Newfoundland Labrador

Natural Resources

Mines

VIKING GOLD DEPOSIT (NTS MAP AREA 12H/11), LITHOGEOCHEMICAL DATABASE

H.A.I. Sandeman

Open File 012H/11/2107

St. John's, Newfoundland
August, 2014

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GEOLOGICAL SURVEY
NEWFOUNDLAND AND LABRADOR
Celebrating 150 years

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INTRODUCTION

The Viking gold deposit database presents lithogeochemical data for a suite of rock samples collected from the immediate vicinity of the deposit in the White Bay area of western Newfoundland. The rock samples were obtained over a two year interval during the completion of a Master's of Science dissertation by Matthew Minnett at the Department of Earth Sciences, Memorial University of Newfoundland and Labrador (Minnett, 2012).

The Viking gold deposit is located to the west of White Bay, approximately 8 km southwest of the community of Pollards Point. Access to the deposit is *via* a recently constructed access road from regional Highway 420. Mineralization occurs mainly in the Main River pluton, a potassium feldspar porphyritic–to-augen granodiorite (*sensu-lato*) that comprises part of the Grenvillian Long Range Inlier of western Newfoundland. Immediately to the east of the deposit is the Doucers Valley Fault system, a long-lived, crustal scale fault zone that has focussed both deformation and hydrothermal fluids throughout its history.

Mineralization occurs as wide, low-grade (*ca.* 1g/t Au), sericitic envelopes surrounding high-grade (*e.g.*, 50.05 g/t Au over 3.7 m) sulphide-bearing, anastomosing, pinch-and-swell quartz veins. The mineralization is thought to be *ca.* 409–378 Ma, much younger than the *ca.* 1036 Ma host, Main River pluton. More detailed background information on the setting and origin of the Viking deposit can be found in the references given below.

NOTES ON THE DATABASE

The location data is presented in Universal Transverse Mercator (UTM), eastings and northings (zone 21; NAD27) format. All of the location data was determined by a Garmin GPS in association with topographic maps and aerial photographs. In addition to the position for each sample, the sample identification is prefixed by the collecting geologists' initials. Samples containing the letters MM were collected by Matthew Minnett, those with the letters HS were collected by Hamish Sandeman. The chemistry table contains the whole-rock geochemical analytical data for the applicable samples. Major elements are recorded as weight percentages of their oxides. Where the oxidation state was determined, iron is presented as FeO and Fe_2O_3, otherwise it is represented as Fe_2O_3(total). Volatiles are represented as LOI (loss-on-ignition), or as LOI, percent CO_2 and percent S where applicable. F concentrations, determined by ion specific electrode, are presented in ppm for selected samples. The minor, trace- and rare-earth elemental compositions are presented in ppm. Gold is reported in ppb. Major elements and some trace elements were analyzed by ICP-ES (inductively coupled plasma-emission spectrometry) following lithium borate fusion and multi-acid attack. Other trace- and rare-earth elements were analyzed by a combination ICP-MS (inductively coupled plasma-mass spectrometry), and INAA (instrumental neutron activation analysis). Details of the analytical procedures are provided by Activation Laboratories in Ancaster, Ontario (http://www.actlabs.com) and Becquerel Laboratories (http://www.becquerellabs.com/). Where an element was analyzed using multiple methods, the value determined by the method that appears most reliable is presented. For elements not determined, the number -99 has been placed in the database, whereas elemental analyses that are below detection limits are presented as the estimated detection limit (*e.g.*, -0.1, -1, -5).

ACKNOWLEDGMENT

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REFERENCES

Finch, C.J.
1998: Inductively coupled plasma-emission spectrometry (ICP-ES) at the geochemical laboratory. *In* Current Research. Newfoundland Department of Mines and Energy, Report 98-1, pages 179-193.

Minnett, M.
2012: An investigation of the geology, geochemistry and timing of gold mineralization at the Viking gold deposit, White Bay, Newfoundland. Unpublished M.Sc. thesis, Memorial University of Newfoundland, 127 pages.

Minnett, M., Sandeman, H. and Wilton, D.
2012: Geochemistry of the host rocks and timing of gold-electrum mineralization at the Viking Property, Newfoundland. *In* Current Research. Newfoundland Department of Mines and Energy, Geological Survey, Report 12-1, pages 61-84.

Minnett, M., Sandeman, H.A. and Wilton, D.
2010: Regional setting of gold mineralization at the Viking Property, southern White Bay, Newfoundland. *In* Current Research. Newfoundland Department of Mines and Energy, Geological Survey, Report 10-1, pages 51-64.

SampleNum	LabNum	Geofile	Geologist	Unit	Rock_Type	Lab-Method
09MM006	8940119	NFLD/3165	M. Minnett	Long Range sill?	Hornblende diorite	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
09MM010	8940121	NFLD/3165	M. Minnett	Long Range sill?	Hornblende diorite	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
09MM011	8940122	NFLD/3165	M. Minnett	Long Range sill?	Hornblende diorite	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
09MM012	8940123	NFLD/3165	M. Minnett	Long Range sill?	Hornblende diorite	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
09MM016	8940124	NFLD/3165	M. Minnett	Long Range sill?	Hornblende diorite	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
09MM034	8940125	NFLD/3165	M. Minnett	Main River pluton	Microcline augen granodiorite	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
09MM041	8940126	NFLD/3165	M. Minnett	carbonate altered dyke	Mesocratic dyke	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
09MM042	8940127	NFLD/3165	M. Minnett	Main River pluton	Microcline augen granodiorite	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
09MM046	8940128	NFLD/3165	M. Minnett	carbonate altered dyke	Mesocratic dyke	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
09MM051	8940129	NFLD/3165	M. Minnett	Main River pluton	Variably textured biotite monzogranite	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
09MM006 (DUP)	8940130	NFLD/3165	M. Minnett	Long Range sill?	Hornblende diorite	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
09MM055	8940131	NFLD/3165	M. Minnett	Main River pluton	Variably textured biotite monzogranite	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
09MM064	8940132	NFLD/3165	M. Minnett	Long Range sill?	Hornblende diorite	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
09MM065	8940133	NFLD/3165	M. Minnett	Long Range sill?	Hornblende diorite-gabbro	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
09MM066	8940134	NFLD/3165	M. Minnett	Long Range sill?	Hornblende diorite	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
09MM068	8940135	NFLD/3165	M. Minnett	Long Range sill?	Hornblende diorite	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
09MM086	8940136	NFLD/3165	M. Minnett	Long Range sill?	Hornblende diorite	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
09MM091	8940137	NFLD/3165	M. Minnett	Long Range sill?	Hornblende diorite	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
09MM098	8940138	NFLD/3165	M. Minnett	Main River pluton	Microcline augen granodiorite	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
09MM099	8940139	NFLD/3165	M. Minnett	Main River pluton	Variably textured biotite monzogranite	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
09MM102	8940142	NFLD/3165	M. Minnett	Main River pluton	Microcline augen granodiorite	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
09MM103	8940143	NFLD/3165	M. Minnett	carbonate altered dyke	Mesocratic dyke	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
09MM106	8940144	NFLD/3165	M. Minnett	carbonate altered dyke	Mesocratic dyke	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)

