



ALS USA Inc.
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To: MINNESOTA STATE DEPARTMENT OF
NATURAL RESOURCES
1525 3RD AVENUE EAST
HIBBING MN 55746

Page: 1
Finalized Date: 20-JAN-2011
Account: MINSTA

CERTIFICATE WN11000670

Project: DNR#385

P.O. No.:

This report is for 110 Soil samples submitted to our lab in Winnemucca, NV, USA on 3-JAN-2011.

The following have access to data associated with this certificate:

DONALD ELSSENHEIMER

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
DRY-22	Drying - Maximum Temp 60C
LOG-22	Sample login - Rcd w/o BarCode
SCR-41	Screen to -180um and save both

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
PGM-ICP23	Pt, Pd, Au 30g FA ICP	ICP-AES
ME-MS61	48 element four acid ICP-MS	

To: MINNESOTA STATE DEPARTMENT OF NATURAL RESOURCES
ATTN: DONALD ELSSENHEIMER
500 LAFAYETTE RD., BOX 45
ST. PAUL MN 55155-4045

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

Signature:


Colin Ramshaw, Vancouver Laboratory Manager



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CERTIFICATE OF ANALYSIS WN11000670

Sample Description	Method Analyte Units LOR	WEI-21 Recvd Wt. kg	ME-MS61 Ag ppm	ME-MS61 Al %	ME-MS61 As ppm	ME-MS61 Ba ppm	ME-MS61 Be ppm	ME-MS61 Bi ppm	ME-MS61 Ca %	ME-MS61 Cd ppm	ME-MS61 Ce ppm	ME-MS61 Co ppm	ME-MS61 Cr ppm	ME-MS61 Cs ppm	ME-MS61 Cu ppm	ME-MS61 Fe %
		0.02	0.01	0.01	0.2	10	0.05	0.01	0.01	0.02	0.01	0.1	1	0.05	0.2	0.01
IF2010-001		1.45	0.09	6.58	2.9	380	1.27	0.09	3.73	0.24	74.7	24.1	283	1.53	17.3	4.17
IF2010-002		0.69	0.12	5.73	2.5	690	1.08	0.14	2.58	0.45	51.0	18.9	188	1.79	16.0	2.94
IF2010-003		0.83	0.10	5.17	4.7	660	0.92	0.26	1.54	0.42	55.2	15.3	149	2.43	17.1	2.59
IF2010-004		1.59	0.11	7.67	2.9	430	0.89	0.09	1.33	0.15	69.0	17.5	130	2.77	14.4	4.19
IF2010-005		1.18	0.09	7.29	2.8	1030	0.99	0.13	1.86	0.27	76.3	15.5	103	2.08	12.0	4.00
IF2010-006		0.84	0.08	6.10	2.5	460	1.06	0.11	3.29	0.37	56.8	26.3	294	2.13	16.5	4.10
IF2010-007		1.24	0.07	5.61	1.1	430	0.92	0.08	3.53	0.12	40.1	8.0	47	1.44	15.1	2.22
IF2010-008		0.90	0.45	6.62	3.2	630	1.40	0.20	2.66	0.31	93.7	29.6	238	3.00	40.0	4.41
IF2010-009		1.02	0.09	6.66	3.0	330	1.12	0.08	1.65	0.09	49.3	33.7	541	3.38	22.3	4.81
IF2010-010		1.17	0.15	5.74	2.0	650	0.92	0.13	2.02	0.25	33.2	11.9	57	2.22	15.1	2.17
IF2010-011		1.48	0.16	7.40	2.1	740	1.17	0.12	2.16	0.22	80.7	29.9	357	3.18	26.9	5.10
IF2010-012		1.22	0.19	6.10	2.4	570	1.04	0.18	1.83	0.26	38.6	15.1	89	3.00	16.7	2.85
IF2010-013		1.07	0.12	5.44	1.8	570	0.99	0.12	1.63	0.22	31.2	8.3	42	2.08	10.9	1.66
IF2010-014		1.51	0.13	5.91	1.3	490	0.94	0.10	1.92	0.07	21.2	7.1	47	1.45	7.9	1.75
IF2010-015		1.04	0.21	6.08	2.6	610	1.27	0.16	1.98	0.21	72.1	13.3	63	3.30	33.1	2.84
IF2010-016		1.29	0.14	5.79	1.2	540	0.97	0.09	1.61	0.13	24.3	6.9	35	2.04	7.6	1.47
IF2010-017		0.94	0.38	4.23	5.8	440	0.64	0.32	1.37	1.44	30.3	16.3	63	2.39	36.0	2.94
IF2010-018		0.74	0.17	2.58	5.8	250	0.56	0.30	1.23	0.81	22.1	14.2	30	1.82	23.2	1.92
IF2010-019		1.09	0.29	5.52	39.9	580	0.97	0.21	1.34	0.75	44.1	22.4	75	3.45	37.3	4.26
IF2010-020		1.20	0.13	5.90	4.3	520	1.01	0.14	1.69	0.19	38.6	10.8	56	2.78	15.0	2.24
IF2010-021		0.77	0.08	5.35	1.3	430	0.92	0.09	1.60	0.06	15.95	5.3	34	1.25	7.2	1.36
IF2010-022		0.60	0.20	3.99	3.6	440	0.86	0.20	1.55	1.06	33.2	18.5	34	2.14	20.2	1.41
IF2010-023		0.87	0.09	5.48	2.4	460	1.01	0.13	1.76	0.26	41.4	8.4	37	1.79	17.1	1.70
IF2010-024		0.70	0.20	5.52	2.8	320	1.12	0.17	1.64	0.33	16.70	6.0	38	2.73	14.8	1.60
IF2010-025		0.60	0.19	2.82	5.1	270	0.53	0.20	0.93	0.22	22.0	7.0	26	1.34	20.2	1.69
IF2010-026		0.92	0.08	5.33	1.1	420	1.08	0.11	1.55	0.10	12.80	3.9	19	1.28	4.7	0.86
IF2010-027		0.56	0.17	1.50	3.1	320	0.47	0.17	2.19	0.80	19.00	5.3	12	1.01	13.0	0.79
IF2010-028		0.66	0.14	4.67	2.4	470	0.71	0.17	1.50	0.33	26.2	8.4	35	1.83	8.6	1.40
IF2010-029		0.92	0.11	4.96	2.7	510	0.82	0.18	1.73	0.41	27.4	8.3	42	2.35	12.1	1.58
IF2010-030		0.84	0.16	5.52	2.8	570	0.95	0.18	1.64	0.38	35.3	10.9	48	2.58	10.1	1.81
IF2010-031		1.03	0.12	5.51	1.3	520	0.88	0.10	1.48	0.20	21.8	6.1	32	1.64	7.8	1.27
IF2010-032		0.72	0.09	6.36	2.9	400	1.06	0.17	1.48	0.17	19.10	8.8	54	2.77	19.1	2.37
IF2010-033		0.38	0.10	4.08	4.6	290	0.81	0.28	1.44	0.59	19.70	5.1	39	1.97	16.1	1.60
IF2010-034		1.20	0.14	6.09	3.1	460	1.17	0.21	1.06	0.12	29.9	6.5	55	3.52	16.3	1.97
IF2010-035		0.94	0.12	6.75	5.2	380	1.33	0.28	1.08	0.12	24.5	10.1	67	4.19	25.6	2.87
IF2010-036		0.54	0.14	0.79	2.1	160	0.39	0.15	2.86	0.60	19.80	4.4	8	0.63	17.1	0.47
IF2010-037		0.49	0.17	1.66	2.1	220	0.53	0.14	0.80	0.49	24.7	7.2	15	1.27	15.7	1.07
IF2010-038		0.85	0.26	3.00	3.2	280	0.78	0.20	0.81	0.47	45.6	12.4	28	2.41	33.4	1.62
IF2010-039		0.60	0.16	4.49	3.1	460	0.91	0.24	1.76	0.47	52.9	9.3	44	2.36	11.8	2.23
IF2010-040		0.77	0.46	4.57	6.6	500	1.24	0.35	1.73	0.92	58.6	18.9	44	3.49	33.2	2.39



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CERTIFICATE OF ANALYSIS WN11000670

