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ANEXO A - Microanálise Química em MEV-EDS (Murici A)

PIRITA

Spectrum: Murici A - Pirita 1 (niquelífera)

Element	Series	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]	Compound norm. Comp. C [wt.%]	Error (3 Sigma) [wt.%]
Iron	K-series	41.08	41.08	29.38	41.08	3.17
Sulfur	K-series	54.01	54.01	67.28	54.01	4.67
Nickel	K-series	4.91	4.91	3.34	4.91	0.45
Total:		100.00	100.00	100.00		

Spectrum: Murici A - Pirita 2

Element	Series	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]	Compound norm. Comp. C [wt.%]	Error (3 Sigma) [wt.%]
Iron	K-series	47.77	47.77	34.43	47.77	3.67
Sulfur	K-series	52.23	52.23	65.57	52.23	4.54
Total:		100.00	100.00	100.00		

Spectrum: Murici A - Pirita 3

Element	Series	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]	Compound norm. Comp. C [wt.%]	Error (3 Sigma) [wt.%]
Iron	K-series	47.77	47.77	34.43	47.77	3.67
Sulfur	K-series	52.23	52.23	65.57	52.23	4.54
Total:		100.00	100.00	100.00		

Spectrum: Murici A - Pirita 4

Element	Series	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]	Compound norm. Comp. C [wt.%]	Error (3 Sigma) [wt.%]
Iron	K-series	47.77	47.77	34.43	47.77	3.67
Sulfur	K-series	52.23	52.23	65.57	52.23	4.54
Total:		100.00	100.00	100.00		

Spectrum: Murici A - Pirita 5

Element	Series	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]	Compound norm. Comp. C [wt.%]	Error (3 Sigma) [wt.%]
Iron	K-series	49.22	49.22	35.76	49.22	3.78
Sulfur	K-series	50.78	50.78	64.24	50.78	4.40
Total:		100.00	100.00	100.00		

Spectrum: Murici A - Pirita 6

Element	Series	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]	Compound norm. [wt.%]	Comp. C [wt.%]	Error (3 Sigma) [wt.%]
Iron	K-series	47.77	47.77	34.43		47.77	3.67
Sulfur	K-series	52.23	52.23	65.57		52.23	4.54
Total:		100.00	100.00	100.00			

Spectrum: Murici A - Pirita 7

Element	Series	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]	Compound norm. [wt.%]	Comp. C [wt.%]	Error (3 Sigma) [wt.%]
Iron	K-series	46.40	46.40	33.20		46.40	3.57
Sulfur	K-series	53.60	53.60	66.80		53.60	4.59
Total:		100.00	100.00	100.00			

Spectrum: Murici A - Pirita 8

Element	Series	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]	Compound norm. [wt.%]	Comp. C [wt.%]	Error (3 Sigma) [wt.%]
Sulfur	K-series	52.26	52.26	65.59		52.26	4.52
Iron	K-series	47.68	47.68	34.36		47.68	3.66
Copper	K-series	0.06	0.06	0.04		0.06	0.08
Total:		100.00	100.00	100.00			

Spectrum: Murici A - Pirita 9

Element	Series	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]	Compound norm. [wt.%]	Comp. C [wt.%]	Error (3 Sigma) [wt.%]
Sulfur	K-series	52.99	52.99	66.25		52.99	4.53
Iron	K-series	47.01	47.01	33.75		47.01	3.61
Total:		100.00	100.00	100.00			

CALCOPIRITA

Spectrum: Murici A - Calcopirita 1

Element	Series	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]	Compound norm. [wt.%]	Comp. C [wt.%]	Error (3 Sigma) [wt.%]
Sulfur	K-series	39.49	39.49	54.60		39.49	3.64
Iron	K-series	32.98	32.98	26.18		32.98	2.56
Copper	K-series	27.54	27.54	19.21		27.54	2.15
Total:		100.00	100.00	100.00			

Spectrum: Murici A - Calcopirita 2

Element	Series	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]	Compound norm. [wt.%]	Comp. C [wt.%]	Error (3 Sigma) [wt.%]
Iron	K-series	31.13	31.13	25.77		31.13	2.42
Sulfur	K-series	33.77	33.77	48.69		33.77	3.20
Copper	K-series	35.10	35.10	25.53		35.10	2.72
Total:		100.00	100.00	100.00			

Spectrum: Murici A - Calcopirita 3

Element	Series	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]	Compound norm. [wt.%]	Comp. C [wt.%]	Error (3 Sigma) [wt.%]
Sulfur	K-series	34.27	34.27	49.25		34.27	3.23
Iron	K-series	31.03	31.03	25.60		31.03	2.41
Copper	K-series	34.69	34.69	25.15		34.69	2.69
Total:		100.00	100.00	100.00			

Spectrum: Murici A - Calcopirita 4

Element	Series	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]	Compound norm. [wt.%]	Comp. C [wt.%]	Error (3 Sigma) [wt.%]
Iron	K-series	30.73	30.73	25.39		30.73	2.39
Sulfur	K-series	34.10	34.10	49.07		34.10	3.20
Copper	K-series	35.18	35.18	25.54		35.18	2.72
Total:		100.00	100.00	100.00			

Spectrum: Murici A - Calcopirita 5

Element	Series	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]	Compound norm. [wt.%]	Comp. C [wt.%]	Error (3 Sigma) [wt.%]
Sulfur	K-series	34.41	34.41	49.39		34.41	3.23
Iron	K-series	31.07	31.07	25.61		31.07	2.41
Copper	K-series	34.52	34.52	25.00		34.52	2.67
Total:		100.00	100.00	100.00			

Spectrum: Murici A - Calcopirita 6

Element	Series	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]	Compound norm. [wt.%]	Comp. C Error (3 Sigma) [wt.%]
Iron	K-series	31.13	31.13	25.77	31.13	2.42
Sulfur	K-series	33.77	33.77	48.69	33.77	3.20
Copper	K-series	35.10	35.10	25.53	35.10	2.72
Total:		100.00	100.00	100.00		

Spectrum: Murici A - Calcopirita 7

Element	Series	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]	Compound norm. [wt.%]	Comp. C Error (3 Sigma) [wt.%]
Iron	K-series	31.73	31.73	25.95	31.73	2.46
Copper	K-series	32.86	32.86	23.61	32.86	2.55
Sulfur	K-series	35.41	35.41	50.44	35.41	3.30
Total:		100.00	100.00	100.00		

