



**BUREAU  
VERITAS**

**MINERAL LABORATORIES**  
Canada

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Bureau Veritas Commodities Canada Ltd.

9050 Shaughnessy St Vancouver British Columbia V6P 6E5 Canada

PHONE (604) 253-3158

**Client:** **Longford Exploration Services Ltd.**  
6970 Napier Street  
Burnaby British Columbia V5B 2C4 Canada

Submitted By: James Rogers  
Receiving Lab: Canada-Whitehorse  
Received: August 28, 2017  
Report Date: September 25, 2017  
Page: 1 of 2

## CERTIFICATE OF ANALYSIS

WHI17000704.1

### CLIENT JOB INFORMATION

Project: Catalyst  
Shipment ID:  
P.O. Number  
Number of Samples: 15

### SAMPLE DISPOSAL

PICKUP-PLP Client to Pickup Pulps  
PICKUP-RJT Client to Pickup Rejects

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

Invoice To: Longford Exploration Services Ltd.  
6970 Napier Street  
Burnaby British Columbia V5B 2C4  
Canada

CC:

### SAMPLE PREPARATION AND ANALYTICAL PROCEDURES

Procedure Code	Number of Samples	Code Description	Test Wgt (g)	Report Status	Lab
PRP70-250	15	Crush, split and pulverize 250 g rock to 200 mesh			WHI
FA330	15	Fire assay fusion Au Pt Pd by ICP-ES	30	Completed	VAN
EN002	15	Environmental disposal charge-Fire assay lead waste			VAN
AQ300	15	1:1:1 Aqua Regia digestion ICP-ES analysis	0.5	Completed	VAN
SHP01	15	Per sample shipping charges for branch shipments			VAN

### ADDITIONAL COMMENTS



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. Bureau Veritas 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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**Project:** Catalyst  
**Report Date:** September 25, 2017

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**Part:** 1 of 2

# CERTIFICATE OF ANALYSIS

WHI17000704.1

	Method	WGHT	FA330	FA330	FA330	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
	Analyte	Wgt	Au	Pt	Pd	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Th	Sr	Cd	Sb	Bi	V
	Unit	kg	ppb	ppb	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
	MDL	0.01	2	3	2	1	1	3	1	0.3	1	1	2	0.01	2	2	1	0.5	3	3	1
K896651	Rock	1.60	3	7	8	<1	2	6	24	<0.3	2424	97	831	4.56	<2	<2	3	<0.5	<3	<3	19
K896652	Rock	1.28	<2	14	15	<1	13	<3	17	<0.3	62	23	415	3.00	<2	<2	26	<0.5	<3	<3	52
K896653	Rock	1.45	<2	23	23	<1	34	<3	21	<0.3	59	27	533	3.71	<2	<2	30	<0.5	<3	<3	66
K896654	Rock	1.76	11	16	31	<1	4544	<3	44	0.3	76	30	639	4.68	<2	<2	7	<0.5	<3	<3	49
K896655	Rock	1.59	4	<3	6	<1	489	<3	34	0.3	25	33	480	3.70	2	<2	88	<0.5	<3	<3	107
K896656	Rock	1.68	<2	7	12	<1	252	<3	36	<0.3	66	37	469	3.70	8	<2	8	<0.5	<3	<3	57
K896657	Rock	1.70	4	<3	8	3	69	<3	129	<0.3	44	7	631	2.11	11	<2	45	2.6	<3	<3	22
K896658	Rock	1.34	3	5	4	<1	1	4	35	<0.3	947	48	529	3.98	<2	<2	1	<0.5	<3	<3	22
K896659	Rock	1.55	5	21	9	<1	2	5	38	<0.3	1838	74	650	3.45	<2	<2	2	<0.5	<3	<3	17
K896660	Rock	1.66	3	11	<2	<1	2	<3	29	<0.3	2184	89	888	4.24	3	<2	4	<0.5	<3	<3	18
K896661	Rock	2.58	4	8	<2	<1	<1	<3	29	<0.3	684	28	457	2.47	<2	<2	1	<0.5	<3	<3	36
K896662	Rock	1.92	4	9	<2	<1	2	6	17	<0.3	2141	97	653	4.89	<2	<2	2	<0.5	<3	<3	42
K896663	Rock	1.23	3	6	4	<1	2	12	16	<0.3	1708	78	701	4.91	<2	<2	1	<0.5	<3	<3	71
K896666	Rock	1.71	3	4	3	<1	2	9	15	<0.3	2297	102	663	4.42	2	<2	1	<0.5	<3	<3	19
K896669	Rock	1.20	3	<3	<2	<1	3	6	9	<0.3	1313	88	422	4.09	3	<2	<1	<0.5	<3	<3	12



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**Project:** Catalyst  
**Report Date:** September 25, 2017

