



**Date Submitted:** 29-Oct-15  
**Invoice No.:** A15-09346 (i)  
**Invoice Date:** 19-Jul-16  
**Your Reference:** BIO TECH

**Western Enviromental Services**  
**2442 Petersen Dr.**  
**Cheyenne WY 82009**  
**United States**

**ATTN: Robert Van Risseghem**

## CERTIFICATE OF ANALYSIS

10 Vegetation samples were submitted for analysis.

The following analytical package(s) were requested:

Code 2G Unashed Vegetation ICP/MS

REPORT **A15-09346 (i)**

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Notes:

CERTIFIED BY:

A handwritten signature in black ink, appearing to be "Emmanuel Esemé". The signature is stylized with a large 'E' and 'S'.

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Emmanuel Esemé , Ph.D.  
Quality Control

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## Results

## Activation Laboratories Ltd.

## Report: A15-09346

Analyte Symbol	Ag	Al	As	Au	B	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Dy	Er	Eu	Fe	Ga	Gd	Ge	Hf
Unit Symbol	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppm	ppb	ppb	ppb	ppb
Lower Limit	10	1000	10	0.2	1000	10	50	0.5	10000	10	1	2	20	2	10	0.5	1	1	1	4	4	1	3
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
#1 RUTHENIUM PRODUCTION LOT #1	60	13000	580	2.6	37000	20300	< 50	5.5	1600000 0	20	24	15	2120	162	5060	1.4	1	< 1	76	10	< 4	28	< 3
#2 PLATINUM PRODUCTION LOT#1	< 10	9000	610	< 0.2	45000	18400	< 50	4.0	1430000 0	20	22	12	1150	122	5320	2.2	< 1	< 1	67	8	< 4	17	< 3
#3 GOLD LETTUCE	30	21000	600	115	49000	22000	< 50	5.9	1650000 0	70	28	29	330	37	16300	2.2	< 1	< 1	102	52	< 4	15	< 3
#4 RUTHENIUM 2015 SOIL	< 10	5000	430	< 0.2	46000	14300	< 50	2.9	1110000 0	40	6	7	440	179	5310	0.7	< 1	< 1	45	7	< 4	44	< 3
#5 PLATINUM 2015 SOIL	< 10	15000	350	< 0.2	40000	13000	< 50	4.4	1240000 0	20	20	17	730	73	6550	1.5	< 1	< 1	61	41	< 4	26	< 3
#6 TOMATO CHROMIUM	< 10	13000	20	< 0.2	15000	4270	< 50	3.3	1350000	180	17	44	270	2	5900	1.0	< 1	< 1	38	5	< 4	1	< 3
#7 TOMATO CONTROL	< 10	4000	10	< 0.2	14000	3860	< 50	1.8	1220000	130	6	31	90	< 2	4880	< 0.5	< 1	< 1	22	< 4	< 4	< 1	< 3
#8 MOLYBDIUM LETTUCE MIX	20	< 1000	240	8.6	10000	15000	< 50	2.6	5950000	30	17	19	140	13	100	1.0	< 1	< 1	25900	5	< 4	6	< 3
#9 CHROMIUM LETTUCE MIX	< 10	5000	520	12.5	102000	17200	80	0.6	1770000 0	50	23	2	190	103	4220	5.9	5	< 1	56600	8	< 4	5	10
#10 VANADIUM LETTUCE MIX	< 10	11000	630	2.7	56000	39200	< 50	4.4	2730000 0	80	37	59	150	31	7620	6.1	3	1	63800	4	5	601	7