Detection Limit						
Analysis Method						

SampleNum	LabNum	Geofile	Geologist	Unit	Rock_Type	Lab-Method Detection Limit Analysis Method
09MM107	8940145	NFLD/3165	M. Minnett	Main River pluton	Microcline augen granodiorite	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
09MM109	8940146	NFLD/3165	M. Minnett	Main River pluton	Variably textured biotite monzogranite	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
09MM110	8940147	NFLD/3165	M. Minnett	Long Range sill?	Hornblende diorite	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
09MM111	8940148	NFLD/3165	M. Minnett	Main River pluton	Variably textured biotite monzogranite	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
09MM112	8940149	NFLD/3165	M. Minnett	Main River pluton	Microcline augen granodiorite	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
09MM111 (DUP)	8940150	NFLD/3165	M. Minnett	Main River pluton	Variably textured biotite monzogranite	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
09MM113	8940151	NFLD/3165	M. Minnett	Main River pluton	Variably textured biotite monzogranite	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
09MM114	8940152	NFLD/3165	M. Minnett	Main River pluton	Variably textured biotite monzogranite	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
09MM115	8940153	NFLD/3165	M. Minnett	Main River pluton	Microcline augen granodiorite	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
09MM119	8940154	NFLD/3165	M. Minnett	Long Range sill?	Hornblende diorite	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
09MM120	8940155	NFLD/3165	M. Minnett	Apsy granite	Microcline augen granodiorite	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
09MM121	8940156	NFLD/3165	M. Minnett	Apsy granite	Microcline augen granodiorite	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
09MM122	8940157	NFLD/3165	M. Minnett	Apsy granite	Microcline augen granodiorite	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
09MM125	8940158	NFLD/3165	M. Minnett	Devils Room granite	Kspar megacrystic biotite granite	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
09MM126	8940159	NFLD/3165	M. Minnett	Devils Room granite	Kspar megacrystic biotite granite	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
09MM137	8940161	NFLD/3165	M. Minnett	Long Range sill?	Hornblende diorite	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
09MM160	8940162	NFLD/3165	M. Minnett	Main River pluton	Microcline augen granodiorite	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
HS09-107	8940163	NFLD/3165	H. Sandeman	Gull Lake intrusive suite	Hornblende-biotite-magnetite monzonite	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
09MM122 (DUP)	8940170	NFLD/3165	M. Minnett	Apsy granite	Microcline augen granodiorite	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
09MM054	8940329	NFLD/3165	M. Minnett	Main River pluton	Microcline augen granodiorite	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
09MM056	8940331	NFLD/3165	M. Minnett	Main River pluton	Microcline augen granodiorite	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
09MM057	8940332	NFLD/3165	M. Minnett	Main River pluton	Microcline augen granodiorite	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
09MM058	8940333	NFLD/3165	M. Minnett	Main River pluton	Microcline augen granodiorite	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)

SampleNum	LabNum	Geofile	Geologist	Unit	Rock_Type	Lab-Method Detection Limit Analysis Method
09MM059	8940334	NFLD/3165	M. Minnett	Main River pluton	Microcline augen granodiorite	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
09MM061	8940335	NFLD/3165	M. Minnett	Main River pluton	Variably textured biotite monzogranite	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
09MM062	8940336	NFLD/3165	M. Minnett	carbonate altered dyke	Mesocratic dyke	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
09MM063	8940337	NFLD/3165	M. Minnett	Main River pluton	Microcline augen granodiorite	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
09MM097	8940338	NFLD/3165	M. Minnett	Main River pluton	Pegmatitic biotite monzogranite	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
09MM101	8940339	NFLD/3165	M. Minnett	Main River pluton	Pegmatitic biotite monzogranite	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
HS09-001A	8940341	NFLD/3165	H. Sandeman	Long Range dyke	Gabbro dyke	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
HS09-108	8940342	NFLD/3165	H. Sandeman	Gull Lake intrusive suite	Hornblende-biotite-magnetite monzonite	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
HS09-059C	8940343	NFLD/3165	H. Sandeman	carbonate altered dyke	Mesocratic dyke	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
HS09-082A	8940344	NFLD/3165	H. Sandeman	Long Range dyke	Gabbro dyke	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
HS09-082B	8940345	NFLD/3165	H. Sandeman	Long Range dyke	Gabbro dyke	Majors and traces (ICP-OES, F) GSNL; ACTLABS (http://www.actlabs.com/: ICP-MS: 4B2STD method); Becquerel Laboratories (INAA); ACTLABS (CO_2, S)
HS09-002	8940396	NFLD/3165	H. Sandeman	Long Range Dyke	Gabbro dyke	All elements analysed at GSNL (Howley Building Laboratory)
HS10-065A	8940418	NFLD/3165	H. Sandeman	Main River pluton	Quartz vein	All elements analysed at GSNL (Howley Building Laboratory)
HS10-065B	8940419	NFLD/3165	H. Sandeman	Main River pluton	Microcline augen granodiorite	All elements analysed at GSNL (Howley Building Laboratory)

SampleNum	UTMEast	UTMNorth	UTMZone	Datum	Hole_ID	From_m	To_m	Elev_m	Azimuth	Dip	TotDepth_m	SiO2_pct	TiO2_pct	Al2O3_pct	Fe2O3T_pct	Fe2O3_pct
Detection Limit												0.01	0.001	0.01	0.01	0.01
Analysis Method												ICP-OES	ICP-OES	ICP-OES	ICP-OES	Difference
09MM006	499867	5504137	21	NAD27								49.31	2.644	12.65	16.09	4.90
09MM010	497753	5506016	21	NAD27								47.91	2.080	11.44	16.11	5.53
09MM011	493076	5506597	21	NAD27								49.76	1.954	14.35	13.21	2.78
09MM012	497585	5506680	21	NAD27								55.23	1.827	16.48	8.62	3.01
09MM016	497380	5505719	21	NAD27								54.59	1.870	15.87	9.14	2.54
09MM034	501425	5505323	21	NAD27								69.13	0.702	14.84	3.38	2.96
09MM041	500582	5504442	21	NAD27	08-VK-01	77.60	77.83	-99	0	45	89.5	63.31	0.608	15.58	3.72	1.60
09MM042	500582	5504442	21	NAD27	08-VK-01	58.75	59.15	-99	0	45	89.5	61.16	0.995	16.65	5.23	2.22
09MM046	500582	5504431	21	NAD27	08-VK-03	18.20	18.50	-99	0	60	40.0	63.58	0.536	14.01	3.38	0.69
09MM051	499657	5503374	21	NAD27								75.21	0.059	14.12	0.64	0.63
09MM006 (DUP)	499867	5504137	21	NAD27								49.48	2.677	12.68	16.25	4.98
09MM055	500651	5504651	21	NAD27	08-VK-04	29.80	30.40	-99	0	45	64.5	72.83	0.086	13.94	0.93	-99.00
09MM064	500582	5504431	21	NAD27	08-VK-05	41.00	41.33	-99	0	90	71.0	48.59	2.554	12.29	15.62	6.25
09MM065	500582	5504431	21	NAD27	08-VK-05	53.94	54.42	-99	0	90	71.0	47.41	2.533	12.25	16.00	7.19
09MM066	500582	5504431	21	NAD27	08-VK-05	68.05	68.55	-99	0	90	71.0	51.12	2.576	12.69	15.82	5.38
09MM068	500867	5504418	21	NAD27								51.09	2.537	13.25	15.28	6.56
09MM086	499323	5504316	21	NAD27								47.18	1.887	14.37	12.91	3.10
09MM091	500627	5504286	21	NAD27								50.73	2.487	12.60	15.09	4.95
09MM098	500570	5504457	21	NAD27								62.20	0.946	15.74	5.14	2.04
09MM099	500578	5504453	21	NAD27								72.08	0.144	13.96	1.31	0.34
09MM102	500591	5504374	21	NAD27								61.65	0.954	16.19	5.03	2.50
09MM103	500584	5504443	21	NAD27								62.03	0.594	15.24	2.78	1.26
09MM106	500554	5504539	21	NAD27								63.13	0.604	15.49	3.57	1.74

SampleNum	UTMEast	UTMNorth	UTMZone	Datum	Hole_ID	From_m	To_m	Elev_m	Azimuth	Dip	TotDepth_m	SiO2_pct	TiO2_pct	Al2O3_pct	Fe2O3T_pct	Fe2O3_pct
Detection Limit												**0.01**	**0.001**	**0.01**	**0.01**	**0.01**
Analysis Method												**ICP-OES**	**ICP-OES**	**ICP-OES**	**ICP-OES**	**Difference**
09MM107	500557	5504529	21	NAD27								61.43	1.071	16.42	5.63	2.50
09MM109	500553	5504528	21	NAD27								74.91	0.070	13.77	0.68	0.47
09MM110	500509	5504330	21	NAD27								50.82	2.612	12.74	15.81	4.63
09MM111	500521	5504452	21	NAD27								74.35	0.091	13.53	0.71	-99.00
09MM112	500619	5504180	21	NAD27								61.92	1.073	16.30	5.41	2.67
09MM111 (DUP)	500521	5504452	21	NAD27								74.08	0.094	13.48	0.71	-99.00
09MM113	500598	5504175	21	NAD27								74.44	0.099	13.92	1.08	0.66
09MM114	500545	5504137	21	NAD27								71.53	0.183	14.47	1.41	0.52
09MM115	500620	5504020	21	NAD27								60.79	1.087	16.19	5.70	2.27
09MM119	500734	5504423	21	NAD27								50.29	2.597	12.71	15.67	6.25
09MM120	514355	5532860	21	NAD27								61.55	1.168	15.55	5.79	2.42
09MM121	513356	5530438	21	NAD27								58.47	1.712	14.65	8.30	3.43
09MM122	511797	5526194	21	NAD27								72.95	0.333	13.02	2.71	1.24
09MM125	505431	5514440	21	NAD27								71.77	0.260	14.35	1.55	0.64
09MM126	505741	5513349	21	NAD27								71.27	0.290	14.43	1.70	0.70
09MM137	500388	5503275	21	NAD27								49.46	2.051	13.21	14.46	4.04
09MM160	499356	5504741	21	NAD27								64.70	0.916	14.57	4.62	2.14
HS09-107	500586	5495501	21	NAD27								64.74	0.768	16.05	4.49	1.36
09MM122 (DUP)	511797	5526194	21	NAD27								72.05	0.312	12.64	2.31	0.72
09MM054	500651	5504651	21	NAD27	08-VK-04	23.26	23.73	-99	0	45	64.5	70.74	0.687	10.80	3.07	1.33
09MM056	500651	5504651	21	NAD27	08-VK-04	45.00	45.30	-99	0	45	64.5	65.19	0.768	12.95	4.18	1.10
09MM057	500651	5504651	21	NAD27	08-VK-04	48.23	43.95	-99	0	45	64.5	59.25	1.045	16.17	4.96	1.73
09MM058	500651	5504651	21	NAD27	08-VK-04	52.10	52.28	-99	0	45	64.5	59.74	0.865	15.60	3.89	1.16