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**Part:** 2 of 2

# CERTIFICATE OF ANALYSIS

WHI17000704.1

Method Analyte Unit MDL		AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	
		Ca	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	S	Hg	Tl	Ga	Sc	
		%	%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	%	ppm	ppm	ppm	ppm	
		0.01	0.001	1	1	0.01	1	0.001	20	0.01	0.01	0.01	0.01	2	0.05	1	5	5	5
K896651	Rock	0.07	0.001	2	1167	21.07	7	0.003	31	0.48	<0.01	0.03	<2	0.06	<1	<5	<5	5	
K896652	Rock	1.73	0.012	<1	117	1.69	21	0.108	<20	1.97	0.02	0.05	<2	<0.05	<1	<5	<5	<5	
K896653	Rock	3.00	0.025	<1	60	2.00	7	0.142	<20	2.52	0.02	0.01	<2	<0.05	<1	<5	<5	<5	
K896654	Rock	0.53	0.010	<1	191	2.39	5	0.102	<20	2.69	<0.01	<0.01	<2	0.44	<1	<5	<5	<5	
K896655	Rock	1.71	0.212	2	43	1.54	20	0.241	<20	1.99	0.09	0.09	<2	0.47	<1	<5	<5	7	
K896656	Rock	0.81	0.015	<1	47	1.52	6	0.156	<20	1.92	0.03	<0.01	<2	0.33	<1	<5	<5	<5	
K896657	Rock	1.34	0.029	11	14	0.79	119	0.002	<20	1.07	<0.01	0.12	<2	0.40	<1	<5	<5	<5	
K896658	Rock	0.15	0.004	<1	635	10.57	4	0.004	<20	3.70	<0.01	<0.01	<2	<0.05	<1	<5	10	<5	
K896659	Rock	0.25	<0.001	1	1090	11.42	6	0.001	<20	2.30	<0.01	0.01	<2	<0.05	<1	<5	7	<5	
K896660	Rock	0.19	0.002	2	1216	17.35	6	0.002	22	0.99	<0.01	0.03	<2	0.05	<1	<5	<5	<5	
K896661	Rock	0.26	0.002	<1	1270	6.71	4	0.012	<20	1.93	<0.01	0.01	<2	<0.05	<1	<5	<5	<5	
K896662	Rock	0.05	0.002	2	1251	21.81	6	0.006	29	0.46	<0.01	0.02	<2	<0.05	<1	<5	<5	6	
K896663	Rock	0.03	0.002	2	1383	21.08	5	0.010	32	0.43	<0.01	0.01	<2	<0.05	<1	<5	<5	6	
K896666	Rock	0.03	<0.001	2	877	20.19	4	0.002	28	0.22	<0.01	<0.01	<2	0.07	<1	<5	<5	5	
K896669	Rock	0.02	0.001	<1	667	15.09	10	0.001	20	0.10	<0.01	<0.01	<2	<0.05	<1	<5	<5	<5	



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**Project:** Catalyst  
**Report Date:** September 25, 2017

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**Part:** 1 of 2

## QUALITY CONTROL REPORT

WHI17000704.1

	Method Analyte Unit MDL	WGHT	FA330	FA330	FA330	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
		Wgt	Au	Pt	Pd	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Th	Sr	Cd	Sb	Bi	V
		kg	ppb	ppb	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
		0.01	2	3	2	1	1	3	1	0.3	1	1	2	0.01	2	2	1	0.5	3	3	1
Pulp Duplicates																					
K896655	Rock	1.59	4	<3	6	<1	489	<3	34	0.3	25	33	480	3.70	2	<2	88	<0.5	<3	<3	107
REP K896655	QC		29	5	20																
K896662	Rock	1.92	4	9	<2	<1	2	6	17	<0.3	2141	97	653	4.89	<2	<2	2	<0.5	<3	<3	42
REP K896662	QC					<1	2	5	17	<0.3	2139	97	652	4.90	<2	<2	2	<0.5	<3	<3	42
Reference Materials																					
STD CDN-PGMS-19	Standard		244	111	469																
STD CDN-PGMS-23	Standard		541	475	2069																
STD CDN-PGMS-19	Standard		247	114	514																
STD DS11	Standard					13	150	143	334	1.8	76	13	1031	3.23	46	7	66	2.0	8	12	49
STD OREAS45EA	Standard					2	732	13	33	<0.3	410	55	425	24.77	15	8	4	<0.5	<3	7	313
STD CDN-PGMS-23 Expected			496	456	2032																
STD CDN-PGMS-19 Expected			230	108	476																
STD OREAS45EA Expected						1.6	709	14.3	31.4	0.26	381	52	400	23.51	10	10.7	3.5			303	
STD DS11 Expected						13.9	156	138	345	1.71	81.9	14.2	1055	3.2082	42.8	7.65	67.3	2.37	7.2	12.2	50
BLK	Blank		<2	<3	<2																
BLK	Blank		<2	<3	<2																
BLK	Blank					<1	<1	<3	<1	<0.3	<1	<1	<2	<0.01	<2	<2	<1	<0.5	<3	<3	<1
Prep Wash																					
ROCK-WHI	Prep Blank		<2	<3	<2	<1	5	<3	33	<0.3	4	4	596	1.94	<2	<2	25	<0.5	<3	<3	22
ROCK-WHI	Prep Blank		<2	<3	<2	<1	5	<3	43	<0.3	1	4	580	1.85	2	<2	22	<0.5	<3	<3	23



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6970 Napier Street

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Project:

Catalyst

Report Date:

September 25, 2017

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Part:

