Memorandum

To: Alexco Keno Hill Mining Corp.

From: Matt Corriveau

CC: Scott Davidson

Date: March 21, 2013

Re: QZ09-092 Tailings Characterization Plan 2012 Reporting

1 Introduction

The Tailings Characterization Plan (The TC Plan) for the Bellekeno Mine was submitted on December 31, 2010 as a requirement under Water Licence QZ09-092. The TC Plan provides a method by which the geochemical and physical characterization of tailings generated by the Mill can be evaluated.

The site assay lab prepares both monthly and quarterly composites for various analyses based on daily tailings production rates.

2 X-Ray Diffraction Analysis

Quantitative Reitveld-X-ray Diffraction (XRD) analysis was conducted on mill tailings composites on a quarterly basis in 2012 by the University of British Columbia Department of Earth and Ocean Science to determine mineralogy of the mill throughput. The quarterly mill composite was reduced to optimal grain-size range for analysis and step-scan X-ray powder-diffraction data were collected by diffractometer. The X-ray diffractogram was analyzed using the International Centre for Diffraction Database PDF-4.

The results of the 2012 quarterly mill composites are shown in Table 2-1. These amounts represent the relative amount of crystalline phases by weight normalized to 100%.

Table 2-1 Results of XRD quantitative phase analysis for quarterly final mill tailing composites (wt. %), 2012.

Minerals	FMT Comp 2012	FMT Comp 2012	FMT Comp 2012	FMT Comp 2012	Average
	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	
	Jan/Feb/Mar	Apr/May/June	July/Aug/Sept	Oct/Nov/Dec	
Quartz	50.4	53.7	56.6	59.6	55.1
Siderite	35.4	31.3	29	26.6	30.6
Calcite	2.7	3.5	3.3	2.5	3.0
Muscovite	4.7	5.4	4.7	4.6	4.9
K-Feldspar	0	0	0	1.7	0.4
Plagioclase	0	0	0	1	0.3
Sphalerite	3.5	2.2	2.4	1.9	2.5
Pyrite	2.2	2.6	2.7	1.9	2.4
Galena	0.9	1.3	1.2	0.3	0.9
Total	100	100	100	100	100

The most abundant mineral by weight in the 2012 tailings composites is quartz. The proportion of quartz in the tailings increased from 50 to 60% through 2012. Siderite decreased by roughly the same amount from 35 to 26% of total tailings weight. Calcite ranged from 2.5 to 3.5% of total tailings weight in 2012. Sulphides (sphalerite, pyrite and galena) comprised on average 5.75% of the tailings by weight in 2012. The lowest proportion of sulphides occurred in the fourth quarter composite. K-feldspar and plagioclase is reported present in the fourth quarter but were not present in the other composites.

The 2012 XRD findings are largely similar to 2011 results. Galena was higher in the first three quarters of 2012 compared to the 2011 average but reported a similar value in Q4 2012 as the 2011 average. Arsenopyrite was identified in quarter 1 and 2 of 2011 but was not identified in 2012. All other minerals were identified in very similar abundances in 2012 as 2011.

3 PETROGRAPHIC ANALYSIS

Detailed petrographic descriptions and quantitative estimates of the quarterly composites of tailings produced by the mill were analysed by Craig H.B. Leitch, Ph.D, P. Eng. of Vancouver Petrographic Ltd.

The final mill tailing composites submitted for petrographic analysis were generally described as finely ground quartz, carbonate (dolomite and ankerite), minor sericite, significant sulfides (sphalerite, pyrite lesser galena and chalcopyrite, rare arsenopyrite, trace sulfosalt) and trace rutile. Trace limonite is after sulfides and/or Fe-carbonates.

A polished thin-section prepared from the coarser particles in the grain mount was analyzed to estimate modal mineralogy. The results are shown in Table 3-1.

Table 3-1 Modal mineralogy of quarterly final mill tailings samples submitted for petrographic description and analysis, 2012.

Mineral	1st Quarter - 2012	2nd Quarter - 2012	3rd Quarter - 2012	4th Quarter - 2012
	FMT Composite	FMT Composite	FMT Composite	FMT Composite
Carbonate (dolomite, ankerite)	50	50	50	45
Quartz	40	40	40	45
Pyrite	3	3	4-5	3
Sphalerite	5	5	3-4	4
Galena	<1	<1	1-2	~1
Chalcopyrite	<1	<1	0	<1
Arsenopyrite	<1	<1	<1	<1
Sericite	<1	<1	<1	~1
Limonite	trace	trace	<1	~1
Rutile	<1	<<1	<<1	<1
Sulfosalt (tetrahydrite), native gold/electrum	trace	trace	0	trace

Quartz and carbonate minerals compose about 90% of the mill tailing composite samples. There are trace amounts of sericite, limonite and rutile (all <1%). The remainder of the samples are composed of sulphides, primarily pyrite (3-5%) and sphalerite (3-5%), with galena (<1 – 2%), chalcopyrite and arsenopyrite (<1%) and occasional trace sulfosalts.

The estimated mineralogy from the petrographic descriptions in 2012 is fairly consistent with 2011 3rd and 4th quarter results. The 2011 3rd quarter composite varied from 2012 due to a higher amount of pyrite and sphalerite (8% and 7%, respectively) and a larger component of sericite and limonite (1-2% each). The 2011 4th quarter composite had slightly higher chalcopyrite than 2012 (1-2%).

These results are also fairly consistent with the XRD quantitative phase analysis in 2012. The carbonate minerals identified as dolomite and ankerite in the petrographic report are similar to siderite and calcite identified by XRD, with related mineral compositions. Muscovite is identified in the XRD report and is not identified in the petrographic report, which also reports the occurrence of trace limonite, sericite and rutile. Similar sulfides are identified except for the trace amounts of arsenopyrite and chalcopyrite which are not reported as present in the XRD. It is important to note that XRD provides a quantitative description of a material by weight percent of each mineral and that petrography is a qualitative description of rock in thin section. Thus, minerals identified in petrography reporting that are absent in XRD reporting represent a very small proportion of the total material weight and are not a significant weight to be identified by XRD.

4 ACID BASE ACCOUNTING

The acid base accounting (ABA) was conducted on a monthly composite of the tailings produced by the mill. ABA testing was conducted by ALS Environmental in Burnaby, BC. 2012 ABA data is provided in Table 4-1.

Table 4-1 ABA data, 2012

	Maximum Potential Acidity	Fizz Rating	Net Neutralization Potential	Neutralization Potential	pH	NPR (NP:MPA)	Total Sulfur	Total Sulfate (Carbonate Leach)	HCl-Leachable Sulfate	Sulfide Sulfur (Calculated)	Inorganic Carbon (C)	Inorganic Carbon (C as CO2)
Unit	**Kg $CaCO_3$/t**	**Unit**	**Kg $CaCO_3$/t**	**Kg $CaCO_3$/t**	**Unit**	**Unit**	**%**	**%**	**%**	**%**	**%**	**%**
Jan-12	83.8	3	23	107	8.3	1.28	2.68	0.02	0.01	2.66	3.88	14.2
Feb-12	84.1	3	-3	81	8.4	0.96	2.69	0.05	0.005	2.64	3.62	13.3
Mar-12	100.5	3	7	107	8.2	1.07	3.21	0.04	0.04	3.17	4.33	15.9
Apr-12	69.7	3	14	84	8.3	1.21	2.23	0.005	0.005	2.23	3.33	12.2
May-12	86.9	3	14	101	8.1	1.16	2.78	0.03	0.03	2.75	3.54	13
Jun-12	91.3	3	36	127	8.1	1.39	2.92	0.04	0.005	2.88	4.17	15.3
Jul-12	81.3	3	26	107	8.1	1.32	2.6	0.01	0.02	2.59	3.77	13.8
Aug-12	113	3	-29	84	8.2	0.74	3.62	0.01	0.02	3.61	3.16	11.6
Sep-12	61.6	3	6	68	8.1	1.1	1.97	0.01	0.005	1.97	2.04	7.5
Oct-12	63.4	3	13	76	8.2	1.2	2.03	0.04	0.03	1.99	2.86	10.5
Nov-12	61.6	3	27	89	8.1	1.45	1.97	0.03	0.005	1.94	2.61	9.6
Dec-12	65.3	3	17	82	8	1.26	2.09	0.02	0.03	2.07	0.64	2.4
Average	80.2	3	13	93	8.2	1.18	2.57	0.03	0.02	2.54	3.16	11.6

Total sulfur ranged between 1.97 and 3.62% with an average of 2.57% in 2012. The maximum sulphur content was in August 2012 but was followed by four consecutive lower sulphur concentrations at around 2%. Sulphide sulphur is the dominant form of sulphur in the tailings with sulphate sulphur often below the method detection level. Total sulphur going back to the January 2011 monthly composite is plotted in Figure 4-1. The maximum potential acidity (MPA) of the tailings composites ranged from 61.6 to 113 kg $CaCO_3$/tonne.

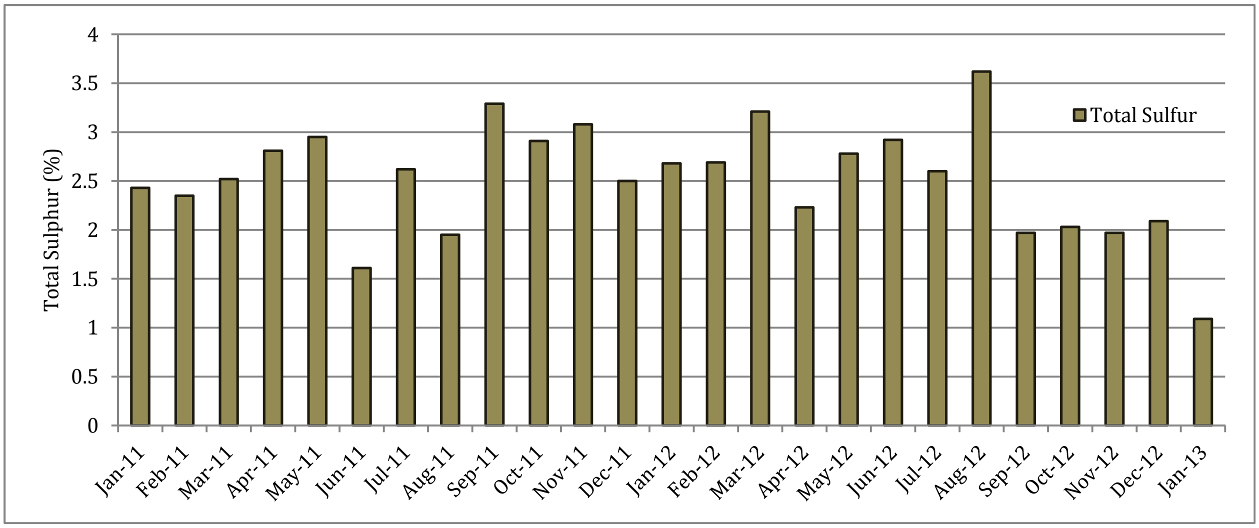


Figure 4-1 Mill tailings composite testing, total sulphur.

The results of mineralogical testing of the tailings composite using X-Ray Diffraction (XRD) has shown that Bellekeno tailings contain significant siderite (29 to 35.4 wt.%). As a result of this determination the ABA package was switched in July 2011 from standard ABA to a siderite corrected ABA analytical package to remove any potential neutralization potential (NP) contributions from the siderite. All 2012 NP was calculated using the siderite correction. The NP in 2012 ranged from 68 to 127 kg $CaCO_3$/tonne which is slightly lower than in 2011 (average of 144 kg $CaCO_3$/tonne) after the siderite correction but with no obvious trend to continue decreasing. NP since January 2011 is shown in Figure 4-2.