OUTROS SULFETOS

Spectrum: Murici A - Sulfeto de As e Co (Cobaltita)

Element	Series	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]	Compound norm. Comp. C [wt.%]	Error (3 Sigma) [wt.%]
Iron	K-series	6.37	6.37	6.34	6.37	0.55
Cobalt	K-series	22.80	22.80	21.50	22.80	1.79
Sulfur	K-series	18.68	18.68	32.36	18.68	1.99
Arsenic	K-series	46.59	46.59	34.55	46.59	3.57
Nickel	K-series	5.56	5.56	5.26	5.56	0.49
Total:		100.00	100.00	100.00		

Spectrum: Murici A - Sulfeto de Cobalto e Niquel

Element	Series	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]	Compound Comp. C [wt.%]	Error (3 Sigma) [wt.%]	K fact.	Z corr.	A corr.	F corr.
Iron	K-series	23.56	24.87	19.39	23.56	1.97	1.000	1.000	1.000	1.000
Sulfur	K-series	38.31	40.43	54.89	38.31	4.19	1.000	1.000	1.000	1.000
Nickel	K-series	25.37	26.77	19.86	25.37	2.12	1.000	1.000	1.000	1.000
Cobalt	K-series	7.52	7.93	5.86	7.52	0.70	1.000	1.000	1.000	1.000
Total:		94.76	100.00	100.00						

ANEXO B - Microanálise Química em MEV-EDS (Murici B)

PIRROTITA

Spectrum: Murici B - Pirrotita 1

Element	Series	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]	Compound norm. [wt.%]	Comp. C [wt.%]	Error (3 Sigma) [wt.%]
Sulfur	K-series	39.58	39.58	53.29		39.58	3.55
Iron	K-series	60.42	60.42	46.71		60.42	4.62
Total:		100.00	100.00	100.00			

Spectrum: Murici B - Pirrotita 2

Element	Series	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]	Compound norm. [wt.%]	Comp. C [wt.%]	Error (3 Sigma) [wt.%]
Iron	K-series	60.25	60.25	46.53		60.25	4.61
Sulfur	K-series	39.75	39.75	53.47		39.75	3.56
Total:		100.00	100.00	100.00			

Spectrum: Murici B - Pirrotita 3

Element	Series	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]	Compound norm. [wt.%]	Comp. C [wt.%]	Error (3 Sigma) [wt.%]
Sulfur	K-series	40.40	40.40	54.14		40.40	3.64
Iron	K-series	59.60	59.60	45.86		59.60	4.56
Total:		100.00	100.00	100.00			

Spectrum: Murici B - Pirrotita 4

Element	Series	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]	Compound norm. [wt.%]	Comp. C [wt.%]	Error (3 Sigma) [wt.%]
Oxygen	K-series	0.45	0.45	1.21		0.45	0.14
Sulfur	K-series	38.52	38.52	51.73		38.52	3.47
Iron	K-series	61.03	61.03	47.06		61.03	4.66
Total:		100.00	100.00	100.00			

Spectrum: Murici B - Pirrotita 5

Element	Series	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]	Compound norm. [wt.%]	Comp. C [wt.%]	Error (3 Sigma) [wt.%]
Iron	K-series	61.00	61.00	47.32		61.00	4.66
Sulfur	K-series	39.00	39.00	52.68		39.00	3.50
Total:		100.00	100.00	100.00			

Spectrum: Murici B - Pirrotita 6

Element	Series	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]	Compound norm. [wt.%]	Comp. C Error (3 Sigma) [wt.%]
Sulfur	K-series	39.48	39.48	53.18	39.48	3.53
Iron	K-series	60.52	60.52	46.82	60.52	4.63
Total:		100.00	100.00	100.00		

Spectrum: Murici B - Pirrotita 7

Element	Series	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]	Compound norm. [wt.%]	Comp. C Error (3 Sigma) [wt.%]
Sulfur	K-series	39.74	39.74	53.45	39.74	3.57
Iron	K-series	60.26	60.26	46.55	60.26	4.61
Total:		100.00	100.00	100.00		

Spectrum: Murici B - Pirrotita 8

Element	Series	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]	Compound norm. [wt.%]	Comp. C Error (3 Sigma) [wt.%]
Sulfur	K-series	39.49	39.49	53.19	39.49	3.54
Iron	K-series	60.51	60.51	46.81	60.51	4.63
Total:		100.00	100.00	100.00		

Spectrum: Murici B - Pirrotita 9

Element	Series	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]	Compound norm. [wt.%]	Comp. C Error (3 Sigma) [wt.%]
Iron	K-series	62.40	62.40	48.79	62.40	4.77
Sulfur	K-series	37.60	37.60	51.21	37.60	3.39
Total:		100.00	100.00	100.00		

Spectrum: Murici B - Pirrotita 10

Element	Series	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]	Compound norm. [wt.%]	Comp. C Error (3 Sigma) [wt.%]
Sulfur	K-series	39.74	39.74	53.46	39.74	3.57
Iron	K-series	60.26	60.26	46.54	60.26	4.61
Total:		100.00	100.00	100.00		

TELURETOS E OUTROS SULFETOS

Spectrum: Murici B - Telureto de Niquel (Melanita?)

Element	Series	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]	Compound norm. Comp. C [wt.%]	Error (3 Sigma) [wt.%]
Sulfur	K-series	9.29	9.29	23.37	9.29	0.98
Iron	K-series	14.06	14.06	20.30	14.06	1.17
Tellurium	L-series	66.04	66.04	41.74	66.04	5.26
Nickel	K-series	10.61	10.61	14.58	10.61	0.89
Total:		100.00	100.00	100.00		

Spectrum: Murici B - Telureto de Bismuto 1

Element	Series	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]	Compound norm. Comp. C [wt.%]	Error (3 Sigma) [wt.%]
Iron	K-series	24.40	24.40	33.25	24.40	1.96
Sulfur	K-series	16.98	16.98	40.31	16.98	1.65
Bismuth	L-series	36.66	36.66	13.35	36.66	2.82
Tellurium	L-series	21.96	21.96	13.10	21.96	1.97
Total:		100.00	100.00	100.00		

