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Acme Analytical Laboratories (Vancouver) Ltd.

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Client: Metropolitan State College of Denver
Dept of Earth & Atmospheric Sciences
Campus Box 22, P.O. Box 173362
Denver CO 80217-3362 USA

Submitted By: Uwe Richard Kackstaetter
Receiving Lab: Canada-Vancouver
Received: November 02, 2011
Report Date: November 08, 2011
Page: 1 of 2

CERTIFICATE OF ANALYSIS

VAN11005942.1

CLIENT JOB INFORMATION

Project: Fall 2011 Semester
Shipment ID:
P.O. Number
Number of Samples:

SAMPLE PREPARATION AND ANALYTICAL PROCEDURES

Table with 6 columns: Method Code, Number of Samples, Code Description, Test Wgt (g), Report Status, Lab. Rows include No Prep, Split Solution, and 2C.

SAMPLE DISPOSAL

DISP-PLP Dispose of Pulp After 90 days

ADDITIONAL COMMENTS

Acme does not accept responsibility for samples left at the laboratory after 90 days without prior written instructions for sample storage or return.

Invoice To: Metropolitan State College of Denver
Dept of Earth & Atmospheric Sciences
Campus Box 22, P.O. Box 173362
Denver CO 80217-3362
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CC:



This report supersedes all previous preliminary and final reports with this file number dated prior to the date on this certificate. Signature indicates final approval; preliminary reports are unsigned and should be used for reference only. All results are considered the confidential property of the client. Acme assumes the liabilities for actual cost of analysis only. Results apply to samples as submitted. \*\* asterisk indicates that an analytical result could not be provided due to unusually high levels of interference from other elements.