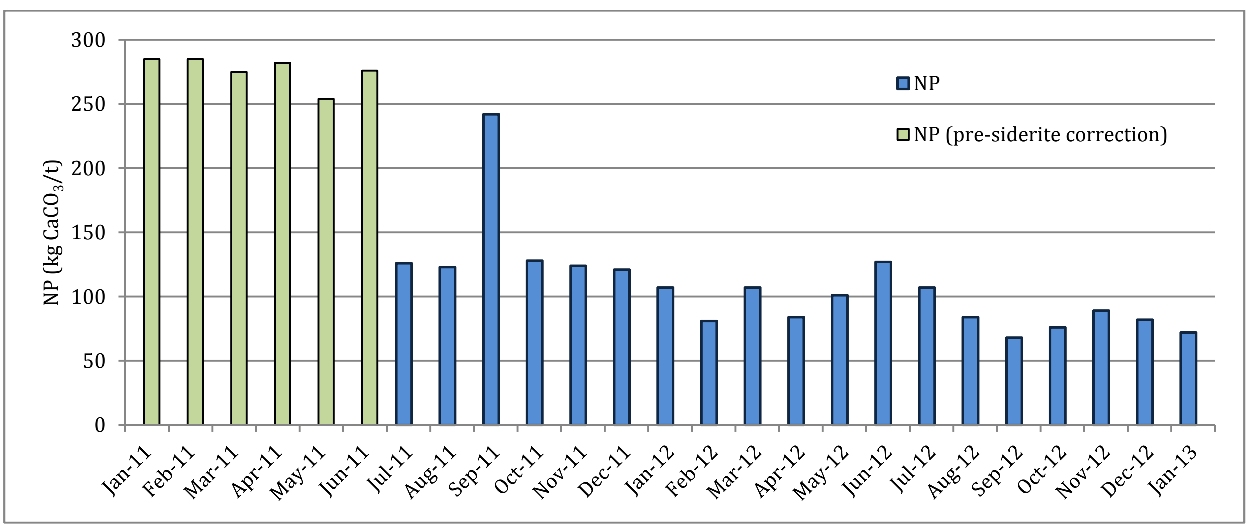


Figure 4-2 Mill tailings composite testing, neutralization potential (NP)

The neutralization potential ratio (NPR – NP:MPA ratio) of the tailings composite in 2012 ranged from 0.74 to 1.45. This range is slightly lower than 2011 which had a range of from 1.29 to 2.35 (July to December 2011, after siderite correction was implemented). However, there does not appear to be an obvious downward trend in NPR in 2012. Net neutralization potential (NNP), the difference between NP and MPA, of the tailings composites have ranged between -29 and 36 kg $CaCO_3$/tonne, with two values below zero in 2012. The median NNP in 2012 was 14 kg $CaCO_3$/tonne and was lower in 2012 than 2011 (July to December, after siderite correction median of 43.5 kg $CaCO_3$/tonne). There appears to be no obvious downward trend in NNP in 2012. NNP since January 2011 is shown in Figure 4-4.

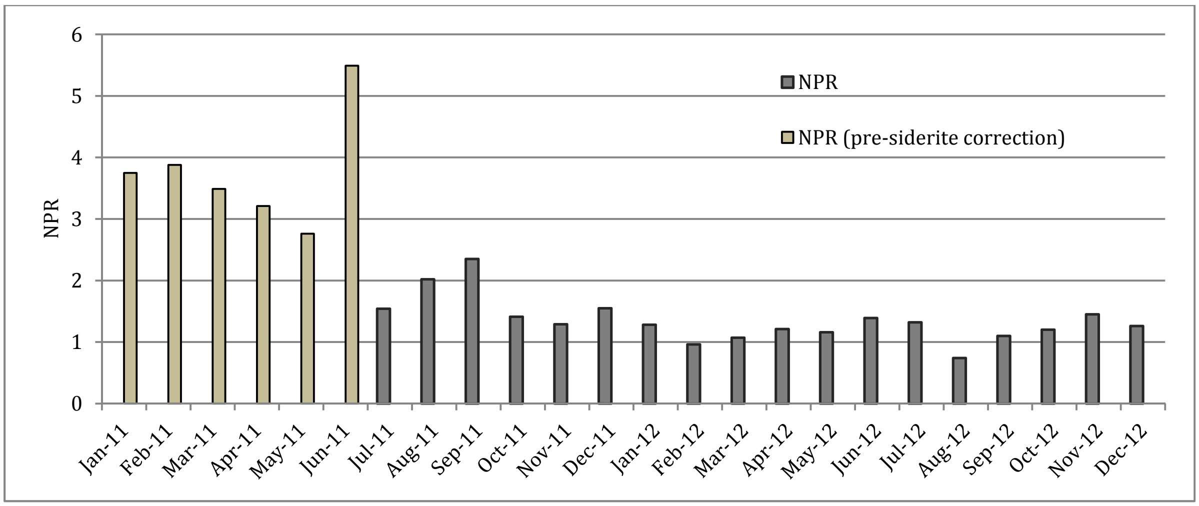


Figure 4-3 Mill tailings composite testing, NPR (NP:MPA ratio)

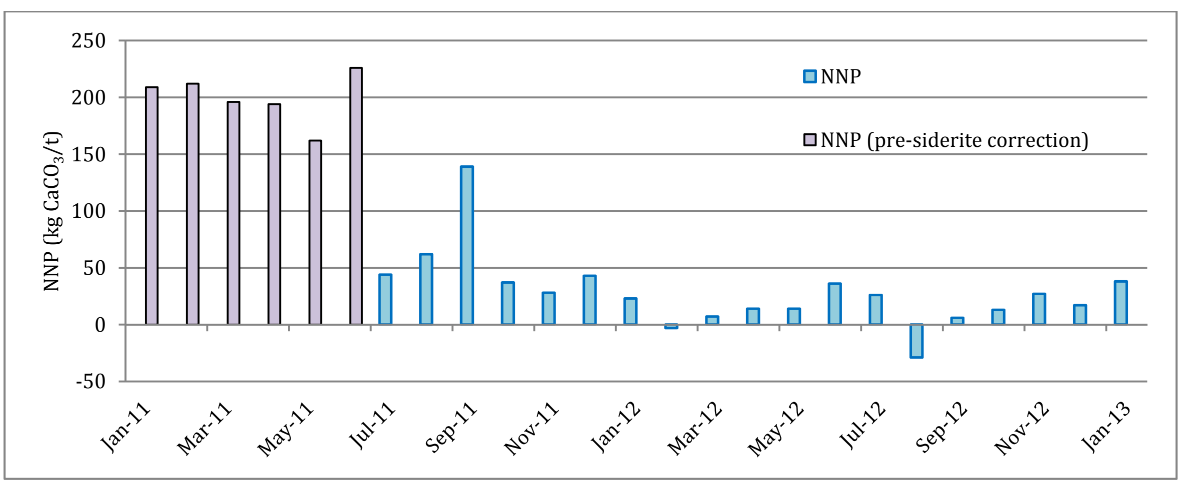


Figure 4-4 Mill tailings composite testing, net neutralization potential (NNP)

5 INITIAL PORE WATER COMPOSITION

Samples of water from the filter press were collected on a quarterly basis in 2012 and were submitted to ALS Environmental, in Burnaby, BC for testing. These samples reflect the chemical composition of residual process related water contained within in the tailings that are transported to the dry stack tailings facility (DSTF) or backfilled underground. These samples provide information on the initial pore water chemical composition of the DSTF. It should be noted that the water that is sampled is reused in the milling process.

Sulphate in filter press water ranged from 2090 to 2340 mg/L, within the 2011 range for sulphate. Arsenic ranged from below method detection level and 0.0092 mg/L and was within the 2011 range for arsenic. Cadmium increased from 0.00233 to 0.01350 mg/L in 2012 surpassing the 2011 maximum of 0.0116 mg/L. However, with only four values of ten total values since March, 2011 contributing to this increase, it is uncertain if this is a trend or part of natural variation in water chemistry. Copper ranged between 0.252 to 0.857 mg/L in 2012 and was within the 2011 range for copper. Lead in quarters 2 through 4 had lower concentrations than the first quarter (maximum value of 0.206 mg/L) but display a potential upward trend. Filter press water nickel concentrations are below method detection levels for all quarters of 2012. Silver ranges from 0.0267 to 0.253 mg/L and is elevated compared to the 2011 range of 0.00767 to 0.0332 mg/L. Zinc ranged from 0.042 to 0.132 mg/L and was slightly elevated compared to 2011 (below method detection level to 0.0759 mg/L).

6 HUMIDITY CELL

6.1 SOURCE MATERIAL

A weighted composite for the first six months of tailings generated (January to June 2011) based on monthly mill throughput from the Bellekeno Mine was created for the implementation of humidity cell kinetic testing. The management and subsequent testing on the humidity cells were conducted by ALS Environmental in Burnaby, BC. ABA testing was conducted on the monthly mill tailings composites. The results of ABA testing for the first 6 months are reported in Table 6-1. It is important to note that the method of determining NP from January to June 2011 did not take into account the presence of siderite and are not properly corrected. Therefore the NP and related NNP and NPR are reported artificially high.

Table 6-1 ABA testing results for the first six months of mill tailings composites through the mill

	Proportion of composite	Maximum Potential Acidity (MPA)	Net Neutralizing Potential (NNP)	Neutralizing Potential (NP)	pH	NPR NP: MPA	T – S	T – SO_4^-	Leachable SO_4^-	S as S^{2-} (Leco)	Inorganic C as C	Inorganic C as CO_2
Description	**%**	**Kg CaCO3/t**	**Kg CaCO3/t**	**Kg CaCO3/t**	**Unit**	**Unit**	**%**	**%**	**%**	**%**	**%**	**%**
Jan-11	16	75.9	209	285	8	3.75	2.43	0.06	0.03	2.33	3.85	14.1
Feb-11	14	73.4	212	285	8	3.88	2.35	0.07	0.02	2.3	3.82	14
Mar-11	19	78.8	196	275	8.1	3.49	2.52	0.07	0.03	2.43	3.9	14.3
Apr-11	18	87.8	194	282	8.2	3.21	2.81	0.06	0.01	2.75	4.17	15.3
May-11	17	92.2	162	254	8.2	2.76	2.95	0.03	<0.01	2.91	3.82	14
Jun-11	16	50.3	226	276	8	5.49	1.61	0.03	0.03	1.581 [1]	3.76	13.8

[1] Sulfur as sulfide for June 2011 was calculated and not determined by Leco analysis.

The six monthly composites were used to create quarterly composite samples on which a quantitative phase analysis by x-ray diffraction was conducted to determine the mineralogy of mill throughput. These amounts represent the relative amounts of crystalline phases normalized to 100%. The results of the first two quarterly results are reported in Table 6-2.

Table 6-2 Results of XRD quantitative phase analysis of first and second quarter 2011 final mill tailings composites (wt. %)

Mineral	First Quarter 2011 (Jan/Feb/Mar) (%)	Second Quarter 2011 (Apr/May/June) (%)
Quartz	53.1	49.5
Siderite	32	35.2
Muscovite	5	4.6
Calcite	2.2	3.1
Sphalerite	2.3	2.8
Pyrite	2.2	1.9
Plagioclase	1.1	1.2
Ankerite – Dolomite	0.9	0.8
Arsenopyrite	0.8	0.6
Galena	0.3	0.2
Total	100	100

Quartz is the most abundant mineral in the mill throughput comprising about half of the composites by weight. Siderite is the second most abundant mineral comprising about a third of the composites by weight. Muscovite comprises roughly 5% of mineralization. Calcite is 2.65% of mineralization by weight, while dolomite, which contributes to NP, and ankerite, which does not contribute to NP, are a combined 0.85% of mineralization by weight on average. Sulphides sphalerite, pyrite, arsenopyrite and galena are a combined 5.5% by weight.

