

SILVERTIP PROJECT
Summary of Spot Discharge Measurements 1982 to 1995
(all measurements in m³/s)

Date	Sampler	Camp Cr. WQ-5	Camp Cr. WQ-20	Brinco Cr. WQ-3	Brinco Cr. WQ-14	Silvertip Cr. WQ-2	Silvertip Cr. WQ-21	Silvertip Cr. WQ-8	Silvertip Cr. mouth	Silvertip Cr. WQ-13	Tootsee R. WQ-11
24-Jun-82	Treval		0.002		0.311		0.301		0.631		14.100
4-Jun-84	KPA	0.012		0.141		0.052					
5-Jun-84	KPA	0.021		0.405		0.167					
Oct-84	Cordilleran	0.002		0.062	0.086	0.120	0.123	0.248			
14-Jun-89	KPA	0.064		0.405	0.246	0.317	0.328	0.711			16.400
1-May-90	Strathcona							0.704		0.430	31.090
14-Jun-90	Strathcona							1.567		0.510	64.380
5-Jul-90	Strathcona							0.372		0.384	32.500
16-Aug-90	Strathcona							0.412		0.230	20.960
20-Sep-90	Strathcona							0.154		0.203	31.500
21-May-93	Strathcona							0.856		0.260	
29-Sep-93	Strathcona							0.260		0.227	
31-May-94	Strathcona							0.411		0.109	
6-Sep-94	Strathcona							0.359		0.114	
6-Jun-95	MELP				0.090	0.340					

Silvertip Water Quality / Hydrology Summary June 6-7 1998

Site	Site Name	pH	Temp	Disch.	SG
WQ-2X	Upper Silvertip (0	0.0	0.00	none
WQ-2	Upper Silvertip	0	0.0	0.00	0
WQ-4	Tootsee R. u/s	7.78	7.4	n/a	over *
WQ-8	Upper Silvertip †	0	0.0	0.00	0
WQ-9	Mine Portal	7.16	2.9	n/a	n/a
none	Lower Adit	7.5	3.4	n/a	n/a
WQ-11	Tootsee R. d/s	7.78	9.9	n/a	over *
WQ-16	Brinco Creek	0	0.0	0.00	0
WQ-20	Camp Creek	0	0.0	0.00	0
WQ-25	Silvertip	5.1	4.8	0.00	5.7
WQ-27	Flint Creek	0	0.0	0.00	0
WQ-23	Tributary to Silvi	0	0.0	0.00	0

* staff gauge submerged

Silvertip Water Quality / Hydrology Summary June 26-28 1998

Site	Site Name	pH	Temp	Disch.	SG
WQ-2	Upper Silvertip	0	0.0	0.00	0.00
WQ-4	Tootsee R. u/s	0	0.0	0.00	0.00
WQ-8	Upper Silvertip †	0	0.0	0.00	0.00
WQ-9	Portal	7.22	2.2	n/a	-
WQ-11	Tootsee R. d/s	0	0.0	0.00	0.00
WQ-16	Brinco Creek	0	0.0	0.00	0.00
WQ-20	Camp Creek	5.15	2.9	0.00	0.21
WQ-22	Silvertip u/s	7.97	5.6	n/a	-
WQ-23	Silvertip Tributary	0.00	0.0	0.00	0.00
WQ-25	Silvertip IDS	0.00	0.0	0.00	0.00
WQ-26	Gah Creek	8.07	2.3	-	-
WQ-27	Unnamed Creek	0	0.0	0.00	0.00
S-1	Silver Creek 1	3.01	4.9	-	-
S-2	Silver Creek 2	2.98	4.9	-	-
S-3	Silver Creek 3	4.28	6.8	-	-

Discharge at WQ-20 (V-notch weir) using timed volumetric technique

Stage Discharge Relationships

	WQ-2		WQ-4		WQ-8	
	SG (m)	Q (m3/s)	SG (m)	Q (m3/s)	SG (m)	Q (m3/s)
19-Jul-97			0.90	9.81	0.40	0.61
24-Sep-97	0.45	0.29	0.75	5.66	0.32	0.18
6-Jun-98	0.48	0.37			0.38	0.70
27-Jun-98	0.44	0.14	0.90	7.52	0.33	0.40

	WQ-11		WQ-16		WQ-20	
	SG (m)	Q (m3/s)	SG (m)	Q (m3/s)	SG (m)	Q (m3/s)
19-Jul-97						
24-Sep-97	0.89	6.29	0.28	0.07	0.19	0.0006
6-Jun-98			0.47	0.33	0.26	0.0300
27-Jun-98	0.90	9.45	0.30	0.14	0.21	0.0020

	WQ-23		WQ-25		WQ-27	
	SG (m)	Q (m3/s)	SG (m)	Q (m3/s)	SG (m)	Q (m3/s)
19-Jul-97						
24-Sep-97						
6-Jun-98	n/a	0.22	n/a	0.53	n/a	0.15
27-Jun-98	0.26	0.10	0.20	0.46	0.28	0.12

APPENDIX 2-III-A

Well Logs



GEOLOGIC LOG OF DRILL HOLE NO.: MW11-01 D

DEPTH (m)	SYMBOL	LITHOLOGY	PIEZOMETER DETAILS	PERMEABILITY (m/sec)	ROCK STRENGTH (ISRM)	ROCK MASS WEATHERING	DISCONTINUITY DATA					T.C.R. (%)	S.C.R. (%)	R.Q.D. (%)
							SEE BOTTOM FOR CODES							
							DISCONTINUITY TYPE	ALPHA (DEG)	SPACING (mm)	FRACTURES/M	JOINT INFILL			
(continued from previous page)														
9.1		GRAVEL (GC-GM), with clay-silt and sand, dark grey gravel with grey - green clay-silt										25 50 75	25 50 75	25 50 75
10.7		SAND (SM), and silt with clay trace gravel, green-grey												
12.2														
13.7		CLAY, clay with gravel and sand, dark grey												
15.2														
16.8		SAND (SP-SC) with clay and gravel, dark grey												

KCBL - ROCK-SI, WITH DISCONTINUITIES, SILVERTIP MW INSTALL.GPJ, ROCK-LOG.GDT, 9/13/12

CODES: C: Clean Qz: Quartz Se: Sericite Cl: Clay RC: Rock FeOx: Iron stain P: Pyrite Ca: Calcite Si: Silt	ROUGHNESS: 0: Polished/slicksided/gouge filled 1: Smooth, planar 3: Slightly rough, undulating 5: Rough undulating, stepped 6: Very rough, stepped	WEATHERING: F: Fresh HW: Highly SW: Slightly MW: Moderately	TYPE: F: Fault Sh: Shear B: Bedding J: Joint FL: Foliation Cl: Cleavage	ROCK STRENGTH (MPa) R0: Extremely weak (<1) R1: Very weak (1-5) R2: Weak (5-25)	R3: Medium strong (25-30) R4: Strong (50-100) R5: Very strong (100-250) R6: Extremely strong (>250)
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GEOLOGIC LOG OF DRILL HOLE NO.: MW11-01 D

DEPTH (m)	SYMBOL	LITHOLOGY	PIEZOMETER DETAILS	PERMEABILITY (m/sec)				ROCK STRENGTH (ISRM)	ROCK MASS WEATHERING	DISCONTINUITY DATA					T.C.R. (%)	S.C.R. (%)	R.Q.D. (%)
				10-8	10-6	10-4	10-2			SEE BOTTOM FOR CODES							
										DISCONTINUITY TYPE	ALPHA (DEG)	SPACING (mm)	FRACTURES/M	JOINT INFILL			
		(continued from previous page)															
18.3		CLAY (CL-SM), with sand and gravel, dark grey															
19.8		CLAY (CL), gravel, some sand, dark grey (McDame dolostone formation)															
21.3		SAND and GRAVEL (SC-GC), clayey sand with gravel, dark grey															
22.9																	
24.4																	
25.9		CLAY (CL-SC), sandy clay with some cobbles, dark grey															
27.4		CLAY (CH), clay, trace sand and cobbles, dark grey with black															
CODES: C: Clean Qz: Quartz Se: Sericite Cl: Clay RC: Rock FeOx: Iron stain P: Pyrite Ca: Calcite Si: Silt		ROUGHNESS: 0: Polished/slickensided/gouge filled 5: Rough undulating, stepped 1: Smooth, planar 3: Slightly rough, undulating 6: Very rough, stepped		WEATHERING: F: Fresh HW: Highly SW: Slightly MW: Moderately		TYPE: F: Fault Sh: Shear B: Bedding J: Joint FL: Foliation Cl: Cleavage		ROCK STRENGTH (MPa) R0: Extremely weak (<1) R1: Very weak (1-5) R2: Weak (5-25)		R3: Medium strong (25-30) R4: Strong (50-100) R5: Very strong (100-250) R6: Extremely strong (>250)							

KCBL-ROCK-SI, WITH DISCONTINUITIES, SILVERTIP MW INSTALL.GPJ, ROCK-LOG.GDT, 9/13/12



GEOLOGIC LOG OF DRILL HOLE NO.: MW11-01 D

DEPTH (m)	SYMBOL	LITHOLOGY	PIEZOMETER DETAILS	PERMEABILITY (m/sec)				ROCK STRENGTH (ISRM)		ROCK MASS WEATHERING		DISCONTINUITY DATA					T.C.R. (%)	S.C.R. (%)	R.Q.D. (%)
				10-8	10-6	10-4	10-2	SEE BOTTOM FOR CODES		SEE BOTTOM FOR CODES									
									DISCONTINUITY TYPE	ALPHA (DEG)	SPACING (mm)	FRACTURES/M	JOINT INFILL	ROUGHNESS					
		(continued from previous page)																	
29.0																			
30.5		SAND and GRAVEL (SC-GC), clayey sand with some gravel/cobbles, trace white clay, dark grey																	
32.0		GRAVEL and SAND (GC-SC), boulders/cobbles with grey clay, some sand																	
33.5																			
35.1																			
36.6		GRAVEL and SAND (GC-SC), and cobbles with light grey silt and grey silt/clay, dark grey																	

KCBL-ROCK-SI, WITH DISCONTINUITIES, SILVERTIP MW INSTALL.GPJ, ROCK-LOG.GDT, 9/13/12

CODES:	JOINT INFILL:	ROUGHNESS:	WEATHERING:	TYPE:	ROCK STRENGTH (MPa)	R3: Medium strong (25-30)
	C: Clean Qz: Quartz Se: Sericite Cl: Clay RC: Rock FeOx: Iron stain P: Pyrite Ca: Calcite Si: Silt	0: Polished/slickensided/gouge filled 5: Rough undulating, stepped 1: Smooth, planar 3: Slightly rough, undulating 6: Very rough, stepped	F: Fresh HW: Highly SW: Slightly MW: Moderately	F: Fault Sh: Shear B: Bedding J: Joint FL: Foliation Cl: Cleavage	R0: Extremely weak (<1) R1: Very weak (1-5) R2: Weak (5-25)	R4: Strong (50-100) R5: Very strong (100-250) R6: Extremely strong (>250)



GEOLOGIC LOG OF DRILL HOLE NO.: MW11-01 D

DEPTH (m)	SYMBOL	LITHOLOGY	PIEZOMETER DETAILS	PERMEABILITY (m/sec)	ROCK STRENGTH (ISRM)	ROCK MASS WEATHERING	DISCONTINUITY DATA					T.C.R. (%)	S.C.R. (%)	R.Q.D. (%)
							SEE BOTTOM FOR CODES							
							DISCONTINUITY TYPE	ALPHA (DEG)	SPACING (mm)	FRACTURES/M	JOINT INFILL			
(continued from previous page)														
38.1				10-8 10-6 10-4 10-2								25 50 75	25 50 75	25 50 75
39														
39.6		CLAY, with fine sand-silt trace gravel, dark grey												
40														
41		GRAVEL (GM), some grey-green silty clay, with quartz veins (McDame Formation)												
41.1														
42														
42.7														
43														
44														
44.2														
45														
45.7														
46														
47														
47.2		End of Hole at: 47.2 m												
		120.7 mm borehole diameter from 0 to 45.72 mbGL												
CODES: C: Clean Qz: Quartz Se: Sericite Cl: Clay RC: Rock FeOx: Iron stain P: Pyrite Ca: Calcite Si: Silt		ROUGHNESS: 0: Polished/slickensided/gouge filled 5: Rough undulating, stepped 1: Smooth, planar 3: Slightly rough, undulating 6: Very rough, stepped		WEATHERING: F: Fresh HW: Highly SW: Slightly MW: Moderately		TYPE: F: Fault Sh: Shear B: Bedding J: Joint FL: Foliation Cl: Cleavage		ROCK STRENGTH (MPa) R0: Extremely weak (<1) R1: Very weak (1-5) R2: Weak (5-25)		R3: Medium strong (25-30) R4: Strong (50-100) R5: Very strong (100-250) R6: Extremely strong (>250)				

KCBL-ROCK-SI, WITH DISCONTINUITIES, SILVERTIP MW INSTALL.GPJ, ROCK-LOG.GDT, 9/13/12



GEOLOGIC LOG OF DRILL HOLE NO.: MW11-01 D

DEPTH (m)	SYMBOL	LITHOLOGY	PIEZOMETER DETAILS	PERMEABILITY (m/sec)					ROCK STRENGTH (ISRM)	ROCK MASS WEATHERING	DISCONTINUITY DATA					T.C.R. (%)	S.C.R. (%)	R.Q.D. (%)
				10-8	10-6	10-4	10-2	SEE BOTTOM FOR CODES										
				DISCONTINUITY TYPE	ALPHA (DEG)	SPACING (mm)	FRACTURES/M	JOINT INFILL			ROUGHNESS							
		(continued from previous page)																
49		96 mm borehole diameter from 45.72 to 47.24mbGL																
50		38.1 mm diameter PVC piezometer installed: - completed to 47.24 mbGL - screen interval 45.72 to 47.24 mbGL - stick up 0.87 maGL - SWL = 11.38 mbGL (November 12, 2011)																
51																		
52																		
53																		
54																		
55																		
56																		
57																		
CODES:		JOINT INFILL: C: Clean Qz: Quartz Se: Sericite Cl: Clay RC: Rock FeOx: Iron stain P: Pyrite Ca: Calcite Si: Silt	ROUGHNESS: 0: Polished/slickensided/gouge filled 5: Rough undulating, stepped 1: Smooth, planar 3: Slightly rough, undulating 6: Very rough, stepped	WEATHERING: F: Fresh HW: Highly SW: Slightly MW: Moderately	TYPE: F: Fault Sh: Shear B: Bedding J: Joint FL: Foliation Cl: Cleavage	ROCK STRENGTH (MPa) R0: Extremely weak (<1) R1: Very weak (1-5) R2: Weak (5-25)	R3: Medium strong (25-30) R4: Strong (50-100) R5: Very strong (100-250) R6: Extremely strong (>250)											

KCBL-ROCK-SI, WITH DISCONTINUITIES, SILVERTIP MW INSTALL.GPJ, ROCK-LOG.GDT, 9/13/12



GEOLOGIC LOG OF DRILL HOLE NO.: MW11-01 S

DEPTH (m)	SYMBOL	LITHOLOGY	PIEZOMETER DETAILS	PERMEABILITY (m/sec)	ROCK STRENGTH (ISRM)	ROCK MASS WEATHERING	DISCONTINUITY DATA					T.C.R. (%)	S.C.R. (%)	R.Q.D. (%)
							SEE BOTTOM FOR CODES							
							DISCONTINUITY TYPE	ALPHA (DEG)	SPACING (mm)	FRACTURES/M	JOINT INFILL			
(continued from previous page)				10-8 10-6 10-4 10-2							25 50 75	25 50 75	25 50 75	
9														
10														
11		GRAVEL (GM), with sand and clay												
12		GRAVEL and CLAY (GC-ML), with gravel and sand, green-brown												
13														
14														
15		GRAVEL (GC), with grey-green clay-silt, dark grey												
16														
17														

KCBL-ROCK-SI, WITH DISCONTINUITIES, SILVERTIP MW INSTALL.GPJ, ROCK-LOG.GDT, 9/13/12

CODES:	JOINT INFILL:	ROUGHNESS:	WEATHERING:	TYPE:	ROCK STRENGTH (MPa)	R3: Medium strong (25-30)
	C: Clean Qz: Quartz Se: Sericite Cl: Clay RC: Rock FeOx: Iron stain P: Pyrite Ca: Calcite Si: Silt	0: Polished/slickensided/gouge filled 5: Rough undulating, stepped 1: Smooth, planar 3: Slightly rough, undulating 6: Very rough, stepped	F: Fresh HW: Highly SW: Slightly MW: Moderately	F: Fault Sh: Shear B: Bedding J: Joint FL: Foliation Cl: Cleavage	R0: Extremely weak (<1) R1: Very weak (1-5) R2: Weak (5-25)	R4: Strong (50-100) R5: Very strong (100-250) R6: Extremely strong (>250)



GEOLOGIC LOG OF DRILL HOLE NO.: MW11-01 S

DEPTH (m)	SYMBOL	LITHOLOGY	PIEZOMETER DETAILS	PERMEABILITY (m/sec)				ROCK STRENGTH (ISRM)	ROCK MASS WEATHERING	DISCONTINUITY DATA SEE BOTTOM FOR CODES					T.C.R. (%)	S.C.R. (%)	R.Q.D. (%)	
				10-8	10-6	10-4	10-2			DISCONTINUITY TYPE	ALPHA (DEG)	SPACING (mm)	FRACTURES/M	JOINT INFILL				ROUGHNESS
(continued from previous page)																		
18.3		CLAY (CL), with trace gravel, green-grey																
19																		
19.8		End of Hole at: 19.8 m																
20		120.7 mm borehole diameter from 0 to 12.2 mbGL 98.4 mm borehole diameter from 12.2 to 19.8 mbGL																
21		50.8 mm diameter PVC piezometer installed: - completed to 18.29 mbGL - screen interval 15.24 to 18.29 mbGL - stick up 0.86 maGL - SWL = 11.98 mbGL (November 12, 2011)																
22																		
23																		
24																		
25																		
26																		
27																		
CODES:		JOINT INFILL: C: Clean Qz: Quartz Se: Sericite Cl: Clay RC: Rock FeOx: Iron stain P: Pyrite Ca: Calcite Si: Silt	ROUGHNESS: 0: Polished/slickensided/gouge filled 5: Rough undulating, stepped 1: Smooth, planar 3: Slightly rough, undulating 6: Very rough, stepped	WEATHERING: F: Fresh HW: Highly SW: Slightly MW: Moderately	TYPE: F: Fault Sh: Shear B: Bedding J: Joint FL: Foliation Cl: Cleavage	ROCK STRENGTH (MPa) R0: Extremely weak (<1) R1: Very weak (1-5) R2: Weak (5-25)	R3: Medium strong (25-30) R4: Strong (50-100) R5: Very strong (100-250) R6: Extremely strong (>250)											

KCBL-ROCK-SI, WITH DISCONTINUITIES, SILVERTIP MW INSTALL.GPJ, ROCK-LOG.GDT, 9/13/12



GEOLOGIC LOG OF DRILL HOLE NO.: MW11-02

DEPTH (m)	SYMBOL	LITHOLOGY	PIEZOMETER DETAILS	PERMEABILITY (m/sec) 10-8 10-6 10-4 10-2	ROCK STRENGTH (ISRM)	ROCK MASS WEATHERING	DISCONTINUITY DATA SEE BOTTOM FOR CODES					T.C.R. (%)	S.C.R. (%)	R.Q.D. (%)	
							DISCONTINUITY TYPE	ALPHA (DEG)	SPACING (mm)	FRACTURES/M	JOINT INFILL				ROUGHNESS
9.2		(continued from previous page) grey with quartz and calcite veins, breccia zones filled with quartz				SW	J	0.5 to 2.5	5	C slight FeOx	1	100	92	75	
10.8		Fractured and weathered, poor recovery, Fe-oxide staining				R4	J	0.5 to 2.5	5	C slight FeOx	1	100	76	53	
12.2		End of Hole at: 12.2 m				R4	J	0.5	?	c	1.3	45	20	0	
13.0		120.7 mm borehole diameter from 0 to 3.66 mbGL 96 mm borehole diameter from 3.66 to 12.19 mbGL													
14.0		50.8 mm diameter PVC piezometer installed: - completed to 12.16 mbGL - screen interval 10.58 to 12.10 mbGL - stick up 0.76 maGL - SWL = 0.76 mbGL (October 14, 2011)													

KCBL-ROCK-SI, WITH DISCONTINUITIES, SILVERTIP MW INSTALL.GPJ, ROCK-LOG.GDT, 9/13/12

CODES: C: Clean Qz: Quartz Se: Sericite Cl: Clay RC: Rock FeOx: Iron stain P: Pyrite Ca: Calcite Si: Silt	ROUGHNESS: 0: Polished/slickensided/gouge filled 1: Smooth, planar 3: Slightly rough, undulating 5: Rough undulating, stepped 6: Very rough, stepped	WEATHERING: F: Fresh HW: Highly SW: Slightly MW: Moderately	TYPE: F: Fault Sh: Shear B: Bedding J: Joint FL: Foliation Cl: Cleavage	ROCK STRENGTH (MPa) R0: Extremely weak (<1) R1: Very weak (1-5) R2: Weak (5-25) R3: Medium strong (25-30) R4: Strong (50-100) R5: Very strong (100-250) R6: Extremely strong (>250)
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GEOLOGIC LOG OF DRILL HOLE NO.: MW11-03 D

DEPTH (m)	SYMBOL	LITHOLOGY	PIEZOMETER DETAILS	PERMEABILITY (m/sec)	ROCK STRENGTH (ISRM)	ROCK MASS WEATHERING	DISCONTINUITY DATA					T.C.R. (%)	S.C.R. (%)	R.Q.D. (%)
							SEE BOTTOM FOR CODES							
							DISCONTINUITY TYPE	ALPHA (DEG)	SPACING (mm)	FRACTURES/M	JOINT INFILL			
(continued from previous page)														
9.1		More gravel and cobbles										25 50 75	25 50 75	25 50 75
10.7		GRAVEL (GP), cobbles and gravel with sand and trace silt-clay												
12.2		SILT and SAND (ML-SP), and clay, some gravel												
13.7		SILT and SAND (ML-SC), with clay and sand, some gravel, brown-green-grey												
15.2														
16.8		SAND and GRAVEL (SM-GM), silt with fine sand and clay, with gravel, brown-grey-green												
18.0														
CODES: C: Clean Qz: Quartz Se: Sericite Cl: Clay RC: Rock FeOx: Iron stain P: Pyrite Ca: Calcite Si: Silt		ROUGHNESS: 0: Polished/slicksided/gouge filled 5: Rough undulating, stepped 1: Smooth, planar 3: Slightly rough, undulating 6: Very rough, stepped		WEATHERING: F: Fresh HW: Highly SW: Slightly MW: Moderately		TYPE: F: Fault Sh: Shear B: Bedding J: Joint FL: Foliation Cl: Cleavage		ROCK STRENGTH (MPa) R0: Extremely weak (<1) R1: Very weak (1-5) R2: Weak (5-25)		R3: Medium strong (25-30) R4: Strong (50-100) R5: Very strong (100-250) R6: Extremely strong (>250)				

KCBL-ROCK-SI, WITH DISCONTINUITIES, SILVERTIP MW INSTALL.GPJ, ROCK-LOG.GDT, 9/13/12



GEOLOGIC LOG OF DRILL HOLE NO.: MW11-03 D

DEPTH (m)	SYMBOL	LITHOLOGY	PIEZOMETER DETAILS	PERMEABILITY (m/sec)	ROCK STRENGTH (ISRM)	ROCK MASS WEATHERING	DISCONTINUITY DATA					T.C.R. (%)	S.C.R. (%)	R.Q.D. (%)
							SEE BOTTOM FOR CODES							
							DISCONTINUITY TYPE	ALPHA (DEG)	SPACING (mm)	FRACTURES/M	JOINT INFILL			
		(continued from previous page)		10-8 10-6 10-4 10-2							25 50 75	25 50 75	25 50 75	
18.5		BOULDER, granite												
19		GRAVEL (GM), fine grained sand and silt with gravel and boulders (Till)												
20.7														
21.6														
23.2		GRAVEL and SILT (GM-ML), fine sand with silt and clay, and gravel, cobbles and boulders, grey (Till)												
24.4		SILT and GRAVEL (ML-GM), fine sand with silt and clay, and gravel, cobbles and boulders, grey (Till)												
25.9														
27.4														

KCBL - ROCK-SI, WITH DISCONTINUITIES: SILVERTIP MW INSTALL.GPJ, ROCK-LOG.GDT, 9/13/12

CODES:	JOINT INFILL:	ROUGHNESS:	WEATHERING:	TYPE:	ROCK STRENGTH (MPa)	R3: Medium strong (25-30)
	C: Clean Qz: Quartz Se: Sericite Cl: Clay RC: Rock FeOx: Iron stain P: Pyrite Ca: Calcite Si: Silt	0: Polished/slickensided/gouge filled 1: Smooth, planar 3: Slightly rough, undulating 5: Rough undulating, stepped 6: Very rough, stepped	F: Fresh HW: Highly SW: Slightly MW: Moderately	F: Fault Sh: Shear B: Bedding J: Joint FL: Foliation Cl: Cleavage	R0: Extremely weak (<1) R1: Very weak (1-5) R2: Weak (5-25)	R4: Strong (50-100) R5: Very strong (100-250) R6: Extremely strong (>250)



GEOLOGIC LOG OF DRILL HOLE NO.: MW11-03 D

DEPTH (m)	SYMBOL	LITHOLOGY	PIEZOMETER DETAILS	PERMEABILITY (m/sec)				ROCK STRENGTH (ISRM)	ROCK MASS WEATHERING	DISCONTINUITY DATA					T.C.R. (%)	S.C.R. (%)	R.Q.D. (%)		
				10-8	10-6	10-4	10-2			SEE BOTTOM FOR CODES									
				DISCONTINUITY TYPE						ALPHA (DEG)	SPACING (mm)	FRACTURES/M	JOINT INFILL	ROUGHNESS					
		(continued from previous page)																	
38.4		LIMESTONE with abundant quartz and calcite veins, highly fractured, grey (McDame Formation)					R3	F to SW	J	1 to 2.5									
								F to SW	J	1 to 2.5									
								F to SW	J	1 to 2.5									
								F to SW	J	1 to 2.5									
								F to SW	F	0.1 to 50									
								F to SW	F	0.1 to 50									
								F to SW	J	0.1 to 50									
39								F to SW	F	0.1 to 50	10				84	55	36		
								F to SW	J	0.1 to 50									
								F to SW	J	0.1 to 50									
39.9		End of Hole at: 39.9 m																	
40		114.3 mm borehole diameter from 0 to 39.93 mbGL																	
41		38.1 mm diameter PVC piezometer installed: - completed to 39.65 mbGL - screen interval 38.13 to 39.65 mbGL - stick up 0.99 maGL - SWL = 20.48 mbGL (November 11, 2011)																	
42																			
43																			
44																			
45																			
46																			
47																			

KCBL-ROCK-SI, WITH DISCONTINUITIES, SILVERTIP MW INSTALL.GPJ, ROCK-LOG.GDT, 9/13/12

CODES:	JOINT INFILL:	ROUGHNESS:	WEATHERING:	TYPE:	ROCK STRENGTH (MPa)
	C: Clean Qz: Quartz Se: Sericite Cl: Clay RC: Rock FeOx: Iron stain P: Pyrite Ca: Calcite Si: Silt	0: Polished/slickensided/gouge filled 5: Rough undulating, stepped 1: Smooth, planar 3: Slightly rough, undulating 6: Very rough, stepped	F: Fresh HW: Highly SW: Slightly MW: Moderately	F: Fault Sh: Shear B: Bedding J: Joint FL: Foliation Cl: Cleavage	R0: Extremely weak (<1) R1: Very weak (1-5) R2: Weak (5-25) R3: Medium strong (25-30) R4: Strong (50-100) R5: Very strong (100-250) R6: Extremely strong (>250)



GEOLOGIC LOG OF DRILL HOLE NO.: MW11-03 S

DEPTH (m)	SYMBOL	LITHOLOGY	PIEZOMETER DETAILS	PERMEABILITY (m/sec)				ROCK STRENGTH (ISRM)	ROCK MASS WEATHERING	DISCONTINUITY DATA					T.C.R. (%)	S.C.R. (%)	R.Q.D. (%)
				10-8	10-6	10-4	10-2			SEE BOTTOM FOR CODES							
				DISCONTINUITY TYPE	ALPHA (DEG)	SPACING (mm)	FRACTURES/M			JOINT INFILL	ROUGHNESS						
(continued from previous page)																	
9.1		GRAVEL (GM), fine to coarse gravel with sand and silt															
10.7		SILT and GRAVEL (ML-GM), with fine sand, grey-brown															
12.2																	
13.7		GRAVEL and SAND (GC-SC), clayey gravel with sand and silt, brown-grey															
15.2		CLAY and GRAVEL (CL-GC), clay with gravel and sand, grey-brown															
16.8		CLAY and SAND (CL-SC), clay with sand and gravel, grey-brown															

KCBL-ROCK-SI, WITH DISCONTINUITIES, SILVERTIP MW INSTALL.GPJ, ROCK-LOG.GDT, 9/13/12

CODES:	JOINT INFILL:	ROUGHNESS:	WEATHERING:	TYPE:	ROCK STRENGTH (MPa)	R3: Medium strong (25-30)
	C: Clean Qz: Quartz Se: Sericite Cl: Clay RC: Rock FeOx: Iron stain P: Pyrite Ca: Calcite Si: Silt	0: Polished/slickensided/gouge filled 1: Smooth, planar 3: Slightly rough, undulating 5: Rough undulating, stepped 6: Very rough, stepped	F: Fresh HW: Highly SW: Slightly MW: Moderately	F: Fault Sh: Shear B: Bedding J: Joint FL: Foliation Cl: Cleavage	R0: Extremely weak (<1) R1: Very weak (1-5) R2: Weak (5-25)	R4: Strong (50-100) R5: Very strong (100-250) R6: Extremely strong (>250)



GEOLOGIC LOG OF DRILL HOLE NO.: MW11-03 S

DEPTH (m)	SYMBOL	LITHOLOGY	PIEZOMETER DETAILS	PERMEABILITY (m/sec)				ROCK STRENGTH (ISRM)	ROCK MASS WEATHERING	DISCONTINUITY DATA					T.C.R. (%)	S.C.R. (%)	R.Q.D. (%)
				10-8	10-6	10-4	10-2			SEE BOTTOM FOR CODES							
				DISCONTINUITY TYPE	ALPHA (DEG)	SPACING (mm)	FRACTURES/M			JOINT INFILL	ROUGHNESS						
		(continued from previous page)															
18.3		More gravel	▽														
19																	
19.8																	
20																	
21																	
21.3		GRAVEL (GC), with clay and sand, brown-grey															
22																	
22.9		SAND and SILT (SM-ML), and gravel with clay and silt															
23																	
23.5																	
24		End of Hole at: 23.5 m															
25		114.3 mm borehole diameter from 0 to 39.93 mbGL 50.8 mm diameter PVC piezometer installed: - completed to 22.65 mbGL - screen interval 22.12 to 22.65 mbGL - stick up 0.99 maGL - SWL = 18.47 mbGL (November 8, 2011)															
26																	
27																	
CODES:		JOINT INFILL: C: Clean Qz: Quartz Se: Sericite Cl: Clay RC: Rock FeOx: Iron stain P: Pyrite Ca: Calcite Si: Silt	ROUGHNESS: 0: Polished/slickensided/gouge filled 5: Rough undulating, stepped 1: Smooth, planar 3: Slightly rough, undulating 6: Very rough, stepped	WEATHERING: F: Fresh HW: Highly SW: Slightly MW: Moderately	TYPE: F: Fault Sh: Shear B: Bedding J: Joint FL: Foliation Cl: Cleavage	ROCK STRENGTH (MPa) R0: Extremely weak (<1) R1: Very weak (1-5) R2: Weak (5-25)	R3: Medium strong (25-30) R4: Strong (50-100) R5: Very strong (100-250) R6: Extremely strong (>250)										

KCB_L_ROCK-SI_WITH DISCONTINUITIES_SILVERTIP MW INSTALL.GPJ ROCK-LOG.GDT 9/13/12



GEOLOGIC LOG OF DRILL HOLE NO.: MW11-04 D

DEPTH (m)	SYMBOL	LITHOLOGY	PIEZOMETER DETAILS	PERMEABILITY (m/sec)				ROCK STRENGTH (ISRM)	ROCK MASS WEATHERING	DISCONTINUITY DATA					T.C.R. (%)	S.C.R. (%)	R.Q.D. (%)
				10-8	10-6	10-4	10-2			SEE BOTTOM FOR CODES							
										DISCONTINUITY TYPE	ALPHA (DEG)	SPACING (mm)	FRACTURES/M	JOINT INFILL			
		(continued from previous page)															
9		GRAVEL (GP), coarse gravel with sand, trace silt (Earn phyllite Formation)															
10																	
11		CLAY (CLG), with gravel and some sand, green-grey															
12																	
13		SILT (MLG), with fine sand and gravel, green-grey															
14																	
15		CLAY (CLG), with gravel and some sand, green-grey															
16																	
17		CLAY (CLS), with sand and some gravel, green-grey															
CODES: C: Clean Qz: Quartz Se: Sericite Cl: Clay RC: Rock FeOx: Iron stain P: Pyrite Ca: Calcite Si: Silt		ROUGHNESS: 0: Polished/slickensided/gouge filled 5: Rough undulating, stepped 1: Smooth, planar 3: Slightly rough, undulating 6: Very rough, stepped		WEATHERING: F: Fresh HW: Highly SW: Slightly MW: Moderately		TYPE: F: Fault Sh: Shear B: Bedding J: Joint FL: Foliation Cl: Cleavage		ROCK STRENGTH (MPa) R0: Extremely weak (<1) R1: Very weak (1-5) R2: Weak (5-25)		R3: Medium strong (25-30) R4: Strong (50-100) R5: Very strong (100-250) R6: Extremely strong (>250)							

KCBL-ROCK-SI, WITH DISCONTINUITIES, SILVERTIP MW INSTALL.GPJ, ROCK-LOG.GDT, 9/13/12



GEOLOGIC LOG OF DRILL HOLE NO.: MW11-04 D

DEPTH (m)	SYMBOL	LITHOLOGY	PIEZOMETER DETAILS	PERMEABILITY (m/sec)				ROCK STRENGTH (ISRM)	ROCK MASS WEATHERING	DISCONTINUITY DATA					T.C.R. (%)	S.C.R. (%)	R.Q.D. (%)
				10-8	10-6	10-4	10-2			SEE BOTTOM FOR CODES							
				DISCONTINUITY TYPE	ALPHA (DEG)	SPACING (mm)	FRACTURES/M			JOINT INFILL	ROUGHNESS						
		(continued from previous page)															
18.3		CLAY (CLG), with gravel, green grey (Earn phyllite Formation)															
19																	
19.8		CLAY (CLG), sandy clay with gravel; 60% sandy clay, green-grey															
20																	
21																	
21.3		GRAVEL (GC), with sandy-clay (Earn Formation)															
22																	
22.9																	
23																	
24																	
24.4		No returns, likely still in overburden															
25																	
26																	
27																	
27.4		SAND (SC), fine-grained sand, silt and clay, very dense, grey-green (Basal Till)															

KCBL-ROCK-SI, WITH DISCONTINUITIES, SILVERTIP MW INSTALL.GPJ, ROCK-LOG.GDT, 9/13/12

CODES:	JOINT INFILL:	ROUGHNESS:	WEATHERING:	TYPE:	ROCK STRENGTH (MPa)	R3: Medium strong (25-30)
	C: Clean Qz: Quartz Se: Sericite Cl: Clay RC: Rock FeOx: Iron stain P: Pyrite Ca: Calcite Si: Silt	0: Polished/slickensided/gouge filled 5: Rough undulating, stepped 1: Smooth, planar 3: Slightly rough, undulating 6: Very rough, stepped	F: Fresh HW: Highly SW: Slightly MW: Moderately	F: Fault Sh: Shear B: Bedding J: Joint FL: Foliation Cl: Cleavage	R0: Extremely weak (<1) R1: Very weak (1-5) R2: Weak (5-25)	R4: Strong (50-100) R5: Very strong (100-250) R6: Extremely strong (>250)



GEOLOGIC LOG OF DRILL HOLE NO.: MW11-04 D

DEPTH (m)	SYMBOL	LITHOLOGY	PIEZOMETER DETAILS	PERMEABILITY (m/sec)	ROCK STRENGTH (ISRM)	ROCK MASS WEATHERING	DISCONTINUITY DATA				T.C.R. (%)	S.C.R. (%)	R.Q.D. (%)
							SEE BOTTOM FOR CODES						
							DISCONTINUITY TYPE	ALPHA (DEG)	SPACING (mm)	FRACTURES/M			
(continued from previous page)													
28.0		LIMESTONE or DOLOSTONE (MDML or MDMD), fine-grained dolostone with quartz veins, light grey			R3	SW F	0.1 to 2						
28.7		LIMESTONE, dolostone with some Fe-oxide staining in fractures, light grey, changes to dark grey fossiliferous fine-grained dolostone with quartz and fine calcite veins			R3	SW J	0.1 to 5						
30.2		LIMESTONE, fine-grained dolostone with quartz veins and fine calcite veins, some Fe-oxide in fractures, grey (McDame Formation)			R3	SW J	0.1 to 5						
31.7		Less fractures			R3	SW J	0.1 to 5						
33.2		Less fractures			R3	SW J	0.1 to 2						
34.7		End of Hole at: 34.8 m											
35		114.3 mm borehole diameter from 0 to 24.38 mbGL 75.7 mm borehole diameter from 24.38 to 34.75 mbGL											
36		38.1 mm diameter PVC piezometer installed: - completed to 33.19 mbGL - screen interval 30.14 to 33.19 mbGL - stick up 0.90 maGL - SWL = 4.39 mbGL (November 12, 2011)											
37													

CODES: JOINT INFILL: C: Clean Qz: Quartz Se: Sericite
 Cl: Clay RC: Rock FeOx: Iron stain
 P: Pyrite Ca: Calcite Si: Silt
 ROUGHNESS: 0: Polished/slickensided/gouge filled 5: Rough undulating, stepped
 1: Smooth, planar 6: Very rough, stepped
 3: Slightly rough, undulating
 WEATHERING: F: Fresh HW: Highly
 SW: Slightly MW: Moderately
 TYPE: F: Fault Sh: Shear
 B: Bedding J: Joint
 FL: Foliation Cl: Cleavage
 ROCK STRENGTH (MPa) R0: Extremely weak (<1)
 R1: Very weak (1-5)
 R2: Weak (5-25)
 R3: Medium strong (25-30)
 R4: Strong (50-100)
 R5: Very strong (100-250)
 R6: Extremely strong (>250)

KCB_L_ROCK-SI_WITH DISCONTINUITIES_SILVERTIP_MW_INSTALL.GPJ ROCK-LOG.GDT 9/13/12



GEOLOGIC LOG OF DRILL HOLE NO.: MW11-04 S

DEPTH (m)	SYMBOL	LITHOLOGY	PIEZOMETER DETAILS	PERMEABILITY (m/sec)	ROCK STRENGTH (ISRM)	ROCK MASS WEATHERING	DISCONTINUITY DATA					T.C.R. (%)	S.C.R. (%)	R.Q.D. (%)
							SEE BOTTOM FOR CODES							
							DISCONTINUITY TYPE	ALPHA (DEG)	SPACING (mm)	FRACTURES/M	JOINT INFILL			
(continued from previous page)														
9.1		GRAVEL (GM), with fine sand and silt		10-8 10-6 10-4 10-2								25 50 75	25 50 75	25 50 75
10.7														
11.3		GRAVEL (GC), with clay-silt and fine-sand												
11.6		End of Hole at: 11.6 m												
12		114.3 mm borehole diameter from 0 to 11.58 mbGL												
13		50.8 mm diameter PVC piezometer installed: - completed to 11.29 mbGL - screen interval 9.77 to 11.29 mbGL - stick up 0.99 maGL - SWL = 6.66 mbGL (November 12, 2011)												
14														
15														
16														
17														
CODES:		JOINT INFILL: C: Clean Qz: Quartz Se: Sericite Cl: Clay RC: Rock FeOx: Iron stain P: Pyrite Ca: Calcite Si: Silt	ROUGHNESS: 0: Polished/slickensided/gouge filled 5: Rough undulating, stepped 1: Smooth, planar 3: Slightly rough, undulating 6: Very rough, stepped	WEATHERING: F: Fresh HW: Highly SW: Slightly MW: Moderately	TYPE: F: Fault Sh: Shear B: Bedding J: Joint FL: Foliation Cl: Cleavage	ROCK STRENGTH (MPa) R0: Extremely weak (<1) R1: Very weak (1-5) R2: Weak (5-25)	R3: Medium strong (25-30) R4: Strong (50-100) R5: Very strong (100-250) R6: Extremely strong (>250)							

KCBL-ROCK-SI, WITH DISCONTINUITIES, SILVERTIP MW INSTALL.GPJ, ROCK-LOG.GDT, 9/13/12



GEOLOGIC LOG OF DRILL HOLE NO.: MW11-05 D

DEPTH (m)	SYMBOL	LITHOLOGY	PIEZOMETER DETAILS	PERMEABILITY (m/sec)				ROCK STRENGTH (ISRM)	ROCK MASS WEATHERING	DISCONTINUITY DATA					T.C.R. (%)	S.C.R. (%)	R.Q.D. (%)
				10-8	10-6	10-4	10-2			SEE BOTTOM FOR CODES							
				DISCONTINUITY TYPE	ALPHA (DEG)	SPACING (mm)	FRACTURES/M			JOINT INFILL	ROUGHNESS						
		(continued from previous page)															
9.1																	
10.7		CLAY (CH), clay with fine sand and trace gravel, brown-green															
12.2																	
13.7		CLAY (CH), high plasticity clay with trace sand and gravel, grey, sticky															
15.2		Same as above but stiff															
16.8		GRAVEL (GC), clayey gravel with some sand, grey															

KCB_L_ROCK-SI_WITH_DISCONTINUITIES_SILVERTIP_MW_INSTALL.GPJ ROCK-LOG.GDT 9/13/12

CODES:	JOINT INFILL:	ROUGHNESS:	WEATHERING:	TYPE:	ROCK STRENGTH (MPa)	R3: Medium strong (25-30)
	C: Clean Qz: Quartz Se: Sericite Cl: Clay RC: Rock FeOx: Iron stain P: Pyrite Ca: Calcite Si: Silt	0: Polished/slickensided/gouge filled 5: Rough undulating, stepped 1: Smooth, planar 3: Slightly rough, undulating 6: Very rough, stepped	F: Fresh HW: Highly SW: Slightly MW: Moderately	F: Fault Sh: Shear B: Bedding J: Joint FL: Foliation Cl: Cleavage	R0: Extremely weak (<1) R1: Very weak (1-5) R2: Weak (5-25)	R4: Strong (50-100) R5: Very strong (100-250) R6: Extremely strong (>250)



GEOLOGIC LOG OF DRILL HOLE NO.: MW11-05 D

DEPTH (m)	SYMBOL	LITHOLOGY	PIEZOMETER DETAILS	PERMEABILITY (m/sec)				ROCK STRENGTH (ISRM)		ROCK MASS WEATHERING		DISCONTINUITY DATA					T.C.R. (%)	S.C.R. (%)	R.Q.D. (%)
				10-8	10-6	10-4	10-2	SEE BOTTOM FOR CODES		DISCONTINUITY TYPE	ALPHA (DEG)	SPACING (mm)	FRACTURES/M	JOINT INFILL	ROUGHNESS				
		(continued from previous page)																	
18.3		GRAVEL (GM), with silt and some sand, grey (Earn Formation)																	
19.8		GRAVEL (GW), with fine to coarse sand trace silt																	
21.3																			
22.9		SAND (SW-SM), fine to coarse sand with silt and some gravel, brown																	
24.4		GRAVEL (GW), fine to coarse gravel with with fine to coarse sand, trace silt																	
25.9																			
27.4		GRAVEL (GW), fine to medium gravel with medium to fine sand (Earn Formation)																	
CODES: C: Clean Qz: Quartz Se: Sericite Cl: Clay RC: Rock FeOx: Iron stain P: Pyrite Ca: Calcite Si: Silt		ROUGHNESS: 0: Polished/slickensided/gouge filled 5: Rough undulating, stepped 1: Smooth, planar 3: Slightly rough, undulating 6: Very rough, stepped		WEATHERING: F: Fresh HW: Highly SW: Slightly MW: Moderately		TYPE: F: Fault Sh: Shear B: Bedding J: Joint FL: Foliation Cl: Cleavage		ROCK STRENGTH (MPa) R0: Extremely weak (<1) R1: Very weak (1-5) R2: Weak (5-25)		R3: Medium strong (25-30) R4: Strong (50-100) R5: Very strong (100-250) R6: Extremely strong (>250)									

KCBL-ROCK-SI, WITH DISCONTINUITIES, SILVERTIP MW INSTALL.GPJ, ROCK-LOG.GDT, 9/13/12



GEOLOGIC LOG OF DRILL HOLE NO.: MW11-05 D

DEPTH (m)	SYMBOL	LITHOLOGY	PIEZOMETER DETAILS	PERMEABILITY (m/sec)	ROCK STRENGTH (ISRM)	ROCK MASS WEATHERING	DISCONTINUITY DATA					T.C.R. (%)	S.C.R. (%)	R.Q.D. (%)
							SEE BOTTOM FOR CODES							
							DISCONTINUITY TYPE	ALPHA (DEG)	SPACING (mm)	FRACTURES/M	JOINT INFILL			
(continued from previous page)														
29.0				10-8 10-6 10-4 10-2								25 50 75	25 50 75	25 50 75
30.5														
32.0														
33.5														
34.7														
35.2	X	SILTSTONE, fine-grained shale-argillite-siltstone with some quartz veins, thinly laminated, dark grey Fe-oxide along laminations and fractures, some alteration to clay, visible pyrite, fractured (Earn Formation) Highly fractured				SW	J or B	0.1 to 2.0		FeOx Qz Cl	1			
36.6	X					SW		0.1 to 2.0	> 10	c FeOx	1 and 3	85	45	0
37.0	X					SW		0.1 to 2.0	> 10	c FeOx Qz	1 and 3	80	43	0

KCB_L_ROCK-SI_WITH DISCONTINUITIES_SILVERTIP MW INSTALL.GPJ ROCK-LOG.GDT 9/13/12

CODES: C: Clean Qz: Quartz Se: Sericite Cl: Clay RC: Rock FeOx: Iron stain P: Pyrite Ca: Calcite Si: Silt	ROUGHNESS: 0: Polished/slickensided/gouge filled 1: Smooth, planar 3: Slightly rough, undulating 5: Rough undulating, stepped 6: Very rough, stepped	WEATHERING: F: Fresh HW: Highly SW: Slightly MW: Moderately	TYPE: F: Fault Sh: Shear B: Bedding J: Joint FL: Foliation Cl: Cleavage	ROCK STRENGTH (MPa) R0: Extremely weak (<1) R1: Very weak (1-5) R2: Weak (5-25) R3: Medium strong (25-30) R4: Strong (50-100) R5: Very strong (100-250) R6: Extremely strong (>250)
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GEOLOGIC LOG OF DRILL HOLE NO.: MW11-05 D

DEPTH (m)	SYMBOL	LITHOLOGY	PIEZOMETER DETAILS	PERMEABILITY (m/sec)	ROCK STRENGTH (ISRM)	ROCK MASS WEATHERING	DISCONTINUITY DATA					T.C.R. (%)	S.C.R. (%)	R.Q.D. (%)
							SEE BOTTOM FOR CODES							
							DISCONTINUITY TYPE	ALPHA (DEG)	SPACING (mm)	FRACTURES/M	JOINT INFILL			
		(continued from previous page)		10-8 10-6 10-4 10-2							25 50 75	25 50 75	25 50 75	
39	X	38.4				SW	0.1 to 2.0	10	c 1 and 3 FeOx Oz	60	0	0	0	
40	X	39.4				SW	0.1 to 2.0	10	c 1 and 3	60	0	0	0	
41	X	39.9				SW	0.1 to 2.0	10	c 1 and 3	75	32	9	9	
41	X	41.1												
		End of Hole at: 41.1 m												
		114.3 mm borehole diameter from 0 to 34.75 mbGL 75.7 mm borehole diameter from 34.75 to 41.07 mbGL												
		38.1 mm diameter PVC piezometer installed: - completed to 40.96 mbGL - screen interval 39.44 to 40.96 mbGL - stick up 0.93 maGL - SWL = 2.02 mbGL (November 10, 2011)												

KCBL-ROCK-SI WITH DISCONTINUITIES SILVERTIP MW INSTALL.GPJ ROCK.LOG.GDT 9/13/12

CODES:	JOINT INFILL:	ROUGHNESS:	WEATHERING:	TYPE:	ROCK STRENGTH (MPa)	R3: Medium strong (25-30)
	C: Clean Qz: Quartz Se: Sericite Cl: Clay RC: Rock FeOx: Iron stain P: Pyrite Ca: Calcite Si: Silt	0: Polished/slickensided/gouge filled 5: Rough undulating, stepped 1: Smooth, planar 3: Slightly rough, undulating 6: Very rough, stepped	F: Fresh HW: Highly SW: Slightly MW: Moderately	F: Fault Sh: Shear B: Bedding J: Joint FL: Foliation Cl: Cleavage	R0: Extremely weak (<1) R1: Very weak (1-5) R2: Weak (5-25)	R4: Strong (50-100) R5: Very strong (100-250) R6: Extremely strong (>250)



