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To: ARCHER, CATHRO AND ASSOCIATES (1981)
 LIMITED
 1016-510 W HASTINGS ST
 VANCOUVER BC V6B 1L8

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QC CERTIFICATE WH18277253

Project: BLACKWATER

This report is for 22 Rock samples submitted to our lab in Whitehorse, YT, Canada on 2-NOV-2018.

The following have access to data associated with this certificate:

TRISH HUME		
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SAMPLE PREPARATION	
ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
CRU-31	Fine crushing - 70% <2mm
SPL-21	Split sample - riffle splitter
PUL-31	Pulverize split to 85% <75 um
CRU-QC	Crushing QC Test
PUL-QC	Pulverizing QC Test

ANALYTICAL PROCEDURES		
ALS CODE	DESCRIPTION	INSTRUMENT
Au-ICP21	Au 30g FA ICP-AES Finish	ICP-AES
ME-MS41	Ultra Trace Aqua Regia ICP-MS	

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.

***** See Appendix Page for comments regarding this certificate *****

Signature: 
 Colin Ramshaw, Vancouver Laboratory Manager



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Sample Description	Method Analyte Units LOD	Au-ICP21 Au ppm	ME-MS41 Ag ppm	ME-MS41 Al %	ME-MS41 As ppm	ME-MS41 Au ppm	ME-MS41 B ppm	ME-MS41 Ba ppm	ME-MS41 Be ppm	ME-MS41 Bi ppm	ME-MS41 Ca %	ME-MS41 Cd ppm	ME-MS41 Ce ppm	ME-MS41 Co ppm	ME-MS41 Cr ppm	ME-MS41 Cs ppm
STANDARDS																
AMIS0486		0.209														
Target Range - Lower Bound																
Upper Bound																
EMOG-17		67.5	1.58	580	0.86	<10	40	0.40	5.55	0.96	20.5	40.2	768	46	5.79	
EMOG-17		69.1	1.61	609	0.90	<10	40	0.44	6.02	0.97	21.0	41.6	787	47	6.07	
Target Range - Lower Bound		60.3	1.45	505	0.77	<10	30	0.32	5.32	0.87	18.35	37.6	680	42	5.57	
Upper Bound		73.7	1.79	617	0.99	20	80	0.56	6.52	1.09	22.5	46.0	832	54	6.91	
JK-17		1.965														
Target Range - Lower Bound		1.875														
Upper Bound		2.12														
OREAS 503c		0.689														
Target Range - Lower Bound		0.655														
Upper Bound		0.741														
OREAS 920		0.09	2.28	4.5	<0.02	<10	80	0.66	0.66	0.31	0.06	69.9	13.5	41	1.88	
OREAS 920		0.12	2.30	4.5	<0.02	<10	80	0.71	0.61	0.32	0.06	70.8	14.6	41	1.86	
Target Range - Lower Bound		0.07	2.18	4.2	<0.02	<10	50	0.59	0.60	0.28	0.04	64.8	13.4	37	1.84	
Upper Bound		0.12	2.68	5.3	0.04	20	110	0.87	0.76	0.37	0.08	79.2	16.6	48	2.36	
PK2		4.84														
Target Range - Lower Bound		4.50														
Upper Bound		5.07														
BLANKS																
BLANK		0.001														
Target Range - Lower Bound		<0.001														
Upper Bound		0.002														
BLANK		<0.01	<0.01	<0.1	<0.02	<10	<10	<0.05	<0.01	<0.01	<0.01	<0.02	<0.1	<1	<0.05	
BLANK		<0.01	<0.01	0.1	<0.02	<10	<10	<0.05	<0.01	<0.01	<0.01	<0.02	<0.1	<1	<0.05	
Target Range - Lower Bound		<0.01	<0.01	<0.1	<0.02	<10	<10	<0.05	<0.01	<0.01	<0.01	<0.02	<0.1	<1	<0.05	
Upper Bound		0.02	0.02	0.2	0.04	20	20	0.10	0.02	0.02	0.02	0.04	0.2	2	0.10	