6.2 HUMIDITY CELL RESULTS

The humidity cell was initiated on August 10, 2011 and the results up to week 80 (February 27, 2013). The humidity cell consists of weighted composite tailings generated from the first 6 months of operation of the District Mill running Bellekeno Mine ore. The results below represent the first 80 weeks of leachate collected from the humidity cell.

6.2.1 pH

Leachate pH from the humidity cell testing has been very consistent ranging from 7.7 to 7.99 with no obvious trend in the data. Humidity cell data for pH is shown in Figure 6-1.

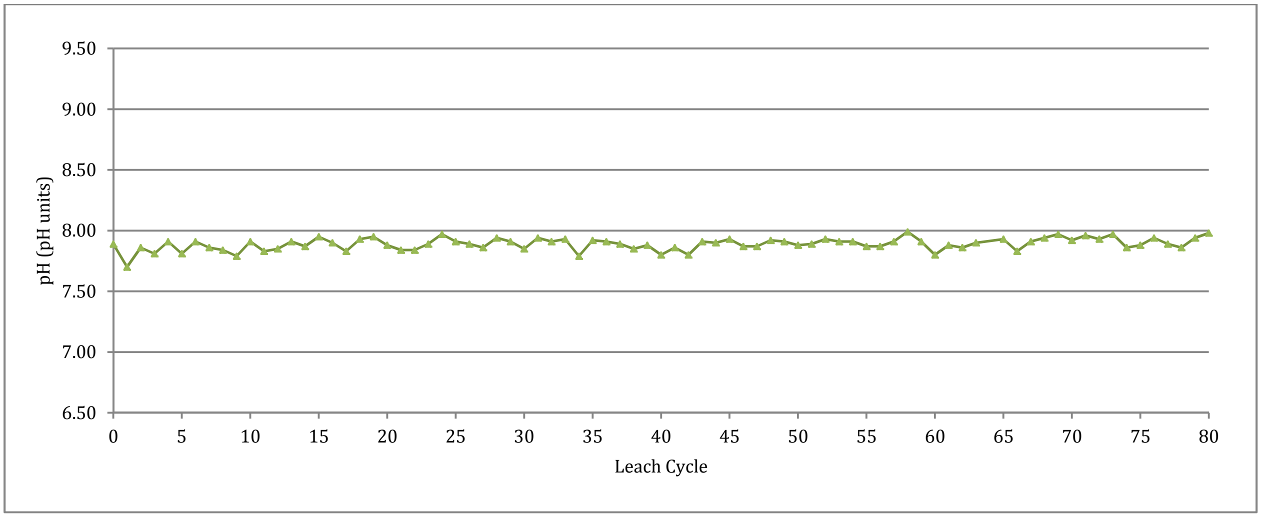


Figure 6-1 Humidity cell testing, pH

6.2.2 Alkalinity and Acidity

An initial spike was observed in total alkalinity increasing the values from 43.0 mg $CaCO_3$/L in the first leach cycle (Week 1) to 78.3 mg $CaCO_3$/L in Week 7. Alkalinity remained relatively high (71.3 to 78.3 mg $CaCO_3$/L) until Week 17. Moving forward from Week 17, alkalinity has varied between 47.4 mg $CaCO_3$/L (Week 45) to 66.3 mg $CaCO_3$/L (Week 22). A flat to slightly decreasing trend is somewhat apparent, with data being fairly consistent between 50 and 60 mg $CaCO_3$/L since Week 31. Acidity peaks were observed between Week 33 and Week 48 reaching a maximum of 15 mg $CaCO_3$/L in Week 36. However, outside those weeks, acidity has been fairly consistent ranging between 2.9 and 11 mg $CaCO_3$/L. Humidity cell data for alkalinity and acidity are shown in Figure 6-2.

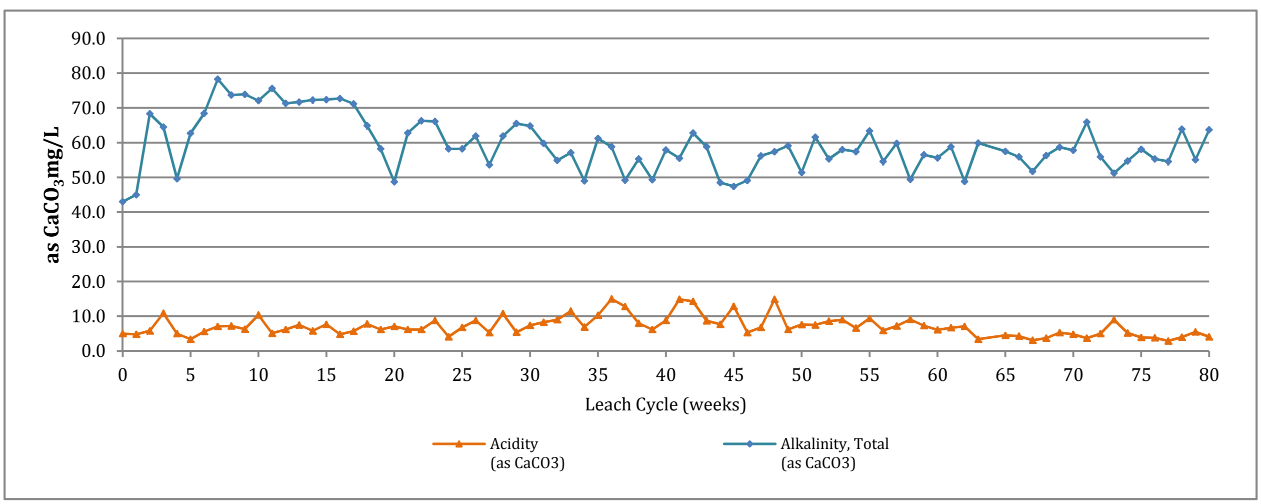


Figure 6-2 Humidity cell testing, acidity and alkalinity

6.2.3 Sulphate

Sulphate was highest at the beginning of the humidity cell testing with a maximum concentration of 1150 mg/L in the first cycle, but decreasing quickly to 158 mg/L by Week 7. Sulphate increased slightly to 206 mg/L in Week 20 and since then has gradually trended downwards and was 39.9 mg/L at Week 80. Humidity cell data for sulphate concentrations are shown in Figure 6-3.

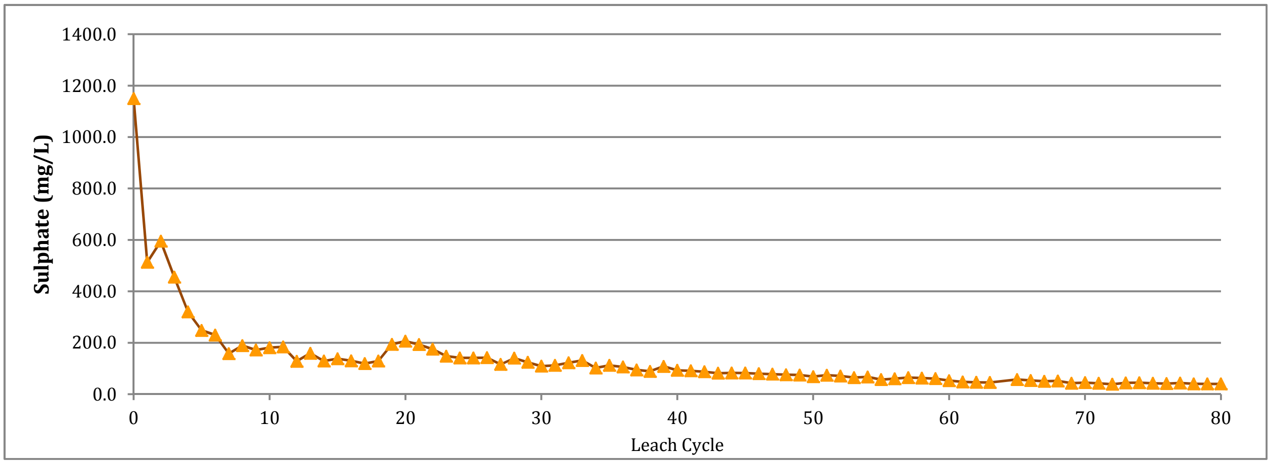


Figure 6-3 Humidity cell testing, sulphate

6.2.4 Zinc

Dissolved zinc in the humidity cell leachate displayed a slight increasing trend from 0.5 mg/L in Week 0 of humidity cell testing to 4.25 mg/L in Week 29. Zinc varied between 2.63 and 4.28 mg/L between Week 29 and Week 51. Since Week 51, a downward trend has been observed with a minimum value of 1.28 mg/L in Week 79 and a zinc concentration of 1.91 mg/L in Week 80. All values are well above the CCME guideline (0.03 mg/L for 90 mg/L hardness) and EQS (0.5 mg/L), but well below the predicted pore water zinc concentration (20.31 mg/L) from the initial metallurgical testing program. Humidity cell data for dissolved zinc is shown in Figure 6-4.

6.2.5 Lead

Dissolved lead concentrations in the humidity cell leachate were highest at the beginning of humidity cell testing with a maximum of 0.2 mg/L in Week 0 but decreased quickly to less than 0.1 mg/L by Week 7. All data after Week 10 is less than 0.1 mg/L and fairly consistent with a minimum dissolved lead concentration of 0.074 mg/L recorded in Week 74 and 0.0785 mg/L in Week 80. All dissolved lead values are higher than the CCME guideline (0.00278 mg/L for 90 mg/L hardness), but are lower than the EQS (0.2 mg/L). Humidity cell data for dissolved lead is shown in Figure 6-5.