GEOLOGIC LOG OF DRILL HOLE NO.: MW11-05 S

DEPTH (m)	SYMBOL	LITHOLOGY	PIEZOMETER DETAILS	PERMEABILITY (m/sec)	ROCK STRENGTH (ISRM)	ROCK MASS WEATHERING	DISCONTINUITY DATA					T.C.R. (%)	S.C.R. (%)	R.Q.D. (%)
							SEE BOTTOM FOR CODES							
							DISCONTINUITY TYPE	ALPHA (DEG)	SPACING (mm)	FRACTURES/M	JOINT INFILL			
		(continued from previous page)		10-8 10-6 10-4 10-2								25 50 75	25 50 75	25 50 75
9														
10														
10.4		CLAY (CLS), clay with sand, trace gravel, wet and sticky, brown												
11														
12														
12.2		End of Hole at: 12.2 m												
13		114.3 mm borehole diameter from 0 to 12.19 mbGL												
14		50.8 mm diameter PVC piezometer installed: - completed to 10.27 mbGL - screen interval 8.75 to 10.27 mbGL - stick up 0.76 maGL - SWL = 6.4 mbGL (November 10, 2011)												
15														
16														
17														
CODES:		JOINT INFILL: C: Clean Qz: Quartz Se: Sericite Cl: Clay RC: Rock FeOx: Iron stain P: Pyrite Ca: Calcite Si: Silt	ROUGHNESS: 0: Polished/slickensided/gouge filled 5: Rough undulating, stepped 1: Smooth, planar 3: Slightly rough, undulating 6: Very rough, stepped	WEATHERING: F: Fresh HW: Highly SW: Slightly MW: Moderately	TYPE: F: Fault Sh: Shear B: Bedding J: Joint FL: Foliation Cl: Cleavage	ROCK STRENGTH (MPa) R0: Extremely weak (<1) R1: Very weak (1-5) R2: Weak (5-25)	R3: Medium strong (25-30) R4: Strong (50-100) R5: Very strong (100-250) R6: Extremely strong (>250)							

KCBL-ROCK-SI, WITH DISCONTINUITIES, SILVERTIP MW INSTALL.GPJ, ROCK-LOG.GDT, 9/13/12



GEOLOGIC LOG OF DRILL HOLE NO.: MW11-06

DEPTH (m)	SYMBOL	LITHOLOGY	PIEZOMETER DETAILS	PERMEABILITY (m/sec)	ROCK STRENGTH (ISRM)	ROCK MASS WEATHERING	DISCONTINUITY DATA					T.C.R. (%)	S.C.R. (%)	R.Q.D. (%)
							SEE BOTTOM FOR CODES							
							DISCONTINUITY TYPE	ALPHA (DEG)	SPACING (mm)	FRACTURES/M	JOINT INFILL			
(continued from previous page)														
18.3		SILT (MH), clay, silty, dense, dark grey										25 50 75	25 50 75	25 50 75
19.8														
21.3		GRAVEL, siltstone gravel with clay, dark grey												
22.9		CLAY, silty, trace gravel, dense, dark grey, poor recovery												
25.9														
27.4		End of Hole at: 27.4 m												
CODES: C: Clean Qz: Quartz Se: Sericite Cl: Clay RC: Rock FeOx: Iron stain P: Pyrite Ca: Calcite Si: Silt		ROUGHNESS: 0: Polished/slickensided/gouge filled 5: Rough undulating, stepped 1: Smooth, planar 3: Slightly rough, undulating 6: Very rough, stepped		WEATHERING: F: Fresh HW: Highly SW: Slightly MW: Moderately		TYPE: F: Fault Sh: Shear B: Bedding J: Joint FL: Foliation Cl: Cleavage		ROCK STRENGTH (MPa) R0: Extremely weak (<1) R1: Very weak (1-5) R2: Weak (5-25)		R3: Medium strong (25-30) R4: Strong (50-100) R5: Very strong (100-250) R6: Extremely strong (>250)				

KCB_L_ROCK-SI_WITH DISCONTINUITIES_SILVERTIP MW INSTALL.GPJ ROCK-LOG.GDT 9/13/12



GEOLOGIC LOG OF DRILL HOLE NO.: MW11-07 D

DEPTH (m)	SYMBOL	LITHOLOGY	PIEZOMETER DETAILS	PERMEABILITY (m/sec)	ROCK STRENGTH (ISRM)	ROCK MASS WEATHERING	DISCONTINUITY DATA					T.C.R. (%)	S.C.R. (%)	R.Q.D. (%)
							SEE BOTTOM FOR CODES							
							DISCONTINUITY TYPE	ALPHA (DEG)	SPACING (mm)	FRACTURES/M	JOINT INFILL			
(continued from previous page)				10-8 10-6 10-4 10-2							25 50 75	25 50 75	25 50 75	
9		Soft												
10														
11														
12														
13		CLAY (CH), silty, brown to grey, soft												
14		SAND (SM), some clay, some fine gravel, light brown to light grey												
15		SAND (SW), and fine gravel (siltstone/chert)												
16														
17														

KCBL-ROCK-SI, WITH DISCONTINUITIES, SILVERTIP MW INSTALL.GPJ, ROCK-LOG.GDT, 9/13/12

CODES:	JOINT INFILL:	ROUGHNESS:	WEATHERING:	TYPE:	ROCK STRENGTH (MPa)	R3: Medium strong (25-30)
	C: Clean Qz: Quartz Se: Sericite Cl: Clay RC: Rock FeOx: Iron stain P: Pyrite Ca: Calcite Si: Silt	0: Polished/slickensided/gouge filled 5: Rough undulating, stepped 1: Smooth, planar 3: Slightly rough, undulating 6: Very rough, stepped	F: Fresh HW: Highly SW: Slightly MW: Moderately	F: Fault Sh: Shear B: Bedding J: Joint FL: Foliation Cl: Cleavage	R0: Extremely weak (<1) R1: Very weak (1-5) R2: Weak (5-25)	R4: Strong (50-100) R5: Very strong (100-250) R6: Extremely strong (>250)



GEOLOGIC LOG OF DRILL HOLE NO.: MW11-07 D

DEPTH (m)	SYMBOL	LITHOLOGY	PIEZOMETER DETAILS	PERMEABILITY (m/sec)	ROCK STRENGTH (ISRM)	ROCK MASS WEATHERING	DISCONTINUITY DATA					T.C.R. (%)	S.C.R. (%)	R.Q.D. (%)
							SEE BOTTOM FOR CODES							
							DISCONTINUITY TYPE	ALPHA (DEG)	SPACING (mm)	FRACTURES/M	JOINT INFILL			
		(continued from previous page)		10-8 10-6 10-4 10-2							25 50 75	25 50 75	25 50 75	
19														
20														
21														
22		GRAVEL (GW), some sand, outwash gravel? (chert/siltstone)												
23														
24		SAND (SW) and fine gravel, brown												
25														
26		Artesian flow												
27														
CODES:		JOINT INFILL: C: Clean Qz: Quartz Se: Sericite Cl: Clay RC: Rock FeOx: Iron stain P: Pyrite Ca: Calcite Si: Silt	ROUGHNESS: 0: Polished/slickensided/gouge filled 5: Rough undulating, stepped 1: Smooth, planar 3: Slightly rough, undulating 6: Very rough, stepped	WEATHERING: F: Fresh HW: Highly SW: Slightly MW: Moderately	TYPE: F: Fault Sh: Shear B: Bedding J: Joint FL: Foliation Cl: Cleavage	ROCK STRENGTH (MPa) R0: Extremely weak (<1) R1: Very weak (1-5) R2: Weak (5-25)	R3: Medium strong (25-30) R4: Strong (50-100) R5: Very strong (100-250) R6: Extremely strong (>250)							

KCBL-ROCK-SI, WITH DISCONTINUITIES, SILVERTIP MW INSTALL.GPJ, ROCK-LOG.GDT, 9/13/12



GEOLOGIC LOG OF DRILL HOLE NO.: MW11-07 D

DEPTH (m)	SYMBOL	LITHOLOGY	PIEZOMETER DETAILS	PERMEABILITY (m/sec)					ROCK STRENGTH (ISRM)	ROCK MASS WEATHERING	DISCONTINUITY DATA					T.C.R. (%)	S.C.R. (%)	R.Q.D. (%)
				10-8	10-6	10-4	10-2	SEE BOTTOM FOR CODES										
				DISCONTINUITY TYPE	ALPHA (DEG)	SPACING (mm)	FRACTURES/M	JOINT INFILL			ROUGHNESS							
		(continued from previous page)																
39		- screen interval 34.44 to 35.96 mbGL - stick up 0.96 maGL - SWL = 22.8 mbGL (November 19, 2011)																
40																		
41																		
42																		
43																		
44																		
45																		
46																		
47																		

KCBL_ROCK-SI_WITH DISCONTINUITIES_SILVERTIP MW INSTALL.GPJ ROCK-LOG.GDT 9/13/12

CODES: C: Clean Qz: Quartz Se: Sericite Cl: Clay RC: Rock FeOx: Iron stain P: Pyrite Ca: Calcite Si: Silt	ROUGHNESS: 0: Polished/slickensided/gouge filled 5: Rough undulating, stepped 1: Smooth, planar 3: Slightly rough, undulating 6: Very rough, stepped	WEATHERING: F: Fresh HW: Highly SW: Slightly MW: Moderately	TYPE: F: Fault Sh: Shear B: Bedding J: Joint FL: Foliation Cl: Cleavage	ROCK STRENGTH (MPa) R0: Extremely weak (<1) R1: Very weak (1-5) R2: Weak (5-25)	R3: Medium strong (25-30) R4: Strong (50-100) R5: Very strong (100-250) R6: Extremely strong (>250)
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GEOLOGIC LOG OF DRILL HOLE NO.: MW11-07 S

DEPTH (m)	SYMBOL	LITHOLOGY	PIEZOMETER DETAILS	PERMEABILITY (m/sec)	ROCK STRENGTH (ISRM)	ROCK MASS WEATHERING	DISCONTINUITY DATA					T.C.R. (%)	S.C.R. (%)	R.Q.D. (%)
							SEE BOTTOM FOR CODES							
							DISCONTINUITY TYPE	ALPHA (DEG)	SPACING (mm)	FRACTURES/M	JOINT INFILL			
(continued from previous page)				10-8 10-6 10-4 10-2							25 50 75	25 50 75	25 50 75	
9.1		CLAY (CH), silty, brown to grey, soft												
10.7														
12.2														
13.7														
15.2		no recovery, hammer plugged												
16.8														
17.4		GRAVEL (GM), some sand, outwash gravel												
End of Hole at: 17.4 m														
114.3 mm borehold diameter from 0														
CODES: C: Clean Qz: Quartz Se: Sericite Cl: Clay RC: Rock FeOx: Iron stain P: Pyrite Ca: Calcite Si: Silt		ROUGHNESS: 0: Polished/slickensided/gouge filled 1: Smooth, planar 3: Slightly rough, undulating		5: Rough undulating, stepped 6: Very rough, stepped		WEATHERING: F: Fresh HW: Highly SW: Slightly MW: Moderately		TYPE: F: Fault Sh: Shear B: Bedding J: Joint FL: Foliation Cl: Cleavage		ROCK STRENGTH (MPa) R0: Extremely weak (<1) R1: Very weak (1-5) R2: Weak (5-25)		R3: Medium strong (25-30) R4: Strong (50-100) R5: Very strong (100-250) R6: Extremely strong (>250)		

KCBL-ROCK-SI, WITH DISCONTINUITIES, SILVERTIP MW INSTALL.GPJ, ROCK-LOG.GDT, 9/13/12



GEOLOGIC LOG OF DRILL HOLE NO.: MW11-07 S

D E P T H (m)	S Y M B O L	LITHOLOGY	PIEZOMETER DETAILS	PERMEABILITY (m/sec)	ROCK STRENGTH (ISRM)	ROCK MASS WEATHERING	DISCONTINUITY DATA					T.C.R. (%)	S.C.R. (%)	R.Q.D. (%)
							SEE BOTTOM FOR CODES							
							DISCONTINUITY TYPE	ALPHA (DEG)	SPACING (mm)	FRACTURES/M	JOINT INFILL			
		(continued from previous page)		10-8 10-6 10-4 10-2							25 50 75	25 50 75	25 50 75	
19		to 17.37 mbGL 38.1 mm diameter PVC piezometer installed: - completed to 15.85 mbGL - screen interval 14.32 to 15.85 mbGL - stick up 0.94 maGL - SWL =0.8 mbGL (November 19, 2011)												
20														
21														
22														
23														
24														
25														
26														
27														
CODES: C: Clean Qz: Quartz Se: Sericite Cl: Clay RC: Rock FeOx: Iron stain P: Pyrite Ca: Calcite Si: Silt		ROUGHNESS: 0: Polished/slickensided/gouge filled 5: Rough undulating, stepped 1: Smooth, planar 3: Slightly rough, undulating 6: Very rough, stepped		WEATHERING: F: Fresh HW: Highly SW: Slightly MW: Moderately		TYPE: F: Fault Sh: Shear B: Bedding J: Joint FL: Foliation Cl: Cleavage		ROCK STRENGTH (MPa) R0: Extremely weak (<1) R1: Very weak (1-5) R2: Weak (5-25)		R3: Medium strong (25-30) R4: Strong (50-100) R5: Very strong (100-250) R6: Extremely strong (>250)				

KCBL_ROCK-SI_WITH DISCONTINUITIES_SILVERTIP MW INSTALL.GPJ ROCK-LOG.GDT 9/13/12

APPENDIX 2-III-B

Slug Tests



Klohn Crippen Berger

Slug Test Analysis Report

Project: Silvertip

Number: M09663A04

Client: Silvercorp Metals Inc.

Location: MW11-01 Deep

Slug Test: Slug Test

Test Well: MW11-01Deep

Test Conducted by: NB

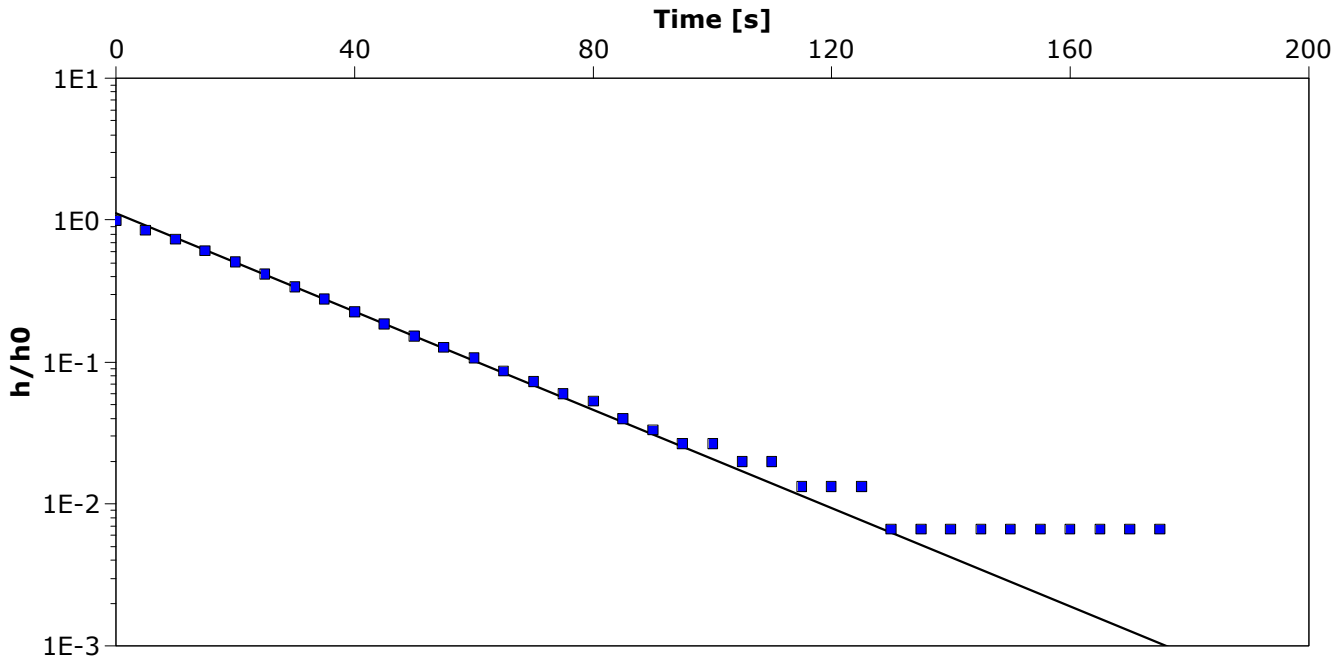
Test Date: 12/10/2011

Analysis Performed by: Neil Burk

New analysis 1

Analysis Date: 22/11/2011

Aquifer Thickness: 100.00 m



Calculation after Bouwer & Rice

Observation Well

Hydraulic Conductivity
[m/s]

MW11-01Deep

2.60×10^{-5}



Klohn Crippen Berger

Slug Test Analysis Report

Project: Silvertip

Number: M09663A04

Client: Silvercorp Metals Inc.

Location: Silvertip Mine

Slug Test: Slug Test

Test Well: MW11-01Deep

Test Conducted by: NB

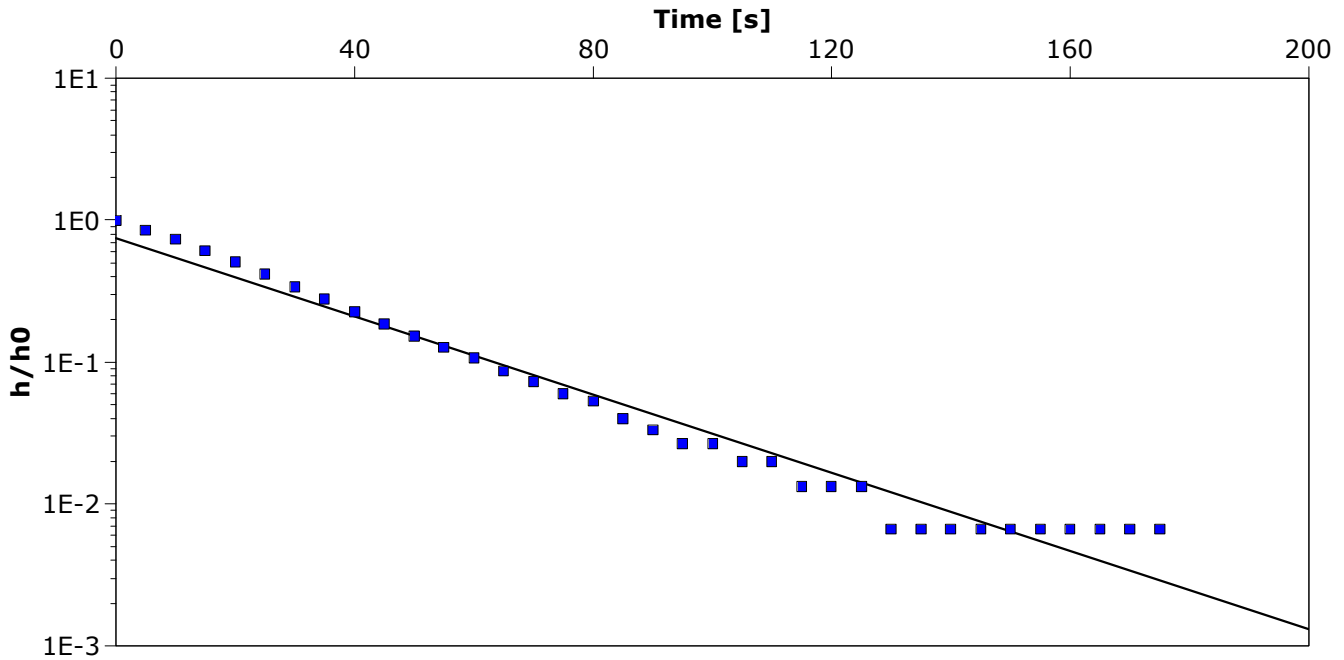
Test Date: 12/10/2011

Analysis Performed by: Neil Burk

New analysis 1

Analysis Date: 22/11/2011

Aquifer Thickness: 100.00 m



Calculation after Hvorslev

Observation Well

Hydraulic Conductivity
[m/s]

MW11-01Deep

2.51×10^{-5}



Klohn Crippen Berger

Slug Test Analysis Report

Project: Silvertip

Number: M09663A04

Client: Silvercorp Metals Inc.

Location: Silvertip Mine

Slug Test: Slug Test

Test Well: MW11-01Shallow

Test Conducted by: NB

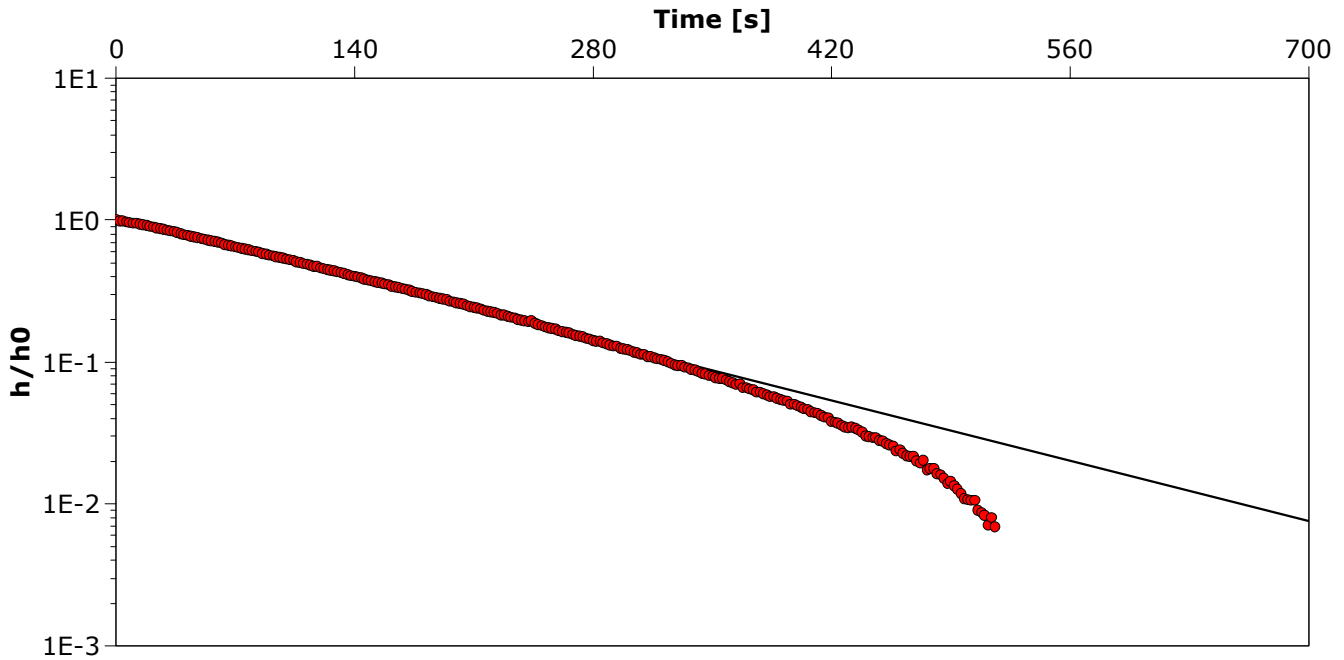
Test Date: 13/10/2011

Analysis Performed by: Neil Burk

Falling head test

Analysis Date: 22/11/2011

Aquifer Thickness: 16.00 m



Calculation after Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]
MW11-01Shallow	4.00×10^{-6}



Klohn Crippen Berger

Slug Test Analysis Report

Project: Silvertip

Number: M09663A04

Client: Silvercorp Metals Inc.

Location: Silvertip Mine

Slug Test: Slug Test

Test Well: MW11-01Shallow

Test Conducted by: NB

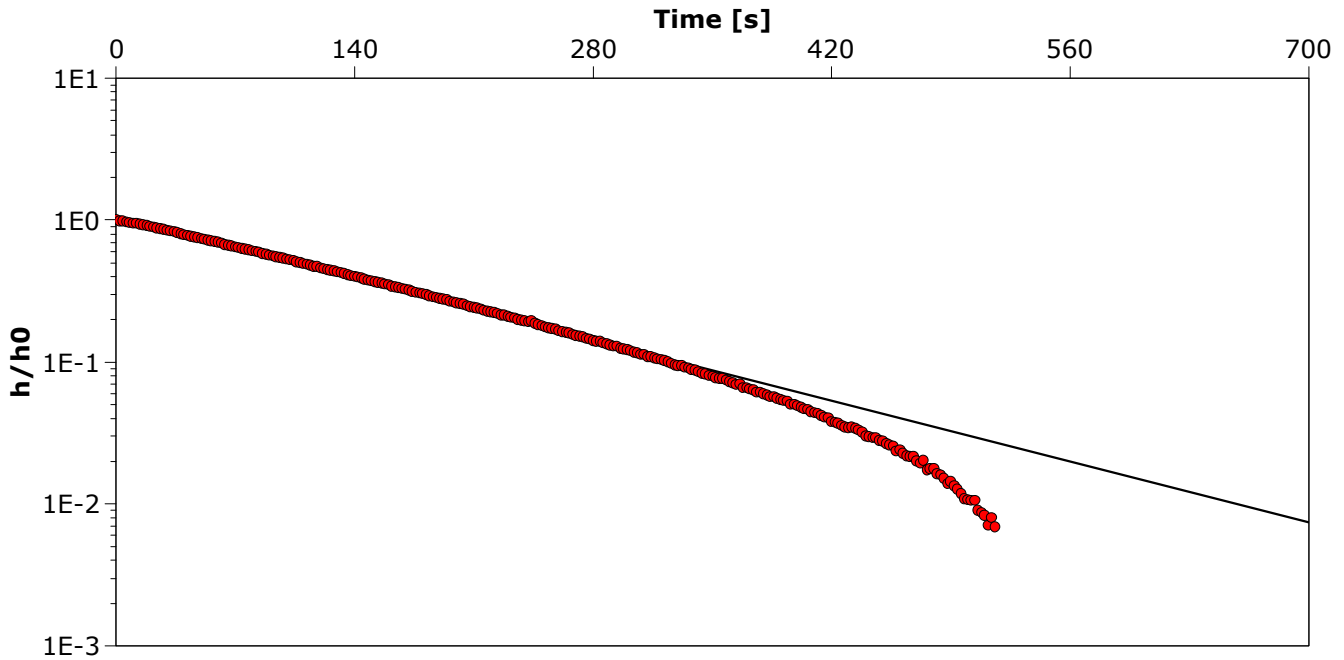
Test Date: 13/10/2011

Analysis Performed by: Neil Burk

Falling head test

Analysis Date: 22/11/2011

Aquifer Thickness: 16.00 m



Calculation after Hvorslev

Observation Well

Hydraulic Conductivity
[m/s]

MW11-01Shallow

5.50×10^{-6}



Klohn Crippen Berger

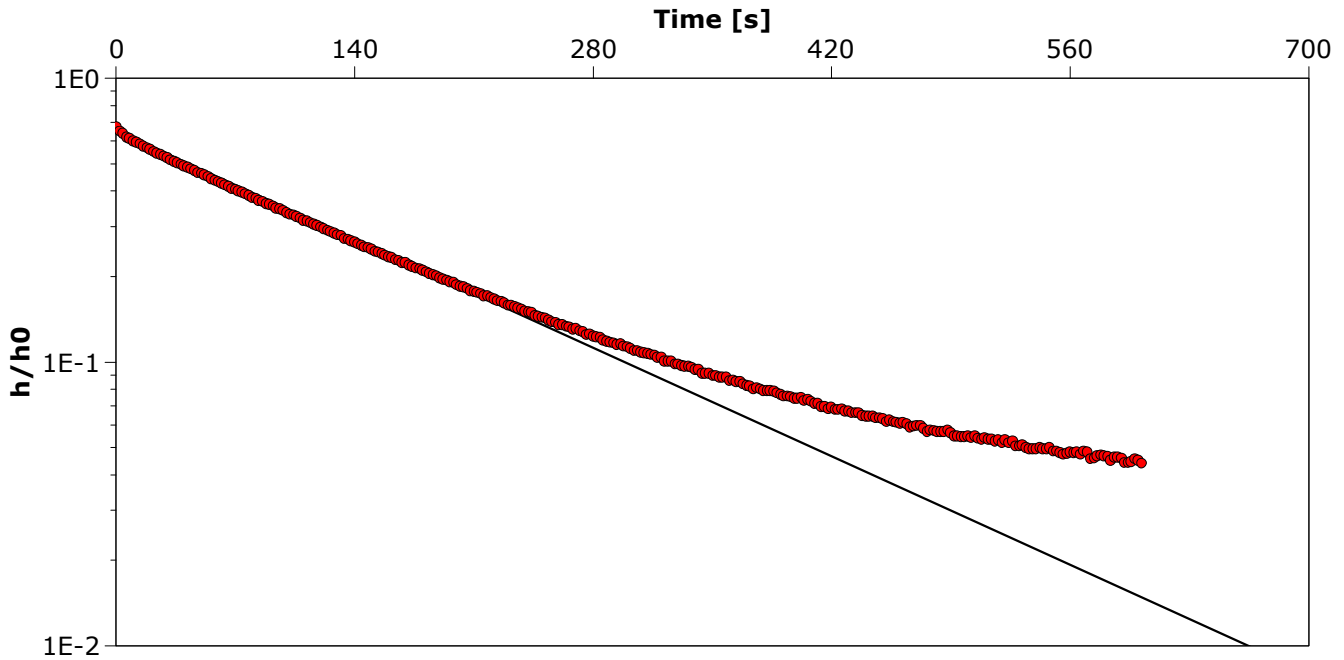
Slug Test Analysis Report

Project: Silvertip

Number: M09663A04

Client: Silvercorp Metals Inc.

Location: Silvertip Mine	Slug Test: Slug Test	Test Well: MW11-01Shallow
Test Conducted by: NB		Test Date: 13/10/2011
Analysis Performed by: Neil Burk	Rising Head Test	Analysis Date: 22/11/2011
Aquifer Thickness: 16.00 m		



Calculation after Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
MW11-01Shallow	3.60×10^{-6}	



Klohn Crippen Berger

Slug Test Analysis Report

Project: Silvertip

Number: M09663A04

Client: Silvercorp Metals Inc.

Location: Silvertip Mine

Slug Test: Slug Test

Test Well: MW11-01Shallow

Test Conducted by: NB

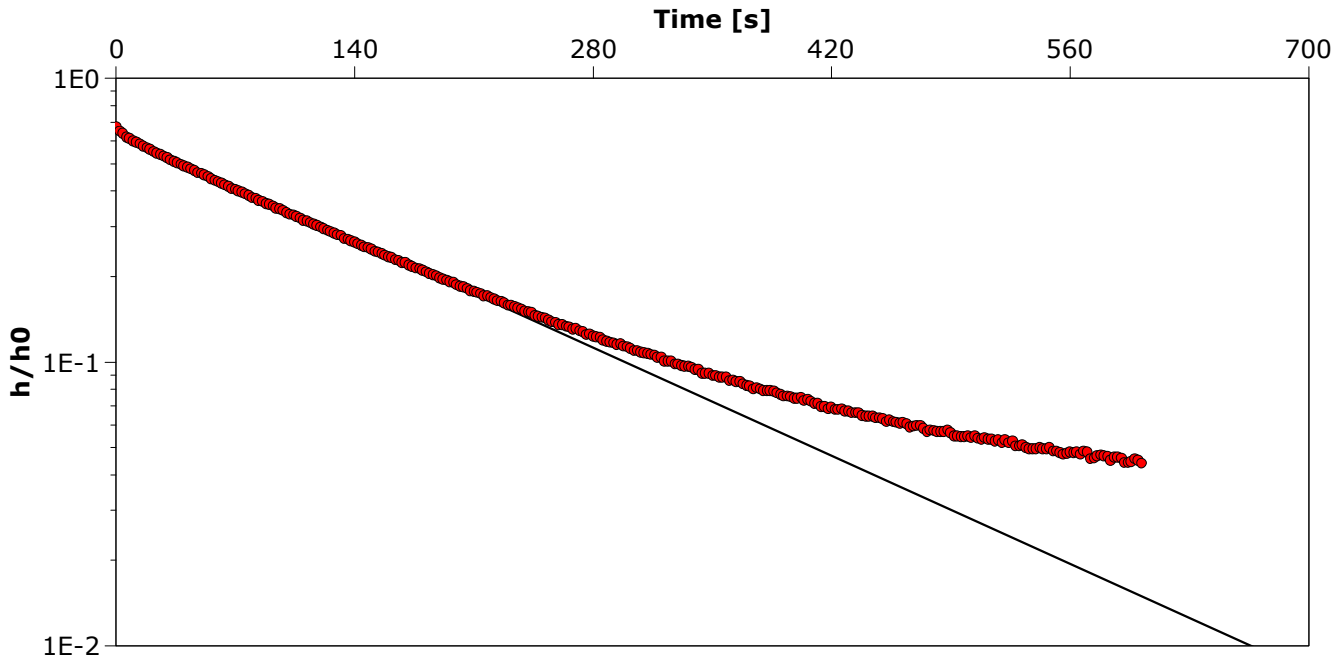
Test Date: 13/10/2011

Analysis Performed by: Neil Burk

Rising Head Test

Analysis Date: 22/11/2011

Aquifer Thickness: 16.00 m



Calculation after Hvorslev

Observation Well	Hydraulic Conductivity [m/s]
MW11-01Shallow	4.89×10^{-6}



Klohn Crippen Berger

Slug Test Analysis Report

Project: Silvertip

Number: M09663A04

Client: Silvercorp Metals Inc.

Location: Silvertip Mine

Slug Test: Slug Test

Test Well: MW11-02

Test Conducted by: NB

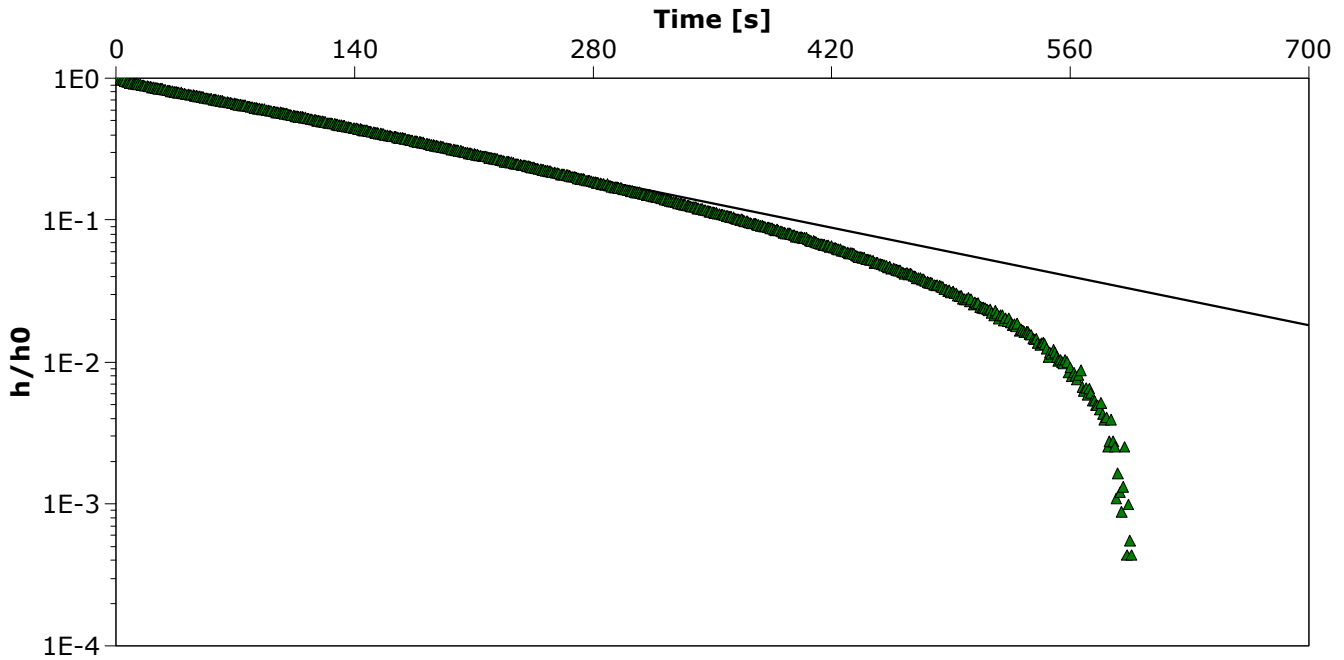
Test Date: 14/10/2011

Analysis Performed by: Neil Burk

Falling Head Test

Analysis Date: 22/11/2011

Aquifer Thickness: 100.00 m



Calculation after Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]
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MW11-02	5.75×10^{-6}
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Klohn Crippen Berger

Slug Test Analysis Report

Project: Silvertip

Number: M09663A04

Client: Silvercorp Metals Inc.

Location: Silvertip Mine

Slug Test: Slug Test

Test Well: MW11-02

Test Conducted by: NB

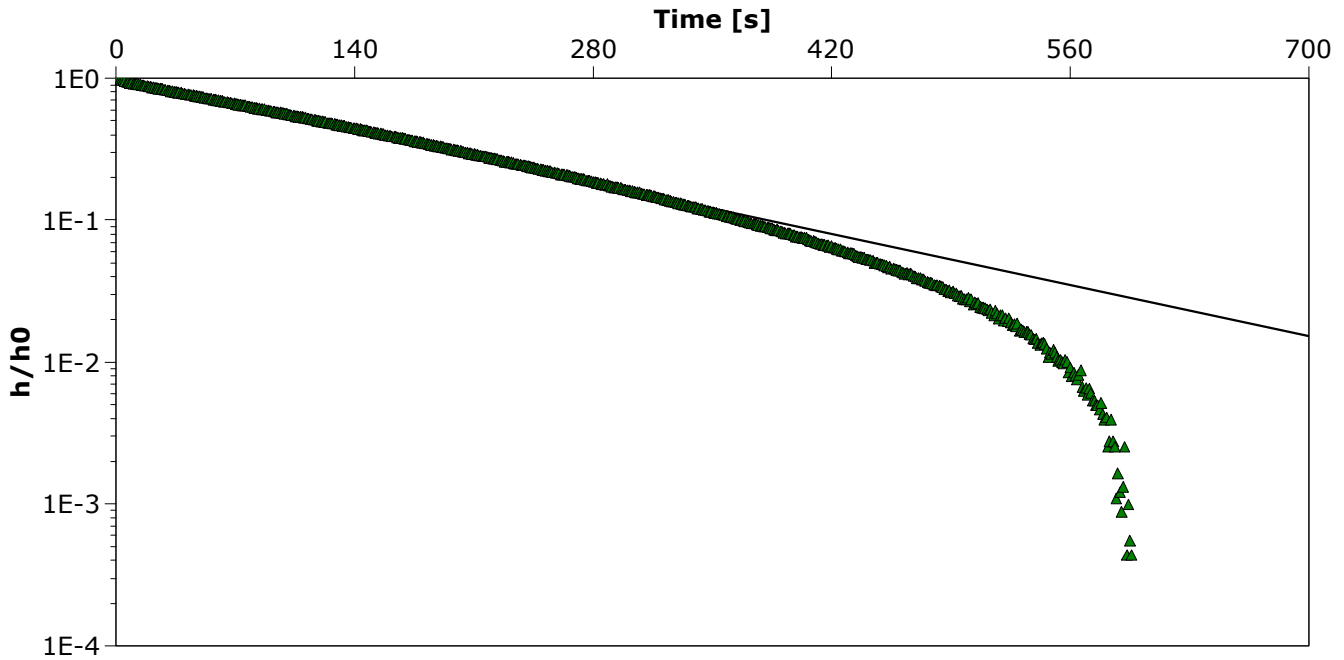
Test Date: 14/10/2011

Analysis Performed by: Neil Burk

Falling Head Test

Analysis Date: 22/11/2011

Aquifer Thickness: 100.00 m



Calculation after Hvorslev

Observation Well

Hydraulic Conductivity
[m/s]

MW11-02

7.76×10^{-6}



Klohn Crippen Berger

Slug Test Analysis Report

Project: Silvertip

Number: M09663A04

Client: Silvercorp Metals Inc.

Location: Silvertip Mine

Slug Test: Slug Test

Test Well: MW11-02

Test Conducted by: NB

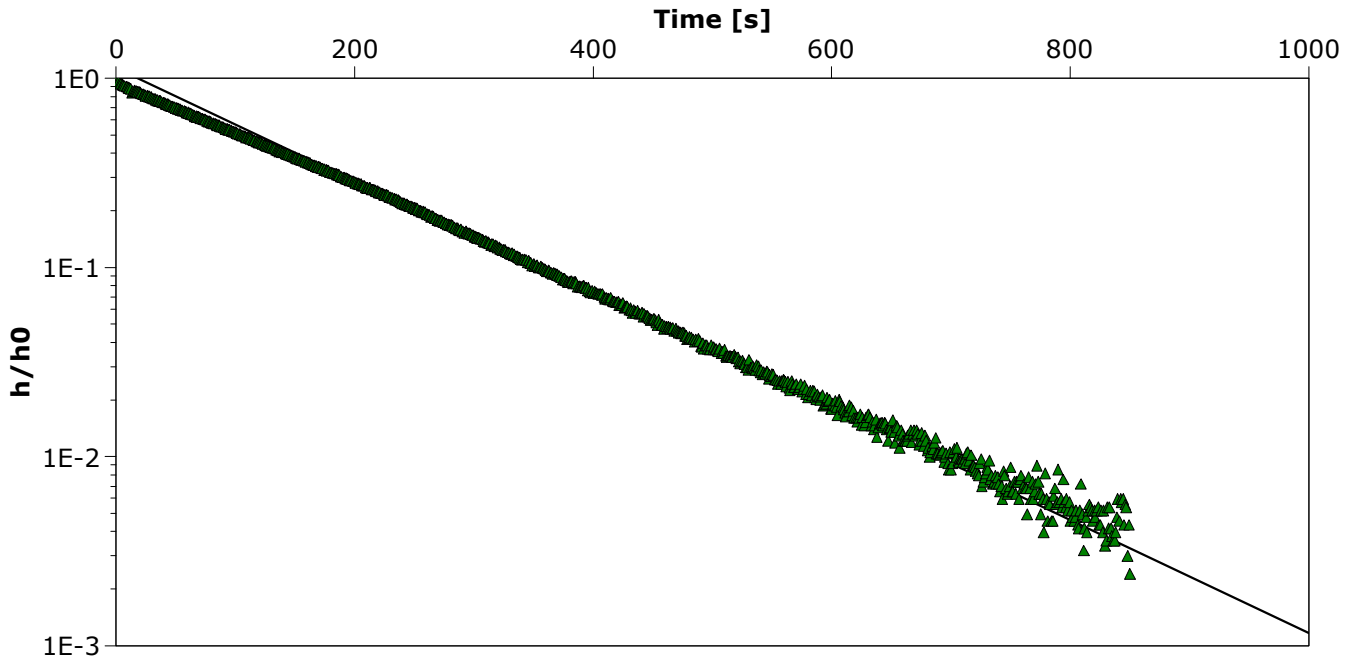
Test Date: 14/10/2011

Analysis Performed by: Neil Burk

Rising Head Test

Analysis Date: 22/11/2011

Aquifer Thickness: 100.00 m



Calculation after Bouwer & Rice

Observation Well

Hydraulic Conductivity
[m/s]

MW11-02

7.00×10^{-6}



Klohn Crippen Berger

Slug Test Analysis Report

Project: Silvertip

Number: M09663A04

Client: Silvercorp Metals Inc.

Location: Silvertip Mine

Slug Test: Slug Test

Test Well: MW11-02

Test Conducted by: NB

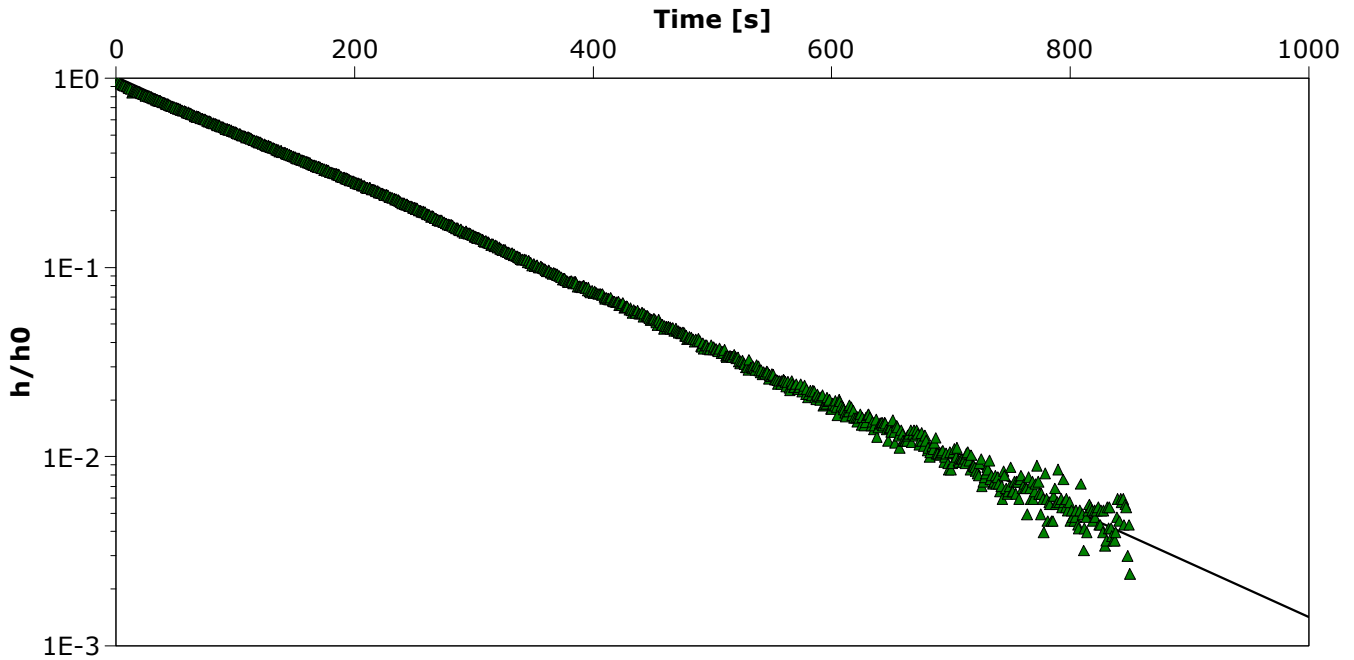
Test Date: 14/10/2011

Analysis Performed by: Neil Burk

Rising Head Test

Analysis Date: 22/11/2011

Aquifer Thickness: 100.00 m



Calculation after Hvorslev

Observation Well

Hydraulic Conductivity
[m/s]

MW11-02

8.60×10^{-6}



Klohn Crippen Berger

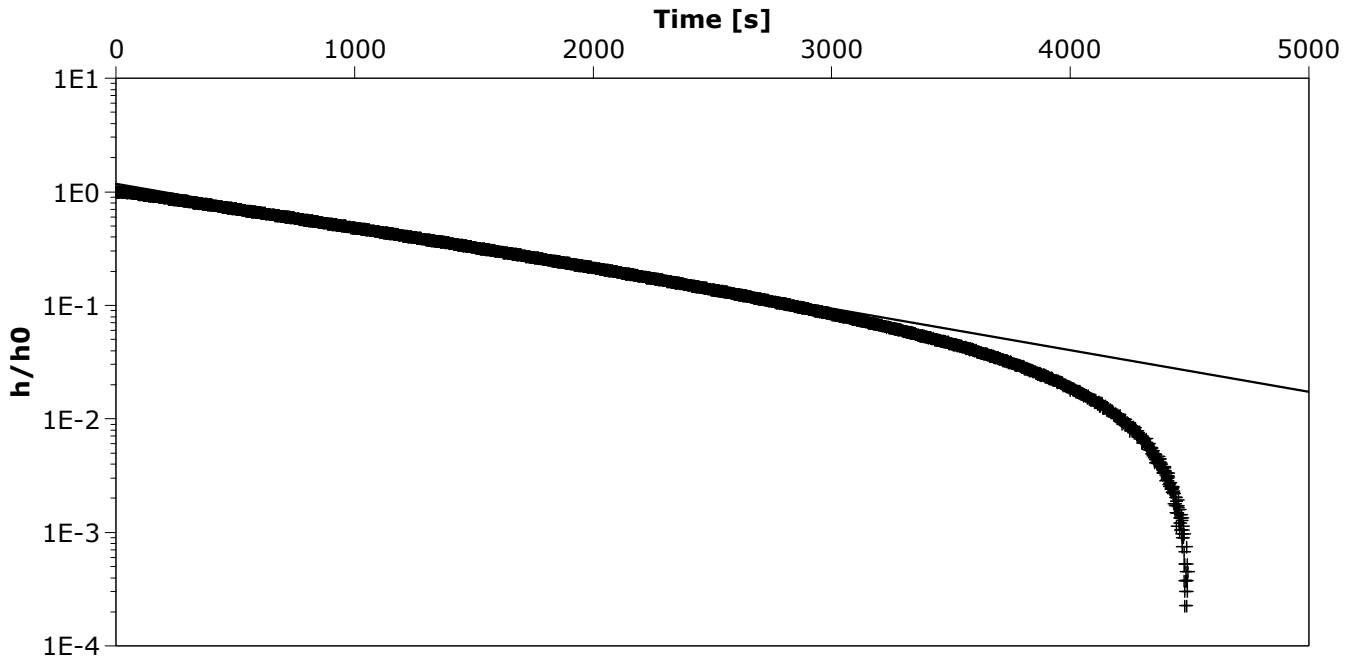
Slug Test Analysis Report

Project: Silvertip

Number: M09663A04

Client: Silvercorp Metals Inc.

