



GOLDCORP CANADA EQUITY DIVISION

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Date Received: 01-AUG-14

Report Date: 14-AUG-14 10:53 (MT)

Version: FINAL REV. 2

Client Phone: 250-845-7799

## Certificate of Analysis

**Lab Work Order #:** L1496124  
**Project P.O. #:** NOT SUBMITTED  
**Job Reference:** EEM 2014  
**C of C Numbers:** 10-368286, 10-368289  
**Legal Site Desc:**

Courtney Deverall  
Account Manager

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# ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L1496124-1 700081 28-JUL-14  BESSERMER @ SILTCHECK	L1496124-2 400765 28-JUL-14  BUCK ABOVE BESSEMER	L1496124-3 400766 28-JUL-14  BUCK @ GOOSLY	L1496124-4 400763 28-JUL-14  FOXY ABOVE LU	L1496124-5 400764 28-JUL-14  FOXY BELOW BERZELIUS
Grouping	Analyte					
<b>WATER</b>						
<b>Field Tests</b>	EC, Client Supplied (uS/cm)	2127	157.8	293.8	59.2	145.5
	pH, Client Supplied (pH)	7.77	7.51	7.35	7.6	7.59
<b>Physical Tests</b>	Hardness (as CaCO3) (mg/L)		76.4	146	21.6	66.0
	Total Suspended Solids (mg/L)	<3.0	<3.0	5.6	<3.0	<3.0
<b>Anions and Nutrients</b>	Acidity (as CaCO3) (mg/L)					
	Alkalinity, Total (as CaCO3) (mg/L)	31.4	86.3	93.4	24.9	40.8
	Ammonia, Total (as N) (mg/L)		0.0102	0.0173	0.0084	<0.0050
	Nitrate (as N) (mg/L)		0.0051	<0.0050	<0.0050	0.0064
	Nitrite (as N) (mg/L)					
	Total Nitrogen (mg/L)		0.256	0.352	0.172	0.189
	Orthophosphate-Dissolved (as P) (mg/L)		0.0234	0.0225	0.0093	0.0040
	Phosphorus (P)-Total Dissolved (mg/L)		0.0293	0.0323	0.0151	0.0087
	Phosphorus (P)-Total (mg/L)		0.0394	0.0545	0.0205	0.0138
	Sulfate (SO4) (mg/L)	1420	<0.50	64.0	<0.50	26.4
<b>Total Metals</b>	Aluminum (Al)-Total (mg/L)		0.0254	0.104	0.0806	0.0672
	Antimony (Sb)-Total (mg/L)		0.00012	0.00027	<0.00010	0.00020
	Arsenic (As)-Total (mg/L)		0.00170	0.00155	0.00038	0.00061
	Barium (Ba)-Total (mg/L)		0.0350	0.0289	0.00493	0.0143
	Beryllium (Be)-Total (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010
	Bismuth (Bi)-Total (mg/L)		<0.00050	<0.00050	<0.00050	<0.00050
	Boron (B)-Total (mg/L)		<0.010	<0.010	<0.010	<0.010
	Cadmium (Cd)-Total (mg/L)	0.00046	<0.000010	0.000036	<0.000010	0.000029
	Calcium (Ca)-Total (mg/L)		20.0	38.8	5.24	16.0
	Chromium (Cr)-Total (mg/L)		0.00031	0.00041	0.00032	0.00034
	Cobalt (Co)-Total (mg/L)		0.00019	0.00036	<0.00010	<0.00010
	Copper (Cu)-Total (mg/L)	0.0045	0.00073	0.00182	0.00055	0.00219
	Iron (Fe)-Total (mg/L)		1.38	1.83	0.148	0.150
	Lead (Pb)-Total (mg/L)		<0.000050	0.000151	<0.000050	0.000148
	Lithium (Li)-Total (mg/L)		<0.00050	0.00198	<0.00050	0.00222
	Magnesium (Mg)-Total (mg/L)		6.10	12.3	2.23	5.66
	Manganese (Mn)-Total (mg/L)		0.206	0.184	0.0141	0.00888
	Molybdenum (Mo)-Total (mg/L)		0.000429	0.000572	0.000133	0.000351
	Nickel (Ni)-Total (mg/L)		0.00084	0.00136	<0.00050	0.00089
	Phosphorus (P)-Total (mg/L)		<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Total (mg/L)		0.560	0.601	0.631	0.680
	Selenium (Se)-Total (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010
	Silicon (Si)-Total (mg/L)		7.45	7.06	8.11	5.86