Spectrum: Murici B - Telureto de Bismuto 2

Element	Series	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]	Compound norm. Comp. C [wt.%]	Error (3 Sigma) [wt.%]
Sulfur	K-series	9.36	9.36	30.98	9.36	0.96
Iron	K-series	8.74	8.74	16.61	8.74	0.76
Bismuth	L-series	48.56	48.56	24.67	48.56	3.72
Tellurium	L-series	33.35	33.35	27.74	33.35	3.03
Total:		100.00	100.00	100.00		

Spectrum: Murici B - Sulfeto de Ferro com Co e Ni

Element	Series	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]	Compound norm. Comp. C [wt.%]	Error (3 Sigma) [wt.%]
Iron	K-series	15.25	15.25	12.04	15.25	1.22
Sulfur	K-series	40.11	40.11	55.14	40.11	3.71
Cobalt	K-series	21.01	21.01	15.71	21.01	1.65
Nickel	K-series	12.43	12.43	9.33	12.43	1.01
Copper	K-series	11.20	11.20	7.77	11.20	0.92
Total:		100.00	100.00	100.00		

CALCOPIRITA

Spectrum: Murici B - Calcopirita 1

Element	Series	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]	Compound norm. [wt.%]	Comp. C [wt.%]	Error (3 Sigma) [wt.%]
Iron	K-series	31.54	31.54	26.22		31.54	2.45
Sulfur	K-series	33.10	33.10	47.93		33.10	3.10
Copper	K-series	35.37	35.37	25.85		35.37	2.74
Total:		100.00	100.00	100.00			

Spectrum: Murici B - Calcopirita 2

Element	Series	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]	Compound norm. [wt.%]	Comp. C [wt.%]	Error (3 Sigma) [wt.%]
Iron	K-series	31.34	31.34	26.00		31.34	2.43
Sulfur	K-series	33.45	33.45	48.33		33.45	3.16
Copper	K-series	35.21	35.21	25.67		35.21	2.73
Total:		100.00	100.00	100.00			

Spectrum: Murici B - Calcopirita 3

Element	Series	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]	Compound norm. [wt.%]	Comp. C [wt.%]	Error (3 Sigma) [wt.%]
Sulfur	K-series	34.03	34.03	48.96		34.03	3.20
Iron	K-series	31.49	31.49	26.01		31.49	2.44
Copper	K-series	34.48	34.48	25.03		34.48	2.67
Total:		100.00	100.00	100.00			

Spectrum: Murici B - Calcopirita com Níquel 4

Element	Series	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]	Compound norm. [wt.%]	Comp. C [wt.%]	Error (3 Sigma) [wt.%]
Sulfur	K-series	36.02	36.02	51.10		36.02	3.37
Iron	K-series	29.64	29.64	24.14		29.64	2.30
Copper	K-series	31.30	31.30	22.41		31.30	2.43
Nickel	K-series	3.04	3.04	2.36		3.04	0.30
Total:		100.00	100.00	100.00			

Spectrum: Murici B - Calcopirita 5

Element	Series	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]	Compound norm. [wt.%]	Comp. C [wt.%]	Error (3 Sigma) [wt.%]
Iron	K-series	31.65	31.65	26.17		31.65	2.46
Sulfur	K-series	33.86	33.86	48.77		33.86	3.19
Copper	K-series	34.48	34.48	25.06		34.48	2.67
Total:		100.00	100.00	100.00			

Spectrum: Murici B - Calcopirita 6

Element	Series	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]	Compound norm. Comp. C [wt.%]	Error (3 Sigma) [wt.%]
Iron	K-series	31.04	31.04	25.75	31.04	2.41
Sulfur	K-series	33.49	33.49	48.39	33.49	3.16
Copper	K-series	35.46	35.46	25.86	35.46	2.74
Total:		100.00	100.00	100.00		

Spectrum: Murici B - Calcopirita 7

Element	Series	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]	Compound norm. Comp. C [wt.%]	Error (3 Sigma) [wt.%]
Iron	K-series	31.56	31.56	26.17	31.56	2.45
Sulfur	K-series	33.47	33.47	48.34	33.47	3.15
Copper	K-series	34.97	34.97	25.49	34.97	2.71
Total:		100.00	100.00	100.00		

Spectrum: Murici B - Calcopirita 8

Element	Series	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]	Compound norm. Comp. C [wt.%]	Error (3 Sigma) [wt.%]
Iron	K-series	30.95	30.95	25.65	30.95	2.40
Sulfur	K-series	33.64	33.64	48.56	33.64	3.16
Copper	K-series	35.41	35.41	25.79	35.41	2.74
Total:		100.00	100.00	100.00		

Spectrum: Murici B - Calcopirita 9 (?)

Element	Series	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]	Compound norm. Comp. C [wt.%]	Error (3 Sigma) [wt.%]
Sulfur	K-series	33.58	33.58	48.46	33.58	3.16
Iron	K-series	31.46	31.46	26.08	31.46	2.44
Copper	K-series	34.96	34.96	25.46	34.96	2.71
Total:		100.00	100.00	100.00		

ESFALERITA, PIRITA E PETLANDITA

Spectrum: Murici B - Esfalerita 2

Element	Series	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]	Compound norm. [wt.%]	Comp. C [wt.%]	Error (3 Sigma) [wt.%]
Sulfur	K-series	31.33	31.33	47.59		31.33	3.10
Iron	K-series	9.76	9.76	8.51		9.76	0.81
Zinc	K-series	58.92	58.92	43.90		58.92	4.50
Total:		100.00	100.00	100.00			

Spectrum: Murici B - Esfalerita 3

Element	Series	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]	Compound norm. [wt.%]	Comp. C [wt.%]	Error (3 Sigma) [wt.%]
Iron	K-series	7.63	7.63	6.80		7.63	0.65
Sulfur	K-series	28.92	28.92	44.90		28.92	2.89
Zinc	K-series	63.45	63.45	48.31		63.45	4.84
Total:		100.00	100.00	100.00			

Spectrum: Murici B - Esfalerita 4

Element	Series	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]	Compound norm. [wt.%]	Comp. C [wt.%]	Error (3 Sigma) [wt.%]
Iron	K-series	8.23	8.23	7.19		8.23	0.69
Sulfur	K-series	31.40	31.40	47.77		31.40	3.09
Zinc	K-series	60.37	60.37	45.04		60.37	4.60
Total:		100.00	100.00	100.00			

Spectrum: Murici B - Sulfeto de Fe, Ni (petlandita?)