Location: Silvertip Mine	Slug Test: Slug Test	Test Well: MW11-03Deep
Test Conducted by: NB		Test Date: 09/11/2011
Analysis Performed by: Neil Burk	Falling Head Test	Analysis Date: 22/11/2011
Aquifer Thickness: 30.00 m		



Calculation after Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
MW11-03Deep	5.25×10^{-7}	



Klohn Crippen Berger

Slug Test Analysis Report

Project: Silvertip

Number: M09663A04

Client: Silvercorp Metals Inc.

Location: Silvertip Mine

Slug Test: Slug Test

Test Well: MW11-03Deep

Test Conducted by: NB

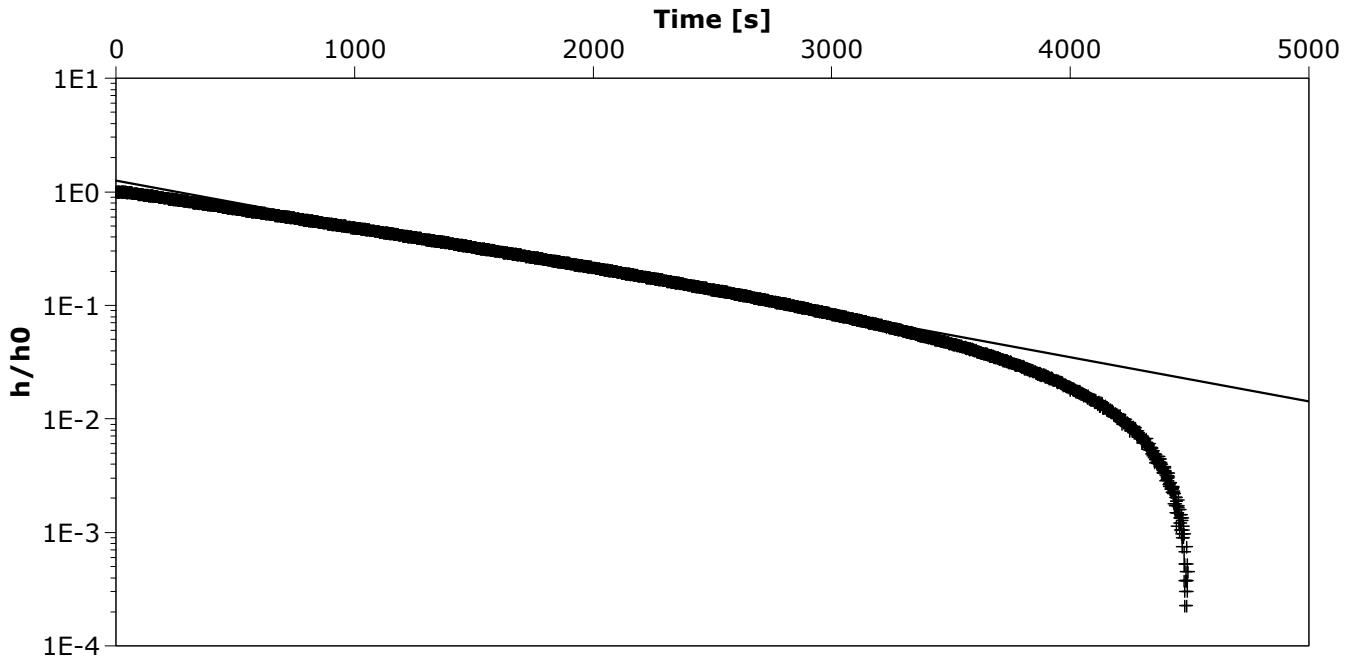
Test Date: 09/11/2011

Analysis Performed by: Neil Burk

Falling Head Test

Analysis Date: 22/11/2011

Aquifer Thickness: 30.00 m



Calculation after Hvorslev

Observation Well

Hydraulic Conductivity
[m/s]

MW11-03Deep

7.10×10^{-7}



Klohn Crippen Berger

Slug Test Analysis Report

Project: Silvertip

Number: M09663A04

Client: Silvercorp Metals Inc.

Location: Silvertip Mine

Slug Test: Slug Test

Test Well: MW11-03Shallow

Test Conducted by: NB

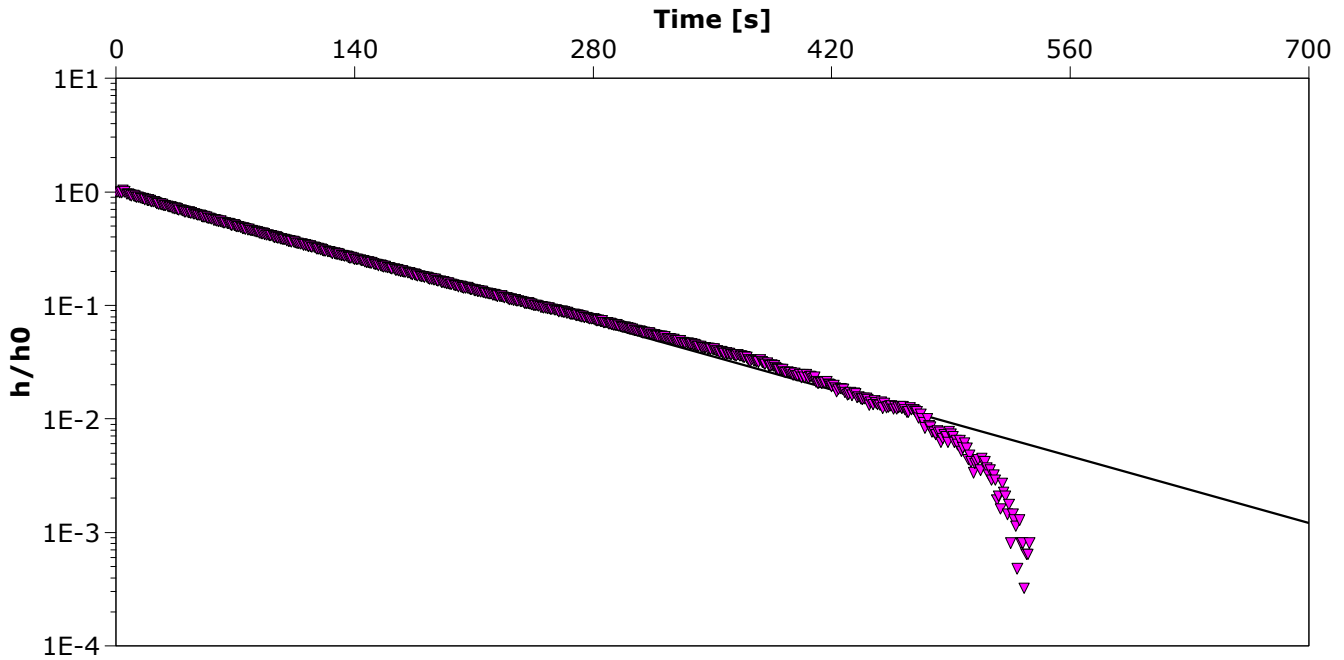
Test Date: 08/11/2011

Analysis Performed by: Neil Burk

Falling Head Test

Analysis Date: 22/11/2011

Aquifer Thickness: 15.00 m



Calculation after Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]
MW11-03Shallow	1.00×10^{-5}



Klohn Crippen Berger

Slug Test Analysis Report

Project: Silvertip

Number: M09663A04

Client: Silvercorp Metals Inc.

Location: Silvertip Mine

Slug Test: Slug Test

Test Well: MW11-03Shallow

Test Conducted by: NB

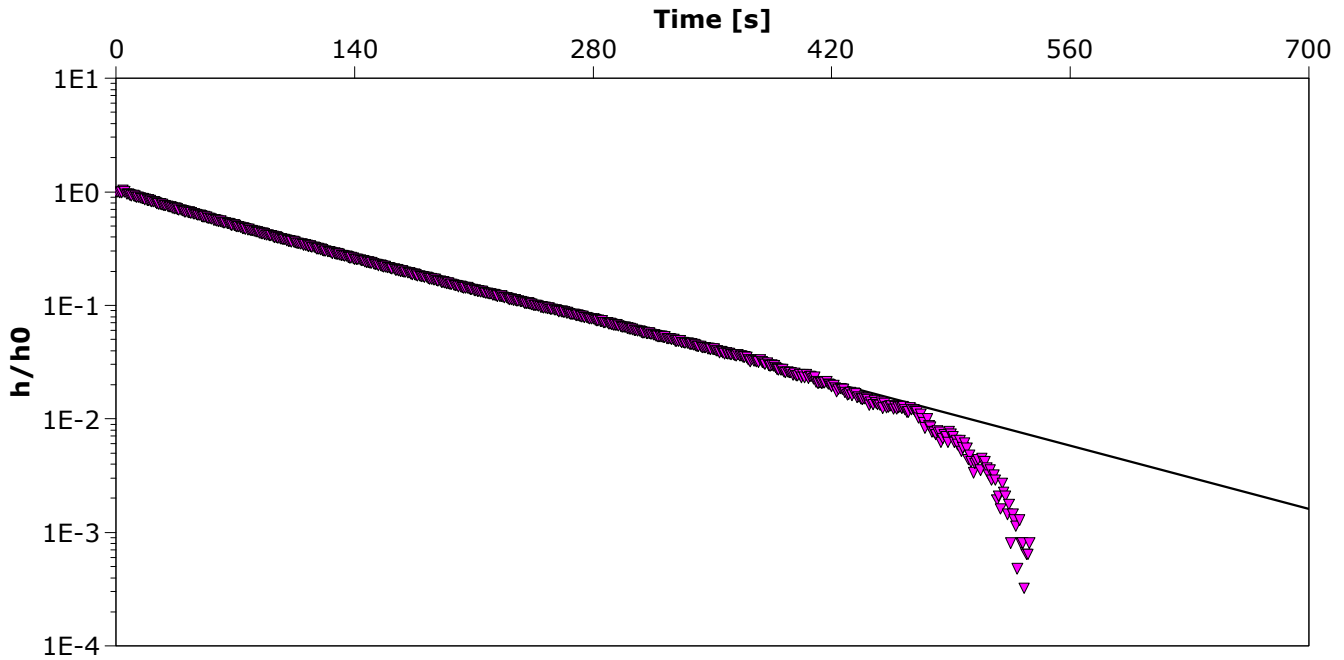
Test Date: 08/11/2011

Analysis Performed by: Neil Burk

Falling Head Test

Analysis Date: 22/11/2011

Aquifer Thickness: 15.00 m



Calculation after Hvorslev

Observation Well

Hydraulic Conductivity
[m/s]

MW11-03Shallow

1.20×10^{-5}



Klohn Crippen Berger

Slug Test Analysis Report

Project: Silvertip

Number: M09663A04

Client: Silvercorp Metals Inc.

Location: Silvertip Mine

Slug Test: Slug Test

Test Well: MW11-03Shallow

Test Conducted by: NB

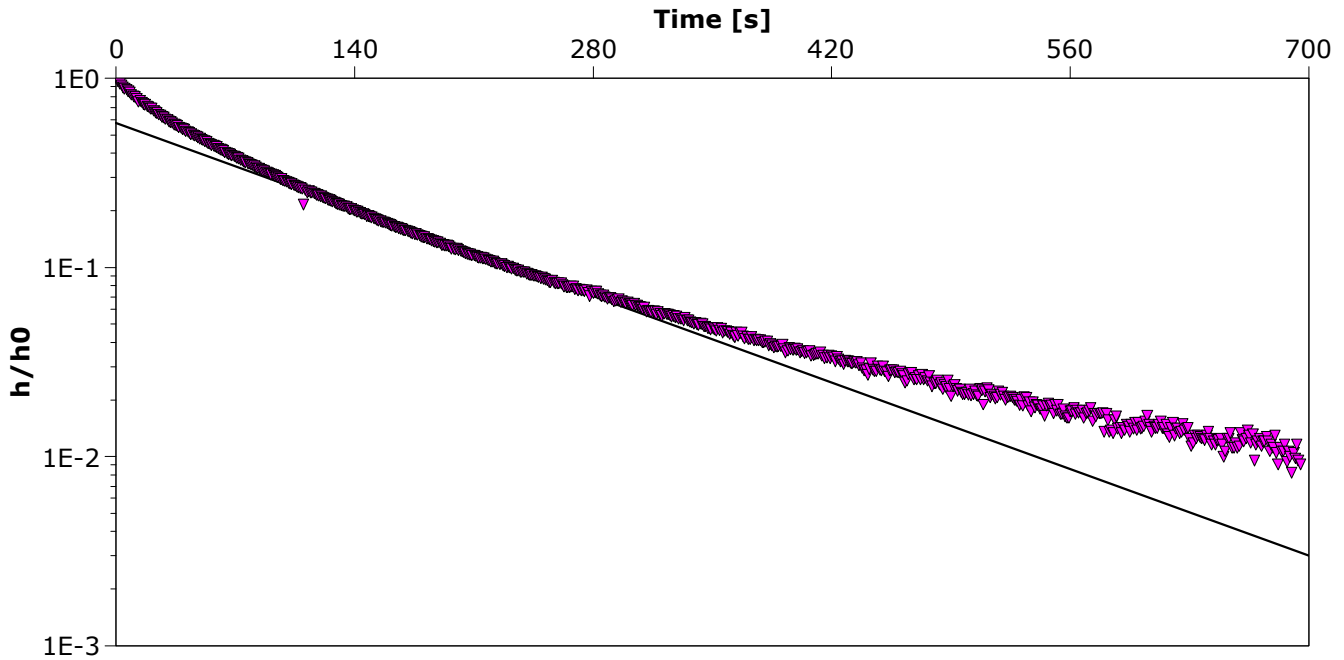
Test Date: 08/11/2011

Analysis Performed by: Neil Burk

Rising Head Test

Analysis Date: 22/11/2011

Aquifer Thickness: 15.00 m



Calculation after Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]
MW11-03Shallow	7.76×10^{-6}



Klohn Crippen Berger

Slug Test Analysis Report

Project: Silvertip

Number: M09663A04

Client: Silvercorp Metals Inc.

Location: Silvertip Mine

Slug Test: Slug Test

Test Well: MW11-03Shallow

Test Conducted by: NB

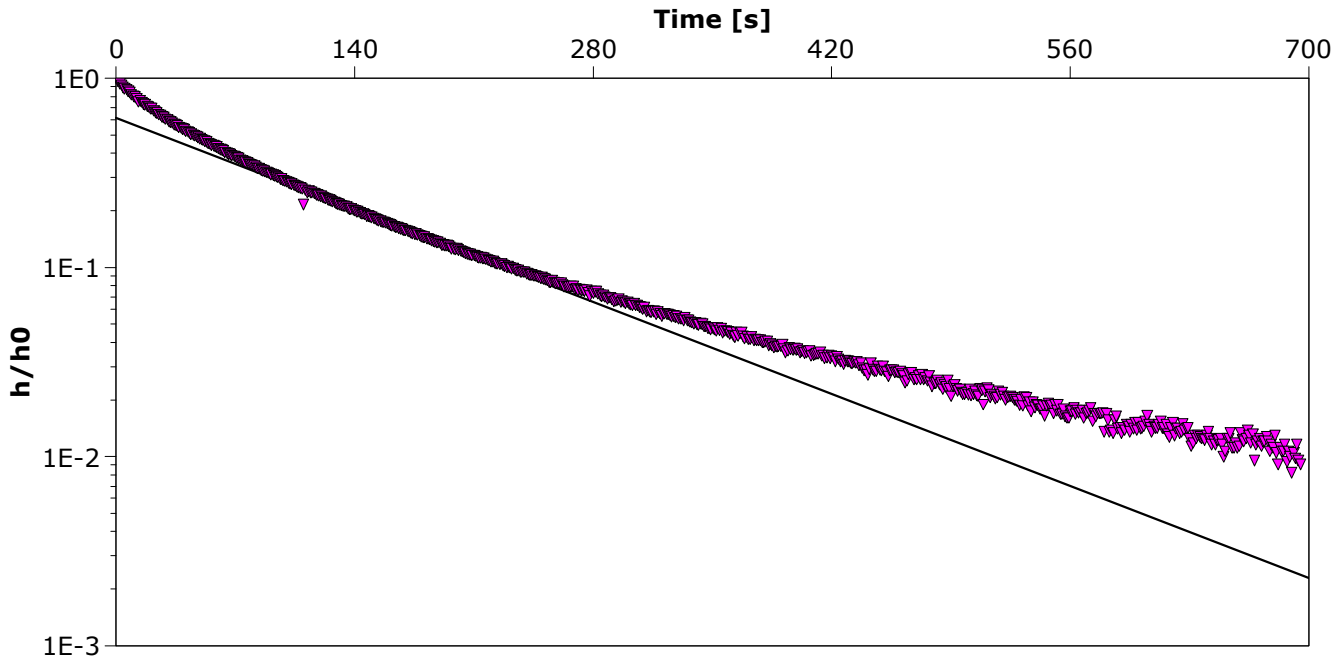
Test Date: 08/11/2011

Analysis Performed by: Neil Burk

Rising Head Test

Analysis Date: 22/11/2011

Aquifer Thickness: 15.00 m



Calculation after Hvorslev

Observation Well	Hydraulic Conductivity [m/s]
MW11-03Shallow	1.05×10^{-5}



Klohn Crippen Berger

Slug Test Analysis Report

Project: Silvertip

Number: M09663A04

Client: Silvercorp Metals Inc.

Location: Silvertip Mine

Slug Test: Slug Test

Test Well: MW11-04Deep

Test Conducted by: NB

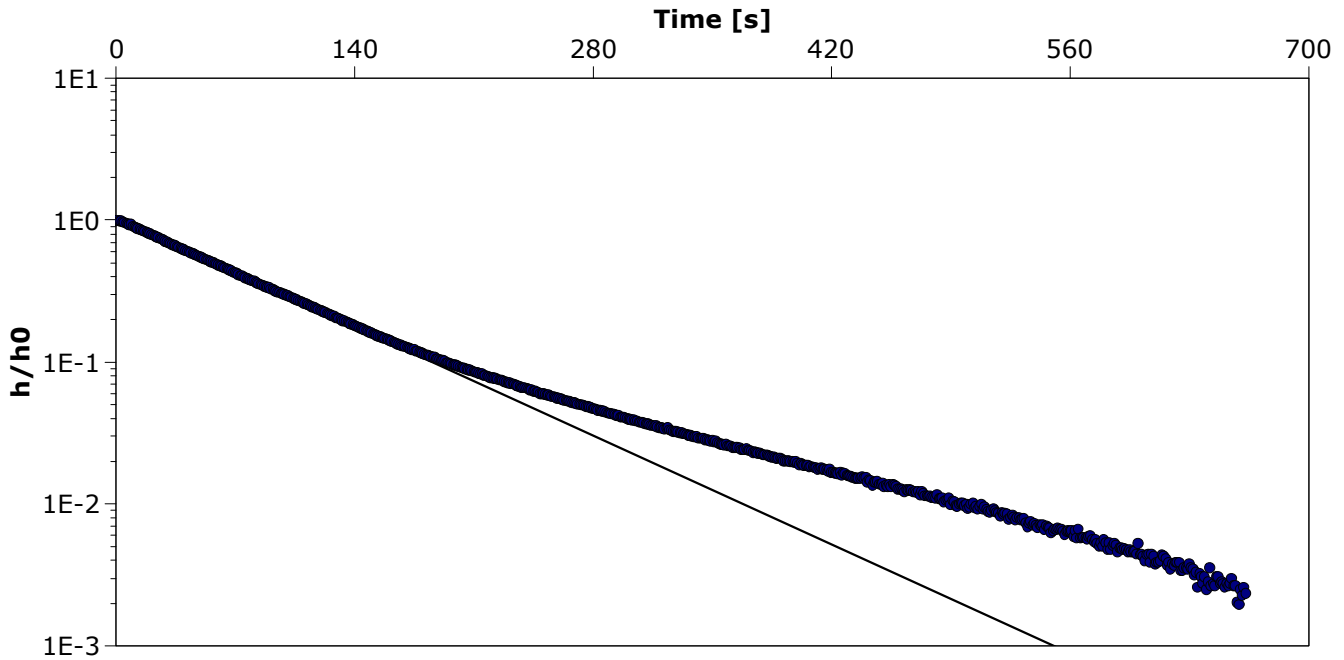
Test Date: 09/11/2011

Analysis Performed by: Neil Burk

Falling Head Test

Analysis Date: 23/11/2011

Aquifer Thickness: 30.00 m



Calculation after Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]
MW11-04Deep	7.50×10^{-6}



Klohn Crippen Berger

Slug Test Analysis Report

Project: Silvertip

Number: M09663A04

Client: Silvercorp Metals Inc.

Location: Silvertip Mine

Slug Test: Slug Test

Test Well: MW11-04Deep

Test Conducted by: NB

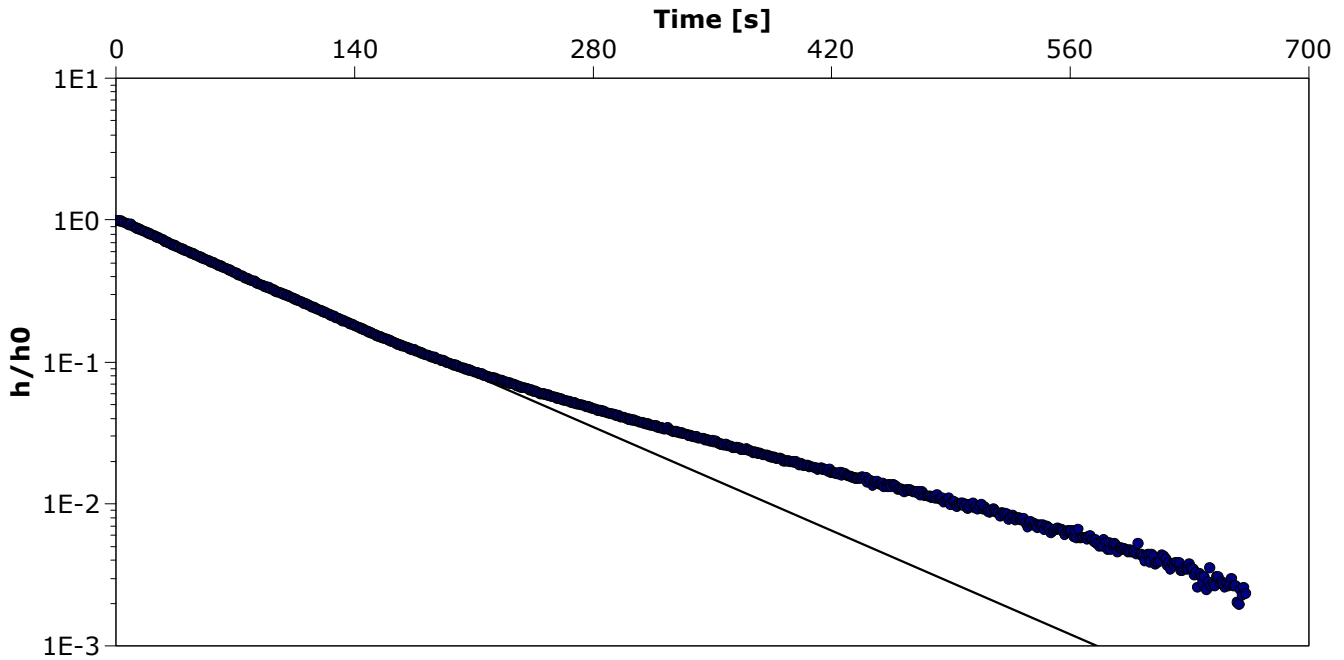
Test Date: 09/11/2011

Analysis Performed by: Neil Burk

Falling Head Test

Analysis Date: 23/11/2011

Aquifer Thickness: 30.00 m



Calculation after Hvorslev

Observation Well

Hydraulic Conductivity
[m/s]

MW11-04Deep

9.50×10^{-6}



Klohn Crippen Berger

Slug Test Analysis Report

Project: Silvertip

Number: M09663A04

Client: Silvercorp Metals Inc.

Location: Silvertip Mine

Slug Test: Slug Test

Test Well: MW11-04Shallow

Test Conducted by: NB

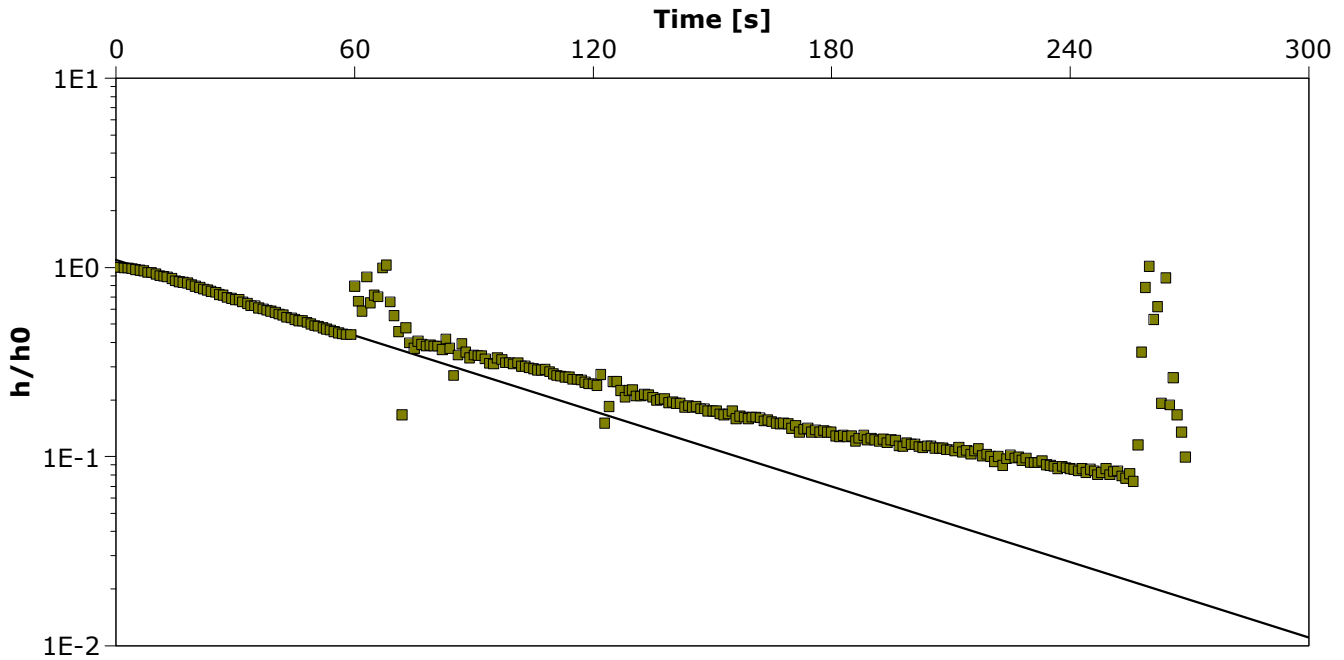
Test Date: 09/11/2011

Analysis Performed by: Neil Burk

Falling Head Test

Analysis Date: 22/11/2011

Aquifer Thickness: 2.00 m



Calculation after Hvorslev

Observation Well

Hydraulic Conductivity
[m/s]

MW11-04Shallow

2.00×10^{-5}



Klohn Crippen Berger

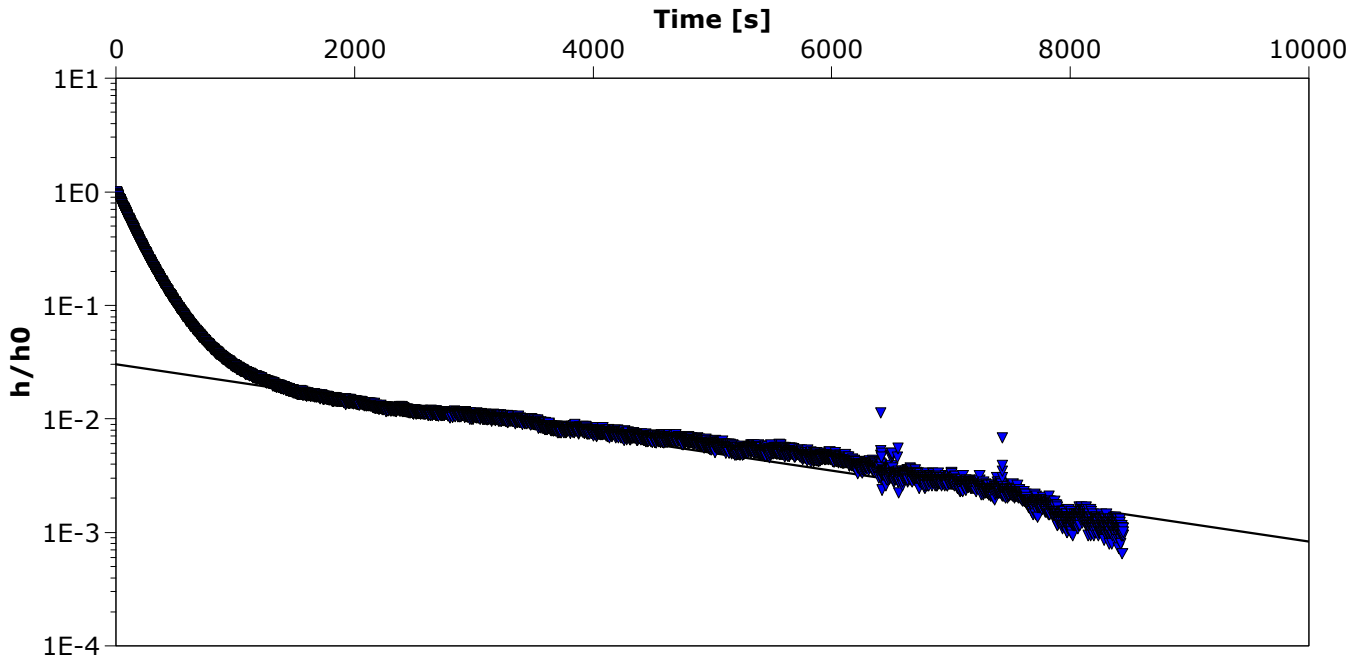
Slug Test Analysis Report

Project: Silvertip

Number: M09663A04

Client: Silvercorp Metals Inc.

Location: Silvertip Mine	Slug Test: Slug Test	Test Well: MW11-05Deep
Test Conducted by: NB		Test Date: 10/11/2011
Analysis Performed by: Neil Burk	Falling Head Test	Analysis Date: 23/11/2011
Aquifer Thickness: 30.00 m		



Calculation after Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
MW11-05Deep	2.10×10^{-7}	



Klohn Crippen Berger

Slug Test Analysis Report

Project: Silvertip

Number: M09663A04

Client: Silvercorp Metals Inc.

Location: Silvertip Mine

Slug Test: Slug Test

Test Well: MW11-05Deep

Test Conducted by: NB

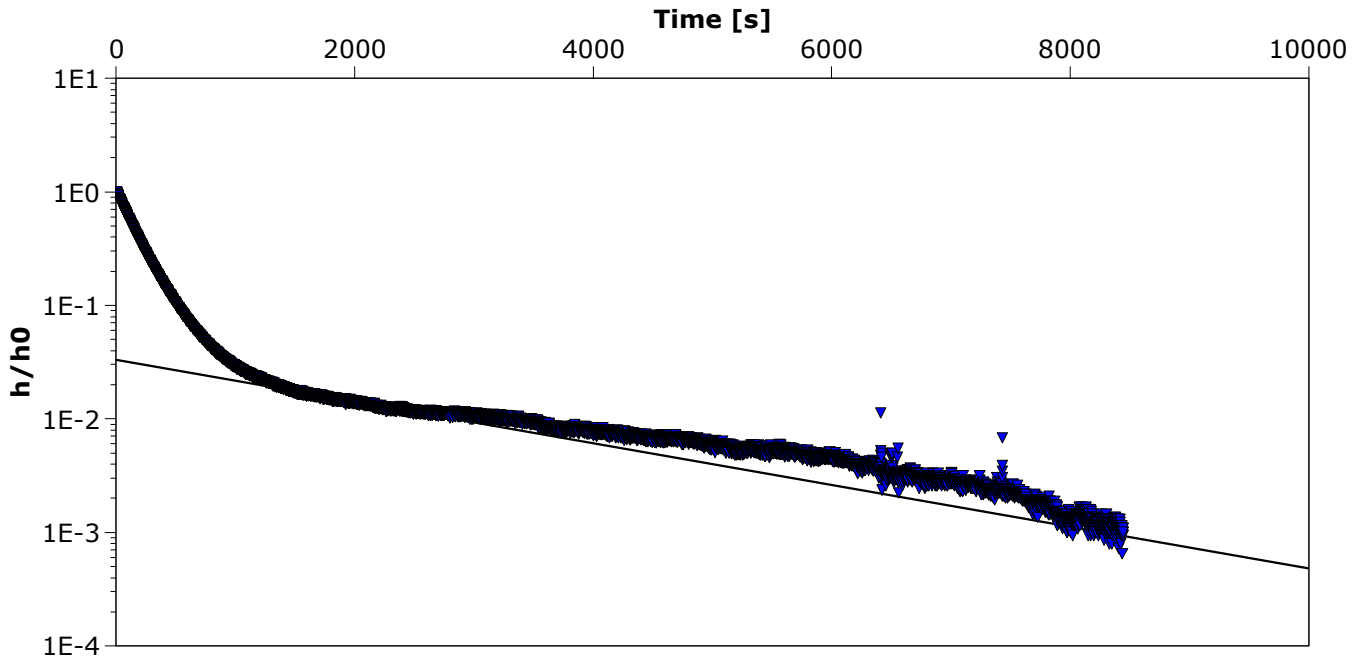
Test Date: 10/11/2011

Analysis Performed by: Neil Burk

Falling Head Test

Analysis Date: 23/11/2011

Aquifer Thickness: 30.00 m



Calculation after Hvorslev

Observation Well	Hydraulic Conductivity [m/s]
MW11-05Deep	3.20×10^{-7}



Klohn Crippen Berger

Slug Test Analysis Report

Project: Silvertip

Number: M09663A04

Client: Silvercorp Metals Inc.

Location: Silvertip Mine

Slug Test: Slug Test

Test Well: MW11-05Shallow

Test Conducted by: NB

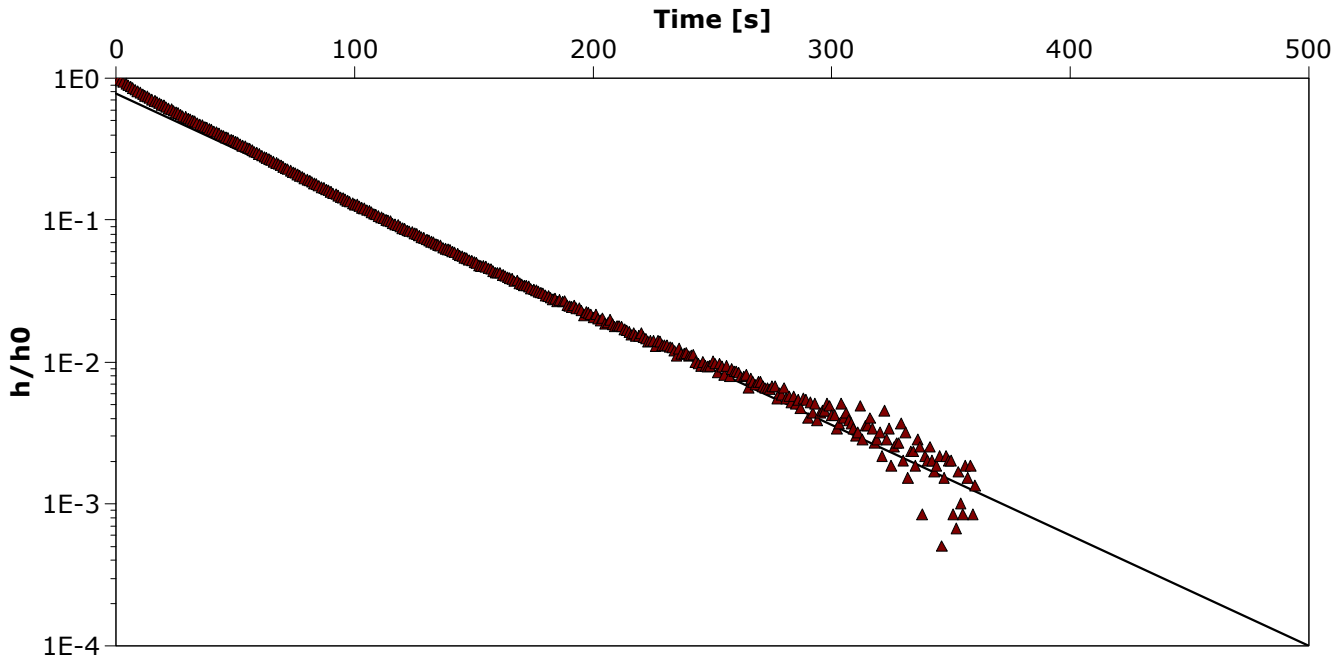
Test Date: 10/11/2011

Analysis Performed by: Neil Burk

Falling Head Test

Analysis Date: 23/11/2011

Aquifer Thickness: 2.75 m



Calculation after Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]
MW11-05Shallow	1.79×10^{-5}



Klohn Crippen Berger

Slug Test Analysis Report

Project: Silvertip

Number: M09663A04

Client: Silvercorp Metals Inc.

Location: Silvertip Mine

Slug Test: Slug Test

Test Well: MW11-05Shallow

Test Conducted by: NB

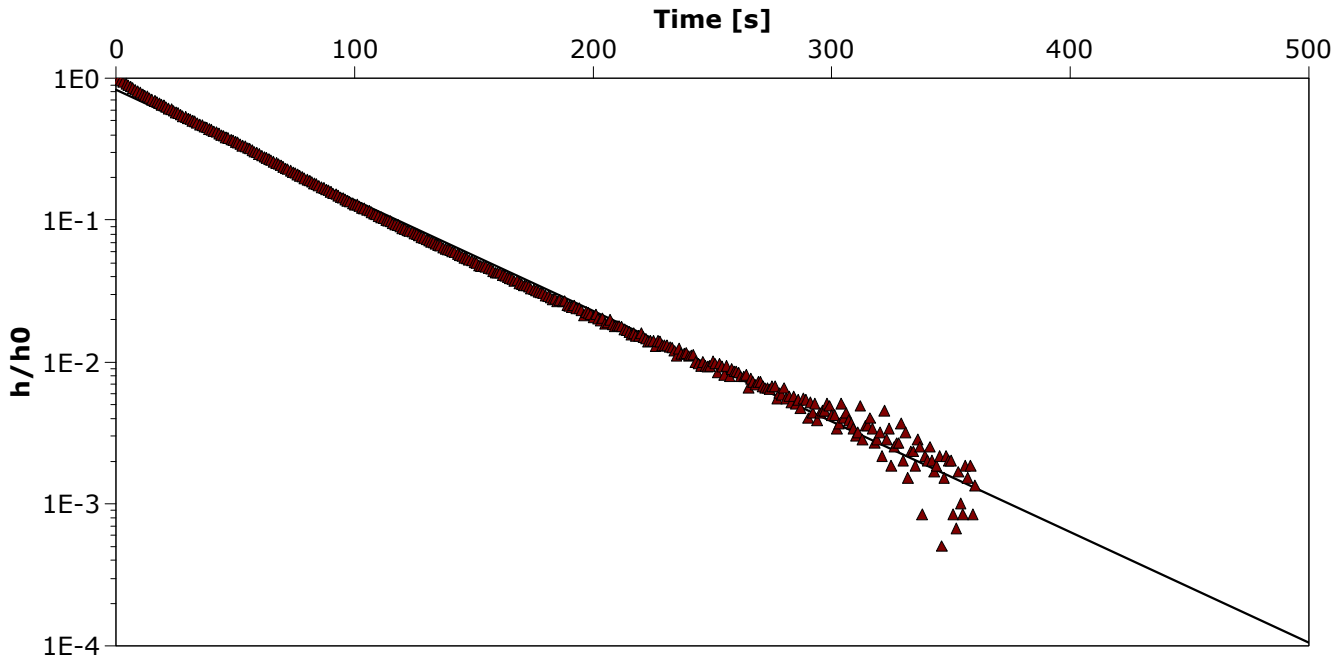
Test Date: 10/11/2011

Analysis Performed by: Neil Burk

Falling Head Test

Analysis Date: 23/11/2011

Aquifer Thickness: 2.75 m



Calculation after Hvorslev

Observation Well

Hydraulic Conductivity
[m/s]

MW11-05Shallow

2.35×10^{-5}



Klohn Crippen Berger

Slug Test Analysis Report

Project: Silvertip

Number: M09663A04

Client: Silvercorp Metals Inc.

Location: Silvertip Mine

Slug Test: Slug Test

Test Well: MW11-05Shallow

Test Conducted by: NB

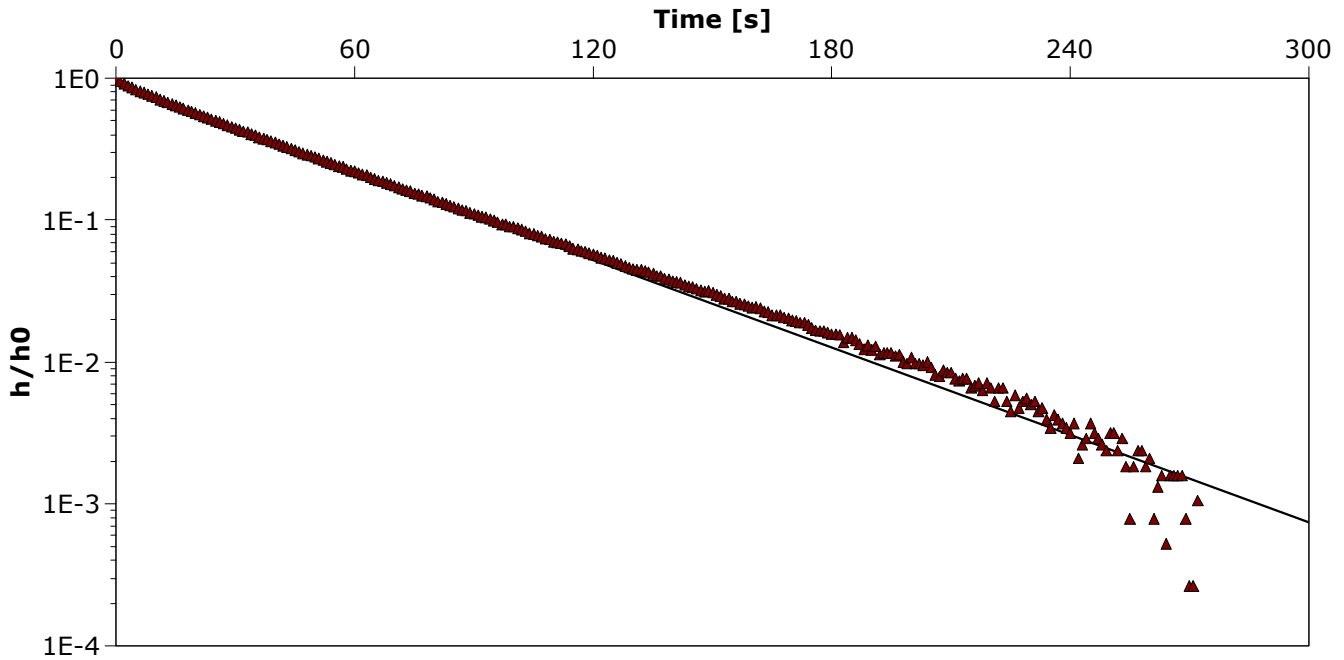
Test Date: 10/11/2011

Analysis Performed by: Neil Burk

Rising Head Test

Analysis Date: 23/11/2011

Aquifer Thickness: 2.75 m



Calculation after Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]
MW11-05Shallow	2.37×10^{-5}



Klohn Crippen Berger

Slug Test Analysis Report

Project: Silvertip

Number: M09663A04

Client: Silvercorp Metals Inc.