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L1496124-6 STAILP 28-JUL-14  SOUTHERN TAIL PIT	L1496124-7 RCLAIM 28-JUL-14  TAILINGS POND	L1496124-8 ??? 28-JUL-14  WATERLINE PIT	L1496124-9 700108 29-JUL-14  FOXY @ MAXAM	L1496124-10 400764 29-JUL-14  BUCK @ KLO
Grouping	Analyte					
<b>WATER</b>						
<b>Field Tests</b>	EC, Client Supplied (uS/cm)	5280	963	1104	307.4	181.2
	pH, Client Supplied (pH)	5.73	7.39	7.9	7.43	7.5
<b>Physical Tests</b>	Hardness (as CaCO3) (mg/L)			618	91.4	79.8
	Total Suspended Solids (mg/L)				<3.0	<3.0
<b>Anions and Nutrients</b>	Acidity (as CaCO3) (mg/L)	223		3.1		
	Alkalinity, Total (as CaCO3) (mg/L)	25.1	24.4	88.4	60.0	49.7
	Ammonia, Total (as N) (mg/L)		0.0289		<0.0050	0.0062
	Nitrate (as N) (mg/L)		0.126		0.0218	<0.0050
	Nitrite (as N) (mg/L)		<0.010 <sup>DLM</sup>			
	Total Nitrogen (mg/L)				0.152	0.189
	Orthophosphate-Dissolved (as P) (mg/L)				0.0272	0.0267
	Phosphorus (P)-Total Dissolved (mg/L)				0.0331	0.0356
	Phosphorus (P)-Total (mg/L)				0.0326	0.0461
	Sulfate (SO4) (mg/L)	4295	463	552	41.4	34.6
<b>Total Metals</b>	Aluminum (Al)-Total (mg/L)	1.58		<0.20	0.0614	0.0393
	Antimony (Sb)-Total (mg/L)	<0.40 <sup>DLA</sup>		<0.20	0.00014	<0.00010
	Arsenic (As)-Total (mg/L)	<0.10 <sup>DLA</sup>		<0.050	0.00091	0.00069
	Barium (Ba)-Total (mg/L)	<0.020 <sup>DLA</sup>		<0.010	0.0151	0.00825
	Beryllium (Be)-Total (mg/L)	<0.010 <sup>DLA</sup>		<0.0050	<0.00010	<0.00010
	Bismuth (Bi)-Total (mg/L)	<0.40 <sup>DLA</sup>		<0.20	<0.00050	<0.00050
	Boron (B)-Total (mg/L)	<0.20 <sup>DLA</sup>		<0.10	<0.010	<0.010
	Cadmium (Cd)-Total (mg/L)	0.247		<0.010	<0.000010	<0.000010
	Calcium (Ca)-Total (mg/L)	481		199	22.2	19.3
	Chromium (Cr)-Total (mg/L)	<0.020 <sup>DLA</sup>		<0.010	0.00020	0.00020
	Cobalt (Co)-Total (mg/L)	1.02		<0.010	<0.00010	<0.00010
	Copper (Cu)-Total (mg/L)	0.461		<0.010	0.00152	0.00103
	Iron (Fe)-Total (mg/L)	124		0.135	0.211	0.514
	Lead (Pb)-Total (mg/L)	<0.10 <sup>DLA</sup>		<0.050	0.000259	<0.000050
	Lithium (Li)-Total (mg/L)	0.147		0.023	0.00166	0.00114
	Magnesium (Mg)-Total (mg/L)	687		30.6	8.15	7.86
	Manganese (Mn)-Total (mg/L)	74.0		0.906	0.0123	0.0304
	Molybdenum (Mo)-Total (mg/L)	<0.060 <sup>DLA</sup>		<0.030	0.000636	0.000356
	Nickel (Ni)-Total (mg/L)	1.34		<0.050	0.00105	0.00091
	Phosphorus (P)-Total (mg/L)	<0.60 <sup>DLA</sup>		<0.30	<0.30	<0.30
	Potassium (K)-Total (mg/L)	5.9		<2.0	1.24	1.26
	Selenium (Se)-Total (mg/L)	<0.40 <sup>DLA</sup>		<0.20	<0.00010	<0.00010
	Silicon (Si)-Total (mg/L)	5.42		3.92	9.71	9.21