Element	Series	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]	Compound norm. [wt.%]	Comp. C [wt.%]	Error (3 Sigma) [wt.%]
Iron	K-series	35.26	35.26	28.34		35.26	2.73
Sulfur	K-series	34.86	34.86	48.80		34.86	3.24
Nickel	K-series	29.88	29.88	22.85		29.88	2.33
Total:		100.00	100.00	100.00			

Spectrum: Murici B - Pirita 1

Element	Series	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]	Compound norm. [wt.%]	Comp. C [wt.%]	Error (3 Sigma) [wt.%]
Iron	K-series	46.42	46.42	33.22		46.42	3.57
Sulfur	K-series	53.58	53.58	66.78		53.58	4.62
Total:		100.00	100.00	100.00			

BARITA, GRANADA E MONAZITA

Spectrum: Murici - Barita

Element	Series	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]	Compound norm.	Comp. C [wt.%]	Error (3 Sigma) [wt.%]
Oxygen	K-series	27.55	27.55	64.92		27.55	3.88
Silicon	K-series	1.60	1.60	2.15		1.60	0.26
Aluminium	K-series	0.62	0.62	0.87		0.62	0.15
Barium	L-series	56.04	56.04	15.39		56.04	4.35
Sulfur	K-series	14.18	14.18	16.68		14.18	1.43
Total:		100.00	100.00	100.00			

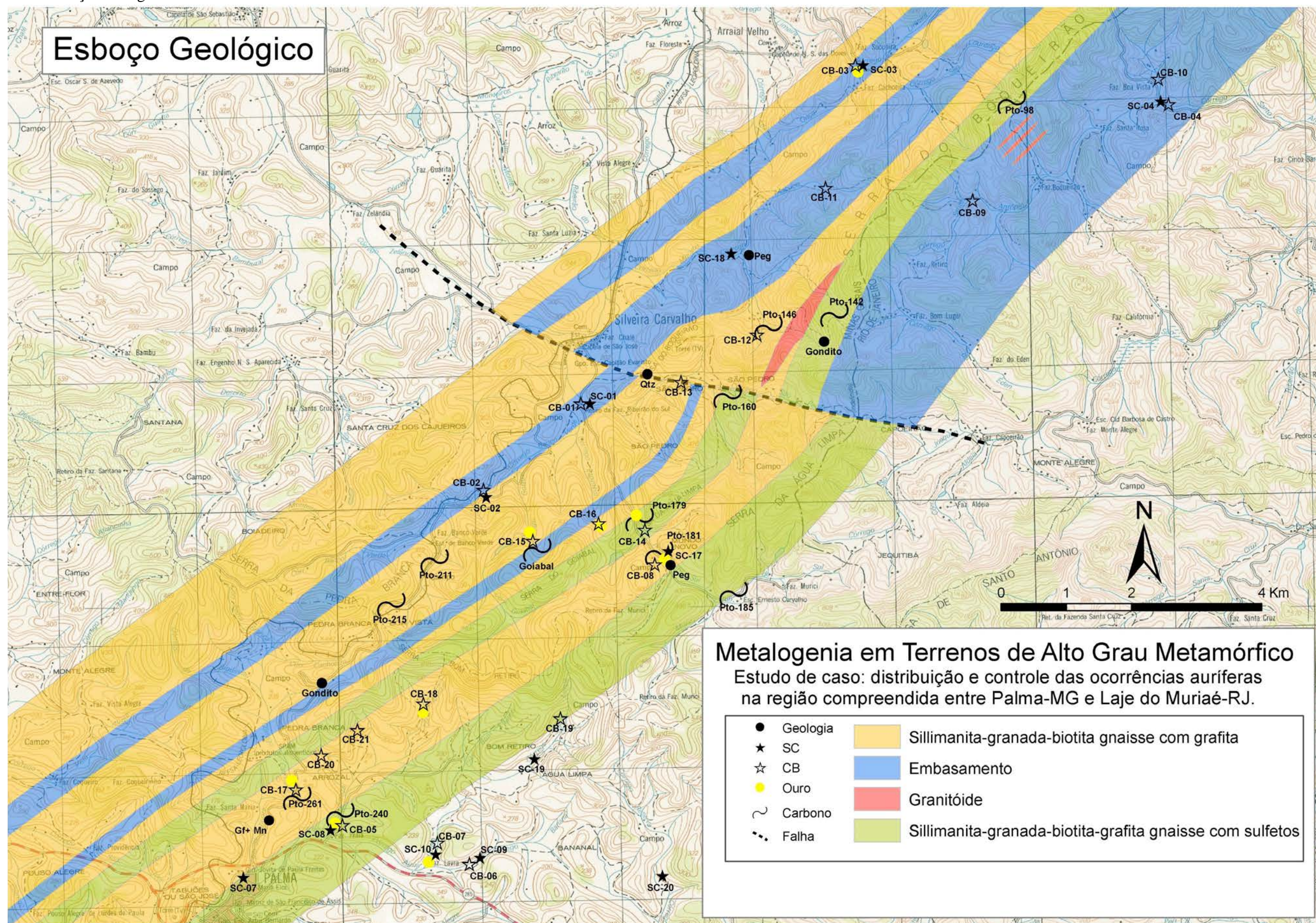
Spectrum: Murici - Granada

Element	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]	Compound norm.	Comp. C [wt.%]	Error (3 Sigma) [wt.%]
Oxygen	41.72	41.72	60.09		0.00	9.39
Iron	21.06	21.06	8.69	FeO	27.10	1.66
Silicon	18.42	18.42	15.12	SiO2	39.42	2.02
Aluminium	11.86	11.86	10.13	Al2O3	22.41	1.39
Magnesium	5.30	5.30	5.03	MgO	8.79	0.72
Calcium	1.64	1.64	0.94	CaO	2.29	0.20
Total:		100.00	100.00	100.00		

