

Appendix V

Quality Analysis ...



Innovative Technologies

Date Submitted: 04-Nov-14

Invoice No.: A14-08400

Invoice Date: 24-Nov-14

Your Reference:

Ministry of Northern Development and Mines
Suite B002, 435 James st south
thunder bay ON P7E 6S7
Ghana

ATTN: District Geologist Dorothy Campbell

CERTIFICATE OF ANALYSIS

6 Rock samples were submitted for analysis.

The following analytical package was requested:

Code 8-REE Assay Package Major Elements Fusion ICP(WRA)/Trace Elements Fusion ICP/MS(WRA4B2)

REPORT **A14-08400**

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Notes:

Total includes all elements in % oxide to the left of total.

Values which exceed the upper limit should be assayed for accurate numbers.

CERTIFIED BY:

A handwritten signature in black ink, appearing to read "Emmanuel Esemé". The signature is written over a horizontal line.

Emmanuel Esemé, Ph.D.
Quality Control

ACTIVATION LABORATORIES LTD.

41 Bittern Street, Ancaster, Ontario, Canada, L9G 4V5
TELEPHONE +905 648-9611 or +1.888.228.5227 FAX +1.905.648.9613
E-MAIL Ancaster@actlabs.com ACTLABS GROUP WEBSITE www.actlabs.com



Quality Analysis ...



Innovative Technologies

Date Submitted: 04-Nov-14
Invoice No.: A14-08400
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Your Reference:

Ministry of Northern Development and Mines
Suite B002, 435 James st south
thunder bay ON P7E 6S7
Ghana

ATTN: District Geologist Dorothy Campbell

CERTIFICATE OF ANALYSIS

6 Rock samples were submitted for analysis.

The following analytical package was requested:

Code 8-XRF Assay Package Tbay Fusion-XRF

REPORT **A14-08400**

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Notes:

Total includes all elements in % oxide to the left of total.

Values which exceed the upper limit should be assayed for accurate numbers.

CERTIFIED BY:

A handwritten signature in black ink, appearing to be "Emmanuel Eseme". The signature is fluid and cursive, with a large initial "E".

Emmanuel Eseme, Ph.D.
Quality Control

ACTIVATION LABORATORIES LTD.

1201 Walsh Street West, Thunder Bay, Ontario, Canada, P7E 4X6
TELEPHONE +807 622-6707 or +1.888.228.5227 FAX +1.905.648.9613
E-MAIL Tbay@actlabs.com ACTLABS GROUP WEBSITE www.actlabs.com



Results

Analyte Symbol	SiO2	Al2O3	Fe2O3(T)	MnO	MgO	CaO	Na2O	K2O	TiO2	P2O5	LOI	Total	Sc	Be	V	Cr	Co	Ni	Cu	Zn	Ga	Ge	As
Unit Symbol	%	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.01	0.01	0.01	0.001	0.01	0.01	0.01	0.01	0.001	0.01		0.01	1	1	5	20	1	20	10	30	1	1	5
Method Code	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
MP-RWN-14-5	27.03	4.03	8.49	0.444	4.67	23.90	0.15	3.10	0.217	10.49	14.88	97.39	8	3	90	40	7	30	10	130	13	2	7
MP-RWN-14-2	25.04	3.77	7.77	0.477	5.35	25.83	0.16	2.75	0.353	7.54	19.71	98.76	8	3	104	70	11	40	10	180	16	2	7
14DCRW006	34.43	8.72	6.86	0.314	9.32	13.03	1.13	5.00	0.447	0.15	20.40	99.80	9	4	104	130	13	50	20	160	20	< 1	5
14DCRW007	26.24	4.06	7.18	0.461	7.13	23.81	0.14	3.08	0.237	7.74	19.05	99.12	8	4	111	30	4	< 20	< 10	130	16	1	7
14DCRW008	7.81	1.60	4.56	0.552	8.24	35.09	0.81	0.05	0.372	1.02	37.16	97.26	15	4	137	70	16	30	< 10	170	15	3	22
14DCRW009	27.50	1.14	11.45	0.466	7.30	20.46	0.09	0.91	1.376	2.14	25.62	98.45	20	2	183	90	16	40	< 10	130	9	< 1	11

Results

Analyte Symbol	Rb	Sr	Y	Zr	Nb	Mo	Ag	In	Sn	Sb	Cs	Ba	Bi	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	2	2	2	4	1	2	0.5	0.2	1	0.5	0.5	3	0.4	0.1	0.1	0.05	0.1	0.1	0.05	0.1	0.1	0.1	0.1
Method Code	FUS-MS	FUS-ICP	FUS-ICP	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
MP-RWN-14-5	47	2425	508	90	1810	< 2	< 0.5	< 0.2	3	1.6	< 0.5	10370	0.6	308	737	98.9	444	131	50.7	157	25.2	133	20.5
MP-RWN-14-2	46	2485	256	122	6290	< 2	< 0.5	< 0.2	5	1.0	< 0.5	2535	< 0.4	476	1090	138	570	118	38.6	103	14.7	70.3	10.2
14DCRW006	109	1187	14	72	909	< 2	< 0.5	< 0.2	3	< 0.5	0.8	1572	< 0.4	244	535	66.4	259	35.4	7.84	13.5	1.1	3.7	0.6
14DCRW007	54	2820	251	62	1440	< 2	< 0.5	< 0.2	2	< 0.5	< 0.5	2231	< 0.4	289	659	86.6	369	90.7	31.4	87.7	12.7	63.3	9.9
14DCRW008	< 2	3371	208	42	184	104	< 0.5	< 0.2	6	2.1	< 0.5	6659	< 0.4	685	1580	213	902	147	47.2	152	21.2	88.0	9.7
14DCRW009	17	1387	265	32	437	< 2	< 0.5	< 0.2	3	< 0.5	< 0.5	275	< 0.4	413	834	95.3	352	66.6	22.0	66.6	10.3	58.8	9.9

Results

Analyte Symbol	Er	Tm	Yb	Lu	Hf	Ta	W	Ti	Pb	Th	U	Ta2O5	Nb2O5	ZrO2
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	%
Lower Limit	0.1	0.05	0.1	0.04	0.2	0.1	1	0.1	5	0.1	0.1	0.003	0.003	0.003
Method Code	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-XR F	FUS-XR F	FUS-XR F
MP-RWN-14-5	44.9	4.91	23.5	2.69	1.9	12.5	6	0.2	89	123	118	< 0.003	0.544	0.004
MP-RWN-14-2	22.3	2.42	12.2	1.49	2.3	33.3	6	0.2	107	68.5	132	0.007	1.432	0.021
14DCRW006	1.5	0.18	1.1	0.14	2.0	4.6	4	0.4	20	18.2	12.6	< 0.003	0.146	< 0.003
14DCRW007	23.4	3.10	16.6	2.08	1.6	8.5	6	0.2	40	58.8	54.9	< 0.003	0.398	< 0.003
14DCRW008	19.5	2.11	10.9	1.34	1.1	0.3	3	0.3	253	5040	46.4	0.003	0.047	0.009
14DCRW009	24.6	2.89	14.7	1.77	0.6	15.2	20	< 0.1	25	219	17.6	< 0.003	0.073	< 0.003