## Results

## Activation Laboratories Ltd.

## Report: A15-09346

Analyte Symbol	Hg	Ho	In	K	La	Li	Lu	Mg	Mn	Mo	Na	Nb	Nd	Ni	P	Pb	Pd	Pr	Pt	Rb	Re	Sb	Se
Unit Symbol	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
Lower Limit	10	0.4	0.2	10	3	10	0.4	1000	100	10	1000	2	5	10	3000	5	0.1	2	0.2	20	0.2	5	10
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
#1 RUTHENIUM PRODUCTION LOT #1	< 10	< 0.4	3.4	2670000 0	12	6150	< 0.4	6590000	67000	2190	2360000 0	26	10	110	7720000	251	< 0.1	2	50.4	27400	4.6	19	290
#2 PLATINUM PRODUCTION LOT#1	< 10	< 0.4	5.7	3290000 0	11	5980	< 0.4	6760000	74700	870	2480000 0	20	21	220	8650000	125	< 0.1	3	498	29600	4.6	10	170
#3 GOLD LETTUCE	< 10	< 0.4	4.1	5700000 0	14	7110	< 0.4	6320000	259000	2960	1910000 0	21	20	330	1050000 0	197	< 0.1	3	125	67700	34.2	28	180
#4 RUTHENIUM 2015 SOIL	< 10	< 0.4	4.8	3130000 0	3	3830	< 0.4	3770000	47700	2960	1750000 0	20	< 5	< 10	4900000	133	< 0.1	< 2	39.5	24800	8.2	< 5	230
#5 PLATINUM 2015 SOIL	< 10	< 0.4	4.3	1900000 0	9	5040	< 0.4	4950000	24600	1590	2470000 0	16	11	130	5780000	214	< 0.1	2	67.4	22100	6.2	20	200
#6 TOMATO CHROMIUM	< 10	< 0.4	7.4	3390000 0	9	310	< 0.4	1720000	10800	1650	796000	18	8	< 10	4600000	98	< 0.1	< 2	4.9	4180	0.5	20	130
#7 TOMATO CONTROL	< 10	< 0.4	8.8	3110000 0	3	190	< 0.4	1360000	7900	570	601000	19	< 5	< 10	4150000	57	< 0.1	< 2	7.0	3970	0.4	7	100
#8 MOLYBDIUM LETTUCE MIX	10	< 0.4	< 0.2	3680000	8	1710	< 0.4	1470000	13500	72200	6630000	< 2	17	< 10	1890000	< 5	< 0.1	3	127	2780	15.7	< 5	960
#9 CHROMIUM LETTUCE MIX	< 10	0.5	< 0.2	4500000 0	8	6390	< 0.4	9440000	153000	14200	8970000	< 2	20	110	6540000	1920	< 0.1	2	11.1	28400	9.2	61	650
#10 VANADIUM LETTUCE MIX	< 10	1.6	< 0.2	1560000 0	23	8380	6.8	8470000	275000	7090	1760000 0	40	11	280	1260000 0	< 5	< 0.1	< 2	251	11100	19.3	12	660

Analyte Symbol	Sm	Sn	Sr	Ta	Tb	Te	Th	Ti	Tl	Tm	U	V	W	Y	Yb	Zn	Zr	Ru
Unit Symbol	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
Lower Limit	2	30	50	1	2	5	1	200	0.5	0.1	0.5	20	5	4	3	100	20	10
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
#1 RUTHENIUM PRODUCTION LOT #1	< 2	80	127000	2	< 2	< 5	3	< 200	2.9	< 0.1	742	860	< 5	6	< 3	101000	< 20	< 10
#2 PLATINUM PRODUCTION LOT#1	< 2	80	115000	2	< 2	< 5	2	< 200	1.6	0.1	614	720	< 5	6	< 3	103000	< 20	< 10
#3 GOLD LETTUCE	< 2	310	82800	5	< 2	< 5	3	600	8.9	0.1	935	830	< 5	10	< 3	309000	< 20	< 10
#4 RUTHENIUM 2015 SOIL	< 2	40	81900	2	< 2	< 5	2	< 200	2.8	< 0.1	688	400	< 5	< 4	< 3	94700	< 20	< 10
#5 PLATINUM 2015 SOIL	< 2	100	98200	2	< 2	< 5	2	< 200	1.1	0.2	624	410	20	5	< 3	92900	< 20	< 10
#6 TOMATO CHROMIUM	< 2	40	6660	2	< 2	< 5	3	600	< 0.5	0.1	15.5	< 20	< 5	6	< 3	19300	< 20	< 10
#7 TOMATO CONTROL	< 2	< 30	5890	2	< 2	< 5	2	< 200	< 0.5	< 0.1	14.4	< 20	45	< 4	< 3	15800	< 20	< 10
#8 MOLYBDIUM LETTUCE MIX	< 2	< 30	54600	1	< 2	22	9	200	3.7	0.4	256	2150	< 5	< 4	< 3	34400	< 20	< 10
#9 CHROMIUM LETTUCE MIX	6	100	110000	< 1	< 2	< 5	10	400	69.5	0.4	967	30	< 5	32	< 3	74000	140	< 10
#10 VANADIUM LETTUCE MIX	2	120	173000	3	< 2	< 5	6	< 200	10.1	0.3	1130	17500	< 5	31	< 3	344000	150	< 10