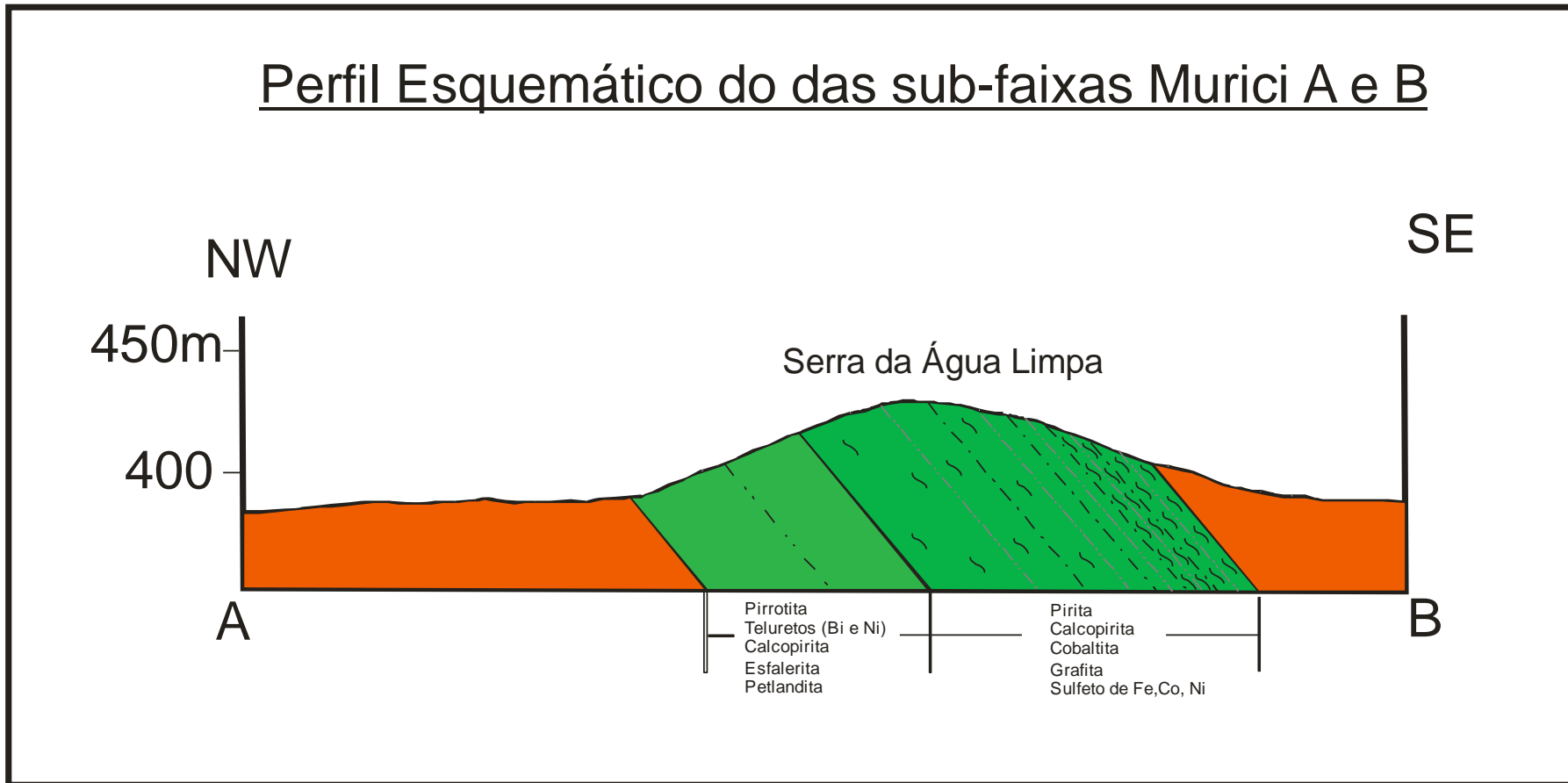
Mass percent (%)		C	O	Al	Si	P	Ca	Y	La	Ce	Pr	Nd	Pm	Sm	Eu	Gd	Pb	Th	U
Spectrum																			
Monazita 7	0.00	24.47	0.12	1.24	12.49	0.43	0.76	9.76	24.69	2.58	9.72	0.20	0.87	0.00	0.31	0.49	11.60	0.26	
Monazita 8	0.00	22.90	0.14	2.00	11.04	0.76	0.14	9.72	20.42	1.89	8.04	0.03	0.68	0.00	0.11	1.30	20.52	0.29	
Monazita 9	0.00	23.21	0.22	2.40	9.81	0.56	0.41	9.48	17.98	1.88	7.80	0.04	0.91	0.00	0.03	1.57	23.69	0.00	
Monazita 10	0.00	25.21	0.00	0.31	15.45	1.14	1.33	11.33	25.18	1.41	8.64	0.00	0.00	0.00	0.00	0.04	9.83	0.11	
Monazita 11	0.00	24.78	0.00	0.48	13.57	0.50	1.92	11.62	25.65	2.22	8.64	0.00	0.84	0.00	0.01	1.35	8.40	0.00	
Monazita 12	0.00	23.64	0.14	1.09	11.98	0.54	1.67	10.72	23.44	2.11	8.13	0.00	0.73	0.00	0.22	1.53	14.04	0.00	
Monazita 13	0.00	24.49	0.00	0.47	12.77	0.48	1.63	10.80	25.62	2.69	9.61	0.00	0.97	0.13	0.74	0.76	8.74	0.10	

Mass percent (%)		C	O	Al	Si	P	Ca	Y	La	Ce	Pr	Nd	Pm	Sm	Eu	Gd	Pb	Th	U
Spectrum																			
Monazita 14	0.00	24.39	0.12	1.86	10.98	0.31	0.36	10.05	21.72	1.81	8.15	0.00	0.69	0.00	0.11	1.80	17.66	0.00	
Monazita 15	0.00	22.23	0.09	1.61	11.60	0.97	0.75	10.03	20.77	2.07	8.03	0.19	1.38	0.00	0.70	1.13	18.03	0.44	
Monazita 16	0.00	25.56	0.00	0.26	14.46	1.26	1.17	10.75	24.89	2.20	9.15	0.00	0.18	0.00	0.15	0.39	9.09	0.46	
Monazita 17	0.00	23.78	0.09	1.78	11.19	0.67	0.11	10.47	20.47	1.66	7.34	0.00	0.53	0.00	0.00	1.85	20.07	0.00	

