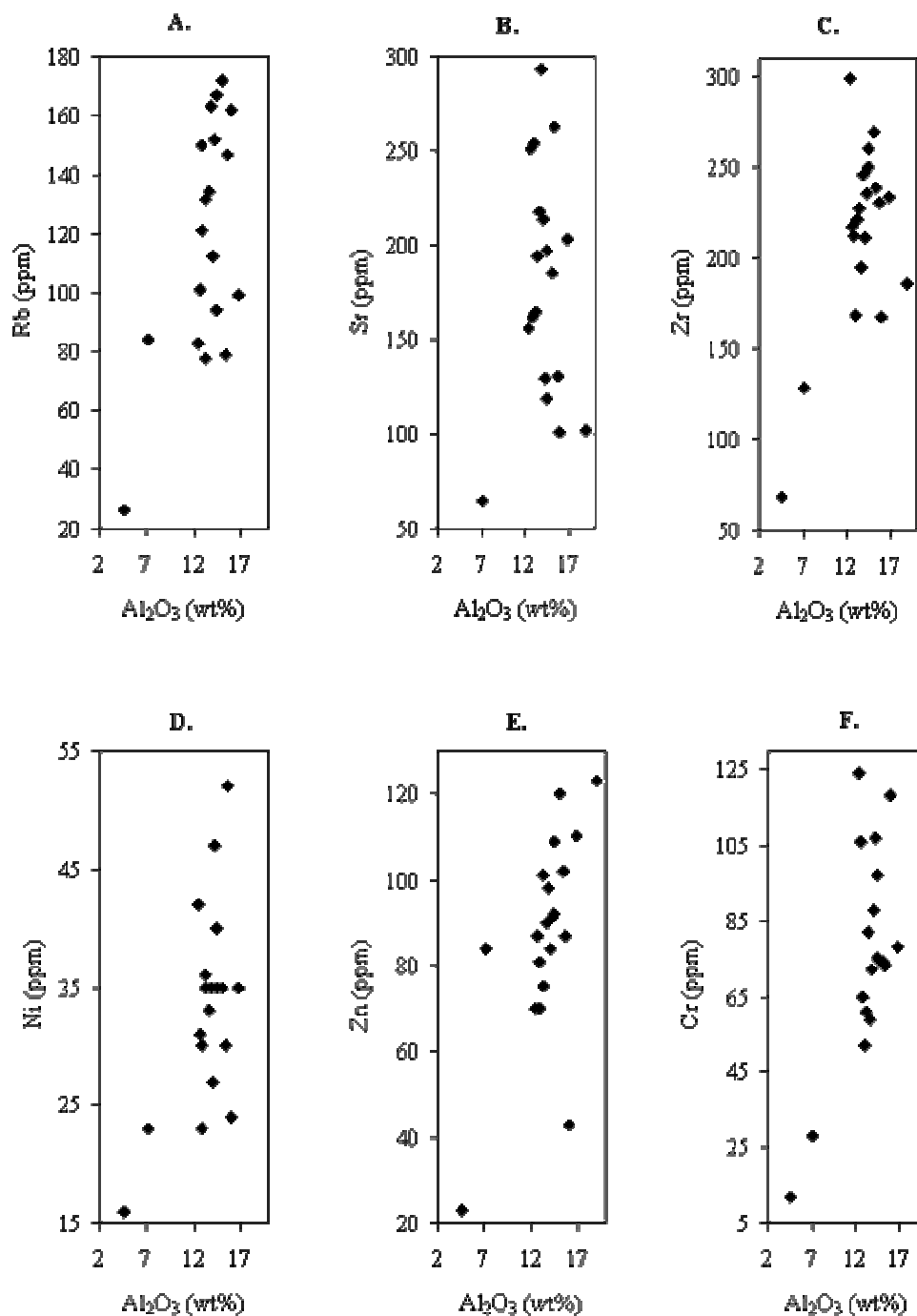


Figure 3: Harker diagrams of the contents (in ppm) of the trace elements from the impactite sequence versus Al_2O_3 . A) Rb; B) Sr; C) Zr; D) Ni; E) Zn and F) Cr.

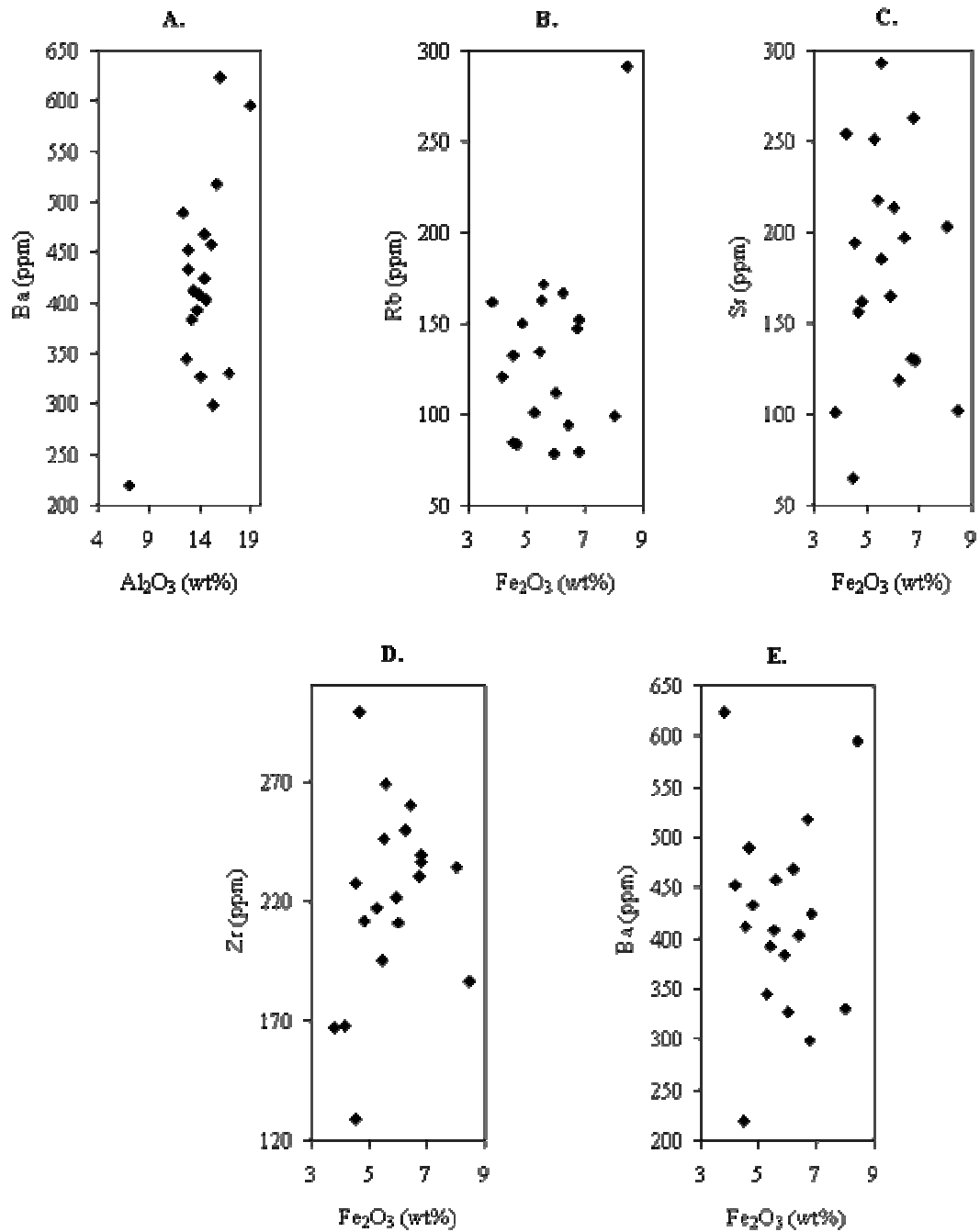


Figure 4: Harker diagrams of the contents (in ppm) of the trace elements from the impactite sequence versus Al_2O_3 and Fe_2O_3 . A) Ba; B) Rb; C) Sr; D) Zr and E) Ba.