SampleNum	UTMEast	UTMNorth	UTMZone	Datum	Hole_ID	From_m	To_m	Elev_m	Azimuth	Dip	TotDepth_m	SiO2_pct	TiO2_pct	Al2O3_pct	Fe2O3T_pct	Fe2O3_pct
Detection Limit												**0.01**	**0.001**	**0.01**	**0.01**	**0.01**
Analysis Method												**ICP-OES**	**ICP-OES**	**ICP-OES**	**ICP-OES**	**Difference**
09MM059	500651	5504651	21	NAD27	08-VK-04	53.08	53.53	-99	0	45	64.5	65.69	0.715	12.64	3.39	1.33
09MM061	500011	5504775	21	NAD27								76.45	0.187	11.63	1.74	0.60
09MM062	500582	5504431	21	NAD27	08-VK-05	25.75	26.10	-99	0	90	71.0	61.26	0.568	15.31	3.50	0.97
09MM063	500582	5504431	21	NAD27	08-VK-05	34.45	34.85	-99	0	90	71.0	59.57	1.136	16.28	5.95	2.44
09MM097	499947	5504081	21	NAD27								74.42	0.068	13.67	0.84	0.37
09MM101	500662	5504394	21	NAD27								71.83	0.316	13.82	2.07	0.93
HS09-001A	515143	5534772	21	NAD27								46.61	1.725	14.18	13.29	5.40
HS09-108	500567	5494834	21	NAD27								60.96	1.132	15.73	6.97	3.06
HS09-059C	500582	5504566	21	NAD27								61.24	0.595	15.23	3.58	1.68
HS09-082A	500573	5503977	21	NAD27								47.86	2.047	13.44	14.75	5.31
HS09-082B	500573	5503977	21	NAD27								48.23	1.772	14.24	11.72	3.56
HS09-002	514890	5533668	21	NAD27								46.90	1.988	16.20	11.35	2.49
HS10-065A	501238	5505067	21	NAD27								89.27	0.262	3.68	2.39	-99.00
HS10-065B	501238	5505067	21	NAD27								67.48	0.679	14.19	4.50	3.71

SampleNum	FeO_pct	MnO_pct	MgO_pct	CaO_pct	Na2O_pct	K2O_pct	P2O5_pct	LOI_pct	CO2_pct	S_pct	Ag_ppm	As_ppm	Au_ppb	Ba_ppm	Be_ppm	Bi_ppm	Br_ppm
Detection Limit	**0.01**	**0.001**	**0.01**	**0.01**	**0.01**	**0.01**	**0.001**	**0.01**	**0.01**	**0.01**	**0.5**	**0.5**	**1**	**1**	**0.1**	**0.1**	**1**
Analysis Method	**Titration**	**ICP-OES**	**ICP-OES**	**ICP-OES**	**ICP-OES**	**ICP-OES**	**ICP-OES**	**Grav**	**Coul**	**IR**	**FUS-MS**	**INAA**	**INAA**	**ICP-OES**	**ICP-OES**	**FUS-MS**	**INAA**
09MM006	10.07	0.234	4.63	7.95	2.90	1.09	0.282	0.72	0.06	0.07	-0.5	1.5	-2	294	0.3	-1	-1
09MM010	9.52	0.332	6.18	9.38	2.44	1.31	0.329	1.00	0.02	0.35	-0.5	0.6	-2	362	2.6	-1	-1
09MM011	9.39	0.202	5.63	9.68	2.50	0.90	0.211	0.95	0.06	0.03	-0.5	0.8	-2	200	0.2	-1	-1
09MM012	5.05	0.107	3.16	5.72	4.01	2.56	0.599	0.77	0.10	0.11	1.0	-0.5	-2	1062	2.6	-1	-1
09MM016	5.93	0.098	4.61	6.12	3.63	2.33	0.655	0.91	0.09	0.15	-0.5	-0.5	-2	792	2.5	-1	-1
09MM034	0.38	0.028	0.88	0.28	3.11	5.54	0.214	1.39	0.09	0.01	0.8	0.6	2	1642	2.1	-1	4
09MM041	1.90	0.048	2.05	3.64	3.73	3.03	0.192	4.47	2.49	0.07	-0.5	2.5	-2	655	1.7	-1	-1
09MM042	2.71	0.088	1.64	3.14	4.31	4.75	0.336	1.08	0.19	0.12	1.5	-0.5	-2	2289	2.5	-1	1
09MM046	2.42	0.058	1.76	3.65	2.77	3.65	0.161	6.06	4.77	0.39	-0.5	18.0	32	568	2.5	-1	-1
09MM051	0.01	0.004	0.12	0.25	4.57	4.44	0.009	0.39	0.03	-0.01	-0.5	-0.5	-2	513	1.7	-1	1
09MM006 (DUP)	10.15	0.235	4.68	8.01	2.93	1.11	0.292	0.60	0.03	0.06	-0.5	0.8	5	300	0.3	-1	1
09MM055	-99.00	0.010	0.53	0.78	3.14	6.10	0.023	1.23	0.56	0.28	-0.5	28.0	190	896	1.1	-1	1
09MM064	8.44	0.231	4.31	7.94	2.40	2.00	0.310	1.76	0.83	0.09	0.6	1.1	7	511	0.9	-1	-1
09MM065	7.93	0.233	4.47	9.34	2.36	0.48	0.295	2.83	1.38	0.10	-0.5	3.9	-2	126	0.3	-1	1
09MM066	9.40	0.237	4.34	7.45	3.28	1.18	0.354	1.06	0.42	0.13	-0.5	0.9	-2	343	0.5	-1	1
09MM068	7.85	0.235	4.60	7.08	3.04	1.46	0.355	1.15	0.05	0.04	-0.5	1.6	-2	415	0.4	-1	-1
09MM086	8.84	0.202	6.70	10.59	2.40	0.38	0.181	1.77	0.22	0.02	-0.5	12.0	5	30	0.1	-1	-1
09MM091	9.12	0.226	4.08	8.18	3.09	0.83	0.410	1.17	0.31	0.04	0.5	1.7	8	218	0.3	-1	1
09MM098	2.79	0.071	1.38	1.90	4.45	4.93	0.333	1.73	0.61	0.09	1.1	10.0	6	2304	2.5	0.2	-1
09MM099	0.87	0.014	0.32	0.77	3.84	4.90	0.031	0.71	1.66	0.02	-0.5	-0.5	-2	1199	1.7	-1	1
09MM102	2.28	0.053	1.40	2.57	4.91	3.43	0.310	2.36	2.43	0.05	-0.5	-0.5	-2	1807	2.5	-1	2
09MM103	1.36	0.065	0.78	4.95	3.91	3.47	0.185	5.29	0.94	-0.01	1.1	11.0	-2	762	1.7	-1	-1
09MM106	1.65	0.043	1.84	3.37	4.10	2.96	0.187	4.50	3.74	0.12	-0.5	3.8	-2	1232	1.7	-1	-1