Analyte Symbol	Ag	Al	As	Au	B	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Dy	Er	Eu	Fe	Ga	Gd	Ge	Hf
Unit Symbol	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppm	ppb	ppb	ppb	ppb
Lower Limit	10	1000	10	0.2	1000	10	50	0.5	10000	10	1	2	20	2	10	0.5	1	1	1	4	4	1	3
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
NIST 1575a Meas					10000	6520			2800000	210		61		287	2950				47				
NIST 1575a Cert					9600	6000			2500000	233		61		283	2800				46				
CDV-1 Meas	< 10	1070000	1340	2.7	16000			22.1	2110000 0	30	3610	1650	10600	95	7580				2320	673		39	31
CDV-1 Cert	9	1500000	1300	2.3	12400			20	1940000 0	40	4350	2000	12100	121	8610				2560	600		30	46
#3 GOLD LETTUCE Orig	20	23000	580	113	48000	22200	< 50	6.0	1670000 0	70	31	30	330	38	17100	2.3	< 1	< 1	101	44	< 4	15	< 3
#3 GOLD LETTUCE Dup	30	20000	610	118	51000	21800	< 50	5.7	1640000 0	60	25	29	340	35	15600	2.1	1	< 1	103	59	< 4	14	< 3
Method Blank	< 10	< 1000	< 10	< 0.2	< 1000	< 10	< 50	2.6	< 10000	< 10	< 1	< 2	< 20	< 2	< 10	< 0.5	< 1	< 1	< 1	< 4	< 4	< 1	< 3

Analyte Symbol	Hg	Ho	In	K	La	Li	Lu	Mg	Mn	Mo	Na	Nb	Nd	Ni	P	Pb	Pd	Pr	Pt	Rb	Re	Sb	Se
Unit Symbol	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
Lower Limit	10	0.4	0.2	10	3	10	0.4	1000	100	10	1000	2	5	10	3000	5	0.1	2	0.2	20	0.2	5	10
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
NIST 1575a Meas	40			5010000				1010000	493000		65000			1410	1070000	161				16200			110
NIST 1575a Cert	39.9			4170000				1060000	488000		63000			1470	1070000	167				16500			99
CDV-1 Meas	40			1790000	1850	390		1210000	371000	200	55000	58		5500	363000	784				2070		26	350
CDV-1 Cert	41			1800000	2310	560		1310000	413000	200	60000	60		6400	400000	1330				2600		30	300
#3 GOLD LETTUCE Orig	< 10	< 0.4	3.2	5730000 0	15	6950	< 0.4	6390000	264000	2940	1940000 0	15	21	310	1050000 0	189	< 0.1	3	132	67300	34.8	33	170
#3 GOLD LETTUCE Dup	< 10	< 0.4	5.0	5680000 0	13	7270	< 0.4	6250000	253000	2970	1880000 0	27	18	360	1040000 0	204	1.4	3	118	68100	33.5	23	190
Method Blank	< 10	< 0.4	9.2	< 10	< 3	< 10	< 0.4	< 1000	< 100	< 10	< 1000		< 5	< 10	< 3000	< 5	< 0.1	< 2	0.2	< 20	< 0.2	< 5	20

Analyte Symbol	Sm	Sn	Sr	Ta	Tb	Te	Th	Ti	Tl	Tm	U	V	W	Y	Yb	Zn	Zr	Ru
Unit Symbol	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
Lower Limit	2	30	50	1	2	5	1	200	0.5	0.1	0.5	20	5	4	3	100	20	10
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
NIST 1575a Meas																36200		
NIST 1575a Cert																38000		
CDV-1 Meas		80	105000			< 5	465	23700			135	5640		1180		19300	930	
CDV-1 Cert		80	122000			40	610	30000			170	4200		1410		23300	1290	
#3 GOLD LETTUCE Orig	3	280	83100	1	< 2	< 5	3	600	9.1	0.1	975	850	< 5	10	< 3	310000	< 20	< 10
#3 GOLD LETTUCE Dup	< 2	340	82600	8	< 2	< 5	3	700	8.7	0.2	894	820	< 5	9	< 3	307000	< 20	< 10
Method Blank	< 2	< 30	< 50		< 2	< 5	< 1	< 200	< 0.5	< 0.1	< 0.5	< 20		< 4	< 3	< 100	< 20	< 10