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 Denver CO 80217-3362 USA

Project: Fall 2011 Semester  
 Report Date: November 08, 2011

Page: 2 of 2 Part 1

CERTIFICATE OF ANALYSIS

VAN11005942.1

Method	Analyte	Unit	MDL	2C	2C	2C	2C	2C	2C	2C	2C	2C	2C	2C	2C	2C	2C	2C	2C	2C			
				Dilution	Ag	Al	As	Au	B	Ba	Be	Bi	Br	Ca	Cd	Ce	Cl	Co	Cr	Cs	Cu	Dy	Er
					ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppm	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
				1	0.05	1	0.5	0.05	5	0.05	0.05	0.05	5	0.05	0.05	0.01	1	0.02	0.5	0.01	0.1	0.01	0.01
11F-CKPLC-SH	Water			1	0.06	80	<0.5	<0.05	120	19.46	1.36	0.17	81	46.14	3.92	0.12	20	0.79	7.9	0.36	65.0	0.02	0.01
11F-KAMHSRNE-TW	Water			1	<0.05	87	<0.5	<0.05	45	4.78	0.36	0.06	35	31.50	4.90	0.78	12	0.08	8.8	0.19	47.2	0.02	<0.01
11F-CB-FE	Water			1	<0.05	92	6.8	<0.05	126	10.39	2.91	0.12	69	17.14	4.77	0.19	17	0.14	9.0	0.48	45.4	0.03	0.05
11F-CSDC-SM	Water			1	<0.05	46	<0.5	<0.05	74	7.25	0.26	<0.05	79	31.32	4.71	0.55	20	0.21	8.8	0.06	13.3	0.08	0.03
11F-JHKD-ST	Water			1	<0.05	29	<0.5	<0.05	99	1.90	1.23	<0.05	67	38.70	4.26	0.13	17	0.08	8.9	0.30	24.1	0.01	<0.01
11F-TSPL-TW	Water			1	<0.05	37	<0.5	<0.05	55	13.66	0.22	0.12	30	28.33	5.02	0.17	10	0.04	10.4	0.19	24.4	0.01	<0.01
11F-ENAVMNBC-CH	Water			1	<0.05	30	<0.5	<0.05	112	6.48	1.43	<0.05	71	40.07	4.38	0.17	18	0.20	9.1	0.31	20.5	0.01	<0.01
11F-ZBTR-SM	Water			1	<0.05	17	<0.5	<0.05	82	8.64	0.22	<0.05	82	34.84	4.78	0.15	20	0.22	9.9	0.06	15.7	0.09	0.04
11F-NMJW-ST	Water			1	<0.05	93	<0.5	<0.05	104	4.74	1.42	<0.05	76	41.13	4.47	0.76	18	0.10	8.8	0.30	19.6	0.02	<0.01
11F-BY-FE	Water			1	<0.05	68	4.9	<0.05	120	3.00	3.49	<0.05	68	16.13	5.09	0.07	15	0.15	10.0	0.52	11.4	0.01	0.01
11F-CLPHT-FE	Water			1	<0.05	172	6.2	<0.05	140	9.12	3.49	0.07	72	17.65	4.67	1.33	15	0.15	9.3	0.52	18.8	0.04	0.03
11F-RCBTAL-NV	Water			1	<0.05	31	<0.5	<0.05	93	4.63	1.00	<0.05	60	35.75	5.07	0.15	14	0.23	10.0	0.36	12.4	<0.01	<0.01
11F-RACJJ-FE	Water			1	<0.05	99	5.2	<0.05	160	10.95	2.72	0.10	67	16.34	4.76	0.25	13	0.12	9.2	0.46	21.4	0.02	0.03
11F-SOMKSGAM-SH	Water			1	<0.05	56	<0.5	<0.05	134	15.38	1.52	0.11	85	46.31	5.33	0.22	18	0.83	9.8	0.38	15.3	<0.01	<0.01
11F-KAMHSRNE-BL	Water			1	<0.05	59	<0.5	<0.05	10	3.93	<0.05	<0.05	8	0.49	6.48	0.82	3	0.04	10.9	<0.01	60.3	<0.01	<0.01
11F-CLPHT-BL	Water			1	<0.05	66	<0.5	<0.05	19	12.13	<0.05	0.12	<5	0.45	6.83	0.48	3	0.03	11.6	<0.01	28.2	<0.01	<0.01
11F-CSDC-BL	Water			1	<0.05	72	<0.5	<0.05	8	3.97	<0.05	<0.05	<5	0.44	5.44	0.64	2	0.02	9.4	<0.01	14.7	<0.01	<0.01
11F-BY-BL	Water			1	<0.05	11	<0.5	<0.05	<5	1.39	<0.05	<0.05	<5	<0.05	6.15	0.09	2	0.02	10.5	<0.01	16.4	<0.01	<0.01
11F-OnionCreek	Water			1	<0.05	106	<0.5	<0.05	14	8.36	<0.05	<0.05	30	24.70	5.31	0.30	29	0.08	9.2	0.02	26.1	0.02	0.01
11F-Baker	Water			1	<0.05	6	2.4	<0.05	79	7.55	<0.05	<0.05	42	33.76	5.44	0.02	105	0.03	8.7	4.89	23.3	<0.01	<0.01
11F-Monroe	Water			1	<0.05	24	30.6	<0.05	251	7.32	0.06	<0.05	35	26.53	6.12	0.04	45	0.02	10.5	10.89	19.4	<0.01	<0.01
11F-Baker East	Water			1	<0.05	7	2.9	<0.05	90	10.28	<0.05	<0.05	44	33.89	6.07	<0.01	108	0.02	9.9	5.21	21.3	<0.01	<0.01



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Project: Fall 2011 Semester  
 Report Date: November 08, 2011