SampleNum	FeO_pct	MnO_pct	MgO_pct	CaO_pct	Na2O_pct	K2O_pct	P2O5_pct	LOI_pct	CO2_pct	S_pct	Ag_ppm	As_ppm	Au_ppb	Ba_ppm	Be_ppm	Bi_ppm	Br_ppm
Detection Limit	**0.01**	**0.001**	**0.01**	**0.01**	**0.01**	**0.01**	**0.001**	**0.01**	**0.01**	**0.01**	**0.5**	**0.5**	**1**	**1**	**0.1**	**0.1**	**1**
Analysis Method	**Titration**	**ICP-OES**	**ICP-OES**	**ICP-OES**	**ICP-OES**	**ICP-OES**	**ICP-OES**	**Grav**	**Coul**	**IR**	**FUS-MS**	**INAA**	**INAA**	**ICP-OES**	**ICP-OES**	**FUS-MS**	**INAA**
09MM107	2.81	0.075	1.72	2.79	4.34	4.45	0.355	0.87	0.03	0.05	1.3	-0.5	-2	2081	2.8	-1	-1
09MM109	0.18	0.006	0.14	0.15	4.24	4.83	0.009	0.60	0.03	0.01	-0.5	4.4	28	683	1.4	-1	2
09MM110	10.06	0.238	4.02	8.13	2.71	0.84	0.368	0.62	0.01	0.20	-0.5	1.3	-2	213	0.5	-1	-1
09MM111	-99.00	0.004	0.13	0.13	3.40	5.53	0.031	0.90	0.04	0.24	-0.5	20.0	647	891	1.2	-1	1
09MM112	2.46	0.075	1.39	2.19	4.17	4.80	0.363	1.53	0.34	0.12	1.1	1.7	-2	2091	2.5	-1	1
09MM111 (DUP)	-99.00	0.002	0.14	0.15	3.38	5.50	0.032	0.84	0.05	0.25	-0.5	20.0	605	893	1.2	-1	1
09MM113	0.37	0.005	0.18	0.09	3.07	5.96	0.023	0.88	0.02	0.04	-0.5	5.2	59	955	1.3	-1	-1
09MM114	0.80	0.023	0.32	0.97	3.66	5.34	0.051	0.65	0.03	0.03	-0.5	-0.5	-2	1598	1.8	-1	1
09MM115	3.09	0.065	1.62	3.51	4.11	3.81	0.378	1.17	0.02	0.12	1.1	-0.5	-2	2061	1.8	-1	-1
09MM119	8.48	0.225	4.27	7.70	2.96	1.11	0.320	1.29	0.36	0.06	-0.5	1.4	-2	281	0.4	-1	1
09MM120	3.03	0.062	1.84	2.53	3.40	4.21	0.394	1.72	0.17	0.02	1.1	1.4	-2	1518	2.9	-1	1
09MM121	4.38	0.138	1.89	4.48	3.74	3.28	0.634	1.42	0.09	0.07	1.5	2.4	-2	1677	2.2	-1	1
09MM122	1.33	0.024	0.65	1.03	3.09	5.65	0.077	1.32	0.67	0.01	0.5	0.5	-2	830	1.8	-1	1
09MM125	0.82	0.035	0.59	1.62	4.00	4.23	0.104	0.52	-0.01	-0.01	-0.5	0.6	-2	514	4.9	-1	-1
09MM126	0.90	0.036	0.85	0.89	4.14	4.43	0.099	1.04	0.12	-0.01	-0.5	0.6	-2	413	4.6	0.1	1
09MM137	9.38	0.219	5.20	8.23	3.05	0.92	0.257	1.02	0.03	0.06	-0.5	1.0	4	281	0.3	-1	-1
09MM160	2.23	0.065	1.38	2.57	3.93	4.71	0.315	0.59	0.04	0.02	0.9	-0.5	-2	1846	1.9	-1	-1
HS09-107	2.81	0.115	0.86	2.00	4.59	4.88	0.180	0.58	0.03	-0.01	1.5	-0.5	-2	1840	2.3	-1	-1
09MM122 (DUP)	1.43	0.023	0.50	1.05	3.05	5.47	0.075	1.27	0.70	0.01	1.2	-99	-99	824	1.7	-1	-99
09MM054	1.56	0.051	0.50	3.38	1.08	4.00	0.194	4.19	-99.00	-99.00	3.7	69.1	7980	1201	2.5	-1	-1
09MM056	2.77	0.068	1.02	2.91	3.07	4.10	0.217	4.74	-99.00	-99.00	3.0	41.0	8700	1495	2.0	-1	-1
09MM057	2.91	0.086	1.22	3.72	3.90	4.90	0.307	4.11	-99.00	-99.00	2.5	113.0	1970	1833	2.5	-1	-1
09MM058	2.46	0.082	0.94	3.87	4.01	4.62	0.245	5.20	-99.00	-99.00	1.8	39.0	334	1689	2.4	-1	-1

SampleNum	FeO_pct	MnO_pct	MgO_pct	CaO_pct	Na2O_pct	K2O_pct	P2O5_pct	LOI_pct	CO2_pct	S_pct	Ag_ppm	As_ppm	Au_ppb	Ba_ppm	Be_ppm	Bi_ppm	Br_ppm
Detection Limit	**0.01**	**0.001**	**0.01**	**0.01**	**0.01**	**0.01**	**0.001**	**0.01**	**0.01**	**0.01**	**0.5**	**0.5**	**1**	**1**	**0.1**	**0.1**	**1**
Analysis Method	**Titration**	**ICP-OES**	**ICP-OES**	**ICP-OES**	**ICP-OES**	**ICP-OES**	**ICP-OES**	**Grav**	**Coul**	**IR**	**FUS-MS**	**INAA**	**INAA**	**ICP-OES**	**ICP-OES**	**FUS-MS**	**INAA**
09MM059	1.85	0.063	0.83	2.89	2.65	4.95	0.198	4.63	-99.00	-99.00	1.0	156.0	3820	1699	1.7	-0.4	-1
09MM061	1.03	0.013	0.19	0.79	2.80	3.85	0.047	1.75	-99.00	-99.00	0.1	54.2	1180	605	1.4	-0.4	-1
09MM062	2.27	0.058	1.63	3.44	2.91	4.01	0.175	6.13	-99.00	-99.00	0.7	11.0	8	580	2.8	-1	-1
09MM063	3.16	0.063	1.52	3.22	4.43	3.43	0.340	2.46	-99.00	-99.00	1.9	1.7	2	1668	1.8	-1	-1
09MM097	0.42	0.009	0.35	0.49	3.17	5.39	0.008	0.58	-99.00	-99.00	-0.5	1.1	8	1112	1.7	-1	1
09MM101	1.03	0.032	0.46	0.99	3.84	4.17	0.075	0.71	-99.00	-99.00	0.9	0.6	-1	1358	2.7	0.2	1
HS09-001A	7.11	0.192	6.49	10.10	1.06	1.44	0.172	2.74	-99.00	-99.00	-0.5	1.3	9	163	-0.1	-1	-1
HS09-108	3.52	0.173	1.28	2.92	4.03	4.00	0.302	0.76	-99.00	-99.00	2.7	-0.5	2	1518	1.4	-1	-1
HS09-059C	1.70	0.050	1.68	3.80	3.43	3.36	0.170	6.46	-99.00	-99.00	0.6	2.6	8	1324	1.6	-1	-1
HS09-082A	8.50	0.223	5.09	8.10	0.09	4.41	0.239	2.68	-99.00	-99.00	0.6	1.2	4	644	0.5	-1	-1
HS09-082B	7.35	0.187	8.07	6.13	2.25	4.46	0.309	2.26	-99.00	-99.00	0.5	1.5	3	1173	1.3	-1	-1
HS09-002	7.97	0.191	7.24	9.00	3.53	0.51	0.249	3.46	-99.00	-99.00	-99.0	-99	-99	233	0.7	0.2	-99
HS10-065A	-99.00	0.004	0.11	0.06	0.44	1.15	0.067	1.47	-99.00	-99.00	4.5	-99	-99	258	0.8	0.2	-99
HS10-065B	0.72	0.034	0.56	0.26	2.80	5.19	0.221	1.79	-99.00	-99.00	-0.5	-99	-99	1422	2.6	-0.1	-99