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

		<b>Sample ID</b> <b>Description</b> <b>Sampled Date</b> <b>Sampled Time</b> <b>Client ID</b>	L1496124-11 FLBANK 28-JUL-14  FILTER BLANK				
Grouping	Analyte						
<b>WATER</b>							
<b>Field Tests</b>	EC, Client Supplied (uS/cm) pH, Client Supplied (pH)						
<b>Physical Tests</b>	Hardness (as CaCO3) (mg/L) Total Suspended Solids (mg/L)						
<b>Anions and Nutrients</b>	Acidity (as CaCO3) (mg/L)  Alkalinity, Total (as CaCO3) (mg/L) Ammonia, Total (as N) (mg/L) Nitrate (as N) (mg/L) Nitrite (as N) (mg/L) Total Nitrogen (mg/L) Orthophosphate-Dissolved (as P) (mg/L) Phosphorus (P)-Total Dissolved (mg/L) Phosphorus (P)-Total (mg/L) Sulfate (SO4) (mg/L)						
<b>Total Metals</b>	Aluminum (Al)-Total (mg/L) Antimony (Sb)-Total (mg/L) Arsenic (As)-Total (mg/L) Barium (Ba)-Total (mg/L) Beryllium (Be)-Total (mg/L) Bismuth (Bi)-Total (mg/L) Boron (B)-Total (mg/L) Cadmium (Cd)-Total (mg/L) Calcium (Ca)-Total (mg/L) Chromium (Cr)-Total (mg/L) Cobalt (Co)-Total (mg/L) Copper (Cu)-Total (mg/L) Iron (Fe)-Total (mg/L) Lead (Pb)-Total (mg/L) Lithium (Li)-Total (mg/L) Magnesium (Mg)-Total (mg/L) Manganese (Mn)-Total (mg/L) Molybdenum (Mo)-Total (mg/L) Nickel (Ni)-Total (mg/L) Phosphorus (P)-Total (mg/L) Potassium (K)-Total (mg/L) Selenium (Se)-Total (mg/L) Silicon (Si)-Total (mg/L)						

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L1496124-1 700081 28-JUL-14  BESSERMER @ SILT CHECK	L1496124-2 400765 28-JUL-14  BUCK ABOVE BESSEMER	L1496124-3 400766 28-JUL-14  BUCK @ GOOSLY	L1496124-4 400763 28-JUL-14  FOXY ABOVE LU	L1496124-5 400764 28-JUL-14  FOXY BELOW BERZELIUS
Grouping	Analyte					
<b>WATER</b>						
<b>Total Metals</b>	Silver (Ag)-Total (mg/L)		<0.000010	0.000011	<0.000010	<0.000010
	Sodium (Na)-Total (mg/L)		3.37	4.25	2.23	2.82
	Strontium (Sr)-Total (mg/L)		0.188	0.308	0.0469	0.203
	Thallium (Tl)-Total (mg/L)		<0.000010	<0.000010	<0.000010	<0.000010
	Tin (Sn)-Total (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010
	Titanium (Ti)-Total (mg/L)		<0.010	<0.010	<0.010	<0.010
	Uranium (U)-Total (mg/L)		0.000047	0.000107	0.000032	0.000074
	Vanadium (V)-Total (mg/L)		0.0011	0.0014	0.0021	0.0012
	Zinc (Zn)-Total (mg/L)	0.0095	<0.0030	0.0031	<0.0030	0.0033
<b>Dissolved Metals</b>	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	0.0137	0.0126	0.0134	0.0403	0.0273
	Antimony (Sb)-Dissolved (mg/L)		<0.00010	0.00023	<0.00010	0.00017
	Arsenic (As)-Dissolved (mg/L)		0.00144	0.00112	0.00033	0.00059
	Barium (Ba)-Dissolved (mg/L)		0.0344	0.0241	0.00461	0.0146
	Beryllium (Be)-Dissolved (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010
	Bismuth (Bi)-Dissolved (mg/L)		<0.00050	<0.00050	<0.00050	<0.00050
	Boron (B)-Dissolved (mg/L)		<0.010	<0.010	<0.010	<0.010
	Cadmium (Cd)-Dissolved (mg/L)	0.00044	<0.000010	0.000026	<0.000010	0.000019
	Calcium (Ca)-Dissolved (mg/L)		20.3	38.1	5.06	16.7
	Chromium (Cr)-Dissolved (mg/L)		0.00022	0.00022	0.00023	0.00021
	Cobalt (Co)-Dissolved (mg/L)		0.00017	0.00023	<0.00010	<0.00010
	Copper (Cu)-Dissolved (mg/L)	0.0040	0.00062	0.00135	0.00046	0.00157
	Iron (Fe)-Dissolved (mg/L)		0.945	1.07	0.098	0.077
	Lead (Pb)-Dissolved (mg/L)		<0.000050	<0.000050	<0.000050	<0.000050
	Lithium (Li)-Dissolved (mg/L)		0.00054	0.00207	<0.00050	0.00259
	Magnesium (Mg)-Dissolved (mg/L)		6.24	12.4	2.17	5.88
	Manganese (Mn)-Dissolved (mg/L)		0.192	0.150	0.0114	0.00561
	Molybdenum (Mo)-Dissolved (mg/L)		0.000385	0.000560	0.000132	0.000351
	Nickel (Ni)-Dissolved (mg/L)		0.00083	0.00115	<0.00050	0.00067
	Phosphorus (P)-Dissolved (mg/L)		<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Dissolved (mg/L)		0.561	0.564	0.615	0.641
	Selenium (Se)-Dissolved (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010
	Silicon (Si)-Dissolved (mg/L)		7.42	6.77	7.76	5.88
	Silver (Ag)-Dissolved (mg/L)		<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Dissolved (mg/L)		3.33	4.02	2.08	2.84
	Strontium (Sr)-Dissolved (mg/L)		0.173	0.314	0.0488	0.217
	Thallium (Tl)-Dissolved (mg/L)		<0.000010	<0.000010	<0.000010	<0.000010