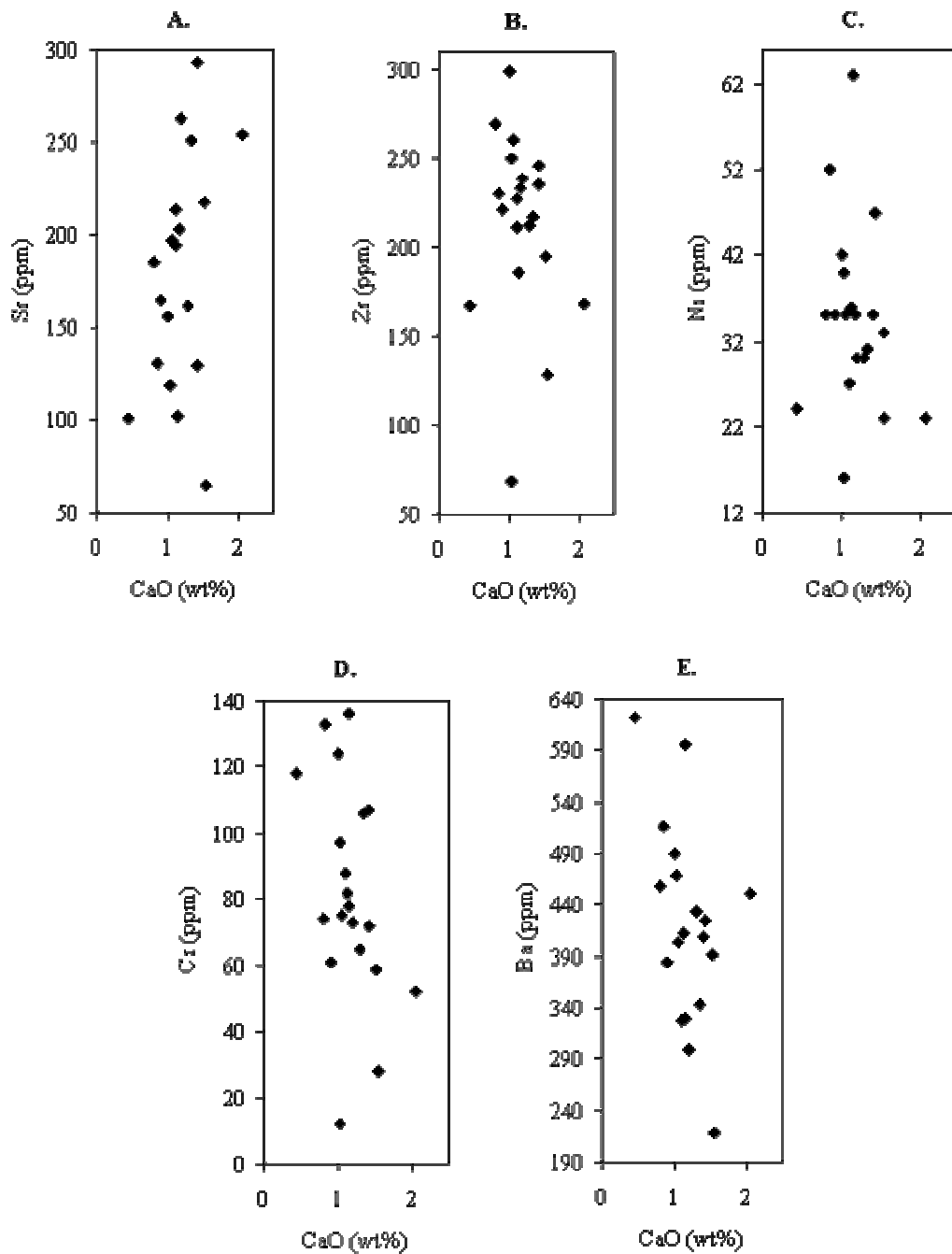


Figure 5: Harker diagrams of the contents (in ppm) of the trace elements from the impactite sequence versus CaO. A) Sr; B) Zr; C) Ni; D) Cr and E) Ba.

Appendix 2e: Geochemical ICP-MS Data: Normalized (Taylor and McClelland, 1985) rare earth element values (in ppm) from the samples in the impactite, from the Eyreville B drill core.

Sample #	RG11	RG12	RG16	RG19	RG20	RG23	RG26	RG28	RG111	RG110
Depth	1396.03	1397.51	1408.39	1414.15	1417.41	1420.32	1424.85	1427.76	1450.07	1451.73
Unit	SU	SU	S3	S3	S3	S3	S3	S3	M1	S1
La	58.8	75.1	71.2	89.0	65.9	61.0	57.7	82.8	103.6	43.8
Ce	84.7	74.2	71.7	78.3	85.1	59.9	44.1	78.4	85.8	83.7
Nd	29.7	38.0	40.0	45.9	40.3	34.4	27.8	46.1	52.2	25.3
Sm	18.3	22.1	25.5	28.0	25.6	22.3	22.5	29.4	32.3	16.0
Eu	11.1	8.7	14.7	15.8	14.4	13.5	20.9	16.9	17.5	8.2
Gd	15.6	16.6	20.3	21.3	20.5	16.9	14.9	23.0	25.0	15.3
Tb	11.1	10.4	15.4	16.2	15.4	13.3	11.4	17.9	18.9	11.6
Tm	9.4	6.2	12.6	13.4	12.4	10.9	7.2	14.1	14.2	11.7
Yb	9.1	5.9	11.7	12.4	11.1	10.1	5.4	12.7	12.9	10.9
Lu	9.0	6.0	11.8	12.4	11.1	9.7	4.8	12.6	13.0	10.8
Eu/Eu*	0.9	0.5	1.1	1.0	1.0	0.9	1.4	1.2	1.4	0.5

Sample #	RG109	RG108	RG105	RG101	RG98	RG93	RG90	RG88	RG84	RG83
Depth	1452.51	1453.16	1455.15	1464.91	1468.68	1494.39	1506.89	1512.22	1530.61	1532.75
Unit	S1	S1	S1	S1	S1	B4	P3	P3	P2	P2
La	48.8	58.6	104.4	66.6	44.9	75.0	81.8	34.4	67.2	58.0
Ce	86.6	79.7	93.8	87.0	40.1	96.2	82.1	77.3	90.6	79.8
Nd	23.3	32.5	53.9	33.1	25.6	34.8	44.6	17.3	33.0	28.2
Sm	14.5	20.4	32.8	19.0	16.3	18.3	27.7	11.0	18.8	16.0
Eu	7.5	10.5	17.4	9.6	9.7	9.7	15.2	6.5	9.6	8.4
Gd	13.8	17.0	26.1	16.6	12.3	16.5	22.3	11.4	16.2	14.1
Tb	9.5	12.6	20.0	12.1	9.3	10.5	17.5	8.3	11.0	10.2
Tm	10.4	10.8	16.0	12.1	7.0	8.4	14.4	10.1	9.6	10.0
Yb	10.0	10.1	14.4	11.4	6.3	7.6	12.9	9.6	9.1	9.2
Lu	9.9	10.0	14.5	11.3	6.2	7.5	12.8	9.4	9.1	9.1
Eu/Eu*	0.4	0.6	1.3	1.2	0.5	0.7	1.2	0.4	0.6	1.2

Appendix 2e/1

Appendix 2f: Standard error data set (including precision and accuracies) for major element oxides, XRF trace elements and ICP-MS trace elements (A. Wilson, pers. comm., 2011).

Major Element Oxides												
	PCC-1				DTS-1				NIM-N			
Wt. %	Avg	SD	SD Dev%	Recom	Avg	SD	SD Dev%	Recom	Avg	SD	SD Dev%	Recom
SiO₂	43.94	0.07	0.2	43.82	40.55	0.14	0.3	40.42	52.65	0.07	0.1	52.53
Al₂O₃	0.72	0.01	1	0.76	0.23	0.01	4.2	0.29	16.77	0.05	0.3	16.53
Fe₂O₃	0.87	0.01	1	0.86	0.88	0.01	1.1	0.86	0.91	0.01	0.7	0.89
FeO	7.07	0.07	1.1	6.92	7.12	0.07	1	6.93	7.36	0.06	0.9	7.18
MnO	0.13	0.01	4.1	0.12	0.13	0.01	4.1	0.11	0.18	0	2	0.18
MgO	45.71	0.15	0.3	45.36	50.18	0.2	0.4	49.51	7.6	0.03	0.4	7.48
CaO	0.6	0.01	1.5	0.55	0.17	0.01	8.2	0.15	11.5	0.02	0.2	11.45
Na₂O	0.1	0.04	47.1	0.01	0.11	0.02	15.2	0.01	2.52	0.03	1	2.46
K₂O	-0.01	0	-40.4	0	0	0	-244.9	0	0.25	0	1.4	0.25
TiO₂	0.01	0	22.5	0.01	0.01	0	23.9	0.01	0.2	0	1.7	0.2
P₂O₅	0.01	0	0	0	0.01	0	0	0	0.02	0	0	0.03
Cr₂O₃	0.43	0	0.5	0.46	0.61	0	0.8	0.64	0.01	0	29.9	0.01
NiO	0.33	0	1	0.33	0.31	0	1.1	0.3	0.02	0	12	0.02
Total	99.89	0.14	0.1	99.2	100.31	0.39	0.4	99.23	99.98	0.08	0.1	99.2
LOI	4.94	0	0		0.05	0			-0.02	0.03		