QC

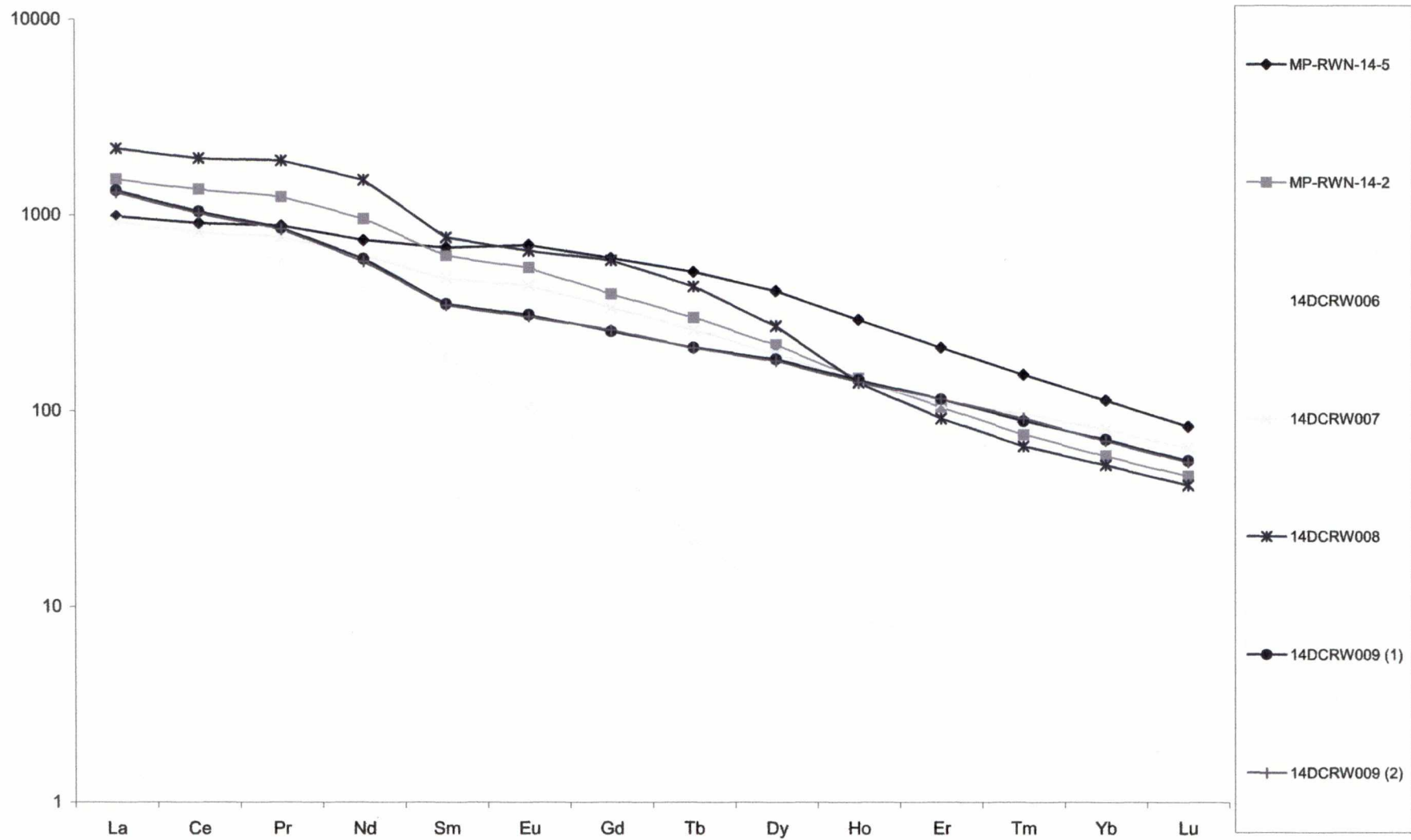
Analyte Symbol	SiO2	Al2O3	Fe2O3(T)	MnO	MgO	CaO	Na2O	K2O	TiO2	P2O5	LOI	Total	Sc	Be	V	Cr	Co	Ni	Cu	Zn	Ga	Ge	As
Unit Symbol	%	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.01	0.01	0.01	0.001	0.01	0.01	0.01	0.01	0.001	0.01		0.01	1	1	5	20	1	20	10	30	1	1	5
Method Code	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
DH-1a Meas																							
DH-1a Cert																							
DNC-1 Meas	47.03	18.78	9.79	0.148	10.04	11.46	1.91	0.22	0.496	0.06			31		158	280	57	250	100	70			
DNC-1 Cert	47.15	18.34	9.97	0.150	10.13	11.49	1.890	0.234	0.480	0.070			31		148	270	57	247	100	70			
LKSD-3 Meas																80	30		40				
LKSD-3 Cert																87.0	30.0		35.0				
OKA-2 Meas																							
OKA-2 Cert																							
W-2a Meas	52.91	15.30	10.71	0.167	6.20	11.22	2.23	0.63	1.077	0.16			36	< 1	286	80	42		100		17	1	
W-2a Cert	52.4	15.4	10.7	0.163	6.37	10.9	2.14	0.626	1.06	0.130			36.0	1.30	262	92.0	43.0		110		17.0	1.00	
SY-4 Meas	49.72	20.42	6.31	0.108	0.51	8.20	6.85	1.66	0.292	0.12			< 1	3	7								
SY-4 Cert	49.9	20.69	6.21	0.108	0.54	8.05	7.10	1.66	0.287	0.131			1.1	2.6	8.0								
CTA-AC-1 Meas																							
CTA-AC-1 Cert																							
BIR-1a Meas	47.67	15.64	11.26	0.171	9.63	13.50	1.83	0.02	0.968	0.02			44	< 1	340	380	53	170	130	70	16		
BIR-1a Cert	47.96	15.50	11.30	0.175	9.700	13.30	1.82	0.030	0.96	0.021			44	0.58	310	370	52	170	125	70	16		
NCS DC86312 Meas																							
NCS DC86312 Cert																							
ZW-C Meas																				1000	99		
ZW-C Cert																				1050.000	99		
VS-N Meas																							
VS-N Cert																							
NCS DC70009 (GBW07241) Meas																			920	90	16	10	71
NCS DC70009 (GBW07241) Cert																			960	100	16.5	11.2	69.9
OREAS 100a (Fusion) Meas																	18		170				
OREAS 100a (Fusion) Cert																	18.1		169				
OREAS 101a (Fusion) Meas																	50		420				
OREAS 101a (Fusion) Cert																	48.8		434				
JR-1 Meas																		< 20	< 10		16		16
JR-1 Cert																		1.67	2.68		16.1		16.3
SX18-04 Meas																							
SX18-04 Cert																							
SX18-05 Meas																							
SX18-05 Cert																							
14DCRW009 Orig	27.50	1.14	11.47	0.465	7.33	20.42	0.09	0.91	1.388	2.14	25.57	98.42	20	2	182	100	17	40	< 10	130	9	< 1	11
14DCRW009 Dup	27.50	1.14	11.43	0.467	7.28	20.49	0.09	0.92	1.363	2.14	25.66	98.48	20	2	183	90	16	40	< 10	130	9	< 1	12
Method Blank																< 20	< 1	< 20	< 10	< 30	< 1	< 1	< 5
Method Blank																							