Sample Description	Method Analyte Units LOR	ME-MS61 Ga ppm 0.05	ME-MS61 Ge ppm 0.05	ME-MS61 Hf ppm 0.1	ME-MS61 In ppm 0.005	ME-MS61 K % 0.01	ME-MS61 La ppm 0.5	ME-MS61 Li ppm 0.2	ME-MS61 Mg % 0.01	ME-MS61 Mn ppm 5	ME-MS61 Mo ppm 0.05	ME-MS61 Na % 0.01	ME-MS61 Nb ppm 0.1	ME-MS61 Ni ppm 0.2	ME-MS61 P ppm 10	ME-MS61 Pb ppm 0.5
IF2010-001		18.25	0.19	0.8	0.048	0.55	32.6	8.5	3.13	882	0.43	2.01	5.6	136.0	1300	17.5
IF2010-002		14.45	0.15	1.2	0.038	0.57	23.1	18.5	1.98	1290	0.46	1.57	5.9	85.4	1310	22.1
IF2010-003		12.85	0.11	1.6	0.041	0.79	25.4	17.8	1.12	942	0.66	1.61	6.3	54.6	1130	51.4
IF2010-004		21.0	0.16	1.3	0.043	0.69	31.0	19.5	1.87	595	0.45	3.13	6.7	54.4	1610	10.8
IF2010-005		18.90	0.17	1.2	0.049	1.43	34.7	24.4	1.31	1170	0.54	2.21	6.9	44.4	1460	15.9
IF2010-006		16.40	0.15	2.0	0.044	0.55	24.1	20.5	3.36	892	0.79	1.79	5.2	134.5	870	19.9
IF2010-007		12.95	0.10	2.8	0.025	1.28	17.4	13.7	1.36	405	0.26	1.87	5.1	21.9	640	15.0
IF2010-008		19.05	0.19	1.7	0.063	0.72	38.2	23.0	2.40	1580	0.98	1.34	8.7	121.5	1450	22.1
IF2010-009		17.20	0.17	2.8	0.044	0.80	20.5	34.2	5.03	585	0.67	1.51	3.1	264	650	12.9
IF2010-010		13.25	0.09	3.0	0.030	1.35	15.4	17.9	0.77	998	0.55	1.64	6.4	26.0	780	20.5
IF2010-011		18.90	0.20	1.7	0.053	1.01	32.7	29.4	3.75	1150	0.75	1.53	6.3	181.0	1750	16.2
IF2010-012		15.65	0.11	2.9	0.036	1.24	17.7	29.0	0.92	1020	0.71	1.66	8.2	37.5	970	18.5
IF2010-013		12.65	0.07	3.4	0.027	1.53	14.4	19.8	0.66	783	0.78	1.58	7.1	18.4	340	18.9
IF2010-014		14.55	0.09	3.0	0.027	1.42	9.2	12.0	0.61	341	0.37	2.08	5.2	22.6	260	16.6
IF2010-015		15.80	0.14	2.6	0.039	1.28	34.3	29.8	1.00	947	0.54	1.22	7.8	37.4	830	17.1
IF2010-016		14.20	0.08	3.3	0.025	1.66	11.2	13.8	0.48	547	0.39	1.87	6.1	16.1	310	14.2
IF2010-017		11.50	0.08	1.1	0.053	0.62	14.8	19.3	0.66	1980	0.66	0.81	6.2	27.4	1710	45.8
IF2010-018		7.14	0.05	0.8	0.035	0.47	10.0	13.2	0.39	1260	0.90	0.35	4.4	12.8	1760	45.3
IF2010-019		13.70	0.12	1.8	0.052	0.81	18.9	36.0	0.72	3660	0.98	0.71	8.0	34.0	1620	19.9
IF2010-020		14.30	0.10	2.6	0.032	1.50	17.2	26.1	0.71	809	0.51	1.51	8.0	26.2	420	25.1
IF2010-021		13.00	0.06	2.4	0.022	1.33	7.1	8.6	0.43	252	0.42	1.87	4.0	14.3	250	15.0
IF2010-022		10.00	0.07	1.9	0.031	0.91	14.3	14.6	0.43	1920	1.12	1.01	5.7	18.9	830	28.8
IF2010-023		13.20	0.09	2.9	0.028	1.26	20.4	11.2	0.43	756	0.69	1.72	5.1	17.8	490	15.6
IF2010-024		14.65	0.06	1.9	0.023	0.62	7.8	9.6	0.32	505	0.62	1.85	5.7	13.4	710	22.5
IF2010-025		6.93	0.05	0.8	0.029	0.37	9.8	18.3	0.28	259	0.84	0.28	3.8	13.8	650	24.1
IF2010-026		12.65	0.05	1.6	0.016	1.09	6.2	8.7	0.25	401	0.61	1.97	4.1	8.0	220	18.6
IF2010-027		3.66	<0.05	0.7	0.020	0.43	8.7	8.4	0.33	1400	0.85	0.18	2.3	12.3	1180	37.1
IF2010-028		11.80	0.07	2.8	0.028	1.33	12.1	20.1	0.47	984	0.94	1.24	6.4	16.3	510	28.3
IF2010-029		12.15	0.07	2.8	0.031	1.38	13.4	19.1	0.55	631	0.82	1.14	7.6	19.1	630	23.7
IF2010-030		15.35	0.10	3.9	0.036	1.56	17.2	24.6	0.61	1190	0.88	1.36	8.9	22.2	510	26.2
IF2010-031		13.70	0.07	3.1	0.023	1.61	10.1	16.7	0.43	603	0.80	1.80	6.4	14.1	270	14.4
IF2010-032		16.65	0.08	2.5	0.028	0.88	9.4	18.1	0.56	501	0.73	1.67	6.5	24.7	730	21.1
IF2010-033		10.70	0.06	1.6	0.028	0.42	9.8	8.3	0.35	739	0.95	1.10	4.3	16.1	1210	45.0
IF2010-034		17.75	<0.05	2.8	0.031	1.11	16.5	22.2	0.53	244	2.04	1.43	8.4	20.1	390	18.7
IF2010-035		18.35	<0.05	2.6	0.043	0.85	14.1	29.4	0.62	245	1.21	1.31	8.2	31.3	410	26.1
IF2010-036		2.06	<0.05	0.3	0.017	0.22	11.4	4.0	0.44	418	2.58	0.08	1.2	11.7	1010	33.7
IF2010-037		3.90	<0.05	0.6	0.019	0.38	14.3	6.3	0.18	309	0.73	0.20	2.3	15.7	1040	20.2
IF2010-038		8.82	<0.05	0.9	0.030	0.47	26.8	14.0	0.29	102	1.16	0.38	4.6	33.9	1280	27.3
IF2010-039		11.35	<0.05	2.3	0.037	0.96	28.5	22.3	0.52	1550	0.87	1.01	6.7	17.2	970	34.4
IF2010-040		11.10	<0.05	1.4	0.050	0.70	21.9	40.8	0.65	2440	1.86	0.40	6.5	28.5	970	41.2