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Sample Description	Method Analyte Units LOD	ME-MS41 Cu ppm	ME-MS41 Fe %	ME-MS41 Ga ppm	ME-MS41 Ge ppm	ME-MS41 Hf ppm	ME-MS41 Hg ppm	ME-MS41 In ppm	ME-MS41 K %	ME-MS41 La ppm	ME-MS41 Li ppm	ME-MS41 Mg %	ME-MS41 Mn ppm	ME-MS41 Mo ppm	ME-MS41 Na %	ME-MS41 Nb ppm
		0.2	0.01	0.05	0.05	0.02	0.01	0.005	0.01	0.2	0.1	0.01	5	0.05	0.01	0.05
STANDARDS																
AMIS0486	Target Range - Lower Bound															
	Upper Bound															
EMOG-17		8540	4.62	5.92	0.13	0.41	0.54	0.874	0.66	20.1	17.8	0.78	628	1055	0.16	1.40
EMOG-17		8710	4.77	5.89	0.13	0.46	0.55	0.896	0.68	20.6	18.5	0.80	655	1055	0.17	1.45
	Target Range - Lower Bound	7780	4.18	5.56	0.08	0.39	0.46	0.814	0.60	18.3	17.2	0.73	595	1015	0.15	1.32
	Upper Bound	8960	5.14	6.90	0.30	0.53	0.64	1.005	0.76	22.9	21.2	0.91	739	1240	0.20	1.72
JK-17	Target Range - Lower Bound															
	Upper Bound															
OREAS 503c	Target Range - Lower Bound															
	Upper Bound															
OREAS 920		105.0	3.46	6.18	0.10	0.58	<0.01	0.027	0.40	35.2	19.9	1.04	497	0.30	0.02	0.38
OREAS 920		112.0	3.56	6.35	0.10	0.62	<0.01	0.026	0.39	35.1	20.9	1.06	502	0.34	0.02	0.34
	Target Range - Lower Bound	102.0	3.26	6.12	<0.05	0.48	<0.01	0.019	0.37	33.3	19.0	0.93	454	0.26	<0.01	0.22
	Upper Bound	118.0	4.00	7.60	0.22	0.63	0.02	0.043	0.47	41.1	23.4	1.15	566	0.50	0.02	0.46
PK2	Target Range - Lower Bound															
	Upper Bound															
BLANKS																
BLANK	Target Range - Lower Bound															
	Upper Bound															
BLANK		<0.2	<0.01	<0.05	<0.05	<0.02	<0.01	<0.005	<0.01	<0.2	<0.1	<0.01	<5	<0.05	<0.01	<0.05
BLANK		<0.2	<0.01	<0.05	<0.05	<0.02	<0.01	<0.005	<0.01	<0.2	<0.1	<0.01	<5	<0.05	<0.01	<0.05
	Target Range - Lower Bound	<0.2	<0.01	<0.05	<0.05	<0.02	<0.01	<0.005	<0.01	<0.2	<0.1	<0.01	<5	<0.05	<0.01	<0.05
	Upper Bound	0.4	0.02	0.10	0.10	0.04	0.02	0.010	0.02	0.4	0.2	0.02	10	0.10	0.02	0.10