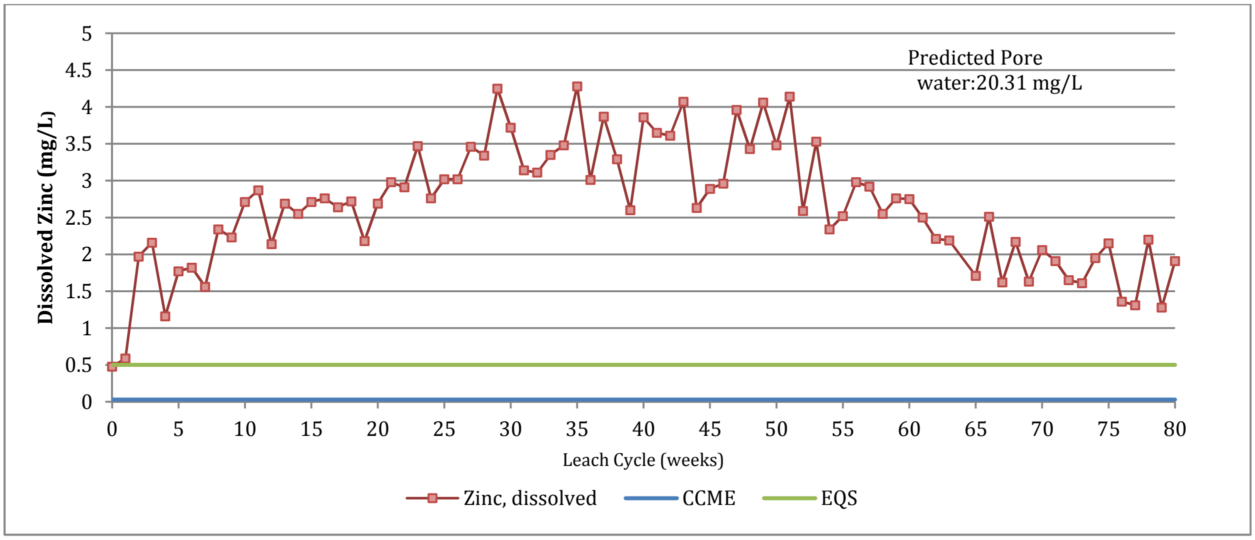


Figure 6-4 Humidity cell testing, dissolved zinc

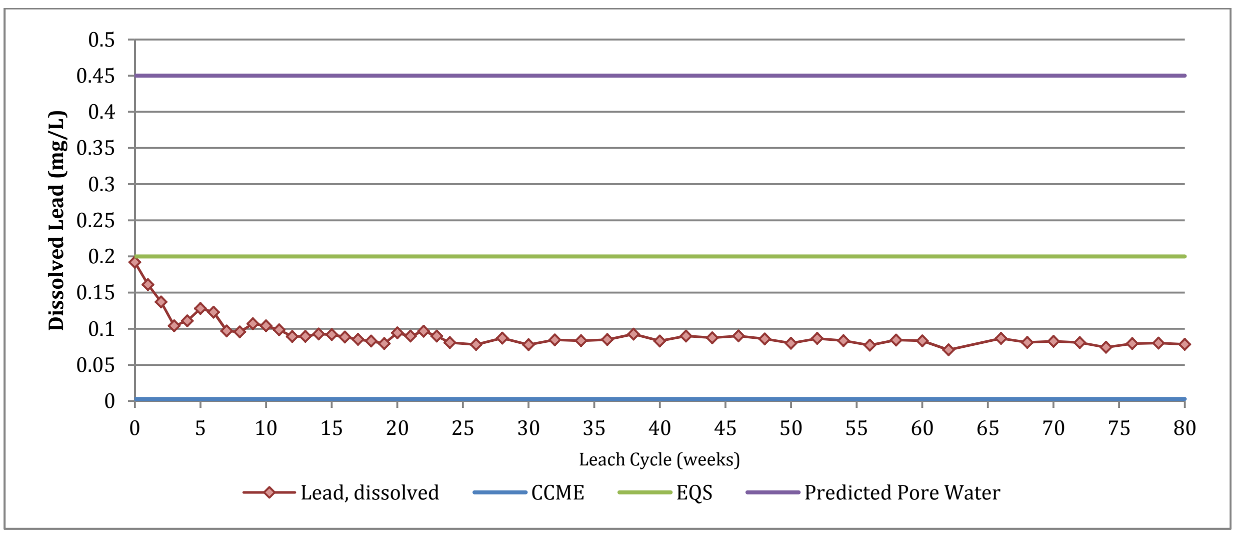


Figure 6-5 Humidity cell testing, dissolved lead

6.2.6 Arsenic

A maximum arsenic concentration of 0.00248 mg/L in humidity cell leachate was observed in Week 2 followed by consistently low arsenic concentrations averaging 0.0008 mg/L between weeks 5 and 22. A minimum concentration of 0.00075 mg/L was encountered in Week 12. A slight increasing trend is observed after Week 22 with arsenic concentration reaching 0.00192 mg/L in Week 74. All arsenic concentrations are well below the CCME guideline of 0.005 mg/L (for 90 mg/L hardness) and the EQS of 0.1 mg/L. Humidity cell data for dissolved arsenic is shown in Figure 6-6.

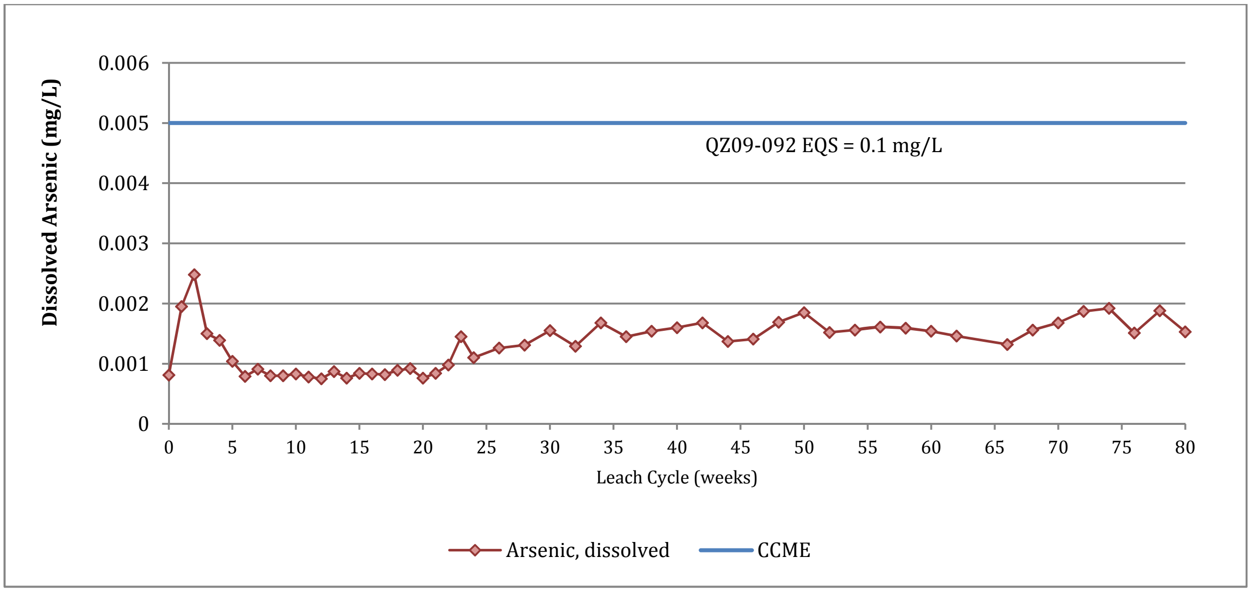


Figure 6-6 Humidity cell testing, dissolved arsenic

6.2.7 Nickel

Nickel concentrations have been low throughout the humidity cell testing. A slight increasing trend can be observed beginning roughly in Week 24 where the concentration increases from 0.00145 mg/L to 0.00501 mg/L in Week 66. A maximum nickel concentration of 0.00576 mg/L was reached in Week 78. Dissolved nickel is well below the CCME guideline of 0.08822 mg/L (for 90 mg/L hardness) and the EQS of 0.5 mg/L. Humidity cell data for dissolved nickel is shown in Figure 6-7.

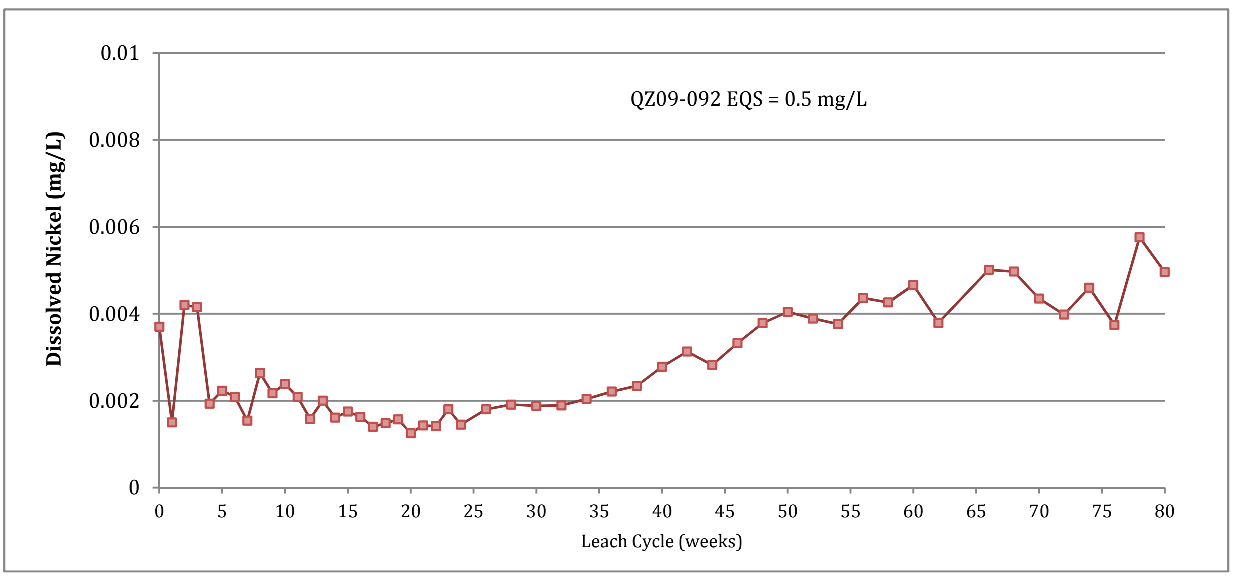


Figure 6-7 Humidity cell testing, dissolved nickel

6.2.8 Cadmium

Dissolved cadmium exhibits a similar trend to dissolved zinc with an increasing trend from 0.0264 mg/L in Week 0 to 0.0614 mg/L in Week 41. The maximum concentration of 0.0638 mg/L was reached in Week 51 followed by a decreasing trend with a minimum value of 0.0303 mg/L in Week 79 and a dissolved cadmium concentration of 0.0394 mg/L in Week 80. Dissolved cadmium is consistently above the CCME guideline (0.00003 mg/L for 90 mg/L hardness) and the EQS (0.01 mg/L), but is well below the predicted pore water cadmium concentration from the initial metallurgical testing program. Humidity cell data for dissolved cadmium is shown in Figure 6-8.

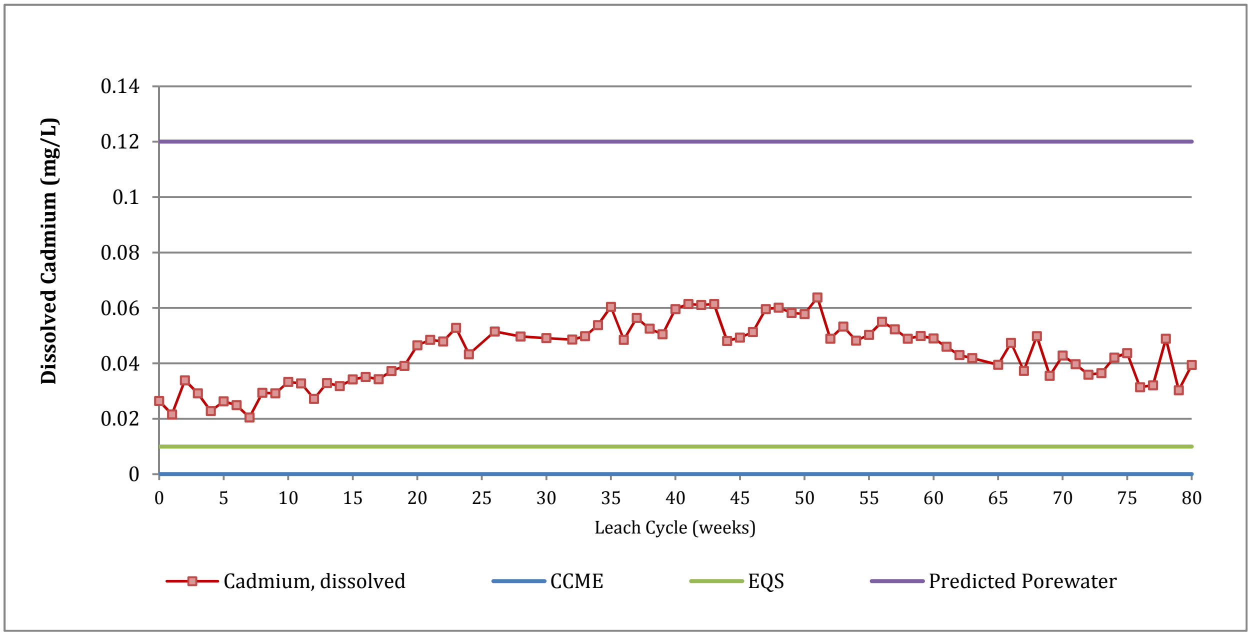


Figure 6-8 Humidity cell testing, dissolved cadmium

6.2.9 Copper

The maximum dissolved copper concentration of 0.0049 mg/L was observed in Week 0 of humidity cell testing. Week 1 through Week 13 report dissolved copper concentrations below detection limit (0.0005 mg/L in Weeks 1,2 and 13 and 0.00025 in Weeks 3 through 12). Concentrations were equal to the detection limitl in Week 19 and 20 followed by an increasing trend through to Week 68 with peaks of 0.00463 mg/L in Week 48 and 0.0045 in Week 68. Weeks 70 through 76 appear to indicate a downward trend with four consecutively decreasing copper values. However, this trend was succeeded by a higher concentration in Week 78. Dissolved copper was well below the EQS of 0.1 mg/L throughout humidity cell testing. Humidity cell data for dissolved copper is shown in Figure 6-9.