Location: Silvertip Mine

Slug Test: Slug Test

Test Well: MW11-05Shallow

Test Conducted by: NB

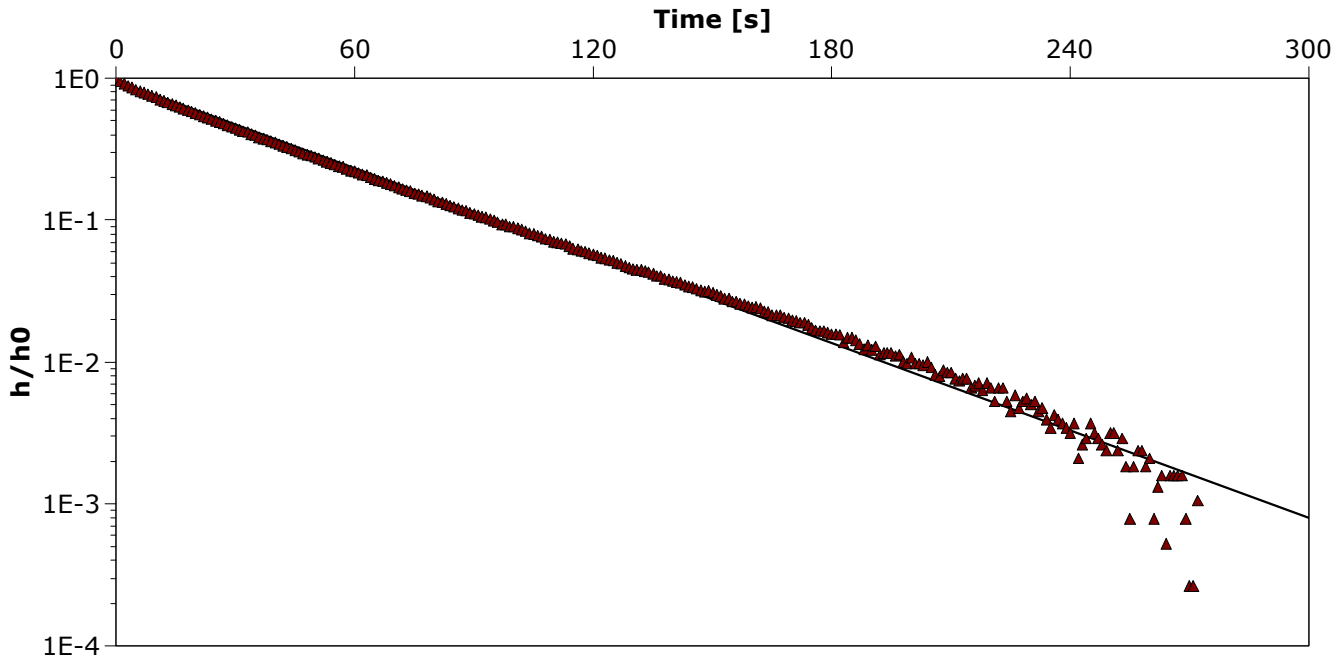
Test Date: 10/11/2011

Analysis Performed by: Neil Burk

Rising Head Test

Analysis Date: 23/11/2011

Aquifer Thickness: 2.75 m



Calculation after Hvorslev

Observation Well

Hydraulic Conductivity
[m/s]

MW11-05Shallow

3.09×10^{-5}

Klohn Crippen Berger

Slug Test Analysis Report

Project: Silvertip

Number: M09663A02

Client: SilverCorp

Location: Silvertip Mine

Slug Test: Slug Test 1

Test Well: 81-05

Test Conducted by: NB

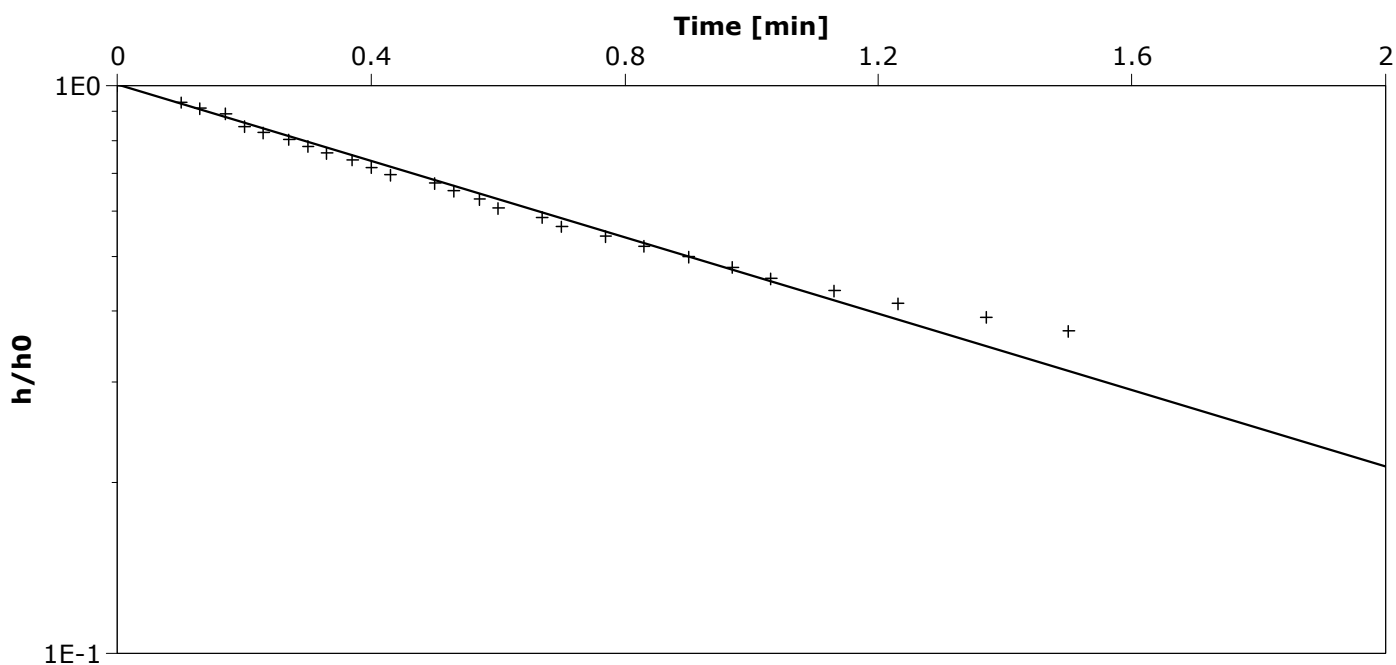
Test Date: 30/10/2010

Analysis Performed by: NB

Bouwer-Rice

Analysis Date: 26/11/2010

Aquifer Thickness: 100.00 m



Calculation after Bouwer & Rice

Observation Well

Hydraulic Conductivity
[m/s]

81-05

1.41×10^{-5}

Klohn Crippen Berger

Slug Test Analysis Report

Project: Silvertip

Number: M09663A02

Client: SilverCorp

Location: Silvertip Mine

Slug Test: Slug Test 1

Test Well: 81-05

Test Conducted by: NB

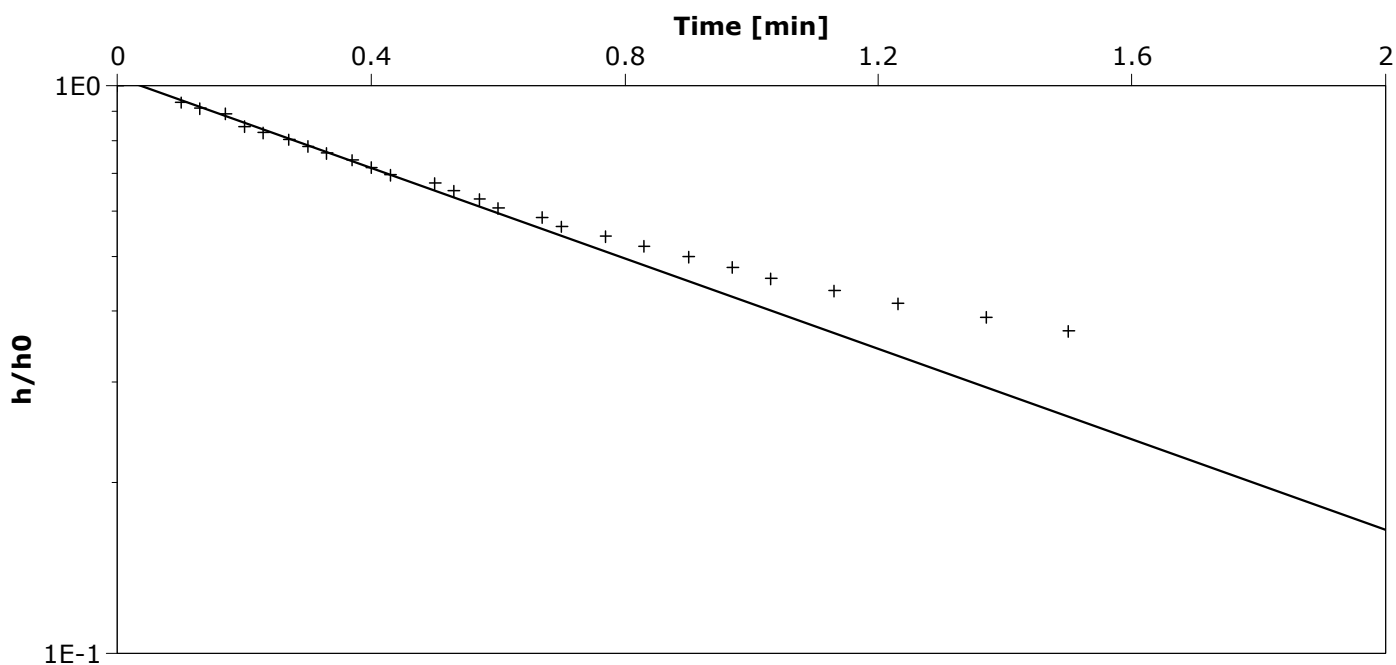
Test Date: 30/10/2010

Analysis Performed by: NB

Hvorslev

Analysis Date: 26/11/2010

Aquifer Thickness: 100.00 m



Calculation after Hvorslev

Observation Well

Hydraulic Conductivity
[m/s]

81-05

1.91×10^{-5}

Klohn Crippen Berger

Slug Test Analysis Report

Project: Silvertip

Number: M09663A02

Client: SilverCorp

Location: Silvertip Mine

Slug Test: Slug Test

Test Well: 82-20

Test Conducted by: NB

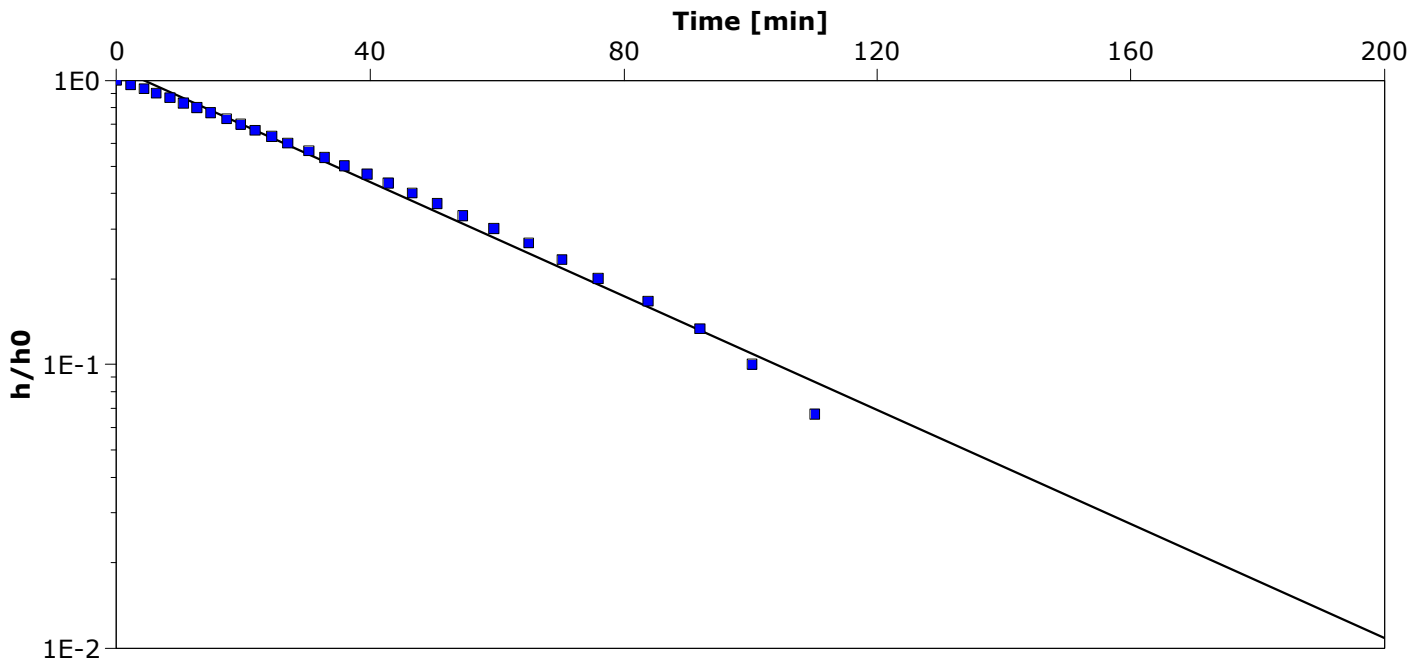
Test Date: 29/10/2010

Analysis Performed by: NB

BouwerRice

Analysis Date: 25/11/2010

Aquifer Thickness: 50.00 m



Calculation after Bouwer & Rice

Observation Well

Hydraulic Conductivity
[m/s]

82-20

6.83×10^{-7}

Klohn Crippen Berger

Slug Test Analysis Report

Project: Silvertip

Number: M09663A02

Client: SilverCorp

Location: Silvertip Mine

Slug Test: Slug Test

Test Well: 82-20

Test Conducted by: NB

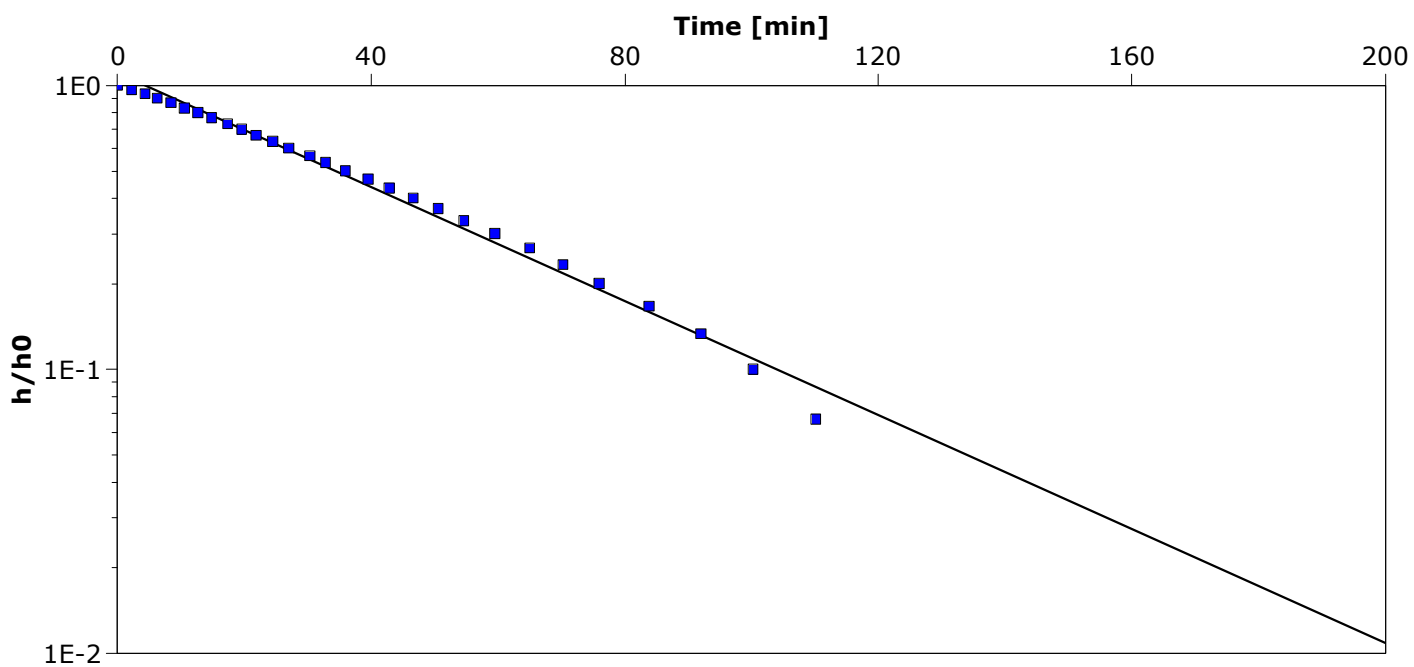
Test Date: 29/10/2010

Analysis Performed by: NB

Hvorslev

Analysis Date: 25/11/2010

Aquifer Thickness: 50.00 m



Calculation after Hvorslev

Observation Well

Hydraulic Conductivity
[m/s]

82-20

7.48×10^{-7}

Klohn Crippen Berger

Slug Test Analysis Report

Project: Silvertip

Number: M09663A02

Client: SilverCorp

Location: Silvertip Mine

Slug Test: Slug Test

Test Well: 84-73

Test Conducted by: NB

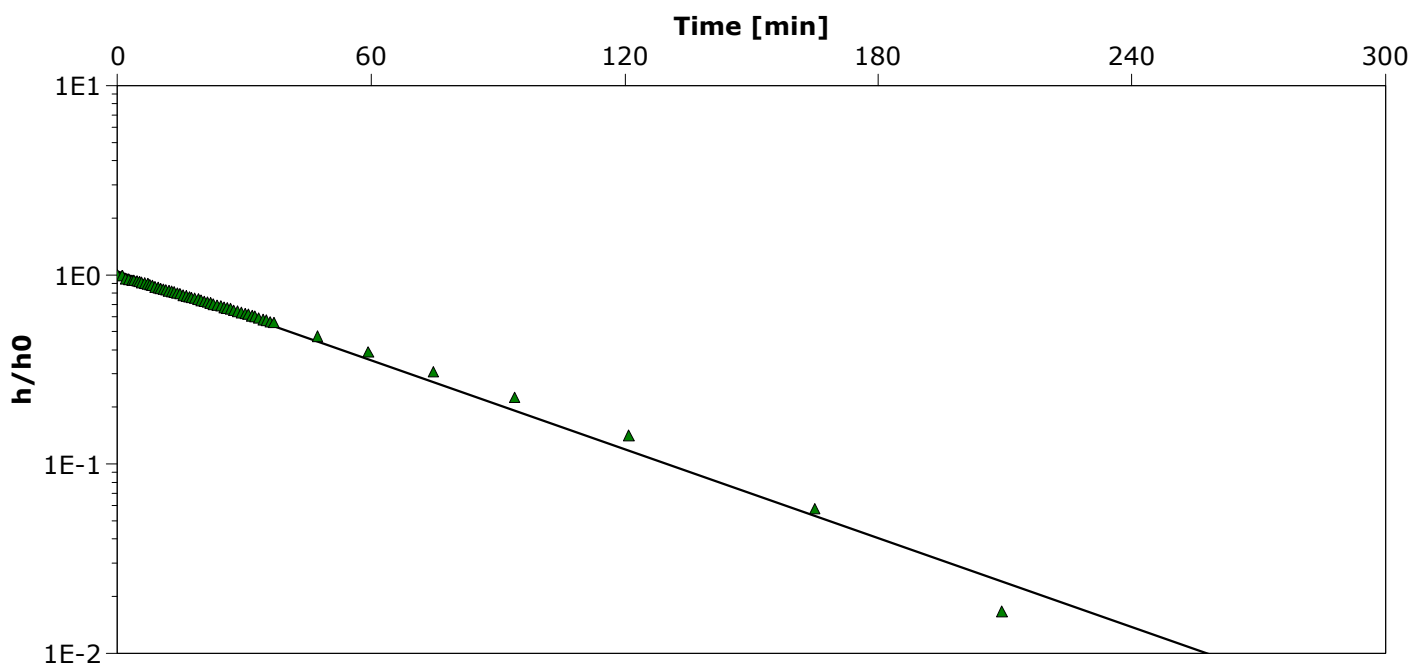
Test Date: 29/10/2010

Analysis Performed by: NB

Bouwer-Rice

Analysis Date: 25/11/2010

Aquifer Thickness: 70.00 m



Calculation after Bouwer & Rice

Observation Well

Hydraulic Conductivity
[m/s]

84-73

1.91×10^{-7}

Klohn Crippen Berger

Slug Test Analysis Report

Project: Silvertip

Number: M09663A02

Client: SilverCorp

Location: Silvertip Mine

Slug Test: Slug Test

Test Well: 84-73

Test Conducted by: NB

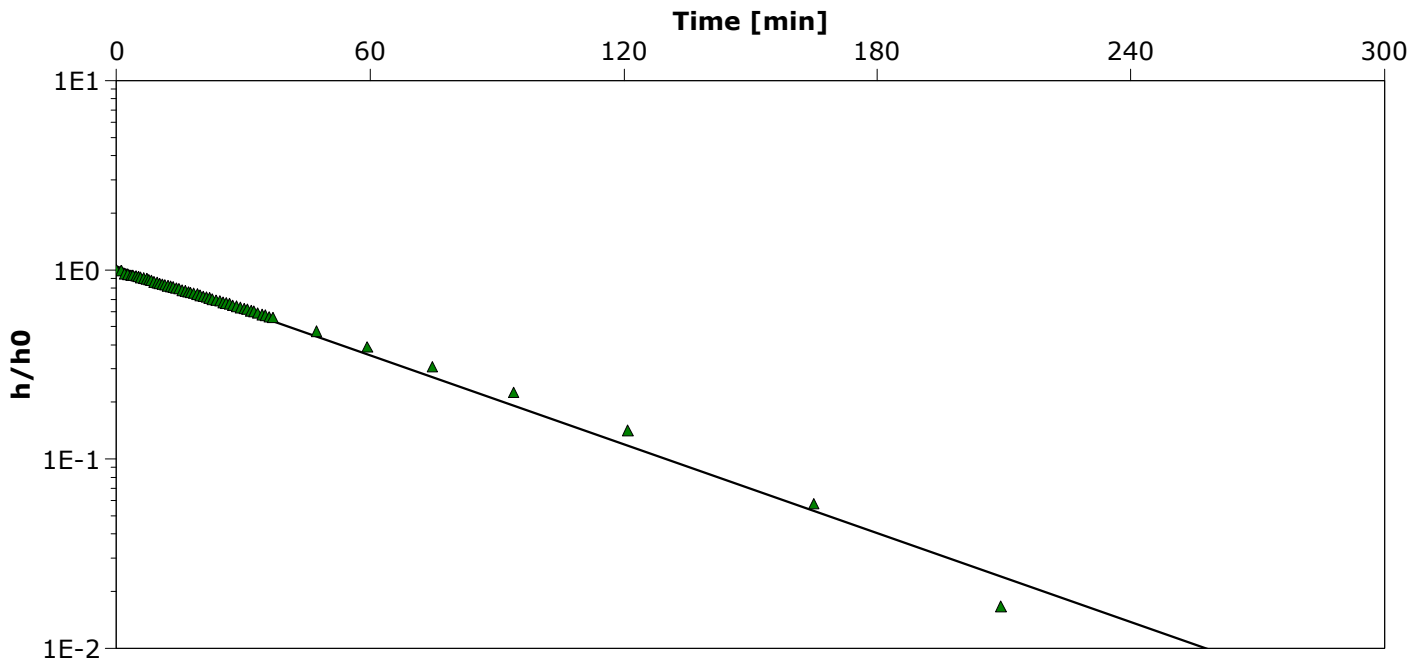
Test Date: 29/10/2010

Analysis Performed by: NB

Hvorslev

Analysis Date: 25/11/2010

Aquifer Thickness: 70.00 m



Calculation after Hvorslev

Observation Well

Hydraulic Conductivity
[m/s]

84-73

2.06×10^{-7}

Klohn Crippen Berger

Slug Test Analysis Report

Project: Silvertip

Number: M09663A02

Client: SilverCorp

Location: Silvertip Mine

Slug Test: Slug Test

Test Well: 84-76

Test Conducted by: NB

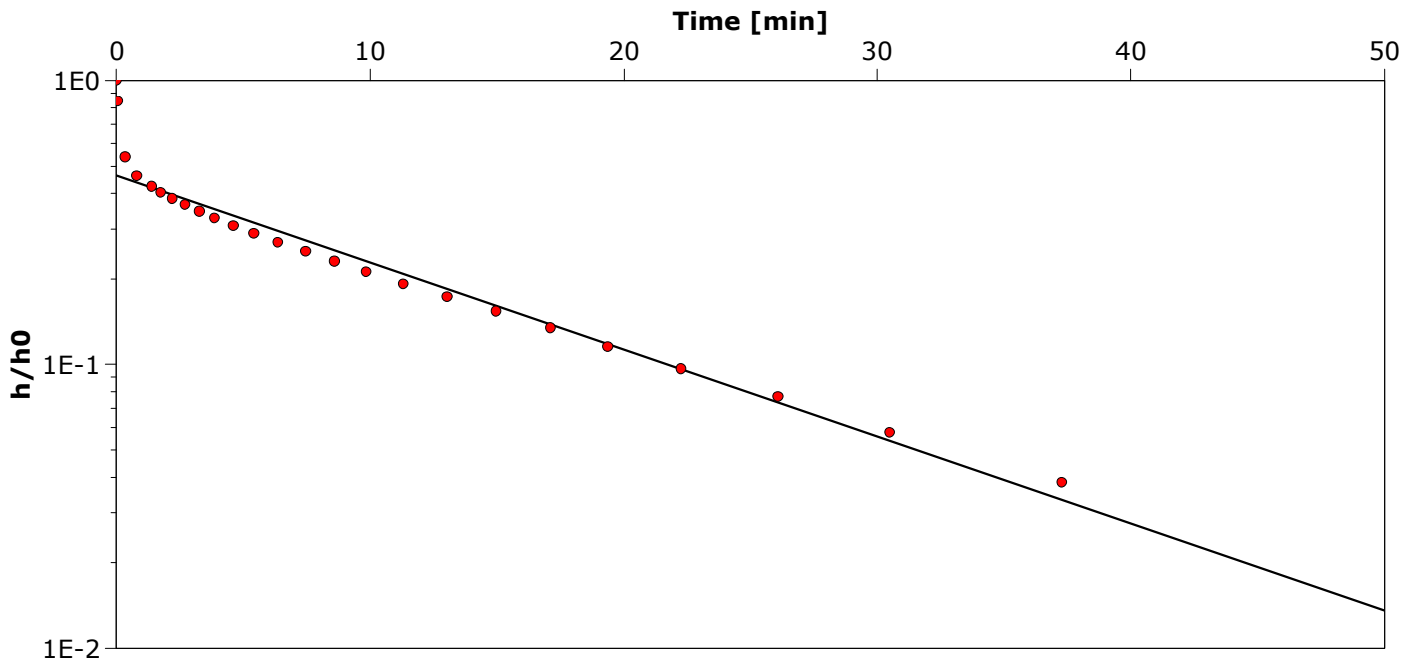
Test Date: 29/10/2010

Analysis Performed by: NB

Bouwer-Rice

Analysis Date: 25/11/2010

Aquifer Thickness: 50.00 m



Calculation after Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]
84-76	7.46×10^{-7}

Klohn Crippen Berger

Slug Test Analysis Report

Project: Silvertip

Number: M09663A02

Client: SilverCorp

Location: Silvertip Mine

Slug Test: Slug Test

Test Well: 84-76

Test Conducted by: NB

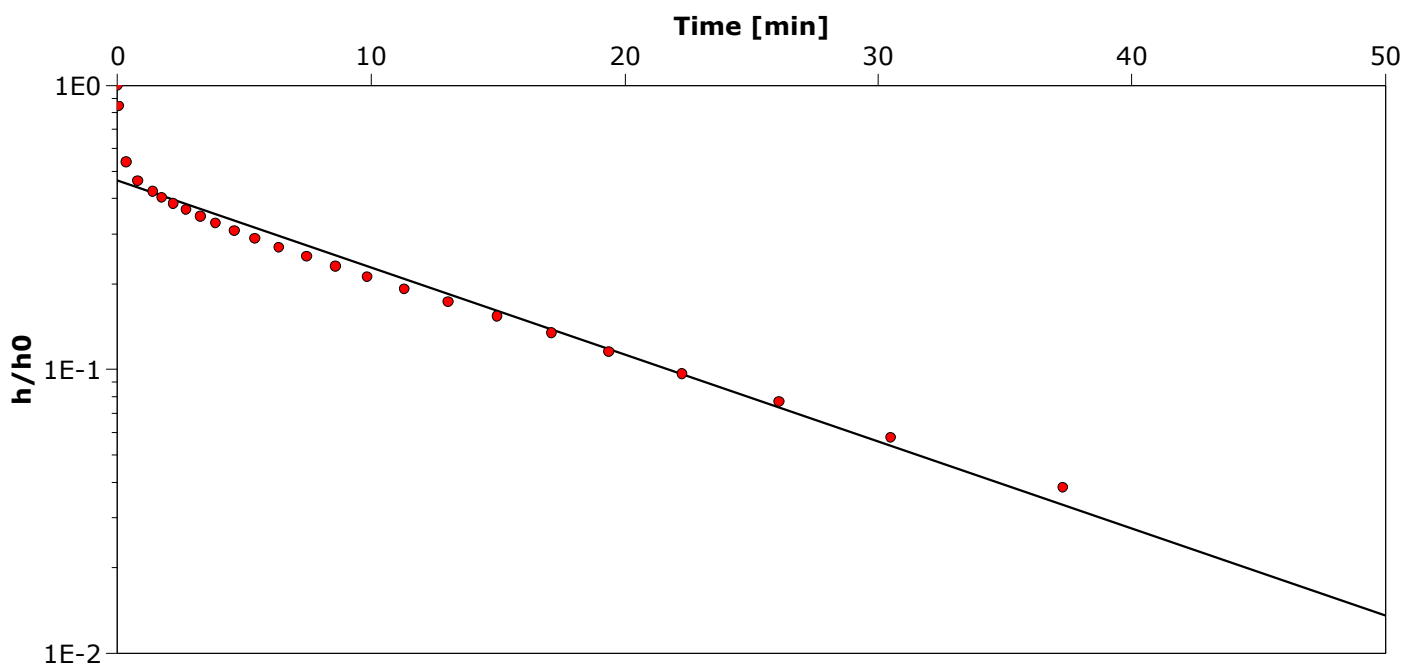
Test Date: 29/10/2010

Analysis Performed by: NB

Hvorslev

Analysis Date: 25/11/2010

Aquifer Thickness: 50.00 m



Calculation after Hvorslev

Observation Well

Hydraulic Conductivity
[m/s]

84-76

8.07×10^{-7}

Klohn Crippen Berger

Slug Test Analysis Report

Project: Silvertip

Number: M09663A02

Client: SilverCorp

Location: Silvertip Mine

Slug Test: Slug Test 1

Test Well: 84-87

Test Conducted by: NB

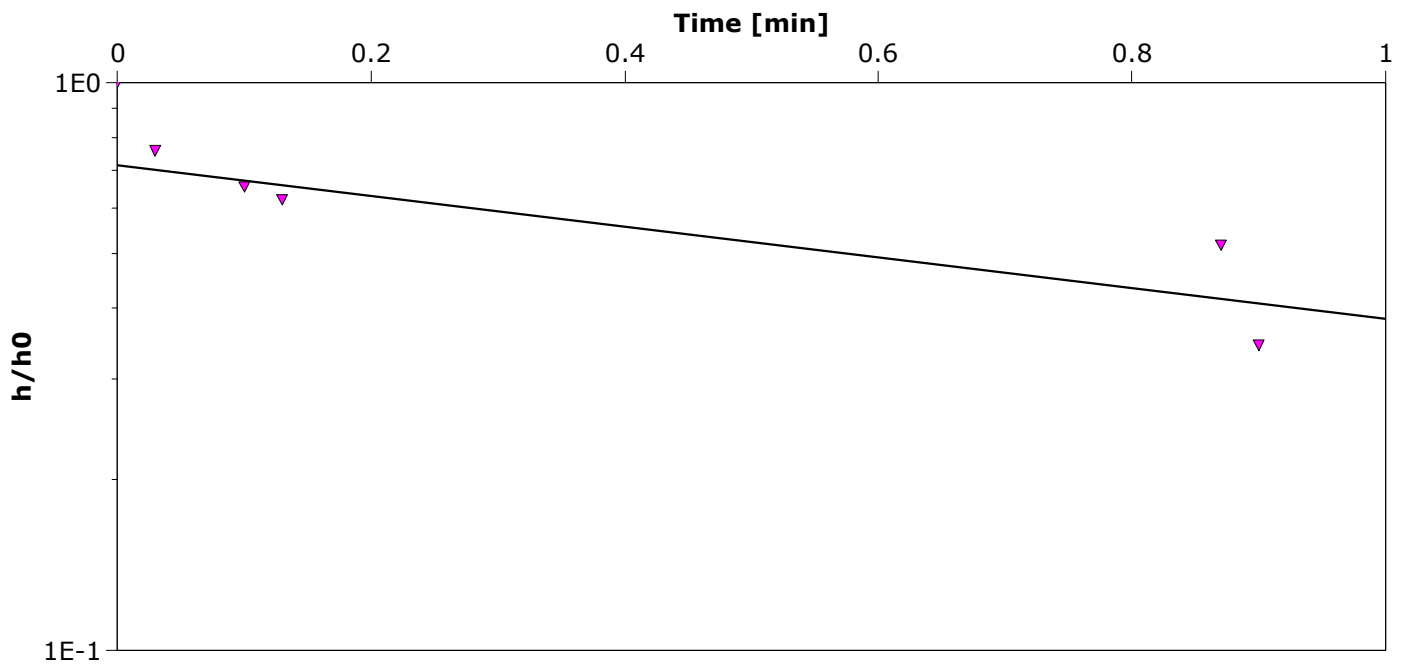
Test Date: 30/10/2010

Analysis Performed by: NB

Bouwer-Rice

Analysis Date: 26/11/2010

Aquifer Thickness: 50.00 m



Calculation after Bouwer & Rice

Observation Well

Hydraulic Conductivity
[m/s]

84-87

5.48×10^{-6}

Klohn Crippen Berger

Slug Test Analysis Report

Project: Silvertip

Number: M09663A02

Client: SilverCorp

Location: Silvertip Mine

Slug Test: Slug Test 1

Test Well: 84-87

Test Conducted by: NB

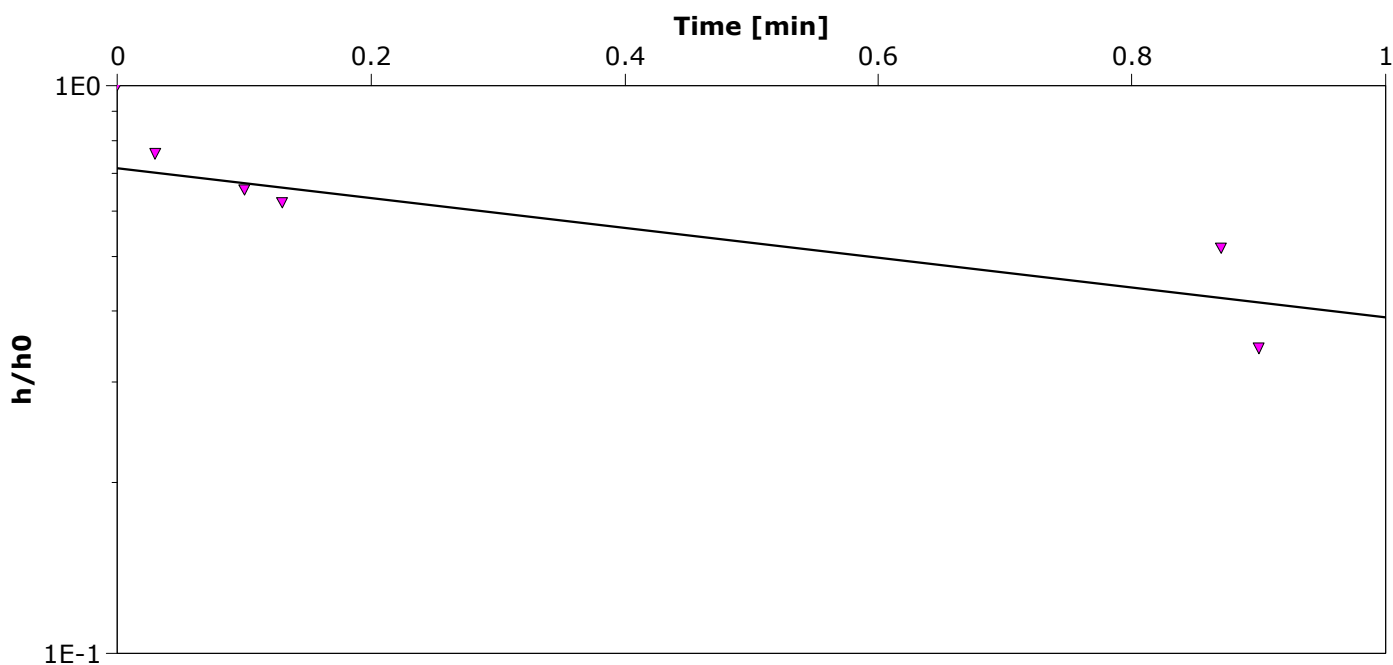
Test Date: 30/10/2010

Analysis Performed by: NB

Hvorslev

Analysis Date: 26/11/2010

Aquifer Thickness: 50.00 m



Calculation after Hvorslev

Observation Well

Hydraulic Conductivity
[m/s]

84-87

6.93×10^{-6}



Klohn Crippen Berger

Slug Test Analysis Report

Project: Silvertip

Number: M09663A04

Client: Silvercorp

Location: Silvertip

Slug Test: Falling Head Slug Test

Test Well: EW1.5-10-24

Test Conducted by: NB

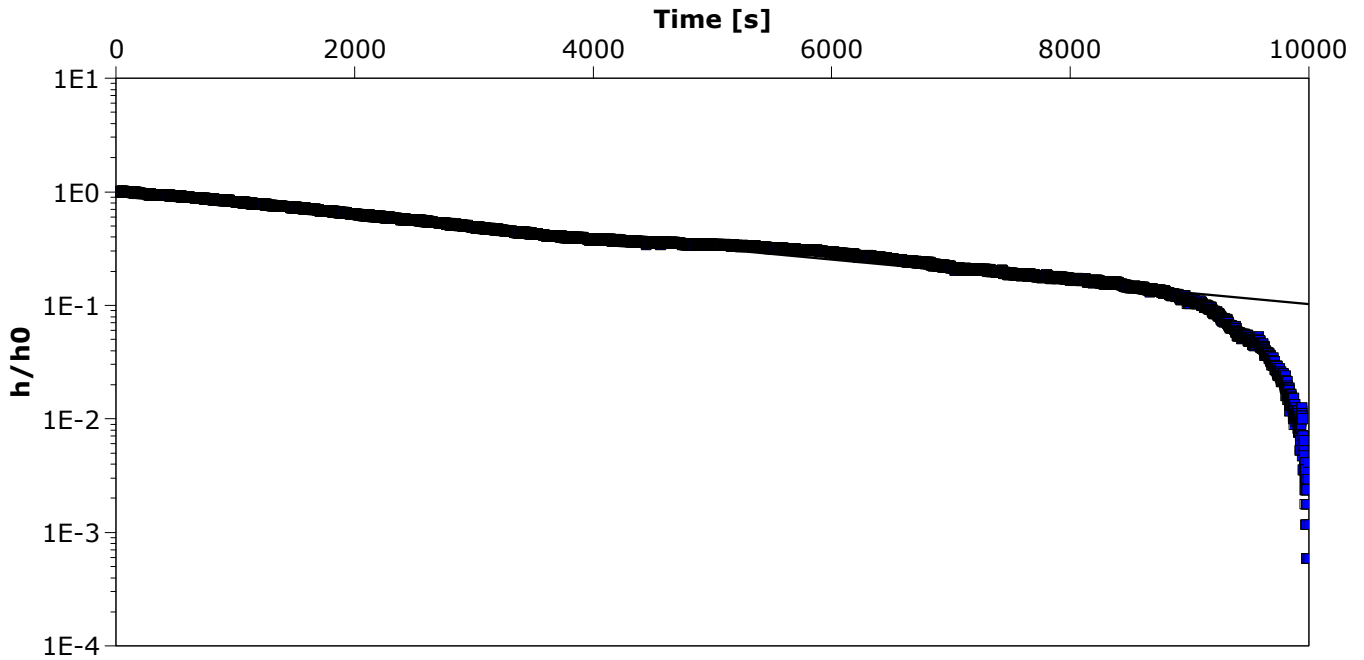
Test Date: 18/05/2011

Analysis Performed by: NB

EW1.5-10-24 Slug Test

Analysis Date: 10/06/2011

Aquifer Thickness: 100.00 m



Calculation after Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]
EW1.5-10-24	1.26×10^{-7}



Klohn Crippen Berger

Slug Test Analysis Report

Project: Silvertip

Number: M09663A04

Client: Silvercorp

Location: Silvertip

Slug Test: Falling Head Slug Test

Test Well: EW1.5-10-24

Test Conducted by: NB

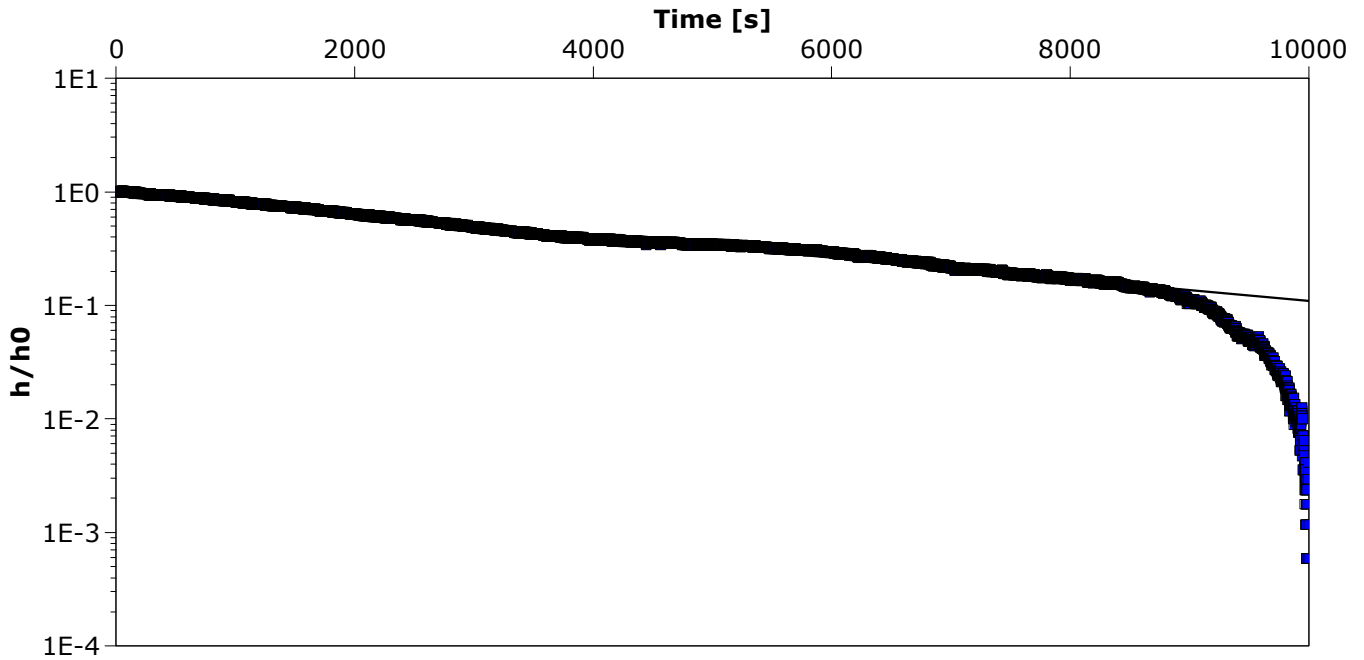
Test Date: 18/05/2011

Analysis Performed by: NB

EW1.5-10-24 Slug Test

Analysis Date: 10/06/2011

Aquifer Thickness: 100.00 m



Calculation after Hvorslev

Observation Well

Hydraulic Conductivity
[m/s]

EW1.5-10-24

1.36×10^{-7}



Klohn Crippen Berger

Slug Test Analysis Report

Project: Silvertip

Number: M09663A04

Client: Silvercorp

Location: Silvertip

Slug Test: Falling Head Slug Test

Test Well: MW84-70

Test Conducted by: NB

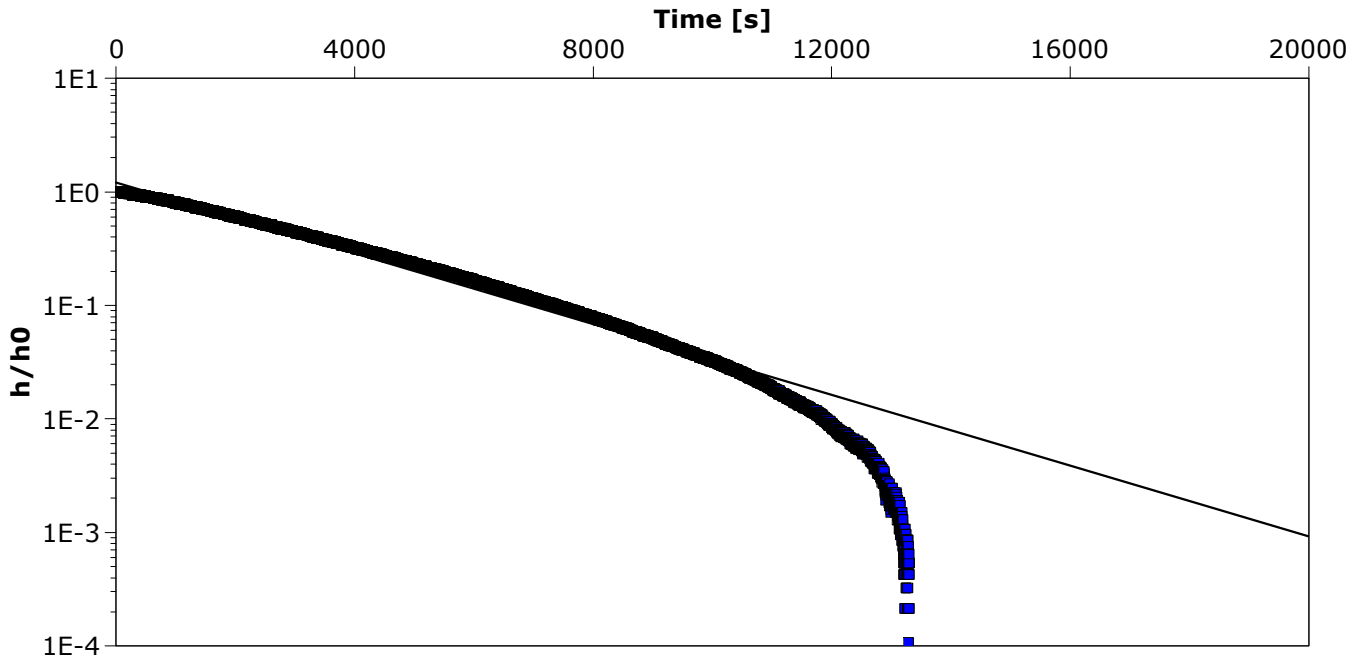
Test Date: 19/05/2011

Analysis Performed by: NB

MW84-70 Slug Test

Analysis Date: 10/06/2011

Aquifer Thickness: 100.00 m



Calculation after Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]
MW84-70	1.76×10^{-7}



Klohn Crippen Berger

Slug Test Analysis Report

Project: Silvertip

Number: M09663A04

Client: Silvercorp

Location: Silvertip

Slug Test: Falling Head Slug Test

Test Well: MW84-70

Test Conducted by: NB

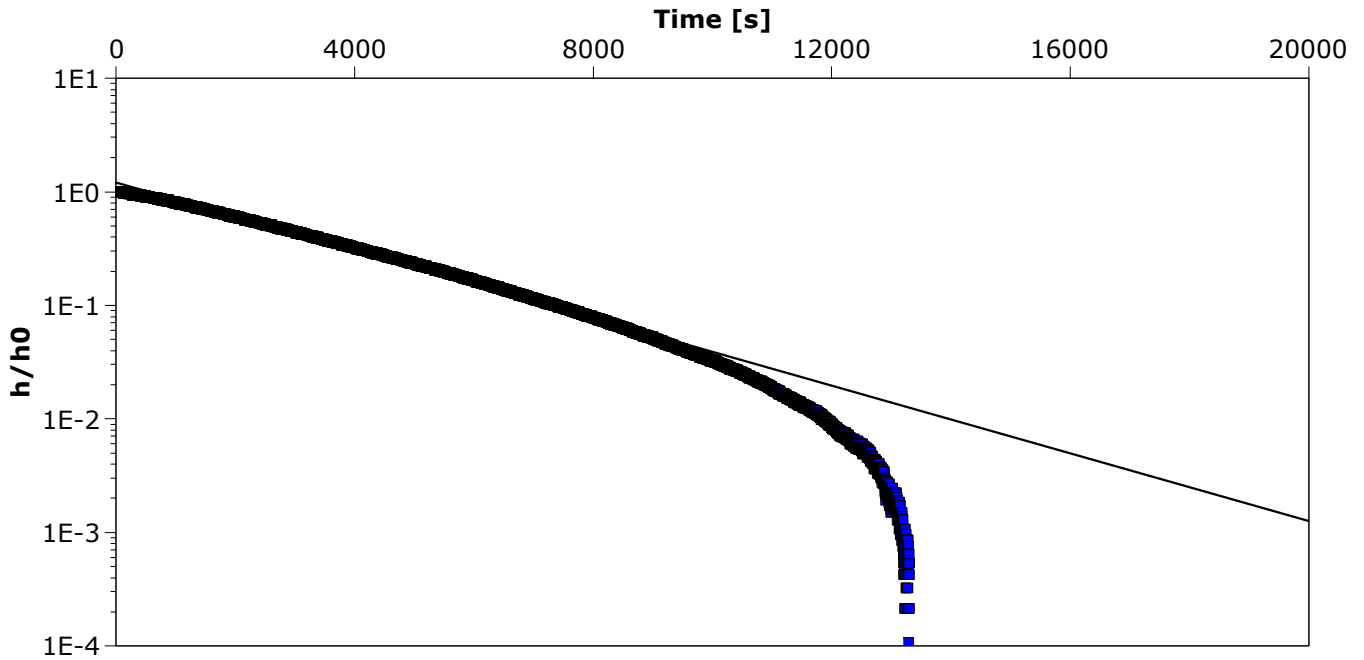
Test Date: 19/05/2011

Analysis Performed by: NB

MW84-70 Slug Test

Analysis Date: 10/06/2011

Aquifer Thickness: 100.00 m



Calculation after Hvorslev

Observation Well

Hydraulic Conductivity
[m/s]

MW84-70

2.11×10^{-7}



Klohn Crippen Berger

Slug Test Analysis Report

Project: Silvertip

Number: M09663A04

Client: Silvercorp

Location: Silvertip

Slug Test: Falling Head Slug Test

Test Well: MW84-85

Test Conducted by: NB

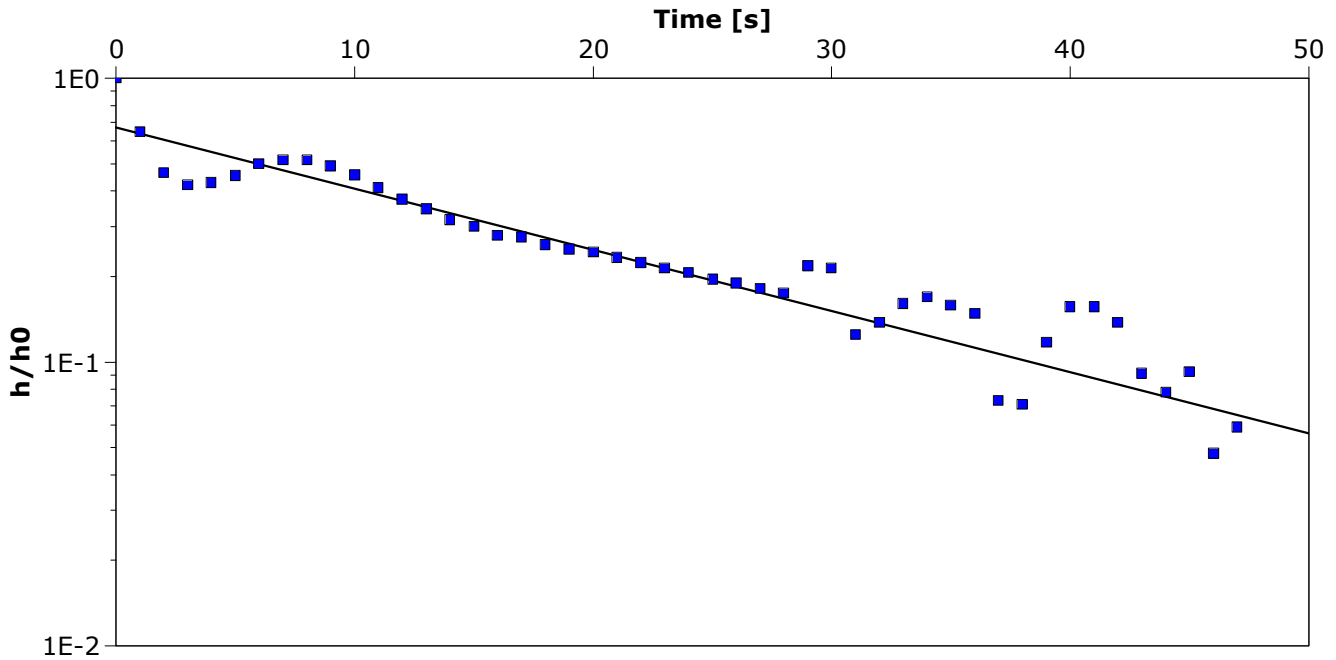
Test Date: 18/05/2011

Analysis Performed by: NB

MW84-85 Slug Test

Analysis Date: 10/06/2011

Aquifer Thickness: 100.00 m



Calculation after Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]
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MW84-85	2.77×10^{-5}
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Klohn Crippen Berger

Slug Test Analysis Report

Project: Silvertip

Number: M09663A04

Client: Silvercorp

Location: Silvertip

Slug Test: Falling Head Slug Test

Test Well: MW84-85

Test Conducted by: NB

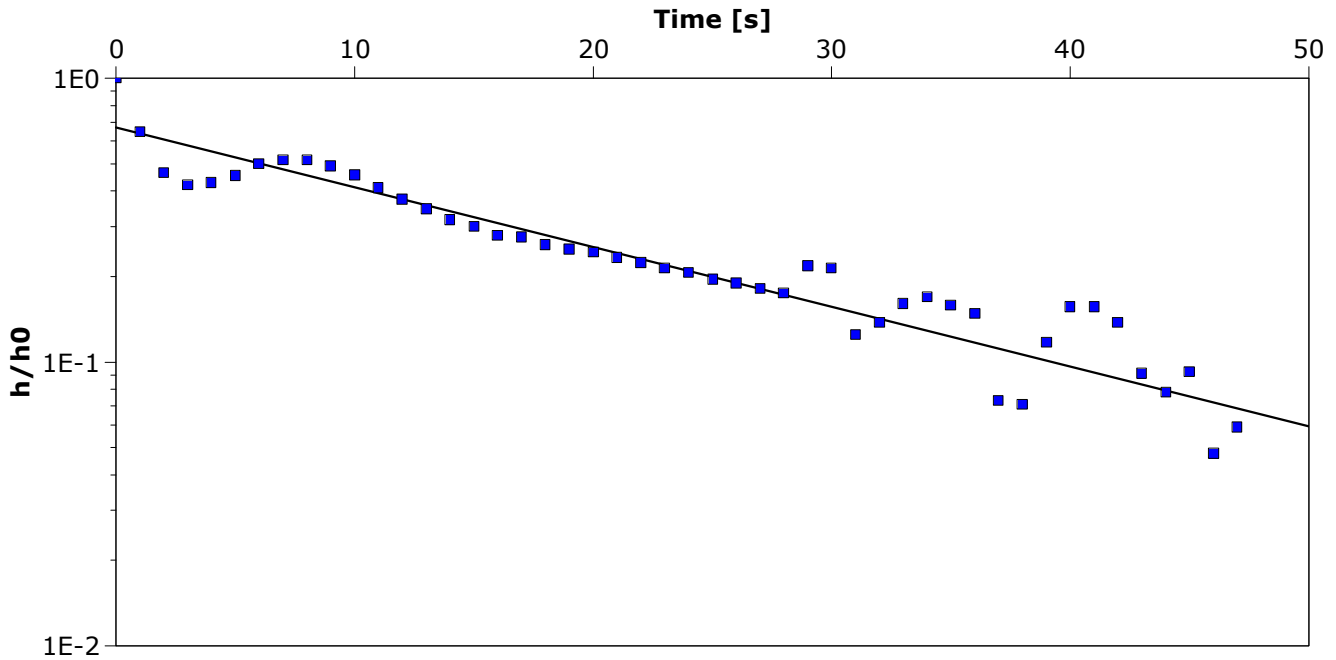
Test Date: 18/05/2011

Analysis Performed by: NB

MW84-85 Slug Test

Analysis Date: 10/06/2011

Aquifer Thickness: 100.00 m



Calculation after Hvorslev

Observation Well

Hydraulic Conductivity
[m/s]

MW84-85

2.98×10^{-5}

APPENDIX 2-III-C

Packer Tests

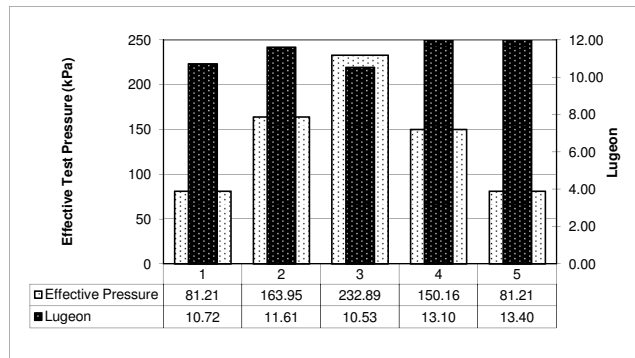
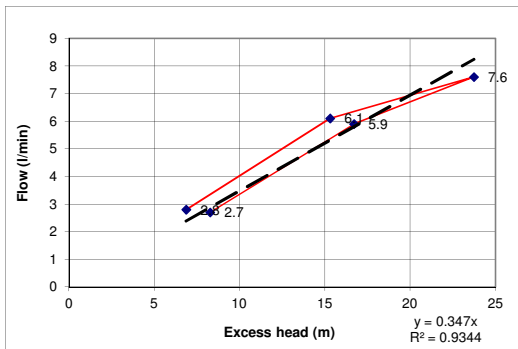
PACKER TEST CALCULATION SHEET



PROJECT SILVERTIP PROJECT **PROJECT NO.** M09663A04 **DATE** 12-Oct-11
Drill Hole ID MW11-02 True depth to ground water 0.76 m
Hole Plunge 90 deg Gauge height above ground 0.49 m
Test Interval from 9.1 m to 12.2 m Ground surface elevation 1255 m
Test length 3.1 m Static Head 12.26 kPa
Hole diameter 0.0961 m = (true gauge height (m) + groundwater depth (m)) x 9.81

Gauge Pressure (psi)	Net Test Pressure (kPa)	Water Loss										Average flow (l/min)	Take (l/min/m)	Lugeon	Permeability (m/s)	
		Time (mins)	1	2	3	4	5	6	7	8	9					10
10	81.21	Time (mins)	1	2	3	4	5	6	7	8	9	10	2.7	0.87	10.72	1.16E-06
		Flow (m3) from	1.413	1.415	1.417	1.420	1.423	1.425	1.428	1.433	1.435	1.438				
		Flow (m3) to	1.415	1.417	1.420	1.423	1.425	1.428	1.433	1.435	1.438	1.440				
		Take (m3/min)	0.002	0.002	0.003	0.003	0.002	0.003	0.005	0.002	0.003	0.002				
		Take (l/min)	2	2	3	3	2	3	4.5	2	3	2.5				
22	163.95	Time (mins)	1	2	3	4	5	6	7	8	9	10	5.9	1.90	11.61	1.26E-06
		Flow (m3) from	1.440	1.447	1.453	1.460	1.466	1.473	1.480	1.486	1.493					
		Flow (m3) to	1.447	1.453	1.460	1.466	1.473	1.480	1.486	1.493	1.499					
		Take (m3/min)	0.006	0.007	0.007	0.006	0.007	0.007	0.006	0.007	0.006	0.000				
		Take (l/min)	6.5	6.5	7	6	7	7	6	7	6	0				
32	232.89	Time (mins)	1	2	3	4	5	6	7	8	9	10	7.6	2.45	10.53	1.14E-06
		Flow (m3) from	1.499	1.508	1.518	1.527	1.538	1.547	1.557	1.566						
		Flow (m3) to	1.508	1.518	1.527	1.538	1.547	1.557	1.566	1.575						
		Take (m3/min)	0.009	0.01	0.009	0.0105	0.0095	0.0095	0.0095	0.009	0	0				
		Take (l/min)	9	10	9	10.5	9.5	9.5	9.5	9	0	0				
20	150.16	Time (mins)	1	2	3	4	5	6	7	8	9	10	6.1	1.97	13.10	1.42E-06
		Flow (m3) from	1.575	1.583	1.594	1.600	1.606	1.612	1.618	1.625	1.631					
		Flow (m3) to	1.583	1.594	1.600	1.606	1.612	1.618	1.6245	1.631	1.636					
		Take (m3/min)	0.0075	0.0115	0.006	0.006	0.0055	0.0065	0.0065	0.0065	0.005	0				
		Take (l/min)	7.5	11.5	6	6	5.5	6.5	6.5	6.5	5	0				
8	67.42	Time (mins)	1	2	3	4	5	6	7	8	9	10	2.8	0.90	13.40	1.45E-06
		Flow (m3) from	1.636	1.638	1.641	1.644	1.647	1.650	1.653	1.655	1.658	1.661				
		Flow (m3) to	1.638	1.641	1.644	1.647	1.650	1.653	1.655	1.658	1.661	1.664				
		Take (m3/min)	0.002	0.003	0.003	0.003	0.003	0.003	0.002	0.003	0.003	0.003				
		Take (l/min)	2	3	3	3	2.5	3	2.5	3	3	3				

Test Pressure = Gauge pressure + static head - friction losses. Note: friction losses ignored for this calculation.
One Lugeon = 1 litre per minute per metre at a pressure of 10 bars.
K = Flow x ln(2 x Test Length/Hole diameter) / (2 x pi x Test length x Net head of water table at centre of test section) Ref. Hoek and Bray.