QC

Analyte Symbol	Rb	Sr	Y	Zr	Nb	Mo	Ag	In	Sn	Sb	Cs	Ba	Bi	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	2	2	2	4	1	2	0.5	0.2	1	0.5	0.5	3	0.4	0.1	0.1	0.05	0.1	0.1	0.05	0.1	0.1	0.1	0.1
Method Code	FUS-MS	FUS-ICP	FUS-ICP	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
DH-1a Meas																							
DH-1a Cert																							
DNC-1 Meas		144	15	33								105		3.6				0.57					
DNC-1 Cert		144.0	18.0	38								118		3.6				0.59					
LKSD-3 Meas	77					< 2	2.4				2.4			48.1	89.4		43.6	7.7				4.8	
LKSD-3 Cert	78.0					2.00	2.70				2.30			52.0	90.0		44.0	8.00				4.90	
OKA-2 Meas																							
OKA-2 Cert																							
W-2a Meas	19	197	20	84		< 2	0.8			0.8	0.8	174	< 0.4	11.0	22.9		12.3	3.1	1.01		0.6	3.6	0.7
W-2a Cert	21.0	190	24.0	94.0		0.600	0.0460			0.790	0.990	182	0.0300	10.0	23.0		13.0	3.30	1.00		0.630	3.60	0.760
SY-4 Meas		1204	117	528								342											
SY-4 Cert		1191	119	517								340											
CTA-AC-1 Meas														2230	3310		1160	171	45.8	123	14.4		
CTA-AC-1 Cert														2176	3326		1087	162	46.7	124	13.9		
BIR-1a Meas		109	14	15						0.5		7		0.7			2.4	1.1	0.50				
BIR-1a Cert		110	16	18						0.58		6		0.63			2.5	1.1	0.55				
NCS DC86312 Meas														2290	180		1580			232	33.2	182	35.4
NCS DC86312 Cert														2360	190		1600			225.0	34.6	183	36
ZW-C Meas					201						265												
ZW-C Cert					198						260												
VS-N Meas																							
VS-N Cert																							
NCS DC70009 (GBW07241) Meas	490									3.4	41.4			23.6	58.8	7.79	31.5	12.1		14.6	3.2	20.9	4.3
NCS DC70009 (GBW07241) Cert	500									3.1	41			23.7	60.3	7.9	32.9	12.5		14.8	3.3	20.7	4.5
OREAS 100a (Fusion) Meas						24								257	459	46.4	148	23.8	3.54		3.5	21.6	4.8
OREAS 100a (Fusion) Cert						24.1								260	463	47.1	152	23.6	3.71		3.80	23.2	4.81
OREAS 101a (Fusion) Meas						22								796	1370	133	397	50.1	7.97			31.9	6.6
OREAS 101a (Fusion) Cert						21.9								816	1396	134	403	48.8	8.06			33.3	6.46
JR-1 Meas	245				15		< 0.5	< 0.2	3		20.1		0.5	19.7	46.4	5.93	23.0	5.6		5.2	1.0	6.0	
JR-1 Cert	257				15.2		0.031	0.028	2.86		20.8		0.56	19.7	47.2	5.58	23.3	6.03		5.06	1.01	5.69	
SX18-04 Meas																							
SX18-04 Cert																							
SX18-05 Meas																							
SX18-05 Cert																							
14DCRW009 Orig	17	1392	265	33	454	< 2	< 0.5	< 0.2	3	< 0.5	< 0.5	282	< 0.4	418	844	96.1	357	67.2	22.3	66.1	10.3	59.4	10.1
14DCRW009 Dup	17	1381	265	32	419	< 2	< 0.5	< 0.2	3	< 0.5	< 0.5	268	< 0.4	407	824	94.5	346	66.1	21.8	67.1	10.3	58.2	9.8
Method Blank	< 2				< 1	< 2	< 0.5	< 0.2	< 1	< 0.5	< 0.5		< 0.4	< 0.1	< 0.1	< 0.05	< 0.1	< 0.1	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1
Method Blank																							

QC

Analyte Symbol	Er	Tm	Yb	Lu	Hf	Ta	W	Ti	Pb	Th	U	Ta2O5	Nb2O5	ZrO2
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	%
Lower Limit	0.1	0.05	0.1	0.04	0.2	0.1	1	0.1	5	0.1	0.1	0.003	0.003	0.003
Method Code	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-XR F	FUS-XR F	FUS-XR F
DH-1a Meas										949				
DH-1a Cert										910				
DNC-1 Meas			2.0											
DNC-1 Cert			2.0											
LKSD-3 Meas			2.7	0.39		0.7	1			10.7	4.5			
LKSD-3 Cert			2.70	0.400		0.700	2.00			11.4	4.60			
OKA-2 Meas										29500				
OKA-2 Cert										28900.0 00				
W-2a Meas	2.1	0.32	2.0				< 1	< 0.1						
W-2a Cert	2.50	0.380	2.10				0.300	0.200						
SY-4 Meas														
SY-4 Cert														
CTA-AC-1 Meas			10.7	1.14							4.2			
CTA-AC-1 Cert			11.4	1.08							4.4			
BIR-1a Meas			1.6											
BIR-1a Cert			1.7											
NCS DC86312 Meas	97.4	14.0	84.9	12.0						26.0				
NCS DC86312 Cert	96.2	15.1	87.79	11.96						23.6				
ZW-C Meas						87.3	333	34.0				0.008		0.010
ZW-C Cert						82	320	34				0.010		0.011
VS-N Meas												0.095	0.102	0.098
VS-N Cert												0.098	0.10	0.095
NCS DC70009 (GBW07241) Meas	12.8	2.27	15.6	2.25			2110							
NCS DC70009 (GBW07241) Cert	13.4	2.2	14.9	2.4			2200							
OREAS 100a (Fusion) Meas	14.5	2.30	14.8	2.14						51.6	134			
OREAS 100a (Fusion) Cert	14.9	2.31	14.9	2.26						51.6	135			
OREAS 101a (Fusion) Meas	19.4	2.89	17.6	2.54						37.6	423			
OREAS 101a (Fusion) Cert	19.5	2.90	17.5	2.66						36.6	422			
JR-1 Meas	4.0	0.68	4.3	0.67		2.0		1.3	23	26.4	8.8			
JR-1 Cert	3.61	0.67	4.55	0.71		1.86		1.56	19.3	26.7	8.88			
SX18-04 Meas												0.005	1.321	0.150
SX18-04 Cert												0.005	1.32	0.146
SX18-05 Meas												0.003	0.966	0.208
SX18-05 Cert												0.004	0.973	0.218
14DCRW009 Orig	24.6	2.85	14.8	1.79	0.5	15.6	21	< 0.1	23	221	17.7	< 0.003	0.073	< 0.003
14DCRW009 Dup	24.5	2.94	14.5	1.76	0.6	14.7	19	< 0.1	27	216	17.5	< 0.003	0.074	< 0.003
Method Blank	< 0.1	< 0.05	< 0.1	< 0.04	< 0.2	< 0.1	< 1	< 0.1	< 5	< 0.1	< 0.1			
Method Blank												< 0.003	< 0.003	< 0.003



Quality Analysis ...