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L1496124-6 STAILP 28-JUL-14  SOUTHERN TAIL PIT	L1496124-7 RCLAIM 28-JUL-14  TAILINGS POND	L1496124-8 ??? 28-JUL-14  WATERLINE PIT	L1496124-9 700108 29-JUL-14  FOXY @ MAXAM	L1496124-10 400764 29-JUL-14  BUCK @ KLO
Grouping	Analyte					
<b>WATER</b>						
<b>Total Metals</b>	Silver (Ag)-Total (mg/L)	<0.020 <sup>DLA</sup>		<0.010	<0.000010	<0.000010
	Sodium (Na)-Total (mg/L)	9.9		9.6	4.06	3.71
	Strontium (Sr)-Total (mg/L)	8.87		6.01	0.221	0.157
	Thallium (Tl)-Total (mg/L)	<0.40 <sup>DLA</sup>		<0.20	<0.000010	<0.000010
	Tin (Sn)-Total (mg/L)	<0.060 <sup>DLA</sup>		<0.030	<0.00010	<0.00010
	Titanium (Ti)-Total (mg/L)	0.037		0.013	<0.010	<0.010
	Uranium (U)-Total (mg/L)				0.000053	0.000031
	Vanadium (V)-Total (mg/L)	<0.060 <sup>DLA</sup>		<0.030	0.0024	0.0017
	Zinc (Zn)-Total (mg/L)	38.3		0.493	<0.0030	<0.0030
<b>Dissolved Metals</b>	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	1.31	0.0107	0.0127	0.0098	0.0070
	Antimony (Sb)-Dissolved (mg/L)	<0.40 <sup>DLA</sup>		0.00230	0.00015	<0.00010
	Arsenic (As)-Dissolved (mg/L)	<0.10 <sup>DLA</sup>		0.00087	0.00088	0.00060
	Barium (Ba)-Dissolved (mg/L)	<0.020 <sup>DLA</sup>		0.00907	0.0151	0.00736
	Beryllium (Be)-Dissolved (mg/L)	<0.010 <sup>DLA</sup>		<0.00010	<0.00010	<0.00010
	Bismuth (Bi)-Dissolved (mg/L)	<0.40 <sup>DLA</sup>		<0.00050	<0.00050	<0.00050
	Boron (B)-Dissolved (mg/L)	<0.20 <sup>DLA</sup>		0.021	<0.010	<0.010
	Cadmium (Cd)-Dissolved (mg/L)	0.245	0.000097	0.00276	0.000020	0.000055 <sup>DTC</sup>
	Calcium (Ca)-Dissolved (mg/L)	474		197	22.8	19.1
	Chromium (Cr)-Dissolved (mg/L)	<0.020 <sup>DLA</sup>		<0.00010	0.00014	0.00014
	Cobalt (Co)-Dissolved (mg/L)	1.00		0.00600	<0.00010	<0.00010
	Copper (Cu)-Dissolved (mg/L)	0.336	0.00388	0.00307	0.00129	0.00119
	Iron (Fe)-Dissolved (mg/L)	106		<0.010	0.028	0.354
	Lead (Pb)-Dissolved (mg/L)	<0.10 <sup>DLA</sup>		<0.000050	<0.000050	<0.000050
	Lithium (Li)-Dissolved (mg/L)	0.144		0.0281	0.00181	0.00115
	Magnesium (Mg)-Dissolved (mg/L)	674		30.5	8.41	7.81
	Manganese (Mn)-Dissolved (mg/L)	72.1		0.896	0.00996	0.0234
	Molybdenum (Mo)-Dissolved (mg/L)	<0.060 <sup>DLA</sup>		0.000665	0.000613	0.000343
	Nickel (Ni)-Dissolved (mg/L)	1.30		0.0203	0.00067	0.00097
	Phosphorus (P)-Dissolved (mg/L)	<0.60 <sup>DLA</sup>		<0.30	<0.30	<0.30
	Potassium (K)-Dissolved (mg/L)	5.8		1.69	1.22	1.23
	Selenium (Se)-Dissolved (mg/L)	<0.40 <sup>DLA</sup>		0.00017	<0.00010	<0.00010
	Silicon (Si)-Dissolved (mg/L)	5.20		3.81	9.89	8.97
	Silver (Ag)-Dissolved (mg/L)	<0.020 <sup>DLA</sup>		<0.000010	<0.000010	<0.000010
	Sodium (Na)-Dissolved (mg/L)	9.6		9.07	3.97	3.63
	Strontium (Sr)-Dissolved (mg/L)	8.72		6.58	0.246	0.166
	Thallium (Tl)-Dissolved (mg/L)	<0.40 <sup>DLA</sup>		<0.000010	<0.000010	<0.000010