SampleNum	Cd_ppm	Ce_ppm	Co_ppm	Cr_ppm	Cs_ppm	Cu_ppm	Dy_ppm	Er_ppm	Eu_ppm	F_ppm	Fe_pct	Ga_ppm	Gd_ppm	Ge_ppm	Hf_ppm	Ho_ppm	In_ppm
Detection Limit	**0.1**	**0.05**	**1**	**1**	**0.1**	**1**	**0.01**	**0.01**	**0.005**	**5**	**0.01**	**1**	**0.01**	**0.5**	**0.1**	**0.01**	**0.1**
Analysis Method	**ICP-OES**	**FUS-MS**	**FUS-MS**	**ICP-OES**	**FUS-MS**	**ICP-OES**	**FUS-MS**	**FUS-MS**	**FUS-MS**	**ISE**	**ICP-OES**	**FUS-MS**	**FUS-MS**	**FUS-MS**	**FUS-MS**	**FUS-MS**	**FUS-MS**
09MM006	0.5	39.4	46	21	0.4	220	8.24	4.63	2.18	-99	11.56	21	8.62	1.7	5	1.63	-0.1
09MM010	0.4	56	40	35	-0.1	189	7.53	4.34	2.53	-99	11.59	23	8.09	2.4	5.4	1.48	-0.1
09MM011	0.4	30.1	42	82	0.5	172	6.21	3.41	1.8	-99	9.64	19	6.81	1.8	3.8	1.21	-0.1
09MM012	-0.1	152	25	24	0.4	16	7.43	3.65	2.97	-99	6.10	26	10.7	1.4	9.7	1.3	-0.1
09MM016	-0.1	134	31	29	0.7	13	6.1	3.03	2.27	-99	6.27	21	8.93	1.4	5	1.1	-0.1
09MM034	-0.1	165	6	7	1.6	8	6.93	3.94	1.97	-99	2.31	21	8.99	1.3	8.8	1.33	-0.1
09MM041	-0.1	73.9	10	35	1.8	13	2.35	1.09	1.23	-99	2.55	21	3.8	1	4.3	0.42	-0.1
09MM042	-0.1	221	9	9	0.9	10	12.4	7.06	3.24	-99	3.53	25	15.7	1.5	13.9	2.41	-0.1
09MM046	-0.1	68.9	9	33	1.4	6	2.17	1.04	1.05	-99	2.33	23	3.41	1.8	3.9	0.38	-0.1
09MM051	-0.1	4.51	-1	-1	0.1	2	1	0.65	0.336	-99	0.38	20	0.73	1	1.9	0.22	-0.1
09MM006 (DUP)	0.5	38.5	46	21	0.4	218	8.16	4.71	2.08	-99	11.39	20	8.27	1.7	4.8	1.64	-0.1
09MM055	-0.1	28.4	-1	-1	0.5	11	1.14	0.41	0.742	-99	0.59	19	2.23	1.3	2.5	0.18	-0.1
09MM064	0.2	45.1	39	17	2.2	260	8.93	5.02	2.38	-99	11.01	21	9.52	1.9	5.4	1.78	-0.1
09MM065	0.5	40.5	39	18	0.1	390	8.55	4.69	2.14	-99	11.55	21	8.53	1.9	4.7	1.67	-0.1
09MM066	0.4	47.4	41	18	0.6	240	9.4	5.44	2.54	-99	11.20	21	10.3	1.7	5.7	1.88	-0.1
09MM068	0.4	45.7	41	14	0.3	229	9.11	5.13	2.44	-99	10.68	21	9.62	1.8	5.6	1.8	-0.1
09MM086	0.7	21.2	47	134	0.3	204	5.79	3.09	1.61	-99	9.21	18	6.01	1.8	3.1	1.11	-0.1
09MM091	0.5	49.4	40	21	0.5	239	9.99	5.6	2.52	-99	10.57	20	10.6	1.6	6.1	1.95	-0.1
09MM098	-0.1	221	9	9	3.8	10	11.7	6.18	3.34	-99	3.60	24	15.7	1.4	11.6	2.17	-0.1
09MM099	-0.1	24.6	-1	-1	0.4	2	0.63	0.36	0.605	-99	0.95	18	0.82	1	4.2	0.12	-0.1
09MM102	-0.1	74.8	10	9	1.8	17	2.34	1.13	1.16	-99	3.52	20	3.71	1	4.2	0.41	-0.1
09MM103	-0.1	216	8	34	3.4	9	11.6	6.19	3.22	-99	1.98	23	15.2	1.2	12.1	2.16	-0.1
09MM106	-0.1	75.6	9	32	2.1	12	2.33	1.11	1.16	-99	2.51	19	3.69	1	4.3	0.41	-0.1

SampleNum	Cd_ppm	Ce_ppm	Co_ppm	Cr_ppm	Cs_ppm	Cu_ppm	Dy_ppm	Er_ppm	Eu_ppm	F_ppm	Fe_pct	Ga_ppm	Gd_ppm	Ge_ppm	Hf_ppm	Ho_ppm	In_ppm
Detection Limit	**0.1**	**0.05**	**1**	**1**	**0.1**	**1**	**0.01**	**0.01**	**0.005**	**5**	**0.01**	**1**	**0.01**	**0.5**	**0.1**	**0.01**	**0.1**
Analysis Method	**ICP-OES**	**FUS-MS**	**FUS-MS**	**ICP-OES**	**FUS-MS**	**ICP-OES**	**FUS-MS**	**FUS-MS**	**FUS-MS**	**ISE**	**ICP-OES**	**FUS-MS**	**FUS-MS**	**FUS-MS**	**FUS-MS**	**FUS-MS**	**FUS-MS**
09MM107	-0.1	250	9	11	1.1	3	14	8.17	3.39	-99	3.91	27	17.6	1.5	14.6	2.74	-0.1
09MM109	-0.1	9.61	-1	-1	0.2	7	1.26	0.64	0.464	-99	0.52	17	1.26	1	1.5	0.24	-0.1
09MM110	0.5	51.1	40	15	0.2	206	9.9	5.57	2.55	-99	10.95	21	10.4	1.7	5.9	1.96	-0.1
09MM111	-0.1	26.2	-1	-1	0.5	92	1.39	0.58	0.625	-99	0.55	16	2.21	1.5	3.4	0.24	-0.1
09MM112	-0.1	241	9	10	2.2	17	12.4	6.64	3.45	-99	3.68	24	16.4	1.5	12.1	2.29	-0.1
09MM111 (DUP)	-0.1	26.5	-1	-1	0.6	91	1.35	0.57	0.635	-99	0.55	17	2.14	1.6	2.7	0.23	-0.1
09MM113	-0.1	23.7	-1	-1	1	13	1.32	0.59	0.618	-99	0.77	19	1.7	1.7	3	0.23	-0.1
09MM114	-0.1	56.8	-1	-1	0.4	1	0.67	0.3	0.951	-99	1.00	20	1.53	1	3.7	0.12	-0.1
09MM115	-0.1	261	11	10	1.2	62	13.7	7.38	3.78	-99	3.91	24	18.2	1.4	13	2.6	-0.1
09MM119	0.5	45.7	38	16	1.2	214	8.96	5.23	2.42	-99	10.59	20	9.6	1.7	5.3	1.82	-0.1
09MM120	-0.1	137	9	5	0.9	6	9.03	4.67	3.45	-99	4.07	25	12.2	1.5	13	1.66	-0.1
09MM121	-0.1	181	13	6	1	-1	12	6	4.18	-99	5.95	24	16.7	1.7	18.2	2.18	-0.1
09MM122	-0.1	158	2	-1	0.4	2	7.32	3.46	1.58	-99	1.85	20	9.78	1.4	8.2	1.3	-0.1
09MM125	-0.1	68.1	3	6	7.2	2	1.5	0.77	0.652	-99	1.22	22	2.4	1.4	4.3	0.27	-0.1
09MM126	-0.1	48	3	9	5.7	2	1.44	0.72	0.624	-99	1.31	20	2.15	1.3	3.4	0.26	-0.1
09MM137	0.5	35.1	42	32	0.3	193	6.99	3.91	1.93	-99	10.45	19	7.51	1.7	4	1.39	-0.1
09MM160	-0.1	279	8	9	0.4	5	12.1	6.73	3.14	-99	3.33	21	15.5	1.4	11.3	2.27	-0.1
HS09-107	-0.1	88.6	4	2	2.2	2	8.56	4.87	3.27	-99	3.31	21	9.79	1.7	14.3	1.71	-0.1
09MM122 (DUP)	-0.1	157	2	-1	0.4	2	6.54	3.19	1.49	-99	1.84	20	8.35	1.4	8.3	1.19	-0.1
09MM054	0.4	156	6	6	0.9	70	7.06	3.84	2.09	1155	2.26	20	9.32	2.3	8.7	1.31	-0.1
09MM056	1.5	167	6	6	1	39	8.22	4.48	2.23	1071	3.00	22	10.6	2.2	8.9	1.54	-0.1
09MM057	0.5	270	7	8	1.4	32	16	8.52	3.22	1238	3.58	27	19.7	2.1	12.6	2.95	-0.1
09MM058	-0.1	217	5	6	0.9	24	11	6.06	2.75	1032	2.79	27	13.4	2.1	10.7	2.05	-0.1