ANEXO C - Esboço Geológico e Perfil



Perfil Esquemático do das sub-faixas Murici A e B



ANEXO D - Análises Químicas



Project: Mestrado

CERTIFICATE OF ANALYSIS BH12148256

Sample Description	Method Analyte Units LOR	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	
		Au ppm	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Ce ppm	Co ppm	Cr ppm	Cs ppm	Cu ppm
		0.0002	0.002	0.01	0.02	10	0.5	0.05	0.01	0.01	0.01	0.02	0.1	0.5	0.05	0.01
SC- 01		0.0009	0.013	1.22	0.04	<10	76.3	0.32	0.04	0.11	0.01	191.5	8.6	60.8	0.25	16.50
SC- 02		0.0041	0.028	3.41	0.65	10	242	0.70	0.07	0.12	0.04	97.1	25.5	63.4	0.55	26.2
SC- 03		0.0025	0.024	2.88	1.02	<10	124.5	0.30	0.24	0.07	0.03	95.7	11.4	88.8	0.19	13.90
SC- 04		0.0043	0.025	2.82	0.35	<10	104.0	0.36	0.07	0.08	0.03	125.0	18.3	113.5	0.16	18.75
SC- 05		0.0007	0.019	2.17	0.24	10	62.1	0.14	0.07	0.05	0.01	168.5	6.1	53.3	0.13	7.38
SC- 06		0.0009	0.012	1.04	0.18	<10	40.2	0.07	0.22	0.02	0.01	117.0	3.3	33.8	0.06	3.61
SC- 07		0.0015	0.019	2.04	0.47	<10	82.1	0.26	0.06	0.06	0.02	176.5	12.1	50.2	0.25	13.95
SC- 08		0.0025	0.020	1.99	0.47	<10	72.2	0.27	0.08	0.06	0.03	93.5	9.5	52.1	0.20	11.60
SC- 09		0.0016	0.025	2.69	0.35	10	264	0.29	0.17	0.07	0.04	82.9	44.7	68.9	0.32	10.55
SC- 10		0.0012	0.019	1.27	0.47	10	78.0	0.14	0.06	0.07	0.02	164.5	8.2	31.4	0.14	8.85



Project: Mestrado

CERTIFICATE OF ANALYSIS BH12148256

Sample Description	Method Analyte Units LOR	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	
		Fe %	Ca ppm	Ce ppm	Hf ppm	Hg ppm	In ppm	K %	La ppm	Li ppm	Mg %	Mn ppm	Mo ppm	Na %	Nb ppm	Ni ppm
		0.01	0.05	0.05	0.02	0.005	0.005	0.01	0.2	0.1	0.01	1	0.01	0.01	0.05	0.1
SC- 01		3.38	6.58	0.25	0.13	0.030	0.035	0.12	93.7	2.8	0.14	456	0.66	0.02	2.29	9.7
SC- 02		5.98	14.95	0.21	0.05	0.077	0.061	0.18	46.0	7.5	0.23	1780	0.76	0.01	2.34	16.7
SC- 03		7.31	13.75	0.18	0.12	0.088	0.057	0.03	40.1	2.1	0.06	1540	0.77	0.01	1.92	9.4
SC- 04		5.94	12.30	0.20	0.13	0.060	0.055	0.03	55.5	2.4	0.06	1090	0.84	0.01	2.86	14.2
SC- 05		3.75	8.41	0.23	0.19	0.067	0.041	0.03	74.8	1.7	0.04	456	0.62	0.01	4.84	6.6
SC- 06		2.55	4.29	0.15	0.28	0.035	0.035	0.02	59.0	0.8	0.02	363	0.27	<0.01	2.86	3.1
SC- 07		3.51	9.74	0.22	0.05	0.048	0.038	0.05	82.8	3.1	0.07	979	0.65	0.01	1.71	8.9
SC- 08		4.21	9.00	0.16	0.05	0.056	0.045	0.02	41.2	2.2	0.05	668	0.56	<0.01	2.24	8.2
SC- 09		6.33	13.05	0.15	0.08	0.066	0.052	0.03	37.3	3.5	0.06	4250	0.63	0.01	2.33	11.5
SC- 10		2.87	5.41	0.21	0.06	0.045	0.028	0.03	74.4	2.0	0.06	1060	0.38	0.01	2.86	5.9



Project: Mestrado

CERTIFICATE OF ANALYSIS BH12148256

Sample Description	Method Analyte Units LOR	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	
		P	Pb	Rb	Re	S	Sb	Sc	Se	Sn	Sr	Ta	Te	Th	Ti	Tl
		%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
		0.001	0.01	0.1	0.001	0.01	0.005	0.1	0.1	0.2	0.2	0.01	0.01	0.1	0.001	0.02
SC- 01		0.037	6.42	15.6	<0.001	<0.01	0.092	6.6	0.8	1.0	5.5	0.01	0.02	39.2	0.378	0.10
SC- 02		0.050	19.95	23.4	0.001	0.02	0.060	11.4	0.6	2.1	13.0	<0.01	<0.01	12.3	0.194	0.19
SC- 03		0.038	8.68	3.1	<0.001	0.02	0.063	11.1	0.6	1.6	8.9	<0.01	0.01	17.5	0.183	0.05
SC- 04		0.037	7.15	2.7	<0.001	0.01	0.068	12.8	0.5	1.2	6.7	0.01	<0.01	20.6	0.365	0.04
SC- 05		0.032	8.59	2.5	<0.001	0.01	0.059	5.9	0.3	1.9	4.1	0.01	<0.01	33.8	0.495	0.03
SC- 06		0.016	7.51	1.1	<0.001	<0.01	0.058	3.7	0.3	1.7	5.1	0.01	<0.01	31.7	0.461	<0.02
SC- 07		0.038	8.66	6.4	<0.001	0.01	0.068	6.9	0.8	0.9	5.6	<0.01	<0.01	29.1	0.158	0.07
SC- 08		0.031	11.25	2.6	<0.001	0.01	0.055	8.2	0.4	1.5	4.3	<0.01	0.01	16.5	0.168	0.04
SC- 09		0.043	8.68	5.0	<0.001	0.02	0.051	10.7	0.4	1.1	7.1	<0.01	0.02	15.5	0.183	0.10
SC- 10		0.023	5.57	3.5	<0.001	0.01	0.062	4.7	0.6	0.8	3.9	<0.01	0.01	32.3	0.325	0.05