Approximate Permeability (m/s)

Min k = 1.1E-06
Max k = 1.5E-06
Avg K = 1.3E-06
Best fit K = 1.2E-06

Comments

PACKER TEST CALCULATION SHEET



PROJECT SILVERTIP PROJECT **PROJECT NO.** M09663A04 **DATE** 12-Oct-11

Drill Hole ID MW11-02 True depth to ground water 0.76 m

Hole Plunge 90 deg Gauge height above ground 0.49 m

Test Interval from 6.1 m to 9.14 m Ground surface elevation 1255 m

Test length 3.04 m Static Head 12.26 kPa
 = (true gauge height (m) + groundwater depth (m)) x 9.81

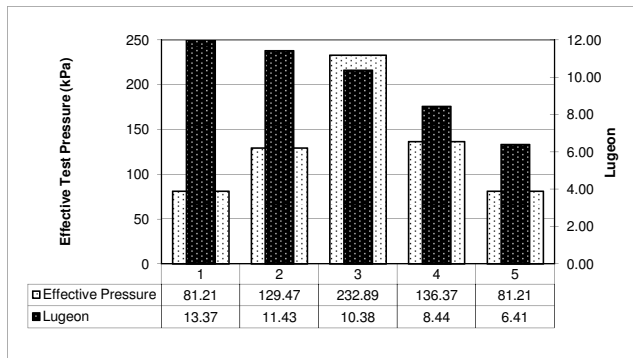
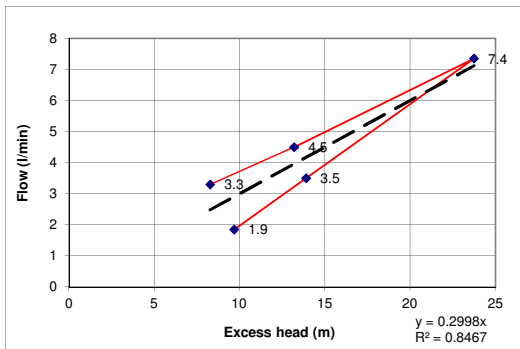
Hole diameter 0.0961 m

Gauge Pressure (psi)	Net Test Pressure (kPa)	Water Loss										Average flow (l/min)	Take (l/min/m)	Lugeon	Permeability (m/s)	
		Time (mins)	1	2	3	4	5	6	7	8	9					10
10	81.21	Time (mins)	1	2	3	4	5	6	7	8	9	10	3.3	1.09	13.37	1.44E-06
		Flow (m3) from	1.702	1.710	1.713	1.716	1.719	1.722	1.724	1.727	1.730	1.732				
		Flow (m3) to	1.710	1.713	1.716	1.719	1.722	1.724	1.727	1.730	1.732	1.735				
		Take (l/min)	0.008	0.003	0.003	0.002	0.003	0.002	0.003	0.002	0.002	0.003				
		Take (l/min)	8	3	3	2.5	3	2.5	3	2.5	2.5	3				
17	129.47	Time (mins)	1	2	3	4	5	6	7	8	9	10	4.5	1.48	11.43	1.23E-06
		Flow (m3) from	1.735	1.743	1.747	1.751	1.755	1.759	1.763	1.767	1.771	1.776				
		Flow (m3) to	1.743	1.747	1.751	1.755	1.759	1.763	1.767	1.771	1.776	1.780				
		Take (m3/min)	0.008	0.003	0.004	0.004	0.004	0.004	0.004	0.004	0.005	0.004				
		Take (l/min)	8	3.5	4	4.5	4	4	4	4.5	4.5	8				
32	232.89	Time (mins)	1	2	3	4	5	6	7	8	9	10	7.4	2.42	10.38	1.12E-06
		Flow (m3) from	1.801	1.807	1.815	1.819	1.825	1.835	1.845	1.853	1.860	1.866				
		Flow (m3) to	1.807	1.815	1.819	1.825	1.835	1.845	1.8525	1.8595	1.8655	1.874				
		Take (m3/min)	0.0065	0.0075	0.004	0.0067	0.0098	0.01	0.0075	0.007	0.006	0.0085				
		Take (l/min)	6.5	7.5	4	6.7	9.8	10	7.5	7	6	8.5				
18	136.37	Time (mins)	1	2	3	4	5	6	7	8	9	10	3.5	1.15	8.44	9.11E-07
		Flow (m3) from	1.879	1.883	1.886	1.890	1.893	1.897	1.900	1.904	1.907	1.910				
		Flow (m3) to	1.883	1.886	1.890	1.893	1.897	1.900	1.9035	1.907	1.91	1.914				
		Take (m3/min)	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.003	0.004				
		Take (l/min)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3	4					
12	95.00	Time (mins)	1	2	3	4	5	6	7	8	9	10	1.9	0.61	6.41	6.91E-07
		Flow (m3) from	1.914	1.915	1.916	1.917	1.920	1.923	1.924	1.926	1.928	1.930				
		Flow (m3) to	1.915	1.916	1.917	1.920	1.923	1.924	1.926	1.928	1.930	1.933				
		Take (m3/min)	0.001	0.001	0.001	0.002	0.004	0.000	0.002	0.002	0.002	0.003				
		Take (l/min)	1	1	1	2.5	3.5	0.5	2.5	2	2	2.5				

Test Pressure = Gauge pressure + static head - friction losses. Note: friction losses ignored for this calculation.

One Lugeon = 1 litre per minute per metre at a pressure of 10 bars.

$K = \text{Flow} \times \ln(2 \times \text{Test Length}/\text{Hole diameter}) / (2 \times \pi \times \text{Test length} \times \text{Net head of water table at centre of test section})$ Ref. Hoek and Bray.



Approximate Permeability (m/s)

Min k = 6.9E-07

Max k = 1.4E-06

Avg K = 1.1E-06

Best fit K = 1.1E-06

Comments

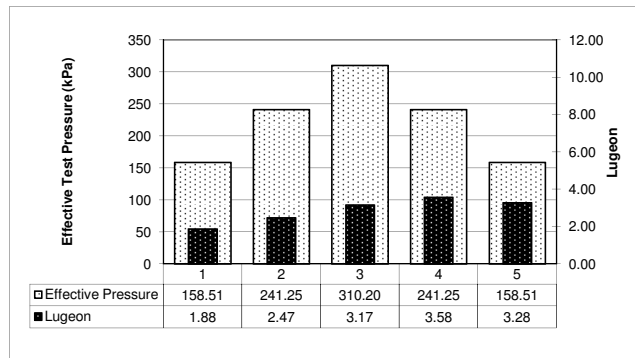
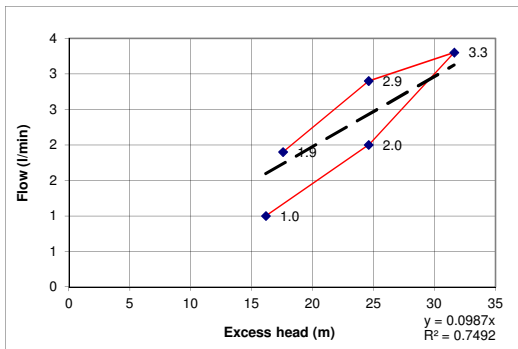
PACKER TEST CALCULATION SHEET



PROJECT SILVERTIP PROJECT **PROJECT NO.** M09642A01 **DATE** 10-Jul-10
Drill Hole ID MW11-03 Deep True depth to ground water 8.58 m
Hole Plunge 90 deg Gauge height above ground 0.55 m
Test Interval from 36.57 m to 39.93 m Ground surface elevation 1230 m
Test length 3.36 m Static Head 89.57 kPa
Hole diameter 0.0961 m = (true gauge height (m) + groundwater depth (m)) x 9.81

Gauge Pressure (psi)	Net Test Pressure (kPa)	Water Loss										Average flow (l/min)	Take (l/min/m)	Lugeon	Permeability (m/s)	
		Time (mins)	1	2	3	4	5	6	7	8	9					10
10	158.51	Time (mins)	1	2	3	4	5	6	7	8	9	10	1.0	0.30	1.88	2.08E-07
		Flow (m3) from	1.951	1.954	1.956	1.957	1.958	1.958	1.959	1.959	1.960	1.960				
		Flow (m3) to	1.954	1.956	1.957	1.958	1.958	1.959	1.959	1.960	1.960	1.961				
		Take (l/min)	0.002	0.002	0.000	0.001	0.000	0.000	0.001	0.001	0.000	0.001				
22	241.25	Time (mins)	1	2	3	4	5	6	7	8	9	10	2.0	0.60	2.47	2.73E-07
		Flow (m3) from	1.961	1.968	1.970	1.971	1.973	1.974	1.976	1.978	1.980	1.980				
		Flow (m3) to	1.968	1.970	1.971	1.973	1.974	1.976	1.978	1.980	1.980	1.981				
		Take (l/min)	0.007	0.002	0.001	0.002	0.001	0.002	0.002	0.002	0.000	0.001				
32	310.20	Time (mins)	1	2	3	4	5	6	7	8	9	10	3.3	0.98	3.17	3.50E-07
		Flow (m3) from	1.981	1.984	1.985	1.989	1.992	1.995	1.999	2.003	2.006	2.010				
		Flow (m3) to	1.984	1.985	1.989	1.992	1.995	1.999	2.0025	2.006	2.01	2.014				
		Take (l/min)	0.0025	0.0015	0.004	0.003	0.003	0.004	0.0035	0.0035	0.004	0.004				
22	241.25	Time (mins)	1	2	3	4	5	6	7	8	9	10	2.9	0.86	3.58	3.95E-07
		Flow (m3) from	2.020	2.023	2.026	2.029	2.033	2.035	2.039	2.041	2.044	2.047				
		Flow (m3) to	2.023	2.026	2.029	2.033	2.035	2.039	2.041	2.044	2.047	2.049				
		Take (l/min)	0.003	0.003	0.003	0.0035	0.0025	0.0035	0.0025	0.003	0.003	0.002				
12	172.30	Time (mins)	1	2	3	4	5	6	7	8	9	10	1.9	0.57	3.28	3.63E-07
		Flow (m3) from	2.049	2.051	2.054	2.055	2.057	2.059	2.061	2.063	2.064	2.066				
		Flow (m3) to	2.051	2.054	2.055	2.057	2.059	2.061	2.063	2.064	2.066	2.068				
		Take (l/min)	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002				
		2	2.5	1.5	2	2	2	1.5	1.5	2	2					

Test Pressure = Gauge pressure + static head - friction losses. Note: friction losses ignored for this calculation.
One Lugeon = 1 litre per minute per metre at a pressure of 10 bars.
K = Flow x ln(2 x Test Length/Hole diameter) / (2 x pi x Test length x Net head of water table at centre of test section) Ref. Hoek and Bray.



Approximate Permeability (m/s)

Min k = 2.1E-07
Max k = 4.0E-07
Avg K = 3.2E-07
Best fit K = 3.3E-07

Comments

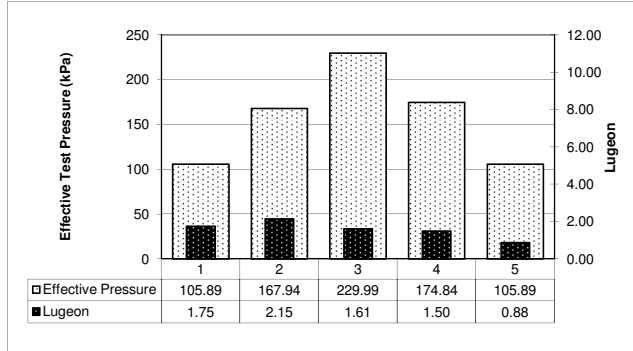
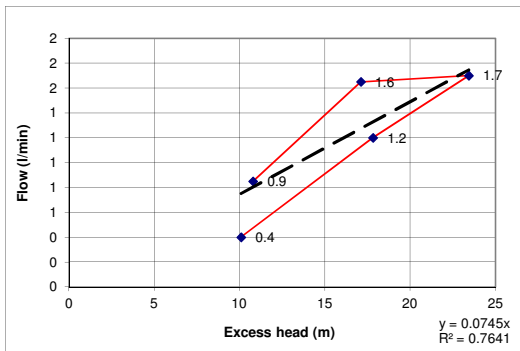
PACKER TEST CALCULATION SHEET



PROJECT SILVERTIP PROJECT **PROJECT NO.** M09642A01 **DATE** 03-Nov-11
Drill Hole ID MW11-04 Deep True depth to ground water 1.86 m
Hole Plunge 90 deg Gauge height above ground 0.5 m
Test Interval from 30.17 m to 34.75 m Ground surface elevation 1230 m
Test length 4.58 m Static Head 23.15 kPa
Hole diameter 0.0757 m = (true gauge height (m) + groundwater depth (m)) x 9.81

Gauge Pressure (psi)	Net Test Pressure (kPa)	Water Loss										Average flow (l/min)	Take (l/min/m)	Lugeon	Permeability (m/s)	
		Time (mins)	1	2	3	4	5	6	7	8	9					10
12	105.89	Time (mins)	1	2	3	4	5	6	7	8	9	10	0.9	0.19	1.75	2.19E-07
		Flow (m3) from	2.394	2.395	2.395	2.396	2.397	2.398	2.399	2.400	2.401	2.402				
		Flow (m3) to	2.395	2.395	2.396	2.397	2.398	2.399	2.400	2.401	2.402	2.402				
		Take (l/min)	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001				
		Take (l/min)	1	0.5	1	1	1	1	1	0.5	0.5					
21	167.94	Time (mins)	1	2	3	4	5	6	7	8	9	10	1.6	0.36	2.15	2.68E-07
		Flow (m3) from	2.402	2.406	2.408	2.409	2.411	2.412	2.413	2.415	2.416	2.418				
		Flow (m3) to	2.406	2.408	2.409	2.411	2.412	2.413	2.415	2.416	2.418	2.419				
		Take (m3/min)	0.004	0.002	0.001	0.002	0.002	0.001	0.002	0.001	0.002	0.001				
		Take (l/min)	4	1.5	1.5	1.5	1.5	1	2	1	1.5	1				
30	229.99	Time (mins)	1	2	3	4	5	6	7	8	9	10	1.7	0.37	1.61	2.01E-07
		Flow (m3) from	2.421	2.423	2.425	2.427	2.428	2.430	2.432	2.434	2.435	2.437				
		Flow (m3) to	2.423	2.425	2.427	2.428	2.430	2.432	2.434	2.435	2.437	2.438				
		Take (m3/min)	0.002	0.002	0.0015	0.0015	0.002	0.002	0.002	0.001	0.002	0.001				
		Take (l/min)	2	2	1.5	1.5	2	2	2	1	2	1				
22	174.84	Time (mins)	1	2	3	4	5	6	7	8	9	10	1.2	0.26	1.50	1.87E-07
		Flow (m3) from	2.438	2.439	2.440	2.442	2.443	2.444	2.445	2.446	2.447	2.449				
		Flow (m3) to	2.439	2.440	2.442	2.443	2.444	2.445	2.446	2.447	2.4485	2.45				
		Take (m3/min)	0.001	0.001	0.0015	0.001	0.001	0.0015	0.001	0.001	0.0015	0.0015				
		Take (l/min)	1	1	1.5	1	1	1.5	1	1.5	1.5					
11	98.99	Time (mins)	1	2	3	4	5	6	7	8	9	10	0.4	0.09	0.88	1.10E-07
		Flow (m3) from	2.452	2.452	2.452	2.453	2.453	2.454	2.454	2.455	2.455	2.455				
		Flow (m3) to	2.452	2.452	2.453	2.453	2.454	2.454	2.455	2.455	2.455	2.456				
		Take (m3/min)	0.001	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.001	0.000				
		Take (l/min)	0.5	0.2	0.3	0.5	0.5	0.5	0.5	0	0.5	0.5				

Test Pressure = Gauge pressure + static head - friction losses. Note: friction losses ignored for this calculation.
One Lugeon = 1 litre per minute per metre at a pressure of 10 bars.
K = Flow x ln(2 x Test Length/Hole diameter) / (2 x pi x Test length x Net head of water table at centre of test section) Ref. Hoek and Bray.



Approximate Permeability (m/s)

Min k = 1.1E-07
Max k = 2.7E-07
Avg K = 2.0E-07
Best fit K = 2.1E-07

Comments

APPENDIX 2-IV-A

Surface Water Quality Laboratory Data 2010-2013



KLOHN CRIPPEN BERGER LTD.
ATTN: Matt Mackinnon
500-2955 Virtual Way
Vancouver BC V5M 4X6

Date Received: 04-OCT-11
Report Date: 25-OCT-11 10:00 (MT)
Version: FINAL

Client Phone: 604-669-3800

Certificate of Analysis

Lab Work Order #: L1067044
Project P.O. #: NOT SUBMITTED
Job Reference: M09663A04
C of C Numbers: 10-152169, 10-152170
Legal Site Desc:

Comments: Sample 9 was labeled on the bottles as WQ25A, but the CoC read WQ25 - sample identification as per the CoC. Travel Blank was received but not listed on the CoC. Analysis was performed as per the other sampels.

Can Dang
Senior Account Manager

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ADDRESS: 8081 Lougheed Hwy, Suite 100, Burnaby, BC V5A 1W9 Canada | Phone: +1 604 253 4188 | Fax: +1 604 253 6700
ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1067044-1	L1067044-2	L1067044-3	L1067044-4	L1067044-5
		Description	WATER	WATER	WATER	WATER	WATER
		Sampled Date	01-OCT-11	01-OCT-11	01-OCT-11	01-OCT-11	01-OCT-11
		Sampled Time	11:45	09:20	08:15	10:45	10:15
		Client ID	WQ9	WQ32	WQ33	WQ2	WQ30
Grouping	Analyte						
WATER							
Physical Tests	Colour, True (CU)	<5.0	<5.0	<5.0	<5.0	<5.0	
	Conductivity (uS/cm)	884	352	413	286	339	
	Hardness (as CaCO3) (mg/L)	499	192	211	150	175	
	pH (pH)	7.69	8.22	8.16	8.22	8.14	
	Total Suspended Solids (mg/L)	6.4	<3.0	7.7	41.7	<3.0	
	Total Dissolved Solids (mg/L)	673	208	271	176	208	
	Turbidity (NTU)	12.8	0.19	0.97	0.57	0.28	
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	9.1	1.7	2.0	1.5	2.1	
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	176	156	92.6	109	110	
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<2.0	<2.0	<2.0	<2.0	<2.0	
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<2.0	<2.0	<2.0	<2.0	<2.0	
	Alkalinity, Total (as CaCO3) (mg/L)	176	156	92.6	109	110	
	Ammonia (as N) (mg/L)	0.0186	<0.0050	<0.0050	<0.0050	<0.0050	
	Chloride (Cl) (mg/L)	<0.50	<0.50	<0.50	<0.50	<0.50	
	Fluoride (F) (mg/L)	0.548	0.098	0.074	0.077	0.097	
	Total Kjeldahl Nitrogen (mg/L)	<0.050	0.069	0.105	0.076	0.069	
	Sulfate (SO4) (mg/L)	319	38.7	119	45.2	67.6	
Organic / Inorganic Carbon	Total Organic Carbon (mg/L)	0.61	0.91	1.40	0.91	0.67	
Bacteriological Tests	E. coli (MPN/100mL)						
	Coliform Bacteria - Total (MPN/100mL)						
Total Metals	Aluminum (Al)-Total (mg/L)	<0.0030	0.0033	0.0051	0.0210	0.0054	
	Antimony (Sb)-Total (mg/L)	0.00896	0.00016	0.00036	0.00018	0.00022	
	Arsenic (As)-Total (mg/L)	0.00550	0.00027	0.00046	0.00025	0.00024	
	Barium (Ba)-Total (mg/L)	0.0123	0.195	0.0912	0.198	0.223	
	Beryllium (Be)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
	Bismuth (Bi)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
	Boron (B)-Total (mg/L)	0.011	<0.010	<0.010	<0.010	<0.010	
	Cadmium (Cd)-Total (mg/L)	0.0123	0.000046	0.000659	0.000171	0.000278	
	Calcium (Ca)-Total (mg/L)	162	53.3	71.9	43.3	52.0	
	Chromium (Cr)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
	Cobalt (Co)-Total (mg/L)	0.00204	<0.00010	<0.00010	<0.00010	<0.00010	
	Copper (Cu)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
	Iron (Fe)-Total (mg/L)	1.16	<0.030	<0.030	0.039	<0.030	
	Lead (Pb)-Total (mg/L)	0.000537	<0.000050	<0.000050	0.000094	<0.000050	
	Lithium (Li)-Total (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	
	Magnesium (Mg)-Total (mg/L)	27.3	16.2	8.63	11.1	12.8	

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1067044-6	L1067044-7	L1067044-8	L1067044-9	L1067044-10
Description	WATER	WATER	WATER	WATER	WATER	WATER
Sampled Date	01-OCT-11	02-OCT-11	01-OCT-11	01-OCT-11	01-OCT-11	01-OCT-11
Sampled Time	09:50	11:40	12:15	15:05	15:45	15:45
Client ID	WQ34	WQ31	WQ16A	WQ25	WQ11	WQ11
Grouping	Analyte					
WATER						
Physical Tests	Colour, True (CU)	<5.0	<5.0	<5.0	<5.0	<5.0
	Conductivity (uS/cm)	375	90.2	223	300	131
	Hardness (as CaCO3) (mg/L)	189	38.7	110	156	65.1
	pH (pH)	8.22	7.61	8.03	8.25	8.09
	Total Suspended Solids (mg/L)	<3.0	5.1	<3.0	<3.0	<3.0
	Total Dissolved Solids (mg/L)	255	63	136	195	75
	Turbidity (NTU)	0.13	1.89	0.50	0.45	0.37
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	1.6	2.5	2.2	1.3	1.9
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	74.4	16.7	58.5	93.8	56.3
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<2.0	<2.0	<2.0	<2.0	<2.0
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<2.0	<2.0	<2.0	<2.0	<2.0
	Alkalinity, Total (as CaCO3) (mg/L)	74.4	16.7	58.5	93.8	56.3
	Ammonia (as N) (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Chloride (Cl) (mg/L)	<0.50	<0.50	<0.50	<0.50	<0.50
	Fluoride (F) (mg/L)	0.083	0.093	0.071	0.082	0.060
	Total Kjeldahl Nitrogen (mg/L)	0.061	0.093	0.109	0.056	0.074
	Sulfate (SO4) (mg/L)	113	24.3	51.7	54.3	11.6
Organic / Inorganic Carbon	Total Organic Carbon (mg/L)	0.80	0.98	1.44	1.18	1.55
Bacteriological Tests	E. coli (MPN/100mL)					
	Coliform Bacteria - Total (MPN/100mL)					
Total Metals	Aluminum (Al)-Total (mg/L)	<0.0030	0.187	0.0160	0.0141	0.0083
	Antimony (Sb)-Total (mg/L)	0.00027	<0.00010	0.00017	0.00021	<0.00010
	Arsenic (As)-Total (mg/L)	0.00050	0.00011	0.00019	0.00032	0.00018
	Barium (Ba)-Total (mg/L)	0.151	0.100	0.0736	0.128	0.0509
	Beryllium (Be)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Bismuth (Bi)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Boron (B)-Total (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Cadmium (Cd)-Total (mg/L)	0.000349	0.00152	0.000382	0.000528	<0.000017
	Calcium (Ca)-Total (mg/L)	50.7	12.2	35.4	46.3	19.9
	Chromium (Cr)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Cobalt (Co)-Total (mg/L)	<0.00010	0.00115	<0.00010	<0.00010	<0.00010
	Copper (Cu)-Total (mg/L)	<0.00050	0.00378	0.00069	0.00057	<0.00050
	Iron (Fe)-Total (mg/L)	0.039	0.031	<0.030	<0.030	0.060
	Lead (Pb)-Total (mg/L)	<0.000050	0.000066	0.000386	0.000403	<0.000050
	Lithium (Li)-Total (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Magnesium (Mg)-Total (mg/L)	17.4	2.46	6.37	10.9	4.35

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1067044-11 WATER 01-OCT-11 DUP	L1067044-12 WATER 01-OCT-11 17:15 WQ4	L1067044-13 WATER 03-OCT-11 17:45 CAMP WELL	L1067044-14 WATER 01-OCT-11 14:00 WQ8	L1067044-15 WATER TRAVEL BLANK
Grouping	Analyte					
WATER						
Physical Tests	Colour, True (CU)	<5.0	<5.0		<5.0	<5.0
	Conductivity (uS/cm)	116	116		314	<2.0
	Hardness (as CaCO3) (mg/L)	56.6	57.6		163	<0.50
	pH (pH)	8.04	8.06		8.19	5.65
	Total Suspended Solids (mg/L)	<3.0	<3.0		<3.0	<3.0
	Total Dissolved Solids (mg/L)	67	64		175	<10
	Turbidity (NTU)	0.34	0.33		0.45	<0.10
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	2.0	2.0		1.8	2.6
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	49.4	49.8		101	<2.0
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<2.0	<2.0		<2.0	<2.0
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<2.0	<2.0		<2.0	<2.0
	Alkalinity, Total (as CaCO3) (mg/L)	49.4	49.8		101	<2.0
	Ammonia (as N) (mg/L)	<0.0050	<0.0050		<0.0050	<0.0050
	Chloride (Cl) (mg/L)	<0.50	<0.50		<0.50	<0.50
	Fluoride (F) (mg/L)	0.059	0.059		0.088	<0.020
	Total Kjeldahl Nitrogen (mg/L)	0.092	0.082		0.059	<0.050
	Sulfate (SO4) (mg/L)	9.60	9.54		60.9	<0.50
Organic / Inorganic Carbon	Total Organic Carbon (mg/L)	11.6	1.65		<0.50	<0.50
Bacteriological Tests	E. coli (MPN/100mL)			<1		
	Coliform Bacteria - Total (MPN/100mL)			<1		
Total Metals	Aluminum (Al)-Total (mg/L)	0.0106	0.0104		0.0145	<0.0030
	Antimony (Sb)-Total (mg/L)	<0.00010	<0.00010		0.00027	<0.00010
	Arsenic (As)-Total (mg/L)	0.00016	0.00016		0.00032	<0.00010
	Barium (Ba)-Total (mg/L)	0.0389	0.0368		0.144	<0.000050
	Beryllium (Be)-Total (mg/L)	<0.00050	<0.00050		<0.00050	<0.00050
	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)	<0.000017	<0.000017		0.000854	<0.000017
	Calcium (Ca)-Total (mg/L)	17.0	16.9		48.7	<0.050
	Chromium (Cr)-Total (mg/L)	<0.00050	<0.00050		<0.00050	<0.00050
	Cobalt (Co)-Total (mg/L)	<0.00010	<0.00010		<0.00010	<0.00010
	Copper (Cu)-Total (mg/L)	<0.00050	<0.00050		0.00059	<0.00050
	Iron (Fe)-Total (mg/L)	0.053	0.052		<0.030	<0.030
	Lead (Pb)-Total (mg/L)	<0.000050	<0.000050		0.000392	<0.000050
	Lithium (Li)-Total (mg/L)	<0.0050	<0.0050		<0.0050	<0.0050
	Magnesium (Mg)-Total (mg/L)	3.66	3.61		11.7	<0.10

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1067044-1	L1067044-2	L1067044-3	L1067044-4	L1067044-5
		Description	WATER	WATER	WATER	WATER	WATER
		Sampled Date	01-OCT-11	01-OCT-11	01-OCT-11	01-OCT-11	01-OCT-11
		Sampled Time	11:45	09:20	08:15	10:45	10:15
		Client ID	WQ9	WQ32	WQ33	WQ2	WQ30
Grouping	Analyte						
WATER							
Total Metals	Manganese (Mn)-Total (mg/L)		0.337	0.000971	0.000794	0.00780	0.00129
	Mercury (Hg)-Total (mg/L)		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Molybdenum (Mo)-Total (mg/L)		0.000623	0.000820	0.000828	0.000651	0.00113
	Nickel (Ni)-Total (mg/L)		0.0277	0.00051	0.00313	0.00102	0.00154
	Phosphorus (P)-Total (mg/L)		<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Total (mg/L)		<2.0	<2.0	<2.0	<2.0	<2.0
	Selenium (Se)-Total (mg/L)		0.00066	0.00087	0.00193	0.00100	0.00159
	Silicon (Si)-Total (mg/L)		3.22	2.00	2.64	2.39	2.60
	Silver (Ag)-Total (mg/L)		0.000011	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Total (mg/L)		<2.0	<2.0	<2.0	<2.0	<2.0
	Strontium (Sr)-Total (mg/L)		0.167	0.110	0.165	0.0941	0.133
	Thallium (Tl)-Total (mg/L)		0.00020	<0.00010	<0.00010	<0.00010	<0.00010
	Tin (Sn)-Total (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Titanium (Ti)-Total (mg/L)		<0.010	<0.010	<0.010	<0.010	<0.010
	Uranium (U)-Total (mg/L)		0.00372	0.00124	0.00152	0.000828	0.00165
	Vanadium (V)-Total (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Zinc (Zn)-Total (mg/L)		2.46	0.0033	0.0331	0.0205	0.0122
Dissolved Metals	Aluminum (Al)-Dissolved (mg/L)		<0.0030	<0.0030	<0.0030	0.0068	<0.0030
	Antimony (Sb)-Dissolved (mg/L)		0.00809	0.00013	0.00034	0.00016	0.00022
	Arsenic (As)-Dissolved (mg/L)		0.00214	0.00031	0.00045	0.00020	0.00025
	Barium (Ba)-Dissolved (mg/L)		0.0125	0.207	0.0906	0.195	0.218
	Beryllium (Be)-Dissolved (mg/L)		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Bismuth (Bi)-Dissolved (mg/L)		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Boron (B)-Dissolved (mg/L)		<0.010	<0.010	<0.010	<0.010	<0.010
	Cadmium (Cd)-Dissolved (mg/L)		0.0124	0.000043	0.000646	0.000141	0.000281
	Calcium (Ca)-Dissolved (mg/L)		157	51.5	70.8	42.3	49.9
	Chromium (Cr)-Dissolved (mg/L)		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Cobalt (Co)-Dissolved (mg/L)		0.00219	<0.00010	<0.00010	<0.00010	<0.00010
	Copper (Cu)-Dissolved (mg/L)		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Iron (Fe)-Dissolved (mg/L)		<0.030	<0.030	<0.030	<0.030	<0.030
	Lead (Pb)-Dissolved (mg/L)		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Lithium (Li)-Dissolved (mg/L)		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Magnesium (Mg)-Dissolved (mg/L)		26.3	15.4	8.45	10.8	12.3
	Manganese (Mn)-Dissolved (mg/L)		0.362	0.000804	0.000064	0.00545	0.000907
	Mercury (Hg)-Dissolved (mg/L)		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Molybdenum (Mo)-Dissolved (mg/L)		0.000589	0.000751	0.000814	0.000618	0.00112
	Nickel (Ni)-Dissolved (mg/L)		0.0297	0.00061	0.00291	0.00087	0.00154

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1067044-6	L1067044-7	L1067044-8	L1067044-9	L1067044-10
		Description	WATER	WATER	WATER	WATER	WATER
		Sampled Date	01-OCT-11	02-OCT-11	01-OCT-11	01-OCT-11	01-OCT-11
		Sampled Time	09:50	11:40	12:15	15:05	15:45
		Client ID	WQ34	WQ31	WQ16A	WQ25	WQ11
Grouping	Analyte						
WATER							
Total Metals	Manganese (Mn)-Total (mg/L)	0.000362	0.0167	0.00178	0.00397	0.00509	
	Mercury (Hg)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
	Molybdenum (Mo)-Total (mg/L)	0.000760	0.000052	0.000095	0.000363	0.000814	
	Nickel (Ni)-Total (mg/L)	0.00108	0.00788	0.00206	0.00178	<0.00050	
	Phosphorus (P)-Total (mg/L)	<0.30	<0.30	<0.30	<0.30	<0.30	
	Potassium (K)-Total (mg/L)	<2.0	<2.0	<2.0	<2.0	<2.0	
	Selenium (Se)-Total (mg/L)	0.00297	<0.00050	0.00102	0.00081	<0.00050	
	Silicon (Si)-Total (mg/L)	1.53	3.23	3.00	2.77	3.03	
	Silver (Ag)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	
	Sodium (Na)-Total (mg/L)	<2.0	<2.0	<2.0	<2.0	<2.0	
	Strontium (Sr)-Total (mg/L)	0.218	0.0499	0.108	0.0994	0.110	
	Thallium (Tl)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
	Tin (Sn)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
	Titanium (Ti)-Total (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010	
	Uranium (U)-Total (mg/L)	0.00431	0.000015	0.000517	0.000729	0.00149	
	Vanadium (V)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
	Zinc (Zn)-Total (mg/L)	0.0136	0.128	0.0487	0.128	0.0030	
Dissolved Metals	Aluminum (Al)-Dissolved (mg/L)	<0.0030	0.0307	0.0075	0.0046	0.0031	
	Antimony (Sb)-Dissolved (mg/L)	0.00026	<0.00010	0.00015	0.00023	<0.00010	
	Arsenic (As)-Dissolved (mg/L)	0.00047	<0.00010	0.00022	0.00033	0.00018	
	Barium (Ba)-Dissolved (mg/L)	0.143	0.0893	0.0679	0.148	0.0494	
	Beryllium (Be)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
	Bismuth (Bi)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
	Boron (B)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010	
	Cadmium (Cd)-Dissolved (mg/L)	0.000307	0.00141	0.000338	0.000591	<0.000017	
	Calcium (Ca)-Dissolved (mg/L)	48.6	11.6	34.1	45.2	19.2	
	Chromium (Cr)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
	Cobalt (Co)-Dissolved (mg/L)	<0.00010	0.00102	<0.00010	<0.00010	<0.00010	
	Copper (Cu)-Dissolved (mg/L)	<0.00050	0.00174	0.00052	<0.00050	<0.00050	
	Iron (Fe)-Dissolved (mg/L)	<0.030	<0.030	<0.030	<0.030	<0.030	
	Lead (Pb)-Dissolved (mg/L)	<0.000050	<0.000050	0.000081	0.000056	<0.000050	
	Lithium (Li)-Dissolved (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	
	Magnesium (Mg)-Dissolved (mg/L)	16.5	2.37	6.10	10.6	4.17	
	Manganese (Mn)-Dissolved (mg/L)	0.000075	0.0150	0.000943	0.00184	0.00179	
	Mercury (Hg)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
	Molybdenum (Mo)-Dissolved (mg/L)	0.000674	<0.000050	0.000097	0.000413	0.000746	
	Nickel (Ni)-Dissolved (mg/L)	0.00098	0.00701	0.00191	0.00204	0.00110	

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1067044-11 WATER 01-OCT-11 DUP	L1067044-12 WATER 01-OCT-11 17:15 WQ4	L1067044-13 WATER 03-OCT-11 17:45 CAMP WELL	L1067044-14 WATER 01-OCT-11 14:00 WQ8	L1067044-15 WATER TRAVEL BLANK
Grouping	Analyte					
WATER						
Total Metals	Manganese (Mn)-Total (mg/L)	0.00540	0.00514		0.00421	<0.000050
	Mercury (Hg)-Total (mg/L)	<0.000050	<0.000050		<0.000050	<0.000050
	Molybdenum (Mo)-Total (mg/L)	0.000707	0.000643		0.000457	<0.000050
	Nickel (Ni)-Total (mg/L)	<0.00050	<0.00050		0.00277	<0.00050
	Phosphorus (P)-Total (mg/L)	<0.30	<0.30		<0.30	<0.30
	Potassium (K)-Total (mg/L)	<2.0	<2.0		<2.0	<2.0
	Selenium (Se)-Total (mg/L)	<0.00050	<0.00050		0.00088	<0.00050
	Silicon (Si)-Total (mg/L)	2.94	2.93		2.77	<0.050
	Silver (Ag)-Total (mg/L)	<0.000010	<0.000010		<0.000010	<0.000010
	Sodium (Na)-Total (mg/L)	<2.0	<2.0		<2.0	<2.0
	Strontium (Sr)-Total (mg/L)	0.0979	0.0936		0.119	<0.00010
	Thallium (Tl)-Total (mg/L)	<0.00010	<0.00010		<0.00010	<0.00010
	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)	0.00143	0.00136		0.000944	<0.000010
	Vanadium (V)-Total (mg/L)	<0.0010	<0.0010		<0.0010	<0.0010
	Zinc (Zn)-Total (mg/L)	<0.0030	<0.0030		0.204	<0.0030
Dissolved Metals	Aluminum (Al)-Dissolved (mg/L)	0.0036	0.0036		0.0053	
	Antimony (Sb)-Dissolved (mg/L)	<0.00010	<0.00010		0.00026	
	Arsenic (As)-Dissolved (mg/L)	0.00013	0.00017		0.00027	
	Barium (Ba)-Dissolved (mg/L)	0.0388	0.0384		0.138	
	Beryllium (Be)-Dissolved (mg/L)	<0.00050	<0.00050		<0.00050	
	Bismuth (Bi)-Dissolved (mg/L)	<0.00050	<0.00050		<0.00050	
	Boron (B)-Dissolved (mg/L)	<0.010	<0.010		<0.010	
	Cadmium (Cd)-Dissolved (mg/L)	<0.000017	<0.000017		0.000787	
	Calcium (Ca)-Dissolved (mg/L)	16.8	17.1		46.9	
	Chromium (Cr)-Dissolved (mg/L)	<0.00050	<0.00050		<0.00050	
	Cobalt (Co)-Dissolved (mg/L)	<0.00010	<0.00010		<0.00010	
	Copper (Cu)-Dissolved (mg/L)	<0.00050	<0.00050		<0.00050	
	Iron (Fe)-Dissolved (mg/L)	<0.030	<0.030		<0.030	
	Lead (Pb)-Dissolved (mg/L)	<0.000050	<0.000050		0.000062	
	Lithium (Li)-Dissolved (mg/L)	<0.0050	<0.0050		<0.0050	
	Magnesium (Mg)-Dissolved (mg/L)	3.58	3.63		11.2	
	Manganese (Mn)-Dissolved (mg/L)	0.00133	0.00127		0.00306	
	Mercury (Hg)-Dissolved (mg/L)	<0.000050	<0.000050		<0.000050	
	Molybdenum (Mo)-Dissolved (mg/L)	0.000688	0.000675		0.000396	
	Nickel (Ni)-Dissolved (mg/L)	<0.00050	<0.00050		0.00266	

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1067044-1	L1067044-2	L1067044-3	L1067044-4	L1067044-5
Description	WATER	WATER	WATER	WATER	WATER	WATER
Sampled Date	01-OCT-11	01-OCT-11	01-OCT-11	01-OCT-11	01-OCT-11	01-OCT-11
Sampled Time	11:45	09:20	08:15	10:45	10:15	10:15
Client ID	WQ9	WQ32	WQ33	WQ2	WQ30	WQ30
Grouping	Analyte					
WATER						
Dissolved Metals	Phosphorus (P)-Dissolved (mg/L)	<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Dissolved (mg/L)	<2.0	<2.0	<2.0	<2.0	<2.0
	Selenium (Se)-Dissolved (mg/L)	0.00075	0.00100	0.00196	0.00094	0.00173
	Silicon (Si)-Dissolved (mg/L)	3.10	1.94	2.55	2.31	2.48
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Dissolved (mg/L)	<2.0	<2.0	<2.0	<2.0	<2.0
	Strontium (Sr)-Dissolved (mg/L)	0.161	0.101	0.162	0.0906	0.130
	Thallium (Tl)-Dissolved (mg/L)	0.00019	<0.00010	<0.00010	<0.00010	<0.00010
	Tin (Sn)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Uranium (U)-Dissolved (mg/L)	0.00356	0.00120	0.00153	0.000791	0.00164
	Vanadium (V)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Zinc (Zn)-Dissolved (mg/L)	2.68	<0.0030	0.0323	0.0191	0.0120
Aggregate Organics	COD (mg/L)	<20	<20	<20	<20	<20

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1067044-6	L1067044-7	L1067044-8	L1067044-9	L1067044-10
		Description	WATER	WATER	WATER	WATER	WATER
		Sampled Date	01-OCT-11	02-OCT-11	01-OCT-11	01-OCT-11	01-OCT-11
		Sampled Time	09:50	11:40	12:15	15:05	15:45
		Client ID	WQ34	WQ31	WQ16A	WQ25	WQ11
Grouping	Analyte						
WATER							
Dissolved Metals	Phosphorus (P)-Dissolved (mg/L)		<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Dissolved (mg/L)		<2.0	<2.0	<2.0	<2.0	<2.0
	Selenium (Se)-Dissolved (mg/L)		0.00309	<0.00050	0.00096	0.00102	<0.00050
	Silicon (Si)-Dissolved (mg/L)		1.49	3.05	2.88	2.71	2.90
	Silver (Ag)-Dissolved (mg/L)		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Dissolved (mg/L)		<2.0	<2.0	<2.0	<2.0	<2.0
	Strontium (Sr)-Dissolved (mg/L)		0.205	0.0451	0.101	0.114	0.105
	Thallium (Tl)-Dissolved (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Tin (Sn)-Dissolved (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Titanium (Ti)-Dissolved (mg/L)		<0.010	<0.010	<0.010	<0.010	<0.010
	Uranium (U)-Dissolved (mg/L)		0.00389	<0.000010	0.000485	0.000876	0.00144
	Vanadium (V)-Dissolved (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Zinc (Zn)-Dissolved (mg/L)		0.0054	0.118	0.0467	0.145	<0.0030
Aggregate Organics	COD (mg/L)		<20	<20	<20	<20	<20

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Aluminum (Al)-Dissolved	DLA	L1067044-1, -10, -11, -12, -14, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Beryllium (Be)-Dissolved	DLA	L1067044-1, -10, -11, -12, -14, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Bismuth (Bi)-Dissolved	DLA	L1067044-1, -10, -11, -12, -14, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Cobalt (Co)-Dissolved	DLA	L1067044-1, -10, -11, -12, -14, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Lead (Pb)-Dissolved	DLA	L1067044-1, -10, -11, -12, -14, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Lithium (Li)-Dissolved	DLA	L1067044-1, -10, -11, -12, -14, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Silver (Ag)-Dissolved	DLA	L1067044-1, -10, -11, -12, -14, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Thallium (Tl)-Dissolved	DLA	L1067044-1, -10, -11, -12, -14, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Tin (Sn)-Dissolved	DLA	L1067044-1, -10, -11, -12, -14, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Vanadium (V)-Dissolved	DLA	L1067044-1, -10, -11, -12, -14, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Zinc (Zn)-Dissolved	DLA	L1067044-1, -10, -11, -12, -14, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sulfate (SO4)	MS-B	L1067044-1, -10, -11, -12, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sulfate (SO4)	MS-B	L1067044-1, -10, -11, -12, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Total Organic Carbon	MS-B	L1067044-1, -10, -11, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLA	Detection Limit Adjusted For required dilution
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**
ACY-PCT-VA	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.			
ACY-PCT-VA	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.			
ALK-SCR-VA	Water	Alkalinity by colour or titration	EPA 310.2 OR APHA 2320
This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.			
OR			
This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.			
ANIONS-CL-IC-VA	Water	Chloride by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
ANIONS-F-IC-VA	Water	Fluoride by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
ANIONS-SO4-IC-VA	Water	Sulfate by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
CARBONS-TOC-VA	Water	Total organic carbon by combustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)
This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".			
COD-COL-VA	Water	Chemical Oxygen Demand by Colorimetric	APHA 5220 D. CHEMICAL OXYGEN DEMAND
This analysis is carried out using procedures adapted from APHA Method 5220 "Chemical Oxygen Demand (COD)". Chemical oxygen demand is determined using the closed reflux colourimetric method.			
COLOUR-TRUE-VA	Water	Colour (True) by Spectrometer	BCMOE Colour Single Wavelength
This analysis is carried out using procedures adapted from British Columbia Environmental Manual "Colour- Single Wavelength." Colour (True Colour) is determined by filtering a sample through a 0.45 micron membrane filter followed by analysis of the filtrate using the platinum-cobalt colourimetric method. Apparent Colour is determined without prior sample filtration. Colour is pH dependent. Unless otherwise indicated, reported colour results pertain to the pH of the sample as received, to within +/- 1 pH unit.			