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Method Analyte Units LOD	ME-MS41 Ni ppm	ME-MS41 P ppm	ME-MS41 Pb ppm	ME-MS41 Rb ppm	ME-MS41 Re ppm	ME-MS41 S %	ME-MS41 Sb ppm	ME-MS41 Sc ppm	ME-MS41 Se ppm	ME-MS41 Sn ppm	ME-MS41 Sr ppm	ME-MS41 Ta ppm	ME-MS41 Te ppm	ME-MS41 Th ppm	ME-MS41 Ti %
Sample Description	0.2	10	0.2	0.1	0.001	0.01	0.05	0.1	0.2	0.2	0.2	0.01	0.01	0.2	0.005
STANDARDS															
AMIS0486															
Target Range - Lower Bound															
Upper Bound															
EMOG-17	7740	770	7230	71.3	0.314	3.21	714	4.9	6.5	1.9	49.8	0.01	1.30	10.4	0.210
EMOG-17	8020	790	7330	73.5	0.328	3.22	715	4.9	6.0	2.0	52.5	0.01	1.30	10.0	0.212
Target Range - Lower Bound	6930	680	6510	66.5	0.287	2.90	574	4.3	5.5	1.5	47.5	<0.01	1.16	9.3	0.188
Upper Bound	8470	850	7950	81.5	0.353	3.56	776	5.5	7.2	2.6	58.5	0.03	1.44	11.8	0.240
JK-17															
Target Range - Lower Bound															
Upper Bound															
OREAS 503c															
Target Range - Lower Bound															
Upper Bound															
OREAS 920	35.3	700	21.6	22.8	<0.001	0.04	0.59	2.7	0.3	1.0	16.4	0.01	<0.01	14.9	0.117
OREAS 920	37.1	710	20.7	22.7	<0.001	0.03	0.61	2.7	0.6	1.0	17.7	0.01	0.04	15.5	0.115
Target Range - Lower Bound	34.4		19.2	22.2	<0.001	<0.01	0.45	2.5	<0.2	0.6	15.0	<0.01	<0.01	13.6	0.106
Upper Bound	42.4		23.9	27.4	0.002	0.05	0.77	3.3	0.7	1.6	18.8	0.02	0.04	17.0	0.140
PK2															
Target Range - Lower Bound															
Upper Bound															
BLANKS															
BLANK															
Target Range - Lower Bound															
Upper Bound															
BLANK	<0.2	<10	0.4	<0.1	<0.001	0.01	<0.05	<0.1	<0.2	<0.2	<0.2	<0.01	<0.01	<0.2	<0.005
BLANK	<0.2	<10	<0.2	<0.1	<0.001	<0.01	<0.05	<0.1	<0.2	<0.2	<0.2	<0.01	<0.01	<0.2	<0.005
Target Range - Lower Bound	<0.2	<10	<0.2	<0.1	<0.001	<0.01	<0.05	<0.1	<0.2	<0.2	<0.2	<0.01	<0.01	<0.2	<0.005
Upper Bound	0.4	20	0.4	0.2	0.002	0.02	0.10	0.2	0.4	0.4	0.4	0.02	0.02	0.4	0.010



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Sample Description	Method Analyte Units LOD	ME-MS41 TI ppm 0.02	ME-MS41 U ppm 0.05	ME-MS41 V ppm 1	ME-MS41 W ppm 0.05	ME-MS41 Y ppm 0.05	ME-MS41 Zn ppm 2	ME-MS41 Zr ppm 0.5
STANDARDS								
AMIS0486								
Target Range - Lower Bound								
Upper Bound								
EMOG-17		2.05	2.83	63	1.94	11.25	7450	12.5
EMOG-17		2.10	3.04	66	2.03	11.65	7460	13.2
Target Range - Lower Bound		1.71	2.57	58	1.65	10.20	6780	10.6
Upper Bound		2.37	3.25	74	2.35	12.60	8290	15.5
JK-17								
Target Range - Lower Bound								
Upper Bound								
OREAS 503c								
Target Range - Lower Bound								
Upper Bound								
OREAS 920		0.14	1.94	24	0.52	16.70	104	20.8
OREAS 920		0.17	2.07	24	0.49	17.00	104	21.9
Target Range - Lower Bound		0.09	1.89	21	0.31	15.80	93	17.6
Upper Bound		0.20	2.42	28	0.61	19.40	119	25.0
PK2								
Target Range - Lower Bound								
Upper Bound								
BLANKS								
BLANK								
Target Range - Lower Bound								
Upper Bound								
BLANK		<0.02	<0.05	<1	<0.05	<0.05	2	<0.5
BLANK		<0.02	<0.05	<1	<0.05	<0.05	<2	<0.5
Target Range - Lower Bound		<0.02	<0.05	<1	<0.05	<0.05	<2	<0.5
Upper Bound		0.04	0.10	2	0.10	0.10	4	1.0