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Sample Description	Method Analyte Units LOR	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
		Rb	Re	S	Sb	Sc	Se	Sn	Sr	Ta	Te	Th	Ti	Ti	U	V
		ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm
		0.1	0.002	0.01	0.05	0.1	1	0.2	0.2	0.05	0.05	0.2	0.005	0.02	0.1	1
IF2010-001		39.0	<0.002	0.03	0.30	16.7	2	1.0	1290	0.30	<0.05	3.2	0.403	0.14	0.8	98
IF2010-002		45.9	<0.002	0.06	0.32	11.9	2	1.0	776	0.35	<0.05	3.4	0.291	0.18	0.8	64
IF2010-003		41.9	<0.002	0.07	0.63	8.6	2	1.4	538	0.45	0.05	5.2	0.274	0.32	1.3	58
IF2010-004		48.7	<0.002	0.02	0.24	12.5	1	1.2	646	0.43	<0.05	4.2	0.398	0.21	0.9	92
IF2010-005		41.6	<0.002	0.03	0.35	11.7	1	1.2	745	0.48	<0.05	5.0	0.367	0.21	1.1	84
IF2010-006		42.7	<0.002	0.05	0.38	16.1	1	1.2	1045	0.33	<0.05	2.7	0.375	0.15	0.7	94
IF2010-007		51.3	<0.002	0.04	0.16	7.9	1	0.8	349	0.41	<0.05	4.4	0.207	0.29	1.0	50
IF2010-008		52.4	<0.002	0.03	0.42	13.8	2	1.6	701	0.59	<0.05	5.5	0.412	0.31	1.6	97
IF2010-009		60.2	<0.002	0.01	0.28	16.9	1	1.0	653	0.22	<0.05	3.2	0.326	0.21	0.8	106
IF2010-010		69.5	<0.002	0.05	0.33	8.6	1	1.0	315	0.51	<0.05	4.0	0.264	0.35	1.2	54
IF2010-011		73.7	<0.002	0.03	0.29	14.7	1	1.3	711	0.43	<0.05	4.4	0.455	0.29	1.0	106
IF2010-012		70.2	<0.002	0.03	0.35	10.7	1	1.2	346	0.61	<0.05	4.8	0.343	0.33	1.4	66
IF2010-013		75.5	<0.002	0.04	0.31	7.5	1	1.0	269	0.52	<0.05	4.2	0.265	0.39	1.2	46
IF2010-014		58.5	<0.002	0.01	0.22	8.2	1	0.9	377	0.40	<0.05	2.6	0.232	0.34	0.9	46
IF2010-015		132.0	<0.002	0.06	0.32	10.8	2	1.2	233	0.63	<0.05	7.4	0.266	0.45	2.4	66
IF2010-016		86.9	<0.002	0.02	0.21	7.3	1	0.9	295	0.45	<0.05	3.2	0.229	0.40	1.0	41
IF2010-017		33.3	<0.002	0.12	0.84	11.8	2	1.6	117.5	0.44	0.07	4.0	0.339	0.28	1.3	81
IF2010-018		25.0	<0.002	0.15	0.81	6.9	2	1.2	60.1	0.29	0.06	3.0	0.220	0.24	1.0	50
IF2010-019		54.2	<0.002	0.07	0.66	10.6	2	1.3	99.0	0.57	0.06	5.8	0.308	0.36	1.5	84
IF2010-020		97.5	<0.002	0.04	0.35	9.0	1	1.1	253	0.57	<0.05	5.2	0.290	0.42	1.4	60
IF2010-021		52.7	<0.002	0.04	0.20	7.0	1	0.7	307	0.32	<0.05	1.9	0.184	0.32	0.7	37
IF2010-022		75.7	<0.002	0.09	0.44	6.1	2	1.0	200	0.43	<0.05	3.3	0.182	0.31	1.2	37
IF2010-023		65.3	<0.002	0.04	0.31	7.1	2	0.8	291	0.38	<0.05	4.0	0.177	0.34	1.5	45
IF2010-024		57.8	<0.002	0.04	0.31	7.2	1	1.0	393	0.47	<0.05	3.1	0.247	0.24	0.9	40
IF2010-025		24.5	<0.002	0.13	0.48	4.1	2	0.9	85.8	0.27	<0.05	3.3	0.121	0.21	0.9	37
IF2010-026		54.6	<0.002	0.02	0.23	4.8	1	0.7	346	0.35	<0.05	2.2	0.142	0.30	0.7	26
IF2010-027		29.8	<0.002	0.19	0.47	2.5	2	0.8	74.6	0.15	<0.05	2.7	0.070	0.20	0.8	21
IF2010-028		74.5	<0.002	0.06	0.39	6.7	2	1.2	207	0.46	<0.05	3.5	0.226	0.39	1.2	41
IF2010-029		98.4	<0.002	0.08	0.39	7.3	2	1.2	199.0	0.51	<0.05	4.0	0.261	0.45	1.4	50
IF2010-030		111.5	<0.002	0.04	0.43	9.3	2	1.3	229	0.67	<0.05	5.0	0.301	0.46	1.6	54
IF2010-031		80.6	<0.002	0.02	0.21	6.9	1	0.8	276	0.43	<0.05	3.2	0.246	0.38	1.1	38
IF2010-032		55.7	<0.002	0.04	0.26	7.2	2	1.0	307	0.48	<0.05	4.0	0.272	0.33	1.2	60
IF2010-033		26.6	<0.002	0.12	0.59	5.2	2	1.3	193.5	0.32	<0.05	4.3	0.200	0.33	1.2	40
IF2010-034		71.5	<0.002	0.02	0.29	8.6	1	1.4	250	0.65	<0.05	5.1	0.311	0.46	1.5	71
IF2010-035		72.3	<0.002	0.03	0.39	9.1	2	1.6	239	0.63	0.07	4.3	0.312	0.48	1.6	102
IF2010-036		16.0	<0.002	0.23	0.47	1.5	2	0.7	67.3	0.08	<0.05	1.4	0.036	0.12	0.8	15
IF2010-037		33.9	<0.002	0.15	0.40	3.1	2	0.8	69.7	0.17	<0.05	2.0	0.073	0.21	0.9	20
IF2010-038		38.8	<0.002	0.18	0.43	5.2	2	1.2	92.1	0.38	<0.05	3.8	0.145	0.34	2.1	33
IF2010-039		64.7	<0.002	0.09	0.41	6.7	2	1.3	193.5	0.54	0.05	9.8	0.233	0.34	1.4	53
IF2010-040		71.2	0.002	0.13	0.58	6.6	3	1.4	105.0	0.49	0.08	6.3	0.188	0.44	2.1	66



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Sample Description	Method Analyte Units LOR	ME-MS61 W ppm 0.1	ME-MS61 Y ppm 0.1	ME-MS61 Zn ppm 2	ME-MS61 Zr ppm 0.5	PGM-ICP23 Au ppm 0.001	PGM-ICP23 Pt ppm 0.005	PGM-ICP23 Pd ppm 0.001
IF2010-001		0.3	13.9	93	30.0	0.001	<0.005	0.001
IF2010-002		0.4	10.7	197	46.8	0.001	<0.005	0.001
IF2010-003		0.6	9.2	138	57.8	0.002	<0.005	0.001
IF2010-004		0.4	11.0	127	46.5	<0.001	<0.005	0.001
IF2010-005		0.6	12.2	139	41.2	<0.001	<0.005	0.001
IF2010-006		0.3	11.2	112	72.1	<0.001	<0.005	0.001
IF2010-007		0.3	9.6	36	99.2	<0.001	<0.005	<0.001
IF2010-008		0.8	13.7	158	59.8	0.001	<0.005	0.001
IF2010-009		0.2	9.5	99	107.5	0.001	<0.005	0.001
IF2010-010		0.6	8.7	68	106.0	0.001	<0.005	0.001
IF2010-011		0.4	12.1	154	59.6	<0.001	<0.005	0.001
IF2010-012		0.8	10.4	190	109.0	0.001	<0.005	0.001
IF2010-013		0.6	8.1	70	116.5	0.001	<0.005	<0.001
IF2010-014		0.4	7.7	36	110.5	0.003	<0.005	<0.001
IF2010-015		0.6	16.7	58	84.0	0.001	<0.005	<0.001
IF2010-016		0.5	7.9	44	118.5	0.002	<0.005	<0.001
IF2010-017		0.9	12.2	252	40.3	0.008	<0.005	0.001
IF2010-018		0.7	7.5	112	31.6	0.005	<0.005	<0.001
IF2010-019		1.6	9.4	221	65.9	0.004	<0.005	0.001
IF2010-020		0.9	8.9	62	98.7	0.005	<0.005	0.001
IF2010-021		0.4	6.1	21	83.2	0.005	<0.005	<0.001
IF2010-022		0.5	7.3	136	71.2	0.002	<0.005	<0.001
IF2010-023		0.4	11.0	27	105.0	0.001	<0.005	<0.001
IF2010-024		0.5	5.8	90	70.8	0.002	<0.005	<0.001
IF2010-025		0.4	4.9	32	28.2	0.004	<0.005	0.001
IF2010-026		0.4	5.0	20	53.5	0.001	<0.005	<0.001
IF2010-027		0.3	4.6	113	23.6	0.019	<0.005	<0.001
IF2010-028		0.6	7.1	55	100.5	0.001	<0.005	<0.001
IF2010-029		0.7	7.8	78	105.0	0.002	<0.005	<0.001
IF2010-030		0.8	9.3	89	139.0	0.001	<0.005	<0.001
IF2010-031		0.5	7.1	40	118.5	0.003	<0.005	<0.001
IF2010-032		0.6	5.8	109	95.2	0.001	<0.005	<0.001
IF2010-033		0.5	4.2	81	58.4	0.004	<0.005	0.001
IF2010-034		0.8	8.1	38	98.1	0.001	<0.005	<0.001
IF2010-035		0.8	7.4	53	91.5	0.002	<0.005	0.001
IF2010-036		0.2	4.5	34	10.4	0.007	<0.005	0.002
IF2010-037		0.3	4.6	58	19.9	0.017	<0.005	0.001
IF2010-038		0.5	7.3	33	30.9	0.001	0.005	0.001
IF2010-039		0.5	9.1	77	82.5	0.001	<0.005	0.001
IF2010-040		0.7	9.2	87	47.7	<0.001	<0.005	<0.001