Reference Information

EC-PCT-VA	Water	Conductivity (Automated)	APHA 2510 Auto. Conduc.
This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.			
ECOLI-COLI-HLTH-VA	Water	E.coli by Colilert	APHA METHOD 9223
This analysis is carried out using procedures adapted from APHA Method 9223 "Enzyme Substrate Coliform Test". E. coli and Total Coliform are determined simultaneously. The sample is mixed with a mixture hydrolyzable substrates and then sealed in a multi-well packet. The packet is incubated for 18 or 24 hours and then the number of wells exhibiting a positive response are counted. The final result is obtained by comparing the positive responses to a probability table.			
HARDNESS-CALC-VA	Water	Hardness	APHA 2340B
Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO ₃ equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.			
HG-DIS-CVAFS-VA	Water	Dissolved Mercury in Water by CVAFS	EPA SW-846 3005A & EPA 245.7
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 filtration (EPA Method 3005A) and involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).			
HG-TOT-CVAFS-VA	Water	Total Mercury in Water by CVAFS	EPA 245.7
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 a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).			
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-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 procedures involves preliminary sample treatment by filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).			
MET-DIS-ULTRA-MS-VA	Water	Diss. Metals in Water by ICPMS (Ultra)	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 involves preliminary sample treatment by filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (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-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).			
MET-TOT-ULTRA-MS-VA	Water	Total Metals in Water by ICPMS (Ultra)	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).			
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.			
PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H "pH Value"
This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode			

Reference Information

It is recommended that this analysis be conducted in the field.

PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

TCOLI-COLI-HLTH-VA Water Total coliform by Colilert APHA METHOD 9223

This analysis is carried out using procedures adapted from APHA Method 9223 "Enzyme Substrate Coliform Test". E. coli and Total Coliform are determined simultaneously. The sample is mixed with a mixture hydrolyzable substrates and then sealed in a multi-well packet. The packet is incubated for 18 or 24 hours and then the number of wells exhibiting a positive response are counted. The final result is quantified by a statistical estimation of bacteria density (most probable number).

TDS-VA Water Total Dissolved Solids by Gravimetric APHA 2540 C - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.

TKN-F-VA Water TKN in Water by Fluorescence APHA 4500-NORG D.

This analysis is carried out using procedures adapted from APHA Method 4500-Norg D. "Block Digestion and Flow Injection Analysis". Total Kjeldahl Nitrogen is determined using block digestion followed by Flow-injection analysis with fluorescence detection.

TSS-VA Water Total Suspended Solids by Gravimetric APHA 2540 D - GRAVIMETRIC

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.

TURBIDITY-VA Water Turbidity by Meter APHA 2130 "Turbidity"

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

TURBIDITY-VA Water Turbidity by Meter APHA 2130 Turbidity

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

** 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
VA	ALS ENVIRONMENTAL - VANCOUVER, BC, CANADA

Chain of Custody Numbers:

10-152169	10-152170
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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 wwt - 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.



Report To	Report Format / Distribution	Service Request: (Rush subject to availability - Contact ALS to confirm TAT)
Company: <u>Klohn Crippen Berger</u>	Standard: <input checked="" type="checkbox"/> Other (specify):	Regular (Standard Turnaround Times - Business Days)
Contact: <u>Debra Lamash</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>500-2955 Virtual Way</u>	Email 1: <u>dlamash@klohn.com</u>	Emergency (1-2 Business Days)-100% Surcharge - Contact ALS to confirm TAT
<u>Vancouver BC V5M 4X6</u>	Email 2: <u>khaines@klohn.com</u>	Same Day or Weekend Emergency - Contact ALS to confirm TAT
Phone: _____ Fax: _____		

Invoice To	Client / Project Information	Analysis Request (Indicate Filtered or Preserved, F/P)																		
Same as Report? (circle) Yes or No (if No, provide details)	Job #: <u>M091668A04</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Copy of Invoice with Report? (circle) Yes or No	PO / AFE:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Company: <u>Silvercorp Metals Inc.</u>	LSD:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Contact: <u>John Caldwell</u>	Quote #:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Address: <u>Suite 1378 - 200 Granville St. Van, BC</u>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Phone: _____ Fax: _____		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Lab Work Order # (lab use only)	<u>L1067044</u>	ALS Contact:	Sampler:
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Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	General	Nutrients	TOC	Total Metals	Dissolved Metals												Number of Containers
1	WQ 9	1 Oct 11	11:45	Water	1	1	1	1	1												5
2	WQ 32	1 Oct 11	09:20	Water	1	1	1	1	1												5
3	WQ 33	1 Oct 11	08:15	Water	1	1	1	1	1												5
4	WQ 2	1 Oct 11	10:45	Water	1	1	1	1	1												5
5	WQ 30	1 Oct 11	10:15	Water	1	1	1	1	1												5
6	WQ 34	1 Oct 11	09:50	Water	1	1	1	1	1												5
7	WQ 31	2 Oct 11	11:40	Water	1	1	1	1	1												5
8	WQ 16A	1 Oct 11	12:15	Water	1	1	1	1	1												5
9	WQ 25	1 Oct 11	15:05	Water	1	1	1	1	1												5
10	WQ 11	1 Oct 11	15:45	Water	1	1	1	1	1												5
11	Dup	1 Oct 11		Water	1	1	1	1	1												5
12	WQ 4	1 Oct 11	17:15	Water	1	1	1	1	1												5

Special Instructions / Regulation with water or land use (CCME- Freshwater Aquatic Life/BC CSR-Commercial/AB Tier 1-Natural/ETC) / Hazardous Details

- Standard Silvertip Project Parameters
 - filter and preserve dissolved metals before analysis (NOT FIELD FILTERED/PRESERVED)

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>Kellon Mcintyre</u>	Date: <u>30 Oct 11</u>	Time: <u>1:10 PM</u>	Received by: <u>[Signature]</u>	Date: <u>4/19/11</u>	Time: <u>9:45</u>	Temperature: <u>6.3 °C</u>	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF	



of Ca



Report To	Report Format / Distribution	Request (Rush subject to availability - Contact ALS to confirm TAT)
Company: Klohn Crippen Berger	Standard: <input checked="" type="checkbox"/> Other (specify):	Regular (Standard Turnaround Times - Business Days)
Contact: Debra Lamash	Select: PDF <input checked="" type="checkbox"/> Excel <input checked="" type="checkbox"/> Digital Fax	Priority (2-4 Business Days)-50% surcharge - Contact ALS to confirm TAT
Address: 500-2955 Virtual Way Vancouver BC V5M 4X6	Email 1: dlamash@klohn.com Email 2: khalms@klohn.com	Emergency (1-2 Business Days)-100% Surcharge - Contact ALS to confirm TAT
Phone: Fax:		Same Day or Weekend Emergency - Contact ALS to confirm TAT

Invoice To Same as Report? (circle) Yes or No (if No, provide details)	Client / Project Information	Analysis Request (Indicate Filtered or Preserved, F/P)												
Copy of Invoice with Report? (circle) Yes or No	Job #: M09163A04													
Company: Silvercorp Metals Inc.	PO/AFE:	General	Nutrients	TOC	Total Metals	Dissolved Metals	Coliform							Number of Containers
Contact: John Caldbeck	LSD:													
Address: Suite 1378 - 200 Granville St.	Quote #:													
Phone: Fax:	ALS Contact:													

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	General	Nutrients	TOC	Total Metals	Dissolved Metals	Coliform							Number of Containers
13	Camp Well	30 Oct 11	07:45	Water						1							1
14	WIS	1 Oct 11	14:00	Water	1	1	1	1	1								5

Special Instructions / Regulation with water or land use (CCME- Freshwater Aquatic Life/BC CSR-Commercial/AB Tier 1-Natural/ETC) / Hazardous Details

- Standard Silvertip Project Parameters
 - Filter and preserve dissolved metals before analysis (NOT FIELD FILTERED/PRESERVED)

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: <i>Kathy MacIntyre</i>	Date: 30 Oct 11	Time: 1:10 PM	Received by: <i>DL</i>	Date: 4/1/11	Time: 9:45	Temperature: 5.3 °C	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF

Your Project #: SILVERTIP
 Site Location: 30 KM S OF RANCHERIA, YK
 Your C.O.C. #: 08356887, 08356888

Attention: Debra Lamach
 KLOHN CRIPPEN BERGER
 VANCOUVER
 500-2955 Virtual Way
 Vancouver, BC
 CANADA V5M 4X6

Report Date: 2012/09/11

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B277532
Received: 2012/08/30, 10:30

Sample Matrix: Water
 # Samples Received: 15

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
Alkalinity - Water	14	2012/09/01	2012/09/01	BBY6SOP-00026	SM2320B
Alkalinity - Water	1	2012/09/01	2012/09/02	BBY6SOP-00026	SM2320B
Carbon (DOC)	11	N/A	2012/09/05	BBY6SOP-00003	SM-5310C
Carbon (DOC)	4	N/A	2012/09/07	BBY6SOP-00003	SM-5310C
Conductance - water	14	N/A	2012/09/01	BBY6SOP-00026	SM-2510B
Conductance - water	1	N/A	2012/09/02	BBY6SOP-00026	SM-2510B
Hardness Total (calculated as CaCO3)	15	N/A	2012/09/08	BBY WI-00033	Calculated Parameter
Hardness (calculated as CaCO3)	15	N/A	2012/09/08	BBY WI-00033	Calculated Parameter
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	15	N/A	2012/09/08	BBY7SOP-00002	EPA 6020A
Elements by ICPMS Low Level (dissolved)	15	N/A	2012/09/08	BBY7SOP-00002	EPA 6020A
Na, K, Ca, Mg, S by CRC ICPMS (total)	15	N/A	2012/09/08	BBY7SOP-00002	EPA 6020A
Elements by ICPMS Low Level (total)	15	N/A	2012/09/08	BBY7SOP-00002	EPA 6020A
Ammonia-N	15	N/A	2012/08/31	BBY6SOP-00009	SM-4500NH3G
Nitrate + Nitrite (N)	15	N/A	2012/09/01	BBY6SOP-00010	USEPA 353.2
Nitrite (N) by CFA	15	N/A	2012/09/01	BBY6SOP-00010	EPA 353.2
Nitrogen - Nitrate (as N)	15	N/A	2012/09/04	BBY6SOP-00010	Based on EPA 353.2
Filter and HNO3 Preserve for Metals	15	N/A	2012/09/07	BBY6WI-00001	EPA 200.2
pH Water	14	N/A	2012/09/01	BBY6SOP-00026	SM-4500H+B
pH Water	1	N/A	2012/09/02	BBY6SOP-00026	SM-4500H+B
Total Dissolved Solids (Filt. Residue)	15	2012/09/01	2012/09/01	BBY6SOP-00033	SM 2540C
Carbon (Total Organic)	11	N/A	2012/09/05	BBY6SOP-00003	SM-5310C
Carbon (Total Organic)	4	N/A	2012/09/07	BBY6SOP-00003	SM-5310C

* Results relate only to the items tested.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Graham Rudkin, Project Manager, Environmental
 Email: grudkin@maxxam.ca
 Phone# (604) 734 7276

=====
 Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 1

Maxxam Job #: B277532
 Report Date: 2012/09/11

 KLOHN CRIPPEN BERGER
 Client Project #: SILVERTIP
 Site Location: 30 KM S OF RANCHERIA, YK
 Sampler Initials: RS

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		EI5018		EI5019	EI5020		EI5021		EI5022		
Sampling Date		2012/08/26 11:40		2012/08/26 14:50	2012/08/26 15:40		2012/08/26 16:10		2012/08/26 12:40		
COC#		08356887		08356887	08356887		08356887		08356887		
	UNITS	WQ34	QC Batch	WQ09	WQ19	QC Batch	WQ08	QC Batch	WQ02	RDL	QC Batch
ANIONS											
Nitrite (N)	mg/L	<0.0050 ⁽¹⁾	6134883	<0.0050 ⁽¹⁾	<0.0050 ⁽¹⁾	6134883	<0.0050 ⁽¹⁾	6134883	<0.0050 ⁽¹⁾	0.0050	6134883
Calculated Parameters											
Filter and HNO3 Preservation	N/A	FIELD	ONSITE	FIELD	FIELD	ONSITE	FIELD	ONSITE	FIELD	N/A	ONSITE
Total Hardness (CaCO3)	mg/L	161	6127513	453	148	6127513	150	6127513	131	0.50	6127513
Nitrate (N)	mg/L	0.074	6127392	0.135	0.035	6127392	<0.020	6127392	0.032	0.020	6127392
Misc. Inorganics											
Dissolved Hardness (CaCO3)	mg/L	163	6127584	461	154	6127584	155	6127584	129	0.50	6127584
Dissolved Organic Carbon (C)	mg/L	0.91	6146522	1.69	2.08	6140982	0.95	6146522	2.34	0.50	6140982
Alkalinity (Total as CaCO3)	mg/L	60.0	6135101	160	107	6135101	97.8	6135101	98.3	0.50	6135101
Total Organic Carbon (C)	mg/L	0.62	6146616	0.63	2.46	6141057	1.76	6146616	1.34	0.50	6141057
Alkalinity (PP as CaCO3)	mg/L	<0.50	6135101	<0.50	<0.50	6135101	<0.50	6135101	<0.50	0.50	6135101
Bicarbonate (HCO3)	mg/L	73.2	6135101	195	130	6135101	119	6135101	120	0.50	6135101
Carbonate (CO3)	mg/L	<0.50	6135101	<0.50	<0.50	6135101	<0.50	6135101	<0.50	0.50	6135101
Hydroxide (OH)	mg/L	<0.50	6135101	<0.50	<0.50	6135101	<0.50	6135101	<0.50	0.50	6135101
Nutrients											
Ammonia (N)	mg/L	0.032	6131744	0.016	<0.0050	6131744	<0.0050	6131744	<0.0050	0.0050	6131744
Nitrate plus Nitrite (N)	mg/L	0.074 ⁽¹⁾	6134882	0.135 ⁽¹⁾	0.035 ⁽¹⁾	6134882	<0.020 ⁽¹⁾	6134882	0.032 ⁽¹⁾	0.020	6134882
Physical Properties											
Conductivity	uS/cm	330	6135105	856	289	6135105	299	6135105	263	1.0	6135105
pH	pH Units	7.99	6135106	7.93	8.12	6135106	8.12	6135106	8.26		6135106
Physical Properties											
Total Dissolved Solids	mg/L	224	6135282	646	188	6135282	190	6135282	162	10	6135282

N/A = Not Applicable

RDL = Reportable Detection Limit

(1) - Sample arrived to laboratory past recommended hold time.

Maxxam Job #: B277532
 Report Date: 2012/09/11

 KLOHN CRIPPEN BERGER
 Client Project #: SILVERTIP
 Site Location: 30 KM S OF RANCHERIA, YK
 Sampler Initials: RS

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		EI5023		EI5024	EI5025		EI5026		
Sampling Date		2012/08/26 12:40		2012/08/27 14:10	2012/08/26 15:20		2012/08/27 11:40		
COC#		08356887		08356887	08356887		08356887		
	UNITS	WQ0201	QC Batch	WQ11	WQ16	QC Batch	WQ04	RDL	QC Batch
ANIONS									
Nitrite (N)	mg/L	<0.0050 ⁽¹⁾	6134883	<0.0050 ⁽²⁾	<0.0050 ⁽¹⁾	6134883	<0.0050 ⁽²⁾	0.0050	6134883
Calculated Parameters									
Filter and HNO3 Preservation	N/A	FIELD	ONSITE	FIELD	FIELD	ONSITE	FIELD	N/A	ONSITE
Total Hardness (CaCO3)	mg/L	130	6127513	69.8	97.6	6127513	67.9	0.50	6127513
Nitrate (N)	mg/L	0.032	6127392	<0.020	<0.020	6127392	<0.020	0.020	6127392
Misc. Inorganics									
Dissolved Hardness (CaCO3)	mg/L	128	6127584	72.2	99.4	6127584	74.6	0.50	6127584
Dissolved Organic Carbon (C)	mg/L	1.84	6140982	1.45	0.99	6146522	2.78	0.50	6140982
Alkalinity (Total as CaCO3)	mg/L	96.4	6135101	61.4	54.0	6135101	59.8	0.50	6135101
Total Organic Carbon (C)	mg/L	2.48	6141057	1.36	1.02	6146616	3.71	0.50	6141057
Alkalinity (PP as CaCO3)	mg/L	<0.50	6135101	<0.50	<0.50	6135101	<0.50	0.50	6135101
Bicarbonate (HCO3)	mg/L	118	6135101	74.9	65.9	6135101	72.9	0.50	6135101
Carbonate (CO3)	mg/L	<0.50	6135101	<0.50	<0.50	6135101	<0.50	0.50	6135101
Hydroxide (OH)	mg/L	<0.50	6135101	<0.50	<0.50	6135101	<0.50	0.50	6135101
Nutrients									
Ammonia (N)	mg/L	0.0065	6131744	<0.0050	<0.0050	6131744	<0.0050	0.0050	6131744
Nitrate plus Nitrite (N)	mg/L	0.032 ⁽¹⁾	6134882	<0.020 ⁽²⁾	<0.020 ⁽¹⁾	6134882	<0.020 ⁽²⁾	0.020	6134882
Physical Properties									
Conductivity	uS/cm	257	6135105	142	205	6135105	146	1.0	6135105
pH	pH Units	8.12	6135106	8.02	7.94	6135106	7.92		6135106
Physical Properties									
Total Dissolved Solids	mg/L	152	6135282	84	142	6135282	92	10	6135282

N/A = Not Applicable

RDL = Reportable Detection Limit

(1) - Sample arrived to laboratory past recommended hold time.

(2) - Sample analysed past recommended hold time.

Maxxam Job #: B277532
 Report Date: 2012/09/11

 KLOHN CRIPPEN BERGER
 Client Project #: SILVERTIP
 Site Location: 30 KM S OF RANCHERIA, YK
 Sampler Initials: RS

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		EI5027	EI5028	EI5029	EI5032	EI5033	EI5034		
Sampling Date		2012/08/26 13:10	2012/08/26 14:30	2012/08/27 13:00	2012/08/26 12:00	2012/08/27 11:40	2012/08/27 13:00		
COC#		08356887	08356887	08356887	08356888	08356888	08356888		
	UNITS	WQ01	WQ20	WQ2501	WQ31	WQ0401	WQ25	RDL	QC Batch
ANIONS									
Nitrite (N)	mg/L	<0.0050 ⁽¹⁾	<0.0050 ⁽¹⁾	<0.0050 ⁽²⁾	<0.0050 ⁽¹⁾	<0.0050 ⁽²⁾	<0.0050	0.0050	6134883
Calculated Parameters									
Filter and HNO3 Preservation	N/A	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	N/A	ONSITE
Total Hardness (CaCO3)	mg/L	135	516	140	147	72.2	147	0.50	6127513
Nitrate (N)	mg/L	0.028	0.250	<0.020	0.071	<0.020	<0.020	0.020	6127392
Misc. Inorganics									
Dissolved Hardness (CaCO3)	mg/L	133	523	144	137	73.8	143	0.50	6127584
Dissolved Organic Carbon (C)	mg/L	3.27	3.13	2.66	1.97	2.48	2.80	0.50	6140982
Alkalinity (Total as CaCO3)	mg/L	97.9	<0.50	98.3	102	63.3	98.5	0.50	6135101
Total Organic Carbon (C)	mg/L	2.98	3.40	2.74	1.42	2.61	4.12	0.50	6141057
Alkalinity (PP as CaCO3)	mg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6135101
Bicarbonate (HCO3)	mg/L	120	<0.50	120	124	77.2	120	0.50	6135101
Carbonate (CO3)	mg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6135101
Hydroxide (OH)	mg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6135101
Nutrients									
Ammonia (N)	mg/L	<0.0050	0.012	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6131744
Nitrate plus Nitrite (N)	mg/L	0.028 ⁽¹⁾	0.250 ⁽¹⁾	<0.020 ⁽²⁾	0.071 ⁽¹⁾	<0.020 ⁽²⁾	<0.020 ⁽²⁾	0.020	6134882
Physical Properties									
Conductivity	uS/cm	258	1090	285	282	148	285	1.0	6135105
pH	pH Units	8.09	4.48	8.14	8.15	8.01	8.17		6135106
Physical Properties									
Total Dissolved Solids	mg/L	176	928	194	186	90	176	10	6135282

N/A = Not Applicable

RDL = Reportable Detection Limit

(1) - Sample arrived to laboratory past recommended hold time.

(2) - Sample analysed past recommended hold time.

Maxxam Job #: B277532
 Report Date: 2012/09/11

 KLOHN CRIPPEN BERGER
 Client Project #: SILVERTIP
 Site Location: 30 KM S OF RANCHERIA, YK
 Sampler Initials: RS

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		EI5018	EI5019	EI5020	EI5021	EI5022	EI5023		
Sampling Date		2012/08/26 11:40	2012/08/26 14:50	2012/08/26 15:40	2012/08/26 16:10	2012/08/26 12:40	2012/08/26 12:40		
COC#		08356887	08356887	08356887	08356887	08356887	08356887		
	UNITS	WQ34	WQ09	WQ19	WQ08	WQ02	WQ0201	RDL	QC Batch
Dissolved Metals by ICPMS									
Dissolved Aluminum (Al)	ug/L	3.67	2.41 (1)	6.89	11.4	7.43	8.40	0.20	6139556
Dissolved Antimony (Sb)	ug/L	0.291	9.18	0.247	0.345	0.186	0.178	0.020	6139556
Dissolved Arsenic (As)	ug/L	0.510	2.12	0.368	0.538	0.268	0.252	0.020	6139556
Dissolved Barium (Ba)	ug/L	178	12.6	197	140	186	190	0.020	6139556
Dissolved Beryllium (Be)	ug/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6139556
Dissolved Bismuth (Bi)	ug/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6139556
Dissolved Boron (B)	ug/L	<50	<50	<50	<50	<50	<50	50	6139556
Dissolved Cadmium (Cd)	ug/L	0.527	16.9	0.310	1.00	0.138	0.145	0.0050	6139556
Dissolved Chromium (Cr)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	6139556
Dissolved Cobalt (Co)	ug/L	0.0110	2.20	0.0130	0.0390	0.0370	0.0410	0.0050	6139556
Dissolved Copper (Cu)	ug/L	0.498	0.128	0.328	0.729	0.314	0.325	0.050	6139556
Dissolved Iron (Fe)	ug/L	11.8	4.5	4.2	11.0	8.8	14.2	1.0	6139556
Dissolved Lead (Pb)	ug/L	0.0380	0.0560	0.123	0.203	0.0280	0.0680	0.0050	6139556
Dissolved Lithium (Li)	ug/L	<0.50	3.25	0.99	0.93	0.86	0.70	0.50	6139556
Dissolved Manganese (Mn)	ug/L	1.23	352	2.71	7.93	7.62	7.54	0.050	6139556
Dissolved Molybdenum (Mo)	ug/L	0.648	0.571	0.553	0.457	0.620	0.643	0.050	6139556
Dissolved Nickel (Ni)	ug/L	1.61	33.6	1.38	2.85	0.875	0.859	0.020	6139556
Dissolved Selenium (Se)	ug/L	3.31	1.48	1.05	0.831	0.993	1.19	0.040	6139556
Dissolved Silicon (Si)	ug/L	1990	3030	2310	2680	2220	2200	100	6139556
Dissolved Silver (Ag)	ug/L	0.0080	0.0070	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6139556
Dissolved Strontium (Sr)	ug/L	204	184	84.5	105	84.2	87.3	0.050	6139556
Dissolved Thallium (Tl)	ug/L	0.0030	0.232	0.0020	0.0030	0.0020	0.0020	0.0020	6139556
Dissolved Tin (Sn)	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6139556
Dissolved Titanium (Ti)	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6139556
Dissolved Uranium (U)	ug/L	2.29	3.68	0.681	0.736	0.627	0.620	0.0020	6139556
Dissolved Vanadium (V)	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6139556
Dissolved Zinc (Zn)	ug/L	15.6	3170	66.8	218	15.4	15.0	0.10	6139556
Dissolved Zirconium (Zr)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	6139556
Dissolved Calcium (Ca)	mg/L	42.5	148	43.8	45.1	36.3	36.5	0.050	6127797
Dissolved Magnesium (Mg)	mg/L	14.0	22.0	10.9	10.2	9.38	8.99	0.050	6127797
Dissolved Potassium (K)	mg/L	0.545	1.86	0.341	0.461	0.340	0.330	0.050	6127797
Dissolved Sodium (Na)	mg/L	0.780	0.471	0.503	0.571	0.552	0.548	0.050	6127797
Dissolved Sulphur (S)	mg/L	42	118	18	23	16	15	10	6127797

RDL = Reportable Detection Limit

(1) - Dissolved greater than total. Reanalysis yields similar results.

Maxxam Job #: B277532
 Report Date: 2012/09/11

 KLOHN CRIPPEN BERGER
 Client Project #: SILVERTIP
 Site Location: 30 KM S OF RANCHERIA, YK
 Sampler Initials: RS

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		EI5018	EI5019	EI5020	EI5021	EI5022	EI5023		
Sampling Date		2012/08/26 11:40	2012/08/26 14:50	2012/08/26 15:40	2012/08/26 16:10	2012/08/26 12:40	2012/08/26 12:40		
COC#		08356887	08356887	08356887	08356887	08356887	08356887		
	UNITS	WQ34	WQ09	WQ19	WQ08	WQ02	WQ0201	RDL	QC Batch
Total Metals by ICPMS									
Total Aluminum (Al)	ug/L	3.33	1.93	13.4	13.2	15.9	11.3	0.20	6139563
Total Antimony (Sb)	ug/L	0.303	9.47	0.219	0.361	0.179	0.181	0.020	6139563
Total Arsenic (As)	ug/L	0.511	6.05	0.464	0.514	0.322	0.257	0.020	6139563
Total Barium (Ba)	ug/L	175	12.5	186	140	194	190	0.020	6139563
Total Beryllium (Be)	ug/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6139563
Total Bismuth (Bi)	ug/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6139563
Total Boron (B)	ug/L	<50	<50	<50	<50	<50	<50	50	6139563
Total Cadmium (Cd)	ug/L	0.524	17.1	0.305	1.01	0.166	0.166	0.0050	6139563
Total Chromium (Cr)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	6139563
Total Cobalt (Co)	ug/L	0.0160	2.31	0.0470	0.0480	0.0510	0.0440	0.0050	6139563
Total Copper (Cu)	ug/L	0.428	0.405	0.508	0.700	0.442	0.443	0.050	6139563
Total Iron (Fe)	ug/L	12.5	747	26.0	18.5	26.9	23.0	1.0	6139563
Total Lead (Pb)	ug/L	0.0380 ⁽¹⁾	0.678	0.598	0.349	0.105	0.0760	0.0050	6139563
Total Lithium (Li)	ug/L	<0.50	3.14	0.89	1.11	0.74	0.80	0.50	6139563
Total Manganese (Mn)	ug/L	1.20	348	5.30	8.23	8.98	7.75	0.050	6139563
Total Molybdenum (Mo)	ug/L	0.680	0.609	0.597	0.482	0.683	0.733	0.050	6139563
Total Nickel (Ni)	ug/L	1.63	35.6	1.45	2.50	0.989	0.843	0.020	6139563
Total Selenium (Se)	ug/L	3.28 ⁽²⁾	1.24	0.983	0.898	1.30	1.18	0.040	6139563
Total Silicon (Si)	ug/L	1930	2980	2230	2650	2260	2270	100	6139563
Total Silver (Ag)	ug/L	0.0090	0.0160	0.0060	<0.0050	<0.0050	<0.0050	0.0050	6139563
Total Strontium (Sr)	ug/L	198	179	81.5	101	85.3	83.6	0.050	6139563
Total Thallium (Tl)	ug/L	0.0030	0.215	0.0030	0.0040	0.0020	0.0020	0.0020	6139563
Total Tin (Sn)	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6139563
Total Titanium (Ti)	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6139563
Total Uranium (U)	ug/L	2.23	3.63	0.731	0.727	0.635	0.624	0.0020	6139563
Total Vanadium (V)	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6139563
Total Zinc (Zn)	ug/L	16.0	3220	65.2	214	16.6	15.4	0.10	6139563
Total Zirconium (Zr)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	6139563
Total Calcium (Ca)	mg/L	42.0	145	41.6	43.0	37.5	37.0	0.050	6127514
Total Magnesium (Mg)	mg/L	13.5	21.8	10.6	10.3	9.20	9.05	0.050	6127514
Total Potassium (K)	mg/L	0.474	1.89	0.310	0.445	0.339	0.298	0.050	6127514
Total Sodium (Na)	mg/L	0.797	0.457	0.495	0.563	0.595	0.530	0.050	6127514
Total Sulphur (S)	mg/L	41	122	16	21	16	14	10	6127514

RDL = Reportable Detection Limit

(1) - Duplicate RPD above control limit - (10% of analytes failure allowed).

(2) - Matrix Spike outside acceptance criteria (10% of analytes failure allowed).

Maxxam Job #: B277532
 Report Date: 2012/09/11

 KLOHN CRIPPEN BERGER
 Client Project #: SILVERTIP
 Site Location: 30 KM S OF RANCHERIA, YK
 Sampler Initials: RS

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		EI5024		EI5025	EI5026	EI5027		EI5028		
Sampling Date		2012/08/27 14:10		2012/08/26 15:20	2012/08/27 11:40	2012/08/26 13:10		2012/08/26 14:30		
COC#		08356887		08356887	08356887	08356887		08356887		
	UNITS	WQ11	QC Batch	WQ16	WQ04	WQ01	RDL	WQ20	RDL	QC Batch
Dissolved Metals by ICPMS										
Dissolved Aluminum (Al)	ug/L	7.76	6139556	17.7	5.20	6.45	0.20	14100	1.0	6139556
Dissolved Antimony (Sb)	ug/L	0.067	6139556	0.217	0.077	0.170	0.020	0.75	0.10	6139556
Dissolved Arsenic (As)	ug/L	0.171	6139556	0.275	0.135	0.273	0.020	0.81	0.10	6139556
Dissolved Barium (Ba)	ug/L	47.4	6139556	75.0	49.9	185	0.020	21.6	0.10	6139556
Dissolved Beryllium (Be)	ug/L	<0.010	6139556	<0.010	<0.010	<0.010	0.010	1.04	0.050	6139556
Dissolved Bismuth (Bi)	ug/L	<0.0050	6139556	<0.0050	<0.0050	<0.0050	0.0050	<0.025	0.025	6139556
Dissolved Boron (B)	ug/L	<50	6139556	<50	<50	<50	50	<250	250	6139556
Dissolved Cadmium (Cd)	ug/L	0.0180	6139556	0.421	0.0080	0.147	0.0050	144	0.025	6139556
Dissolved Chromium (Cr)	ug/L	<0.10	6139556	<0.10	<0.10	<0.10	0.10	<0.50	0.50	6139556
Dissolved Cobalt (Co)	ug/L	0.0080	6139556	0.0490	<0.0050	0.0280	0.0050	207	0.025	6139556
Dissolved Copper (Cu)	ug/L	0.228	6139556	0.929	0.154	0.327	0.050	464	0.25	6139556
Dissolved Iron (Fe)	ug/L	15.1	6139556	5.1	13.1	8.0	1.0	85.1	5.0	6139556
Dissolved Lead (Pb)	ug/L	0.0420 ⁽¹⁾	6154719	0.240	0.0230	0.0490	0.0050	1150	0.025	6139556
Dissolved Lithium (Li)	ug/L	1.74	6139556	0.77	1.66	0.77	0.50	18.4	2.5	6139556
Dissolved Manganese (Mn)	ug/L	3.42	6139556	2.71	2.28	5.84	0.050	9630	0.25	6139556
Dissolved Molybdenum (Mo)	ug/L	0.654	6139556	0.112	0.602	0.677	0.050	<0.25	0.25	6139556
Dissolved Nickel (Ni)	ug/L	0.256	6139556	2.08	0.304	0.851	0.020	820	0.10	6139556
Dissolved Selenium (Se)	ug/L	0.180	6139556	1.35	0.129	1.06	0.040	3.47	0.20	6139556
Dissolved Silicon (Si)	ug/L	2830	6139556	2900	2750	2240	100	9000	500	6139556
Dissolved Silver (Ag)	ug/L	<0.0050	6139556	<0.0050	<0.0050	<0.0050	0.0050	2.86	0.025	6139556
Dissolved Strontium (Sr)	ug/L	82.2	6139556	116	86.3	84.1	0.050	292	0.25	6139556
Dissolved Thallium (Tl)	ug/L	<0.0020	6139556	0.0030	<0.0020	0.0020	0.0020	0.462	0.010	6139556
Dissolved Tin (Sn)	ug/L	<0.20	6139556	<0.20	<0.20	<0.20	0.20	<1.0	1.0	6139556
Dissolved Titanium (Ti)	ug/L	<0.50	6139556	<0.50	<0.50	<0.50	0.50	<2.5	2.5	6139556
Dissolved Uranium (U)	ug/L	1.05	6139556	0.412	1.07	0.649	0.0020	0.390	0.010	6139556
Dissolved Vanadium (V)	ug/L	<0.20	6139556	<0.20	<0.20	<0.20	0.20	1.1	1.0	6139556
Dissolved Zinc (Zn)	ug/L	3.30	6139556	46.6	0.51	17.9	0.10	21500	0.50	6139556
Dissolved Zirconium (Zr)	ug/L	<0.10	6139556	<0.10	<0.10	<0.10	0.10	<0.50	0.50	6139556
Dissolved Calcium (Ca)	mg/L	21.2	6127797	30.5	21.7	37.5	0.050	107	0.25	6127797
Dissolved Magnesium (Mg)	mg/L	4.66	6127797	5.65	4.98	9.43	0.050	61.9	0.25	6127797
Dissolved Potassium (K)	mg/L	0.557	6127797	0.386	0.628	0.328	0.050	1.21	0.25	6127797
Dissolved Sodium (Na)	mg/L	1.13	6127797	0.591	1.15	0.535	0.050	0.37	0.25	6127797
Dissolved Sulphur (S)	mg/L	<10	6127797	18	<10	14	10	224	50	6127797

RDL = Reportable Detection Limit

(1) - Dissolved greater than total. Reanalysis yields similar results.

Maxxam Job #: B277532
 Report Date: 2012/09/11

 KLOHN CRIPPEN BERGER
 Client Project #: SILVERTIP
 Site Location: 30 KM S OF RANCHERIA, YK
 Sampler Initials: RS

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		EI5024		EI5025	EI5026	EI5027		EI5028		
Sampling Date		2012/08/27 14:10		2012/08/26 15:20	2012/08/27 11:40	2012/08/26 13:10		2012/08/26 14:30		
COC#		08356887		08356887	08356887	08356887		08356887		
	UNITS	WQ11	QC Batch	WQ16	WQ04	WQ01	RDL	WQ20	RDL	QC Batch
Total Metals by ICPMS										
Total Aluminum (Al)	ug/L	6.54	6139563	21.0	9.00	16.0	0.20	14100	1.0	6139563
Total Antimony (Sb)	ug/L	0.059	6139563	0.208	0.068	0.173	0.020	0.74	0.10	6139563
Total Arsenic (As)	ug/L	0.193	6139563	0.315	0.173	0.281	0.020	0.80	0.10	6139563
Total Barium (Ba)	ug/L	48.6	6139563	74.6	43.7	193	0.020	22.0	0.10	6139563
Total Beryllium (Be)	ug/L	<0.010	6139563	<0.010	<0.010	<0.010	0.010	0.946	0.050	6139563
Total Bismuth (Bi)	ug/L	<0.0050	6139563	<0.0050	<0.0050	<0.0050	0.0050	<0.025	0.025	6139563
Total Boron (B)	ug/L	<50	6139563	<50	<50	<50	50	<250	250	6139563
Total Cadmium (Cd)	ug/L	0.0240	6139563	0.426	0.0100	0.178	0.0050	148	0.025	6139563
Total Chromium (Cr)	ug/L	<0.10	6139563	<0.10	<0.10	<0.10	0.10	<0.50	0.50	6139563
Total Cobalt (Co)	ug/L	0.0130	6139563	0.0520	0.0100	0.0620	0.0050	214	0.025	6139563
Total Copper (Cu)	ug/L	0.209	6139563	1.07	0.253	0.460	0.050	442	0.25	6139563
Total Iron (Fe)	ug/L	32.1	6139563	11.4	34.2	40.0	1.0	91.7	5.0	6139563
Total Lead (Pb)	ug/L	0.0280	6139563	0.325	0.0450	0.189	0.0050	1150	0.025	6139563
Total Lithium (Li)	ug/L	1.79	6139563	0.89	1.73	0.76	0.50	18.4	2.5	6139563
Total Manganese (Mn)	ug/L	5.36	6139563	3.17	3.93	9.39	0.050	9700	0.25	6139563
Total Molybdenum (Mo)	ug/L	0.658	6139563	0.121	0.610	0.581	0.050	<0.25	0.25	6139563
Total Nickel (Ni)	ug/L	0.291	6139563	2.16	0.249	1.17	0.020	830	0.10	6139563
Total Selenium (Se)	ug/L	0.079	6139563	1.29	0.119	1.37	0.040	3.89	0.20	6139563
Total Silicon (Si)	ug/L	2800	6139563	2890	2780	2360	100	9460	500	6139563
Total Silver (Ag)	ug/L	<0.0050	6139563	0.0070	<0.0050	<0.0050	0.0050	2.97	0.025	6139563
Total Strontium (Sr)	ug/L	84.0	6139563	114	81.9	86.1	0.050	293	0.25	6139563
Total Thallium (Tl)	ug/L	<0.0020	6139563	0.0020	<0.0020	0.0020	0.0020	0.450	0.010	6139563
Total Tin (Sn)	ug/L	<0.20	6139563	<0.20	<0.20	<0.20	0.20	<1.0	1.0	6139563
Total Titanium (Ti)	ug/L	<0.50	6139563	<0.50	<0.50	<0.50	0.50	<2.5	2.5	6139563
Total Uranium (U)	ug/L	1.09	6139563	0.408	1.14	0.643	0.0020	0.406	0.010	6139563
Total Vanadium (V)	ug/L	0.21	6139563	<0.20	0.28	<0.20	0.20	1.7	1.0	6139563
Total Zinc (Zn)	ug/L	3.68	6139563	47.8	0.71	20.5	0.10	21700	0.50	6139563
Total Zirconium (Zr)	ug/L	<0.10	6139563	<0.10	<0.10	<0.10	0.10	<0.50	0.50	6139563
Total Calcium (Ca)	mg/L	19.9	6127514	29.9	19.3	38.9	0.050	107	0.25	6127514
Total Magnesium (Mg)	mg/L	4.87	6127514	5.54	4.75	9.21	0.050	60.5	0.25	6127514
Total Potassium (K)	mg/L	0.576	6127514	0.377	0.624	0.308	0.050	1.15	0.25	6127514
Total Sodium (Na)	mg/L	1.16	6127514	0.566	1.21	0.527	0.050	0.28	0.25	6127514
Total Sulphur (S)	mg/L	<10	6127514	18	<10	14	10	240	50	6127514

RDL = Reportable Detection Limit

Maxxam Job #: B277532
 Report Date: 2012/09/11

 KLOHN CRIPPEN BERGER
 Client Project #: SILVERTIP
 Site Location: 30 KM S OF RANCHERIA, YK
 Sampler Initials: RS

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		EI5029		EI5032		EI5033		EI5034		
Sampling Date		2012/08/27 13:00		2012/08/26 12:00		2012/08/27 11:40		2012/08/27 13:00		
COC#		08356887		08356888		08356888		08356888		
	UNITS	WQ2501	QC Batch	WQ31	QC Batch	WQ0401	QC Batch	WQ25	RDL	QC Batch
Dissolved Metals by ICPMS										
Dissolved Aluminum (Al)	ug/L	8.50	6139556	2.13	6139556	4.23	6139556	8.15	0.20	6139556
Dissolved Antimony (Sb)	ug/L	0.318	6139556	0.192	6139556	0.075	6139556	0.302	0.020	6139556
Dissolved Arsenic (As)	ug/L	0.500	6139556	0.197	6139556	0.157	6139556	0.485	0.020	6139556
Dissolved Barium (Ba)	ug/L	144	6139556	192	6139556	46.6	6139556	145	0.020	6139556
Dissolved Beryllium (Be)	ug/L	<0.010	6139556	<0.010	6139556	<0.010	6139556	<0.010	0.010	6139556
Dissolved Bismuth (Bi)	ug/L	<0.0050	6139556	<0.0050	6139556	<0.0050	6139556	<0.0050	0.0050	6139556
Dissolved Boron (B)	ug/L	<50	6139556	<50	6139556	<50	6139556	<50	50	6139556
Dissolved Cadmium (Cd)	ug/L	0.699	6139556	0.247	6139556	0.0090	6139556	0.673	0.0050	6139556
Dissolved Chromium (Cr)	ug/L	<0.10	6139556	<0.10	6139556	<0.10	6139556	<0.10	0.10	6139556
Dissolved Cobalt (Co)	ug/L	0.0290	6139556	0.0240	6139556	0.0060	6139556	0.0210	0.0050	6139556
Dissolved Copper (Cu)	ug/L	0.511	6139556	0.245	6139556	0.220	6139556	0.587	0.050	6139556
Dissolved Iron (Fe)	ug/L	5.2	6139556	4.9	6139556	12.2	6139556	4.8	1.0	6139556
Dissolved Lead (Pb)	ug/L	0.0730	6139556	0.0240	6139556	0.0590 ⁽¹⁾	6154719	0.0740	0.0050	6139556
Dissolved Lithium (Li)	ug/L	0.81	6139556	0.90	6139556	1.63	6139556	0.88	0.50	6139556
Dissolved Manganese (Mn)	ug/L	4.07	6139556	3.59	6139556	2.22	6139556	3.94	0.050	6139556
Dissolved Molybdenum (Mo)	ug/L	0.484	6139556	1.08	6139556	0.576	6139556	0.441	0.050	6139556
Dissolved Nickel (Ni)	ug/L	1.80	6139556	1.32	6139556	0.228	6139556	2.09	0.020	6139556
Dissolved Selenium (Se)	ug/L	0.902	6154719	1.09	6139556	0.187	6154719	0.827	0.040	6139556
Dissolved Silicon (Si)	ug/L	2660	6139556	2500	6139556	2740	6139556	2640	100	6139556
Dissolved Silver (Ag)	ug/L	<0.0050	6139556	<0.0050	6139556	<0.0050	6139556	<0.0050	0.0050	6139556
Dissolved Strontium (Sr)	ug/L	109	6139556	110	6139556	80.7	6139556	105	0.050	6139556
Dissolved Thallium (Tl)	ug/L	0.0020	6139556	<0.0020	6139556	<0.0020	6139556	0.0030	0.0020	6139556
Dissolved Tin (Sn)	ug/L	<0.20	6139556	<0.20	6139556	<0.20	6139556	<0.20	0.20	6139556
Dissolved Titanium (Ti)	ug/L	<0.50	6139556	<0.50	6139556	<0.50	6139556	<0.50	0.50	6139556
Dissolved Uranium (U)	ug/L	0.696	6139556	1.04	6139556	1.09	6139556	0.706	0.0020	6139556
Dissolved Vanadium (V)	ug/L	<0.20	6139556	<0.20	6139556	<0.20	6139556	<0.20	0.20	6139556
Dissolved Zinc (Zn)	ug/L	134	6139556	11.1	6139556	1.55 ⁽¹⁾	6139556	136	0.10	6139556
Dissolved Zirconium (Zr)	ug/L	<0.10	6139556	<0.10	6139556	<0.10	6139556	<0.10	0.10	6139556
Dissolved Calcium (Ca)	mg/L	41.7	6127797	39.4	6127797	21.4	6127797	41.9	0.050	6127797
Dissolved Magnesium (Mg)	mg/L	9.68	6127797	9.44	6127797	4.96	6127797	9.43	0.050	6127797
Dissolved Potassium (K)	mg/L	0.479	6127797	0.285	6127797	0.625	6127797	0.465	0.050	6127797
Dissolved Sodium (Na)	mg/L	0.618	6127797	0.637	6127797	1.14	6127797	0.594	0.050	6127797
Dissolved Sulphur (S)	mg/L	19	6127797	17	6127797	<10	6127797	19	10	6127797

RDL = Reportable Detection Limit

(1) - Dissolved greater than total. Reanalysis yields similar results.

Maxxam Job #: B277532
 Report Date: 2012/09/11

 KLOHN CRIPPEN BERGER
 Client Project #: SILVERTIP
 Site Location: 30 KM S OF RANCHERIA, YK
 Sampler Initials: RS

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		EI5029		EI5032		EI5033		EI5034		
Sampling Date		2012/08/27 13:00		2012/08/26 12:00		2012/08/27 11:40		2012/08/27 13:00		
COC#		08356887		08356888		08356888		08356888		
	UNITS	WQ2501	QC Batch	WQ31	QC Batch	WQ0401	QC Batch	WQ25	RDL	QC Batch
Total Metals by ICPMS										
Total Aluminum (Al)	ug/L	10.7	6139563	3.39	6139563	8.61	6139563	12.8	0.20	6139563
Total Antimony (Sb)	ug/L	0.324	6139563	0.211	6139563	0.064	6139563	0.322	0.020	6139563
Total Arsenic (As)	ug/L	0.470	6139563	0.253	6139563	0.171	6139563	0.473	0.020	6139563
Total Barium (Ba)	ug/L	146	6139563	194	6139563	46.9	6139563	146	0.020	6139563
Total Beryllium (Be)	ug/L	<0.010	6139563	<0.010	6139563	<0.010	6139563	<0.010	0.010	6139563
Total Bismuth (Bi)	ug/L	<0.0050	6139563	<0.0050	6139563	<0.0050	6139563	<0.0050	0.0050	6139563
Total Boron (B)	ug/L	<50	6139563	<50	6139563	<50	6139563	<50	50	6139563
Total Cadmium (Cd)	ug/L	0.703	6139563	0.254	6139563	0.0090	6139563	0.704	0.0050	6139563
Total Chromium (Cr)	ug/L	<0.10	6139563	<0.10	6139563	<0.10	6139563	<0.10	0.10	6139563
Total Cobalt (Co)	ug/L	0.0260	6139563	0.0240	6139563	0.0160	6139563	0.0320	0.0050	6139563
Total Copper (Cu)	ug/L	0.557	6139563	0.365	6139563	0.200	6139563	0.569	0.050	6139563
Total Iron (Fe)	ug/L	11.8	6139563	12.7	6139563	31.4	6139563	15.7	1.0	6139563
Total Lead (Pb)	ug/L	0.276	6139563	0.0130	6139563	0.0450	6139563	0.322	0.0050	6139563
Total Lithium (Li)	ug/L	1.03	6139563	0.84	6139563	1.67	6139563	0.90	0.50	6139563
Total Manganese (Mn)	ug/L	4.50	6139563	3.75	6139563	3.88	6139563	4.59	0.050	6139563
Total Molybdenum (Mo)	ug/L	0.460	6139563	1.12	6139563	0.603	6139563	0.440	0.050	6139563
Total Nickel (Ni)	ug/L	1.88	6139563	1.54	6139563	0.250	6139563	1.90	0.020	6139563
Total Selenium (Se)	ug/L	0.790	6139563	1.24	6139563	0.120	6139563	0.834	0.040	6139563
Total Silicon (Si)	ug/L	2640	6139563	2790	6139563	2820	6139563	2810	100	6139563
Total Silver (Ag)	ug/L	<0.0050	6139563	<0.0050	6139563	<0.0050	6139563	<0.0050	0.0050	6139563
Total Strontium (Sr)	ug/L	110	6139563	112	6139563	87.5	6139563	110	0.050	6139563
Total Thallium (Tl)	ug/L	0.0030	6139563	<0.0020	6139563	<0.0020	6139563	0.0030	0.0020	6139563
Total Tin (Sn)	ug/L	<0.20	6139563	<0.20	6139563	<0.20	6139563	<0.20	0.20	6139563
Total Titanium (Ti)	ug/L	<0.50	6139563	<0.50	6139563	<0.50	6139563	<0.50	0.50	6139563
Total Uranium (U)	ug/L	0.716	6139563	1.08	6139563	1.15	6139563	0.721	0.0020	6139563
Total Vanadium (V)	ug/L	<0.20	6139563	<0.20	6139563	<0.20	6139563	<0.20	0.20	6139563
Total Zinc (Zn)	ug/L	135	6139563	16.7	6139563	0.86	6139563	138	0.10	6139563
Total Zirconium (Zr)	ug/L	<0.10	6139563	<0.10	6139563	<0.10	6139563	<0.10	0.10	6139563
Total Calcium (Ca)	mg/L	40.3	6127514	42.7	6127514	20.7	6127514	43.2	0.050	6127514
Total Magnesium (Mg)	mg/L	9.64	6127514	9.72	6127514	5.00	6127514	9.63	0.050	6127514
Total Potassium (K)	mg/L	0.448	6127514	0.298	6127514	0.682	6127514	0.457	0.050	6127514
Total Sodium (Na)	mg/L	0.599	6127514	0.691	6127514	1.20	6127514	0.597	0.050	6127514
Total Sulphur (S)	mg/L	19	6127514	16	6127514	<10	6127514	19	10	6127514

RDL = Reportable Detection Limit

General Comments

Sample EI5018-01: The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Sample EI5019-01: The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Sample EI5020-01: The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Sample EI5021-01: The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Sample EI5022-01: The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Sample EI5023-01: The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Sample EI5024-01: The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Sample EI5025-01: The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Sample EI5026-01: The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Sample EI5027-01: The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Sample EI5028-01: The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Sample EI5029-01: The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Sample EI5032-01: The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Sample EI5033-01: The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory

Maxxam Job #: B277532
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KLOHN CRIPPEN BERGER
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pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Sample EI5034-01: The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Sample EI5024, Elements by ICPMS Low Level (dissolved): Test repeated.