Innovative Technologies

Date Submitted: 16-Oct-14
Invoice No.: A14-07738 (i)
Invoice Date: 24-Oct-14
Your Reference:

Wolfden Resources Corp.
1159 Alloy Dr
Suite 201
Thunder Bay Ontario
Canada

ATTN: Don Hoy

CERTIFICATE OF ANALYSIS

14 Rock samples were submitted for analysis.

The following analytical package was requested:

REPORT **A14-07738 (i)**

Code 8-REE Assay Package Major Elements Fusion ICP(WRA)/Trace Elements Fusion
ICP/MS(WRA4B2)
Code 8-XRF Assay Package Fusion-XRF

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Notes:

Total includes all elements in % oxide to the left of total.
Values which exceed the upper limit should be assayed for accurate numbers.

Footnote: P2O5>0.3% causes difference in results between Fus-MS and XRF for Nb2O5, Ta2O5 and ZrO2.

CERTIFIED BY:

A handwritten signature in black ink, consisting of a stylized 'E' followed by a series of loops and a final flourish.

Emmanuel Esemé, Ph.D.
Quality Control

ACTIVATION LABORATORIES LTD.
41 Bittern Street, Ancaster, Ontario, Canada, L9G 4V5
TELEPHONE +905 648-9611 or +1.888.228.5227 FAX +1.905.648.9613
E-MAIL Ancaster@actlabs.com ACTLABS GROUP WEBSITE www.actlabs.com



Results

Analyte Symbol	SiO2	Al2O3	Fe2O3(T)	MnO	MgO	CaO	Na2O	K2O	TiO2	P2O5	LOI	Total	Sc	Be	V	Cr	Co	Ni	Cu	Zn	Ga	Ge	As
Unit Symbol	%	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.01	0.01	0.01	0.001	0.01	0.01	0.01	0.01	0.001	0.01		0.01	1	1	5	20	1	20	10	30	1	1	5
Method Code	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
RW-1	25.51	0.32	4.70	0.462	1.56	35.83	0.09	0.16	0.092	6.30	23.63	98.64	5	2	34	40	< 1	40	30	90	5	< 1	< 5
RW-2	21.80	0.65	8.46	0.600	3.96	31.01	0.16	0.46	0.158	15.14	15.88	98.27	7	2	65	40	< 1	40	< 10	170	9	1	< 5
RW-3	28.17	5.35	7.36	0.367	7.70	19.67	0.21	4.21	0.357	3.51	23.05	99.94	9	2	116	80	3	50	< 10	150	16	< 1	< 5
RW-4	16.39	0.67	6.65	0.475	2.95	34.99	0.11	0.46	0.093	11.15	20.94	94.89	6	2	49	30	< 1	40	< 10	80	7	< 1	< 5
RW-5	17.35	0.41	9.95	0.604	5.02	32.07	0.15	0.30	0.231	15.40	17.98	99.47	7	2	82	40	< 1	60	< 10	110	7	< 1	< 5
RW-6	46.67	10.76	6.13	0.237	6.77	7.95	1.40	6.63	0.313	0.40	12.69	99.96	9	14	171	50	5	40	10	130	22	< 1	< 5
RW-7	1.90	0.12	4.38	0.437	4.32	45.71	0.06	0.06	0.123	6.23	35.83	99.18	4	1	27	20	< 1	< 20	< 10	< 30	5	< 1	< 5
RW-8	60.44	14.11	6.03	0.105	2.74	2.05	5.63	5.07	0.373	0.28	2.56	99.38	18	6	147	100	9	20	10	130	20	< 1	< 5
RW-9	11.84	1.26	3.04	0.479	1.70	42.52	0.16	0.98	0.164	6.74	29.68	98.56	5	1	42	30	< 1	50	< 10	70	7	< 1	< 5
RW-10	34.45	2.79	13.37	0.614	0.77	21.09	0.19	2.17	1.880	14.84	6.95	99.11	20	3	281	60	20	40	10	200	16	1	9
RW-11	40.30	7.44	13.73	0.658	2.78	10.00	0.12	6.54	0.930	0.43	15.76	98.68	13	1	152	140	16	50	10	80	25	1	22
RW-12	41.73	6.79	10.25	0.514	2.76	13.69	0.13	6.08	0.685	2.23	15.13	100.00	13	1	122	80	7	30	< 10	60	20	1	10
RW-13	45.24	7.60	10.63	0.412	3.23	9.82	0.68	5.43	0.885	0.16	15.28	99.37	20	3	171	80	17	70	60	150	19	1	< 5
RW-14	51.07	9.55	7.60	0.256	2.73	9.23	2.04	4.34	0.794	1.11	12.05	100.8	12	3	115	70	14	40	60	90	20	1	9

Results

Analyte Symbol	Rb	Sr	Y	Zr	Mo	Ag	In	Sb	Cs	Ba	Bi	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	2	2	2	4	2	0.5	0.2	0.5	0.5	3	0.4	0.1	0.1	0.05	0.1	0.1	0.05	0.1	0.1	0.1	0.1	0.1	0.05
Method Code	FUS-MS	FUS-ICP	FUS-ICP	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
RW-1	3	2529	176	24	< 2	< 0.5	< 0.2	0.8	< 0.5	566	0.4	330	738	94.0	368	70.0	22.5	57.6	7.9	41.2	6.7	16.7	2.03
RW-2	8	3720	634	105	< 2	0.5	< 0.2	1.2	< 0.5	3326	< 0.4	539	1220	168	735	209	77.8	230	34.8	180	26.3	57.0	5.93
RW-3	74	2013	84	74	< 2	< 0.5	< 0.2	0.7	< 0.5	1158	< 0.4	358	786	99.1	385	60.5	16.8	40.4	4.6	22.0	3.3	8.2	0.95
RW-4	7	3557	552	28	< 2	< 0.5	< 0.2	0.9	< 0.5	27310	< 0.4	442	1020	135	554	139	54.0	157	25.2	133	20.7	44.8	4.89
RW-5	5	3514	852	66	< 2	< 0.5	< 0.2	1.3	< 0.5	5824	0.5	480	1100	155	679	208	86.3	258	41.0	217	32.9	70.0	7.20
RW-6	117	938	21	139	< 2	0.6	< 0.2	< 0.5	0.7	1148	< 0.4	202	423	52.7	199	29.9	7.51	15.1	1.3	5.4	0.9	2.1	0.26
RW-7	< 2	2294	203	8	2	< 0.5	< 0.2	0.7	< 0.5	1297	< 0.4	410	940	124	511	94.5	30.2	80.4	12.6	60.4	9.0	19.5	2.39
RW-8	75	601	19	172	< 2	0.7	< 0.2	< 0.5	0.8	1125	< 0.4	79.8	174	18.8	70.2	12.6	3.45	8.5	1.0	4.7	0.8	2.0	0.25
RW-9	19	3313	241	20	< 2	< 0.5	< 0.2	< 0.5	< 0.5	1629	< 0.4	294	669	88.6	370	88.2	31.3	89.4	12.5	62.2	9.3	21.2	2.32
RW-10	40	2557	681	80	< 2	< 0.5	< 0.2	1.1	< 0.5	302	< 0.4	633	1420	184	758	173	55.9	170	24.4	135	23.9	62.9	8.05
RW-11	111	655	332	550	7	2.2	< 0.2	0.6	< 0.5	392	0.5	1340	2590	312	1180	193	46.3	107	13.7	66.2	11.7	29.5	3.32
RW-12	103	1027	361	529	6	2.2	< 0.2	0.6	< 0.5	1143	< 0.4	650	1300	159	598	95.8	26.5	71.5	10.6	64.6	12.1	34.1	4.60
RW-13	89	593	70	35	3	< 0.5	< 0.2	< 0.5	< 0.5	1614	< 0.4	317	672	84.4	337	60.7	15.2	32.6	3.0	14.2	2.4	6.5	0.84
RW-14	73	793	147	52	3	< 0.5	< 0.2	< 0.5	< 0.5	1251	< 0.4	157	323	40.2	161	41.9	15.2	46.2	6.8	35.0	5.3	11.8	1.29