Project: Mestrado

CERTIFICATE OF ANALYSIS BH12148256

Sample Description	Method Analyte Units LOR	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L
		U	V	W	Y	Zn	Zr
		ppm	ppm	ppm	ppm	ppm	ppm
		0.05	1	0.01	0.05	0.1	0.5
SC- 01		2.39	57	0.05	12.60	52.7	4.5
SC- 02		0.96	95	0.06	21.0	71.4	1.7
SC- 03		1.06	116	0.03	6.21	39.9	3.9
SC- 04		1.11	105	0.03	10.30	49.2	4.8
SC- 05		1.14	78	0.02	8.31	43.4	7.7
SC- 06		0.80	53	0.01	5.49	56.5	10.8
SC- 07		1.91	49	0.02	10.35	36.6	2.1
SC- 08		1.13	62	0.02	9.04	38.8	1.8
SC- 09		0.73	80	0.02	8.44	42.0	3.2
SC- 10		1.51	43	0.02	9.95	33.6	2.2



Project: Mestrado

CERTIFICATE OF ANALYSIS BH13048722

Sample Description	Method Analyte Units LOR	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L
		Au ppm	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Ce ppm	Co ppm	Cr ppm	Cs ppm	Cu ppm
		0.0002	0.001	0.01	0.01	10	0.5	0.01	0.001	0.01	0.001	0.003	0.001	0.01	0.005	0.01
CB-01		0.0026	0.033	1.00	<0.01	10	13.1	0.12	0.030	0.24	0.053	>500.0	20.367	73.09	0.014	3.80
CB-02		0.0008	0.022	0.64	<0.01	10	22.6	0.16	0.026	0.20	0.033	>500.0	28.402	179.95	0.021	6.81
CB-03		0.0020	0.024	1.35	<0.01	10	12.9	0.05	0.043	0.20	0.058	>500.0	24.321	147.90	0.017	3.80
CB-04		0.0233	0.037	0.78	<0.01	10	12.4	0.07	0.065	0.12	0.020	>500.0	17.907	81.98	0.007	6.58
CB-08		0.0550	0.017	0.81	<0.01	<10	12.4	0.04	0.030	0.14	0.054	>500.0	12.484	30.03	0.008	4.38
CB-09		0.0016	0.020	0.26	<0.01	<10	15.6	0.05	0.035	0.07	0.010	>500.0	8.340	31.99	0.009	2.23
CB-10		0.0113	0.012	0.75	<0.01	10	15.0	0.04	0.047	0.21	0.062	>500.0	15.085	35.13	0.012	2.17
CB-11		0.0010	0.030	0.58	<0.01	<10	20.4	0.07	0.047	0.11	0.027	>500.0	12.930	62.80	0.010	2.85
SC-11		0.0006	0.028	2.53	1.36	10	149.0	0.37	0.090	0.09	0.031	82.641	10.630	50.20	0.376	17.20
SC-12		0.0006	0.022	2.22	0.61	10	224	0.61	0.036	0.13	0.025	62.272	16.993	82.19	0.528	58.9
SC-13		0.0014	0.043	5.36	1.97	20	363	1.12	0.101	0.15	0.045	86.921	27.637	143.50	0.592	49.7
SC-14		0.0006	0.013	1.56	0.82	10	99.1	0.35	0.093	0.06	0.012	56.569	8.041	22.13	0.189	13.05
SC-15		0.0011	0.039	2.90	0.74	20	395	1.07	0.043	0.23	0.053	108.125	36.739	94.45	0.605	36.3
SC-16		0.0025	0.031	4.16	1.29	20	410	2.44	0.063	0.16	0.046	167.300	49.450	201.2	0.584	49.8
Rib. Do Sul		0.0021	0.023	1.97	0.74	10	93.6	0.32	0.050	0.07	0.033	49.259	9.896	79.42	0.239	20.4
PTO-78		0.0014	0.033	2.51	0.88	10	371	0.71	0.060	0.14	0.056	58.686	31.576	98.54	0.529	36.9
PTO-88		0.0022	0.021	1.07	0.30	20	169.0	0.40	0.018	0.12	0.031	41.990	15.555	45.81	0.238	22.4
PTO-90		0.0026	0.045	2.53	0.69	20	424	0.76	0.042	0.19	0.067	80.058	29.514	102.80	0.536	40.2



Project: Mestrado

CERTIFICATE OF ANALYSIS BH13048722

Sample Description	Method Analyte Units LOR	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	
		Fe %	Ca ppm	Ge ppm	Hf ppm	Hg ppm	In ppm	K %	La ppm	Li ppm	Mg %	Mn ppm	Mo ppm	Na %	Nb ppm	Ni ppm
		0.001	0.004	0.005	0.002	0.004	0.005	0.01	0.002	0.1	0.01	0.1	0.01	0.001	0.002	0.04
CB- 01		5.57	27.70	3.446	0.537	0.022	0.052	0.01	1430.0	1.4	0.32	682	0.60	0.014	1.584	5.71
CB- 02		19.35	44.61	3.349	0.542	0.009	0.050	0.02	1490.0	1.1	0.17	707	1.82	0.021	0.952	17.65
CB- 03		11.25	60.84	7.603	0.316	0.028	0.062	<0.01	3340	1.4	0.41	846	1.13	0.004	1.404	10.07
CB- 04		5.68	14.950	2.098	0.940	0.016	0.070	<0.01	900.0	0.8	0.19	644	0.88	0.007	1.628	5.06
CB- 08		3.14	33.74	4.643	0.506	0.015	0.041	<0.01	2060	1.1	0.25	1020	0.23	0.005	2.341	1.69
CB- 09		2.62	25.06	3.152	0.547	0.004	0.054	<0.01	1540.0	0.6	0.07	511	0.25	0.004	1.366	1.49
CB- 10		4.07	22.50	3.375	0.558	0.006	0.051	0.01	1350.0	1.1	0.21	973	0.35	0.009	1.504	2.11
CB- 11		5.86	21.79	2.528	0.798	0.018	0.062	<0.01	1010.0	0.9	0.15	658	0.80	0.005	1.976	4.82
SC- 11		5.22	15.410	0.109	0.060	0.142	0.081	0.05	26.48	3.2	0.07	1625	0.60	0.007	1.450	6.46
SC- 12		6.44	13.185	0.134	0.039	0.117	0.050	0.13	22.29	5.8	0.21	948	0.41	0.007	2.212	12.84
SC- 13		8.94	24.39	0.182	0.089	0.217	0.096	0.09	22.79	6.5	0.15	3580	0.88	0.009	2.072	23.28
SC- 14		4.84	12.310	0.087	0.105	0.079	0.064	0.02	18.270	1.5	0.03	434	0.66	0.005	0.807	3.83
SC- 15		8.74	16.740	0.174	0.043	0.136	0.065	0.11	41.51	6.3	0.19	3900	0.68	0.015	2.204	22.84
SC- 16		11.85	26.57	0.213	0.227	0.118	0.129	0.17	46.51	5.9	0.22	4040	1.42	0.013	3.367	23.07
Rib. Do Sul		4.47	11.905	0.075	0.040	0.114	0.063	0.03	15.800	2.1	0.06	1040	0.65	0.004	0.980	7.48
PTO:78		7.51	15.020	0.152	0.046	0.111	0.066	0.14	24.40	6.2	0.20	3410	0.85	0.007	1.340	19.29
PTO:88		3.65	6.986	0.099	0.026	0.031	0.032	0.09	20.75	3.4	0.15	1555	0.35	0.006	1.167	11.73
PTO:90		5.92	13.880	0.152	0.052	0.134	0.061	0.21	29.74	5.7	0.26	3860	0.39	0.009	2.095	21.13