Major Element Oxides												
	AGV-2				BCR-2				W-2			
wt%	Avg	SD	SD Dev%	Recom	Avg	SD	SD Dev%	Recom	Avg	SD	SD Dev%	Recom
SiO₂	60.26	0.32	0.1	59.61	54.68	0.41	0.7	53.97	53.02	0.2	0.4	52.96
Al₂O₃	17.36	0.11	0.3	17	13.71	0.11	0.8	13.47	15.62	0.05	0.3	15.53
Fe₂O₃	0.68	0.01	0.7	0.67	1.39	0.01	1	1.38	1.1	0.01	1.1	1.09
FeO	5.52	0.06	0.9	5.45	11.27	0.11	1	11.15	8.87	0.09	1	8.81
MnO	0.1	0	2	0.1	0.2	0.01	3.2	0.2	0.17	0	2.1	0.17
MgO	1.83	0.01	0.4	1.8	3.62	0.04	1.2	3.58	6.44	0.06	1	6.4
CaO	5.27	0.02	0.2	5.23	7.12	0.05	0.7	7.1	10.9	0.05	0.4	10.92
Na₂O	4.27	0.02	1	4.21	3.18	0.04	1.4	3.15	2.24	0.03	1.2	2.21
K₂O	2.95	0.01	1.4	2.9	1.81	0.02	1	1.79	0.63	0	0.6	0.63
TiO₂	1.05	0	1.7	1.06	2.28	0.02	0.7	2.25	1.08	0.01	0.6	1.07
P₂O₅	0.49	0	0	0.48	0.36	0	1	0.35	0.13	0	0	0.13
Cr₂O₃	0.01	0	29.9	0	0.01	0	37.3	0	0.02	0	25	0.01
NiO	0	0	12	0	0	0	101	0	0.01	0	13.7	0.01
Total	99.8	0.47	0.1	98.51	99.62	0.71	0.7	98.39	100.21	0.41	0.4	99.94
LOI	1.58	0			0.1	0			0.16	0.02		

Appendix 2f/2

XRF Trace Elements

	AGV2				BHVO2				GSP2			
ppm	Avg	SD Dev	SD Dev%	Recom	Avg	SD Dev	SD Dev%	Recom	Avg	SD Dev	SD Dev%	Recom
Sc	11.9	3.7	31	13	26.9	9.2	34.2	32	8	2.3	28.3	6.3
V	124.7	7.7	6.2	120	345.3	20.5	5.9	317	59.1	5	8.5	52
Cr	26.7	3.4	12.7	17	288.3	6.1	2.1	280	22.1	3.2	14.6	20
Co	16.8	1.8	10.8	16	47.1	3	6.3	45	7.2	1.3	18.5	7.3
Ni	17.7	2.7	15.5	19	124.2	4.6	3.7	119	16.1	1.5	9.2	17
Cu	52.4	2.8	5.4	53	124.3	2.5	2	127	43.5	2.4	5.5	43
Zn	84.6	1.3	1.5	86	100.3	2.4	2.4	103	115.1	3	2.6	120
Ga	20.3	0.7	3.2	20	21.5	0.9	4.2	22	22.3	0.8	3.6	0
Rb	69.8	0.6	0.9	69	11.6	0.6	5.5	9.8	248.6	2.2	0.9	234
Sr	656.4	5.7	0.9	658	387.9	3.3	0.9	389	237.9	2.5	1.1	240
Y	18.9	0.9	4.8	20	24.6	1.3	5.4	26	25.7	1.6	6.2	28
Zr	241.7	6.7	2.8	230	174	4.2	2.4	172	553.4	4.8	0.9	550
Nb	13.7	1.2	8.9	15	18.2	1.6	8.9	18	25.2	0.9	3.6	27
Ba	1183.5	23.2	2	1140	174.8	29.6	16.9	130	1423.4	23.8	1.7	1340
Pb	12.4	1.3	10.4	13	1.4	0.9	61.1	0	42	1.3	3	42
Th	7	1.9	27	6	3.4	2.3	69	1.2	110	3.8	3.4	105
U	4.1	1.3	31.1	1.8	0.6	1.8	308.4	0	3.8	1.5	39.9	2.4

Appendix 2f/3

XRF Trace Elements

ppm	NIMD				NIMS				NIMN			
	Avg	SD Dev	SD Dev%	Recom	Avg	SD Dev	SD Dev%	Recom	Avg	SD Dev	SD Dev%	Recom
Sc	2.1	2.3	108.1	7	2.9	2	67.5	4	32	7.4	23.2	38
V	43.4	3.1	7.2	40	7.5	2.1	27.8	10	210.8	8.5	4	220
Cr	2644.1	32.7	1.2	2900	18.8	4.5	24	12	33.4	4	11.9	30
Co	204.5	3.3	1.6	210	4.9	1.2	25.5	3	60.9	2.5	4.2	58
Ni	2176.5	63.6	2.9	2050	3.6	1.6	43.9	7	110.7	3.5	3.1	120
Cu	-1.7	6.7	-389.7	10	17.9	1.1	6.3	19	16.2	3	18.8	14
Zn	89.8	2.1	2.3	90	7.9	1.2	14.7	10	57.8	1.8	3.2	68
Ga	0.8	0.5	65.8	0	12.1	0.4	3.7	11	17.5	1.2	7.1	16
Rb	1.3	0.8	61.6	0	531	2.6	0.5	530	4.9	0.6	12.3	6
Sr	3	0.4	12.7	3	61.5	1	1.7	62	258.7	2.4	0.9	260
Y	0.3	1.4	518.2	0	0.8	2.5	330.6	20	5.2	0.6	10.9	7
Zr	2.4	0.4	16.5	20	14.8	0.7	4.4	33	10.2	1.9	18.7	23
Nb	1.1	0.7	63.3	0	1	0.5	48	4	1	0.9	87.3	2
Ba	4.7	4.5	95.2	10	2587	15.6	0.6	2400	94.7	11.5	12.1	100
Pb	1.6	1.3	81.6	7	2.7	0.7	24.9	5	1.8	1	58.4	7
Th	2.3	2	84.8	0.8	3.4	1.2	36.3	1	2.5	2.6	104.5	0.6
U	-0.2	2.1	-1012.4	0	2.6	1	38.5	0.6	1.1	1	86.6	0.6

Appendix 2f/4

XRF Trace Elements

Ppm	BR				CH7/10/19				CH7/10/24			
	Avg	SD Dev	SD Dev%	Recom	Avg	SD Dev	SD Dev%	Recom	Avg	SD Dev	SD Dev%	Recom
Sc	17.4	10.8	61.9	25	21	1.4	6.7	20.5	28	3.6	12.7	25
V	257.2	17.9	7	235	130	4.9	3.8	131.7	161.5	6.5	4	152.7
Cr	337.3	6.4	1.9	380	7977.3	109.4	1.4	8034.3	1416.8	16.6	1.2	1441.2
Co	62.4	4.1	6.6	52	107.7	3	2.8	105.3	67.6	1.4	2	63.9
Ni	286.9	9.8	3.4	260	1757.1	57.3	3.3	1713.7	337.5	12.2	3.6	317.2
Cu	74	3.4	4.6	72	17.5	3.1	17.5	16.5	32.6	2.5	7.5	37.9
Zn	145.4	2.7	1.9	160	61.8	1.4	2.2	61.5	80.5	1.7	2.2	84
Ga	17.3	1.2	7.1	19	4.4	0.7	14.9	5.8	9.9	0.5	5.6	10.4
Rb	53	0.9	1.8	47	13.7	1	7.2	13.5	46	1	2.2	46.1
Sr	1380	13.9	1	1320	48.9	0.9	1.8	50.4	145.6	1.4	1	147.4
Y	27.4	1.1	4	30	3	0.3	10.5	3.6	8.6	0.4	4.3	8.8
Zr	276.7	11.1	4	260	21	0.7	3.5	21.2	69.3	1.5	2.2	71.8
Nb	104.8	2	1.9	98	1.6	0.7	42.7	1.9	4	0.7	17.6	3
Ba	1278.9	49.8	3.9	1050	135	7.8	5.8	123.4	313.3	9.1	2.9	331.4
Pb	1.2	0.9	75.6	5	4.2	1.2	28.7	5.8	11.9	1.4	11.5	10.9
Th	11.9	4.3	36.3	11	2.7	3	113.5	2.9	6.1	2.3	38.7	5.5
U	6.1	1.3	21.5	2.5	0.8	1.3	172.6	1.1	1.8	1.2	68.4	2.3