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## QUALITY CONTROL REPORT

WHI17000704.1

Method	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
Analyte	Ca	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	S	Hg	Tl	Ga	Sc
Unit	%	%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	%	ppm	ppm	ppm	ppm
MDL	0.01	0.001	1	1	0.01	1	0.001	20	0.01	0.01	0.01	2	0.05	1	5	5	5
Pulp Duplicates																	
K896655	Rock	1.71	0.212	2	43	1.54	20	0.241	<20	1.99	0.09	0.09	<2	0.47	<1	<5	7
REP K896655	QC																
K896662	Rock	0.05	0.002	2	1251	21.81	6	0.006	29	0.46	<0.01	0.02	<2	<0.05	<1	<5	6
REP K896662	QC	0.05	0.002	2	1248	21.89	7	0.006	29	0.46	<0.01	0.02	<2	<0.05	<1	<5	6
Reference Materials																	
STD CDN-PGMS-19	Standard																
STD CDN-PGMS-23	Standard																
STD CDN-PGMS-19	Standard																
STD DS11	Standard	1.07	0.071	17	54	0.84	439	0.091	<20	1.14	0.07	0.40	2	0.28	<1	8	<5
STD OREAS45EA	Standard	0.03	0.031	7	910	0.07	147	0.102	<20	3.48	0.02	0.06	<2	<0.05	<1	12	86
STD CDN-PGMS-23 Expected																	
STD OREAS45EA Expected		0.036	0.029	7.06	849	0.095	148	0.0984		3.13	0.02	0.053		0.036		12.4	78
STD DS11 Expected		1.063	0.0701	18.6	61.5	0.85	417	0.0976	6	1.129	0.0694	0.4	2.9	0.2835	0.3	4.9	3.1
BLK	Blank																
BLK	Blank																
BLK	Blank	<0.01	<0.001	<1	<1	<0.01	<1	<0.001	<20	<0.01	<0.01	<0.01	<2	<0.05	<1	<5	<5
Prep Wash																	
ROCK-WHI	Prep Blank	0.58	0.041	5	6	0.49	55	0.079	<20	0.88	0.07	0.09	<2	<0.05	<1	<5	<5
ROCK-WHI	Prep Blank	0.57	0.040	5	4	0.49	49	0.080	<20	0.87	0.07	0.08	<2	<0.05	<1	<5	<5



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Submitted By: James Rogers  
Receiving Lab: Canada-Whitehorse  
Received: August 28, 2017  
Report Date: September 25, 2017  
Page: 1 of 4

## CERTIFICATE OF ANALYSIS

WHI17000705.1

### CLIENT JOB INFORMATION

Project: Catalyst  
Shipment ID:  
P.O. Number  
Number of Samples: 68

### SAMPLE DISPOSAL

PICKUP-PLP Client to Pickup Pulps  
PICKUP-RJT Client to Pickup Rejects

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

Invoice To: Longford Exploration Services Ltd.  
6970 Napier Street  
Burnaby British Columbia V5B 2C4  
Canada

CC:

### SAMPLE PREPARATION AND ANALYTICAL PROCEDURES

Procedure Code	Number of Samples	Code Description	Test Wgt (g)	Report Status	Lab
DY060	68	Dry at 60C			WHI
SS80	68	Dry at 60C sieve 100g to -80 mesh			WHI
SVRJT	68	Save all or part of Soil Reject			WHI
FA330	68	Fire assay fusion Au Pt Pd by ICP-ES	30	Completed	VAN
EN002	68	Environmental disposal charge-Fire assay lead waste			VAN
AQ300	68	1:1:1 Aqua Regia digestion ICP-ES analysis	0.5	Completed	VAN
SHP01	68	Per sample shipping charges for branch shipments			VAN

### ADDITIONAL COMMENTS



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. Bureau Veritas 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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**Project:** Catalyst  
**Report Date:** September 25, 2017