Page: 2 of 2 Part 2

CERTIFICATE OF ANALYSIS

VAN11005942.1

Method	Analyte	2C	2C	2C	2C	2C	2C	2C	2C	2C	2C	2C	2C	2C	2C	2C	2C	2C	2C	2C	
		Eu	Fe	Ga	Gd	Ge	Hf	Hg	Ho	In	K	La	Li	Lu	Mg	Mn	Mo	Na	Nb	Nd	Ni
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppm	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
		MDL																50			
11F-CKPLC-SH	Water	<0.01	<10	<0.05	0.03	0.31	<0.02	0.4	<0.01	<0.01	6.77	0.06	69.3	<0.01	8.19	293.5	0.3	48550	0.02	0.06	1.3
11F-KAMHSRNE-TW	Water	<0.01	17	<0.05	0.04	0.10	<0.02	0.6	<0.01	<0.01	2.22	0.21	23.2	<0.01	9.68	22.97	0.2	15932	0.02	0.16	0.7
11F-CB-FE	Water	<0.01	1256	<0.05	0.01	0.47	<0.02	1.3	<0.01	<0.01	7.30	0.08	66.1	<0.01	2.90	77.21	0.3	52225	0.01	0.06	0.6
11F-CSDC-SM	Water	0.02	21	<0.05	0.16	0.05	<0.02	0.7	0.02	<0.01	2.49	0.10	41.7	<0.01	8.38	55.24	<0.1	27292	<0.01	0.25	2.4
11F-JHKD-ST	Water	<0.01	<10	<0.05	0.02	0.23	<0.02	0.6	<0.01	<0.01	5.59	0.06	58.9	<0.01	8.91	39.28	<0.1	37135	<0.01	0.05	1.4
11F-TSPL-TW	Water	<0.01	25	<0.05	0.01	0.09	<0.02	1.4	<0.01	<0.01	2.09	0.03	20.3	<0.01	9.65	0.37	0.2	14355	<0.01	0.03	0.9
11F-ENAVMNBC-CH	Water	<0.01	21	<0.05	0.02	0.29	<0.02	0.7	<0.01	<0.01	6.50	0.02	66.5	<0.01	7.92	135.2	0.1	41317	<0.01	0.03	1.3
11F-ZBTR-SM	Water	0.02	<10	<0.05	0.15	0.05	<0.02	0.7	0.02	<0.01	2.77	0.08	48.8	<0.01	9.09	60.68	<0.1	30376	<0.01	0.23	2.6
11F-NMJW-ST	Water	<0.01	10	<0.05	0.04	0.25	<0.02	0.7	<0.01	<0.01	6.27	0.20	61.5	<0.01	9.66	40.33	0.1	39742	0.01	0.18	1.7
11F-BY-FE	Water	<0.01	928	<0.05	<0.01	0.45	<0.02	0.7	<0.01	<0.01	7.76	0.03	76.4	<0.01	2.90	74.88	0.3	49174	<0.01	0.03	0.6
11F-CLPHT-FE	Water	<0.01	1128	<0.05	0.05	0.46	<0.02	1.1	<0.01	<0.01	8.67	0.48	75.9	<0.01	3.17	74.32	0.3	53390	0.02	0.41	0.7
11F-RCBTAL-NV	Water	<0.01	<10	<0.05	<0.01	0.24	<0.02	0.8	<0.01	<0.01	5.72	0.06	50.8	<0.01	7.18	70.35	0.1	35701	<0.01	0.07	1.1
11F-RACJJ-FE	Water	<0.01	901	<0.05	0.01	0.40	<0.02	1.8	<0.01	<0.01	7.55	0.10	61.5	<0.01	2.78	68.87	0.3	49735	<0.01	0.10	0.8
11F-SOMKSGAM-SH	Water	<0.01	<10	<0.05	0.01	0.32	<0.02	1.6	<0.01	<0.01	7.72	0.09	69.2	<0.01	8.86	277.6	0.4	48864	<0.01	0.08	1.4
11F-KAMHSRNE-BL	Water	<0.01	26	<0.05	0.02	<0.05	<0.02	0.9	<0.01	<0.01	0.09	0.17	0.4	<0.01	0.07	2.88	<0.1	401	0.01	0.15	1.0
11F-CLPHT-BL	Water	<0.01	35	<0.05	0.01	<0.05	<0.02	2.3	<0.01	<0.01	0.09	0.19	0.6	<0.01	0.06	1.08	<0.1	635	<0.01	0.17	0.8
11F-CSDC-BL	Water	<0.01	28	<0.05	0.01	<0.05	<0.02	0.8	<0.01	<0.01	0.05	0.12	0.3	<0.01	0.08	0.17	<0.1	376	<0.01	0.12	0.8
11F-BY-BL	Water	<0.01	16	<0.05	<0.01	<0.05	<0.02	0.8	<0.01	<0.01	<0.05	0.03	<0.1	<0.01	<0.05	<0.05	<0.1	99	<0.01	0.03	0.7
11F-OnionCreek	Water	<0.01	83	<0.05	0.03	<0.05	<0.02	0.5	<0.01	<0.01	1.06	0.13	2.2	<0.01	5.20	9.00	0.6	28066	<0.01	0.19	0.6
11F-Baker	Water	<0.01	27	<0.05	<0.01	0.14	<0.02	0.7	<0.01	<0.01	5.74	<0.01	92.3	<0.01	5.21	6.84	<0.1	79818	<0.01	<0.01	0.5
11F-Monroe	Water	<0.01	175	<0.05	<0.01	0.51	<0.02	0.7	<0.01	<0.01	5.65	0.02	68.3	<0.01	3.35	6.96	0.2	53995	<0.01	0.02	0.5
11F-Baker East	Water	<0.01	30	<0.05	<0.01	0.14	<0.02	0.8	<0.01	<0.01	5.61	<0.01	106.6	<0.01	5.56	17.88	0.1	80914	<0.01	<0.01	0.5