Appendix 2f/5

XRF Trace Elements

Ppm	UMH5657/23				UMH5657/38				SIO₂			
	Avg	SD Dev	SD Dev%	Recom	Avg	SD Dev	SD Dev%	Recom	Avg	SD Dev	SD Dev%	Recom
Sc	26.5	2	7.5	24.4	8.1	1.6	20.2	9	0.2	1.9	899.9	0
V	131.8	8	6.1	129.3	46.5	4.7	10.1	52.9	1.4	3.5	247	0
Cr	3564.8	46.1	1.3	3577.8	3164.3	33.3	1.1	3167.3	14.7	19	128.7	0
Co	127.4	1.9	1.5	129.2	175.9	3.6	2	177.4	1.5	1.4	89.7	0
Ni	1915.1	63.9	3.3	1880.3	1783.3	51	2.9	1738.7	1.1	1.2	110.4	0
Cu	867.6	6.1	0.7	865.1	25.5	4.7	18.5	27.1	1.6	2.3	141.2	0
Zn	79.1	1.9	2.4	79.2	66.8	2.2	3.3	70	-0.9	0.9	-106.8	0
Ga	4.4	0.9	20.4	4.8	1.4	1.2	81.5	1	0.1	0.5	339.4	0
Rb	8.9	0.8	9	7.6	1.4	1	74.1	0.3	0.3	0.5	165.4	0
Sr	14.6	0.6	4	14.9	0.7	0.4	59.4	0.6	-0.2	0.4	-182.7	0
Y	2.6	0.7	28.6	3.1	0.4	0.6	148.2	0.5	0.5	0.4	81	0
Zr	11	0.4	3.6	11.2	1	0.5	46	0.3	-0.1	0.4	-293.9	0
Nb	0.9	0.5	60.2	0.9	0.8	0.4	50.5	-0.6	0.2	0.3	195.6	0
Ba	52.6	5.5	10.5	49.6	8.1	3.6	45	14.1	1.3	6.6	531.2	0
Pb	3.5	1.2	35.6	1.9	1.2	1	80.3	0.7	1	0.7	67	0
Th	2	1.8	93	1.3	3.2	2.2	68.2	-0.3	1	1.5	149.3	0
U	0.1	1.4	1362.5	-0.5	-0.6	1.5	-236.1	-0.1	0.8	1.4	187.1	0

Appendix 2f/6

ICP-MS Trace Elements

	BCR1				BIR1				BHVO1			
ppm	Avg	SD	SD Dev%	Recom	Avg	SD	SD Dev%	Recom	Avg	SD	SD Dev%	Recom
P	1596.8	45.8	2.9	1571	82	7.3	8.9	100	1183.9	32.6	2.7	1191
Sc	37.047	4.141	11.2	32.6	34.115	5.937	17.4	44	29.39	1.719	5.8	31.8
Ti	13401	335	2.5	13428	5757	467	8.1	5755	16292	393	2.4	16246
V	416.192	14.666	3.5	407	320.519	22.209	6.9	313	308.818	9.642	3.1	317
Cr	11.6	0.2	1.7	16	394.005	31.165	7.9	382	289	1	0.3	289
Co	37.055	0.9	2.4	37	54.247	3.801	7	51.4	44.951	1.047	2.3	45
Ni	13.783	0.386	2.8	13	165.766	32.575	19.7	166	105.443	41.161	39	121
Cu	20.189	0.675	3.3	19	110.472	7.708	7	126	125.826	4.259	3.4	136
Zn	125.914	4.931	3.9	130	69.817	7.292	10.4	71	106.384	3.544	3.3	105
Ga	22.456	0.704	3.1	22	14.537	1.078	7.4	16	20.694	0.563	2.7	21
As	0.477	0.044	9.1	0.65	0.359	0.073	20.5	0.4	0.557	0.086	15.4	0.4
Rb	47.2	0	0	47.2	0.249	0.064	25.8	0.25	8.241	1.167	14.2	11
Sr	354.555	21.551	6.1	330	94.383	11.362	12	108	380.59	17.715	4.7	403
Y	40.975	4.329	10.6	38	14.738	1.71	11.6	16	27.123	1.534	5.7	27.6
Zr	199.183	5.745	2.9	190	14.081	0.758	5.4	15.5	173.455	3.082	1.8	179
Nb	13.543	0.513	3.8	14	0.583	0.036	6.3	0.6	20.161	0.659	3.3	19
Ba	708.742	22.717	3.2	681	6.644	0.719	10.8	7	135.109	3.149	2.3	139
Cs	1.291	0.226	17.5	0.96	0.005	0.004	87.3		0.109	0.011	9.8	0.13
La	26.279	1.645	6.3	24.9	0.587	0.045	7.6	0.62	15.258	0.61	4	15.8
Ce	55.329	1.646	3	53.7	1.851	0.103	5.6	1.95	38.224	0.759	2	39
Pr	7.251	0.43	5.9	6.8	0.356	0.029	8.2	0.38	5.477	0.178	3.3	5.7
Nd	30.12	1.825	6.1	28.8	2.213	0.173	7.8	2.5	24.635	0.835	3.4	25.2
Sm	7.056	0.412	5.8	6.59	0.968	0.072	7.4	1.1	5.918	0.206	3.5	6.2
Eu	2.117	0.099	4.7	1.95	0.431	0.03	6.9	0.54	1.91	0.086	4.5	2.06
Gd	7.141	0.288	4	6.68	1.418	0.099	7	1.85	6.014	0.237	3.9	6.4

ICP-MS Trace Elements												
ppm	BCR1				BIR1				BHVO1			
	Avg	SD	SD Dev%	Recom	Avg	SD	SD Dev%	Recom	Avg	SD	SD Dev%	Recom
Tb	1.123	0.069	6.1	1.05	0.305	0.026	8.4	0.36	0.921	0.03	3.3	0.96
Dy	6.664	0.465	7	6.34	2.202	0.199	9	2.5	5.109	0.184	3.6	5.2
Ho	1.361	0.098	7.2	1.26	0.497	0.046	9.2	0.57	0.951	0.038	4	0.99
Er	3.737	0.244	6.5	3.63	1.396	0.118	8.5	1.7	2.397	0.089	3.7	2.4
Tm	0.577	0.052	9	0.56	0.227	0.025	10.8	0.26	0.337	0.018	5.4	0.33
Yb	3.587	0.276	7.7	3.38	1.454	0.14	9.6	1.65	1.977	0.088	4.5	2.02
Lu	0.553	0.051	9.3	0.51	0.221	0.023	10.5	0.26	0.28	0.014	4.9	0.29
Hf	5.153	0.183	3.5	4.95	0.552	0.035	6.4	0.6	4.318	0.143	3.3	4.38
Ta	0.841	0.038	4.5	0.81	0.047	0.004	7.6	0.04	1.23	0.067	5.5	1.23
W	0.46	0.043	9.4	0.44	0.007	0.01	142.6	0.007	0.29	0.084	29.2	0.27
Pb	14.437	0.317	2.2	13.6	3.438	0.189	5.5	3	2.462	0.044	1.8	2.6
Th	5.874	0.293	5	5.98	0.026	0.004	16.2	0.03	1.11	0.052	4.7	1.08
U	1.716	0.031	1.8	1.75	0.012	0.002	15	0.01	0.428	0.008	1.8	0.42

Appendix 2f/8

Appendix 3a: Original electron microprobe data set (in wt%), for suevite, cataclasite gneiss and polymict impact breccia samples from the impactite sequence of the Eyreville B drill core. Highlighted columns indicate data that was not considered for interpretation due to bad totals.

Sample #	SiO ₂	TiO ₂	Al ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	Total
RG12	83.1	0.0	7.0	0.1	0.0	0.0	1.7	3.3	0.1	95.2
RG12	61.5	0.0	21.1	0.5	0.0	0.1	4.4	6.3	0.2	94.2
RG12	55.8	0.0	19.7	0.2	0.0	0.1	5.1	9.1	0.2	90.0
RG12	61.8	0.0	21.8	0.1	0.0	0.0	5.0	8.4	0.2	97.2
RG12	89.1	0.1	1.2	0.9	0.0	0.5	0.3	0.3	0.4	92.9
RG12	49.7	0.7	28.5	8.8	0.1	1.8	1.2	0.4	0.4	91.6
RG12	54.7	0.9	23.1	8.3	0.1	0.9	0.8	1.0	5.0	94.8
RG12	80.5	0.1	5.8	5.9	0.1	0.7	0.5	0.3	0.2	94.0
RG12	77.8	0.3	8.2	5.3	0.0	0.5	0.6	0.4	1.7	94.9
RG12	52.0	0.7	23.3	8.7	0.1	1.6	0.4	0.8	5.4	93.1
RG16	72.7	1.0	13.9	1.0	0.1	0.0	2.1	2.3	5.4	98.5
RG16	51.7	0.1	12.4	21.6	0.2	6.6	0.7	0.3	0.3	93.8
RG16	53.9	5.2	18.0	4.9	0.2	0.7	6.6	2.8	2.1	94.4
RG16	75.8	0.3	13.0	1.5	0.0	0.4	0.5	1.3	6.1	99.0
RG16	63.7	0.2	18.3	0.5	0.0	0.1	0.3	2.2	11.5	96.7
RG16	71.2	0.3	13.7	1.2	0.0	0.1	0.3	0.7	9.3	96.8
RG16	52.5	1.1	27.0	6.4	0.0	1.4	0.4	1.7	7.8	98.3
RG16	68.7	0.1	15.2	0.8	0.0	0.0	0.2	0.5	11.7	97.3
RG16	51.6	0.9	28.1	5.6	0.0	1.4	0.4	2.1	8.0	98.2
RG16	45.7	0.9	33.0	6.6	0.0	1.6	0.2	1.7	7.2	97.0
RG16	44.7	0.8	32.3	8.1	0.0	1.9	0.2	1.8	7.4	97.2
RG16	52.3	0.7	28.7	5.8	0.1	1.5	0.1	1.2	9.4	99.6
RG16	65.3	0.1	17.4	0.2	0.0	0.0	0.1	0.9	13.5	97.4
RG16	49.1	1.3	31.1	5.4	0.0	1.4	0.2	1.7	8.0	98.1
RG16	50.2	1.0	28.6	7.5	0.0	1.8	0.0	1.0	8.8	99.1
RG16	65.7	0.2	17.3	0.2	0.0	0.0	0.2	0.8	13.3	97.7
RG16	73.2	0.5	13.0	0.6	0.0	0.1	0.8	1.4	7.6	97.2
RG16	64.2	0.3	18.7	2.6	0.1	0.3	1.7	2.4	7.6	97.7
RG16	75.1	0.3	13.6	1.1	0.0	0.1	3.8	2.5	1.5	98.1
RG16	71.6	1.1	13.2	1.2	0.0	0.3	0.4	1.4	8.3	97.4
RG16	59.8	0.2	20.5	3.7	0.0	0.6	0.5	1.3	9.7	96.3
RG16	55.1	0.2	26.5	6.3	0.1	1.3	0.2	1.5	7.5	98.6
RG16	85.4	0.0	6.9	0.3	0.0	0.1	0.4	0.9	4.1	98.1
RG16	71.4	0.6	14.5	1.6	0.1	0.2	1.7	2.0	5.6	97.7