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# CERTIFICATE OF ANALYSIS

WHI17000705.1

	Method Analyte Unit MDL	FA330	FA330	FA330	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
		Au ppb 2	Pt ppb 3	Pd ppb 2	Mo ppm 1	Cu ppm 1	Pb ppm 3	Zn ppm 1	Ag ppm 0.3	Ni ppm 1	Co ppm 1	Mn ppm 2	Fe % 0.01	As ppm 2	Th ppm 2	Sr ppm 1	Cd ppm 0.5	Sb ppm 3	Bi ppm 3	V ppm 1	Ca % 0.01
K896501	Soil	7	9	63	1	208	7	110	<0.3	129	22	659	3.76	13	<2	46	<0.5	<3	<3	57	1.42
K896502	Soil	4	7	33	1	57	6	63	<0.3	74	19	451	3.49	12	<2	44	<0.5	<3	<3	73	1.19
K896503	Soil	4	4	9	1	40	10	79	<0.3	62	21	463	3.86	13	<2	38	<0.5	<3	<3	73	0.81
K896504	Soil	7	4	4	1	55	7	65	<0.3	94	20	478	3.88	11	<2	31	<0.5	<3	<3	76	0.67
K896505	Soil	11	7	30	<1	143	4	94	<0.3	109	22	755	3.89	9	<2	62	<0.5	<3	<3	72	2.60
K896506	Soil	6	<3	6	<1	99	6	83	<0.3	73	22	674	3.91	12	<2	37	<0.5	<3	<3	76	0.92
K896507	Soil	7	14	92	<1	294	7	68	<0.3	57	17	568	3.34	5	<2	51	<0.5	<3	<3	63	1.43
K896508	Soil	8	6	12	<1	165	6	70	<0.3	81	26	732	4.90	13	<2	48	<0.5	<3	<3	100	1.73
K896509	Soil	5	3	2	1	31	7	66	<0.3	66	22	516	4.17	12	<2	25	<0.5	<3	<3	86	0.55
K896510	Soil	6	6	<2	<1	30	6	63	<0.3	67	23	507	4.17	11	<2	26	<0.5	<3	<3	87	0.56
K896511	Soil	5	<3	4	<1	44	5	70	<0.3	88	24	706	4.06	13	<2	31	<0.5	<3	<3	83	0.73
K896512	Soil	4	6	4	<1	41	6	53	<0.3	69	19	484	3.85	10	<2	26	<0.5	<3	<3	87	0.58
K896513	Soil	8	4	9	<1	164	7	65	<0.3	234	32	747	4.70	12	<2	37	<0.5	<3	<3	95	1.23
K896514	Soil	8	13	77	1	289	<3	75	<0.3	62	19	485	3.54	8	<2	48	<0.5	<3	<3	71	1.38
K896515	Soil	6	4	26	<1	153	8	95	<0.3	76	22	685	3.90	15	<2	47	<0.5	<3	<3	74	1.25
K896516	Soil	4	4	5	1	60	5	64	<0.3	116	21	567	3.73	10	<2	39	<0.5	<3	<3	76	0.96
K896517	Soil	5	6	7	<1	142	3	65	<0.3	127	23	701	4.15	7	<2	43	<0.5	<3	<3	87	1.24
K896518	Soil	6	4	5	1	94	5	67	<0.3	109	24	829	4.41	10	<2	36	<0.5	<3	<3	93	0.95
K896519	Soil	6	7	29	1	158	8	83	<0.3	206	29	888	4.25	19	<2	45	<0.5	<3	<3	73	1.25
K896520	Soil	5	9	27	1	93	9	72	<0.3	209	21	603	3.89	13	<2	51	<0.5	<3	<3	70	1.53
K896521	Soil	5	8	5	<1	71	5	59	<0.3	56	20	550	3.90	10	<2	31	<0.5	<3	<3	83	0.75
K896522	Soil	6	<3	3	1	57	6	114	<0.3	50	21	620	3.88	11	<2	42	<0.5	<3	<3	78	0.93
K896523	Soil	4	5	3	<1	69	6	62	<0.3	53	19	456	3.76	13	<2	32	<0.5	<3	<3	79	0.68
K896524	Soil	4	<3	4	<1	37	6	59	<0.3	43	18	447	3.93	11	<2	29	<0.5	<3	<3	84	0.59
K896525	Soil	4	8	6	1	67	<3	63	<0.3	87	21	521	3.65	9	<2	31	<0.5	<3	<3	67	0.75
K896526	Soil	3	<3	3	1	36	9	75	<0.3	45	20	492	3.91	12	<2	31	<0.5	<3	<3	83	0.64
K896527	Soil	5	6	5	<1	45	8	68	<0.3	48	20	440	3.83	12	<2	34	<0.5	<3	<3	77	0.83
K896528	Soil	5	4	3	1	54	8	74	<0.3	64	20	577	3.99	16	<2	35	<0.5	<3	<3	80	0.73
K896529	Soil	6	17	4	1	64	3	80	<0.3	62	20	684	3.81	12	<2	40	<0.5	<3	<3	76	0.84
K896530	Soil	13	<3	4	<1	72	6	83	<0.3	67	21	692	3.88	14	<2	46	<0.5	<3	<3	77	0.97