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Sample Description	Method Analyte Units LOR	WEI-21 Recvd Wt. kg 0.02	ME-MS61 Ag ppm 0.01	ME-MS61 Al % 0.01	ME-MS61 As ppm 0.2	ME-MS61 Ba ppm 10	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05	ME-MS61 Cu ppm 0.2	ME-MS61 Fe % 0.01
IF2010-041		0.66	0.16	5.51	3.2	400	1.11	0.28	1.17	0.20	29.1	8.0	45	2.28	14.8	2.17
IF2010-042		0.53	0.04	0.57	2.2	60	0.21	0.11	0.97	0.44	5.91	1.7	6	0.35	8.5	0.34
IF2010-043		0.55	0.08	0.55	3.6	120	0.29	0.20	2.18	1.30	10.70	24.7	5	0.61	11.5	0.59
IF2010-044		0.78	0.10	0.94	3.0	170	0.44	0.15	2.15	0.70	12.15	4.0	9	0.60	10.6	0.51
IF2010-045		0.40	0.15	4.37	4.3	600	0.89	0.38	1.17	0.69	31.1	18.4	46	3.97	20.1	2.03
IF2010-046		1.00	0.23	2.37	2.3	280	0.78	0.17	1.29	0.32	58.9	17.1	24	1.73	29.3	1.22
IF2010-047		1.10	0.23	5.35	1.2	480	0.99	0.16	1.36	0.09	20.9	5.8	33	1.70	5.7	1.21
IF2010-048		0.79	0.17	6.55	3.0	360	1.55	0.27	1.29	0.14	35.5	12.8	82	3.63	21.4	3.21
IF2010-049		0.83	0.27	3.75	8.4	410	1.07	0.32	1.11	0.44	118.0	111.5	39	2.71	23.5	3.42
IF2010-050		0.56	0.12	5.43	3.1	300	1.02	0.26	1.06	0.23	20.5	6.8	49	2.25	16.8	2.63
IF2010-051		0.76	0.08	5.09	2.7	480	0.96	0.17	1.58	0.30	22.5	6.2	40	1.30	6.5	1.50
IF2010-052		0.83	0.64	4.28	3.8	610	1.34	0.32	1.60	1.84	76.0	11.6	40	3.27	30.5	1.92
IF2010-053		0.62	0.08	5.41	7.0	420	1.04	0.29	1.08	0.20	30.3	8.9	60	3.47	23.4	2.85
IF2010-054		0.87	0.06	0.57	3.2	100	0.15	0.12	1.52	0.38	7.08	1.3	6	0.54	8.6	0.30
IF2010-055		0.84	0.20	4.34	2.6	410	0.85	0.18	1.36	0.30	28.8	8.8	36	1.88	16.8	1.46
IF2010-056		1.03	0.12	0.76	3.2	200	0.29	0.20	3.28	1.12	13.10	3.5	8	0.65	18.1	0.43
IF2010-057		0.53	0.16	3.65	2.5	420	0.75	0.22	0.92	0.36	27.0	8.0	33	3.02	13.7	1.16
IF2010-058		0.82	0.17	4.32	4.2	450	1.00	0.24	1.39	0.49	90.5	29.7	48	3.49	47.2	1.95
IF2010-059		0.95	0.02	0.28	2.9	70	0.10	0.05	3.54	0.35	3.16	1.2	4	0.31	4.8	0.18
IF2010-060		0.58	0.03	0.52	2.1	70	0.15	0.08	1.44	0.25	5.50	2.7	6	0.61	12.0	0.34
IF2010-061		1.13	0.13	1.44	3.0	150	0.33	0.13	0.70	0.46	12.90	1.7	12	0.91	8.6	0.43
IF2010-062		0.95	0.11	4.18	1.8	380	0.72	0.11	1.29	0.36	25.8	5.2	30	1.45	8.4	1.08
IF2010-063		0.61	0.05	4.34	3.0	310	0.92	0.20	1.38	0.30	17.65	4.8	33	1.71	11.1	1.31
IF2010-064		0.54	0.03	0.73	1.5	190	0.20	0.10	1.27	0.65	5.96	1.3	8	0.61	9.6	0.43
IF2010-065		0.97	0.08	1.50	3.8	140	0.46	0.20	1.21	0.34	18.65	3.4	16	1.12	12.6	0.78
IF2010-066		0.72	0.13	1.85	3.3	290	0.52	0.19	2.09	0.71	21.4	5.7	18	1.07	15.4	0.83
IF2010-067		0.82	0.07	2.25	3.6	200	0.50	0.18	1.63	0.48	19.20	7.5	22	1.48	10.0	1.16
IF2010-068		0.96	0.09	3.16	3.3	260	0.72	0.17	1.84	0.30	28.6	6.1	33	2.11	15.3	1.41
IF2010-069		0.90	0.07	2.29	2.4	210	0.45	0.14	2.07	0.59	15.90	4.5	23	1.74	12.6	1.03
IF2010-070		0.79	0.04	0.44	6.2	100	0.18	0.10	2.30	0.53	6.57	8.2	5	0.31	8.0	0.61
IF2010-071		0.74	0.03	0.29	1.6	70	0.15	0.07	2.51	0.64	5.22	4.1	4	0.27	9.2	0.24
IF2010-072		0.66	0.03	0.65	1.9	90	0.19	0.09	1.08	0.34	7.28	1.6	7	0.45	6.6	0.44
IF2010-073		0.98	0.04	0.61	2.9	80	0.21	0.10	0.81	0.25	6.66	1.2	7	0.37	4.5	0.36
IF2010-074		0.80	0.05	4.94	3.1	470	0.98	0.21	1.43	0.16	18.55	5.9	36	1.60	9.6	1.46
IF2010-075		1.01	0.10	5.80	2.2	540	1.02	0.12	1.79	0.13	15.80	7.0	43	1.72	6.1	1.88
IF2010-076		1.07	0.14	3.36	3.4	380	0.77	0.18	1.53	0.36	27.1	13.0	31	2.03	15.2	1.51
IF2010-077		0.73	0.03	0.30	1.4	90	0.09	0.05	1.85	0.52	2.99	1.8	4	0.26	11.6	0.18
IF2010-078		1.05	0.28	4.36	3.5	480	0.89	0.20	1.42	0.41	31.9	14.1	36	2.43	14.1	1.67
IF2010-079		0.79	0.05	4.49	1.3	540	0.84	0.13	1.62	0.40	14.75	4.3	27	1.48	4.9	1.13
IF2010-080		0.90	0.13	3.29	3.0	450	0.83	0.20	1.18	0.60	38.9	28.5	28	2.36	19.2	1.31