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Project: Fall 2011 Semester  
 Report Date: November 08, 2011

Page: 2 of 2 Part 3

CERTIFICATE OF ANALYSIS

VAN11005942.1

Method	Analyte	Unit	MDL	2C P	2C Pb	2C Pd	2C Pr	2C Pt	2C Rb	2C Re	2C Rh	2C Ru	2C S	2C Sb	2C Sc	2C Se	2C Si	2C Sm	2C Sn	2C Sr	2C Ta	2C Tb	2C Te
				ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppm	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
				10	0.1	0.2	0.01	0.01	0.01	0.01	0.01	0.05	1	0.05	1	0.5	40	0.02	0.05	0.01	0.02	0.01	0.05
11F-CKPLC-SH	Water			56	<0.1	<0.2	0.02	<0.01	22.90	<0.01	<0.01	<0.05	8	<0.05	<1	1.4	2042	<0.02	0.60	84.69	<0.02	<0.01	<0.05
11F-KAMHSRNE-TW	Water			84	<0.1	<0.2	0.05	<0.01	9.15	<0.01	<0.01	<0.05	5	<0.05	<1	1.4	1022	0.03	3.39	47.15	<0.02	<0.01	<0.05
11F-CB-FE	Water			67	<0.1	<0.2	0.02	<0.01	22.29	<0.01	<0.01	<0.05	8	<0.05	<1	1.6	3525	<0.02	0.86	104.1	<0.02	<0.01	<0.05
11F-CSDC-SM	Water			79	<0.1	<0.2	0.04	<0.01	6.97	<0.01	<0.01	<0.05	8	<0.05	<1	1.6	904	0.08	2.76	89.59	<0.02	0.02	<0.05
11F-JHKD-ST	Water			78	<0.1	<0.2	0.01	<0.01	17.64	<0.01	<0.01	<0.05	8	<0.05	<1	1.5	1728	<0.02	0.82	90.79	<0.02	<0.01	<0.05
11F-TSPL-TW	Water			76	<0.1	<0.2	<0.01	<0.01	8.34	<0.01	<0.01	<0.05	5	<0.05	<1	1.6	949	<0.02	1.62	45.86	<0.02	<0.01	<0.05
11F-ENAVMNBC-CH	Water			66	<0.1	<0.2	<0.01	<0.01	20.83	<0.01	<0.01	<0.05	8	<0.05	<1	1.6	1886	<0.02	3.79	89.06	<0.02	<0.01	<0.05
11F-ZBTR-SM	Water			63	<0.1	<0.2	0.04	<0.01	7.69	<0.01	<0.01	<0.05	9	<0.05	<1	1.8	896	0.08	0.30	103.3	<0.02	0.02	<0.05
11F-NMJW-ST	Water			76	<0.1	<0.2	0.05	<0.01	18.06	<0.01	<0.01	<0.05	9	<0.05	<1	1.5	1891	0.03	3.55	99.30	<0.02	<0.01	<0.05
11F-BY-FE	Water			79	<0.1	<0.2	<0.01	<0.01	22.38	<0.01	<0.01	<0.05	9	<0.05	<1	1.7	3376	<0.02	0.15	114.2	<0.02	<0.01	<0.05
11F-CLPHT-FE	Water			94	<0.1	<0.2	0.11	<0.01	22.07	<0.01	<0.01	<0.05	10	<0.05	<1	1.4	3419	0.07	3.03	111.2	<0.02	<0.01	<0.05
11F-RCBTAL-NV	Water			71	<0.1	<0.2	0.02	<0.01	15.96	<0.01	<0.01	<0.05	7	<0.05	<1	1.6	1495	<0.02	0.39	66.33	<0.02	<0.01	<0.05
11F-RACJJ-FE	Water			70	<0.1	<0.2	0.02	<0.01	20.97	<0.01	<0.01	<0.05	8	<0.05	<1	1.4	3263	<0.02	0.72	100.4	<0.02	<0.01	<0.05
11F-SOMKSGAM-SH	Water			72	<0.1	<0.2	0.02	<0.01	22.03	<0.01	<0.01	<0.05	9	<0.05	<1	1.4	2035	<0.02	2.12	84.52	<0.02	<0.01	<0.05
11F-KAMHSRNE-BL	Water			79	<0.1	<0.2	0.04	<0.01	0.11	<0.01	<0.01	<0.05	2	<0.05	<1	1.3	160	<0.02	3.31	0.81	<0.02	<0.01	<0.05
11F-CLPHT-BL	Water			96	<0.1	<0.2	0.05	<0.01	0.22	<0.01	<0.01	<0.05	2	<0.05	<1	1.3	165	0.02	1.28	1.60	<0.02	<0.01	<0.05
11F-CSDC-BL	Water			82	<0.1	<0.2	0.03	<0.01	0.07	<0.01	<0.01	<0.05	2	<0.05	<1	1.2	173	0.02	2.71	2.34	<0.02	<0.01	<0.05
11F-BY-BL	Water			90	<0.1	<0.2	<0.01	<0.01	0.02	<0.01	<0.01	<0.05	1	<0.05	<1	1.4	<40	<0.02	0.14	0.12	<0.02	<0.01	<0.05
11F-OnionCreek	Water			81	<0.1	<0.2	0.04	<0.01	0.46	<0.01	<0.01	<0.05	22	<0.05	<1	1.6	918	0.04	0.09	270.8	<0.02	<0.01	<0.05
11F-Baker	Water			79	<0.1	<0.2	<0.01	<0.01	24.78	<0.01	0.02	<0.05	23	0.25	<1	1.4	2978	<0.02	0.07	705.0	<0.02	<0.01	<0.05
11F-Monroe	Water			89	0.8	<0.2	<0.01	<0.01	23.35	<0.01	0.02	<0.05	27	0.79	<1	1.7	2544	<0.02	0.07	510.4	<0.02	<0.01	<0.05
11F-Baker East	Water			76	0.7	<0.2	<0.01	<0.01	25.91	<0.01	0.02	<0.05	23	0.34	<1	1.6	3145	<0.02	0.06	711.5	<0.02	<0.01	<0.05