Results

Analyte Symbol	Yb	Lu	Hf	W	Ti	Pb	Ta2O5	Nb2O5	U3O8	ThO2	ZrO2	Fe2O3(T)	P2O5	SnO2	Y2O3	SiO2	Al2O3	MnO	MgO	CaO	Na2O	K2O	TiO2
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Lower Limit	0.1	0.04	0.2	1	0.1	5	0.003	0.003	0.005	0.005	0.003	0.01	0.01	0.003	0.003	0.01	0.01	0.001	0.01	0.01	0.01	0.01	0.01
Method Code	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F
RW-1	10.4	1.26	0.5	5	< 0.1	64	< 0.003	1.466	0.009	0.007	0.044	4.88	6.53	< 0.003	0.019	25.64	0.33	0.485	1.61	35.75	0.06	0.12	0.09
RW-2	29.3	3.41	3.7	6	< 0.1	134	0.006	1.347	0.021	0.016	0.075	8.62	15.30	< 0.003	0.073	22.28	0.61	0.634	4.15	31.17	0.12	0.49	0.17
RW-3	4.6	0.52	1.6	7	0.3	41	< 0.003	0.583	0.007	< 0.005	0.041	7.41	3.45	< 0.003	0.008	28.23	5.38	0.384	8.18	19.56	0.22	3.93	0.38
RW-4	23.8	2.82	1.0	5	< 0.1	74	< 0.003	0.600	0.012	0.022	0.054	6.77	11.02	< 0.003	0.062	16.30	0.66	0.485	3.05	35.06	0.09	0.40	0.11
RW-5	34.4	3.91	2.5	7	< 0.1	96	0.005	0.578	0.015	0.023	0.060	9.90	15.05	< 0.003	0.100	17.29	0.47	0.642	5.20	31.95	0.11	0.29	0.25
RW-6	1.5	0.22	4.1	4	0.4	11	< 0.003	0.057	< 0.005	< 0.005	0.029	6.01	0.40	< 0.003	< 0.003	47.16	10.12	0.231	6.69	7.59	1.36	6.65	0.31
RW-7	12.4	1.50	< 0.2	3	< 0.1	22	< 0.003	0.077	< 0.005	0.071	0.036	4.53	6.11	< 0.003	0.020	1.81	0.11	0.468	4.52	46.44	0.04	0.04	0.13
RW-8	1.3	0.19	4.5	1	0.2	12	0.003	0.003	< 0.005	< 0.005	0.031	6.08	0.31	< 0.003	< 0.003	60.86	13.77	0.110	2.79	1.95	5.49	5.39	0.38
RW-9	11.2	1.32	0.5	2	< 0.1	28	< 0.003	0.083	0.005	0.006	0.044	3.23	6.71	< 0.003	0.028	11.96	1.47	0.516	1.79	43.26	0.07	0.71	0.18
RW-10	46.7	5.81	2.5	36	0.2	74	0.004	0.108	0.006	0.025	0.045	13.21	14.44	< 0.003	0.079	34.12	2.69	0.624	0.76	21.30	0.16	2.19	1.83
RW-11	15.6	1.83	6.0	20	0.4	18	0.003	0.085	< 0.005	0.130	0.099	13.91	0.42	< 0.003	0.034	40.91	7.40	0.704	2.94	10.08	0.12	6.57	0.96
RW-12	24.3	3.07	5.8	18	0.5	33	0.003	0.050	0.006	0.033	0.110	10.44	2.33	< 0.003	0.039	41.33	6.47	0.540	2.96	14.00	0.12	6.16	0.72
RW-13	4.4	0.57	1.2	19	0.3	7	< 0.003	0.056	< 0.005	0.019	0.014	10.59	0.17	< 0.003	0.007	45.47	7.63	0.428	3.36	9.83	0.64	5.56	0.92
RW-14	6.1	0.75	1.2	13	0.3	13	< 0.003	0.043	< 0.005	0.012	0.019	7.38	1.21	< 0.003	0.014	50.66	9.17	0.259	2.77	9.16	1.87	4.50	0.80

Results

Analyte Symbol	Cr2O3	V2O5	LOI	Total
Unit Symbol	%	%	%	%
Lower Limit	0.01	0.003		0.01
Method Code	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F
RW-1	< 0.01	0.006	23.63	99.13
RW-2	< 0.01	0.011	15.88	99.43
RW-3	0.02	0.022	23.05	100.2
RW-4	< 0.01	0.007	20.94	94.90
RW-5	< 0.01	0.012	17.98	99.14
RW-6	0.01	0.031	12.69	99.26
RW-7	< 0.01	< 0.003	35.83	100.0
RW-8	0.03	0.025	2.56	99.74
RW-9	< 0.01	0.007	29.68	99.59
RW-10	0.01	0.052	6.95	98.33
RW-11	0.03	0.025	15.76	99.82
RW-12	< 0.01	0.022	15.13	100.2
RW-13	< 0.01	0.034	15.27	100.0
RW-14	< 0.01	0.022	12.06	99.88