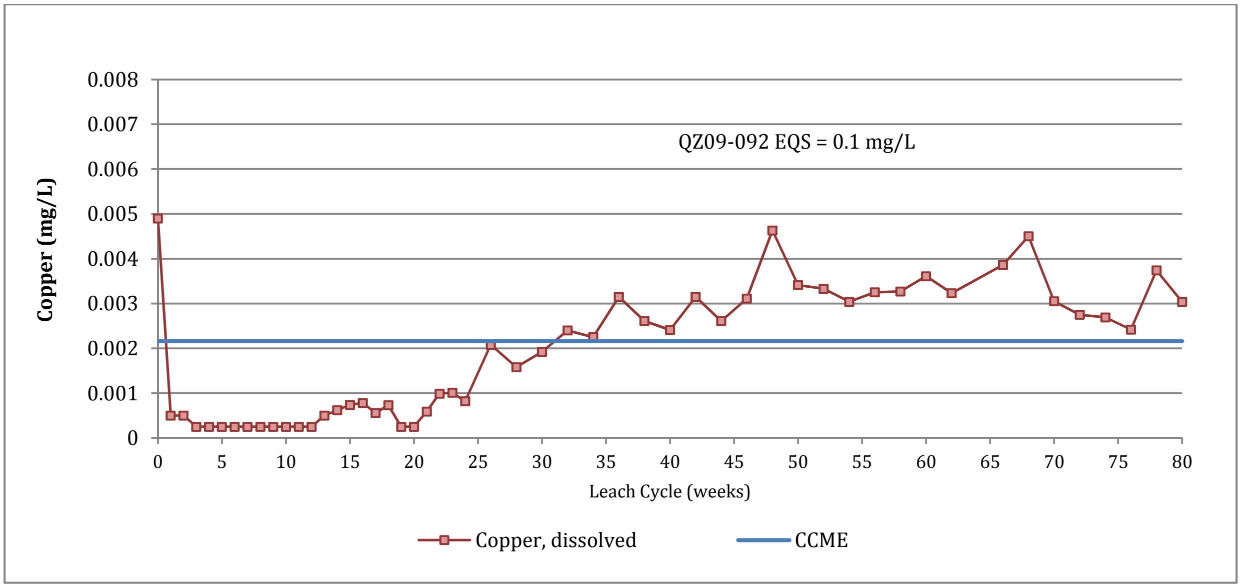


Figure 6-9 Humidity cell testing, dissolved copper

6.2.10 Leachate Metal Correlations

A positive correlation between zinc and cadmium in the leachate is evident and is demonstrated by plotting zinc versus cadmium (Figure 6-10). This is most likely attributed to the substitution of cadmium for zinc in Sphalerite.

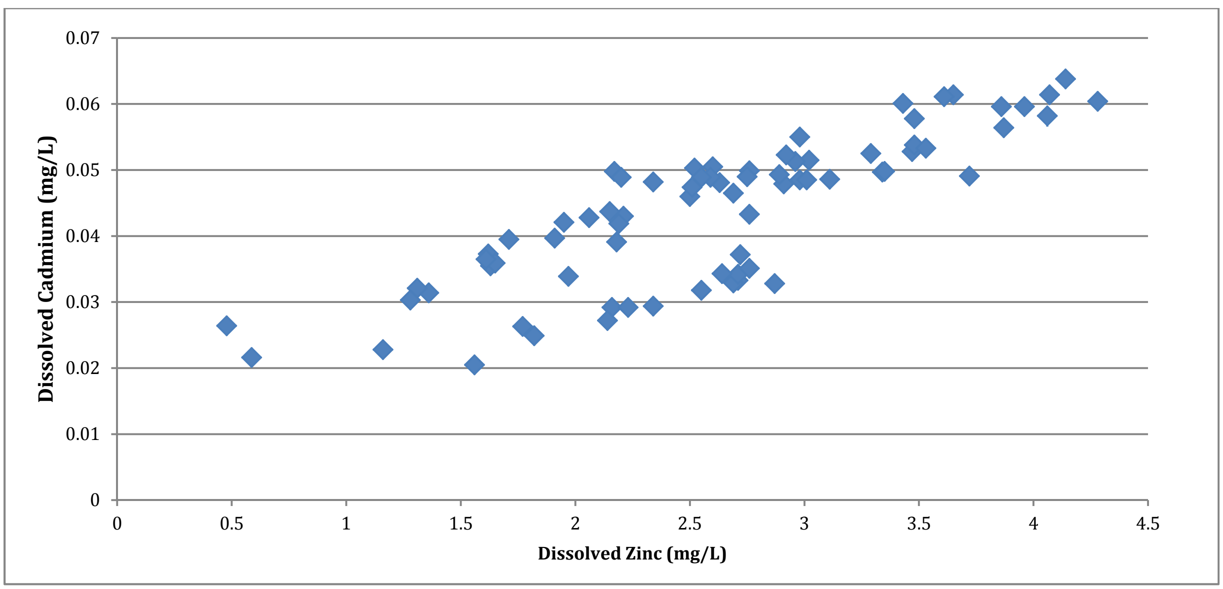


Figure 6-10 Dissolved zinc vs. dissolved cadmium in leachate

A positive correlation was also evident between arsenic and nickel and between copper and nickel. These relationships were more obvious after week 19 of humidity cell testing when more distinct trends began to develop. These are demonstrated in Figure 6-11 and Figure 6-12.

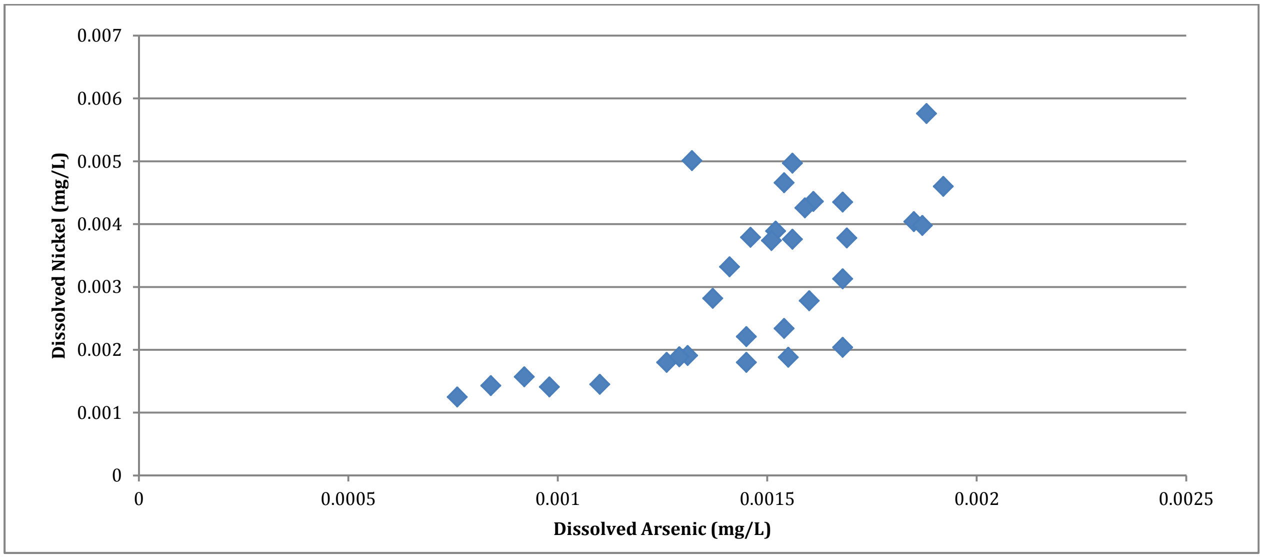


Figure 6-11 Dissolved arsenic vs. dissolved nickel in leachate

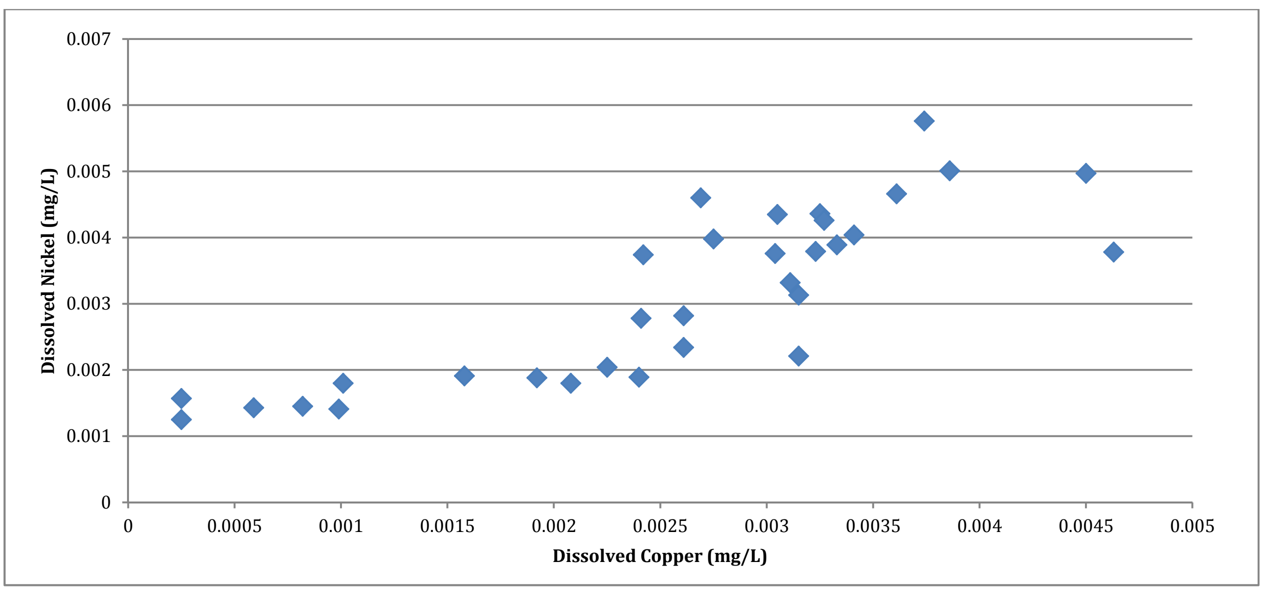


Figure 6-12 Dissolved copper vs. dissolved nickel in leachate

6.3 PHYSICAL CHARACTERIZATION

Physical characterization tests for the tailings were completed by EBA Engineering Ltd., which include: soil water characteristic curves, gradation, specific gravity and shear strength. The 2012 results of the physical characterisation tests is presented in Appendix 1.