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**Project:** Catalyst  
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Method	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
Analyte	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	S	Hg	Tl	Ga	Sc
Unit	%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	%	ppm	ppm	ppm	ppm
MDL	0.001	1	1	0.01	1	0.001	20	0.01	0.01	0.01	2	0.05	1	5	5	5
K896501	Soil	0.092	9	63	1.15	88	0.056	<20	1.82	<0.01	0.08	<2	<0.05	<1	<5	<5
K896502	Soil	0.056	6	57	0.95	131	0.082	<20	1.80	0.02	0.06	<2	<0.05	<1	<5	<5
K896503	Soil	0.060	8	53	0.99	123	0.096	<20	1.91	0.02	0.06	<2	<0.05	<1	<5	<5
K896504	Soil	0.051	7	79	1.20	79	0.102	<20	1.93	0.01	0.08	<2	<0.05	<1	<5	<5
K896505	Soil	0.078	7	91	1.44	126	0.100	<20	2.13	0.01	0.11	<2	0.05	<1	<5	5
K896506	Soil	0.078	8	78	1.19	106	0.116	<20	1.96	0.01	0.09	<2	<0.05	<1	<5	<5
K896507	Soil	0.087	6	107	1.32	86	0.102	<20	1.89	0.01	0.09	<2	0.10	<1	<5	<5
K896508	Soil	0.030	7	122	1.69	64	0.265	<20	2.59	0.01	0.20	<2	<0.05	<1	<5	<5
K896509	Soil	0.028	5	80	1.16	51	0.193	<20	2.04	<0.01	0.12	<2	<0.05	<1	<5	<5
K896510	Soil	0.025	5	82	1.19	58	0.199	<20	2.08	<0.01	0.11	<2	<0.05	<1	<5	<5
K896511	Soil	0.045	7	89	1.21	64	0.167	<20	1.95	0.01	0.18	<2	<0.05	<1	<5	<5
K896512	Soil	0.021	5	97	1.17	64	0.212	<20	1.95	0.01	0.09	<2	<0.05	<1	<5	<5
K896513	Soil	0.034	7	171	2.19	65	0.240	<20	2.34	0.01	0.13	<2	<0.05	<1	<5	<5
K896514	Soil	0.089	7	107	1.37	96	0.121	<20	2.02	0.01	0.09	<2	0.08	<1	<5	<5
K896515	Soil	0.094	8	82	1.31	97	0.097	<20	2.00	0.01	0.09	<2	<0.05	<1	<5	<5
K896516	Soil	0.073	6	95	1.45	111	0.115	<20	1.83	0.01	0.07	<2	<0.05	<1	<5	<5
K896517	Soil	0.088	8	127	1.82	93	0.176	<20	2.18	0.02	0.08	<2	<0.05	<1	<5	<5
K896518	Soil	0.058	9	118	1.62	82	0.207	<20	2.37	0.01	0.10	<2	<0.05	<1	<5	<5
K896519	Soil	0.078	13	63	1.17	116	0.087	<20	1.98	0.01	0.07	<2	<0.05	<1	<5	<5
K896520	Soil	0.075	9	68	1.15	113	0.086	<20	1.86	0.02	0.07	<2	<0.05	<1	<5	<5
K896521	Soil	0.058	7	105	1.13	88	0.132	<20	2.03	0.02	0.09	<2	<0.05	<1	<5	<5
K896522	Soil	0.103	7	81	1.13	106	0.106	<20	1.92	0.02	0.11	<2	<0.05	<1	<5	<5
K896523	Soil	0.034	8	109	1.16	67	0.132	<20	1.93	0.02	0.08	<2	<0.05	<1	<5	<5
K896524	Soil	0.025	6	66	1.06	50	0.159	<20	1.92	0.01	0.15	<2	<0.05	<1	<5	<5
K896525	Soil	0.054	7	181	1.52	52	0.094	<20	1.94	0.01	0.09	<2	<0.05	<1	<5	<5
K896526	Soil	0.047	8	66	0.98	77	0.120	<20	1.94	0.02	0.09	<2	<0.05	<1	<5	<5
K896527	Soil	0.070	9	60	1.03	90	0.105	<20	1.85	0.02	0.09	<2	<0.05	<1	<5	<5
K896528	Soil	0.055	9	71	1.11	76	0.122	<20	1.88	0.02	0.14	<2	<0.05	<1	<5	<5
K896529	Soil	0.094	10	69	1.25	86	0.122	<20	1.80	0.02	0.15	<2	<0.05	<1	<5	<5
K896530	Soil	0.092	9	69	1.27	83	0.116	<20	1.89	0.02	0.15	<2	<0.05	<1	<5	<5





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# CERTIFICATE OF ANALYSIS

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	Method Analyte Unit MDL	FA330	FA330	FA330	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
		Au	Pt	Pd	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Th	Sr	Cd	Sb	Bi	V	Ca
		ppb	ppb	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
		2	3	2	1	1	3	1	0.3	1	1	2	0.01	2	2	1	0.5	3	3	1	0.01
K896531	Soil	10	4	7	1	86	8	88	<0.3	58	21	604	3.70	13	<2	80	<0.5	<3	<3	74	2.95
K896532	Soil	6	5	7	1	86	4	76	<0.3	63	20	558	3.70	16	<2	59	<0.5	<3	<3	73	1.96
K896533	Soil	6	4	5	1	60	5	82	<0.3	51	20	623	3.64	15	<2	56	<0.5	<3	4	73	1.35
K896534	Soil	5	<3	<2	1	28	7	61	<0.3	40	18	363	3.71	12	<2	28	<0.5	<3	<3	79	0.58
K896535	Soil	6	28	3	1	35	6	78	<0.3	54	20	527	4.22	16	<2	26	<0.5	<3	<3	85	0.52
K896536	Soil	5	4	5	1	34	7	71	<0.3	53	19	480	4.00	15	<2	26	<0.5	<3	<3	81	0.55
K896537	Soil	5	<3	4	<1	49	7	77	<0.3	43	19	690	3.41	10	<2	37	<0.5	<3	<3	74	0.80
K896538	Soil	10	5	4	1	49	8	83	<0.3	48	22	732	3.68	12	<2	30	<0.5	<3	<3	78	0.59
K896539	Soil	4	<3	3	<1	39	8	70	<0.3	41	18	536	3.53	11	<2	33	<0.5	<3	<3	77	0.75
K896540	Soil	5	16	6	<1	60	8	75	<0.3	49	22	925	3.63	13	<2	42	<0.5	<3	<3	79	0.93
K896541	Soil	3	6	4	1	60	8	71	<0.3	46	21	648	3.81	13	<2	39	<0.5	<3	<3	83	0.72
K896542	Soil	4	4	7	<1	67	7	60	<0.3	44	19	459	3.48	13	<2	39	<0.5	<3	<3	75	0.96
K896543	Soil	2	<3	3	1	41	6	51	<0.3	41	18	415	3.75	11	<2	27	<0.5	<3	<3	90	0.55
K896544	Soil	5	6	8	<1	73	7	63	<0.3	47	18	453	3.44	12	<2	51	<0.5	<3	<3	78	1.38
K896545	Soil	9	3	4	<1	36	6	51	<0.3	39	17	394	3.62	11	<2	29	<0.5	<3	<3	84	0.57
K896546	Soil	4	7	5	<1	52	7	57	<0.3	49	19	345	3.48	13	<2	28	<0.5	<3	<3	78	0.59
K896547	Soil	5	3	2	<1	42	7	54	<0.3	47	21	448	3.72	12	<2	33	<0.5	<3	<3	85	0.67
K896548	Soil	6	6	7	<1	90	6	64	<0.3	45	20	549	3.26	10	<2	78	<0.5	<3	<3	72	2.52
K896549	Soil	4	4	4	<1	67	6	60	<0.3	52	19	454	3.61	11	<2	34	<0.5	<3	<3	80	0.63
K896550	Soil	4	13	2	<1	82	6	59	<0.3	57	20	459	3.60	11	<2	37	<0.5	<3	<3	81	0.67
V064751	Soil	6	4	4	<1	150	7	74	<0.3	156	30	798	4.91	16	<2	31	<0.5	<3	<3	98	0.79
V064752	Soil	6	3	5	<1	139	7	74	<0.3	119	29	736	4.65	15	<2	29	<0.5	<3	<3	99	0.77
V064753	Soil	4	<3	3	<1	91	7	67	<0.3	89	28	736	4.58	12	<2	26	<0.5	<3	<3	93	0.75
V064754	Soil	4	5	<2	<1	76	6	70	<0.3	78	25	595	4.25	11	<2	22	<0.5	<3	<3	92	0.62
V064755	Soil	3	6	<2	<1	49	7	72	<0.3	58	22	612	3.66	12	<2	33	<0.5	<3	<3	78	0.80
V064756	Soil	2	<3	2	<1	41	7	82	<0.3	52	22	684	3.59	12	<2	34	<0.5	<3	<3	76	0.79
V064757	Soil	4	9	41	1	254	8	91	<0.3	61	23	730	3.85	12	<2	46	<0.5	<3	<3	73	1.26
V064758	Soil	5	6	31	<1	209	6	70	<0.3	61	21	626	3.49	10	<2	50	<0.5	<3	<3	75	1.37
V064759	Soil	4	13	20	1	147	7	84	<0.3	67	24	726	3.85	10	<2	35	<0.5	<3	<3	80	0.92
V064760	Soil	9	6	11	1	120	7	75	<0.3	62	23	709	3.60	11	<2	35	<0.5	<3	<3	78	0.97