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QC CERTIFICATE OF ANALYSIS	WH18277253
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Method Analyte Units LOD	Au-ICP21 Au ppm	ME-MS41 Ag ppm	ME-MS41 Al %	ME-MS41 As ppm	ME-MS41 Au ppm	ME-MS41 B ppm	ME-MS41 Ba ppm	ME-MS41 Be ppm	ME-MS41 Bi ppm	ME-MS41 Ca %	ME-MS41 Cd ppm	ME-MS41 Ce ppm	ME-MS41 Co ppm	ME-MS41 Cr ppm	ME-MS41 Cs ppm	
Sample Description	0.001	0.01	0.01	0.1	0.02	10	10	0.05	0.01	0.01	0.01	0.02	0.1	1	0.05	
DUPLICATES																
ORIGINAL	0.077															
DUP	0.063															
Target Range - Lower Bound	0.066															
Upper Bound	0.075															
ORIGINAL		33.3	0.06	1.5	<0.02	<10	10	0.51	39.7	1.54	33.3	1.79	0.2	33	0.16	
DUP		34.5	0.07	1.3	<0.02	<10	10	0.60	41.3	1.60	35.3	1.91	0.2	34	0.17	
Target Range - Lower Bound		32.2	0.05	1.2	<0.02	<10	<10	0.48	38.5	1.48	32.6	1.74	<0.1	31	0.11	
Upper Bound		35.6	0.08	1.6	0.04	20	20	0.63	42.5	1.66	36.0	1.96	0.3	36	0.22	
ORIGINAL		0.20	0.53	8.5	<0.02	10	260	0.78	0.20	0.40	0.85	6.26	5.2	32	1.66	
DUP		0.20	0.56	8.7	<0.02	10	250	0.83	0.20	0.41	0.83	6.70	5.3	33	1.68	
Target Range - Lower Bound		0.18	0.51	8.1	<0.02	<10	230	0.71	0.18	0.37	0.79	6.14	4.9	30	1.54	
Upper Bound		0.22	0.58	9.1	0.04	20	280	0.90	0.22	0.44	0.89	6.82	5.6	35	1.80	
CC03302	<0.001															
DUP	<0.001															
Target Range - Lower Bound	<0.001															
Upper Bound	0.002															
CC03322	<0.001															
DUP	<0.001															
Target Range - Lower Bound	<0.001															
Upper Bound	0.002															

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Sample Description	Method Analyte Units LOD	ME-MS41 Cu ppm	ME-MS41 Fe %	ME-MS41 Ga ppm	ME-MS41 Ge ppm	ME-MS41 Hf ppm	ME-MS41 Hg ppm	ME-MS41 In ppm	ME-MS41 K %	ME-MS41 La ppm	ME-MS41 Li ppm	ME-MS41 Mg %	ME-MS41 Mn ppm	ME-MS41 Mo ppm	ME-MS41 Na %	ME-MS41 Nb ppm
		0.2	0.01	0.05	0.05	0.02	0.01	0.005	0.01	0.2	0.1	0.01	5	0.05	0.01	0.05
ORIGINAL DUP Target Range - Lower Bound Upper Bound		DUPLICATES														
ORIGINAL DUP Target Range - Lower Bound Upper Bound		9.5 10.3 9.4 10.4	4.76 4.97 4.61 5.12	0.44 0.47 0.38 0.53	0.10 0.11 <0.05 0.16	<0.02 <0.02 <0.02 0.04	0.14 0.12 0.11 0.15	0.076 0.089 0.073 0.092	0.02 0.02 <0.01 0.03	2.0 2.1 1.7 2.4	1.7 1.9 1.6 2.0	0.05 0.05 0.04 0.06	43 46 37 52	5.26 5.77 5.19 5.84	<0.01 <0.01 <0.01 0.02	0.14 0.14 0.08 0.20
ORIGINAL DUP Target Range - Lower Bound Upper Bound		24.9 25.3 24.0 26.2	0.53 0.55 0.50 0.58	1.15 1.18 1.06 1.27	<0.05 <0.05 <0.05 0.10	0.12 0.12 0.09 0.15	0.32 0.32 0.29 0.35	0.026 0.026 0.020 0.032	0.17 0.18 0.16 0.19	2.8 3.0 2.6 3.2	9.1 9.5 8.7 9.9	0.23 0.24 0.21 0.26	57 58 50 65	3.29 3.25 3.06 3.48	0.01 0.01 <0.01 0.02	0.17 0.18 0.12 0.23
CC03302 DUP Target Range - Lower Bound Upper Bound																
CC03322 DUP Target Range - Lower Bound Upper Bound																