QC

Analyte Symbol	SiO2	Al2O3	Fe2O3(T)	MnO	MgO	CaO	Na2O	K2O	TiO2	P2O5	LOI	Total	Sc	Be	V	Cr	Co	Ni	Cu	Zn	Ga	Ge	As
Unit Symbol	%	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.01	0.01	0.01	0.001	0.01	0.01	0.01	0.01	0.001	0.01		0.01	1	1	5	20	1	20	10	30	1	1	5
Method Code	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
NIST 694 Meas	11.16	1.88	0.73	0.014	0.33	43.07	0.84	0.54	0.119	30.21					1656								
NIST 694 Cert	11.2	1.80	0.790	0.0116	0.330	43.6	0.860	0.510	0.110	30.2					1740								
NIST 694 Meas																							
NIST 694 Cert																							
DNC-1 Meas	47.14	18.52	9.97	0.146	9.88	11.43	1.88	0.23	0.492	0.07			31		160	290	56	270	100	70			
DNC-1 Cert	47.15	18.34	9.97	0.150	10.13	11.49	1.890	0.234	0.480	0.070			31		148	270	57	247	100	70			
MICA-FE Meas																							
MICA-FE Cert																							
LKSD-3 Meas																90	29	50					
LKSD-3 Cert																87.0	30.0	47.0					
AC-E Meas																							
AC-E Cert																							
AC-E Meas																							
AC-E Cert																							
W-2a Meas	52.64	15.66	10.88	0.168	6.30	11.04	2.19	0.62	1.109	0.13			36	< 1	282	90	42	70	100	70	18	1	
W-2a Cert	52.4	15.4	10.7	0.163	6.37	10.9	2.14	0.626	1.06	0.130			36.0	1.30	262	92.0	43.0	70.0	110	80.0	17.0	1.00	
SY-4 Meas	50.03	20.42	6.10	0.106	0.50	8.11	7.13	1.67	0.287	0.12			1	3	8								
SY-4 Cert	49.9	20.69	6.21	0.108	0.54	8.05	7.10	1.66	0.287	0.131			1.1	2.6	8.0								
CTA-AC-1 Meas																			60				
CTA-AC-1 Cert																			54.0				
BIR-1a Meas	47.48	15.77	11.59	0.173	9.62	13.31	1.76	0.02	0.969	0.03			43	< 1	336	380	50	180	120	70	15		
BIR-1a Cert	47.96	15.50	11.30	0.175	9.700	13.30	1.82	0.030	0.96	0.021			44	0.58	310	370	52	170	125	70	16		
NCS DC86312 Meas																							
NCS DC86312 Cert																							
ZW-C Meas																				1060	105		
ZW-C Cert																				1050.000	99		
NCS DC70009 (GBW07241) Meas																30		< 20		90	17	9	
NCS DC70009 (GBW07241) Cert																30		2.8		100	16.5	11.2	
OREAS 100a (Fusion) Meas																	18		170				
OREAS 100a (Fusion) Cert																	18.1		169				
OREAS 101a (Fusion) Meas																	46		410				
OREAS 101a (Fusion) Cert																	48.8		434				
JR-1 Meas																		< 20			16	2	15
JR-1 Cert																		1.67			16.1	1.88	16.3
SX18-01 Meas																							
SX18-01 Cert																							
SX18-04 Meas																							
SX18-04 Cert																							
SX18-05 Meas																							
SX18-05 Cert																							
RW-14 Orig	51.07	9.55	7.60	0.256	2.73	9.23	2.04	4.34	0.794	1.11	12.05	100.8	12	3	115	70	14	40	60	90	20	1	9
RW-14 Split	51.38	9.48	7.37	0.250	2.75	9.26	2.06	4.41	0.778	1.11	11.99	100.8	12	3	117	70	14	50	60	100	20	2	10
RW-14 Orig	51.07	9.55	7.60	0.256	2.73	9.23	2.04	4.34	0.794	1.11	12.05	100.8	12	3	115	70	14	20	60	90	20	2	9

Analyte Symbol	SiO2	Al2O3	Fe2O3(T)	MnO	MgO	CaO	Na2O	K2O	TiO2	P2O5	LOI	Total	Sc	Be	V	Cr	Co	Ni	Cu	Zn	Ga	Ge	As
Unit Symbol	%	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.01	0.01	0.01	0.001	0.01	0.01	0.01	0.01	0.001	0.01		0.01	1	1	5	20	1	20	10	30	1	1	5
Method Code	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
RW-14 Dup																70	14	50	60	90	20	1	8
RW-14 Orig																							
RW-14 Split																							
RW-14 Orig																							
RW-14 Dup																							
Method Blank																< 20	< 1	< 20	< 10	< 30	< 1	< 1	< 5
Method Blank																							
Method Blank																							

QC

Analyte Symbol	Rb	Sr	Y	Zr	Mo	Ag	In	Sb	Cs	Ba	Bi	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	2	2	2	4	2	0.5	0.2	0.5	0.5	3	0.4	0.1	0.1	0.05	0.1	0.1	0.05	0.1	0.1	0.1	0.1	0.1	0.05
Method Code	FUS-MS	FUS-ICP	FUS-ICP	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
NIST 694 Meas																							
NIST 694 Cert																							
NIST 694 Meas																							
NIST 694 Cert																							
DNC-1 Meas		149	17	34				1.0		170					5.2		0.58						
DNC-1 Cert		144.0	18.0	38				0.96		118					5.20		0.59						
MICA-FE Meas																							
MICA-FE Cert																							
LKSD-3 Meas					< 2				2.1			50.6	90.5		43.4	7.8				4.7			
LKSD-3 Cert					2.00				2.30			52.0	90.0		44.0	8.00				4.90			
AC-E Meas																							
AC-E Cert																							
AC-E Meas																							
AC-E Cert																							
W-2a Meas		205	18	84	< 2	0.6				175	< 0.4		24.1		13.1	3.3	1.03		0.7	3.8	0.8		0.35
W-2a Cert		190	24.0	94.0	0.600	0.0460				182	0.0300		23.0		13.0	3.30	1.00		0.630	3.60	0.760		0.380
SY-4 Meas		1176	118	530						353													
SY-4 Cert		1191	119	517						340													
CTA-AC-1 Meas												2270	3320			174	47.0	126					
CTA-AC-1 Cert												2176	3326			162	46.7	124					
BIR-1a Meas		111	14	13						9					2.6	1.2		1.9					
BIR-1a Cert		110	16	18						6					2.5	1.1		2.0					
NCS DC86312 Meas												2330	180		1590			226	34.6	183	35.6	95.7	14.3
NCS DC86312 Cert												2360	190		1600			225.0	34.6	183	36	96.2	15.1
ZW-C Meas																							
ZW-C Cert																							
NCS DC70009 (GBW07241) Meas	500							3.3	40.2			25.8	61.2	7.66	32.9	13.0		14.8	3.4	20.9	4.4	13.2	2.37
NCS DC70009 (GBW07241) Cert	500							3.1	41			23.7	60.3	7.9	32.9	12.5		14.8	3.3	20.7	4.5	13.4	2.2
OREAS 100a (Fusion) Meas					24									48.5	161	24.8	3.65		4.1	24.0	5.2	15.0	
OREAS 100a (Fusion) Cert					24.1									47.1	152	23.6	3.71		3.80	23.2	4.81	14.9	

Analyte Symbol	Rb	Sr	Y	Zr	Mo	Ag	In	Sb	Cs	Ba	Bi	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	2	2	2	4	2	0.5	0.2	0.5	0.5	3	0.4	0.1	0.1	0.05	0.1	0.1	0.05	0.1	0.1	0.1	0.1	0.1	0.05
Method Code	FUS-MS	FUS-ICP	FUS-ICP	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
OREAS 101a (Fusion) Meas												898	1500	133	416	51.7	8.20		5.6	32.7	6.7	19.6	3.14
OREAS 101a (Fusion) Cert												816	1396	134	403	48.8	8.06		5.92	33.3	6.46	19.5	2.90
JR-1 Meas	245					0.9	< 0.2	1.1	19.2		0.4		49.1	5.85	24.0	5.8		5.4	1.1	6.2			0.71
JR-1 Cert	257					0.031	0.028	1.19	20.8		0.56		47.2	5.58	23.3	6.03		5.06	1.01	5.69			0.67
SX18-01 Meas																							
SX18-01 Cert																							
SX18-04 Meas																							
SX18-04 Cert																							
SX18-05 Meas																							
SX18-05 Cert																							
RW-14 Orig	73	793	147	52	3	< 0.5	< 0.2	< 0.5	< 0.5	1251	< 0.4	157	323	40.2	161	41.9	15.2	46.2	6.8	35.0	5.3	11.8	1.29
RW-14 Split	73	764	143	51	3	< 0.5	< 0.2	0.5	< 0.5	1255	< 0.4	153	312	38.8	156	41.1	14.6	45.4	6.7	34.3	5.2	11.5	1.23
RW-14 Orig	73	793	147	52	3	< 0.5	< 0.2	0.6	< 0.5	1251	< 0.4	157	323	40.3	162	41.7	15.1	46.1	6.8	34.7	5.3	11.8	1.31
RW-14 Dup	74				3	< 0.5	< 0.2	< 0.5	< 0.5		< 0.4	157	323	40.2	160	42.2	15.3	46.2	6.8	35.2	5.3	11.8	1.28
RW-14 Orig																							
RW-14 Split																							
RW-14 Orig																							
RW-14 Dup																							
Method Blank	< 2				< 2	< 0.5	< 0.2	< 0.5	< 0.5		< 0.4	< 0.1	< 0.1	< 0.05	< 0.1	< 0.1	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05
Method Blank																							
Method Blank																							