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**Page:** 2 of 2 Part 4

**CERTIFICATE OF ANALYSIS**

**VAN11005942.1**

Method	Analyte	2C Th	2C Ti	2C Tl	2C Tm	2C U	2C V	2C W	2C Y	2C Yb	2C Zn	2C Zr
Unit		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
MDL		0.05	10	0.01	0.01	0.02	0.2	0.02	0.01	0.01	0.5	0.02
11F-CKPLC-SH	Water	0.39	<10	0.06	<0.01	0.53	<0.2	0.05	0.09	<0.01	20.6	0.62
11F-KAMHSRNE-TW	Water	0.18	<10	<0.01	<0.01	0.45	0.4	0.05	0.06	<0.01	113.8	0.23
11F-CB-FE	Water	0.11	<10	<0.01	<0.01	1.17	<0.2	0.06	0.33	0.06	87.1	0.27
11F-CSDC-SM	Water	0.08	<10	0.01	<0.01	2.73	0.8	0.03	0.59	0.02	32.8	0.43
11F-JHKD-ST	Water	<0.05	<10	<0.01	<0.01	0.86	0.3	0.02	0.11	<0.01	61.9	0.40
11F-TSPL-TW	Water	0.05	<10	<0.01	<0.01	0.43	<0.2	0.05	0.05	0.01	10.5	0.29
11F-ENAVMNBC-CH	Water	<0.05	<10	<0.01	<0.01	0.61	<0.2	0.02	0.09	<0.01	13.3	0.47
11F-ZBTR-SM	Water	<0.05	<10	0.01	<0.01	3.08	0.9	0.03	0.63	0.03	33.5	0.38
11F-NMJW-ST	Water	0.06	<10	<0.01	<0.01	0.88	0.4	0.03	0.13	<0.01	150.6	0.64
11F-BY-FE	Water	<0.05	<10	<0.01	<0.01	1.16	<0.2	0.03	0.16	0.03	29.1	0.12
11F-CLPHT-FE	Water	0.14	<10	<0.01	<0.01	1.12	0.6	0.04	0.30	0.05	390.0	0.33
11F-RCBTAL-NV	Water	<0.05	<10	<0.01	<0.01	0.39	<0.2	0.03	0.05	<0.01	45.8	0.16
11F-RACJJ-FE	Water	<0.05	<10	<0.01	<0.01	1.04	<0.2	0.03	0.22	0.03	87.0	0.28
11F-SOMKSGAM-SH	Water	<0.05	<10	0.06	<0.01	0.44	<0.2	0.03	0.07	<0.01	78.9	0.47
11F-KAMHSRNE-BL	Water	<0.05	<10	<0.01	<0.01	<0.02	0.2	0.03	0.03	<0.01	142.5	0.14
11F-CLPHT-BL	Water	0.05	<10	<0.01	<0.01	<0.02	0.2	0.04	0.02	<0.01	150.4	0.22
11F-CSDC-BL	Water	<0.05	<10	<0.01	<0.01	<0.02	<0.2	<0.02	0.03	<0.01	87.1	0.15
11F-BY-BL	Water	<0.05	<10	<0.01	<0.01	<0.02	<0.2	0.02	<0.01	<0.01	28.2	<0.02
11F-OnionCreek	Water	<0.05	<10	<0.01	<0.01	0.54	0.7	0.03	0.11	<0.01	7.9	0.06
11F-Baker	Water	<0.05	<10	0.19	<0.01	<0.02	0.4	0.22	<0.01	<0.01	3.8	0.04
11F-Monroe	Water	<0.05	<10	0.12	<0.01	<0.02	0.2	1.69	0.03	<0.01	4.2	0.05
11F-Baker East	Water	<0.05	<10	0.20	<0.01	<0.02	0.5	0.36	<0.01	<0.01	5.9	0.03