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID				
		Description				
		Sampled Date				
		Sampled Time				
		Client ID				
Grouping	Analyte					
<b>WATER</b>						
<b>Total Metals</b>	Silver (Ag)-Total (mg/L)					
	Sodium (Na)-Total (mg/L)					
	Strontium (Sr)-Total (mg/L)					
	Thallium (Tl)-Total (mg/L)					
	Tin (Sn)-Total (mg/L)					
	Titanium (Ti)-Total (mg/L)					
	Uranium (U)-Total (mg/L)					
	Vanadium (V)-Total (mg/L)					
	Zinc (Zn)-Total (mg/L)					
<b>Dissolved Metals</b>	Dissolved Metals Filtration Location	FIELD				
	Aluminum (Al)-Dissolved (mg/L)	0.0014				
	Antimony (Sb)-Dissolved (mg/L)	<0.00010				
	Arsenic (As)-Dissolved (mg/L)	<0.00010				
	Barium (Ba)-Dissolved (mg/L)	0.000064				
	Beryllium (Be)-Dissolved (mg/L)	<0.00010				
	Bismuth (Bi)-Dissolved (mg/L)	<0.00050				
	Boron (B)-Dissolved (mg/L)	<0.010				
	Cadmium (Cd)-Dissolved (mg/L)	<0.000010				
	Calcium (Ca)-Dissolved (mg/L)	<0.050				
	Chromium (Cr)-Dissolved (mg/L)	<0.00010				
	Cobalt (Co)-Dissolved (mg/L)	<0.00010				
	Copper (Cu)-Dissolved (mg/L)	<0.00020				
	Iron (Fe)-Dissolved (mg/L)	<0.010				
	Lead (Pb)-Dissolved (mg/L)	<0.000050				
	Lithium (Li)-Dissolved (mg/L)	<0.00050				
	Magnesium (Mg)-Dissolved (mg/L)	<0.10				
	Manganese (Mn)-Dissolved (mg/L)	0.000104				
	Molybdenum (Mo)-Dissolved (mg/L)	<0.000050				
	Nickel (Ni)-Dissolved (mg/L)	<0.00050				
	Phosphorus (P)-Dissolved (mg/L)	<0.30				
	Potassium (K)-Dissolved (mg/L)	<0.050				
	Selenium (Se)-Dissolved (mg/L)	<0.00010				
	Silicon (Si)-Dissolved (mg/L)	<0.050				
	Silver (Ag)-Dissolved (mg/L)	<0.000010				
	Sodium (Na)-Dissolved (mg/L)	<0.050				
	Strontium (Sr)-Dissolved (mg/L)	<0.00020				
	Thallium (Tl)-Dissolved (mg/L)	<0.000010				

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1496124-1	L1496124-2	L1496124-3	L1496124-4	L1496124-5
		Description	700081	400765	400766	400763	400764
		Sampled Date	28-JUL-14	28-JUL-14	28-JUL-14	28-JUL-14	28-JUL-14
		Sampled Time					
		Client ID	BESSERMER @ SILTCHECK	BUCK ABOVE BESSEMER	BUCK @ GOOSLY	FOXY ABOVE LU	FOXY BELOW BERZELIUS
Grouping	Analyte						
<b>WATER</b>							
<b>Dissolved Metals</b>	Tin (Sn)-Dissolved (mg/L)			<0.00010	<0.00010	<0.00010	<0.00010
	Titanium (Ti)-Dissolved (mg/L)			<0.010	<0.010	<0.010	<0.010
	Uranium (U)-Dissolved (mg/L)			0.000049	0.000099	0.000028	0.000069
	Vanadium (V)-Dissolved (mg/L)			<0.0010	<0.0010	0.0017	<0.0010
	Zinc (Zn)-Dissolved (mg/L)		0.0094	<0.0010	0.0014	<0.0010	0.0011

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.



# ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L1496124-6 STAILP 28-JUL-14  SOUTHERN TAIL PIT	L1496124-7 RCLAIM 28-JUL-14  TAILINGS POND	L1496124-8 ??? 28-JUL-14  WATERLINE PIT	L1496124-9 700108 29-JUL-14  FOXY @ MAXAM	L1496124-10 400764 29-JUL-14  BUCK @ KLO
Grouping	Analyte					
<b>WATER</b>						
<b>Dissolved Metals</b>	Tin (Sn)-Dissolved (mg/L)	<0.060 <sup>DLA</sup>		<0.00010	<0.00010	<0.00010
	Titanium (Ti)-Dissolved (mg/L)	0.037		0.014	<0.010	<0.010
	Uranium (U)-Dissolved (mg/L)			0.000482	0.000055	0.000030
	Vanadium (V)-Dissolved (mg/L)	<0.060 <sup>DLA</sup>		<0.0010	0.0021	0.0013
	Zinc (Zn)-Dissolved (mg/L)	37.8	0.0093	0.441	0.0022	0.0072

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

		<b>Sample ID</b> <b>Description</b> <b>Sampled Date</b> <b>Sampled Time</b> <b>Client ID</b>	L1496124-11 FLBANK 28-JUL-14 FILTER BLANK				
Grouping	Analyte						
<b>WATER</b>							
<b>Dissolved Metals</b>	Tin (Sn)-Dissolved (mg/L)	<0.00010					
	Titanium (Ti)-Dissolved (mg/L)	<0.010					
	Uranium (U)-Dissolved (mg/L)	<0.000010					
	Vanadium (V)-Dissolved (mg/L)	<0.0010					
	Zinc (Zn)-Dissolved (mg/L)	<0.0010					

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

## Reference Information

### QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Matrix Spike	Phosphorus (P)-Total	MS-B	L1496124-10, -2, -3, -4, -5
Matrix Spike	Nitrate (as N)	MS-B	L1496124-10, -2, -3, -4, -5, -7, -9
Matrix Spike	Arsenic (As)-Dissolved	MS-B	L1496124-10, -11, -2, -3, -4, -5, -6, -8, -9
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1496124-10, -11, -2, -3, -4, -5, -6, -8, -9
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1496124-10, -11, -2, -3, -4, -5, -6, -8, -9
Matrix Spike	Potassium (K)-Dissolved	MS-B	L1496124-10, -11, -2, -3, -4, -5, -6, -8, -9
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1496124-10, -11, -2, -3, -4, -5, -6, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1496124-10, -11, -2, -3, -4, -5, -6, -8, -9
Matrix Spike	Uranium (U)-Dissolved	MS-B	L1496124-10, -11, -2, -3, -4, -5, -6, -8, -9
Matrix Spike	Silicon (Si)-Dissolved	MS-B	L1496124-10, -11, -2, -3, -4, -5, -6, -8, -9
Matrix Spike	Copper (Cu)-Total	MS-B	L1496124-1, -10, -2, -3, -4, -5, -6, -8, -9
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1496124-10, -11, -2, -3, -4, -5, -6, -8, -9
Matrix Spike	Calcium (Ca)-Total	MS-B	L1496124-1, -10, -2, -3, -4, -5, -6, -8, -9
Matrix Spike	Silicon (Si)-Total	MS-B	L1496124-1, -10, -2, -3, -4, -5, -6, -8, -9
Matrix Spike	Copper (Cu)-Dissolved	MS-B	L1496124-1, -10, -11, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1496124-10, -11, -2, -3, -4, -5, -8, -9
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1496124-10, -11, -2, -3, -4, -5, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1496124-10, -11, -2, -3, -4, -5, -8, -9
Matrix Spike	Silicon (Si)-Dissolved	MS-B	L1496124-10, -11, -2, -3, -4, -5, -6, -8, -9
Matrix Spike	Phosphorus (P)-Total	MS-B	L1496124-9
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1496124-1, -10, -11, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Silicon (Si)-Dissolved	MS-B	L1496124-1, -10, -11, -2, -3, -4, -5, -6, -7, -8, -9

### Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLA	Detection Limit adjusted for required dilution
DLM	Detection Limit Adjusted due to sample matrix effects.
DTC	Dissolved concentration exceeds total. Results were confirmed by re-analysis.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

### Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
<b>ACY-PCT-VA</b>	Water	Acidity by Automatic Titration	APHA 2310 "Acidity"
This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.			
<b>ACY-PCT-VA</b>	Water	Acidity by Automatic Titration	APHA 2310 Acidity
This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.			
<b>ALK-COL-VA</b>	Water	Alkalinity by Colourimetric (Automated)	EPA 310.2
This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.			
<b>ANIONS-NO2-IC-VA</b>	Water	Nitrite in Water by Ion Chromatography	EPA 300.0
This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrite is detected by UV absorbance.			
<b>ANIONS-NO3-IC-VA</b>	Water	Nitrate in Water by Ion Chromatography	EPA 300.0
This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrate is detected by UV absorbance.			
<b>HARDNESS-CALC-VA</b>	Water	Hardness	APHA 2340B
Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.			
<b>MET-D-CCMS-VA</b>	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A
This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or			

## Reference Information

filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).