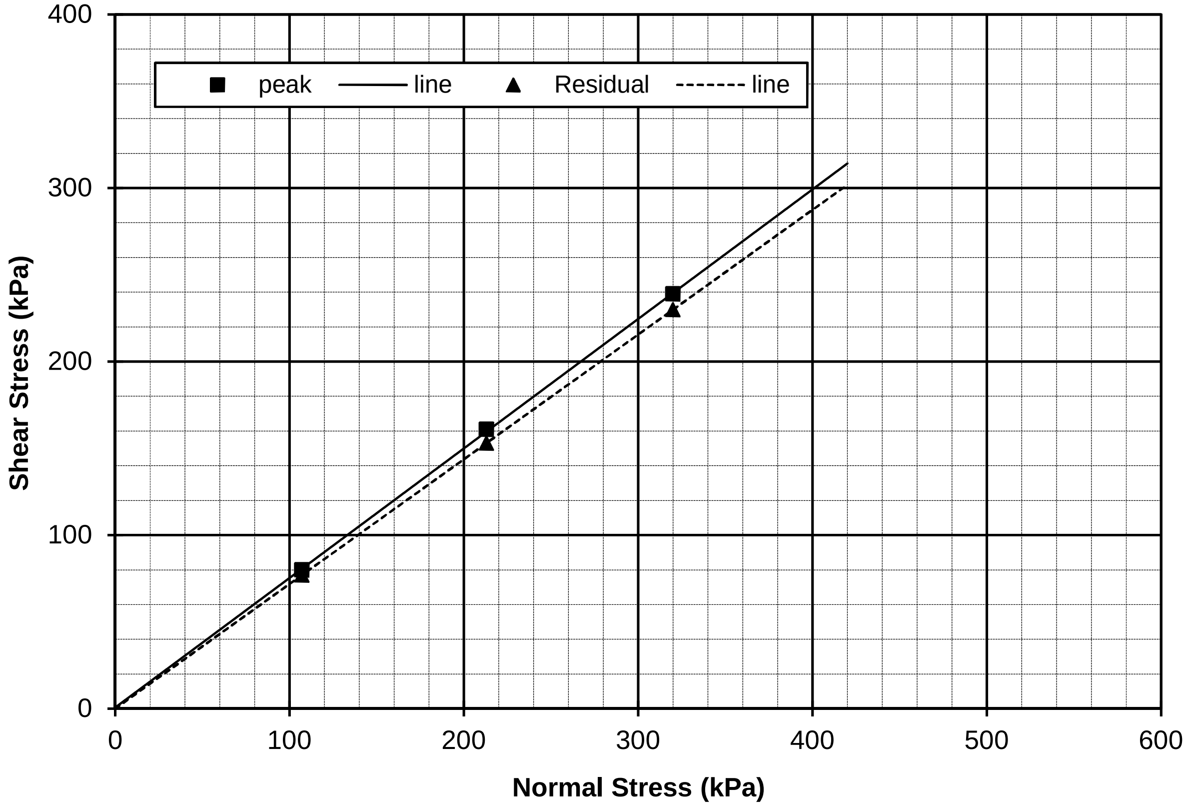
APPENDIX 1

2012 TAILINGS PHYSICAL CHARACTERISATION RESULTS

SUMMARY of DIRECT SHEAR TEST RESULTS

ASTM D3080

Project :	2012 Tailings Characterization Testing	Test Hole :	2012 - Quarter 1
Project No. :	**W14101702**	Depth:	
Client:	**Alexco Keno Hill Mining Corporation**	Date :	June 25, 2012
		Tested By:	SK



Inferred Shear Strength Parameters :-

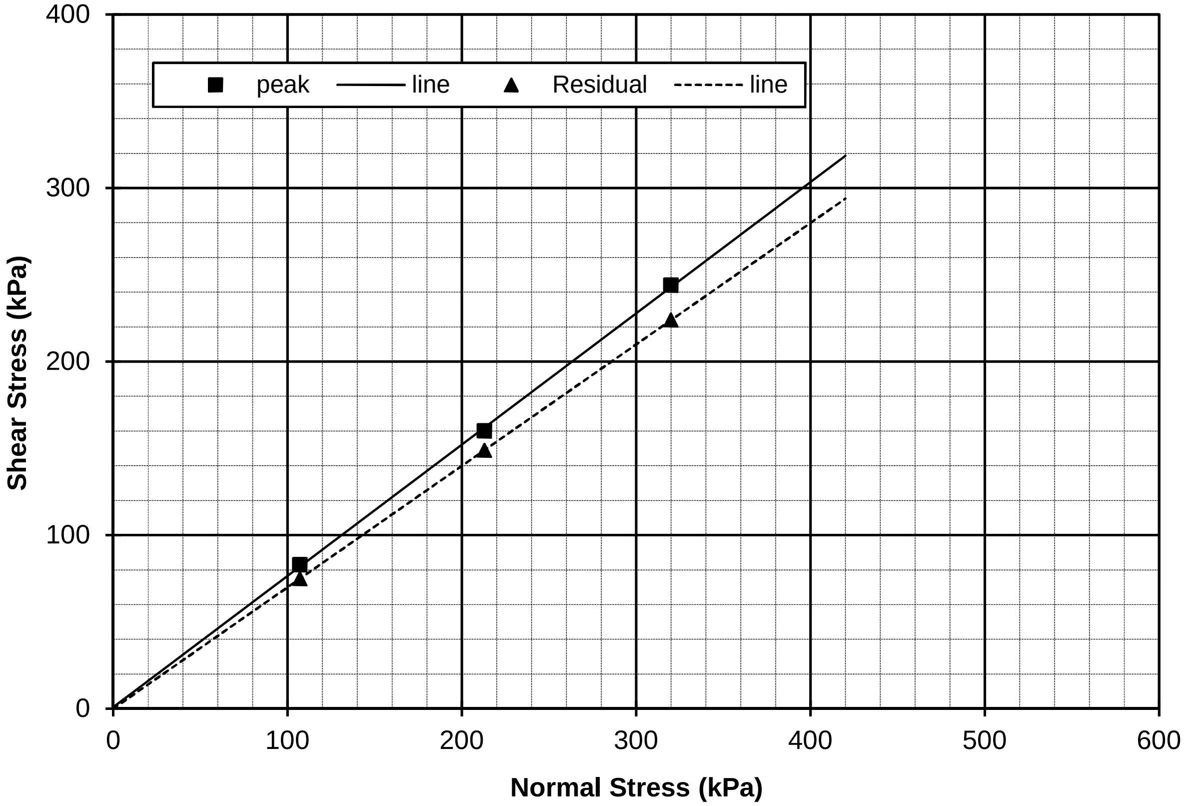
	Cohesion Intercept (kPa)	Inferred Angle of Shearing Resistance (Degrees)
Peak Strength:	0.8	36.7
Residual Strength:	0.1	35.7

Reviewed By: ______________________ P.Eng.

SUMMARY of DIRECT SHEAR TEST RESULTS

ASTM D3080

Project :	2012 Tailings Characterization Testing	Test Hole :	2012 - Quarter 2
Project No. :	**W14101702**	Depth:	
Client:	**Alexco Keno Hill Mining Corporation**	Date :	February 20, 2013
		Tested By:	SK



Inferred Shear Strength Parameters :-

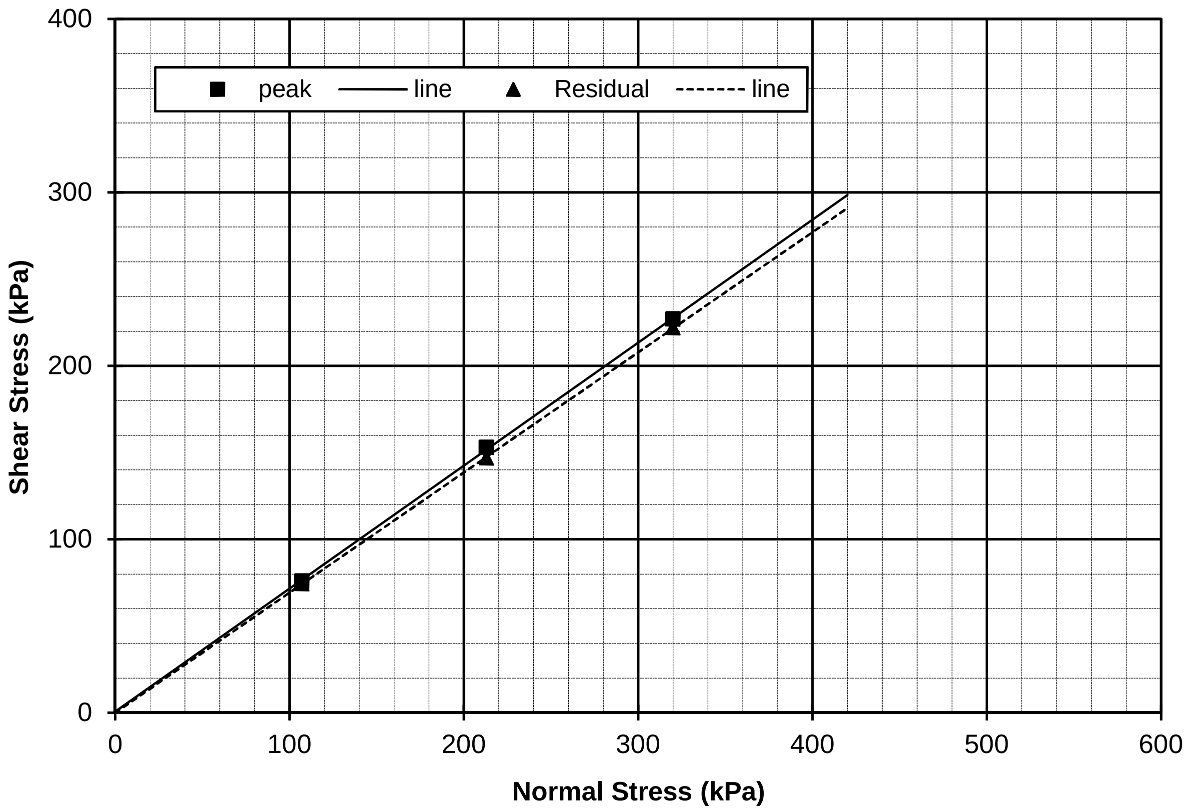
	Cohesion Intercept (kPa)	Inferred Angle of Shearing Resistance (Degrees)
Peak Strength:	1.1	37.1
Residual Strength:	0.1	35.0

Reviewed By: ______________________ P.Eng.