Sample #	SiO ₂	TiO ₂	Al ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	Total
RG16	69.4	0.1	16.1	1.5	0.0	0.4	1.0	1.5	8.3	98.2
RG16	65.0	0.0	15.5	5.0	0.0	1.9	0.5	1.6	7.6	97.0
RG16	67.2	0.0	15.9	0.2	0.0	0.0	0.2	1.4	11.5	96.4
RG16	90.9	0.1	3.6	0.4	0.0	0.1	0.6	0.5	1.2	97.2
RG16	76.7	0.3	10.8	0.4	0.0	0.1	0.2	1.0	7.5	97.0
RG16	82.6	0.2	9.9	1.6	0.0	0.5	2.7	0.7	0.9	99.0
RG16	82.0	0.2	7.3	2.6	0.0	0.4	0.3	0.4	2.6	95.7
RG16	84.1	0.2	8.6	2.7	0.0	0.4	2.4	0.7	0.5	99.5
RG16	88.9	0.1	4.9	1.4	0.0	0.2	0.5	0.4	1.7	98.1
RG16	82.2	0.0	6.4	3.4	0.0	0.7	1.9	0.7	0.3	95.5
RG16	79.8	0.2	10.7	1.6	0.0	0.3	2.9	1.3	1.3	98.1
RG16	67.6	0.5	15.3	1.0	0.0	0.1	0.9	1.0	10.2	96.7
RG16	84.4	0.4	7.1	2.2	0.1	0.8	1.8	0.6	0.8	98.1
RG16	69.5	1.5	17.3	8.8	0.1	2.5	0.0	0.0	0.0	99.8
RG16	50.3	0.6	25.8	14.1	0.1	2.3	2.6	0.6	0.6	96.9
RG16	75.0	0.1	9.2	7.4	0.1	0.5	0.9	0.5	1.3	95.1
RG16	54.9	0.1	30.3	4.0	0.0	0.8	0.5	0.8	5.8	97.1
RG16	76.7	2.4	10.0	7.8	0.1	1.6	0.7	0.3	0.3	99.8
RG16	89.2	0.2	4.8	0.4	0.0	0.1	0.5	0.5	2.5	98.1
RG16	93.6	0.2	3.3	0.6	0.1	0.1	0.3	0.2	1.4	99.8
RG16	94.5	0.1	1.7	0.6	0.0	0.1	0.2	0.2	0.1	97.5
RG16	87.9	0.2	5.1	3.0	0.1	0.7	0.3	0.2	0.6	98.1
RG16	95.8	0.2	2.2	0.6	0.0	0.1	0.1	0.1	0.4	99.5
RG16	83.0	1.2	6.1	5.2	0.0	0.4	0.6	0.3	0.2	96.9
RG16	83.7	2.0	5.3	5.3	0.1	0.5	0.3	0.2	0.1	97.3
RG16	80.1	0.6	7.8	6.8	0.1	0.5	0.7	0.4	0.3	97.2
RG16	87.7	1.2	4.5	3.4	0.0	0.4	0.3	0.1	0.1	97.5
RG16	73.1	0.8	13.0	1.6	0.0	0.1	0.5	0.7	8.0	97.8
RG16	89.9	0.1	4.5	2.4	0.0	0.3	0.3	0.5	0.4	98.4
RG16	94.2	0.1	2.8	1.3	0.0	0.2	0.1	0.1	0.5	99.3
RG16	80.9	0.3	8.7	1.7	0.0	0.3	0.6	0.6	4.7	97.7
RG16	84.7	0.2	4.8	6.2	0.0	1.1	0.2	0.1	0.1	97.4
RG16	68.4	0.1	15.9	8.2	0.1	1.4	0.7	0.5	2.6	98.0
RG16	69.1	0.8	13.8	3.3	0.1	0.3	0.3	1.2	9.0	97.8
RG16	87.7	0.1	4.6	3.5	0.0	0.5	0.2	0.2	0.3	97.0
RG16	96.5	0.2	0.7	0.6	0.0	0.1	0.0	0.0	0.1	98.2
RG16a	52.5	0.0	27.2	1.4	0.0	0.2	8.7	4.0	1.4	95.3
RG16a	60.1	0.2	16.5	0.4	0.0	0.0	0.6	1.6	11.0	90.5
RG16a	51.4	0.0	28.9	1.4	0.0	0.2	11.6	3.0	0.3	96.9
RG16a	98.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	98.4
RG16a	63.4	0.0	17.4	0.0	0.0	0.0	0.1	0.6	15.1	96.7
RG16a	61.5	0.1	20.4	1.9	0.1	0.6	0.5	1.9	10.9	97.8
RG16a	86.2	0.0	7.1	3.3	0.1	0.9	0.9	0.5	0.3	99.2
RG16a	100.7	0.0	0.4	0.2	0.0	0.0	0.1	0.1	0.0	101.5
RG16a	61.8	0.5	21.0	4.2	0.0	1.1	0.1	1.2	9.5	99.3
RG16a	89.2	0.0	3.7	2.6	0.0	0.9	0.8	0.9	1.2	99.3

Sample #	SiO ₂	TiO ₂	Al ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	Total
RG16a	64.1	0.0	18.6	0.2	0.0	0.0	0.4	2.4	13.2	98.8
RG16a	62.3	0.0	17.6	1.0	0.1	0.4	0.9	2.5	10.2	95.1
RG16a	62.8	0.8	17.6	1.5	0.0	0.0	0.7	1.3	12.8	97.5
RG16a	62.2	0.5	19.1	1.7	0.0	0.6	1.5	1.4	11.2	98.2
RG16a	67.4	0.2	15.6	0.1	0.1	0.0	0.2	0.7	13.0	97.4
RG16a	64.7	2.5	16.8	2.4	0.1	0.3	3.7	3.3	2.3	96.0
RG16a	61.0	0.9	17.8	1.0	0.0	0.0	1.2	1.7	11.7	95.2
RG16a	96.3	0.1	1.0	0.3	0.0	0.0	0.1	0.3	0.1	98.3
RG16a	52.5	0.0	27.2	1.4	0.0	0.2	8.7	4.0	1.4	95.3
RG16a	47.2	0.0	14.4	0.2	0.0	0.0	1.4	4.5	6.1	73.9
RG16a	60.1	0.2	16.5	0.4	0.0	0.0	0.6	1.6	11.0	90.5
RG16a	30.5	0.1	12.4	6.9	0.2	2.0	0.5	1.7	1.6	56.0
RG16a	13.4	0.4	4.0	1.1	0.0	0.2	0.3	0.1	1.0	20.6
RG16a	53.8	0.1	18.5	8.2	0.1	2.3	0.3	0.4	1.1	84.8
RG16a	49.4	0.2	16.3	5.8	0.0	1.7	0.4	0.5	1.3	75.8
RG16a	55.6	0.0	1.4	0.0	0.0	4.6	6.1	7.5	1.0	76.2
RG16a	57.4	0.0	1.4	0.1	0.0	4.5	5.9	8.2	0.9	78.4
RG16a	41.6	0.0	1.1	0.0	0.0	3.2	5.0	6.0	1.0	58.0
RG16a	57.3	0.1	1.4	0.1	0.0	4.7	5.5	9.3	0.9	79.1
RG16a	57.0	0.0	1.4	0.1	0.0	4.7	6.2	9.9	0.8	80.2
RG16a	56.8	0.0	1.3	0.1	0.0	4.7	5.9	9.6	0.8	79.2
RG16a	56.6	0.0	1.4	0.0	0.0	4.7	5.5	9.6	0.8	78.6
RG16a	56.5	0.0	1.4	0.1	0.0	3.9	6.2	5.9	1.0	75.0
RG16a	50.9	0.0	1.3	0.1	0.0	4.4	6.4	6.8	1.2	71.1
RG16a	6.4	0.0	0.2	0.1	0.0	3.0	5.3	6.3	1.7	23.0
RG19	93.6	0.3	2.8	1.0	0.1	0.2	0.1	0.4	0.3	98.7
RG19	75.0	0.4	8.7	3.9	0.1	0.9	0.2	0.8	1.2	91.2
RG19	82.9	0.5	3.5	0.9	0.1	0.2	0.4	0.4	1.2	90.0
RG19	74.7	0.3	10.3	4.0	0.0	1.2	0.4	0.8	0.6	92.3
RG19	71.3	10.2	5.4	2.4	0.0	0.5	0.4	0.8	0.3	91.2
RG19	74.7	0.3	9.5	3.6	0.0	1.0	0.6	0.9	0.5	91.1
RG19	74.8	0.3	10.2	3.9	0.0	1.2	0.8	0.8	0.5	92.5
RG19	76.7	0.3	11.4	4.6	0.0	1.1	0.3	1.2	0.4	95.9
RG19	82.2	1.1	7.3	2.9	0.0	0.7	0.3	1.1	0.4	95.9
RG19	81.3	0.5	10.5	4.2	0.0	1.2	0.4	1.0	0.7	99.8
RG19	70.9	0.2	11.6	5.2	0.1	1.2	0.3	1.5	0.3	91.3
RG20	65.4	0.8	13.9	6.4	0.1	1.5	0.3	1.8	0.4	90.6
RG20	77.2	0.3	8.3	3.9	0.0	0.7	0.6	0.8	0.2	92.0
RG20	77.1	0.1	7.6	3.7	0.0	0.7	0.9	0.7	0.2	91.0
RG20	65.9	19.9	6.5	2.8	0.0	0.6	0.9	0.9	0.2	97.7
RG20	69.8	11.1	8.1	3.7	0.1	0.8	1.0	1.0	0.2	95.7
RG20	48.0	0.2	21.4	6.9	0.1	0.2	16.0	2.3	1.7	96.9
RG20	68.1	0.3	13.0	4.9	0.1	1.8	1.9	0.9	4.1	95.0
RG20	84.7	0.4	4.5	3.1	0.1	0.8	0.8	0.4	1.0	95.6
RG20	67.7	1.5	13.2	7.1	0.1	2.2	1.1	0.4	2.5	95.7
RG20	84.5	0.3	6.2	4.1	0.0	1.1	0.7	0.3	1.2	98.5