**MET-DIS-ICP-VA** Water Dissolved Metals in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

**MET-DIS-LOW-ICP-VA** Water Dissolved Metals in Water by ICPOES EPA 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

**MET-DIS-LOW-MS-VA** Water Dissolved Metals in Water by ICPMS(Low) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves preliminary sample treatment by filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

**MET-T-CCMS-VA** Water Total Metals in Water by CRC ICPMS APHA 3030 B&E / EPA SW-846 6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).

**MET-TOT-ICP-VA** Water Total Metals in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

**MET-TOT-LOW-ICP-VA** Water Total Metals in Water by ICPOES EPA 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

**MET-TOT-LOW-MS-VA** Water Total Metals in Water by ICPMS(Low) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

**N-T-COL-VA** Water Total Nitrogen in water by Colour APHA Method 4500-P (J) / NEMI 5735

This analysis is carried out using procedures adapted from APHA Method 4500-P (J) "Persulphate Method for Simultaneous Determination of Total Nitrogen and Total Phosphorus" and National Environmental Methods Index - Nemi method 5735.

**NH3-F-VA** Water Ammonia in Water by Fluorescence J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

**P-T-PRES-COL-VA** Water Total P in Water by Colour APHA 4500-P Phosphorus

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.

**P-TD-COL-VA** Water Total Dissolved P in Water by Colour APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Dissolved Phosphorus is determined colourimetrically after persulphate digestion of a sample that has been lab or field filtered through a 0.45 micron membrane filter.

**PO4-DO-COL-VA** Water Diss. Orthophosphate in Water by Colour APHA 4500-P Phosphorus

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

**SO4-TUR-VA** Water Sulfate(SO4) by Turbidity APHA 4500-SO4 E. SULFATE

This analysis is carried out using procedures adapted from APHA Method 4500-SO4 "Sulfate". Sulfate is determined using the turbidimetric method.

Total Suspended Solids by Gravimetric

APHA 2540 D - GRAVIMETRIC

## Reference Information

### TSS-VA Water

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

\*\* ALS test methods may incorporate modifications from specified reference methods to improve performance.

*The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:*

Laboratory Definition Code	Laboratory Location
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VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA
----	---

### Chain of Custody Numbers:

10-368286	10-368289
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### GLOSSARY OF REPORT TERMS

*Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.*

*mg/kg - milligrams per kilogram based on dry weight of sample.*

*mg/kg ww - milligrams per kilogram based on wet weight of sample.*

*mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.*

*mg/L - milligrams per litre.*

*< - Less than.*

*D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).*

*N/A - Result not available. Refer to qualifier code and definition for explanation.*

*Test results reported relate only to the samples as received by the laboratory.*

*UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.*

*Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.*



L1496124-COFC

Chain of Custody / Analytical Request Form  
Canada Toll Free: 1 800 668 9878  
www.alsglobal.com