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Page: 1 of 1 Part 1

QUALITY CONTROL REPORT

VAN11005942.1

Method		2C	2C	2C	2C	2C	2C	2C	2C	2C	2C	2C	2C	2C	2C	2C	2C	2C	2C	2C	
Analyte	Dilution	Ag	Al	As	Au	B	Ba	Be	Bi	Br	Ca	Cd	Ce	Cl	Co	Cr	Cs	Cu	Dy	Er	
Unit		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppm	ppb	ppb	ppm	ppb	ppb	ppb	ppb	ppb	ppb	
MDL		1	0.05	1	0.5	0.05	5	0.05	0.05	0.05	5	0.05	0.05	0.01	1	0.02	0.5	0.01	0.1	0.01	
Pulp Duplicates																					
11F-CSDC-SM	Water	1	<0.05	46	<0.5	<0.05	74	7.25	0.26	<0.05	79	31.32	4.71	0.55	20	0.21	8.8	0.06	13.3	0.08	0.03
REP 11F-CSDC-SM	QC	1	<0.05	46	<0.5	<0.05	74	7.51	0.22	<0.05	76	31.11	4.85	0.57	21	0.23	8.6	0.06	13.3	0.08	0.04
Reference Materials																					
STD TMDA-70	Standard	1	15.56	461	44.5	<0.05	13	341.1	15.63	8.96	27	22.52	154.9	0.01	13	304.7	385.0	0.01	411.4	<0.01	<0.01
STD TMDA-70 Expected			10.9	415	40.7			309	15.2	13.5			145			285	389		399		
BLK	Blank	1	<0.05	<1	<0.5	<0.05	<5	<0.05	<0.05	<0.05	<5	<0.05	<0.05	<0.01	<1	<0.02	<0.5	<0.01	0.1	<0.01	<0.01
BLK	Blank	1	<0.05	<1	<0.5	<0.05	<5	<0.05	<0.05	<0.05	<5	<0.05	<0.05	<0.01	<1	<0.02	<0.5	<0.01	<0.1	<0.01	<0.01