SampleNum	Cd_ppm	Ce_ppm	Co_ppm	Cr_ppm	Cs_ppm	Cu_ppm	Dy_ppm	Er_ppm	Eu_ppm	F_ppm	Fe_pct	Ga_ppm	Gd_ppm	Ge_ppm	Hf_ppm	Ho_ppm	In_ppm
Detection Limit	**0.1**	**0.05**	**1**	**1**	**0.1**	**1**	**0.01**	**0.01**	**0.005**	**5**	**0.01**	**1**	**0.01**	**0.5**	**0.1**	**0.01**	**0.1**
Analysis Method	**ICP-OES**	**FUS-MS**	**FUS-MS**	**ICP-OES**	**FUS-MS**	**ICP-OES**	**FUS-MS**	**FUS-MS**	**FUS-MS**	**ISE**	**ICP-OES**	**FUS-MS**	**FUS-MS**	**FUS-MS**	**FUS-MS**	**FUS-MS**	**FUS-MS**
09MM059	1.0	164.3	6	5	0.6	52	9.3	5.2	2.39	799	2.45	26	10.7	5	10.1	1.7	-0.2
09MM061	-0.1	65.4	1	1	-0.5	72	6.5	3.2	0.98	499	1.17	18	6.4	3	5.7	1.2	-0.2
09MM062	-0.1	74	7	23	1.7	2	2.15	1.05	1.01	1490	2.60	22	3.13	2.1	4.2	0.37	-0.1
09MM063	-0.1	250	8	9	2	3	11.3	6.11	3.08	1554	4.27	26	15	1.6	11.9	2.07	-0.1
09MM097	-0.1	8.01	-1	2	0.3	4	0.4	0.25	0.452	147	0.61	16	0.46	1.2	1.5	0.08	-0.1
09MM101	-0.1	71.7	4	3	1.4	5	10	7.99	1.02	399	1.51	24	8.33	1.9	7.6	2.26	-0.1
HS09-001A	0.5	29.2	29	88	0.9	260	5.34	3.15	1.46	245	9.37	19	5.68	2.2	3	1.07	-0.1
HS09-108	-0.1	93.9	5	4	1.9	-1	7.97	4.63	3.6	360	4.92	21	9.77	1.9	13.5	1.55	-0.1
HS09-059C	-0.1	70.2	7	27	1.4	12	1.97	1.01	1.03	452	2.56	19	3.12	1	3.9	0.36	-0.1
HS09-082A	0.2	35.6	40	26	7.5	6	6.64	3.76	1.82	1615	10.36	26	7.23	1.9	4.1	1.29	-0.1
HS09-082B	-0.1	36.1	46	215	2.3	31	3.64	1.86	1.34	570	8.16	19	4.76	1.5	3.6	0.67	-0.1
HS09-002	0.3	22.7	32	95	0.4	30	4.7	2.76	1.48	-99	7.75	15	4.5	3.1	3.2	0.90	-0.1
HS10-065A	2.7	60.2	10	3	0.5	256	2.7	1.36	0.71	-99	1.70	7	3.3	2.1	2.5	0.47	-0.1
HS10-065B	-0.1	151.6	6	7	1.1	7	5.8	3.73	1.78	-99	2.81	22	7.8	4.8	8.4	1.05	-0.1

SampleNum	La_ppm	Li_ppm	Lu_ppm	Mn_ppm	Mo_ppm	Na_pct	Nb_ppm	Nd_ppm	Ni_ppm	P_ppm	Pb_ppm	Pr_ppm	Rb_ppm	Sb_ppm	Sc_ppm	Se_ppm	Sm_ppm	Sn_ppm
Detection Limit	**0.05**	**0.5**	**0.002**	**1**	**1**	**0.01**	**0.2**	**0.05**	**1**	**1**	**1**	**0.01**	**1**	**0.1**	**0.1**	**1**	**0.01**	**1**
Analysis Method	**FUS-MS**	**ICP-OES**	**FUS-MS**	**ICP-OES**	**ICP-OES**	**INAA**	**FUS-MS**	**FUS-MS**	**ICP-OES**	**ICP-OES**	**ICP-OES**	**FUS-MS**	**FUS-MS**	**INAA**	**ICP-OES**	**INAA**	**FUS-MS**	**FUS-MS**
09MM006	16.7	13.9	0.67	1725	-1	2.18	13.6	25.7	28	1307	2	5.7	28	-0.1	41.2	-5	6.52	2
09MM010	24.5	7.7	0.639	2459	-1	1.80	35	34.1	19	1565	5	8.15	13	-0.1	34.3	-5	7.27	4
09MM011	12.6	8.4	0.448	1523	-1	1.80	9.6	20.9	41	997	-1	4.52	21	-0.1	40.7	-5	5.24	2
09MM012	70.2	12.6	0.459	826	2	2.94	23.2	77.4	16	2863	4	20	73	-0.1	16.5	-5	13	3
09MM016	66.4	22.5	0.416	738	1	2.69	18.7	63.4	33	3161	1	17.2	107	-0.1	15.5	-5	10.4	3
09MM034	72	14.1	0.556	223	1	2.29	19.7	74.4	4	1030	5	21.5	120	0.4	4.7	-5	11.3	3
09MM041	39.2	22.2	0.136	375	1	2.72	6.3	30.3	20	867	4	8.58	89	0.3	7.3	-5	4.81	1
09MM042	93.1	18.3	0.925	688	2	3.19	25.2	114	5	1565	20	30.2	145	-0.1	10.1	-5	19	5
09MM046	36.6	35.3	0.127	458	3	2.00	6.6	27.4	19	766	61	7.93	134	0.9	6.5	-5	4.24	2
09MM051	1.94	3.5	0.078	33	-1	3.35	4.5	1.8	-1	20	22	0.44	134	-0.1	0.4	-5	0.52	-1
09MM006 (DUP)	16.3	13.7	0.645	1737	-1	2.20	13.2	25.7	28	1318	2	5.63	27	-0.1	41.5	-5	6.45	2
09MM055	15	2.7	0.051	84	1	2.27	1	13.6	-1	89	38	3.55	113	0.2	0.9	-5	2.72	8
09MM064	19.9	21.4	0.712	1732	-1	1.80	14.2	28.5	24	1453	3	6.41	66	0.2	40.6	-5	7.3	2
09MM065	17.5	15.9	0.664	1787	-1	1.80	13.1	25.9	27	1359	4	5.84	7	0.3	40.5	-5	6.49	2
09MM066	21	16.1	0.769	1789	-1	2.42	14.8	30.6	25	1629	3	6.78	28	0.1	39.3	-5	7.86	2
09MM068	19.9	11.4	0.747	1755	-1	2.28	14.4	29.7	22	1621	6	6.7	26	0.1	37.5	-5	7.57	2
09MM086	8.51	11.4	0.421	1521	-1	1.80	7.8	16	65	852	-1	3.34	5	0.4	41.6	-5	4.48	-1
09MM091	21.2	12.1	0.777	1660	-1	2.22	12.8	32.6	24	1878	5	7.14	16	0.4	38.6	-5	8.14	2
09MM098	105	23.6	0.725	566	2	3.10	19.3	117	5	1498	16	31.7	133	0.7	8.7	-5	19.4	4
09MM099	12.2	4.7	0.08	113	-1	2.72	2	7.14	-1	150	21	2.11	111	-0.1	0.7	-5	1.08	-1
09MM102	44.2	20.8	0.131	425	1	3.90	6.4	31.8	5	1441	5	9.11	82	0.1	8.0	-5	4.74	1
09MM103	91.9	26.1	0.715	516	1	2.83	19.8	113	19	863	7	29.8	111	0.7	7.1	-5	18.5	4
09MM106	42.3	26.4	0.135	347	-1	2.86	6.5	30.8	19	864	-1	8.89	126	0.6	7.1	-5	4.55	1