QC

Analyte Symbol	Yb	Lu	Hf	W	Ti	Pb	Ta2O5	Nb2O5	U3O8	ThO2	ZrO2	Fe2O3(T)	P2O5	SnO2	Y2O3	SiO2	Al2O3	MnO	MgO	CaO	Na2O	K2O	TiO2
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Lower Limit	0.1	0.04	0.2	1	0.1	5	0.003	0.003	0.005	0.005	0.003	0.01	0.01	0.003	0.003	0.01	0.01	0.001	0.01	0.01	0.01	0.01	0.01
Method Code	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F
NIST 694 Meas												0.77	29.42			11.36	1.88	0.011	0.32	42.78	0.90	0.52	0.12
NIST 694 Cert												0.790	30.2			11.2	1.80	0.0116	0.330	43.6	0.860	0.510	0.110
NIST 694 Meas												0.77	29.42										
NIST 694 Cert												0.790	30.2										
DNC-1 Meas	2.1																						
DNC-1 Cert	2.0																						
MICA-FE Meas												25.74	0.42			35.42	19.71	0.348	4.79	0.39	0.32	8.83	2.53
MICA-FE Cert												25.6	0.450			34.4	19.5	0.350	4.55	0.430	0.300	8.75	2.50
LKSD-3 Meas	2.8	0.39																					
LKSD-3 Cert	2.70	0.400																					
AC-E Meas								0.015			0.107	2.58				72.17	15.49	0.059	0.06	0.39	6.69	4.59	0.11
AC-E Cert								0.016			0.105	2.56				70.35	14.70	0.058	0.03	0.34	6.54	4.49	0.11
AC-E Meas												2.58											
AC-E Cert												2.56											
W-2a Meas	2.1	0.30	2.4	1	< 0.1																		
W-2a Cert	2.10	0.330	2.60	0.300	0.200																		
SY-4 Meas																							
SY-4 Cert																							

Analyte Symbol	Yb	Lu	Hf	W	Ti	Pb	Ta2O5	Nb2O5	U3O8	ThO2	ZrO2	Fe2O3(T)	P2O5	SnO2	Y2O3	SiO2	Al2O3	MnO	MgO	CaO	Na2O	K2O	TiO2
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Lower Limit	0.1	0.04	0.2	1	0.1	5	0.003	0.003	0.005	0.005	0.003	0.01	0.01	0.003	0.003	0.01	0.01	0.001	0.01	0.01	0.01	0.01	0.01
Method Code	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F
CTA-AC-1 Meas	11.4	1.15																					
CTA-AC-1 Cert	11.4	1.08																					
BIR-1a Meas	1.7		0.6			< 5																	
BIR-1a Cert	1.7		0.60			3																	
NCS DC86312 Meas	86.8	12.0																					
NCS DC86312 Cert	87.79	11.96																					
ZW-C Meas				327	33.7		0.008		< 0.005		0.010	9.47	0.03	0.159									
ZW-C Cert				320	34		0.010		0.002		0.011	9.46	0.025	0.165									
NCS DC70009 (GBW07241) Meas		2.35		2140																			
NCS DC70009 (GBW07241) Cert		2.4		2200																			
OREAS 100a (Fusion) Meas	16.3	2.31																					
OREAS 100a (Fusion) Cert	14.9	2.26																					
OREAS 101a (Fusion) Meas	19.0	2.61																					
OREAS 101a (Fusion) Cert	17.5	2.66																					
JR-1 Meas	4.8	0.73			1.5	19																	
JR-1 Cert	4.55	0.71			1.56	19.3																	
SX18-01 Meas							< 0.003	0.727			0.085												
SX18-01 Cert							0.005	0.695			0.093												
SX18-04 Meas							0.004	1.317			0.153												
SX18-04 Cert							0.005	1.32			0.146												
SX18-05 Meas							0.003	1.034			0.213												
SX18-05 Cert							0.004	0.973			0.218												
RW-14 Orig	6.1	0.75	1.2	13	0.3	13	< 0.003	0.043	< 0.005	0.012	0.019	7.38	1.21	< 0.003	0.014	50.66	9.17	0.259	2.77	9.16	1.87	4.50	0.80
RW-14 Split	6.2	0.73	1.1	13	0.3	13	< 0.003	0.045	< 0.005	0.013	0.018	7.46	1.18	< 0.003	0.015	50.84	9.09	0.254	2.70	9.27	1.84	4.36	0.77
RW-14 Orig	6.1	0.74	1.2	14	0.3	13	< 0.003	0.044	< 0.005	0.011	0.018	7.35	1.21	< 0.003	0.015	50.46	9.19	0.259	2.76	9.10	1.88	4.42	0.80
RW-14 Dup	6.1	0.75	1.1	13	0.3	12	< 0.003	0.043	< 0.005	0.013	0.019	7.42	1.21	< 0.003	0.014	50.86	9.15	0.258	2.79	9.23	1.86	4.58	0.81
RW-14 Orig												7.38	1.21										
RW-14 Split												7.46	1.18										
RW-14 Orig												7.35	1.21										
RW-14 Dup												7.42	1.21										
Method Blank	< 0.1	< 0.04	< 0.2	< 1	< 0.1	< 5																	
Method Blank							< 0.003	< 0.003	< 0.005	< 0.005	< 0.003	< 0.01	< 0.01	< 0.003	< 0.003								
Method Blank												< 0.01	< 0.01			< 0.01	< 0.01	< 0.001	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

QC

Analyte Symbol	Cr2O3	V2O5	LOI	Total
Unit Symbol	%	%	%	%
Lower Limit	0.01	0.003		0.01
Method Code	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F
NIST 694 Meas	0.11	0.280		
NIST 694 Cert	0.10	0.311		

Analyte Symbol	Cr2O3	V2O5	LOI	Total
Unit Symbol	%	%	%	%
Lower Limit	0.01	0.003		0.01
Method Code	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F
NIST 694 Meas				
NIST 694 Cert				
DNC-1 Meas				
DNC-1 Cert				
MICA-FE Meas	0.02			
MICA-FE Cert	0.01			
LKSD-3 Meas				
LKSD-3 Cert				
AC-E Meas				
AC-E Cert				
AC-E Meas				
AC-E Cert				
W-2a Meas				
W-2a Cert				
SY-4 Meas				
SY-4 Cert				
CTA-AC-1 Meas				
CTA-AC-1 Cert				
BIR-1a Meas				
BIR-1a Cert				
NCS DC86312 Meas				
NCS DC86312 Cert				
ZW-C Meas				
ZW-C Cert				
NCS DC70009 (GBW07241) Meas				
NCS DC70009 (GBW07241) Cert				
OREAS 100a (Fusion) Meas				
OREAS 100a (Fusion) Cert				
OREAS 101a (Fusion) Meas				
OREAS 101a (Fusion) Cert				
JR-1 Meas				
JR-1 Cert				
SX18-01 Meas				
SX18-01 Cert				
SX18-04 Meas				
SX18-04 Cert				
SX18-05 Meas				
SX18-05 Cert				
RW-14 Orig	< 0.01	0.022	12.06	99.88
RW-14 Split	0.01	0.022	11.99	99.78
RW-14 Orig	0.01	0.022	12.05	99.51
RW-14 Dup	< 0.01	0.022	12.06	100.3
RW-14 Orig				

Analyte Symbol	Cr2O3	V2O5	LOI	Total
Unit Symbol	%	%	%	%
Lower Limit	0.01	0.003		0.01
Method Code	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F
RW-14 Split				
RW-14 Orig				
RW-14 Dup				
Method Blank				
Method Blank				
Method Blank	< 0.01	< 0.003		

Quality Analysis ...