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# CERTIFICATE OF ANALYSIS

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	Method	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
	Analyte	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	S	Hg	Tl	Ga	Sc
	Unit	%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	%	ppm	ppm	ppm	ppm
	MDL	0.001	1	1	0.01	1	0.001	20	0.01	0.01	0.01	2	0.05	1	5	5	5
K896531	Soil	0.110	10	54	1.15	76	0.076	<20	1.78	0.02	0.13	<2	0.06	<1	<5	<5	<5
K896532	Soil	0.087	10	56	1.13	73	0.077	<20	1.79	0.02	0.12	<2	<0.05	<1	<5	<5	<5
K896533	Soil	0.089	10	58	1.16	112	0.089	<20	1.86	0.02	0.10	<2	<0.05	<1	<5	<5	<5
K896534	Soil	0.055	7	56	0.97	72	0.114	<20	1.80	0.02	0.09	<2	<0.05	<1	<5	<5	<5
K896535	Soil	0.064	7	69	1.12	59	0.132	<20	1.99	0.01	0.11	<2	<0.05	<1	<5	<5	5
K896536	Soil	0.069	6	68	1.07	52	0.121	<20	1.90	0.01	0.14	<2	<0.05	<1	<5	<5	<5
K896537	Soil	0.079	8	63	0.98	152	0.085	<20	1.86	0.02	0.06	<2	<0.05	<1	<5	<5	<5
K896538	Soil	0.080	9	65	1.03	131	0.107	<20	1.91	0.02	0.10	<2	<0.05	<1	<5	6	6
K896539	Soil	0.066	9	60	1.00	130	0.099	<20	1.81	0.01	0.06	<2	<0.05	<1	<5	6	<5
K896540	Soil	0.092	10	62	1.02	195	0.076	<20	1.96	0.02	0.07	<2	<0.05	<1	<5	6	5
K896541	Soil	0.055	10	70	1.17	123	0.107	<20	1.99	0.02	0.06	<2	<0.05	<1	<5	<5	6
K896542	Soil	0.067	10	66	1.05	106	0.080	<20	1.86	0.02	0.05	<2	<0.05	<1	<5	<5	5
K896543	Soil	0.019	5	75	1.06	77	0.144	<20	2.09	<0.01	0.08	<2	<0.05	<1	<5	<5	5
K896544	Soil	0.040	9	66	1.18	90	0.090	<20	1.85	0.02	0.07	<2	<0.05	<1	<5	7	<5
K896545	Soil	0.026	7	66	0.98	58	0.145	<20	1.86	0.01	0.10	<2	<0.05	<1	<5	<5	6
K896546	Soil	0.045	6	84	1.07	47	0.124	<20	1.80	0.01	0.09	<2	<0.05	<1	<5	5	<5
K896547	Soil	0.045	7	80	1.07	72	0.126	<20	1.88	0.02	0.11	<2	<0.05	<1	<5	<5	5
K896548	Soil	0.089	9	79	1.13	86	0.074	<20	1.69	0.02	0.11	<2	0.07	<1	<5	<5	<5
K896549	Soil	0.051	8	113	1.24	93	0.115	<20	1.94	0.02	0.06	<2	<0.05	<1	<5	<5	5
K896550	Soil	0.048	7	132	1.26	81	0.120	<20	1.94	0.01	0.06	<2	<0.05	<1	<5	<5	5
V064751	Soil	0.025	9	180	2.10	69	0.232	<20	2.57	<0.01	0.13	<2	<0.05	<1	<5	9	8
V064752	Soil	0.037	8	180	1.92	65	0.240	<20	2.45	<0.01	0.15	<2	<0.05	<1	<5	7	7
V064753	Soil	0.020	5	158	1.76	64	0.251	<20	2.52	<0.01	0.13	<2	<0.05	<1	<5	8	6
V064754	Soil	0.028	5	141	1.56	48	0.233	<20	2.20	<0.01	0.10	<2	<0.05	<1	<5	6	<5
V064755	Soil	0.067	7	86	1.18	81	0.141	<20	1.94	0.01	0.12	<2	<0.05	<1	<5	<5	<5
V064756	Soil	0.075	6	79	1.15	90	0.112	<20	1.90	0.01	0.16	<2	<0.05	<1	<5	<5	<5
V064757	Soil	0.089	8	93	1.37	87	0.109	<20	2.00	<0.01	0.11	<2	<0.05	<1	<5	6	5
V064758	Soil	0.091	7	105	1.38	92	0.128	<20	1.92	<0.01	0.10	<2	<0.05	<1	<5	6	<5
V064759	Soil	0.078	8	101	1.40	93	0.148	<20	2.07	0.01	0.10	<2	<0.05	<1	<5	<5	5
V064760	Soil	0.081	8	97	1.32	84	0.137	<20	1.96	0.01	0.10	<2	<0.05	<1	<5	5	<5