SampleNum	La_ppm	Li_ppm	Lu_ppm	Mn_ppm	Mo_ppm	Na_pct	Nb_ppm	Nd_ppm	Ni_ppm	P_ppm	Pb_ppm	Pr_ppm	Rb_ppm	Sb_ppm	Sc_ppm	Se_ppm	Sm_ppm	Sn_ppm
Detection Limit	**0.05**	**0.5**	**0.002**	**1**	**1**	**0.01**	**0.2**	**0.05**	**1**	**1**	**1**	**0.01**	**1**	**0.1**	**0.1**	**1**	**0.01**	**1**
Analysis Method	**FUS-MS**	**ICP-OES**	**FUS-MS**	**ICP-OES**	**ICP-OES**	**INAA**	**FUS-MS**	**FUS-MS**	**ICP-OES**	**ICP-OES**	**ICP-OES**	**FUS-MS**	**FUS-MS**	**INAA**	**ICP-OES**	**INAA**	**FUS-MS**	**FUS-MS**
09MM107	99.2	21.5	1.16	597	1	3.11	31.4	125	5	1657	15	33.6	147	-0.1	13.4	-5	21	7
09MM109	5.06	2.4	0.08	47	-1	3.00	1.8	4.19	-1	33	12	1.09	82	0.1	1.1	-5	0.99	-1
09MM110	22	9.8	0.774	1750	-1	1.80	16.4	33.3	22	1664	-1	7.45	14	-0.1	39.2	-5	8.35	2
09MM111	14.6	2.9	0.079	16	-1	2.46	1.4	12.1	-1	136	64	3.24	120	0.3	0.5	-5	2.36	-1
09MM112	106	18.2	0.82	584	1	3.07	23.2	122	6	1654	43	33.2	130	0.5	8.4	-5	20.3	5
09MM111 (DUP)	14.6	2.9	0.067	16	1	2.37	1.6	12.3	-1	131	63	3.25	122	0.2	0.5	-5	2.38	-1
09MM113	14.6	6.1	0.073	33	-1	2.16	2.3	9.61	-1	80	28	2.76	146	0.9	1.0	-5	1.76	-1
09MM114	37.3	6.4	0.059	178	-1	2.54	2.3	21.6	-1	221	28	6.59	146	-0.1	1.4	-5	2.67	-1
09MM115	110	12.6	0.852	504	1	2.90	26.5	137	6	1751	14	36.7	93	-0.1	9.6	-5	22.6	4
09MM119	19.6	10.8	0.707	1628	-1	2.10	14.6	29.6	23	1411	3	6.61	25	0.2	38.3	-5	7.46	2
09MM120	66.3	15.4	0.629	461	-1	2.56	22	70.7	2	1855	14	17.8	94	-0.1	12.4	-5	12.8	2
09MM121	87.7	20.1	0.807	1036	3	2.45	32.2	95.7	3	2958	8	24.5	78	0.2	17.4	-5	17.6	2
09MM122	79.8	8.1	0.439	191	4	2.15	15.3	68.1	-1	374	5	19.2	145	-0.1	4.8	-5	11.5	-1
09MM125	37.6	87.2	0.116	290	1	2.84	17.1	22.8	4	512	35	7.29	202	0.1	3.6	-5	3.24	1
09MM126	25.2	52.7	0.107	297	-1	2.77	11.6	17.7	6	498	19	5.32	182	0.2	3.7	-5	2.66	-1
09MM137	15.3	12.5	0.531	1630	-1	2.22	10.4	22.9	32	1230	-1	5.05	18	-0.1	42.8	-5	5.76	1
09MM160	127	10.5	0.902	514	1	2.57	25.5	123	6	1517	13	35.4	118	-0.1	7.2	-5	19.3	4
HS09-107	42.3	24.0	0.673	939	-1	3.16	23.2	45.9	-1	923	23	11.7	106	-0.1	12.1	-5	9.03	2
09MM122 (DUP)	81.6	8.0	0.415	191	3	-99	13.5	62.4	-1	368	5	16.8	136	-99	4.8	-99	11.3	1
09MM054	68.8	10.8	0.502	405	1	0.79	12.2	70.7	4	906	521	19.3	108	1.1	6.3	-1	11.7	3
09MM056	74.3	16.7	0.631	546	-1	2.20	15.2	75.9	4	1012	330	20.6	107	1.2	7.7	-1	12.8	4
09MM057	123	26.5	1.11	678	-1	2.80	23.9	124	6	1394	51	33.6	135	0.9	16.4	-1	22.2	6
09MM058	101	21.3	0.834	645	-1	2.90	18.2	94.3	4	1128	6	26	119	1.0	13.5	-1	16.1	5

SampleNum	La_ppm	Li_ppm	Lu_ppm	Mn_ppm	Mo_ppm	Na_pct	Nb_ppm	Nd_ppm	Ni_ppm	P_ppm	Pb_ppm	Pr_ppm	Rb_ppm	Sb_ppm	Sc_ppm	Se_ppm	Sm_ppm	Sn_ppm
Detection Limit	**0.05**	**0.5**	**0.002**	**1**	**1**	**0.01**	**0.2**	**0.05**	**1**	**1**	**1**	**0.01**	**1**	**0.1**	**0.1**	**1**	**0.01**	**1**
Analysis Method	**FUS-MS**	**ICP-OES**	**FUS-MS**	**ICP-OES**	**ICP-OES**	**INAA**	**FUS-MS**	**FUS-MS**	**ICP-OES**	**ICP-OES**	**ICP-OES**	**FUS-MS**	**FUS-MS**	**INAA**	**ICP-OES**	**INAA**	**FUS-MS**	**FUS-MS**
09MM059	71.2	14.2	0.65	518	-1	1.90	18.6	80.7	3	929	33	20.9	123	0.9	9.4	-1	13.7	4
09MM061	32.7	6.2	0.29	112	-1	2.00	4.9	29.6	-1	210	14	7.8	106	0.3	4.4	-1	6.2	2
09MM062	38.9	20.5	0.143	472	-1	2.00	6	27	15	743	-1	7.91	136	0.6	6.9	-1	4.22	1
09MM063	110	26.0	0.805	513	-1	3.40	20.1	113	5	1558	-1	31	109	0.3	10.2	-1	18.9	4
09MM097	6.04	4.6	0.047	73	-1	2.10	1.7	2.05	1	41	18	0.66	97	-0.1	0.6	-1	0.4	-1
09MM101	28.6	6.5	1.66	267	-1	2.90	53.3	36.6	1	337	59	9.61	92	-0.1	4.8	-2	7.61	4
HS09-001A	13.3	20.6	0.474	1392	-1	1.00	8.7	17	39	758	12	3.88	34	0.2	40.9	-1	4.28	-1
HS09-108	45	15.5	0.65	1363	-1	3.10	19.3	45.8	-1	1408	-1	11.6	78	-0.1	22.3	-1	9.04	2
HS09-059C	37.3	9.4	0.123	403	-1	2.40	5.4	25.7	18	757	-1	7.47	97	1.0	7.5	-1	4.01	-1
HS09-082A	15.4	46.5	0.514	1624	-1	0.14	9.1	21.4	28	945	16	4.78	250	0.2	41.6	-1	5.49	2
HS09-082B	17.4	35.7	0.236	1351	-1	1.70	15.1	19	128	1291	3	4.57	122	-0.1	21.3	-1	4.16	1
HS09-002	9.5	18.6	0.38	1249	-1	-99	6.0	15.0	63	990	-1	3.23	10	-99	32.3	-99	3.9	1
HS10-065A	24.7	3.9	0.21	35	89	-99	6.2	27.5	3	304	1624	7.73	29	-99	1.6	-99	4.5	1
HS10-065B	64.6	15.9	0.55	248	-1	-99	15.1	62.8	5	958	15	17.11	101	-99	5.7	-99	9.6	3