SUMMARY of DIRECT SHEAR TEST RESULTS

ASTM D3080

Project :	2012 Tailings Characterization Testing	Test Hole :	2012 - Quarter 3
Project No. :	**W14101702**	Depth:	
Client:	**Alexco Keno Hill Mining Corporation**	Date :	February 20, 2013
		Tested By:	SK



Inferred Shear Strength Parameters :-

	Cohesion Intercept (kPa)	Inferred Angle of Shearing Resistance (Degrees)
Peak Strength:	0.8	35.3
Residual Strength:	0.0	34.7

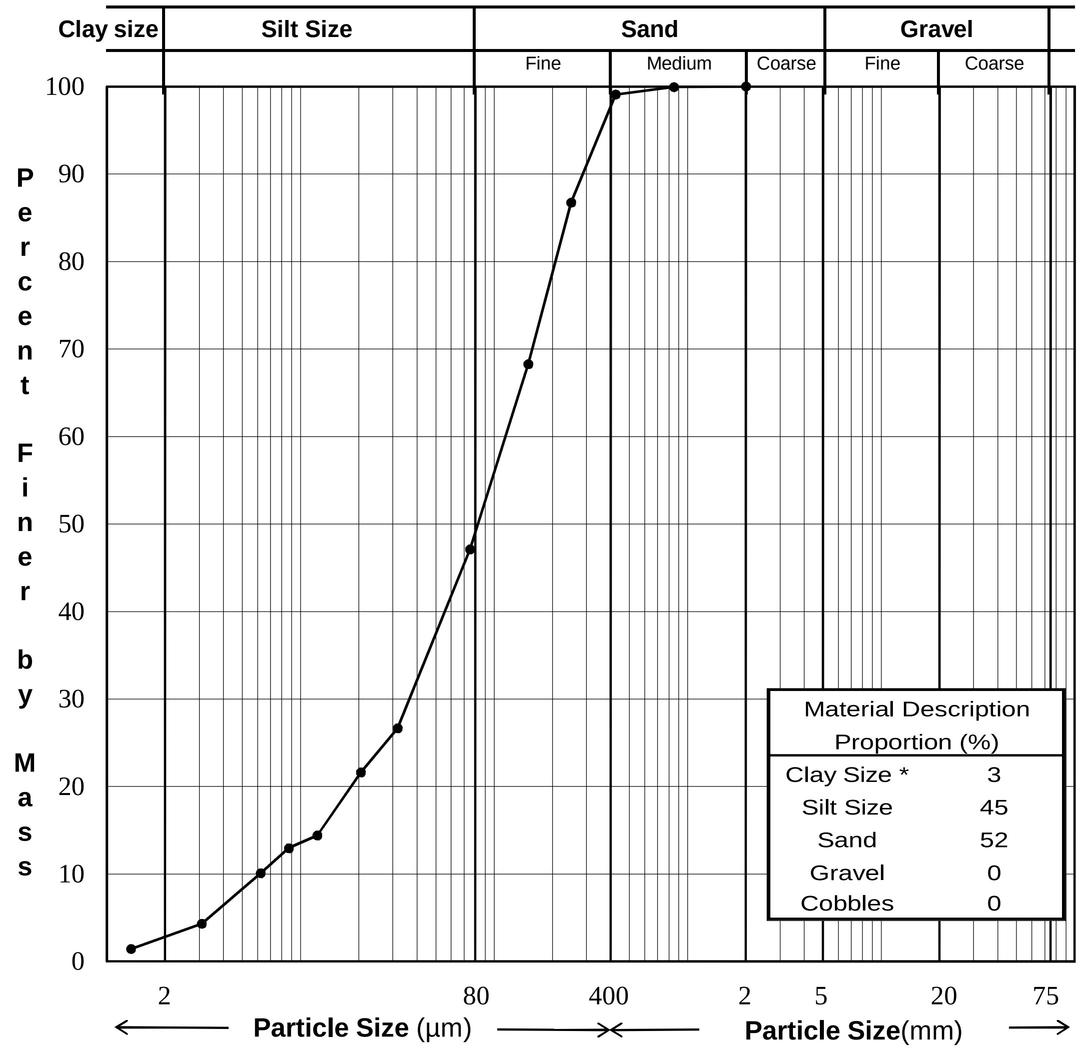
Reviewed By: ______________________ P.Eng.

PARTICLE SIZE ANALYSIS (Hydrometer) TEST REPORT

ASTM D422

Project:	2012 Tailings Characterization Testing - Keno	Sample No.:	January 2012
Client:	Alexco Keno Hill Mining Corporation	Borehole/ TP:	
Project No.:	W14101702	Depth:	
Location:		Date Tested	April 13, 2012
Description **:	SAND and SILT, trace clay	Tested By:	CH

Particle Size	Percent Passing
100 mm	
75 mm	
50 mm	
38 mm	
25 mm	
19 mm	
13 mm	
10 mm	
5 mm	
2 mm	100
850 µm	100
425 µm	99
250 µm	87
150 µm	68
75 µm	47
32 µm	27
21 µm	22
12 µm	14
9 µm	13
6 µm	10
3 µm	4
1 µm	1



Material Description	Proportion (%)
Clay Size *	3
Silt Size	45
Sand	52
Gravel	0
Cobbles	0

Remarks: * The upper clay size of 2 µm is as per the Canadian Foundation Manual.
** The description is behaviour based & subject to EBA description protocols

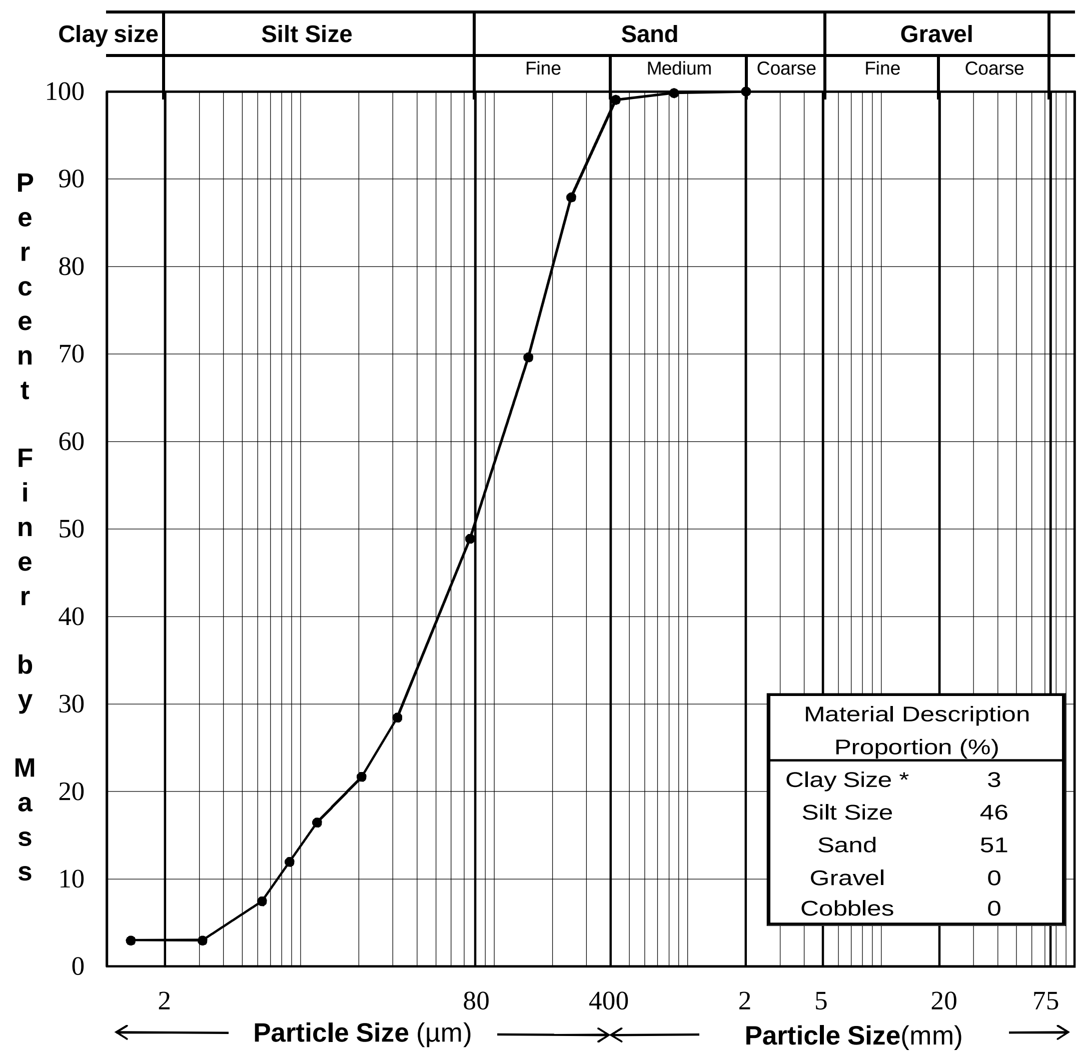
Reviewed By: ______________________________ P.Eng.

PARTICLE SIZE ANALYSIS (Hydrometer) TEST REPORT

ASTM D422

Project:	2012 Tailings Characterization Testing - Keno	Sample No.:	February 2012
Client:	Alexco Keno Hill Mining Corporation	Borehole/ TP:	
Project No.:	W14101702	Depth:	
Location:		Date Tested	April 13, 2012
Description **:	SAND and SILT, trace clay	Tested By:	CH

Particle Size	Percent Passing
100 mm	
75 mm	
50 mm	
38 mm	
25 mm	
19 mm	
13 mm	
10 mm	
5 mm	
2 mm	100
850 µm	100
425 µm	99
250 µm	88
150 µm	70
75 µm	49
32 µm	28
21 µm	22
12 µm	16
9 µm	12
6 µm	7
3 µm	3
1 µm	3



Material Description	Proportion (%)
Clay Size *	3
Silt Size	46
Sand	51
Gravel	0
Cobbles	0

Remarks: * The upper clay size of 2 µm is as per the Canadian Foundation Manual.
** The description is behaviour based & subject to EBA description protocols

Reviewed By: ______________________ P.Eng.

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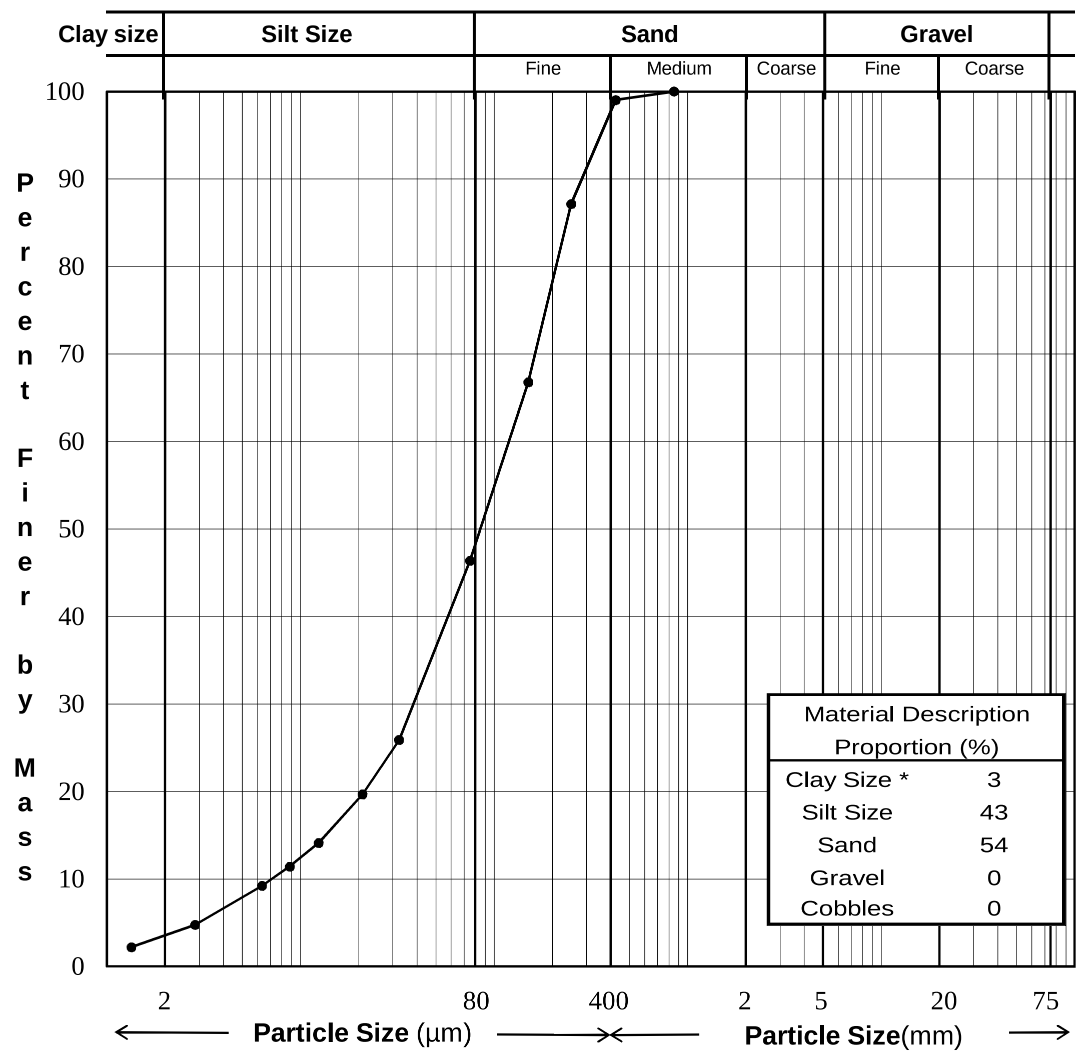
PARTICLE SIZE ANALYSIS (Hydrometer) TEST REPORT