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER) Comments

Sample EI5028-03 Elements by ICPMS Low Level (dissolved): RDL raised due to sample matrix interference.

Sample EI5029, Elements by ICPMS Low Level (dissolved): Test repeated.

Sample EI5033, Elements by ICPMS Low Level (dissolved): Test repeated.

Sample EI5028-02 Elements by ICPMS Low Level (total): RDL raised due to sample matrix interference.

Maxxam Job #: B277532
 Report Date: 2012/09/11

 KLOHN CRIPPEN BERGER
 Client Project #: SILVERTIP
 Site Location: 30 KM S OF RANCHERIA, YK
 Sampler Initials: RS

QUALITY ASSURANCE REPORT

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6131744	Ammonia (N)	2012/08/31	93	80 - 120	96	80 - 120	<0.0050	mg/L	NC	20
6134882	Nitrate plus Nitrite (N)	2012/09/01	NC	80 - 120	103	80 - 120	<0.020	mg/L	NC	25
6134883	Nitrite (N)	2012/09/01	NC	80 - 120	98	80 - 120	<0.0050	mg/L	NC	20
6135101	Alkalinity (Total as CaCO3)	2012/09/01	NC	80 - 120	97	80 - 120	<0.50	mg/L	0.5	20
6135101	Alkalinity (PP as CaCO3)	2012/09/01					<0.50	mg/L	NC	20
6135101	Bicarbonate (HCO3)	2012/09/01					<0.50	mg/L	0.5	20
6135101	Carbonate (CO3)	2012/09/01					<0.50	mg/L	NC	20
6135101	Hydroxide (OH)	2012/09/01					<0.50	mg/L	NC	20
6135105	Conductivity	2012/09/01			99	80 - 120	<1.0	uS/cm	0.3	20
6135282	Total Dissolved Solids	2012/09/01	NC	80 - 120	94	80 - 120	<10	mg/L	9.8	20
6139556	Dissolved Aluminum (Al)	2012/09/08	105	80 - 120	112	80 - 120	<0.20	ug/L	0.1	20
6139556	Dissolved Antimony (Sb)	2012/09/08	104	80 - 120	102	80 - 120	<0.020	ug/L	0.7	20
6139556	Dissolved Arsenic (As)	2012/09/08	107	80 - 120	97	80 - 120	<0.020	ug/L	9.9	20
6139556	Dissolved Barium (Ba)	2012/09/08	NC	80 - 120	107	80 - 120	<0.020	ug/L	6.1	20
6139556	Dissolved Beryllium (Be)	2012/09/08	105	80 - 120	103	80 - 120	<0.010	ug/L	NC	20
6139556	Dissolved Bismuth (Bi)	2012/09/08	105	80 - 120	97	80 - 120	<0.0050	ug/L	NC	20
6139556	Dissolved Cadmium (Cd)	2012/09/08	105	80 - 120	102	80 - 120	<0.0050	ug/L	3.5	20
6139556	Dissolved Chromium (Cr)	2012/09/08	98	80 - 120	95	80 - 120	<0.10	ug/L	NC	20
6139556	Dissolved Cobalt (Co)	2012/09/08	98	80 - 120	98	80 - 120	<0.0050	ug/L	NC	20
6139556	Dissolved Copper (Cu)	2012/09/08	91	80 - 120	93	80 - 120	<0.050	ug/L	2.2	20
6139556	Dissolved Iron (Fe)	2012/09/08	110	80 - 120	112	80 - 120	<1.0	ug/L	2.4	20
6139556	Dissolved Lead (Pb)	2012/09/08	104	80 - 120	99	80 - 120	<0.0050	ug/L	14.6	20
6139556	Dissolved Lithium (Li)	2012/09/08	101	80 - 120	100	80 - 120	<0.50	ug/L	NC	20
6139556	Dissolved Manganese (Mn)	2012/09/08	105	80 - 120	103	80 - 120	<0.050	ug/L	13.1	20
6139556	Dissolved Molybdenum (Mo)	2012/09/08	NC	80 - 120	99	80 - 120	<0.050	ug/L	7.9	20
6139556	Dissolved Nickel (Ni)	2012/09/08	92	80 - 120	97	80 - 120	<0.020	ug/L	4.2	20
6139556	Dissolved Selenium (Se)	2012/09/08	115	80 - 120	109	80 - 120	<0.040	ug/L	0.3	20
6139556	Dissolved Silver (Ag)	2012/09/08	105	80 - 120	102	80 - 120	<0.0050	ug/L	NC	20
6139556	Dissolved Strontium (Sr)	2012/09/08	NC	80 - 120	101	80 - 120	<0.050	ug/L	2.2	20
6139556	Dissolved Thallium (Tl)	2012/09/08	104	80 - 120	96	80 - 120	<0.0020	ug/L	NC	20
6139556	Dissolved Tin (Sn)	2012/09/08	106	80 - 120	109	80 - 120	<0.20	ug/L	NC	20
6139556	Dissolved Titanium (Ti)	2012/09/08	104	80 - 120	95	80 - 120	<0.50	ug/L	NC	20
6139556	Dissolved Uranium (U)	2012/09/08	101	80 - 120	90	80 - 120	<0.0020	ug/L	2.4	20
6139556	Dissolved Vanadium (V)	2012/09/08	106	80 - 120	99	80 - 120	<0.20	ug/L	NC	20
6139556	Dissolved Zinc (Zn)	2012/09/08	NC	80 - 120	117	80 - 120	<0.10	ug/L	3.0	20
6139556	Dissolved Boron (B)	2012/09/08					<50	ug/L	NC	20
6139556	Dissolved Silicon (Si)	2012/09/08					<100	ug/L	8.3	20
6139556	Dissolved Zirconium (Zr)	2012/09/08					<0.10	ug/L	NC	20
6139563	Total Aluminum (Al)	2012/09/08	102	80 - 120	101	80 - 120	<0.20	ug/L	1.3	20
6139563	Total Antimony (Sb)	2012/09/08	103	80 - 120	102	80 - 120	<0.020	ug/L	0	20

Maxxam Job #: B277532
 Report Date: 2012/09/11

 KLOHN CRIPPEN BERGER
 Client Project #: SILVERTIP
 Site Location: 30 KM S OF RANCHERIA, YK
 Sampler Initials: RS

QUALITY ASSURANCE REPORT

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6139563	Total Arsenic (As)	2012/09/08	105	80 - 120	102	80 - 120	<0.020	ug/L	14.2	20
6139563	Total Barium (Ba)	2012/09/08	NC	80 - 120	103	80 - 120	<0.020	ug/L	0.6	20
6139563	Total Beryllium (Be)	2012/09/08	96	80 - 120	95	80 - 120	<0.010	ug/L	NC	20
6139563	Total Bismuth (Bi)	2012/09/08	102	80 - 120	104	80 - 120	<0.0050	ug/L	NC	20
6139563	Total Cadmium (Cd)	2012/09/08	105	80 - 120	103	80 - 120	<0.0050	ug/L	1.9	20
6139563	Total Chromium (Cr)	2012/09/08	98	80 - 120	105	80 - 120	<0.10	ug/L	NC	20
6139563	Total Cobalt (Co)	2012/09/08	95	80 - 120	104	80 - 120	<0.0050	ug/L	NC	20
6139563	Total Copper (Cu)	2012/09/08	89	80 - 120	95	80 - 120	0.097, RDL=0.050	ug/L	0.2	20
6139563	Total Iron (Fe)	2012/09/08	101	80 - 120	106	80 - 120	<1.0	ug/L	0.3	20
6139563	Total Lead (Pb)	2012/09/08	103	80 - 120	104	80 - 120	<0.0050	ug/L	27.3 ⁽¹⁾	20
6139563	Total Lithium (Li)	2012/09/08	92	80 - 120	99	80 - 120	<0.50	ug/L	NC	20
6139563	Total Manganese (Mn)	2012/09/08	95	80 - 120	108	80 - 120	<0.050	ug/L	0.9	20
6139563	Total Molybdenum (Mo)	2012/09/08	NC	80 - 120	99	80 - 120	<0.050	ug/L	6.4	20
6139563	Total Nickel (Ni)	2012/09/08	91	80 - 120	101	80 - 120	0.029, RDL=0.020	ug/L	2.0	20
6139563	Total Selenium (Se)	2012/09/08	127 ⁽¹⁾	80 - 120	105	80 - 120	<0.040	ug/L	4.2	20
6139563	Total Silver (Ag)	2012/09/08	101	80 - 120	105	80 - 120	<0.0050	ug/L	NC	20
6139563	Total Strontium (Sr)	2012/09/08	NC	80 - 120	102	80 - 120	<0.050	ug/L	2.1	20
6139563	Total Thallium (Tl)	2012/09/08	104	80 - 120	101	80 - 120	<0.0020	ug/L	NC	20
6139563	Total Tin (Sn)	2012/09/08	108	80 - 120	111	80 - 120	<0.20	ug/L	NC	20
6139563	Total Titanium (Ti)	2012/09/08	105	80 - 120	102	80 - 120	<0.50	ug/L	NC	20
6139563	Total Uranium (U)	2012/09/08	101	80 - 120	96	80 - 120	<0.0020	ug/L	2.2	20
6139563	Total Vanadium (V)	2012/09/08	103	80 - 120	104	80 - 120	0.23, RDL=0.20	ug/L	NC	20
6139563	Total Zinc (Zn)	2012/09/08	NC	80 - 120	123 ^(1,2)	80 - 120	0.12, RDL=0.10	ug/L	0.06	20
6139563	Total Boron (B)	2012/09/08					<50	ug/L	NC	20
6139563	Total Silicon (Si)	2012/09/08					<100	ug/L	2.3	20
6139563	Total Zirconium (Zr)	2012/09/08					<0.10	ug/L	NC	20
6140982	Dissolved Organic Carbon (C)	2012/09/05	NC	80 - 120	110	80 - 120	<0.50	mg/L	2.1	20
6141057	Total Organic Carbon (C)	2012/09/05	105	80 - 120	109	80 - 120	<0.50	mg/L	9.2	20
6146522	Dissolved Organic Carbon (C)	2012/09/07	NC	80 - 120	104	80 - 120	<0.50	mg/L	NC	20
6146616	Total Organic Carbon (C)	2012/09/07	108	80 - 120	108	80 - 120	<0.50	mg/L	2.8	20

Maxxam Job #: B277532
 Report Date: 2012/09/11

KLOHN CRIPPEN BERGER
 Client Project #: SILVERTIP
 Site Location: 30 KM S OF RANCHERIA, YK
 Sampler Initials: RS

QUALITY ASSURANCE REPORT

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6154719	Dissolved Lead (Pb)	2012/09/10			98	80 - 120	<0.0050	ug/L		
6154719	Dissolved Selenium (Se)	2012/09/10			102	80 - 120	<0.040	ug/L		

N/A = Not Applicable

RDL = Reportable Detection Limit

RPD = Relative Percent Difference

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.

NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

Maxxam Job #: B277532
Report Date: 2012/09/11

KLOHN CRIPPEN BERGER
Client Project #: SILVERTIP
Site Location: 30 KM S OF RANCHERIA, YK
Sampler Initials: RS

- (1) - Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.
- (2) - Blank Spike outside acceptance criteria (10% of analytes failure allowed).

Validation Signature Page

Maxxam Job #: B277532

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Rob Reinert, Data Validation Coordinator

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Maxxam Job #: **B277532**

COC #: _____



08356887

Page: 1 of 2

Invoice To: Require Report? Yes No

Company Name: Silvercorp Metals Inc.
Contact Name: Randy Cullen
Address: 1378-200 Granville Street
Vancouver, BC PC: V6C 1S4
Phone / Fax#: Ph: (604) 669-9397 Fax
E-mail: randy@silvercorp.ca

Company Name: Klohn Crippen Berger Ltd
Contact Name: Debra Lamach
Address: _____
PC: _____
Ph: _____ Fax
E-mail: dlamash@klohn.com & randy@silvercorp.ca

PO #: _____
Quotation #: _____
Project #: _____
Proj. Name: Silvertip
Location: 30 km S of Rancheria, YK
Sampled by: RS, Decker

REGULATORY REQUIREMENTS: SERVICE REQUESTED:

- CSR Regular Turn Around Time (TAT) (5 days for most tests)
- CCME BC Water Quality Other DRINKING WATER
- RUSH (Please contact the lab) 1 Day 2 Day 3 Day
- Date Required: _____

SPECIAL INSTRUCTIONS:

Return Cooler Ship Sample Bottles (please specify)

ANALYSIS REQUESTED

Sample Identification	Lab Identification	Sample Type	Date/Time(24hr) Sampled	Field Filtered?	Field Acidified?	Field Acidified?	Low Level Dissolved Metals	Low Level Total Metals	Nutrient (NH4, NO3)	Routine (Alk, EC, pH, TDS)	TOC, Ammonia	DOC	Number of Containers
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1 WQ34	E15019	Surface Water	2012-08-26 1140	X	X	X	X	X	X	X	X	X	
2 WQ09	019	"	2012-08-26 1450	X	X	X	X	X	X	X	X	X	
3 WQ19	020	"	2012-08-26 1540	X	X	X	X	X	X	X	X	X	
4 WQ08	021	"	2012-08-26 1610	X	X	X	X	X	X	X	X	X	
5 WQ02	022	"	2012-08-26 1240	X	X	X	X	X	X	X	X	X	
6 WQ0201	023	✓	2012-08-26 1240	X	X	X	X	X	X	X	X	X	
7 WQ11	024	"	2012-08-27 1410	X	X	X	X	X	X	X	X	X	
8 WQ16	025	"	2012-08-26 1520	X	X	X	X	X	X	X	X	X	
9 WQ04	026	"	2012-08-27 1140	X	X	X	X	X	X	X	X	X	
10 WQ01	027	"	2012-08-26 1310	X	X	X	X	X	X	X	X	X	
11 WQ20	028	"	2012-08-26 1430	X	X	X	X	X	X	X	X	X	
12 WQ2501	029	✓	2012-08-27 1300	X	X	X	X	X	X	X	X	X	



B277532

Print name and sign: _____ Date (yy/mm/dd): _____ Time (24hr): _____
Received by: John Laurel Berthier Date (yy/mm/dd): 2012/08/30 Time (24hr): 10:30
Time Sensitive: Temperature on Receipt (°C): A) 8 B) 7 C) 7 Custody Seal: Present? Intact? Yes No

IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORDS. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.



Maxxam Job #: [redacted]

COC #: [redacted] 08356888

Page: 2 of 2

Invoice To: Require Report? Yes No

Company Name: Silvercorp Metals Inc.
Contact Name: Randy Cullen
Address: 1378-200 Granville Street
Vancouver, BC PC: V6C 1S4
Phone / Fax#: Ph: (604) 669-9397 Fax
E-mail: randy@silvercorp.ca

Report To:
Company Name: Klohn Crippen Berger Ltd
Contact Name: Debra Lamach
Address:
Phone / Fax#: Ph: Fax
E-mail: dlamash@klohn.com & randy@silvercorp.ca

PO #:
Quotation #:
Project #:
Proj. Name: Silvertip
Location: 30 km S of Rancheria, YK
Sampled by: RS, Decker

- REGULATORY REQUIREMENTS: SERVICE REQUESTED:
[] CSR
[] CCME
[] BC Water Quality
[] Other
[] DRINKING WATER
[] Regular Turn Around Time (TAT) (5 days for most tests)
[] RUSH (Please contact the lab)
[] 1 Day [] 2 Day [] 3 Day
Date Required:

SPECIAL INSTRUCTIONS:
Return Cooler [] Ship Sample Bottles (please specify) []

ANALYSIS REQUESTED table with columns for Field Filtered?, Field Acidified?, Low Level Dissolved Metals, Low Level Total Metals, Nutrient (NH4, NO3), Routine (Alk, EC, pH, TDS), TOC, Ammonia, DOC, and Number of Containers. Includes a barcode and ID B277532.

Table with columns: Sample Identification, Lab Identification, Sample Type, Date/Time(24hr) Sampled. Contains handwritten entries for samples 1, 2, and 3.

Print name and sign, Date (yy/mm/dd), Time (24hr), Received by, Date (yy/mm/dd), Time (24 hr), Time Sensitive, Temperature on Receipt (C), Custody Seal, Yes No, Present?, Intact?, Just sampled & rec'd on ice.

IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORDS. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

Your Project #: SILVERTIP
 Site Location: 30 KM S OF RANCHERIA, YK
 Your C.O.C. #: 08358535, 08358536

Attention: Debra Lamash
 KLOHN CRIPPEN BERGER
 VANCOUVER
 500-2955 Virtual Way
 Vancouver, BC
 CANADA V5M 4X6

Report Date: 2012/10/09

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B287418
Received: 2012/09/28, 09:05

Sample Matrix: Water
 # Samples Received: 14

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
Alkalinity - Water	14	2012/09/29	2012/09/30	BBY6SOP-00026	SM2320B
Carbon (DOC)	14	N/A	2012/10/01	BBY6SOP-00003	SM-5310C
Conductance - water	14	N/A	2012/09/30	BBY6SOP-00026	SM-2510B
Hardness Total (calculated as CaCO3)	14	N/A	2012/10/03	BBY WI-00033	Calculated Parameter
Hardness (calculated as CaCO3)	14	N/A	2012/10/04	BBY WI-00033	Calculated Parameter
Mercury (Dissolved) by CVAf	1	N/A	2012/10/04	65-A-002-10	EPA 1631B
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	14	N/A	2012/10/04	BBY7SOP-00002	EPA 6020A
Elements by ICPMS Low Level (dissolved)	3	N/A	2012/10/03	BBY7SOP-00002	EPA 6020A
Elements by ICPMS Low Level (dissolved)	11	N/A	2012/10/04	BBY7SOP-00002	EPA 6020A
Na, K, Ca, Mg, S by CRC ICPMS (total)	14	N/A	2012/10/03	BBY7SOP-00002	EPA 6020A
Elements by ICPMS Low Level (total)	14	N/A	2012/10/03	BBY7SOP-00002	EPA 6020A
Ammonia-N (Preserved)	14	N/A	2012/10/01	BBY6SOP-00009	SM-4500NH3G
Nitrate + Nitrite (N)	14	N/A	2012/09/29	BBY6SOP-00010	USEPA 353.2
Nitrite (N) by CFA	14	N/A	2012/09/29	BBY6SOP-00010	EPA 353.2
Nitrogen - Nitrate (as N)	14	N/A	2012/10/01	BBY6SOP-00010	Based on EPA 353.2
Filter and HNO3 Preserve for Metals	14	N/A	2012/09/28	BBY6WI-00001	EPA 200.2
pH Water	14	N/A	2012/09/30	BBY6SOP-00026	SM-4500H+B
Total Dissolved Solids (Filt. Residue)	14	2012/10/02	2012/10/02	BBY6SOP-00033	SM 2540C
Carbon (Total Organic)	14	N/A	2012/10/01	BBY6SOP-00003	SM-5310C

* Results relate only to the items tested.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Graham Rudkin, Project Manager, Environmental
 Email: grudkin@maxxam.ca
 Phone# (604) 638-5926 Ext:5926

=====
 Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 1

Maxxam Job #: B287418
 Report Date: 2012/10/09

 KLOHN CRIPPEN BERGER
 Client Project #: SILVERTIP
 Site Location: 30 KM S OF RANCHERIA, YK
 Sampler Initials: RS

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		EP0435	EP0436	EP0437	EP0438	EP0439	EP0440	EP0441	EP0442		
Sampling Date		2012/09/26 11:10	2012/09/26 12:30	2012/09/26 14:00	2012/09/26 12:30	2012/09/25 15:00	2012/09/26 14:00	2012/09/26 14:40	2012/09/26 15:30		
COC#		08358535	08358535	08358535	08358535	08358535	08358535	08358535	08358535		
	UNITS	WQ16-U	WQ0801	WQ25	WQ08	WQ09	WQ2501	WQ04	WQ11	RDL	QC Batch
ANIONS											
Nitrite (N)	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050 ⁽¹⁾	<0.0050	<0.0050	<0.0050	0.0050	6213136
Calculated Parameters											
Filter and HNO3 Preservation	N/A	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	N/A	ONSITE
Total Hardness (CaCO3)	mg/L	107	150	149	153	491	147	47.6	61.9	0.50	6209071
Nitrate (N)	mg/L	<0.020	<0.020	<0.020	<0.020	0.097	<0.020	<0.020	<0.020	0.020	6210360
Misc. Inorganics											
Dissolved Hardness (CaCO3)	mg/L	107	149	145	149	464	144	60.8	59.7	0.50	6211866
Dissolved Organic Carbon (C)	mg/L	2.01	1.18	1.67	1.33	0.78	1.45	1.71	1.95	0.50	6216869
Alkalinity (Total as CaCO3)	mg/L	58.0	94.5	95.1	95.1	161	95.8	50.4	52.0	0.50	6213361
Total Organic Carbon (C)	mg/L	1.41	0.69	1.40	1.71	1.28	1.10	1.20	1.25	0.50	6217001
Nutrients											
Ammonia (N)	mg/L	0.011	0.018	0.013	0.020	0.052	0.012	0.028	0.010	0.0050	6214513
Nitrate plus Nitrite (N)	mg/L	<0.020	<0.020	<0.020	<0.020	0.097 ⁽¹⁾	<0.020	<0.020	<0.020	0.020	6213132
Physical Properties											
Conductivity	uS/cm	224	298	289	297	882	287	124	127	1.0	6213360
pH	pH Units	7.95	8.08	8.15	8.09	7.97	8.11	7.89	7.84		6213351
Physical Properties											
Total Dissolved Solids	mg/L	128	164	150	168	624	176	64	68	10	6220704

N/A = Not Applicable

RDL = Reportable Detection Limit

(1) - Sample analysed past recommended hold time.

Maxxam Job #: B287418
 Report Date: 2012/10/09

 KLOHN CRIPPEN BERGER
 Client Project #: SILVERTIP
 Site Location: 30 KM S OF RANCHERIA, YK
 Sampler Initials: RS

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		EP0443	EP0444	EP0445	EP0446	EP0448	EP0449		
Sampling Date		2012/09/25 13:10	2012/09/25 14:00	2012/09/25 12:00	2012/09/25 15:30	2012/09/25 12:10	2012/09/25 16:00		
COC#		08358535	08358535	08358535	08358535	08358536	08358536		
	UNITS	WQ01	WQ16	WQ02	WQ19	WQ0201	WQ20	RDL	QC Batch
ANIONS									
Nitrite (N)	mg/L	<0.0050(1)	<0.0050(1)	<0.0050(1)	<0.0050(1)	<0.0050(1)	<0.0050(1)	0.0050	6213136
Calculated Parameters									
Filter and HNO3 Preservation	N/A	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	N/A	ONSITE
Total Hardness (CaCO3)	mg/L	138	109	134	151	134	556	0.50	6209071
Nitrate (N)	mg/L	0.031	<0.020	0.038	0.023	0.036	0.227	0.020	6210360
Misc. Inorganics									
Dissolved Hardness (CaCO3)	mg/L	134	107	131	147	132	527	0.50	6211866
Dissolved Organic Carbon (C)	mg/L	1.57	1.59	1.32	0.81	0.96	1.04	0.50	6216869
Alkalinity (Total as CaCO3)	mg/L	97.7	55.7	95.5	103	93.4	<0.50	0.50	6213361
Total Organic Carbon (C)	mg/L	1.44	1.29	0.84	0.59	1.52	1.22	0.50	6217001
Nutrients									
Ammonia (N)	mg/L	0.033	0.017	0.028	0.023	0.068	0.039	0.0050	6214513
Nitrate plus Nitrite (N)	mg/L	0.031(1)	<0.020(1)	0.038(1)	0.023(1)	0.036(1)	0.227(1)	0.020	6213132
Physical Properties									
Conductivity	uS/cm	264	223	262	291	263	1110	1.0	6213360
pH	pH Units	8.14	7.91	8.09	8.10	8.11	4.42		6213351
Physical Properties									
Total Dissolved Solids	mg/L	150	142	138	150	144	910	10	6220704

MERCURY BY COLD VAPOR (WATER)

Maxxam ID		EP0439		
Sampling Date		2012/09/25 15:00		
COC#		08358535		
	UNITS	WQ09	RDL	QC Batch
Elements				
Dissolved Mercury (Hg)	ug/L	<0.010	0.010	6229549

N/A = Not Applicable

RDL = Reportable Detection Limit

(1) - Sample analysed past recommended hold time.



Maxxam Job #: B287418
 Report Date: 2012/10/09

KLOHN CRIPPEN BERGER
 Client Project #: SILVERTIP
 Site Location: 30 KM S OF RANCHERIA, YK
 Sampler Initials: RS

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		EP0435		EP0436		EP0437	EP0438	EP0439		
Sampling Date		2012/09/26 11:10		2012/09/26 12:30		2012/09/26 14:00	2012/09/26 12:30	2012/09/25 15:00		
COC#		08358535		08358535		08358535	08358535	08358535		
	UNITS	WQ16-U	QC Batch	WQ0801	QC Batch	WQ25	WQ08	WQ09	RDL	QC Batch
Dissolved Metals by ICPMS										
Dissolved Aluminum (Al)	ug/L	23.1	6216644	22.7	6238357	12.2	16.1	2.16 ⁽¹⁾	0.20	6216644
Dissolved Antimony (Sb)	ug/L	0.148 ⁽¹⁾	6216644	0.291	6216644	0.269	0.286	8.87	0.020	6216644
Dissolved Arsenic (As)	ug/L	0.229 ⁽¹⁾	6216644	0.403	6216644	0.385	0.405	3.13	0.020	6216644
Dissolved Barium (Ba)	ug/L	81.7	6216644	134	6216644	141	133	12.3	0.020	6216644
Dissolved Beryllium (Be)	ug/L	<0.010	6216644	<0.010	6216644	<0.010	<0.010	0.010	0.010	6216644
Dissolved Bismuth (Bi)	ug/L	<0.0050	6216644	<0.0050	6216644	<0.0050	<0.0050	<0.0050	0.0050	6216644
Dissolved Boron (B)	ug/L	<50	6216644	<50	6216644	<50	<50	<50	50	6216644
Dissolved Cadmium (Cd)	ug/L	0.343	6216644	0.926	6216644	0.689	0.915	14.5	0.0050	6216644
Dissolved Chromium (Cr)	ug/L	<0.10	6216644	<0.10	6216644	<0.10	<0.10	<0.10	0.10	6216644
Dissolved Cobalt (Co)	ug/L	0.0690	6216644	0.131	6216644	0.0800	0.142	2.17	0.0050	6216644
Dissolved Copper (Cu)	ug/L	1.16	6216644	0.880	6216644	0.805	0.878	0.150	0.050	6216644
Dissolved Iron (Fe)	ug/L	6.1	6216644	10.0	6216644	5.4	9.9	233	1.0	6216644
Dissolved Lead (Pb)	ug/L	0.0520	6238357	0.287	6216644	0.267	0.280	0.101	0.0050	6216644
Dissolved Lithium (Li)	ug/L	0.74	6216644	0.95	6216644	0.89	0.93	3.38	0.50	6216644
Dissolved Manganese (Mn)	ug/L	2.60	6216644	9.75	6216644	5.53	9.89	341	0.050	6216644
Dissolved Mercury (Hg)	ug/L	0.010	6216644	0.010	6216644	<0.010	<0.010		0.010	6216644
Dissolved Molybdenum (Mo)	ug/L	0.105	6216644	0.424	6216644	0.414	0.436	0.585	0.050	6216644
Dissolved Nickel (Ni)	ug/L	1.79	6216644	2.94	6216644	2.34	2.99	33.5	0.020	6216644
Dissolved Phosphorus (P)	ug/L	4.5	6216644	7.7	6216644	6.5	7.2	2.5	2.0	6216644
Dissolved Selenium (Se)	ug/L	1.43	6216644	1.02	6216644	0.980	0.956	0.983	0.040	6216644
Dissolved Silicon (Si)	ug/L	2730	6216644	2520	6216644	2550	2530	3100	100	6216644
Dissolved Silver (Ag)	ug/L	<0.0050	6216644	<0.0050	6216644	<0.0050	<0.0050	0.0060	0.0050	6216644
Dissolved Strontium (Sr)	ug/L	119	6216644	103	6216644	110	103	180	0.050	6216644
Dissolved Thallium (Tl)	ug/L	0.0040	6216644	0.0040	6216644	0.0030	0.0040	0.205	0.0020	6216644
Dissolved Tin (Sn)	ug/L	<0.20	6216644	<0.20	6216644	<0.20	<0.20	<0.20	0.20	6216644
Dissolved Titanium (Ti)	ug/L	<0.50	6216644	<0.50	6216644	<0.50	<0.50	<0.50	0.50	6216644
Dissolved Uranium (U)	ug/L	0.521	6216644	0.709	6216644	0.744	0.709	3.80	0.0020	6216644
Dissolved Vanadium (V)	ug/L	<0.20	6216644	<0.20	6216644	<0.20	<0.20	<0.20	0.20	6216644
Dissolved Zinc (Zn)	ug/L	39.7	6216644	207	6216644	147	208	3270	0.10	6216644
Dissolved Zirconium (Zr)	ug/L	<0.10	6216644	<0.10	6216644	<0.10	<0.10	<0.10	0.10	6216644
Dissolved Calcium (Ca)	mg/L	33.1	6210359	42.8	6210359	41.6	42.8	146	0.050	6210359
Dissolved Magnesium (Mg)	mg/L	5.96	6210359	10.2	6210359	9.96	10.4	24.1	0.050	6210359
Dissolved Potassium (K)	mg/L	0.406	6210359	0.487	6210359	0.501	0.489	1.76	0.050	6210359
Dissolved Sodium (Na)	mg/L	0.532	6210359	0.558	6210359	0.608	0.562	0.459	0.050	6210359

RDL = Reportable Detection Limit

(1) - Dissolved greater than total. Reanalysis yields similar results.

Maxxam Job #: B287418
 Report Date: 2012/10/09

 KLOHN CRIPPEN BERGER
 Client Project #: SILVERTIP
 Site Location: 30 KM S OF RANCHERIA, YK
 Sampler Initials: RS

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		EP0435		EP0436		EP0437	EP0438	EP0439		
Sampling Date		2012/09/26 11:10		2012/09/26 12:30		2012/09/26 14:00	2012/09/26 12:30	2012/09/25 15:00		
COC#		08358535		08358535		08358535	08358535	08358535		
	UNITS	WQ16-U	QC Batch	WQ0801	QC Batch	WQ25	WQ08	WQ09	RDL	QC Batch
Dissolved Sulphur (S)	mg/L	18	6210359	19	6210359	18	20	111	10	6210359
Total Metals by ICPMS										
Total Aluminum (Al)	ug/L	23.9	6216170	19.9	6216170	15.1	19.5	1.06	0.20	6216170
Total Antimony (Sb)	ug/L	0.112	6216170	0.268	6216170	0.245	0.267	9.36	0.020	6216170
Total Arsenic (As)	ug/L	0.155 ⁽¹⁾	6216170	0.431	6216170	0.403	0.405	6.79	0.020	6216170
Total Barium (Ba)	ug/L	81.2	6216170	133	6216170	139	131	12.7	0.020	6216170
Total Beryllium (Be)	ug/L	<0.010	6216170	<0.010	6216170	<0.010	<0.010	<0.010	0.010	6216170
Total Bismuth (Bi)	ug/L	<0.0050	6216170	<0.0050	6216170	<0.0050	<0.0050	<0.0050	0.0050	6216170
Total Boron (B)	ug/L	<50	6216170	<50	6216170	<50	<50	<50	50	6216170
Total Cadmium (Cd)	ug/L	0.351	6216170	0.954	6216170	0.726	0.939	14.8	0.0050	6216170
Total Chromium (Cr)	ug/L	<0.10	6216170	<0.10	6216170	<0.10	<0.10	<0.10	0.10	6216170
Total Cobalt (Co)	ug/L	0.0740	6216170	0.144	6216170	0.0950	0.137	2.18	0.0050	6216170
Total Copper (Cu)	ug/L	1.21	6216170	1.09	6216170	0.806	0.990	0.218	0.050	6216170
Total Iron (Fe)	ug/L	8.8	6216170	17.5	6216170	13.3	15.7	911	1.0	6216170
Total Lead (Pb)	ug/L	0.0560	6216170	0.653	6216170	0.356	0.565	0.563	0.0050	6216170
Total Lithium (Li)	ug/L	0.75	6216170	0.94	6216170	0.91	0.96	3.25	0.50	6216170
Total Manganese (Mn)	ug/L	2.75	6216170	10.8	6216170	6.41	10.9	338	0.050	6216170
Total Mercury (Hg)	ug/L	<0.010	6216170	<0.010	6216170	<0.010	<0.010	<0.010	0.010	6216170
Total Molybdenum (Mo)	ug/L	0.094	6216170	0.407	6216170	0.396	0.416	0.501	0.050	6216170
Total Nickel (Ni)	ug/L	1.88	6216170	3.01	6216170	2.38	3.06	34.1	0.020	6216170
Total Phosphorus (P)	ug/L	<2.0	6216170	5.9	6216170	4.9	7.0	<2.0	2.0	6216170
Total Selenium (Se)	ug/L	1.47	6216170	1.03	6216170	1.15	0.994	0.878	0.040	6216170
Total Silicon (Si)	ug/L	2810	6216170	2570	6216170	2700	2630	3230	100	6216170
Total Silver (Ag)	ug/L	<0.0050	6216170	<0.0050	6216170	<0.0050	<0.0050	<0.0050	0.0050	6216170
Total Strontium (Sr)	ug/L	120	6216170	103	6216170	109	102	186	0.050	6216170
Total Thallium (Tl)	ug/L	<0.0020	6216170	0.0020	6216170	0.0020	0.0020	0.214	0.0020	6216170
Total Tin (Sn)	ug/L	<0.20	6216170	<0.20	6216170	<0.20	<0.20	<0.20	0.20	6216170
Total Titanium (Ti)	ug/L	<0.50	6216170	<0.50	6216170	<0.50	<0.50	<0.50	0.50	6216170
Total Uranium (U)	ug/L	0.556	6216170	0.782	6216170	0.809	0.758	4.16	0.0020	6216170
Total Vanadium (V)	ug/L	<0.20	6216170	<0.20	6216170	<0.20	<0.20	<0.20	0.20	6216170
Total Zinc (Zn)	ug/L	42.6	6216170	218	6216170	153	217	3220	0.10	6216170
Total Zirconium (Zr)	ug/L	<0.10	6216170	<0.10	6216170	<0.10	<0.10	<0.10	0.10	6216170
Total Calcium (Ca)	mg/L	33.3	6209072	43.1	6209072	43.2	43.9	156	0.050	6209072
Total Magnesium (Mg)	mg/L	5.88	6209072	10.4	6209072	10.0	10.5	24.3	0.050	6209072
Total Potassium (K)	mg/L	0.406	6209072	0.493	6209072	0.492	0.495	1.82	0.050	6209072

RDL = Reportable Detection Limit

(1) - Duplicate RPD above control limit - (10% of analytes failure allowed).

Maxxam Job #: B287418
 Report Date: 2012/10/09

KLOHN CRIPPEN BERGER
 Client Project #: SILVERTIP
 Site Location: 30 KM S OF RANCHERIA, YK
 Sampler Initials: RS

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		EP0435		EP0436		EP0437	EP0438	EP0439		
Sampling Date		2012/09/26 11:10		2012/09/26 12:30		2012/09/26 14:00	2012/09/26 12:30	2012/09/25 15:00		
COC#		08358535		08358535		08358535	08358535	08358535		
	UNITS	WQ16-U	QC Batch	WQ0801	QC Batch	WQ25	WQ08	WQ09	RDL	QC Batch
Total Sodium (Na)	mg/L	0.533	6209072	0.567	6209072	0.615	0.571	0.467	0.050	6209072
Total Sulphur (S)	mg/L	18	6209072	19	6209072	18	20	113	10	6209072

Maxxam Job #: B287418
 Report Date: 2012/10/09

 KLOHN CRIPPEN BERGER
 Client Project #: SILVERTIP
 Site Location: 30 KM S OF RANCHERIA, YK
 Sampler Initials: RS

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		EP0440		EP0441		EP0442	EP0443	EP0444		
Sampling Date		2012/09/26 14:00		2012/09/26 14:40		2012/09/26 15:30	2012/09/25 13:10	2012/09/25 14:00		
COC#		08358535		08358535		08358535	08358535	08358535		
	UNITS	WQ2501	QC Batch	WQ04	QC Batch	WQ11	WQ01	WQ16	RDL	QC Batch
Dissolved Metals by ICPMS										
Dissolved Aluminum (Al)	ug/L	12.0	6216644	5.91	6216644	6.10	6.51	23.1	0.20	6216644
Dissolved Antimony (Sb)	ug/L	0.274	6216644	0.047	6216644	0.061	0.163	0.176	0.020	6216644
Dissolved Arsenic (As)	ug/L	0.407	6216644	0.148	6216644	0.159	0.208	0.222	0.020	6216644
Dissolved Barium (Ba)	ug/L	143	6216644	38.1	6216644	41.0	184	79.3	0.020	6216644
Dissolved Beryllium (Be)	ug/L	<0.010	6216644	<0.010	6216644	<0.010	<0.010	<0.010	0.010	6216644
Dissolved Bismuth (Bi)	ug/L	<0.0050	6216644	<0.0050	6216644	<0.0050	<0.0050	<0.0050	0.0050	6216644
Dissolved Boron (B)	ug/L	<50	6216644	<50	6216644	<50	<50	<50	50	6216644
Dissolved Cadmium (Cd)	ug/L	0.724	6216644	0.0090	6216644	0.0170	0.137	0.427	0.0050	6216644
Dissolved Chromium (Cr)	ug/L	<0.10	6216644	0.14	6216644	<0.10	<0.10	<0.10	0.10	6216644
Dissolved Cobalt (Co)	ug/L	0.0810	6216644	0.0100	6216644	0.0120	0.0250	0.0660	0.0050	6216644
Dissolved Copper (Cu)	ug/L	0.733	6216644	0.308	6230764	0.229	0.424	1.21	0.050	6216644
Dissolved Iron (Fe)	ug/L	5.2	6216644	17.3	6216644	22.8	9.7	6.0	1.0	6216644
Dissolved Lead (Pb)	ug/L	0.353	6216644	0.0680	6216644	0.0530	0.0480	0.218	0.0050	6216644
Dissolved Lithium (Li)	ug/L	0.90	6216644	1.58	6216644	1.58	0.80	0.82	0.50	6216644
Dissolved Manganese (Mn)	ug/L	5.63	6216644	2.23	6216644	3.49	4.91	2.72	0.050	6216644
Dissolved Mercury (Hg)	ug/L	<0.010	6216644	<0.010	6216644	<0.010	<0.010	<0.010	0.010	6216644
Dissolved Molybdenum (Mo)	ug/L	0.426	6216644	0.578	6216644	0.594	0.600	0.105	0.050	6216644
Dissolved Nickel (Ni)	ug/L	2.22	6216644	0.345	6216644	0.304	0.769	2.22	0.020	6216644
Dissolved Phosphorus (P)	ug/L	6.8	6216644	<2.0	6216644	<2.0	7.6	2.9	2.0	6216644
Dissolved Selenium (Se)	ug/L	0.901	6216644	0.110	6216644	0.153	0.945	1.44	0.040	6216644
Dissolved Silicon (Si)	ug/L	2600	6216644	2820 ⁽¹⁾	6216644	2740	2220	2760	100	6216644
Dissolved Silver (Ag)	ug/L	<0.0050	6216644	<0.0050	6216644	<0.0050	<0.0050	<0.0050	0.0050	6216644
Dissolved Strontium (Sr)	ug/L	111	6216644	82.1	6216644	82.0	86.0	121	0.050	6216644
Dissolved Thallium (Tl)	ug/L	0.0040	6216644	0.0020	6216644	0.0020	0.0020	0.0030	0.0020	6216644
Dissolved Tin (Sn)	ug/L	<0.20	6216644	<0.20	6216644	<0.20	<0.20	<0.20	0.20	6216644
Dissolved Titanium (Ti)	ug/L	<0.50	6216644	<0.50	6216644	<0.50	<0.50	<0.50	0.50	6216644
Dissolved Uranium (U)	ug/L	0.729	6216644	1.09	6216644	0.998	0.619	0.498	0.0020	6216644
Dissolved Vanadium (V)	ug/L	<0.20	6216644	<0.20	6216644	<0.20	<0.20	<0.20	0.20	6216644
Dissolved Zinc (Zn)	ug/L	148	6216644	2.13 ⁽¹⁾	6230764	3.83	19.1	53.0	0.10	6216644
Dissolved Zirconium (Zr)	ug/L	<0.10	6216644	<0.10	6216644	<0.10	<0.10	<0.10	0.10	6216644
Dissolved Calcium (Ca)	mg/L	41.1	6210359	17.6 ⁽¹⁾	6210359	17.2	37.5	32.9	0.050	6210359
Dissolved Magnesium (Mg)	mg/L	10.1	6210359	4.12	6210359	4.07	9.67	6.08	0.050	6210359
Dissolved Potassium (K)	mg/L	0.510	6210359	0.528	6210359	0.503	0.348	0.404	0.050	6210359
Dissolved Sodium (Na)	mg/L	0.646	6210359	1.22	6210359	1.20	0.554	0.565	0.050	6210359

RDL = Reportable Detection Limit

(1) - Dissolved greater than total. Reanalysis yields similar results.

Maxxam Job #: B287418
 Report Date: 2012/10/09

 KLOHN CRIPPEN BERGER
 Client Project #: SILVERTIP
 Site Location: 30 KM S OF RANCHERIA, YK
 Sampler Initials: RS

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		EP0440		EP0441		EP0442	EP0443	EP0444		
Sampling Date		2012/09/26 14:00		2012/09/26 14:40		2012/09/26 15:30	2012/09/25 13:10	2012/09/25 14:00		
COC#		08358535		08358535		08358535	08358535	08358535		
	UNITS	WQ2501	QC Batch	WQ04	QC Batch	WQ11	WQ01	WQ16	RDL	QC Batch
Dissolved Sulphur (S)	mg/L	18	6210359	<10	6210359	<10	13	17	10	6210359
Total Metals by ICPMS										
Total Aluminum (Al)	ug/L	15.0	6216170	10.4	6216170	7.88	15.4	23.1	0.20	6216170
Total Antimony (Sb)	ug/L	0.247	6216170	<0.020	6216170	0.023	0.135	0.154	0.020	6216170
Total Arsenic (As)	ug/L	0.476	6216170	0.137	6216170	0.149	0.252	0.202	0.020	6216170
Total Barium (Ba)	ug/L	139	6216170	35.1	6216170	40.3	185	83.2	0.020	6216170
Total Beryllium (Be)	ug/L	<0.010	6216170	<0.010	6216170	<0.010	<0.010	<0.010	0.010	6216170
Total Bismuth (Bi)	ug/L	<0.0050	6216170	<0.0050	6216170	<0.0050	<0.0050	<0.0050	0.0050	6216170
Total Boron (B)	ug/L	<50	6216170	<50	6216170	<50	<50	<50	50	6216170
Total Cadmium (Cd)	ug/L	0.697	6216170	0.0070	6216170	0.0170	0.169	0.448	0.0050	6216170
Total Chromium (Cr)	ug/L	<0.10	6216170	<0.10	6216170	<0.10	<0.10	<0.10	0.10	6216170
Total Cobalt (Co)	ug/L	0.0860	6216170	0.0210	6216170	0.0230	0.0680	0.0660	0.0050	6216170
Total Copper (Cu)	ug/L	0.858	6216170	0.264	6216170	0.261	0.470	1.17	0.050	6216170
Total Iron (Fe)	ug/L	15.1	6216170	30.1	6216170	41.2	41.1	8.4	1.0	6216170
Total Lead (Pb)	ug/L	0.356	6216170	0.0640	6216170	0.0310	0.166	0.282	0.0050	6216170
Total Lithium (Li)	ug/L	0.85	6216170	1.62	6216170	1.53	0.77	0.81	0.50	6216170
Total Manganese (Mn)	ug/L	6.40	6216170	4.54	6216170	5.97	8.66	3.45	0.050	6216170
Total Mercury (Hg)	ug/L	<0.010	6216170	<0.010	6216170	<0.010	<0.010	<0.010	0.010	6216170
Total Molybdenum (Mo)	ug/L	0.393	6216170	0.545	6216170	0.549	0.527	0.082	0.050	6216170
Total Nickel (Ni)	ug/L	2.41	6216170	0.296	6216170	0.330	1.00	2.50	0.020	6216170
Total Phosphorus (P)	ug/L	5.1	6216170	<2.0	6216170	<2.0	9.4	<2.0	2.0	6216170
Total Selenium (Se)	ug/L	1.01	6216170	<0.040	6216170	0.071	1.17	1.62	0.040	6216170
Total Silicon (Si)	ug/L	2620	6216170	2270	6216170	2930	2350	2900	100	6216170
Total Silver (Ag)	ug/L	<0.0050	6216170	<0.0050	6216170	<0.0050	<0.0050	<0.0050	0.0050	6216170
Total Strontium (Sr)	ug/L	107	6216170	79.3	6216170	79.7	84.2	122	0.050	6216170
Total Thallium (Tl)	ug/L	0.0020	6216170	<0.0020	6216170	<0.0020	<0.0020	<0.0020	0.0020	6216170
Total Tin (Sn)	ug/L	<0.20	6216170	<0.20	6216170	<0.20	<0.20	<0.20	0.20	6216170
Total Titanium (Ti)	ug/L	<0.50	6216170	<0.50	6216170	<0.50	<0.50	<0.50	0.50	6216170
Total Uranium (U)	ug/L	0.790	6216170	1.16	6216170	1.14	0.676	0.510	0.0020	6216170
Total Vanadium (V)	ug/L	<0.20	6216170	<0.20	6216170	<0.20	<0.20	<0.20	0.20	6216170
Total Zinc (Zn)	ug/L	152	6216170	1.69	6216170	3.90	22.6	55.1	0.10	6216170
Total Zirconium (Zr)	ug/L	<0.10	6216170	<0.10	6216170	<0.10	<0.10	<0.10	0.10	6216170
Total Calcium (Ca)	mg/L	42.5	6209072	12.9	6209072	18.1	38.6	33.6	0.050	6209072
Total Magnesium (Mg)	mg/L	10.0	6209072	3.74	6209072	4.07	10.1	6.04	0.050	6209072
Total Potassium (K)	mg/L	0.500	6209072	0.517	6209072	0.508	0.363	0.406	0.050	6209072
Total Sodium (Na)	mg/L	0.612	6209072	1.21	6209072	1.17	0.580	0.567	0.050	6209072

RDL = Reportable Detection Limit

Maxxam Job #: B287418
 Report Date: 2012/10/09

KLOHN CRIPPEN BERGER
 Client Project #: SILVERTIP
 Site Location: 30 KM S OF RANCHERIA, YK
 Sampler Initials: RS

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		EP0440		EP0441		EP0442	EP0443	EP0444		
Sampling Date		2012/09/26 14:00		2012/09/26 14:40		2012/09/26 15:30	2012/09/25 13:10	2012/09/25 14:00		
COC#		08358535		08358535		08358535	08358535	08358535		
	UNITS	WQ2501	QC Batch	WQ04	QC Batch	WQ11	WQ01	WQ16	RDL	QC Batch
Total Sulphur (S)	mg/L	19	6209072	<10	6209072	<10	14	18	10	6209072

Maxxam Job #: B287418
 Report Date: 2012/10/09

 KLOHN CRIPPEN BERGER
 Client Project #: SILVERTIP
 Site Location: 30 KM S OF RANCHERIA, YK
 Sampler Initials: RS

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		EP0445		EP0446		EP0448			EP0449		
Sampling Date		2012/09/25 12:00		2012/09/25 15:30		2012/09/25 12:10			2012/09/25 16:00		
COCC#		08358535		08358535		08358536			08358536		
	UNITS	WQ02	QC Batch	WQ19	QC Batch	WQ0201	RDL	QC Batch	WQ20	RDL	QC Batch
Dissolved Metals by ICPMS											
Dissolved Aluminum (Al)	ug/L	6.13	6216644	22.6	6216644	7.19	0.20	6216644	13000	1.0	6216644
Dissolved Antimony (Sb)	ug/L	0.160	6230764	0.192	6216644	0.161 ⁽¹⁾	0.020	6216644	0.72	0.10	6216644
Dissolved Arsenic (As)	ug/L	0.228	6216644	0.319	6216644	0.216	0.020	6216644	0.64	0.10	6216644
Dissolved Barium (Ba)	ug/L	186	6216644	182	6216644	187	0.020	6216644	22.3	0.10	6216644
Dissolved Beryllium (Be)	ug/L	<0.010	6216644	<0.010	6216644	<0.010	0.010	6216644	0.823	0.050	6216644
Dissolved Bismuth (Bi)	ug/L	<0.0050	6216644	<0.0050	6216644	<0.0050	0.0050	6216644	<0.025	0.025	6216644
Dissolved Boron (B)	ug/L	<50	6216644	<50	6216644	<50	50	6216644	<250	250	6216644
Dissolved Cadmium (Cd)	ug/L	0.144	6216644	0.449	6216644	0.202	0.0050	6216644	135	0.025	6216644
Dissolved Chromium (Cr)	ug/L	<0.10	6216644	0.18	6216644	0.14	0.10	6216644	<0.50	0.50	6216644
Dissolved Cobalt (Co)	ug/L	0.0290	6216644	0.266	6216644	0.0360	0.0050	6216644	209	0.025	6216644
Dissolved Copper (Cu)	ug/L	0.342	6216644	1.18	6216644	0.554 ⁽¹⁾	0.050	6230764	461	0.25	6216644
Dissolved Iron (Fe)	ug/L	11.4	6216644	6.5	6216644	14.2	1.0	6216644	66.3	5.0	6216644
Dissolved Lead (Pb)	ug/L	0.0160	6216644	0.859	6216644	0.0770	0.0050	6216644	1090	0.025	6216644
Dissolved Lithium (Li)	ug/L	0.82	6216644	0.87	6216644	0.82	0.50	6216644	18.9	2.5	6216644
Dissolved Manganese (Mn)	ug/L	5.87	6216644	13.7	6216644	6.11	0.050	6216644	10200	0.25	6216644
Dissolved Mercury (Hg)	ug/L	<0.010	6216644	<0.010	6216644	<0.010	0.010	6216644	<0.050	0.050	6216644
Dissolved Molybdenum (Mo)	ug/L	0.614	6216644	0.594	6216644	0.602	0.050	6216644	<0.25	0.25	6216644
Dissolved Nickel (Ni)	ug/L	0.906	6216644	2.41	6216644	0.861	0.020	6216644	839	0.10	6216644
Dissolved Phosphorus (P)	ug/L	5.8	6216644	6.6	6216644	7.9	2.0	6216644	<10	10	6216644
Dissolved Selenium (Se)	ug/L	1.10	6216644	0.906	6216644	1.13	0.040	6216644	2.40	0.20	6216644
Dissolved Silicon (Si)	ug/L	2180	6216644	2220	6216644	2200	100	6216644	8900	500	6216644
Dissolved Silver (Ag)	ug/L	<0.0050	6216644	<0.0050	6216644	<0.0050	0.0050	6216644	2.36	0.025	6216644
Dissolved Strontium (Sr)	ug/L	87.4	6216644	83.4	6216644	87.4	0.050	6216644	295	0.25	6216644
Dissolved Thallium (Tl)	ug/L	0.0030	6216644	0.0030	6216644	0.0020	0.0020	6216644	0.457	0.010	6230764
Dissolved Tin (Sn)	ug/L	<0.20	6216644	<0.20	6216644	<0.20	0.20	6216644	<1.0	1.0	6216644
Dissolved Titanium (Ti)	ug/L	<0.50	6216644	<0.50	6216644	<0.50	0.50	6216644	<2.5	2.5	6216644
Dissolved Uranium (U)	ug/L	0.591	6216644	0.688	6216644	0.614	0.0020	6216644	0.345	0.010	6216644
Dissolved Vanadium (V)	ug/L	<0.20	6216644	<0.20	6216644	<0.20	0.20	6216644	<1.0	1.0	6216644
Dissolved Zinc (Zn)	ug/L	15.8	6216644	94.0	6216644	17.6	0.10	6216644	23100	0.50	6216644
Dissolved Zirconium (Zr)	ug/L	<0.10	6216644	<0.10	6216644	<0.10	0.10	6216644	<0.50	0.50	6216644
Dissolved Calcium (Ca)	mg/L	36.7	6210359	40.9	6210359	37.1	0.050	6210359	108	0.25	6210359
Dissolved Magnesium (Mg)	mg/L	9.53	6210359	10.9	6210359	9.49	0.050	6210359	62.3	0.25	6210359
Dissolved Potassium (K)	mg/L	0.345	6210359	0.392	6210359	0.357	0.050	6210359	1.12	0.25	6210359
Dissolved Sodium (Na)	mg/L	0.563	6210359	0.538	6210359	0.575	0.050	6210359	0.32	0.25	6210359

RDL = Reportable Detection Limit

(1) - Dissolved greater than total. Reanalysis yields similar results.