Sample #	SiO ₂	TiO ₂	Al ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	Total
RG20	70.3	0.2	12.3	1.7	0.0	0.4	4.5	2.3	3.7	95.5
RG20	68.1	0.1	15.2	1.6	0.0	0.6	0.4	0.7	12.1	98.8
RG20	87.4	0.4	6.0	1.9	0.0	0.3	0.2	0.3	0.2	96.8
RG20	97.1	0.0	0.8	0.1	0.0	0.0	0.0	0.2	0.1	98.4
RG20	80.9	0.3	8.6	2.5	0.0	0.7	0.4	1.0	3.9	98.2
RG20	82.2	0.5	5.9	3.2	0.1	0.5	0.3	0.3	0.8	93.6
RG20	76.4	0.2	3.9	1.3	0.0	0.3	0.2	0.4	0.1	82.8
RG20	91.1	0.1	0.8	0.6	0.0	0.1	0.1	0.3	0.2	93.3
RG20	79.8	0.4	7.0	2.3	0.1	0.5	0.3	0.6	0.3	91.2
RG20	84.1	0.1	2.8	1.3	0.0	0.2	0.3	0.5	0.4	89.7
RG20	81.5	4.4	2.7	1.5	0.0	0.2	0.2	0.4	0.5	91.4
RG20	62.0	0.0	19.1	1.0	0.0	0.2	0.2	4.2	8.0	94.7
RG22	82.3	0.1	4.4	2.2	0.1	0.8	0.4	0.8	0.7	91.6
RG22	46.4	0.4	32.0	2.7	0.0	0.9	0.1	0.5	9.4	92.2
RG22	56.3	0.9	16.6	4.8	0.1	3.7	1.3	1.5	6.8	92.0
RG22	68.1	1.1	10.3	3.4	0.1	2.4	1.7	1.6	1.9	90.5
RG22	65.4	0.0	18.5	0.3	0.1	0.0	0.1	4.9	8.6	98.1
RG22	66.5	0.0	19.0	0.1	0.0	0.0	0.5	7.3	6.1	99.4
RG22	77.8	0.2	8.1	2.5	0.0	1.0	0.2	0.4	1.9	92.1
RG22	97.3	0.0	0.3	0.2	0.0	0.0	0.1	0.1	0.1	98.0
RG22	97.4	0.0	0.3	0.2	0.0	0.0	0.0	0.1	0.0	98.0
RG22	82.9	0.5	4.9	2.0	0.1	0.5	0.3	0.5	1.0	92.6
RG22	74.8	0.5	6.5	4.4	0.1	1.4	0.6	0.6	1.6	90.4
RG22	84.6	0.6	8.6	2.1	0.0	0.4	0.5	0.3	0.3	97.5
RG22	84.0	0.5	7.3	1.7	0.0	0.3	0.5	0.3	0.3	94.9
RG22	79.8	0.1	11.1	1.9	0.1	0.5	0.1	0.2	3.4	97.0
RG22	53.2	1.8	14.9	9.0	0.1	2.7	1.1	0.6	0.3	83.7
RG22	66.8	0.0	19.5	0.6	0.0	0.3	0.6	10.4	1.3	99.4
RG22	34.5	0.0	17.6	0.9	0.3	11.9	0.9	0.5	0.6	67.1
RG22	80.3	0.1	5.3	0.2	0.1	3.5	0.2	0.5	1.0	91.2
RG22	96.9	0.0	0.6	0.0	0.0	0.1	0.0	0.0	0.4	98.2
RG22	63.3	0.0	17.5	0.0	0.0	0.0	0.0	1.1	11.7	93.7
RG22	75.7	0.2	7.7	0.5	0.0	1.8	0.5	1.6	1.4	89.3
RG22	68.4	0.1	12.6	0.5	0.0	4.4	0.5	2.9	2.2	91.7
RG22	26.4	4.3	15.7	3.4	0.2	1.0	2.8	1.7	5.8	61.3
RG24	38.2	0.1	10.4	5.3	0.1	2.0	2.7	0.7	0.4	59.8
RG24	37.7	0.3	11.9	8.2	0.1	2.4	0.5	0.3	0.4	61.6
RG24	6.8	47.2	3.0	22.5	1.5	0.4	0.3	0.6	1.6	83.8
RG24	52.6	0.7	21.5	5.8	0.1	1.8	6.3	0.8	1.4	91.1
RG24	28.8	0.1	10.1	4.0	0.0	1.1	2.9	3.2	1.7	51.9
RG24	44.0	0.0	3.2	2.6	0.0	0.6	0.4	0.2	0.2	51.3
RG24	27.3	0.1	9.9	12.1	0.3	5.2	0.2	0.3	1.4	56.7
RG24	38.3	0.2	8.7	2.9	0.1	1.0	0.1	0.2	2.8	54.3
RG24	27.5	0.2	11.9	2.2	0.0	0.9	0.3	1.0	5.0	49.1
RG24	37.0	0.3	10.9	2.2	0.0	0.7	0.1	0.3	4.2	55.6
RG24	20.0	0.2	8.7	3.8	0.2	1.0	12.6	0.4	3.8	50.9