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Sample Description	Method Analyte Units LOD	ME-MS41 Ni ppm	ME-MS41 P ppm	ME-MS41 Pb ppm	ME-MS41 Rb ppm	ME-MS41 Re ppm	ME-MS41 S %	ME-MS41 Sb ppm	ME-MS41 Sc ppm	ME-MS41 Se ppm	ME-MS41 Sn ppm	ME-MS41 Sr ppm	ME-MS41 Ta ppm	ME-MS41 Te ppm	ME-MS41 Th ppm	ME-MS41 Tl %
		0.2	10	0.2	0.1	0.001	0.01	0.05	0.1	0.2	0.2	0.2	0.01	0.01	0.2	0.005
DUPLICATES																
ORIGINAL		6.8	6720	>10000	1.4	0.020	4.27	17.75	0.2	20.2	3.4	14.2	<0.01	0.40	<0.2	<0.005
DUP		7.5	7020	>10000	1.5	0.022	4.46	18.75	0.2	21.0	3.5	14.9	<0.01	0.42	<0.2	<0.005
Target Range - Lower Bound		6.6	6520	9500	1.3	0.019	4.14	16.85	<0.1	19.4	3.1	13.6	<0.01	0.38	<0.2	<0.005
Upper Bound		7.7	7220	>10000	1.6	0.023	4.59	19.65	0.3	21.8	3.8	15.5	0.02	0.44	0.4	0.010
ORIGINAL		26.9	190	13.7	12.6	0.005	0.33	0.64	2.5	3.5	0.3	32.0	<0.01	0.04	2.0	<0.005
DUP		27.4	190	13.9	13.1	0.005	0.34	0.65	2.6	3.4	0.3	33.0	<0.01	0.03	2.1	<0.005
Target Range - Lower Bound		25.6	170	12.9	12.1	0.004	0.31	0.55	2.3	3.1	<0.2	30.7	<0.01	0.02	1.7	<0.005
Upper Bound		28.7	210	14.7	13.6	0.006	0.36	0.74	2.8	3.8	0.4	34.3	0.02	0.05	2.4	0.010
CC03302																
DUP																
Target Range - Lower Bound																
Upper Bound																
CC03322																
DUP																
Target Range - Lower Bound																
Upper Bound																



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Sample Description	Method Analyte Units LOD	ME-MS41 TI ppm 0.02	ME-MS41 U ppm 0.05	ME-MS41 V ppm 1	ME-MS41 W ppm 0.05	ME-MS41 Y ppm 0.05	ME-MS41 Zn ppm 2	ME-MS41 Zr ppm 0.5
ORIGINAL DUP Target Range - Lower Bound Upper Bound	DUPLICATES							
ORIGINAL DUP Target Range - Lower Bound Upper Bound	2.28 2.37 2.13 2.52	4.42 4.55 4.21 4.76	279 296 272 303	0.34 0.35 0.27 0.42	4.66 4.97 4.52 5.11	>10000 >10000 9500 >10000	<0.5 <0.5 <0.5 1.0	
ORIGINAL DUP Target Range - Lower Bound Upper Bound	0.02 0.02 <0.02 0.04	1.39 1.48 1.31 1.56	25 26 23 28	0.06 0.05 <0.05 0.10	5.29 5.53 5.09 5.73	98 98 91 105	4.7 4.6 3.8 5.5	
CC03302 DUP Target Range - Lower Bound Upper Bound								
CC03322 DUP Target Range - Lower Bound Upper Bound								

***** See Appendix Page for comments regarding this certificate *****



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Page: Appendix 1
 Total # Appendix Pages: 1
 Finalized Date: 29-NOV-2018
 Account: F

Project: BLACKWATER

QC CERTIFICATE OF ANALYSIS WH18277253
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	CERTIFICATE COMMENTS								
	ANALYTICAL COMMENTS								
Applies to Method:	NSS is non-sufficient sample. ALL METHODS								
Applies to Method:	Gold determinations by this method are semi-quantitative due to the small sample weight used (0.5g). ME-MS41								
	LABORATORY ADDRESSES								
Applies to Method:	Processed at ALS Whitehorse located at 78 Mt. Sima Rd, Whitehorse, YT, Canada. WEI-21								
Applies to Method:	Processed at ALS Vancouver located at 2103 Dollarton Hwy, North Vancouver, BC, Canada.								
	<table style="width: 100%; border: none;"> <tr> <td style="width: 33%;">Au-ICP21</td> <td style="width: 33%;">CRU-31</td> <td style="width: 33%;">CRU-QC</td> <td style="width: 15%;"></td> </tr> <tr> <td>PUL-31</td> <td>PUL-QC</td> <td>SPL-21</td> <td>ME-MS41</td> </tr> </table>	Au-ICP21	CRU-31	CRU-QC		PUL-31	PUL-QC	SPL-21	ME-MS41
Au-ICP21	CRU-31	CRU-QC							
PUL-31	PUL-QC	SPL-21	ME-MS41						