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Sample Description	Method Analyte Units LOR	ME-MS61 Ga ppm 0.05	ME-MS61 Ge ppm 0.05	ME-MS61 Hf ppm 0.1	ME-MS61 In ppm 0.005	ME-MS61 K % 0.01	ME-MS61 La ppm 0.5	ME-MS61 Li ppm 0.2	ME-MS61 Mg % 0.01	ME-MS61 Mn ppm 5	ME-MS61 Mo ppm 0.05	ME-MS61 Na % 0.01	ME-MS61 Nb ppm 0.1	ME-MS61 Ni ppm 0.2	ME-MS61 P ppm 10	ME-MS61 Pb ppm 0.5
IF2010-041		15.70	<0.05	3.0	0.034	0.87	15.4	20.1	0.45	488	0.86	1.43	8.2	18.4	710	29.0
IF2010-042		1.50	<0.05	0.3	0.010	0.14	3.2	2.4	0.20	51	0.75	0.09	1.0	3.5	530	22.6
IF2010-043		1.60	<0.05	0.3	0.012	0.17	4.4	2.7	0.34	2190	0.92	0.07	0.9	7.4	820	35.7
IF2010-044		2.42	<0.05	0.4	0.015	0.23	6.4	5.2	0.34	462	1.52	0.12	1.5	7.0	780	31.5
IF2010-045		12.40	<0.05	1.7	0.041	0.72	16.3	21.9	0.46	3130	0.83	0.78	6.1	25.2	1060	49.0
IF2010-046		6.04	<0.05	0.9	0.024	0.48	30.4	13.7	0.33	809	0.78	0.28	3.0	25.4	1240	24.4
IF2010-047		14.00	<0.05	3.2	0.026	1.41	10.8	11.0	0.37	403	0.48	1.71	5.7	13.0	400	19.4
IF2010-048		18.45	<0.05	2.5	0.042	0.74	19.4	33.7	0.73	589	0.98	1.51	8.6	32.0	1060	24.8
IF2010-049		10.15	0.08	1.5	0.040	0.68	52.3	18.3	0.36	4640	1.80	0.50	5.4	28.6	1410	45.9
IF2010-050		15.65	<0.05	2.0	0.028	0.60	11.3	22.4	0.39	267	1.63	1.29	7.2	17.7	410	25.4
IF2010-051		13.10	<0.05	2.7	0.026	1.15	12.0	12.3	0.44	736	0.61	1.55	5.7	15.0	360	22.7
IF2010-052		11.25	<0.05	1.6	0.043	0.99	27.6	23.3	0.49	4140	1.42	0.51	6.7	38.5	1630	35.3
IF2010-053		14.75	<0.05	2.3	0.037	0.69	14.4	24.2	0.53	284	1.55	1.28	7.4	26.4	870	35.4
IF2010-054		1.53	<0.05	0.3	0.010	0.15	3.5	2.3	0.29	93	0.76	0.09	1.1	4.9	860	12.8
IF2010-055		10.95	<0.05	1.7	0.026	1.03	12.8	13.9	0.48	555	0.69	1.10	6.0	17.2	520	26.5
IF2010-056		2.00	<0.05	0.3	0.019	0.20	7.2	3.4	0.38	473	0.75	0.09	1.3	10.1	1180	30.3
IF2010-057		10.20	<0.05	1.9	0.026	0.77	12.9	11.9	0.31	425	0.68	0.85	6.4	13.1	830	33.3
IF2010-058		11.35	0.08	1.7	0.039	1.06	39.9	22.5	0.56	842	0.97	0.54	7.1	36.9	710	25.8
IF2010-059		0.83	<0.05	0.1	<0.005	0.11	1.5	1.6	0.40	462	0.81	0.04	0.5	2.2	810	8.5
IF2010-060		1.40	<0.05	0.2	0.007	0.17	2.6	2.3	0.25	166	0.93	0.08	0.9	5.0	730	13.2
IF2010-061		3.84	<0.05	1.0	0.016	0.37	6.3	4.1	0.15	72	0.75	0.32	2.9	4.4	800	19.8
IF2010-062		10.25	<0.05	1.5	0.021	0.96	11.1	8.7	0.33	395	0.69	1.35	4.5	10.5	650	17.3
IF2010-063		10.80	<0.05	2.1	0.020	0.56	8.4	9.1	0.30	434	0.96	1.25	5.5	11.2	470	27.4
IF2010-064		2.01	<0.05	0.3	0.010	0.24	2.9	3.1	0.21	531	0.98	0.13	1.3	3.5	810	17.7
IF2010-065		4.13	<0.05	0.8	0.020	0.33	8.5	7.6	0.32	150	2.76	0.15	2.7	9.5	880	24.0
IF2010-066		4.46	<0.05	0.8	0.019	0.47	9.6	7.7	0.46	637	1.79	0.36	2.6	10.8	830	25.6
IF2010-067		6.08	<0.05	1.2	0.019	0.60	8.7	11.0	0.38	746	0.84	0.41	4.0	9.3	920	19.2
IF2010-068		7.85	<0.05	1.5	0.025	0.76	12.5	17.7	0.56	344	0.60	0.45	5.4	14.4	590	20.0
IF2010-069		5.68	<0.05	1.0	0.019	0.53	7.9	12.0	0.42	393	0.49	0.30	3.7	8.3	550	18.5
IF2010-070		1.36	<0.05	0.2	0.007	0.15	3.1	2.1	0.35	1460	1.35	0.06	0.8	6.2	1120	16.7
IF2010-071		0.90	<0.05	0.1	0.007	0.11	2.4	1.5	0.36	741	2.24	0.04	0.5	3.3	710	13.0
IF2010-072		1.82	<0.05	0.3	0.009	0.15	3.5	2.6	0.19	198	1.12	0.08	1.2	3.4	880	15.7
IF2010-073		1.68	<0.05	0.3	0.012	0.15	3.2	2.5	0.16	31	0.71	0.08	1.2	3.2	810	18.9
IF2010-074		13.15	<0.05	2.2	0.024	1.02	8.7	8.9	0.36	459	0.71	1.60	5.7	12.9	570	25.2
IF2010-075		13.85	<0.05	2.6	0.022	1.40	6.8	11.5	0.47	745	0.34	1.99	5.4	15.3	490	15.2
IF2010-076		8.10	<0.05	1.5	0.026	0.80	11.8	13.9	0.39	1060	0.79	0.61	4.6	15.7	1080	25.7
IF2010-077		0.84	<0.05	0.1	<0.005	0.18	1.5	1.5	0.20	194	0.34	0.05	0.5	2.7	880	9.7
IF2010-078		11.25	<0.05	2.1	0.029	0.99	13.3	15.0	0.43	2200	1.14	0.97	5.9	17.5	790	28.0
IF2010-079		10.85	<0.05	2.5	0.019	1.26	6.7	8.5	0.34	1340	0.38	1.41	4.6	10.4	580	22.5
IF2010-080		8.58	<0.05	1.6	0.023	0.77	17.9	11.1	0.31	1560	0.73	0.74	4.7	18.7	1160	33.5



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Sample Description	Method Analyte Units LOR	ME-MS61 Rb ppm 0.1	ME-MS61 Re ppm 0.002	ME-MS61 S % 0.01	ME-MS61 Sb ppm 0.05	ME-MS61 Sc ppm 0.1	ME-MS61 Se ppm 1	ME-MS61 Sn ppm 0.2	ME-MS61 Sr ppm 0.2	ME-MS61 Ta ppm 0.05	ME-MS61 Te ppm 0.05	ME-MS61 Th ppm 0.2	ME-MS61 Ti % 0.005	ME-MS61 Tl ppm 0.02	ME-MS61 U ppm 0.1	ME-MS61 V ppm 1
IF2010-041		48.2	<0.002	0.03	0.35	7.6	2	1.5	228	0.66	0.05	5.5	0.328	0.29	1.7	57
IF2010-042		9.9	<0.002	0.20	0.34	1.1	2	0.4	36.7	0.07	<0.05	0.9	0.031	0.06	0.4	8
IF2010-043		24.8	0.002	0.23	0.50	1.0	2	0.5	53.9	0.07	0.05	1.0	0.027	0.13	0.9	13
IF2010-044		20.2	<0.002	0.21	0.46	1.6	2	0.7	67.9	0.11	<0.05	1.6	0.048	0.14	0.7	14
IF2010-045		65.1	<0.002	0.09	0.53	7.2	2	1.6	156.0	0.50	0.08	4.8	0.236	0.37	1.6	53
IF2010-046		42.4	<0.002	0.17	0.47	4.7	2	0.8	90.9	0.24	<0.05	3.6	0.101	0.24	1.6	30
IF2010-047		64.3	<0.002	0.03	0.24	6.7	1	1.1	255	0.48	<0.05	2.6	0.210	0.39	1.0	36
IF2010-048		52.8	<0.002	0.02	0.32	8.4	2	1.5	283	0.65	0.05	6.2	0.343	0.32	1.8	76
IF2010-049		68.0	<0.002	0.14	0.60	6.5	3	1.2	111.5	0.43	0.09	5.8	0.172	0.51	2.1	78
IF2010-050		37.2	<0.002	0.04	0.41	5.8	1	1.4	195.5	0.56	0.05	4.7	0.287	0.27	1.4	70
IF2010-051		51.4	<0.002	0.04	0.32	7.0	1	1.0	271	0.46	<0.05	4.0	0.236	0.31	1.0	44
IF2010-052		114.5	<0.002	0.12	0.67	7.3	2	1.4	116.5	0.51	0.06	7.1	0.198	0.42	1.9	54
IF2010-053		51.7	<0.002	0.06	0.72	6.8	2	1.4	229	0.55	0.06	4.9	0.269	0.33	1.5	69
IF2010-054		8.2	<0.002	0.29	0.58	1.1	2	0.4	57.0	0.07	<0.05	1.0	0.032	0.09	0.4	8
IF2010-055		63.1	<0.002	0.07	0.46	5.7	2	1.0	201	0.43	<0.05	3.5	0.196	0.35	1.0	44
IF2010-056		15.6	0.002	0.27	0.59	1.3	2	0.5	86.8	0.07	<0.05	1.5	0.036	0.13	1.3	11
IF2010-057		48.7	<0.002	0.08	0.48	5.1	2	1.2	171.0	0.48	<0.05	3.6	0.216	0.34	1.2	36
IF2010-058		94.8	<0.002	0.11	0.52	7.3	2	1.3	123.0	0.49	<0.05	5.7	0.209	0.53	1.9	69
IF2010-059		6.0	<0.002	0.21	0.27	0.5	2	0.2	37.7	<0.05	<0.05	0.4	0.015	0.09	0.2	5
IF2010-060		11.9	<0.002	0.23	0.36	0.9	2	0.4	52.1	0.06	<0.05	0.7	0.028	0.07	0.2	8
IF2010-061		20.0	<0.002	0.17	0.52	2.3	2	0.7	75.0	0.22	<0.05	2.5	0.092	0.15	0.6	15
IF2010-062		47.4	<0.002	0.07	0.22	5.1	2	0.7	247	0.33	<0.05	3.4	0.161	0.28	1.0	28
IF2010-063		35.2	<0.002	0.08	0.54	4.6	2	1.0	239	0.43	<0.05	3.6	0.221	0.25	1.2	43
IF2010-064		12.3	<0.002	0.17	0.47	1.2	2	0.5	58.0	0.08	<0.05	1.0	0.040	0.10	0.4	10
IF2010-065		24.7	<0.002	0.25	0.71	2.9	2	0.9	69.1	0.18	<0.05	2.9	0.076	0.16	1.5	21
IF2010-066		30.4	<0.002	0.20	0.62	4.6	2	0.7	113.5	0.18	<0.05	2.3	0.080	0.21	1.0	24
IF2010-067		51.7	<0.002	0.18	0.45	3.6	2	0.8	102.0	0.28	<0.05	3.2	0.124	0.23	0.8	30
IF2010-068		58.6	<0.002	0.14	0.40	4.9	2	0.9	101.5	0.40	<0.05	4.0	0.163	0.33	1.6	47
IF2010-069		43.3	<0.002	0.13	0.44	3.4	2	0.7	91.7	0.26	<0.05	2.8	0.111	0.23	0.8	30
IF2010-070		13.4	<0.002	0.29	0.41	0.8	2	0.4	43.7	0.05	<0.05	0.8	0.021	0.10	0.4	11
IF2010-071		6.6	<0.002	0.20	0.31	0.5	2	0.3	78.7	<0.05	<0.05	0.5	0.015	0.07	0.2	8
IF2010-072		6.9	<0.002	0.25	0.39	1.1	2	0.4	41.8	0.08	<0.05	1.1	0.035	0.09	0.7	10
IF2010-073		6.6	<0.002	0.25	0.57	1.1	2	0.5	35.9	0.07	<0.05	1.0	0.035	0.07	0.5	8
IF2010-074		57.1	<0.002	0.05	0.38	6.0	2	1.0	294	0.45	<0.05	2.8	0.214	0.33	1.0	42
IF2010-075		68.7	<0.002	0.03	0.24	6.3	1	0.8	350	0.42	<0.05	2.1	0.211	0.34	0.7	44
IF2010-076		59.4	<0.002	0.15	0.47	4.9	2	0.9	127.5	0.34	<0.05	3.5	0.148	0.37	1.2	40
IF2010-077		10.4	<0.002	0.20	0.27	0.5	2	0.2	46.4	<0.05	<0.05	0.4	0.015	0.04	0.1	4
IF2010-078		75.5	<0.002	0.10	0.46	5.9	2	1.1	177.0	0.47	0.05	3.9	0.186	0.43	1.2	44
IF2010-079		58.6	<0.002	0.05	0.30	5.2	2	0.8	232	0.36	<0.05	1.9	0.170	0.34	1.0	30
IF2010-080		50.0	<0.002	0.10	0.55	4.5	2	1.0	157.0	0.34	<0.05	3.1	0.164	0.37	1.1	33