Sample #	SiO ₂	TiO ₂	Al ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	Total
RG24	27.4	0.2	17.4	3.5	0.1	1.2	0.1	2.7	5.0	57.8
RG24	34.6	0.1	8.9	3.2	0.0	1.1	0.2	1.3	3.7	53.3
RG24	30.5	0.2	12.3	7.3	0.1	2.5	0.1	0.3	3.9	57.3
RG24	43.0	0.2	14.6	2.8	0.0	0.8	0.2	0.4	3.9	66.0
RG24	46.7	0.0	2.1	2.3	0.0	0.7	0.1	0.1	0.6	52.5
RG24	34.5	0.1	15.4	1.8	0.0	0.5	0.2	6.7	3.3	62.4
RG24	52.9	0.0	1.1	0.8	0.0	0.4	0.1	0.0	0.2	55.5
RG24	46.7	0.1	5.2	1.3	0.0	0.4	0.1	0.2	1.6	55.6
RG24	24.9	0.2	10.9	11.1	0.3	4.4	0.2	0.3	2.2	54.6
RG24	35.3	0.2	13.1	2.7	0.1	0.9	0.1	0.3	4.5	57.1
RG24	25.6	0.5	21.0	2.7	0.0	1.5	0.0	0.5	8.1	59.9
RG24	27.3	0.3	21.0	3.8	0.0	1.3	0.0	0.3	7.5	61.6
RG24	53.0	0.0	2.0	0.8	0.0	0.2	0.1	0.3	0.5	56.9
RG24	37.5	0.0	13.1	0.2	0.1	0.0	0.1	10.3	0.6	61.9
RG24	43.9	0.1	6.7	2.0	0.0	0.7	0.1	2.3	1.7	57.6
RG24	31.3	0.3	16.6	3.6	0.0	1.2	0.3	0.5	5.1	58.9
RG24	46.2	0.0	23.3	4.2	0.2	0.0	11.1	3.2	1.4	89.5
RG24	63.9	0.0	19.1	0.1	0.0	0.0	0.5	11.2	0.1	95.0
RG25	52.8	6.9	21.1	7.2	0.1	2.3	3.8	0.9	1.4	96.4
RG25	60.5	0.1	17.8	9.2	0.1	2.8	0.5	0.5	1.1	92.6
RG25	50.3	0.1	28.8	1.3	0.0	0.4	16.4	1.8	0.4	99.4
RG25	48.8	0.1	27.7	1.9	0.0	0.7	17.0	2.0	0.6	98.8
RG25	62.2	0.0	19.3	0.2	0.0	0.0	1.1	1.2	12.9	96.9
RG25	73.7	1.4	7.7	3.6	0.1	1.2	0.6	0.6	1.3	90.0
RG25	53.6	0.7	22.9	2.7	0.1	1.1	11.6	2.6	1.3	96.3
RG25	76.7	0.0	11.6	1.7	0.0	0.7	3.4	2.2	0.8	97.1
RG25	61.0	0.1	17.4	8.9	0.0	3.0	0.5	0.6	1.2	92.7
RG25	52.6	0.7	21.5	5.8	0.1	1.8	6.3	0.8	1.4	91.1
RG25	52.8	6.9	21.1	7.2	0.1	2.3	3.8	0.9	1.4	96.4
RG25	60.5	0.1	17.8	9.2	0.1	2.8	0.5	0.5	1.1	92.6
RG25	50.3	0.1	28.8	1.3	0.0	0.4	16.4	1.8	0.4	99.4
RG25	48.8	0.1	27.7	1.9	0.0	0.7	17.0	2.0	0.6	98.8
RG25	62.2	0.0	19.3	0.2	0.0	0.0	1.1	1.2	12.9	96.9
RG25	73.7	1.4	7.7	3.6	0.1	1.2	0.6	0.6	1.3	90.0
RG25	53.6	0.7	22.9	2.7	0.1	1.1	11.6	2.6	1.3	96.3
RG25	76.7	0.0	11.6	1.7	0.0	0.7	3.4	2.2	0.8	97.1
RG25	61.0	0.1	17.4	8.9	0.0	3.0	0.5	0.6	1.2	92.7
RG25	56.3	0.0	26.0	0.5	0.0	0.1	10.2	4.9	0.7	98.7
RG25	98.8	0.0	0.3	0.1	0.0	0.0	0.1	0.0	0.0	99.3
RG25	61.2	0.2	18.1	8.2	0.1	2.5	1.3	0.8	1.9	94.2
RG25	60.0	0.1	23.1	2.2	0.0	0.8	7.6	3.2	1.5	98.5
RG25	78.4	0.0	8.2	4.0	0.1	1.5	0.5	0.7	1.1	94.5
RG25	83.5	0.0	4.7	1.9	0.0	0.7	0.4	0.8	0.7	92.8
RG25	59.2	0.1	16.9	8.7	0.1	3.4	0.4	0.7	1.5	91.0
RG25	61.1	0.1	15.8	7.6	0.1	3.0	0.5	0.7	1.8	90.7
RG25	58.8	0.2	15.2	9.1	0.1	3.2	0.4	0.9	2.4	90.2

Sample #	SiO ₂	TiO ₂	Al ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	Total
RG25	54.0	0.2	22.1	7.7	0.1	0.4	11.3	2.2	1.6	99.7
RG118	44.5	0.3	35.2	3.8	0.1	1.3	0.1	0.5	8.1	93.9
RG118	54.6	0.0	28.1	1.1	0.0	0.3	0.1	1.8	9.6	95.6
RG118	62.0	0.0	18.8	0.3	0.0	0.1	1.4	9.2	2.5	94.3
RG118	63.3	0.2	15.8	0.2	0.0	0.0	0.2	0.5	13.6	93.7
RG114	93.7	0.1	0.8	0.3	0.0	0.0	0.1	0.1	0.3	95.3
RG114	66.0	0.0	19.0	0.1	0.0	0.0	1.3	10.0	1.0	97.4
RG114	88.3	0.0	1.4	0.6	0.1	0.3	0.6	0.2	0.3	91.7
RG114	80.0	0.3	7.5	0.5	0.0	0.2	0.7	1.2	3.5	93.9
RG114	63.0	0.1	16.3	0.7	0.0	0.2	1.2	6.3	3.5	91.3
RG114	26.2	0.0	22.5	29.0	0.6	12.4	0.1	0.2	0.3	91.2
RG114	25.9	0.0	22.1	30.4	0.5	12.1	0.1	0.1	0.2	91.4
RG114	26.3	0.0	22.7	30.1	0.6	12.0	0.1	0.1	0.2	92.0
RG114	72.2	0.0	12.6	0.2	0.1	0.1	0.0	0.2	10.9	96.3
RG114	93.0	0.0	3.6	1.2	0.0	0.4	0.4	0.4	0.1	99.2
RG114	49.5	0.3	25.1	4.2	0.0	1.7	0.1	2.9	6.7	90.7
RG114	27.8	0.3	20.4	29.5	0.2	7.0	0.1	0.4	2.0	87.7
RG114	24.5	0.3	20.3	32.4	0.4	8.5	0.2	0.3	0.2	87.1
RG114	35.5	0.2	23.2	20.5	0.2	5.5	0.3	1.2	3.1	89.8
RG114	83.0	0.0	4.5	5.4	0.0	1.5	0.1	0.6	0.1	95.3
RG114	97.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	98.1
RG114	97.3	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.0	97.6
RG114	97.1	0.0	0.2	0.0	0.0	0.0	0.0	0.1	0.1	97.5
RG114	95.0	0.0	1.3	0.1	0.0	0.0	0.1	0.1	0.4	97.0
RG114	97.5	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	97.8
RG114	97.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	97.2
RG114	97.6	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	97.8
RG114	49.9	0.0	9.7	0.4	0.0	0.0	0.1	0.0	8.1	68.1
RG114	60.9	0.0	18.3	0.3	0.1	0.1	0.2	2.3	12.7	94.9
RG114	65.4	0.0	19.2	0.1	0.0	0.0	0.6	11.1	0.6	97.0
RG114	62.5	0.1	18.1	0.1	0.0	0.0	0.1	4.0	10.9	95.8
RG114	41.0	0.1	13.5	14.7	0.2	8.1	0.3	0.5	1.0	79.3
RG114	24.5	0.0	19.7	24.0	0.4	14.7	0.1	0.3	0.3	84.0
RG114	45.9	0.0	22.5	0.9	0.0	0.6	0.3	3.7	5.3	79.3
RG114	63.2	0.0	19.0	0.1	0.0	0.0	0.6	11.1	0.8	94.7
RG114	51.1	0.0	13.1	2.1	0.0	1.5	0.5	4.8	3.5	76.6
RG114	42.4	0.0	23.8	1.8	0.0	1.1	0.4	2.4	6.1	78.0
RG114	23.4	0.1	19.7	23.5	0.3	14.2	0.1	0.3	0.3	81.8
RG114	52.5	3.4	5.0	7.0	0.2	3.6	0.5	0.5	0.5	73.2
RG114	68.3	0.0	0.4	0.5	0.0	0.1	0.3	0.4	0.5	70.4
RG114	43.4	0.0	0.9	0.4	0.0	0.1	0.2	0.4	0.6	46.1
RG114	38.2	0.0	8.9	10.2	0.1	5.1	0.2	0.5	0.6	63.8
RG114	12.1	0.2	9.9	49.5	0.2	6.3	0.1	0.2	0.3	78.8
RG114	30.8	1.4	21.2	21.1	0.3	8.2	0.1	0.1	3.7	86.9
RG114	21.2	0.8	16.2	22.1	0.2	10.4	0.5	0.6	1.0	73.0
RG101	51.2	0.2	31.1	1.6	0.1	1.1	0.3	0.2	8.2	94.0