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	Method Analyte Unit MDL	FA330	FA330	FA330	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
		Au	Pt	Pd	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Th	Sr	Cd	Sb	Bi	V	Ca
		ppb	ppb	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
		2	3	2	1	1	3	1	0.3	1	1	2	0.01	2	2	1	0.5	3	3	1	0.01
V064761	Soil	5	5	25	1	168	7	90	<0.3	68	21	682	3.61	13	<2	41	<0.5	<3	<3	67	1.09
V064762	Soil	5	6	40	1	211	7	86	<0.3	64	23	844	3.58	13	<2	51	<0.5	<3	<3	67	1.40
V064763	Soil	5	10	48	<1	246	6	73	<0.3	71	22	654	3.63	8	<2	49	<0.5	<3	<3	74	1.41
V064764	Soil	5	8	7	<1	62	6	75	<0.3	70	22	636	3.84	10	<2	40	<0.5	<3	<3	79	0.92
V064765	Soil	5	5	37	<1	158	6	62	<0.3	58	19	583	3.43	8	<2	48	<0.5	<3	<3	69	1.34
V064766	Soil	3	4	3	<1	26	3	50	<0.3	111	28	492	3.51	5	<2	17	<0.5	<3	<3	80	0.74
V064767	Soil	4	<3	4	<1	76	4	65	<0.3	91	27	637	4.36	8	<2	25	<0.5	<3	<3	96	0.75
V064768	Soil	4	5	3	<1	103	6	64	<0.3	86	25	579	4.24	11	<2	26	<0.5	<3	<3	95	0.68



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	Method Analyte Unit MDL	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
		P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	S	Hg	Tl	Ga	Sc
		%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	%	ppm	ppm	ppm	ppm
		0.001	1	1	0.01	1	0.001	20	0.01	0.01	0.01	2	0.05	1	5	5	5
V064761	Soil	0.090	8	70	1.24	72	0.099	<20	1.85	<0.01	0.10	<2	<0.05	<1	<5	6	<5
V064762	Soil	0.089	8	87	1.33	100	0.095	<20	1.90	<0.01	0.10	<2	0.05	<1	<5	<5	<5
V064763	Soil	0.080	6	119	1.55	91	0.143	<20	2.03	<0.01	0.11	<2	<0.05	<1	<5	<5	<5
V064764	Soil	0.064	7	100	1.39	85	0.174	<20	2.04	0.01	0.14	<2	<0.05	<1	<5	<5	<5
V064765	Soil	0.051	6	106	1.40	95	0.141	<20	1.96	<0.01	0.08	<2	<0.05	<1	<5	<5	<5
V064766	Soil	0.022	3	300	1.68	30	0.309	<20	2.14	<0.01	0.04	<2	<0.05	<1	<5	<5	<5
V064767	Soil	0.033	5	155	1.87	52	0.350	<20	2.35	<0.01	0.13	<2	<0.05	<1	<5	8	<5
V064768	Soil	0.029	6	127	1.55	50	0.292	<20	2.22	<0.01	0.15	<2	<0.05	<1	<5	<5	5



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**Client: Longford Exploration Services Ltd.**

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Project:

Catalyst

Report Date:

September 25, 2017

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## QUALITY CONTROL REPORT

WHI17000705.1

	Method Analyte Unit MDL	FA330	FA330	FA330	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	
		Au	Pt	Pd	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Th	Sr	Cd	Sb	Bi	V	Ca	
		ppb	ppb	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	
		2	3	2	1	1	3	1	0.3	1	1	2	0.01	2	2	1	0.5	3	3	1	0.01	
Pulp Duplicates																						
K896503	Soil	4	4	9	1	40	10	79	<0.3	62	21	463	3.86	13	<2	38	<0.5	<3	<3	73	0.81	
REP K896503	QC				1	40	9	80	<0.3	62	21	457	3.82	12	<2	36	<0.5	<3	<3	72	0.79	
K896522	Soil	6	<3	3	1	57	6	114	<0.3	50	21	620	3.88	11	<2	42	<0.5	<3	<3	78	0.93	
REP K896522	QC	4	<3	2																		
K896539	Soil	4	<3	3	<1	39	8	70	<0.3	41	18	536	3.53	11	<2	33	<0.5	<3	<3	77	0.75	
REP K896539	QC				<1	39	7	70	<0.3	41	19	542	3.57	11	<2	33	<0.5	<3	<3	78	0.74	
V064757	Soil	4	9	41	1	254	8	91	<0.3	61	23	730	3.85	12	<2	46	<0.5	<3	<3	73	1.26	
REP V064757	QC	9	9	42																		
Reference Materials																						
STD CDN-PGMS-19	Standard	253	133	539																		
STD CDN-PGMS-19	Standard	202	99	440																		
STD CDN-PGMS-23	Standard	551	521	2169																		
STD DS11	Standard				13	153	140	355	1.6	77	14	1048	3.04	42	3	64	2.3	6	10	49	1.02	
STD DS11	Standard				12	149	140	338	1.9	80	13	1036	3.16	42	6	65	2.1	6	10	49	1.04	
STD OREAS45EA	Standard				2	730	15	32	0.4	395	56	434	22.33	5	7	4	<0.5	<3	<3	316	0.04	
STD OREAS45EA	Standard				2	745	14	33	<0.3	423	57	437	25.71	11	8	4	<0.5	<3	<3	326	0.04	
STD OREAS45EA Expected					1.6	709	14.3	31.4	0.26	381	52	400	23.51	10	10.7	3.5					303	0.036
STD DS11 Expected					13.9	156	138	345	1.71	81.9	14.2	1055	3.2082	42.8	7.65	67.3	2.37	7.2	12.2	50	1.063	
STD CDN-PGMS-19 Expected		230	108	476																		
STD CDN-PGMS-23 Expected		496	456	2032																		
BLK	Blank				<1	<1	<3	<1	<0.3	<1	<1	<2	<0.01	<2	<2	<1	<0.5	<3	<3	<1	<0.01	
BLK	Blank				<1	<1	<3	<1	<0.3	<1	<1	<2	<0.01	<2	<2	<1	<0.5	<3	<3	<1	<0.01	
BLK	Blank	<2	<3	<2																		
BLK	Blank	<2	<3	<2																		
BLK	Blank	<2	<3	3																		
BLK	Blank	<2	<3	<2																		



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**Project:** Catalyst  
**Report Date:** September 25, 2017

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## QUALITY CONTROL REPORT

WHI17000705.1

Method Analyte Unit MDL		AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
		P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	S	Hg	Tl	Ga	Sc
		%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	%	ppm	ppm	ppm	ppm
		0.001	1	1	0.01	1	0.001	20	0.01	0.01	0.01	2	0.05	1	5	5	5
Pulp Duplicates																	
K896503	Soil	0.060	8	53	0.99	123	0.096	<20	1.91	0.02	0.06	<2	<0.05	<1	<5	<5	<5
REP K896503	QC	0.060	8	52	0.99	122	0.090	<20	1.91	0.02	0.05	<2	<0.05	<1	<5	<5	<5
K896522	Soil	0.103	7	81	1.13	106	0.106	<20	1.92	0.02	0.11	<2	<0.05	<1	<5	<5	<5
REP K896522	QC																
K896539	Soil	0.066	9	60	1.00	130	0.099	<20	1.81	0.01	0.06	<2	<0.05	<1	<5	6	<5
REP K896539	QC	0.066	9	60	1.02	129	0.101	<20	1.83	0.01	0.06	<2	<0.05	<1	<5	<5	<5
V064757	Soil	0.089	8	93	1.37	87	0.109	<20	2.00	<0.01	0.11	<2	<0.05	<1	<5	6	5
REP V064757	QC																
Reference Materials																	
STD CDN-PGMS-19	Standard																
STD CDN-PGMS-19	Standard																
STD CDN-PGMS-23	Standard																
STD DS11	Standard	0.071	17	60	0.86	424	0.088	<20	1.10	0.07	0.40	3	0.28	<1	6	<5	<5
STD DS11	Standard	0.073	16	57	0.84	424	0.086	<20	1.10	0.07	0.39	3	0.29	<1	<5	<5	<5
STD OREAS45EA	Standard	0.031	8	909	0.10	153	0.105	<20	3.39	0.02	0.06	<2	<0.05	<1	<5	19	83
STD OREAS45EA	Standard	0.033	8	940	0.10	154	0.105	<20	3.45	0.02	0.06	<2	<0.05	<1	9	6	89
STD OREAS45EA Expected		0.029	7.06	849	0.095	148	0.0984		3.13	0.02	0.053		0.036			12.4	78
STD DS11 Expected		0.0701	18.6	61.5	0.85	417	0.0976	6	1.129	0.0694	0.4	2.9	0.2835	0.3	4.9	4.7	3.1
STD CDN-PGMS-19 Expected																	
STD CDN-PGMS-23 Expected																	
BLK	Blank	<0.001	<1	<1	<0.01	<1	<0.001	<20	<0.01	<0.01	<0.01	<2	<0.05	<1	<5	<5	<5
BLK	Blank	<0.001	<1	<1	<0.01	<1	<0.001	<20	<0.01	<0.01	<0.01	<2	<0.05	<1	<5	<5	<5
BLK	Blank																
BLK	Blank																
BLK	Blank																
BLK	Blank																