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Sample Description	Method Analyte Units LOR	ME-MS61 W ppm 0.1	ME-MS61 Y ppm 0.1	ME-MS61 Zn ppm 2	ME-MS61 Zr ppm 0.5	PGM-ICP23 Au ppm 0.001	PGM-ICP23 Pt ppm 0.005	PGM-ICP23 Pd ppm 0.001
IF2010-041		0.8	9.5	118	106.5	0.001	<0.005	0.001
IF2010-042		0.1	1.7	26	10.6	0.004	<0.005	0.001
IF2010-043		0.2	2.6	58	8.5	NSS	NSS	NSS
IF2010-044		0.2	3.6	76	14.9	0.006	<0.005	0.001
IF2010-045		0.8	7.4	206	62.6	0.003	<0.005	0.001
IF2010-046		0.3	8.5	88	28.6	0.002	<0.005	0.001
IF2010-047		0.4	7.4	27	111.5	0.001	<0.005	<0.001
IF2010-048		2.0	9.1	170	89.2	0.001	<0.005	<0.001
IF2010-049		0.6	16.2	70	49.5	0.007	<0.005	<0.001
IF2010-050		0.8	6.1	92	70.4	<0.001	<0.005	<0.001
IF2010-051		0.5	7.0	70	92.2	0.002	<0.005	<0.001
IF2010-052		0.7	11.0	195	54.3	0.007	<0.005	0.001
IF2010-053		0.8	7.3	101	84.2	<0.001	<0.005	0.001
IF2010-054		0.2	2.0	30	9.6	0.001	<0.005	0.001
IF2010-055		0.5	7.3	41	64.4	0.012	<0.005	0.004
IF2010-056		0.2	4.3	120	10.3	0.001	<0.005	0.001
IF2010-057		0.7	6.8	78	70.8	0.009	<0.005	<0.001
IF2010-058		0.7	9.6	97	59.4	0.001	<0.005	0.001
IF2010-059		0.1	1.0	36	4.7	0.010	<0.005	0.001
IF2010-060		0.1	1.5	28	8.2	0.005	<0.005	0.001
IF2010-061		0.3	3.4	31	36.3	0.002	<0.005	0.001
IF2010-062		0.5	6.1	35	57.1	0.001	<0.005	0.001
IF2010-063		0.5	6.4	64	79.3	0.001	<0.005	<0.001
IF2010-064		0.2	1.7	141	11.1	0.005	<0.005	0.001
IF2010-065		0.3	4.6	37	25.6	0.003	<0.005	<0.001
IF2010-066		0.3	5.2	94	29.1	<0.001	<0.005	0.001
IF2010-067		0.4	4.6	58	41.6	0.003	<0.005	0.001
IF2010-068		0.5	6.7	49	54.1	0.002	<0.005	0.001
IF2010-069		0.4	4.3	105	33.7	0.002	<0.005	0.001
IF2010-070		0.1	2.2	41	7.5	0.001	<0.005	<0.001
IF2010-071		0.1	1.5	129	4.2	<0.001	<0.005	0.001
IF2010-072		0.2	2.2	35	11.0	0.005	<0.005	0.001
IF2010-073		0.2	2.1	10	9.9	0.003	<0.005	0.002
IF2010-074		0.6	6.7	47	81.4	0.001	<0.005	<0.001
IF2010-075		0.4	6.9	40	89.9	0.001	<0.005	<0.001
IF2010-076		0.5	5.9	45	54.0	0.003	<0.005	0.002
IF2010-077		0.1	0.9	100	3.7	0.006	0.010	0.003
IF2010-078		0.5	7.4	80	73.7	0.006	<0.005	<0.001
IF2010-079		0.3	5.7	88	94.5	0.002	<0.005	<0.001
IF2010-080		0.5	6.8	110	57.6	0.002	<0.005	<0.001