SampleNum	Sr_ppm	Ta_ppm	Tb_ppm	Th_ppm	Ti_ppm	Tl_ppm	Tm_ppm	U_ppm	V_ppm	W_ppm	Y_ppm	Yb_ppm	Zn_ppm	Zr_ppm
Detection Limit	**1**	**0.01**	**0.01**	**0.05**	**1**	**0.05**	**0.005**	**0.01**	**1**	**0.5**	**0.5**	**0.01**	**1**	**2**
Analysis Method	**ICP-OES**	**FUS-MS**	**FUS-MS**	**FUS-MS**	**ICP-OES**	**FUS-MS**	**FUS-MS**	**FUS-MS**	**ICP-OES**	**FUS-MS**	**FUS-MS**	**FUS-MS**	**ICP-OES**	**ICP-OES**
09MM006	227	0.86	1.43	2.31	17154	0.1	0.675	0.64	486	4.2	45.7	4.29	136	199
09MM010	355	0.89	1.29	1.85	13427	-0.05	0.634	0.85	295	-0.5	42.6	4.02	209	189
09MM011	260	1.49	1.07	1.39	12894	-0.05	0.483	0.39	374	1	32	2.98	108	154
09MM012	688	1.3	1.46	2.96	11224	0.41	0.504	0.72	140	-0.5	37.6	3.07	130	360
09MM016	720	1.06	1.18	3.22	11960	0.66	0.434	0.7	121	-0.5	31.5	2.76	121	174
09MM034	168	1.78	1.32	7.32	2130	0.72	0.581	1.49	30	6.4	38.1	3.75	45	394
09MM041	338	0.44	0.48	10.5	3311	0.37	0.152	2.43	59	2.6	12.1	0.95	57	189
09MM042	554	1.85	2.28	11.1	6702	1.02	1.03	3.38	43	2.9	70.2	6.33	119	506
09MM046	326	0.38	0.43	9.84	2333	0.66	0.144	2.29	61	8.8	10.5	0.88	52	162
09MM051	106	0.13	0.14	3.53	277	0.86	0.094	5.15	-1	1.1	5.3	0.57	16	40
09MM006 (DUP)	222	0.82	1.37	2.09	17109	0.11	0.668	0.61	475	-0.5	45.6	4.19	135	197
09MM055	182	0.02	0.25	10.7	492	0.69	0.055	17.7	-1	2.2	4.8	0.34	33	90
09MM064	233	0.91	1.52	2.42	16630	0.46	0.716	0.77	452	2.5	48.1	4.52	138	206
09MM065	249	0.83	1.44	2.16	16870	-0.05	0.673	0.62	491	-0.5	43.5	4.29	152	188
09MM066	209	0.99	1.62	2.61	16892	0.08	0.782	0.76	424	-0.5	52.3	4.97	152	238
09MM068	270	0.94	1.56	2.49	16038	0.08	0.743	0.76	403	-0.5	50.4	4.79	138	230
09MM086	255	0.55	0.98	0.68	11675	-0.05	0.439	0.16	334	1.5	29.1	2.76	98	122
09MM091	234	0.97	1.68	2.67	15799	-0.05	0.796	0.77	427	5.1	53.6	5.03	140	254
09MM098	468	1.65	2.23	8.51	5998	0.97	0.86	1.95	43	3.5	62.4	5.04	99	579
09MM099	286	0.08	0.11	3.15	920	0.65	0.06	1.25	-1	-0.5	3.9	0.45	29	158
09MM102	402	0.42	0.46	10.4	6229	0.4	0.155	2.23	47	1.9	11.2	0.9	78	571
09MM103	339	1.62	2.19	7.29	2783	0.74	0.882	2.02	57	3.1	58.9	5.21	68	189
09MM106	352	0.41	0.46	10.3	2562	0.7	0.151	2.21	54	0.9	12	0.91	55	186

SampleNum	Sr_ppm	Ta_ppm	Tb_ppm	Th_ppm	Ti_ppm	Tl_ppm	Tm_ppm	U_ppm	V_ppm	W_ppm	Y_ppm	Yb_ppm	Zn_ppm	Zr_ppm
Detection Limit	**1**	**0.01**	**0.01**	**0.05**	**1**	**0.05**	**0.005**	**0.01**	**1**	**0.5**	**0.5**	**0.01**	**1**	**2**
Analysis Method	**ICP-OES**	**FUS-MS**	**FUS-MS**	**FUS-MS**	**ICP-OES**	**FUS-MS**	**FUS-MS**	**FUS-MS**	**ICP-OES**	**FUS-MS**	**FUS-MS**	**FUS-MS**	**ICP-OES**	**ICP-OES**
09MM107	493	2.6	2.6	10.8	7289	1.06	1.26	3.65	54	1.1	80.2	7.93	119	624
09MM109	144	0.05	0.21	5.21	289	0.5	0.089	4.16	-1	-0.5	5.5	0.55	26	50
09MM110	237	1.01	1.68	2.48	16762	-0.05	0.826	0.77	406	2.1	53.6	4.97	131	244
09MM111	117	0.02	0.28	8.93	391	0.76	0.08	10	-1	62.3	5.5	0.51	37	103
09MM112	512	1.96	2.33	9.15	6331	0.94	0.942	2.56	49	17.7	66.6	5.74	270	597
09MM111 (DUP)	117	0.01	0.27	8.77	445	0.79	0.078	9.52	-1	7.7	5.6	0.48	37	87
09MM113	99	0.03	0.25	9.65	413	0.97	0.079	5.37	-1	9.8	6.1	0.51	30	109
09MM114	352	0.03	0.15	14	1178	0.96	0.045	1.55	-1	4.2	3.8	0.33	38	132
09MM115	579	1.99	2.6	7.56	7272	0.73	1.03	1.4	48	2.4	70.3	6.2	84	629
09MM119	220	0.98	1.5	2.32	16009	0.12	0.742	0.7	418	2.4	49.1	4.63	128	225
09MM120	285	1.3	1.73	4.71	7876	0.53	0.665	2.03	51	8.5	45.6	4.12	92	523
09MM121	487	1.84	2.33	7.03	11727	0.49	0.849	3.23	66	3.1	56	5.3	158	752
09MM122	178	0.85	1.4	9.7	2103	0.79	0.475	2.75	-1	1	33.7	2.88	30	328
09MM125	316	1.83	0.31	22.7	1952	1.04	0.112	7.56	18	7.8	8	0.73	42	132
09MM126	264	1.23	0.28	19.5	2012	0.94	0.105	5.64	24	1.2	7.4	0.69	41	130
09MM137	264	0.63	1.21	1.48	13508	0.07	0.563	0.44	414	4.3	36	3.53	122	159
09MM160	571	2.65	2.23	13.3	6357	0.78	1.02	1.58	36	2.2	64.7	6.29	110	446
HS09-107	176	1.43	1.48	8.24	5647	0.5	0.713	1.9	7	2.6	45.9	4.46	97	748
09MM122 (DUP)	177	0.66	1.23	10.4	2099	0.78	0.458	2.95	-1	-0.5	32.4	2.86	29	297
09MM054	131	1.01	1.23	5.19	2128	0.71	0.537	1.46	52	21.4	36.2	3.25	180	370
09MM056	407	1.15	1.42	7.85	3257	0.85	0.643	2.24	51	14.7	42.3	3.92	422	430
09MM057	424	1.79	2.76	19.4	5180	1.13	1.19	3.47	61	13.8	78	7.07	206	573
09MM058	395	1.37	1.87	13.4	2785	0.95	0.866	2.63	46	13.5	56.2	5.24	90	470

SampleNum	Sr_ppm	Ta_ppm	Tb_ppm	Th_ppm	Ti_ppm	Tl_ppm	Tm_ppm	U_ppm	V_ppm	W_ppm	Y_ppm	Yb_ppm	Zn_ppm	Zr_ppm
Detection Limit	**1**	**0.01**	**0.01**	**0.05**	**1**	**0.05**	**0.005**	**0.01**	**1**	**0.5**	**0.5**	**0.01**	**1**	**2**
Analysis Method	**ICP-OES**	**FUS-MS**	**FUS-MS**	**FUS-MS**	**ICP-OES**	**FUS-MS**	**FUS-MS**	**FUS-MS**	**ICP-OES**	**FUS-MS**	**FUS-MS**	**FUS-MS**	**ICP-OES**	**ICP-OES**
09MM059	325	1.8	1.6	14.5	3061	-0.1	0.71	22.6	48	17	49	4.7	145	413
09MM061	95	-0.5	1.0	8.4	656	-0.1	0.39	2.2	7	5	29	2.4	36	192
09MM062	336	0.4	0.38	10.2	2371	0.89	0.145	2.47	59	5.9	10.5	0.9	55	190
09MM063	457	1.69	1.98	8.89	6205	0.87	0.849	2.05	67	-0.5	57.2	5.08	97	571
09MM097	233	0.15	0.07	0.76	413	0.77	0.04	1.07	-1	-0.5	2.4	0.28	25	44
09MM101	265	4.67	1.44	124	2149	0.74	1.31	177	13	-0.5	66.5	9.58	41	266
HS09-001A	482	0.55	0.87	1.03	10405	0.23	0.447	0.4	303	-0.5	28.5	2.87	113	129
HS09-108	207	1.25	1.36	6.8	7407	0.51	0.676	2.01	43	-0.5	41.8	4.27	94	683
HS09-059C	309	0.37	0.37	9.46	1610	0.66	0.134	2.13	52	0.7	9.5	0.82	56	192
HS09-082A	556	0.57	1.1	1.5	12765	3	0.53	0.55	381	-0.5	34	3.29	210	165
HS09-082B	266	1.05	0.64	1.33	11166	1.25	0.252	0.51	176	-0.5	17.7	1.56	152	181
HS09-002	529	-0.5	0.78	1.03	12072	-0.1	0.38	0.44	240	-1	23	2.61	91	153
HS10-065A	23	-0.5	0.48	2.81	233	-0.1	0.24	0.88	17	6	14	1.38	1510	135
HS10-065B	167	1.1	0.97	5.59	784	-0.1	0.56	1.14	46	6	32	3.60	82	396