Maxxam Job #: B287418
 Report Date: 2012/10/09

 KLOHN CRIPPEN BERGER
 Client Project #: SILVERTIP
 Site Location: 30 KM S OF RANCHERIA, YK
 Sampler Initials: RS

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		EP0445		EP0446		EP0448			EP0449		
Sampling Date		2012/09/25 12:00		2012/09/25 15:30		2012/09/25 12:10			2012/09/25 16:00		
COCC#		08358535		08358535		08358536			08358536		
	UNITS	WQ02	QC Batch	WQ19	QC Batch	WQ0201	RDL	QC Batch	WQ20	RDL	QC Batch
Dissolved Sulphur (S)	mg/L	14	6210359	16	6210359	16	10	6210359	201	50	6210359
Total Metals by ICPMS											
Total Aluminum (Al)	ug/L	15.9	6216170	30.8	6216170	13.0	0.20	6216170	12900	1.0	6216170
Total Antimony (Sb)	ug/L	0.131	6216170	0.170	6216170	0.127	0.020	6216170	1.31	0.10	6216170
Total Arsenic (As)	ug/L	0.297	6216170	0.420	6216170	0.305	0.020	6216170	0.93	0.10	6216170
Total Barium (Ba)	ug/L	187	6216170	178	6216170	185	0.020	6216170	22.3	0.10	6216170
Total Beryllium (Be)	ug/L	<0.010	6216170	<0.010	6216170	<0.010	0.010	6216170	0.870	0.050	6216170
Total Bismuth (Bi)	ug/L	<0.0050	6216170	<0.0050	6216170	<0.0050	0.0050	6216170	<0.025	0.025	6216170
Total Boron (B)	ug/L	<50	6216170	<50	6216170	<50	50	6216170	<250	250	6216170
Total Cadmium (Cd)	ug/L	0.164	6216170	0.456	6216170	0.170	0.0050	6216170	133	0.025	6216170
Total Chromium (Cr)	ug/L	<0.10	6216170	<0.10	6216170	<0.10	0.10	6216170	<0.50	0.50	6216170
Total Cobalt (Co)	ug/L	0.0560	6216170	0.329	6216170	0.0610	0.0050	6216170	216	0.025	6216170
Total Copper (Cu)	ug/L	0.427	6216170	1.28	6216170	0.360	0.050	6216170	480	0.25	6216170
Total Iron (Fe)	ug/L	43.3	6216170	26.8	6216170	77.8	1.0	6216170	67.2	5.0	6216170
Total Lead (Pb)	ug/L	0.124	6216170	1.93	6216170	0.126	0.0050	6216170	1040	0.025	6216170
Total Lithium (Li)	ug/L	0.74	6216170	0.87	6216170	0.77	0.50	6216170	17.2	2.5	6216170
Total Manganese (Mn)	ug/L	7.64	6216170	16.4	6216170	7.62	0.050	6216170	10100	0.25	6216170
Total Mercury (Hg)	ug/L	<0.010	6216170	<0.010	6216170	<0.010	0.010	6216170	<0.050	0.050	6216170
Total Molybdenum (Mo)	ug/L	0.519	6216170	0.498	6216170	0.512	0.050	6216170	<0.25	0.25	6216170
Total Nickel (Ni)	ug/L	1.02	6216170	2.62	6216170	0.958	0.020	6216170	871	0.10	6216170
Total Phosphorus (P)	ug/L	7.1	6216170	6.3	6216170	7.2	2.0	6216170	<10	10	6216170
Total Selenium (Se)	ug/L	1.13	6216170	0.859	6216170	1.15	0.040	6216170	3.17	0.20	6216170
Total Silicon (Si)	ug/L	2340	6216170	2330	6216170	2350	100	6216170	9550	500	6216170
Total Silver (Ag)	ug/L	<0.0050	6216170	<0.0050	6216170	<0.0050	0.0050	6216170	2.47	0.025	6216170
Total Strontium (Sr)	ug/L	86.5	6216170	79.6	6216170	87.8	0.050	6216170	289	0.25	6216170
Total Thallium (Tl)	ug/L	<0.0020	6216170	0.0020	6216170	<0.0020	0.0020	6216170	0.420	0.010	6216170
Total Tin (Sn)	ug/L	<0.20	6216170	<0.20	6216170	<0.20	0.20	6216170	<1.0	1.0	6216170
Total Titanium (Ti)	ug/L	<0.50	6216170	<0.50	6216170	<0.50	0.50	6216170	<2.5	2.5	6216170
Total Uranium (U)	ug/L	0.654	6216170	0.736	6216170	0.666	0.0020	6216170	0.400	0.010	6216170
Total Vanadium (V)	ug/L	<0.20	6216170	<0.20	6216170	<0.20	0.20	6216170	1.1	1.0	6216170
Total Zinc (Zn)	ug/L	17.8	6216170	99.2	6216170	17.8	0.10	6216170	23300	0.50	6216170
Total Zirconium (Zr)	ug/L	<0.10	6216170	<0.10	6216170	<0.10	0.10	6216170	<0.50	0.50	6216170
Total Calcium (Ca)	mg/L	38.1	6209072	42.3	6209072	38.1	0.050	6209072	117	0.25	6209072
Total Magnesium (Mg)	mg/L	9.43	6209072	11.0	6209072	9.42	0.050	6209072	64.3	0.25	6209072
Total Potassium (K)	mg/L	0.348	6209072	0.363	6209072	0.340	0.050	6209072	1.13	0.25	6209072
Total Sodium (Na)	mg/L	0.561	6209072	0.525	6209072	0.560	0.050	6209072	0.29	0.25	6209072

RDL = Reportable Detection Limit

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KLOHN CRIPPEN BERGER
 Client Project #: SILVERTIP
 Site Location: 30 KM S OF RANCHERIA, YK
 Sampler Initials: RS

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		EP0445		EP0446		EP0448			EP0449		
Sampling Date		2012/09/25 12:00		2012/09/25 15:30		2012/09/25 12:10			2012/09/25 16:00		
COC#		08358535		08358535		08358536			08358536		
	UNITS	WQ02	QC Batch	WQ19	QC Batch	WQ0201	RDL	QC Batch	WQ20	RDL	QC Batch
Total Sulphur (S)	mg/L	14	6209072	17	6209072	13	10	6209072	216	50	6209072

General Comments

Sample EP0435-01: The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Sample EP0436-01: The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Sample EP0437-01: The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Sample EP0438-01: The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Sample EP0439-01: The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Sample EP0440-01: The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Sample EP0441-01: The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Sample EP0442-01: The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Sample EP0443-01: The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Sample EP0444-01: The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Sample EP0445-01: The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Sample EP0446-01: The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Sample EP0448-01: The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Sample EP0449-01: The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory

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pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Sample EP0435, Elements by ICPMS Low Level (dissolved): Test repeated.

Sample EP0436, Elements by ICPMS Low Level (dissolved): Test repeated.

Sample EP0441, Elements by ICPMS Low Level (dissolved): Test repeated.

Sample EP0445, Elements by ICPMS Low Level (dissolved): Test repeated.

Sample EP0448, Elements by ICPMS Low Level (dissolved): Test repeated.

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER) Comments

Sample EP0449-03 Elements by ICPMS Low Level (dissolved): RDL raised due to sample matrix interference.

Sample EP0449, Elements by ICPMS Low Level (dissolved): Test repeated.

Sample EP0449-03 Elements by ICPMS Low Level (dissolved): RDL raised due to sample matrix interference.

Sample EP0449-02 Elements by ICPMS Low Level (total): RDL raised due to sample matrix interference.

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 Site Location: 30 KM S OF RANCHERIA, YK
 Sampler Initials: RS

QUALITY ASSURANCE REPORT

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6213132	Nitrate plus Nitrite (N)	2012/09/29	120	80 - 120	105	80 - 120	<0.020	mg/L	NC	25
6213136	Nitrite (N)	2012/09/29	118	80 - 120	93	80 - 120	<0.0050	mg/L	NC	20
6213360	Conductivity	2012/09/30			100	80 - 120	<1.0	uS/cm	0.2	20
6213361	Alkalinity (Total as CaCO3)	2012/09/30	NC	80 - 120	97	80 - 120	<0.50	mg/L	NC	20
6214513	Ammonia (N)	2012/10/01	95	80 - 120	97	80 - 120	<0.0050	mg/L	NC	20
6216170	Total Aluminum (Al)	2012/10/03	102	80 - 120	104	80 - 120	<0.20	ug/L	0.7	20
6216170	Total Antimony (Sb)	2012/10/03	119	80 - 120	102	80 - 120	<0.020	ug/L	7.7	20
6216170	Total Arsenic (As)	2012/10/03	106	80 - 120	93	80 - 120	<0.020	ug/L	32.9 ⁽¹⁾	20
6216170	Total Barium (Ba)	2012/10/03	NC	80 - 120	96	80 - 120	<0.020	ug/L	0.5	20
6216170	Total Beryllium (Be)	2012/10/03	103	80 - 120	97	80 - 120	<0.010	ug/L	NC	20
6216170	Total Bismuth (Bi)	2012/10/03	95	80 - 120	97	80 - 120	<0.0050	ug/L	NC	20
6216170	Total Cadmium (Cd)	2012/10/03	101	80 - 120	99	80 - 120	<0.0050	ug/L	1.1	20
6216170	Total Chromium (Cr)	2012/10/03	103	80 - 120	106	80 - 120	<0.10	ug/L	NC	20
6216170	Total Cobalt (Co)	2012/10/03	100	80 - 120	104	80 - 120	<0.0050	ug/L	6.5	20
6216170	Total Copper (Cu)	2012/10/03	101	80 - 120	107	80 - 120	<0.050	ug/L	4.4	20
6216170	Total Iron (Fe)	2012/10/03	110	80 - 120	111	80 - 120	<1.0	ug/L	0.3	20
6216170	Total Lead (Pb)	2012/10/03	97	80 - 120	99	80 - 120	<0.0050	ug/L	5.5	20
6216170	Total Lithium (Li)	2012/10/03	95	80 - 120	94	80 - 120	<0.50	ug/L	NC	20
6216170	Total Manganese (Mn)	2012/10/03	101	80 - 120	104	80 - 120	<0.050	ug/L	1.4	20
6216170	Total Mercury (Hg)	2012/10/03	98	80 - 120	92	80 - 120	<0.010	ug/L	NC	20
6216170	Total Molybdenum (Mo)	2012/10/03	93	80 - 120	103	80 - 120	<0.050	ug/L	NC	20
6216170	Total Nickel (Ni)	2012/10/03	109	80 - 120	106	80 - 120	<0.020	ug/L	1.4	20
6216170	Total Selenium (Se)	2012/10/03	118	80 - 120	104	80 - 120	<0.040	ug/L	0.9	20
6216170	Total Silver (Ag)	2012/10/03	101	80 - 120	104	80 - 120	<0.0050	ug/L	NC	20
6216170	Total Strontium (Sr)	2012/10/03	NC	80 - 120	99	80 - 120	<0.050	ug/L	1.4	20
6216170	Total Thallium (Tl)	2012/10/03	102	80 - 120	98	80 - 120	<0.0020	ug/L	NC	20
6216170	Total Tin (Sn)	2012/10/03	106	80 - 120	102	80 - 120	<0.20	ug/L	NC	20
6216170	Total Titanium (Ti)	2012/10/03	93	80 - 120	97	80 - 120	<0.50	ug/L	NC	20
6216170	Total Uranium (U)	2012/10/03	107	80 - 120	106	80 - 120	<0.0020	ug/L	1.3	20
6216170	Total Vanadium (V)	2012/10/03	106	80 - 120	102	80 - 120	<0.20	ug/L	NC	20
6216170	Total Zinc (Zn)	2012/10/03	NC	80 - 120	114	80 - 120	<0.10	ug/L	0.6	20
6216170	Total Boron (B)	2012/10/03					<50	ug/L	NC	20
6216170	Total Phosphorus (P)	2012/10/03					<2.0	ug/L	NC	20
6216170	Total Silicon (Si)	2012/10/03					<100	ug/L	2.7	20
6216170	Total Zirconium (Zr)	2012/10/03					<0.10	ug/L	NC	20
6216644	Dissolved Aluminum (Al)	2012/10/03	103	80 - 120	106	80 - 120	<0.20	ug/L	7.2	20
6216644	Dissolved Antimony (Sb)	2012/10/03	96	80 - 120	100	80 - 120	<0.020	ug/L	NC	20
6216644	Dissolved Arsenic (As)	2012/10/03	100	80 - 120	103	80 - 120	<0.020	ug/L	NC	20
6216644	Dissolved Barium (Ba)	2012/10/03	98	80 - 120	101	80 - 120	<0.020	ug/L	NC	20
6216644	Dissolved Beryllium (Be)	2012/10/03	96	80 - 120	98	80 - 120	<0.010	ug/L	NC	20

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QUALITY ASSURANCE REPORT

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6216644	Dissolved Bismuth (Bi)	2012/10/03	98	80 - 120	100	80 - 120	<0.0050	ug/L	NC	20
6216644	Dissolved Cadmium (Cd)	2012/10/03	100	80 - 120	101	80 - 120	<0.0050	ug/L	NC	20
6216644	Dissolved Chromium (Cr)	2012/10/03	100	80 - 120	102	80 - 120	<0.10	ug/L	NC	20
6216644	Dissolved Cobalt (Co)	2012/10/03	100	80 - 120	103	80 - 120	<0.0050	ug/L	NC	20
6216644	Dissolved Copper (Cu)	2012/10/03	100	80 - 120	103	80 - 120	<0.050	ug/L	NC	20
6216644	Dissolved Iron (Fe)	2012/10/03	106	80 - 120	109	80 - 120	<1.0	ug/L	NC	20
6216644	Dissolved Lead (Pb)	2012/10/03	100	80 - 120	100	80 - 120	0.0050, RDL=0.0050	ug/L		
6216644	Dissolved Lithium (Li)	2012/10/03	95	80 - 120	99	80 - 120	<0.50	ug/L	NC	20
6216644	Dissolved Manganese (Mn)	2012/10/03	100	80 - 120	101	80 - 120	<0.050	ug/L	NC	20
6216644	Dissolved Mercury (Hg)	2012/10/03	90	80 - 120	94	80 - 120	<0.010	ug/L		
6216644	Dissolved Molybdenum (Mo)	2012/10/03	99	80 - 120	101	80 - 120	<0.050	ug/L	NC	20
6216644	Dissolved Nickel (Ni)	2012/10/03	103	80 - 120	104	80 - 120	<0.020	ug/L	NC	20
6216644	Dissolved Selenium (Se)	2012/10/03	103	80 - 120	105	80 - 120	<0.040	ug/L	NC	20
6216644	Dissolved Silver (Ag)	2012/10/03	101	80 - 120	102	80 - 120	<0.0050	ug/L	NC	20
6216644	Dissolved Strontium (Sr)	2012/10/03	96	80 - 120	99	80 - 120	<0.050	ug/L	NC	20
6216644	Dissolved Thallium (Tl)	2012/10/03	100	80 - 120	102	80 - 120	<0.0020	ug/L	NC	20
6216644	Dissolved Tin (Sn)	2012/10/03	105	80 - 120	105	80 - 120	<0.20	ug/L	NC	20
6216644	Dissolved Titanium (Ti)	2012/10/03	105	80 - 120	103	80 - 120	<0.50	ug/L	NC	20
6216644	Dissolved Uranium (U)	2012/10/03	96	80 - 120	97	80 - 120	0.0020, RDL=0.0020	ug/L	NC	20
6216644	Dissolved Vanadium (V)	2012/10/03	100	80 - 120	101	80 - 120	<0.20	ug/L	NC	20
6216644	Dissolved Zinc (Zn)	2012/10/03	120	80 - 120	113	80 - 120	<0.10	ug/L	NC	20
6216644	Dissolved Boron (B)	2012/10/03					<50	ug/L	NC	20
6216644	Dissolved Phosphorus (P)	2012/10/03					<2.0	ug/L		
6216644	Dissolved Silicon (Si)	2012/10/03					<100	ug/L	NC	20
6216644	Dissolved Zirconium (Zr)	2012/10/03					<0.10	ug/L	NC	20
6216869	Dissolved Organic Carbon (C)	2012/10/01	106	80 - 120	110	80 - 120	<0.50	mg/L	NC	20
6217001	Total Organic Carbon (C)	2012/10/01	104	80 - 120	107	80 - 120	<0.50	mg/L	NC	20
6220704	Total Dissolved Solids	2012/10/02	NC	80 - 120	106	80 - 120	<10	mg/L	4.3	20
6229549	Dissolved Mercury (Hg)	2012/10/04	84	80 - 120	105	80 - 120	<0.010	ug/L	NC	20
6230764	Dissolved Antimony (Sb)	2012/10/05			106	80 - 120	<0.020	ug/L		
6230764	Dissolved Copper (Cu)	2012/10/05			98	80 - 120	<0.050	ug/L		
6230764	Dissolved Thallium (Tl)	2012/10/05			97	80 - 120	<0.0020	ug/L		
6230764	Dissolved Zinc (Zn)	2012/10/05			100	80 - 120	<0.10	ug/L		

Maxxam Job #: B287418
 Report Date: 2012/10/09

KLOHN CRIPPEN BERGER
 Client Project #: SILVERTIP
 Site Location: 30 KM S OF RANCHERIA, YK
 Sampler Initials: RS

QUALITY ASSURANCE REPORT

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6238357	Dissolved Aluminum (Al)	2012/10/09			100	80 - 120	<0.20	ug/L		
6238357	Dissolved Lead (Pb)	2012/10/09			103	80 - 120	<0.0050	ug/L		

N/A = Not Applicable

RDL = Reportable Detection Limit

RPD = Relative Percent Difference

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.

NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

(1) - Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

Validation Signature Page

Maxxam Job #: B287418

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Rob Reinert, Data Validation Coordinator

=====
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Maxxam Job #: B287418

COC #: _____



Page: 1 of 2

Invoice To: Require Report? Yes No

Report To: _____

Company Name: Silvercorp Metals Inc.
Contact Name: Randy Cullen
Address: 1378-200 Granville Street
Vancouver, BC PC: V6C 1S4
Phone / Fax#: Ph: (604) 669-9397 Fax
E-mail: randy@silvercorp.ca

Company Name: Klohn Crippen Berger Ltd / Silvercorp Metals
Contact Name: Debra Lamach / Randy Cullen
Address: _____
PC: _____
Ph: _____ Fax: _____
E-mail: diamash@klohn.com & randy@silvercorp.ca

PO #: _____
Quotation #: _____
Project #: _____
Proj. Name: Silvertip
Location: 30 km S of Rancheria, YK
Sampled by: RS, AS

REGULATORY REQUIREMENTS: SERVICE REQUESTED:

- CSR Regular Turn Around Time (TAT) (5 days for most tests)
- CCME RUSH (Please contact the lab)
- BC Water Quality 1 Day 2 Day 3 Day
- Other _____ Date Required: _____
- DRINKING WATER

SPECIAL INSTRUCTIONS:
Return Cooler Ship Sample Bottles (please specify)

ANALYSIS REQUESTED table with columns for Sample Identification, Lab Identification, Sample Type, Date/Time, and various chemical analysis parameters (Low Level Dissolved Metals, Field Filtered/Acidified, Nutrient, Routine, TOC, Ammonia, DOC, etc.).

Table with columns: Sample Identification, Lab Identification, Sample Type, Date/Time(24hr) Sampled. Contains 12 rows of sample data.

Signature and custody seal section. Includes fields for Relinquished By (Ryan Shao), Received by (M. Lawrence Parthier), Date, Time, and Temperature on Receipt.

IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORDS. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.



Environmental Division

Certificate of Analysis

KLOHN CRIPPEN BERGER LTD.

ATTN: John Jemmett

500-2955 Virtual Way

Vancouver BC V5M 4X6

Report Date: 14-SEP-10 15:52 (MT)

Version: FINAL

Lab Work Order #: **L925764**

Date Received: **28-AUG-10**

Project P.O. #: NOT SUBMITTED

Job Reference: SILVERTIP

Legal Site Desc:

CofC Numbers: 10-040128

Other Information:

Comments:

Can Dang
Account Manager

THIS REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE WRITTEN AUTHORITY OF THE LABORATORY.
ALL SAMPLES WILL BE DISPOSED OF AFTER 30 DAYS FOLLOWING ANALYSIS. PLEASE CONTACT THE LAB IF YOU
REQUIRE ADDITIONAL SAMPLE STORAGE TIME.

ALS LABORATORY GROUP ANALYTICAL REPORT

		Sample ID	L925764-1	L925764-2	L925764-3	L925764-4	L925764-5
		Description	26-AUG-10	26-AUG-10	26-AUG-10	26-AUG-10	26-AUG-10
		Sampled Date	12:00	16:00	18:00	17:00	10:00
		Sampled Time	WQ2	WQ4	WQ7	WQ8	WQ9
		Client ID					
Grouping	Analyte						
WATER							
Physical Tests	Colour, True (CU)	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
	Conductivity (uS/cm)	271	132	207	301	819	
	Hardness (as CaCO3) (mg/L)	156	68.6	113	170	497	
	pH (pH)	8.10	8.14	7.96	8.15	7.76	
	Total Suspended Solids (mg/L)	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
	Total Dissolved Solids (mg/L)	166	83	125	180	615	
	Turbidity (NTU)	0.31	0.31	0.35	0.27	9.09	
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	2.7	1.9	2.8	2.2	8.2	
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	105	59.6	64.7	104	171	
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<2.0	<2.0	<2.0	<2.0	<2.0	
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<2.0	<2.0	<2.0	<2.0	<2.0	
	Alkalinity, Total (as CaCO3) (mg/L)	105	59.6	64.7	104	171	
	Ammonia as N (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	0.0133	
	Chloride (Cl) (mg/L)	<0.50	<0.50	<0.50	<0.50	<5.0	
	Fluoride (F) (mg/L)	0.072	0.055	0.070	0.084	0.40	
	Total Kjeldahl Nitrogen (mg/L)	<0.050	0.056	<0.050	<0.050	<0.050	
	Sulfate (SO4) (mg/L)	39.4	10.0	45.9	56.0	295	
Organic / Inorganic Carbon	Total Organic Carbon (mg/L)	1.10	1.50	1.25	1.28	0.53	
Total Metals	Aluminum (Al)-Total (mg/L)	0.0212	0.0068	0.0222	0.0145	<0.0020 ^{DLA}	
	Antimony (Sb)-Total (mg/L)	0.00017	<0.00010	0.00018	0.00029	0.0102	
	Arsenic (As)-Total (mg/L)	0.00027	0.00019	0.00026	0.00037	0.00584	
	Barium (Ba)-Total (mg/L)	0.196	0.0419	0.0825	0.141	0.0139	
	Beryllium (Be)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.0010 ^{DLA}	
	Bismuth (Bi)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.0010 ^{DLA}	
	Boron (B)-Total (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.020 ^{DLA}	
	Cadmium (Cd)-Total (mg/L)	0.000155	<0.000050	0.000445	0.000874	0.0155	
	Calcium (Ca)-Total (mg/L)	43.1	19.9	34.4	47.8	156	
	Chromium (Cr)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.0010 ^{DLA}	
	Cobalt (Co)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	0.00221	
	Copper (Cu)-Total (mg/L)	0.00042	0.00021	0.00107	0.00071	0.00036	
	Iron (Fe)-Total (mg/L)	0.060	<0.030	<0.030	<0.030	0.739	
	Lead (Pb)-Total (mg/L)	0.000106	<0.000050	0.000356	0.000555	0.00070	
	Lithium (Li)-Total (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.010 ^{DLA}	
	Magnesium (Mg)-Total (mg/L)	10.9	4.62	6.10	11.3	24.6	
	Manganese (Mn)-Total (mg/L)	0.0125	0.00325	0.00266	0.00563	0.349	
	Mercury (Hg)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	

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

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L925764-6	L925764-7	L925764-8	L925764-9
		26-AUG-10 11:00 WQ11	26-AUG-10 WQ10	26-AUG-10 09:00 WQ20	26-AUG-10 15:00 WQ25
Grouping	Analyte				
WATER					
Physical Tests	Colour, True (CU)	<5.0	<5.0	<5.0	<5.0
	Conductivity (uS/cm)	300	149	955	285
	Hardness (as CaCO3) (mg/L)	170	78.7	498	166
	pH (pH)	8.20	7.93	4.58	8.07
	Total Suspended Solids (mg/L)	<3.0	<3.0	3.0	<3.0
	Total Dissolved Solids (mg/L)	190	85	939	179
	Turbidity (NTU)	0.30	0.24	2.28	0.42
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	2.1	3.3	91.4	3.0
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	102	66.5	<2.0	105
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<2.0	<2.0	<2.0	<2.0
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<2.0	<2.0	<2.0	<2.0
	Alkalinity, Total (as CaCO3) (mg/L)	102	66.5	<2.0	105
	Ammonia as N (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050
	Chloride (Cl) (mg/L)	<0.50	<0.50	<5.0	<0.50
	Fluoride (F) (mg/L)	0.082	0.054	1.71	0.074
	Total Kjeldahl Nitrogen (mg/L)	<0.050	0.060	0.059	<0.050
	Sulfate (SO4) (mg/L)	55.9	12.5	553	49.5
Organic / Inorganic Carbon	Total Organic Carbon (mg/L)	1.81	1.50	1.90	1.35
Total Metals	Aluminum (Al)-Total (mg/L)	0.0151	0.0046	12.6	0.0165
	Antimony (Sb)-Total (mg/L)	0.00031	<0.00010	0.00125 ^{DLA}	0.00025
	Arsenic (As)-Total (mg/L)	0.00039	0.00021	<0.00050 ^{DLA}	0.00038
	Barium (Ba)-Total (mg/L)	0.145	0.0519	0.0189 ^{DLA}	0.153
	Beryllium (Be)-Total (mg/L)	<0.00050	<0.00050	<0.0025 ^{DLA}	<0.00050
	Bismuth (Bi)-Total (mg/L)	<0.00050	<0.00050	<0.0025 ^{DLA}	<0.00050
	Boron (B)-Total (mg/L)	<0.010	<0.010	<0.050 ^{DLA}	<0.010
	Cadmium (Cd)-Total (mg/L)	0.000897	<0.000050	0.111	0.000706
	Calcium (Ca)-Total (mg/L)	47.3	22.3	109 ^{DLA}	46.4
	Chromium (Cr)-Total (mg/L)	<0.00050	<0.00050	<0.0025 ^{DLA}	<0.00050
	Cobalt (Co)-Total (mg/L)	<0.00010	<0.00010	0.164	<0.00010
	Copper (Cu)-Total (mg/L)	0.00070	0.00018	0.468	0.00076
	Iron (Fe)-Total (mg/L)	<0.030	<0.030	0.062	<0.030
	Lead (Pb)-Total (mg/L)	0.000602	<0.000050	1.08 ^{DLA}	0.000799
	Lithium (Li)-Total (mg/L)	<0.0050	<0.0050	<0.025 ^{DLA}	<0.0050
	Magnesium (Mg)-Total (mg/L)	11.4	5.34	53.7	10.8
	Manganese (Mn)-Total (mg/L)	0.00585	0.00303	8.56	0.00600
	Mercury (Hg)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050

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

ALS LABORATORY GROUP ANALYTICAL REPORT

		Sample ID	L925764-1	L925764-2	L925764-3	L925764-4	L925764-5
		Description					
		Sampled Date	26-AUG-10	26-AUG-10	26-AUG-10	26-AUG-10	26-AUG-10
		Sampled Time	12:00	16:00	18:00	17:00	10:00
		Client ID	WQ2	WQ4	WQ7	WQ8	WQ9
Grouping	Analyte						
WATER							
Total Metals	Molybdenum (Mo)-Total (mg/L)		0.000637	0.000734	0.000105	0.000417	0.00058
	Nickel (Ni)-Total (mg/L)		0.00094	<0.00050	0.00237	0.00289	0.0346
	Phosphorus (P)-Total (mg/L)		<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Total (mg/L)		<2.0	<2.0	<2.0	<2.0	<2.0
	Selenium (Se)-Total (mg/L)		0.0010	<0.0010	0.0012	<0.0010	<0.0020 ^{DLA}
	Silicon (Si)-Total (mg/L)		2.48	3.01	3.13	2.84	3.16 ^{DLA}
	Silver (Ag)-Total (mg/L)		0.000010	<0.000010	<0.000010	<0.000010	<0.000020 ^{DLA}
	Sodium (Na)-Total (mg/L)		<2.0	<2.0	<2.0	<2.0	<2.0
	Strontium (Sr)-Total (mg/L)		0.0910	0.0897	0.123	0.107	0.165
	Thallium (Tl)-Total (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010	0.00023 ^{DLA}
	Tin (Sn)-Total (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010	<0.00020 ^{DLA}
	Titanium (Ti)-Total (mg/L)		<0.010	<0.010	<0.010	<0.010	0.013
	Uranium (U)-Total (mg/L)		0.000740	0.00134	0.000454	0.000828	0.00381 ^{DLA}
	Vanadium (V)-Total (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010	<0.0020 ^{DLA}
	Zinc (Zn)-Total (mg/L)		0.0170	<0.0010	0.0534	0.220	3.11 ^{DLA}
Dissolved Metals	Aluminum (Al)-Dissolved (mg/L)		0.0041	0.0013	0.0134	0.0072	<0.0020 ^{DLA}
	Antimony (Sb)-Dissolved (mg/L)		0.00015	<0.00010	0.00017	0.00026	0.00898
	Arsenic (As)-Dissolved (mg/L)		0.00023	0.00018	0.00023	0.00032	0.00169
	Barium (Ba)-Dissolved (mg/L)		0.175	0.0374	0.0750	0.131	0.0127 ^{DLA}
	Beryllium (Be)-Dissolved (mg/L)		<0.00050	<0.00050	<0.00050	<0.00050	<0.0010 ^{DLA}
	Bismuth (Bi)-Dissolved (mg/L)		<0.00050	<0.00050	<0.00050	<0.00050	<0.0010 ^{DLA}
	Boron (B)-Dissolved (mg/L)		<0.010	<0.010	<0.010	<0.010	<0.020 ^{DLA}
	Cadmium (Cd)-Dissolved (mg/L)		0.000124	<0.000050	0.000423	0.000833	0.0139
	Calcium (Ca)-Dissolved (mg/L)		44.3	19.9	35.0	49.3	158 ^{DLA}
	Chromium (Cr)-Dissolved (mg/L)		<0.00050	<0.00050	<0.00050	<0.00050	<0.0010 ^{DLA}
	Cobalt (Co)-Dissolved (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010	0.00198 ^{DLA}
	Copper (Cu)-Dissolved (mg/L)		0.00026	0.00057	0.00102	0.00069	<0.00020 ^{DLA}
	Iron (Fe)-Dissolved (mg/L)		<0.030	<0.030	<0.030	<0.030	<0.030
	Lead (Pb)-Dissolved (mg/L)		0.000057	0.000058	0.000192	0.000137	<0.00010 ^{DLA}
	Lithium (Li)-Dissolved (mg/L)		<0.0050	<0.0050	<0.0050	<0.0050	<0.010 ^{DLA}
	Magnesium (Mg)-Dissolved (mg/L)		10.9	4.56	6.14	11.5	24.8
	Manganese (Mn)-Dissolved (mg/L)		0.00850	0.000615	0.00160	0.00350	0.317
	Mercury (Hg)-Dissolved (mg/L)		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Molybdenum (Mo)-Dissolved (mg/L)		0.000543	0.000659	0.000076	0.000369	0.00055
	Nickel (Ni)-Dissolved (mg/L)		<0.00080 ^{MB-LOR}	<0.00050	0.00236	0.00263	0.0315
	Phosphorus (P)-Dissolved (mg/L)		<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Dissolved (mg/L)		<2.0	<2.0	<2.0	<2.0	<2.0

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

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L925764-6	L925764-7	L925764-8	L925764-9
Grouping	Analyte				
WATER					
Total Metals	Molybdenum (Mo)-Total (mg/L)	0.000457	0.000722	^{DLA} <0.00025	0.000387
	Nickel (Ni)-Total (mg/L)	0.00299	<0.00050	0.652	0.00225
	Phosphorus (P)-Total (mg/L)	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Total (mg/L)	<2.0	<2.0	<2.0	<2.0
	Selenium (Se)-Total (mg/L)	<0.0010	<0.0010	^{DLA} <0.0050	<0.0010
	Silicon (Si)-Total (mg/L)	2.85	2.96	9.53	2.86
	Silver (Ag)-Total (mg/L)	0.000011	<0.000010	0.00148	<0.000010
	Sodium (Na)-Total (mg/L)	<2.0	<2.0	<2.0	<2.0
	Strontium (Sr)-Total (mg/L)	0.113	0.0933	0.256	0.121
	Thallium (Tl)-Total (mg/L)	<0.00010	<0.00010	^{DLA} <0.00050	<0.00010
	Tin (Sn)-Total (mg/L)	<0.00010	<0.00010	^{DLA} <0.00050	<0.00010
	Titanium (Ti)-Total (mg/L)	<0.010	<0.010	0.011	<0.010
	Uranium (U)-Total (mg/L)	0.000858	0.00131	0.000316	0.000815
	Vanadium (V)-Total (mg/L)	<0.0010	<0.0010	^{DLA} <0.0050	<0.0010
	Zinc (Zn)-Total (mg/L)	0.223	0.0024	14.4	0.155
Dissolved Metals	Aluminum (Al)-Dissolved (mg/L)	0.0082	0.0011	10.9	0.0075
	Antimony (Sb)-Dissolved (mg/L)	0.00026	<0.00010	0.00083	0.00024
	Arsenic (As)-Dissolved (mg/L)	0.00036	0.00020	^{DLA} <0.00050	0.00034
	Barium (Ba)-Dissolved (mg/L)	0.133	0.0476	0.0173	0.146
	Beryllium (Be)-Dissolved (mg/L)	<0.00050	<0.00050	^{DLA} <0.0025	<0.00050
	Bismuth (Bi)-Dissolved (mg/L)	<0.00050	<0.00050	^{DLA} <0.0025	<0.00050
	Boron (B)-Dissolved (mg/L)	<0.010	<0.010	^{DLA} <0.050	<0.010
	Cadmium (Cd)-Dissolved (mg/L)	0.000843	<0.000050	0.101	0.000657
	Calcium (Ca)-Dissolved (mg/L)	49.2	22.7	111	48.4
	Chromium (Cr)-Dissolved (mg/L)	<0.00050	<0.00050	^{DLA} <0.0025	<0.00050
	Cobalt (Co)-Dissolved (mg/L)	<0.00010	<0.00010	0.153	<0.00010
	Copper (Cu)-Dissolved (mg/L)	0.00071	0.00029	0.416	0.00061
	Iron (Fe)-Dissolved (mg/L)	<0.030	<0.030	0.036	<0.030
	Lead (Pb)-Dissolved (mg/L)	0.000159	0.000067	0.996	0.000212
	Lithium (Li)-Dissolved (mg/L)	<0.0050	<0.0050	^{DLA} <0.025	<0.0050
	Magnesium (Mg)-Dissolved (mg/L)	11.5	5.33	53.6	11.0
	Manganese (Mn)-Dissolved (mg/L)	0.00367	0.000945	7.85	0.00278
	Mercury (Hg)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050
	Molybdenum (Mo)-Dissolved (mg/L)	0.000399	0.000641	^{DLA} <0.00025	0.000397
	Nickel (Ni)-Dissolved (mg/L)	0.00276	<0.00050	0.594	0.00202
	Phosphorus (P)-Dissolved (mg/L)	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Dissolved (mg/L)	<2.0	<2.0	<2.0	<2.0

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

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L925764-1	L925764-2	L925764-3	L925764-4	L925764-5
		26-AUG-10 12:00 WQ2	26-AUG-10 16:00 WQ4	26-AUG-10 18:00 WQ7	26-AUG-10 17:00 WQ8	26-AUG-10 10:00 WQ9
Grouping	Analyte					
WATER						
Dissolved Metals	Selenium (Se)-Dissolved (mg/L)	0.0011	<0.0010	0.0013	0.0010	<0.0020 ^{DLA}
	Silicon (Si)-Dissolved (mg/L)	2.50	3.01	3.16	2.89	3.17
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000020 ^{DLA}
	Sodium (Na)-Dissolved (mg/L)	<2.0	<2.0	<2.0	<2.0	<2.0
	Strontium (Sr)-Dissolved (mg/L)	0.0815	0.0802	0.110	0.0986	0.153
	Thallium (Tl)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	0.00020
	Tin (Sn)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020 ^{DLA}
	Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010	0.014
	Uranium (U)-Dissolved (mg/L)	0.000663	0.00116	0.000400	0.000748	0.00345 ^{DLA}
	Vanadium (V)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0020 ^{DLA}
	Zinc (Zn)-Dissolved (mg/L)	0.0153	<0.0010	0.0545	0.221	2.99
Aggregate Organics	COD (mg/L)	<20	<20	<20	<20	<20

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

ALS LABORATORY GROUP ANALYTICAL REPORT

		Sample ID	L925764-6	L925764-7	L925764-8	L925764-9
		Description				
		Sampled Date	26-AUG-10	26-AUG-10	26-AUG-10	26-AUG-10
		Sampled Time	11:00		09:00	15:00
		Client ID	WQ11	WQ10	WQ20	WQ25
Grouping	Analyte					
WATER						
Dissolved Metals	Selenium (Se)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0050 ^{DLA}	0.0010	
	Silicon (Si)-Dissolved (mg/L)	2.85	2.99	9.56	2.95	
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	0.00155	<0.000010	
	Sodium (Na)-Dissolved (mg/L)	<2.0	<2.0	<2.0	<2.0	
	Strontium (Sr)-Dissolved (mg/L)	0.101	0.0817	0.236	0.109	
	Thallium (Tl)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00050 ^{DLA}	<0.00010	
	Tin (Sn)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00050 ^{DLA}	<0.00010	
	Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.010	0.011	<0.010	
	Uranium (U)-Dissolved (mg/L)	0.000747	0.00115	0.000296	0.000752	
	Vanadium (V)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0050 ^{DLA}	<0.0010	
	Zinc (Zn)-Dissolved (mg/L)	0.225	0.0024	13.4	0.157	
	Aggregate Organics	COD (mg/L)	<20	<20	<20	<20

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

Reference Information

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLA	Detection Limit Adjusted For required dilution
MB-LOR	Method Blank exceeds ALS DQO. LORs adjusted for samples with positive hits below 5 times blank level. Please contact ALS if re-analysis is required.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ACY-PCT-VA	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.	
ACY-PCT-VA	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.	
ALK-SCR-VA	Water	Alkalinity by colour or titration	EPA 310.2 OR APHA 2320
		This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method. OR This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.	
ANIONS-CL-IC-VA	Water	Chloride by Ion Chromatography	APHA 4110 B.
		This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".	
ANIONS-F-IC-VA	Water	Fluoride by Ion Chromatography	APHA 4110 B.
		This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".	
ANIONS-SO4-IC-VA	Water	Sulfate by Ion Chromatography	APHA 4110 B.
		This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".	
C-TOT-ORG-LOW-CL	Water	Total Organic Carbon	APHA 5310 C-Instrumental
COD-COL-VA	Water	Chemical Oxygen Demand by Colorimetric	APHA 5220 D. CHEMICAL OXYGEN DEMAND
		This analysis is carried out using procedures adapted from APHA Method 5220 "Chemical Oxygen Demand (COD)". Chemical oxygen demand is determined using the closed reflux colourimetric method.	
COLOUR-TRUE-VA	Water	Colour (True) by Spectrometer	APHA 2120 "Color"
		This analysis is carried out using procedures adapted from APHA Method 2120 "Color". Colour (True Colour) is determined by filtering a sample through a 0.45 micron membrane filter followed by analysis of the filtrate using the platinum-cobalt colourimetric method. Apparent Colour is determined without prior sample filtration. Colour is pH dependent. Unless otherwise indicated, reported colour results pertain to the pH of the sample as received, to within +/- 1 pH unit.	
COLOUR-TRUE-VA	Water	Colour (True) by Spectrometer	APHA 2120 Color
		This analysis is carried out using procedures adapted from APHA Method 2120 "Color". Colour (True Colour) is determined by filtering a sample through a 0.45 micron membrane filter followed by analysis of the filtrate using the platinum-cobalt colourimetric method. Apparent Colour is determined without prior sample filtration. Colour is pH dependent. Unless otherwise indicated, reported colour results pertain to the pH of the sample as received, to within +/- 1 pH unit.	
EC-PCT-VA	Water	Conductivity (Automated)	APHA 2510 Auto. Conduc.
		This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.	
HARDNESS-CALC-VA	Water	Hardness	APHA 2340B
		Hardness is calculated from Calcium and Magnesium concentrations, and is expressed as calcium carbonate equivalents.	
HG-DIS-CVAFS-VA	Water	Dissolved Mercury in Water by CVAFS	EPA SW-846 3005A & EPA 245.7
		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 filtration (EPA Method 3005A) and involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).	
HG-TOT-CVAFS-VA	Water	Total Mercury in Water by CVAFS	EPA 245.7
		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 a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).	

Reference Information

MET-DIS-ICP-VA	Water	Dissolved Metals in Water by ICPOES	EPA SW-846 3005A/6010B
<p>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).</p>			
MET-DIS-LOW-MS-VA	Water	Dissolved Metals in Water by ICPMS(Low)	EPA SW-846 3005A/6020A
<p>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 involves preliminary sample treatment by filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).</p>			
MET-TOT-ICP-VA	Water	Total Metals in Water by ICPOES	EPA SW-846 3005A/6010B
<p>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).</p>			
MET-TOT-LOW-MS-VA	Water	Total Metals in Water by ICPMS(Low)	EPA SW-846 3005A/6020A
<p>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).</p>			
NH3-F-VA	Water	Ammonia by Fluorescence	J. ENVIRON. MONIT., 2005, 7, 37-42, RSC
<p>This analysis is carried out, on sulphuric 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>			
PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H "pH Value"
<p>This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode</p> <p>It is recommended that this analysis be conducted in the field.</p>			
PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value
<p>This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode</p> <p>It is recommended that this analysis be conducted in the field.</p>			
TDS-VA	Water	Total Dissolved Solids by Gravimetric	APHA 2540 C - GRAVIMETRIC
<p>This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.</p>			
TKN-SIE-VA	Water	Total Kjeldahl Nitrogen by SIE	APHA 4500-Norg (TKN)
<p>This analysis is carried out using procedures adapted from APHA Method 4500-Norg "Nitrogen (Organic)". Total kjeldahl nitrogen is determined by sample digestion at 367 celcius with analysis using an ammonia selective electrode.</p>			
TSS-VA	Water	Total Suspended Solids by Gravimetric	APHA 2540 D - GRAVIMETRIC
<p>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.</p>			
TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 "Turbidity"
<p>This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.</p>			
TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 Turbidity
<p>This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.</p>			

** 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
CL	ALS LABORATORY GROUP - CALGARY, ALBERTA, CANADA
VA	ALS LABORATORY GROUP - VANCOUVER, BC, CANADA

Chain of Custody Numbers:

Reference Information

10-040128

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 wwt 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.

Report ...	Report Format / Distribution	Service Requested: (Rush subject to availability)
Company: KLOHN CRIPPEN BERGER LTD	Standard: <input checked="" type="checkbox"/> Standard <input type="checkbox"/> Other (specify):	Regular (Standard Turnaround Times)
Contact: JOHN JEMMETT	Select: PDF <input checked="" type="checkbox"/> Excel <input checked="" type="checkbox"/> Digital <input type="checkbox"/> Fax	Priority, Date Req'd: _____ (Surcharges apply)
Address: 500-2955 VIRTUAL WAY VANCOUVER BC V6M 4X6	Email 1: JJemmett@klohn.com	Emergency (1 Business Day) - 100% Surcharge
Phone: 604-669-3800 Fax:	Email 2: Lgraham@klohn.com	For Emergency < 1 Day, ASAP or Weekend - Contact ALS

Invoice To Same as Report? (circle) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (If No, provide details)	Client / Project Information	Analysis Request (Indicate Filtered or Preserved, F/P)										
Copy of Invoice with Report? (circle) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Job #: HE SILVERTIP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Number of Containers
Company: SILVERCORP	PO / AFE:	TOTAL METALS	DISSOLVED METALS	TOC	GENERAL	NUTRIENTS						
Contact: FRANK HRDY	LSD:											
Address: frankhrdy@silvercorp.ca	Quote #:											
Phone: 604-669-9397 Fax: 604-669-9387												

Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type						Number of Containers
				TOTAL METALS	DISSOLVED METALS	TOC	GENERAL	NUTRIENTS	
WQ2	26-AUG-10	12:00	water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	5
WQ4	26-AUG-10	16:00	water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	5
WQ7	26-AUG-10	7:00	water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	5
WQ8	26-AUG-10	4:00	water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	5
WQ9	26-AUG-10	10:00	water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	5
WQ11	26-AUG-10	1:00	water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	5
WQ10	26-AUG-10		water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	5
WQ20	26-AUG-10	9:00	water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	5
WQ25	26-AUG-10	15:00	water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	5

Special Instructions / Regulations / 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.

Released by:	Date:	Time:	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
			SH	08/28/10	15:15	10 °C				