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Sample Description	Method Analyte Units LOR	WEI-21 Recvd Wt. kg 0.02	ME-MS61 Ag ppm 0.01	ME-MS61 Al % 0.01	ME-MS61 As ppm 0.2	ME-MS61 Ba ppm 10	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05	ME-MS61 Cu ppm 0.2	ME-MS61 Fe % 0.01
IF2010-081		0.88	0.15	1.05	2.2	160	0.58	0.16	2.34	0.91	153.5	4.3	10	0.57	25.9	0.66
IF2010-082		1.09	0.05	1.28	2.0	140	0.33	0.10	3.46	0.61	13.70	4.6	14	0.83	13.7	0.67
IF2010-083		1.24	0.13	5.66	2.0	450	1.04	0.14	1.75	0.17	37.4	11.0	69	2.59	9.6	2.02
IF2010-084		1.24	0.46	4.87	5.0	510	1.45	0.28	1.26	0.55	166.0	27.0	53	4.58	42.0	2.62
IF2010-085		1.01	0.11	1.34	3.3	220	0.43	0.14	2.18	0.78	39.0	8.9	12	0.75	16.0	0.71
IF2010-086		0.96	0.33	4.85	4.2	490	1.00	0.21	1.33	0.33	41.5	37.5	55	3.62	22.6	2.28
IF2010-087		1.11	0.14	5.27	4.4	460	1.13	0.27	1.34	0.44	26.6	10.4	50	4.01	21.1	2.00
IF2010-088		0.78	0.07	1.13	3.3	110	0.34	0.17	1.50	0.63	14.05	4.6	13	0.82	10.9	0.69
IF2010-089		0.89	0.03	0.88	4.7	110	0.38	0.22	2.88	0.62	12.50	2.6	9	0.56	9.0	0.48
IF2010-090		1.07	0.10	3.40	2.7	310	0.82	0.17	1.96	0.29	41.1	6.3	31	1.41	14.3	1.46
IF2010-091		1.06	0.14	1.25	3.3	150	0.42	0.14	2.96	0.65	24.1	3.3	12	0.76	19.1	0.66
IF2010-092		0.82	0.07	2.38	3.0	240	0.58	0.16	1.63	0.43	29.5	5.8	25	1.40	14.8	1.06
IF2010-093		0.93	0.10	3.47	3.7	350	0.97	0.20	1.45	0.67	34.1	8.8	40	2.62	27.8	1.55
IF2010-094		1.05	0.09	1.93	2.9	190	0.51	0.17	2.26	0.63	21.8	4.8	19	1.08	16.3	0.93
IF2010-095		1.09	0.07	2.33	3.0	210	0.58	0.16	1.88	0.69	33.3	5.7	23	1.20	16.3	1.11
IF2010-096		0.91	0.08	4.39	2.9	480	0.93	0.18	1.17	0.42	41.2	9.2	46	2.54	16.9	1.67
IF2010-097		1.03	0.02	0.57	2.1	90	0.22	0.11	2.46	0.49	7.61	1.9	6	0.39	11.4	0.32
IF2010-098		1.12	0.03	0.47	2.2	70	0.22	0.09	2.66	0.62	8.73	2.2	6	0.37	11.5	0.36
IF2010-099		1.01	0.12	4.02	4.1	300	1.07	0.25	2.03	1.06	61.9	11.6	42	3.05	29.5	2.09
IF2010-100		1.08	0.11	5.06	4.5	420	1.25	0.19	1.35	0.30	48.8	9.0	50	3.34	20.2	2.11
IF2010-101		1.24	0.02	4.46	2.2	450	0.80	0.12	1.09	0.14	33.0	5.2	36	1.98	7.4	1.30
IF2010-102		1.28	0.03	4.85	3.4	410	1.06	0.16	1.36	0.32	48.6	8.0	46	2.93	9.7	1.85
IF2010-103		1.00	0.40	4.17	5.2	570	1.09	0.26	1.18	0.58	153.5	32.5	39	3.41	33.2	1.71
IF2010-104		0.83	0.17	1.89	2.6	290	0.56	0.17	0.99	0.54	24.2	5.3	19	1.22	12.7	0.77
IF2010-105		0.79	0.07	4.98	2.9	300	1.10	0.25	1.47	0.45	22.3	4.4	27	1.76	12.8	1.22
IF2010-106		0.75	0.17	1.63	4.0	290	0.50	0.25	0.90	0.34	15.75	3.4	15	1.41	8.9	0.78
IF2010-107		1.18	0.10	4.01	3.1	300	1.14	0.23	1.47	0.37	48.3	6.1	39	2.45	17.0	1.58
IF2010-108		1.11	0.11	1.67	3.0	150	0.76	0.20	2.77	0.44	29.1	3.4	18	1.08	20.1	0.87
IF2010-109		0.90	0.13	2.89	3.5	230	0.87	0.25	1.93	0.68	51.8	7.7	34	2.12	18.6	1.50
IF2010-110		0.94	0.13	2.84	3.6	280	0.95	0.19	2.28	0.66	41.7	7.5	31	1.92	32.3	1.65



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Sample Description	Method Analyte Units LOR	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
		Ga	Ge	Hf	In	K	La	Li	Mg	Mn	Mo	Na	Nb	Ni	P
		ppm	ppm	ppm	ppm	%	ppm	ppm	%	ppm	ppm	%	ppm	ppm	ppm
		0.05	0.05	0.1	0.005	0.01	0.5	0.2	0.01	5	0.05	0.01	0.1	0.2	10
IF2010-081		3.32	0.15	0.5	0.016	0.22	72.9	5.3	0.44	267	1.01	0.08	1.4	19.2	1150
IF2010-082		3.30	<0.05	0.7	0.012	0.34	6.4	7.3	0.52	494	1.12	0.17	2.1	8.2	1110
IF2010-083		13.80	<0.05	3.3	0.028	1.16	16.7	19.7	0.75	954	0.46	1.73	7.7	26.5	470
IF2010-084		13.15	0.10	2.2	0.046	0.81	46.9	31.0	0.61	4320	1.47	0.76	8.3	40.1	1320
IF2010-085		3.56	<0.05	0.6	0.015	0.34	16.1	5.9	0.34	1240	0.91	0.27	1.8	10.7	810
IF2010-086		12.35	<0.05	2.4	0.034	1.04	16.5	21.1	0.58	1760	1.11	1.00	7.5	24.9	710
IF2010-087		15.00	<0.05	2.7	0.026	0.74	12.6	16.6	0.42	1580	1.06	1.34	7.9	17.6	730
IF2010-088		3.02	<0.05	0.5	0.017	0.27	6.4	6.0	0.25	262	0.78	0.11	2.0	8.4	830
IF2010-089		2.31	<0.05	0.5	0.020	0.20	6.0	3.6	0.37	131	1.67	0.13	1.6	5.3	510
IF2010-090		7.74	<0.05	2.2	0.025	0.77	16.4	13.8	0.46	186	0.62	0.75	4.4	14.2	770
IF2010-091		3.18	<0.05	0.6	0.016	0.29	11.3	7.5	0.60	257	1.13	0.16	1.8	7.8	970
IF2010-092		5.98	<0.05	1.2	0.023	0.55	13.2	14.8	0.50	418	0.82	0.38	3.3	13.0	980
IF2010-093		9.11	<0.05	1.5	0.029	0.89	15.9	24.0	0.69	773	1.44	0.44	5.2	19.0	750
IF2010-094		4.61	<0.05	1.0	0.023	0.39	9.7	12.5	0.44	633	0.97	0.32	2.8	10.2	900
IF2010-095		5.70	<0.05	1.2	0.023	0.50	14.0	10.7	0.47	326	0.74	0.41	3.2	12.3	1020
IF2010-096		10.80	<0.05	2.4	0.029	1.18	18.4	28.1	0.61	775	1.51	0.87	7.2	18.6	580
IF2010-097		1.54	<0.05	0.3	0.009	0.17	3.9	3.3	0.51	171	1.67	0.09	1.0	4.5	640
IF2010-098		1.30	<0.05	0.3	0.009	0.12	4.1	2.5	0.38	58	4.82	0.06	0.8	6.8	680
IF2010-099		10.40	<0.05	1.7	0.036	0.75	25.4	46.5	0.79	818	1.20	0.27	5.8	24.1	1310
IF2010-100		12.65	<0.05	2.5	0.036	1.25	20.5	31.8	0.72	576	0.66	0.78	8.0	20.3	530
IF2010-101		10.65	<0.05	3.1	0.022	1.35	15.3	23.5	0.43	320	0.49	1.10	8.1	11.6	400
IF2010-102		11.80	0.05	2.3	0.033	1.34	20.2	37.0	0.66	390	0.66	0.82	7.7	17.6	510
IF2010-103		10.70	0.12	1.9	0.036	0.98	59.0	21.8	0.41	3890	1.08	0.76	6.9	38.5	810
IF2010-104		4.90	<0.05	0.8	0.015	0.35	12.4	5.7	0.19	397	0.52	0.47	2.4	10.5	650
IF2010-105		12.05	<0.05	1.9	0.019	0.45	11.3	7.9	0.21	767	0.75	1.76	4.6	9.5	550
IF2010-106		4.26	<0.05	0.7	0.022	0.34	7.8	6.1	0.16	295	0.82	0.30	2.7	6.9	750
IF2010-107		9.59	<0.05	2.0	0.035	0.90	21.8	20.8	0.50	222	0.71	0.58	5.9	21.1	680
IF2010-108		4.23	<0.05	0.8	0.022	0.32	14.2	11.4	0.49	185	1.02	0.16	2.8	12.2	710
IF2010-109		7.30	<0.05	1.3	0.031	0.54	21.2	21.7	0.58	258	0.99	0.25	4.3	15.2	1020
IF2010-110		7.15	<0.05	1.3	0.029	0.66	23.7	24.1	0.86	462	0.92	0.31	4.0	20.8	810