Innovative Technologies

Date Submitted: 15-Dec-14
Invoice No.: A14-09886
Invoice Date: 05-Jan-15
Your Reference: 1077 carbonatite pulp

IOS Services Geoscientifiques Inc.
1319 Boul. St-Paul
Chicoutimi QC G7J 3Y2
Canada

ATTN: Karen Gagne

CERTIFICATE OF ANALYSIS

8 Pulp samples were submitted for analysis.

The following analytical package was requested:

Code IOS INAA Package INAA(INAAGEO)
Code IOS XRF Package Whole Rock Analysis-XRF

REPORT A14-09886

This report may be reproduced without our consent. If only selected portions of the report are reproduced, permission must be obtained. If no instructions were given at time of sample submittal regarding excess material, it will be discarded within 90 days of this report. Our liability is limited solely to the analytical cost of these analyses. Test results are representative only of material submitted for analysis.

Notes:

For values exceeding the upper limits we recommend assays.

CERTIFIED BY:

A handwritten signature in black ink, appearing to read "Emmanuel Eseme".

Emmanuel Eseme, Ph.D.
Quality Control

ACTIVATION LABORATORIES LTD.
41 Bittern Street, Ancaster, Ontario, Canada, L9G 4V5
TELEPHONE +905 648-9611 or +1.888.228.5227 FAX +1.905.648.9613
E-MAIL Ancaster@actlabs.com ACTLABS GROUP WEBSITE www.actlabs.com



Results

Analyte Symbol	Ta	Th	U	La	Ce	Nd	Sm	Eu	Yb	Lu	Mass	Nb2O5	Ta2O5	U3O8	ThO2	ZrO2	Fe2O3(T)	P2O5
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	g	%	%	%	%	%	%	%
Lower Limit	0.5	0.2	0.5	0.5	3	5	0.1	0.2	0.2	0.05		0.003	0.003	0.005	0.005	0.003	0.01	0.01
Method Code	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F
107790000	< 0.5	< 0.2	< 0.5	< 0.5	< 3	< 5	< 0.1	< 0.2	< 0.2	< 0.05	1.80	< 0.003	< 0.003	< 0.005	< 0.005	0.407	0.23	0.06
107790001	29.1	81.7	88.6	443	910	434	117	32.5	9.6	0.89	1.78	0.894	0.006	0.014	0.009	0.058	7.51	7.30
107790002	< 0.5	147	81.9	449	921	439	158	49.4	17.6	1.17	1.98	0.381	< 0.003	0.012	0.017	0.047	9.46	11.52
107790003	< 0.5	89.6	54.5	621	1170	512	108	26.6	4.5	0.42	1.67	0.450	< 0.003	0.009	0.009	0.028	6.97	3.38
107790004	< 0.5	38.2	8.1	208	420	195	43.0	10.2	2.4	0.16	1.56	0.035	< 0.003	< 0.005	< 0.005	0.030	5.61	1.19
107790005	< 0.5	80.3	32.9	308	643	328	86.3	26.0	7.7	0.58	1.73	0.126	< 0.003	0.008	0.009	0.036	6.24	4.83
107790007	28.7	107	78.2	352	766	319	78.2	20.6	8.8	0.71	1.50	0.660	0.003	0.010	0.013	0.065	3.28	7.14
107790008	171	50.5	5.8	14.4	34	< 5	1.8	< 0.2	< 0.2	< 0.05	2.00	0.194	0.021	< 0.005	0.007	0.081	2.25	0.22

QC

Analyte Symbol	Ta	Th	U	La	Ce	Nd	Sm	Eu	Yb	Lu	Mass	Nb2O5	Ta2O5	U3O8	ThO2	ZrO2	Fe2O3(T)	P2O5
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	g	%	%	%	%	%	%	%
Lower Limit	0.5	0.2	0.5	0.5	3	5	0.1	0.2	0.2	0.05		0.003	0.003	0.005	0.005	0.003	0.01	0.01
Method Code	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F	FUS-XR F
TAN-1 Meas	2350																	
TAN-1 Cert	2360																	
AC-E Meas												0.014				0.101	2.63	
AC-E Cert												0.016				0.105	2.56	
DL-1a Meas														0.012	0.008			
DL-1a Cert														0.0137	0.009			
ZW-C Meas													0.009	< 0.005	0.011	0.011	9.56	0.02
ZW-C Cert													0.010	0.002	0.005	0.011	9.46	0.025
VS-N Meas												0.099				0.096	4.03	
VS-N Cert												0.10				0.095	4.14	
OREAS 100a (4 Acid) Meas		50.2	133	262	471	155	23.7	3.7	11.6	1.55								
OREAS 100a (4 Acid) Cert		49.2	130	259	467	152	23.8	3.7	11.4	1.56								
SX18-01 Meas												0.693				0.091		
SX18-01 Cert												0.695				0.093		
SX18-04 Meas												1.287	0.022			0.155		
SX18-04 Cert												1.32	0.005			0.146		
DMMAS 117 Meas			11.7	16.5	32		2.5											
DMMAS 117 Cert			11.8	15.6	31		2.6											
107790008 Orig												0.194	0.021	< 0.005	0.007	0.082	2.25	0.22
107790008 Dup												0.193	0.020	< 0.005	0.007	0.080	2.24	0.23
Method Blank	< 0.5	< 0.2	< 0.5	< 0.5	< 3	< 5	< 0.1	< 0.2	< 0.2	< 0.05	1.00							
Method Blank												< 0.003	< 0.003	< 0.005	< 0.005	< 0.003	< 0.01	< 0.01

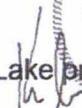
CERTIFICAT : IOS15-0002

À : MDN inc.
1693, rue Saint-Patrick
bureau 106
Montréal (Québec)
H3K 3G9

Projet : 1077
Date du certificat : 2015-01-12
Nombre d'échantillons : 7, une moyenne sur 3 mesures
Type d'échantillons : Échantillons pulvérisés et un sol

Appareil utilisé : Microanalyseur XRF Niton XL3T-500
Mode d'analyse : Mode Ta/Hf
Unité : ppm

Ce rapport contient des renseignements protégés et confidentiels à l'intention du destinataire.
Les résultats ne se rapportent qu'aux échantillons soumis à l'analyse.
Ce rapport est final et remplace tout autre rapport préliminaire portant ce numéro.

Prairie Lake property, February 06, 2015
Signature: 


Karen Gagné
Chimiste, OCQ 2003-137
Contrôle de la qualité

NOTE. CLIM = cu es \ LVD = sous la limite de detection de l'appareil

Page 3 de 3