Project: Mestrado

CERTIFICATE OF ANALYSIS BH13048722

Sample Description	Method Analyte Units LOR	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L
		P %	Pb ppm	Rb ppm	Re ppm	S %	Sb ppm	Sc ppm	Se ppm	Sn ppm	Sr ppm	Ta ppm	Te ppm	Th ppm	Ti %	Tl ppm
		0.001	0.005	0.005	0.001	0.01	0.005	0.005	0.1	0.01	0.01	0.005	0.01	0.002	0.001	0.002
CB-01		0.158	28.19	0.719	<0.001	0.02	0.020	11.675	5.6	1.65	2.35	0.083	<0.01	770.0	0.870	0.007
CB-02		0.159	29.29	1.035	0.001	0.01	0.034	7.668	5.8	5.19	3.38	0.046	0.01	810.0	0.685	0.010
CB-03		0.338	57.58	0.458	0.001	0.01	0.012	17.385	8.6	7.79	2.82	0.076	0.01	1760.0	0.701	0.004
CB-04		0.076	22.78	0.201	<0.001	0.01	0.015	11.070	3.5	3.08	1.64	0.097	<0.01	408.9	1.085	0.003
CB-08		0.234	59.58	0.374	<0.001	0.02	0.135	9.347	9.6	1.00	2.33	0.109	<0.01	1840.0	0.619	0.004
CB-09		0.141	49.86	0.229	<0.001	0.01	0.020	6.316	5.0	2.25	1.89	0.123	0.01	1160.0	0.818	0.003
CB-10		0.135	29.22	0.475	0.001	0.01	0.013	9.410	6.7	2.92	1.87	0.111	0.01	830.0	0.959	0.004
CB-11		0.094	40.93	0.266	<0.001	0.01	0.016	8.631	5.0	2.64	3.07	0.102	<0.01	1040.0	1.045	0.006
SC-11		0.056	17.615	5.559	<0.001	0.04	0.040	11.470	0.7	2.77	15.25	<0.005	0.02	15.095	0.081	0.097
SC-12		0.062	11.885	21.25	<0.001	0.04	0.020	8.893	0.7	2.94	22.1	<0.005	0.01	6.103	0.141	0.224
SC-13		0.118	18.490	11.320	<0.001	0.06	0.089	23.18	1.1	3.40	21.8	<0.005	0.06	9.123	0.153	0.182
SC-14		0.038	13.635	2.391	<0.001	0.01	0.026	10.750	0.2	2.05	9.81	<0.005	0.02	11.420	0.065	0.048
SC-15		0.080	15.895	21.84	<0.001	0.05	0.026	14.635	1.4	2.35	24.5	<0.005	0.04	9.766	0.128	0.285
SC-16		0.107	28.38	33.64	<0.001	0.02	0.019	32.47	1.4	3.32	26.5	0.010	0.06	9.177	0.280	0.309
Rib. Do Sul		0.042	10.330	5.266	<0.001	0.02	0.028	11.835	0.3	1.03	7.82	<0.005	0.02	8.737	0.065	0.079
PTO:78		0.067	17.200	24.31	<0.001	0.03	0.031	16.710	1.0	1.76	16.25	<0.005	0.05	4.242	0.113	0.246
PTO:88		0.035	5.429	12.995	<0.001	0.01	0.006	6.795	0.2	0.73	9.79	<0.005	0.01	6.521	0.081	0.103
PTO:90		0.079	15.840	38.45	<0.001	0.04	0.021	13.400	0.7	2.33	23.3	<0.005	0.03	5.998	0.145	0.279



Project: Mestrado

CERTIFICATE OF ANALYSIS BH13048722

Sample Description	Method Analyte Units LOR	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L	ME-MS41L
		U	V	W	Y	Zn	Zr
		ppm	ppm	ppm	ppm	ppm	ppm
		0.005	0.1	0.001	0.003	0.1	0.01
CB- 01		31.781	125.0	31.49	128.0	47.2	19.75
CB- 02		27.067	582	19.165	139.5	43.3	25.65
CB- 03		52.743	429	40.67	195.0	37.7	16.91
CB- 04		14.754	144.5	6.852	89.4	56.3	37.77
CB- 08		64.726	41.5	26.98	220	32.7	15.46
CB- 09		29.869	52.1	5.754	125.0	31.3	28.40
CB- 10		28.868	66.8	14.610	159.5	43.2	20.62
CB- 11		30.020	133.0	5.529	113.0	52.6	29.58
SC- 11		0.768	98.1	0.032	9.96	34.1	1.60
SC- 12		0.462	148.5	0.030	12.10	55.2	0.87
SC- 13		0.855	181.0	0.054	17.15	71.6	2.73
SC- 14		0.601	89.8	0.010	6.34	19.2	3.01
SC- 15		0.541	110.5	0.025	23.4	62.9	0.96
SC- 16		0.570	209	0.043	31.0	72.4	4.71
Rib. Do Sul		0.638	87.4	0.028	8.18	35.7	1.29
PTO-78		0.602	123.0	0.304	23.9	65.9	1.27
PTO-88		0.459	56.4	0.024	13.00	39.3	0.54
PTO-90		0.518	114.0	0.030	20.1	70.8	1.26