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Sample Description	Method Analyte Units LOR	ME-MS61 Rb ppm 0.1	ME-MS61 Re ppm 0.002	ME-MS61 S % 0.01	ME-MS61 Sb ppm 0.05	ME-MS61 Sc ppm 0.1	ME-MS61 Se ppm 1	ME-MS61 Sn ppm 0.2	ME-MS61 Sr ppm 0.2	ME-MS61 Ta ppm 0.05	ME-MS61 Te ppm 0.05	ME-MS61 Th ppm 0.2	ME-MS61 Ti % 0.005	ME-MS61 Tl ppm 0.02	ME-MS61 U ppm 0.1	ME-MS61 V ppm 1
IF2010-081		18.0	0.003	0.37	0.65	3.0	3	0.5	81.3	0.11	<0.05	3.2	0.039	0.16	6.2	17
IF2010-082		18.3	<0.002	0.21	0.35	2.1	2	0.5	65.3	0.15	<0.05	2.0	0.058	0.14	1.8	20
IF2010-083		104.0	<0.002	0.03	0.30	8.3	2	1.0	387	0.56	<0.05	5.6	0.292	0.35	1.3	53
IF2010-084		112.0	<0.002	0.08	0.78	7.7	2	1.3	228	0.61	0.06	7.8	0.245	0.53	2.6	64
IF2010-085		21.9	<0.002	0.20	0.59	2.2	2	0.5	90.7	0.12	<0.05	2.3	0.052	0.17	2.1	17
IF2010-086		137.0	<0.002	0.06	0.44	7.0	2	1.2	212	0.57	0.05	4.5	0.233	0.46	1.4	63
IF2010-087		74.5	<0.002	0.04	0.47	5.6	2	1.5	259	0.60	0.05	5.5	0.292	0.44	1.6	54
IF2010-088		24.4	<0.002	0.21	0.50	2.0	3	0.7	44.5	0.13	<0.05	2.0	0.057	0.13	0.8	18
IF2010-089		10.8	0.002	0.18	0.67	1.5	3	0.6	55.6	0.12	<0.05	1.7	0.047	0.13	0.8	13
IF2010-090		47.6	<0.002	0.17	0.36	4.9	3	0.8	152.5	0.34	<0.05	4.8	0.147	0.26	2.7	36
IF2010-091		22.5	<0.002	0.24	0.55	2.1	3	0.6	95.3	0.14	<0.05	2.4	0.054	0.15	4.1	19
IF2010-092		43.6	0.002	0.17	0.46	3.9	2	0.9	135.5	0.25	<0.05	3.4	0.109	0.20	10.5	28
IF2010-093		69.7	<0.002	0.11	0.44	5.7	3	1.0	145.0	0.39	<0.05	5.3	0.167	0.34	4.7	50
IF2010-094		25.3	0.003	0.24	0.52	3.0	3	0.8	111.0	0.21	<0.05	2.9	0.088	0.21	5.0	24
IF2010-095		37.7	0.002	0.23	0.52	3.7	3	0.8	112.0	0.23	<0.05	4.1	0.100	0.23	5.8	28
IF2010-096		76.6	<0.002	0.07	0.40	6.4	2	1.2	190.5	0.53	<0.05	5.7	0.247	0.39	4.1	51
IF2010-097		11.8	<0.002	0.22	0.41	1.0	2	0.5	101.0	0.07	<0.05	1.0	0.031	0.09	0.6	11
IF2010-098		9.2	<0.002	0.44	0.38	0.8	2	0.4	64.8	0.06	<0.05	0.9	0.024	0.07	0.5	13
IF2010-099		60.6	0.004	0.25	0.44	6.8	4	1.2	131.5	0.42	0.05	7.8	0.164	0.42	17.7	67
IF2010-100		103.5	0.002	0.06	0.36	7.2	2	1.3	151.5	0.56	<0.05	6.5	0.244	0.46	1.8	68
IF2010-101		62.9	<0.002	0.03	0.26	5.6	2	1.0	184.0	0.56	<0.05	4.8	0.269	0.37	1.3	44
IF2010-102		81.2	0.003	0.10	0.29	6.6	2	1.2	165.0	0.52	<0.05	6.6	0.240	0.43	4.8	62
IF2010-103		100.5	<0.002	0.08	0.66	6.0	2	1.5	154.0	0.51	0.06	5.9	0.218	0.60	2.1	47
IF2010-104		22.7	<0.002	0.12	0.43	2.5	2	0.8	113.5	0.19	<0.05	3.0	0.099	0.20	0.9	19
IF2010-105		31.9	<0.002	0.05	0.39	3.7	2	1.1	294	0.38	<0.05	4.6	0.214	0.28	1.3	32
IF2010-106		21.1	<0.002	0.13	0.79	2.7	2	1.1	91.2	0.21	<0.05	2.4	0.093	0.26	0.8	19
IF2010-107		64.7	<0.002	0.16	0.43	5.9	3	1.2	112.5	0.43	<0.05	6.4	0.178	0.36	2.2	56
IF2010-108		23.1	<0.002	0.22	0.43	2.9	3	0.8	85.9	0.20	<0.05	3.8	0.080	0.19	1.9	24
IF2010-109		50.9	0.004	0.25	0.53	5.2	3	1.0	98.2	0.31	<0.05	5.9	0.132	0.29	4.8	45
IF2010-110		50.3	<0.002	0.15	0.49	5.2	3	1.0	147.5	0.29	<0.05	5.0	0.135	0.30	2.8	36



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Sample Description	Method Analyte Units LOR	ME-MS61 W ppm 0.1	ME-MS61 Y ppm 0.1	ME-MS61 Zn ppm 2	ME-MS61 Zr ppm 0.5	PGM-ICP23 Au ppm 0.001	PGM-ICP23 Pt ppm 0.005	PGM-ICP23 Pd ppm 0.001
IF2010-081		0.2	27.8	36	15.3	<0.001	<0.005	0.001
IF2010-082		0.2	3.6	46	27.3	<0.001	<0.005	<0.001
IF2010-083		0.6	9.8	59	128.0	0.001	<0.005	<0.001
IF2010-084		0.9	14.5	149	78.6	0.002	<0.005	<0.001
IF2010-085		0.2	6.8	40	21.5	0.003	<0.005	0.001
IF2010-086		0.6	8.4	69	89.9	0.002	<0.005	<0.001
IF2010-087		0.8	7.6	129	101.5	0.001	<0.005	0.001
IF2010-088		0.3	3.6	36	17.7	0.001	<0.005	0.001
IF2010-089		0.3	4.2	33	15.5	0.002	<0.005	0.001
IF2010-090		0.4	10.1	25	80.3	0.002	0.005	0.001
IF2010-091		0.3	6.5	30	19.6	0.002	<0.005	<0.001
IF2010-092		0.4	6.6	54	40.7	0.005	<0.005	0.001
IF2010-093		0.5	6.7	120	47.4	0.002	<0.005	<0.001
IF2010-094		0.4	5.7	46	34.9	0.001	<0.005	<0.001
IF2010-095		0.3	8.1	48	41.4	0.001	<0.005	0.001
IF2010-096		0.7	8.6	74	83.9	0.003	<0.005	<0.001
IF2010-097		0.2	2.4	54	9.5	0.003	<0.005	0.001
IF2010-098		0.2	2.7	31	8.5	0.001	<0.005	0.001
IF2010-099		0.6	13.5	122	57.2	<0.001	<0.005	0.001
IF2010-100		0.9	10.5	66	90.9	0.001	<0.005	<0.001
IF2010-101		0.7	8.5	46	113.0	0.010	<0.005	<0.001
IF2010-102		0.7	9.7	65	83.6	0.002	<0.005	<0.001
IF2010-103		0.7	15.3	74	64.7	0.002	<0.005	<0.001
IF2010-104		0.4	4.1	71	28.6	0.002	<0.005	0.001
IF2010-105		0.6	6.9	85	75.6	0.002	<0.005	<0.001
IF2010-106		0.4	4.7	48	25.5	0.003	<0.005	0.001
IF2010-107		0.6	11.1	37	71.8	0.002	<0.005	<0.001
IF2010-108		0.4	8.1	40	28.0	0.003	<0.005	0.001
IF2010-109		0.5	10.9	51	42.4	0.005	<0.005	0.001
IF2010-110		0.4	12.5	65	41.5	0.003	<0.005	0.002



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Method	CERTIFICATE COMMENTS
ALL METHODS ME-MS61	NSS is non-sufficient sample. REE's may not be totally soluble in this method.