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Page: 1 of 1 Part 2

# QUALITY CONTROL REPORT

VAN11005942.1

Method		2C	2C	2C	2C	2C	2C	2C	2C	2C	2C	2C	2C	2C	2C	2C	2C	2C	2C	2C		
Analyte		Eu	Fe	Ga	Gd	Ge	Hf	Hg	Ho	In	K	La	Li	Lu	Mg	Mn	Mo	Na	Nb	Nd	Ni	
Unit		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppm	ppb	ppb	ppb	ppm	ppb	ppb	ppb	ppb	ppb	ppb	
MDL		0.01	10	0.05	0.01	0.05	0.02	0.1	0.01	0.01	0.05	0.01	0.1	0.01	0.05	0.05	0.1	50	0.01	0.01	0.2	
Pulp Duplicates																						
11F-CSDC-SM	Water	0.02	21	<0.05	0.16	0.05	<0.02	0.7	0.02	<0.01	2.49	0.10	41.7	<0.01	8.38	55.24	<0.1	27292	<0.01	0.25	2.4	
REP 11F-CSDC-SM	QC	0.02	44	<0.05	0.14	0.05	<0.02	0.7	0.02	<0.01	2.66	0.11	44.9	<0.01	8.63	55.11	<0.1	28679	<0.01	0.25	2.7	
Reference Materials																						
STD TMDA-70	Standard	<0.01	459	0.08	0.01	<0.05	<0.02	<0.1	<0.01	<0.01	1.12	<0.01	22.2	<0.01	5.30	305.5	277.2	8418	<0.01	0.01	354.4	
STD TMDA-70 Expected			369										21.8			302	258				328	
BLK	Blank	<0.01	<10	<0.05	<0.01	<0.05	<0.02	<0.1	<0.01	<0.01	<0.05	<0.01	<0.1	<0.01	<0.05	<0.05	<0.1	<50	<0.01	<0.01	<0.2	
BLK	Blank	<0.01	<10	<0.05	<0.01	<0.05	<0.02	<0.1	<0.01	<0.01	<0.05	<0.01	<0.1	<0.01	<0.05	<0.05	<0.1	<50	<0.01	<0.01	<0.2	



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Page: 1 of 1 Part 3

# QUALITY CONTROL REPORT

VAN11005942.1

Method		2C	2C	2C	2C	2C	2C	2C	2C	2C	2C	2C	2C	2C	2C	2C	2C	2C	2C	2C	2C
Analyte		P	Pb	Pd	Pr	Pt	Rb	Re	Rh	Ru	S	Sb	Sc	Se	Si	Sm	Sn	Sr	Ta	Tb	Te
Unit		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppm	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
MDL		10	0.1	0.2	0.01	0.01	0.01	0.01	0.01	0.01	1	0.05	1	0.5	40	0.02	0.05	0.01	0.02	0.01	0.05
Pulp Duplicates																					
11F-CSDC-SM	Water	79	<0.1	<0.2	0.04	<0.01	6.97	<0.01	<0.01	<0.05	8	<0.05	<1	1.6	904	0.08	2.76	89.59	<0.02	0.02	<0.05
REP 11F-CSDC-SM	QC	73	<0.1	<0.2	0.04	<0.01	7.13	<0.01	<0.01	<0.05	9	<0.05	<1	1.9	889	0.09	2.80	94.43	<0.02	0.02	<0.05
Reference Materials																					
STD TMDA-70	Standard	<10	466.4	<0.2	<0.01	<0.01	0.77	0.02	0.02	<0.05	8	22.60	<1	26.5	367	<0.02	20.05	479.2	<0.02	<0.01	<0.05
STD TMDA-70 Expected			444									21.7		25.9			19.6	442			
BLK	Blank	<10	<0.1	<0.2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<1	<0.05	<1	<0.5	<40	<0.02	<0.05	<0.01	<0.02	<0.01	<0.05
BLK	Blank	<10	<0.1	<0.2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<1	<0.05	<1	<0.5	<40	<0.02	<0.05	<0.01	<0.02	<0.01	<0.05





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Page: 1 of 1 Part 4

# QUALITY CONTROL REPORT

VAN11005942.1

Method		2C	2C	2C	2C	2C	2C	2C	2C	2C	2C	2C
Analyte		Th	Ti	Tl	Tm	U	V	W	Y	Yb	Zn	Zr
Unit		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
MDL		0.05	10	0.01	0.01	0.02	0.2	0.02	0.01	0.01	0.5	0.02
Pulp Duplicates												
11F-CSDC-SM	Water	0.08	<10	0.01	<0.01	2.73	0.8	0.03	0.59	0.02	32.8	0.43
REP 11F-CSDC-SM	QC	0.07	<10	0.01	<0.01	2.78	0.9	0.04	0.63	0.02	32.4	0.45
Reference Materials												
STD TMDA-70	Standard	<0.05	<10	21.18	<0.01	56.37	326.3	0.07	0.02	<0.01	481.5	<0.02
STD TMDA-70 Expected				20.1		55.9	312				480	
BLK	Blank	<0.05	<10	<0.01	<0.01	<0.02	<0.2	<0.02	<0.01	<0.01	<0.5	<0.02
BLK	Blank	<0.05	<10	<0.01	<0.01	<0.02	<0.2	<0.02	<0.01	<0.01	<0.5	<0.02