10-368286

Page 1 of 2

<b>Report To</b>			<b>Report Format / Distribution</b>			<b>Service Request:</b> (Rush subject to availability - Contact ALS to confirm TAT)									
Company: <u>Goldcorp Canada Ltd. - Equity</u>			Standard: Other (specify): <u>Equity</u>			<input checked="" type="checkbox"/> Regular (Standard Turnaround Times - Business Days)									
Contact: <u>Mike Aziz</u>			Select: PDF <input checked="" type="checkbox"/> Excel <input checked="" type="checkbox"/> Digital <input type="checkbox"/> Fax			Priority (2-4 Business Days)-50% surcharge - Contact ALS to confirm TAT									
Address: <u>PO Box 1450</u>			Email 1: <u>mike-aziz@goldcorp.com</u>			Emergency (1-2 Business Days)-100% Surcharge - Contact ALS to confirm TAT									
<u>Houston BC V0S1Z0</u>			Email 2: <u>cperrin@limnotek.com</u>			Same Day or Weekend Emergency - Contact ALS to confirm TAT									
Phone: <u>250-845-7799</u> Fax: <u>250-845-2137</u>						<b>Analysis Request</b>									
Invoice To Same as Report? (circle) <input checked="" type="radio"/> or No (If No, provide details)			<b>Client / Project Information</b>			(Indicate Filtered or Preserved, F/P)									
Copy of Invoice with Report? (circle) <input checked="" type="radio"/> or No			Job #: <u>EEM 2014</u>												
Company:			PO / A/E:												
Contact:			LSD:												
Address:			Quote #:												
Phone:			ALS Contact: <u>Courtney Deverall</u>												
Fax:			Sampler: <u>Cody Melts</u>												
Lab Work Order # (lab use only)															
Sample #	Sample Identification (This description will appear on the report)		Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Field PH	Field Cond	TSS	SO <sub>4</sub> /ALK	ACIDITY	NH <sub>4</sub> /NO <sub>3</sub> -N, SRP	TDP, TP	NH <sub>3</sub> /NO <sub>2</sub> /NO <sub>3</sub>	Number of Containers	
	Bessemer @ Siltcheck		26-Jul-14		Water	7.77	2127	✓	✓					3	
	Buck above Bessemer		I			7.51	157.8	✓	✓		✓	✓		4	
	Buck @ Goosly					7.35	293.8	✓	✓		✓	✓			4
	Foxy above Lu					7.60	59.2	✓	✓		✓	✓			4
	Foxy below Berzelius					7.59	145.5	✓	✓		✓	✓			4
	Southern Tail Pit					5.73	5280		✓	✓					3
	Tailings Pond					7.39	963		✓				✓	2	
	Waterline Pit					7.90	1104		✓	✓				3	
	Foxy @ Makar		29-Jul-14			7.43	207.4	✓	✓		✓	✓		4	
	Buck @ K10		"			7.50	181.2	✓	✓		✓	✓		4	
	Filter Blank		28-Jul-14											1	
Special Instructions / Regulation with water or land use (CCME- Freshwater Aquatic Life/BC CSR-Commercial/AB Tier 1-Natural/ETC) / Hazardous Details															
Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.															
By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.															
SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)			SHIPMENT VERIFICATION (lab use only)									
Released by: <u>Eody Melts</u>	Date: <u>July 28/14</u>	Time: <u>15:15</u>	Received by: <u>[Signature]</u>	Date: <u>Aug 1</u>	Time: <u>10:30</u>	Temperature: <u>19</u> °C	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF					

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY

YELLOW - CLIENT COPY

GENF 18.01 Front



L1496124-COFC

Chain of Custody / Analytical Request Form  
Canada Toll Free: 1 800 668 9878  
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10- 368289

Page 2 of 2

<b>Report To</b>		<b>Report Format / Distribution</b>		<b>Service Request:</b> (Rush subject to availability - Contact ALS to confirm TAT)																
Company: <u>Goldcorp Canada - Equity</u>		Standard: Other (specify): <u>Equity</u>		<input checked="" type="checkbox"/> Regular (Standard Turnaround Times - Business Days)																
Contact: <u>Mike Aziz</u>		Select: PDF <input checked="" type="checkbox"/> Excel <input checked="" type="checkbox"/> Digital <input type="checkbox"/> Fax		Priority (2-4 Business Days)-50% surcharge - Contact ALS to confirm TAT																
Address: <u>PO Box 1450</u>		Email 1:		Emergency (1-2 Business Days)-100% Surcharge - Contact ALS to confirm TAT																
<u>Houston BC V0S1Z0</u>		Email 2:		Same Day or Weekend Emergency - Contact ALS to confirm TAT																
Phone: <u>250-845-7799</u> Fax: <u>250-845-2137</u>				<b>Analysis Request</b>																
Invoice To Same as Report? (circle) <u>Yes</u> or No (if No, provide details)		<b>Client / Project Information</b>		(Indicate Filtered or Preserved, F/P)																
Copy of Invoice with Report? (circle) <u>Yes</u> or No		Job #: <u>EEM 2014</u>																		
Company:		PO / AFE:																		
Contact:		LSD:																		
Address:		Quote #:																		
Phone:																				
Fax:																				
Lab Work Order # (lab use only)		ALS <u>Courtney</u>		Sampler: <u>Cody</u>																
Contact: <u>Deverall</u>																				
Sample #	Sample Identification (This description will appear on the report)	Date (dd-mm-yy)	Time (hh:mm)	Sample Type	Total Cu, Cd, Zn	Diss Cu, Cd, Zn, Al	Total ICP	Diss ICP	MET-D-NDR-VA	MET-T-NDR-VA										Number of Containers
	Bessemer @ SN Check	28-Jul-14		water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>														3
	Buck above Bessemer								<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>										4
	Buck @ Goosy								<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>										4
	Foxy above Lu								<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>										4
	Foxy below Berselius								<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>										4
	Southern Tail P.t						<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>												3
	Tailings Pond					<input checked="" type="checkbox"/>														2
	waterline P.t						<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>										3
	Foxy @ Maxon	29-Jul-14							<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>										4
	Buck @ K10	29-Jul-14							<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>										4
	Filter Blank	28-Jul-14							<input checked="" type="checkbox"/>											1
Special Instructions / Regulation with water or land use (CCME- Freshwater Aquatic Life/BC CSR-Commercial/AB Tier 1-Natural/ETC) / Hazardous Details																				
Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.																				