Sample #	SiO ₂	TiO ₂	Al ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	Total
RG101	69.1	0.4	6.3	2.9	0.1	0.7	0.1	0.5	0.5	80.4
RG101	9.2	1.4	2.8	2.9	0.1	1.9	0.8	1.0	1.5	21.6
RG101	40.7	0.2	29.8	2.4	0.0	0.9	0.3	0.5	7.7	82.5
RG101	60.0	0.4	15.7	0.9	0.1	1.0	0.2	0.5	4.4	83.1
RG101	23.3	0.2	12.8	9.2	0.3	5.8	0.5	0.8	2.1	55.0
RG101	68.4	1.2	16.9	1.2	0.1	0.6	0.2	0.4	3.9	92.8
RG101	43.7	0.3	27.2	3.8	0.0	1.6	0.4	0.5	6.7	84.1
RG101	64.4	0.2	17.9	1.0	0.0	0.6	0.6	0.5	4.0	89.2
RG101	79.5	0.1	8.3	0.6	0.1	0.2	0.2	0.3	1.7	90.8
RG101	23.2	1.0	11.2	7.3	0.2	3.3	0.6	2.3	1.4	50.6
RG101	44.1	0.7	20.2	1.5	0.1	0.8	0.2	0.5	5.8	73.9
RG101	84.3	0.1	2.7	0.2	0.0	0.1	0.2	0.4	0.7	88.8
RG101	50.4	1.3	13.9	2.2	0.1	0.6	0.2	0.5	4.2	73.4
RG101	47.8	0.1	25.8	1.9	0.0	0.8	0.3	0.6	7.0	84.3
RG101	47.2	0.5	23.8	7.2	0.2	2.2	0.4	0.4	5.4	87.3
RG101	28.3	0.4	15.3	2.7	0.0	1.2	0.3	0.6	7.1	55.8
RG101	32.3	0.1	17.3	11.8	0.3	7.1	0.5	0.9	1.9	72.1
RG90	75.4	0.4	5.1	1.1	0.0	0.2	0.3	0.5	0.3	83.3
RG90	68.7	0.3	5.0	1.0	0.0	0.1	0.2	0.5	0.4	76.3

Appendix 3a/7

Appendix 4a: Universal stage data

Table 1: Upper Suevites (SU)

Sample # Depth (m)	Grain #	C-axis Orientation	PDF Measurement	Polar Angle	Symbol & Miller Index
RG11 1396.03	1	044°, E-W	107°/1°W	67°	66°;s {11 $\bar{2}$ 1}
			107°/2°W	67°	
			107°/6°W	68°	
			107°/0°E	66°	
			107°/4°E	68°	
	2	279°, E-W	192°/7°E	79°	79°;t {40 $\bar{4}$ 1}
			192°/2°E	79°	
			192°/4°E	80°	
RG12 1397.51	1a	80°, E-W	108°/4°E	62°	66°;s {11 $\bar{2}$ 1}
	1b	240°, E-W	108°/7°E	63°	
			108°/3°E	64°	
	2a	122°, E-W	300°/10°E	62°	66°;s {11 $\bar{2}$ 1}
			300°/2°E	65°	
			300°/9°E	62°	
	2b	190°, E-W	140°/3°E	74°	74°; {21 $\bar{3}$ 1}
			140°/5°E	72°	
			140°/12°E	70°	
	2c	205°, E-W	170°/3°E	70°	66°;s {11 $\bar{2}$ 1}
			170°/7°E	70°	
			170°/10°E	68°	
			220°/6°E	74°	74°; {21 $\bar{3}$ 1}
			220°/10°E	74°	
			220°/11°E	74°	

* Polar angle is defined as the angle between the pole to PDF plane and quartz c-axis

Table 2: Suevite (S1; S3)

Sample # Depth (m)	Grain #	C-axis Orientation	PDF Measurement	Polar Angle	Symbol & Miller Index
RG16 1408.39	1	352°, E-W	284°/3°E	22°	23°;w {10 $\bar{1}$ 3}
			284°/4°E	22°	
			284°/7°E	22°	
	2a	181°, E-W	190°/4°E	81°	82°;x {51 $\bar{6}$ 1}
			190°/6°W	100°	
			190°/3°E	82°	
	2b	075°, E-W	190°/5°E	80°	66°;s {11 $\bar{2}$ 1}
			060°/14°W	70°	
			060°/16°W	68°	
			060°/8°W	66°	

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Sample # Depth (m)	Grain #	C-axis Orientation	PDF Measurement	Polar Angle	Symbol & Miller Index
	2c	040°, E-W	115°/8°W	71°	66°;s {11 $\bar{2}$ 1}
			115°/3°W	69°	
			115°/4°W	69°	
	3	328°, E-W	105°/8°W	30°	32°;II {10 $\bar{1}$ 2}
			105°/12°W	33°	
			105°/7°W	30°	
RG20 1417.41	1a	145°, E-W	175°/1°E	62°	66°;s {11 $\bar{2}$ 1}
			175°/8°E	60°	
			175°/4°E	61°	
	1b	107°, E-W	040°/1°E	77°	77°;{22 $\bar{4}$ 1}
			040°/0°W	77°	
			040°/3°E	77°	
	2	198°, E-W	176°/5°E	73°	74°; {21 $\bar{3}$ 1}
			176°/10°W	70°	
			176°/3°E	74°	
			176°/5°E	73°	
RG22 1420.23	1	270°, E-W	300°/8°W	63°	66°;s {11 $\bar{2}$ 1}
			300°/13°W	65°	
			300°/4°W	63°	
	2	197°, E-W	170°/6°E	63°	66°;s {11 $\bar{2}$ 1}
			170°/4°E	62°	
			170°/3°E	64°	
	3	030°, E-W	052°/14°E	64°	66°;s {11 $\bar{2}$ 1}
			052°/10°E	66°	
			052°/7°E	68°	
RG26 1424.85	1	200°, E-W	350°/1°W	40°	Not indexed
			350°/0°W	40°	
			350°/4°W	41°	
			350°/5°W	41°	
	2a	192°, E-W	210°/2°E	72°	74°; {21 $\bar{3}$ 1}
			210°/3°E	72°	
			210°/2°W	70°	
			210°/5°E	73°	
	2b	348°, E-W	278°/2°W	62°	66°;s {11 $\bar{2}$ 1}
			278°/7°W	65°	
			278°/0°W	62°	
			278°/3°W	63°	
RG28 1427.76	1	316°, E-W	290°/6°W	64°	66°;s {11 $\bar{2}$ 1}
			290°/10°W	62°	
			290°/3°W	63°	
			290°/4°W	64°	
	2	320°, E-W	105°/10°W	54°	52°;r,z {10 $\bar{1}$ 1}
			105°/2°W	52°	
			105°/18°W	52°	

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Sample # Depth (m)	Grain #	C-axis Orientation	PDF Measurement	Polar Angle	Symbol & Miller Index
RG118 1431.71	1a	075°, E-W	065°/11°W	76°	74°; {21 $\bar{3}$ 1}
			065°/14°W	74°	
			065°/16°W	71°	
	1b	301°, E-W	280°/3°E	66°	66°;s {11 $\bar{2}$ 1}
			280°/7°E	68°	
			280°/11°E	68°	
			280°/9°E	67°	
	2	165°, E-W	151°/15°E	68°	74°; {21 $\bar{3}$ 1}
			151°/10°E	73°	
			151°/12°E	70°	
RG110 1451.73	1	085°, E-W	110°/5°W	66°	66°;s {11 $\bar{2}$ 1}
			110°/0°W	66°	
			110°/3°W	66°	
	2	151°, E-W	179°/12°E	50°	48°;ξ {11 $\bar{2}$ 2}
			179°/3°E	46°	
			179°/7°E	49°	
RG103 1458.99	1	060°, E-W	124°/1°W	25°	23°;w {10 $\bar{1}$ 3}
			124°/6°W	24°	
			124°/4°W	25°	
	2a	314°, E-W	308°/5°E	25°	23°;w {10 $\bar{1}$ 3}
			308°/12°E	21°	
			308°/7°E	25°	
	2b	221°, E-W	295°/0°E	67°	66°;s {11 $\bar{2}$ 1}
			295°/9°E	65°	
			295°/8°E	65°	

* Polar angle is defined as the angle between the pole to PDF plane and quartz c-axis

Table 3: Cataclasite gneiss block (B5)

Sample # Depth (m)	Grain #	C-axis Orientation	PDF Measurement	Polar Angle	Symbol & Miller Index
RG96 1476.79	1	135°, E-W	050°/17°E	3°	0°;c {0001}
			050°/11°E	4°	
			050°/3°E	6°	
	2	268°, E-W	99°/0°E	22°	23°;w {10 $\bar{1}$ 3}
			99°/1°E	22°	
			99°/3°E	21°	

* Polar angle is defined as the angle between the pole to PDF plane and quartz c-axis

Table 4: Polymict impact breccia (P2; P3)

Sample # Depth (m)	Grain #	C-axis Orientation	PDF Measurement	Polar Angle	Symbol & Miller Index
RG91 1504.42	1	118°, E-W	244°/12°E	36°	32°;Π {1012}
			244°/10°E	36°	
			244°/8°E	36°	
	2a	302°, E-W	050°/8°E	18°	Not indexed
			050°/20°E	16°	
			050°/9°E	17°	
	2b	192°, E-W	250°/2°E	32°	32°;Π {10 $\bar{1}$ 2}
			250°/4°W	32°	
			250°/8°E	32°	
RG83 1532.75	1	045°, E-W	300°/7°E	15°	Not indexed
			300°/2°E	14°	
			300°/8°E	15°	
	2a	232°, E-W	120°/3°E	20°	23°;w {10 $\bar{1}$ 3}
			120°/9°E	20°	
			120°/4°E	20°	
	2b	180°, E-W	261°/9°E	11°	Not indexed
			261°/3°E	11°	
			261°/11°E	10°	

* Polar angle is defined as the angle between the pole to PDF plane and quartz c-axis

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