ASTM D422

Project:	2012 Tailings Characterization Testing - Keno	Sample No.:	March 2012
Client:	Alexco Keno Hill Mining Corporation	Borehole/ TP:	
Project No.:	W14101702	Depth:	
Location:		Date Tested	June 7, 2012
Description **:	SILT & SAND, trace clay.	Tested By:	OZ & KTP

Particle Size	Percent Passing
100 mm	
75 mm	
50 mm	
38 mm	
25 mm	
19 mm	
13 mm	
10 mm	
5 mm	
2 mm	
850 µm	100
425 µm	99
250 µm	87
150 µm	67
75 µm	46
32 µm	26
21 µm	20
12 µm	14
9 µm	11
6 µm	9
3 µm	5
1 µm	2



Material Description Proportion (%)	
Clay Size *	3
Silt Size	43
Sand	54
Gravel	0
Cobbles	0

Remarks: * The upper clay size of 2 µm is as per the Canadian Foundation Manual.
** The description is behaviour based & subject to EBA description protocols.

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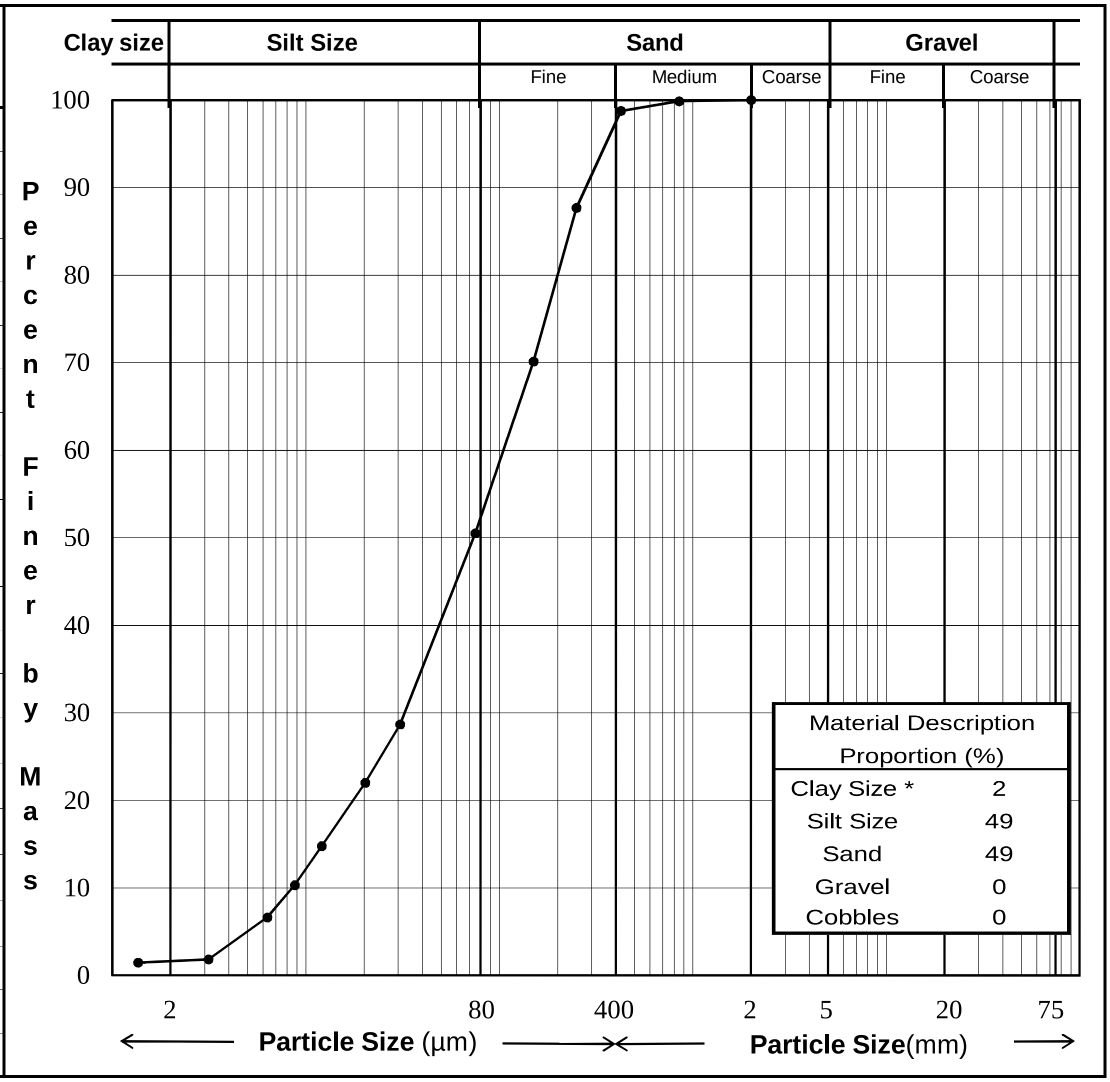
PARTICLE SIZE ANALYSIS (Hydrometer) TEST REPORT

ASTM D422

Project:	2012 Tailings Characterization Testing - Keno	Sample No.:	April 2012
Client:	Alexco Keno Hill Mining Corporation	Borehole/ TP:	
Project No.:	W14101702	Depth:	
Location:		Date Tested	January 30, 2013
Description **:	SILT and SAND, trace clay.	Tested By:	KTP

Particle Size	Percent Passing
100 mm	
75 mm	
50 mm	
38 mm	
25 mm	
19 mm	
13 mm	
10 mm	
5 mm	
2 mm	100
850 µm	100
425 µm	99
250 µm	88
150 µm	70
75 µm	50
31 µm	29
20 µm	22
12 µm	15
9 µm	10
6 µm	7
3 µm	2
1 µm	1



Remarks: * The upper clay size of 2 µm is as per the Canadian Foundation Manual.

** The description is behaviour based & subject to EBA description protocols

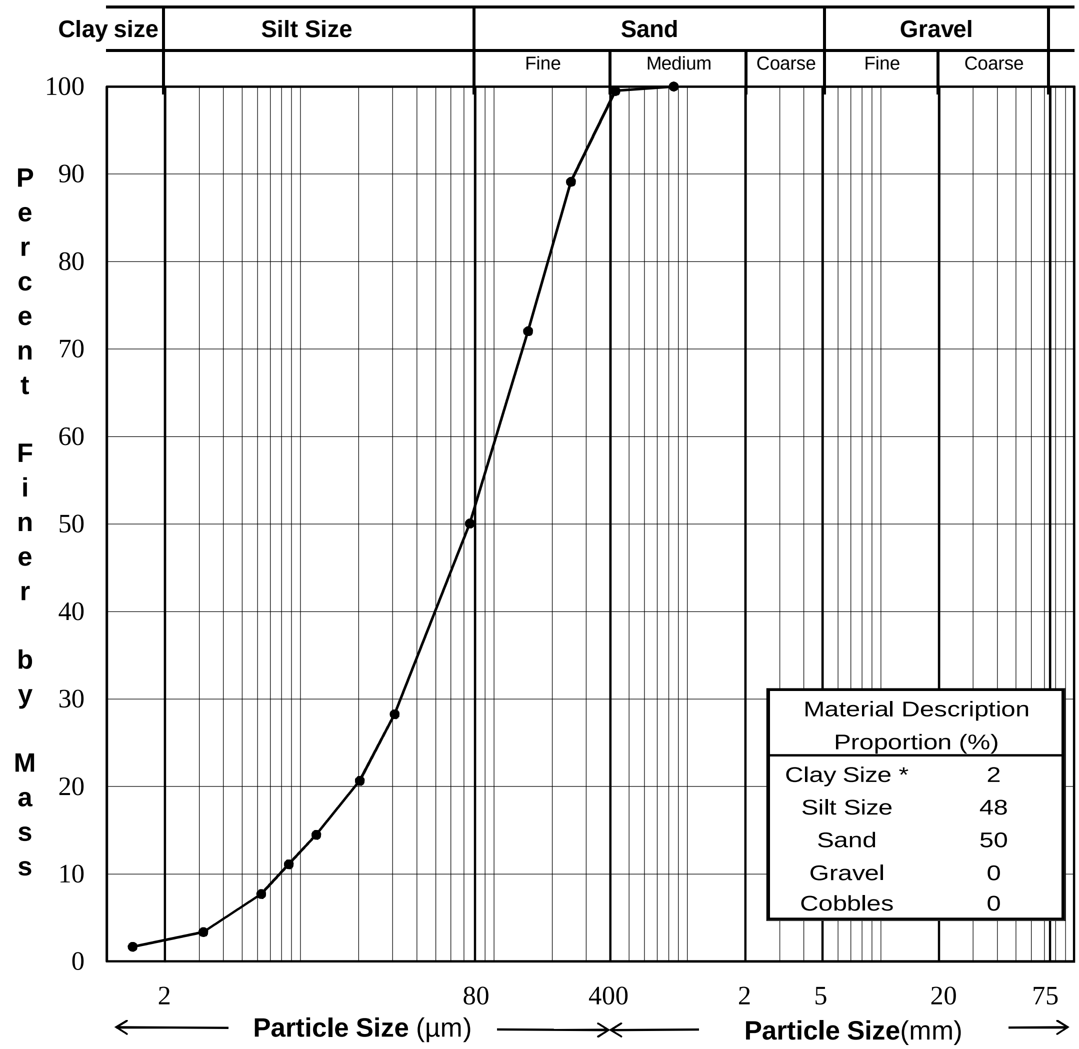
Reviewed By: ______________________ P.Eng.

PARTICLE SIZE ANALYSIS (Hydrometer) TEST REPORT

ASTM D422

Project:	2012 Tailings Characterization Testing - Keno	Sample No.:	May 2012
Client:	Alexco Keno Hill Mining Corporation	Borehole/ TP:	
Project No.:	W14101702	Depth:	
Location:		Date Tested	January 30, 2013
Description **:	SAND and SILT, trace clay.	Tested By:	KTP

Particle Size	Percent Passing
100 mm	
75 mm	
50 mm	
38 mm	
25 mm	
19 mm	
13 mm	
10 mm	
5 mm	
2 mm	
850 µm	100
425 µm	100
250 µm	89
150 µm	72
75 µm	50
31 µm	28
20 µm	21
12 µm	15
9 µm	11
6 µm	8
3 µm	3
1 µm	2



Material Description	Proportion (%)
Clay Size *	2
Silt Size	48
Sand	50
Gravel	0
Cobbles	0

Remarks: * The upper clay size of 2 µm is as per the Canadian Foundation Manual.
** The description is behaviour based & subject to EBA description protocols.

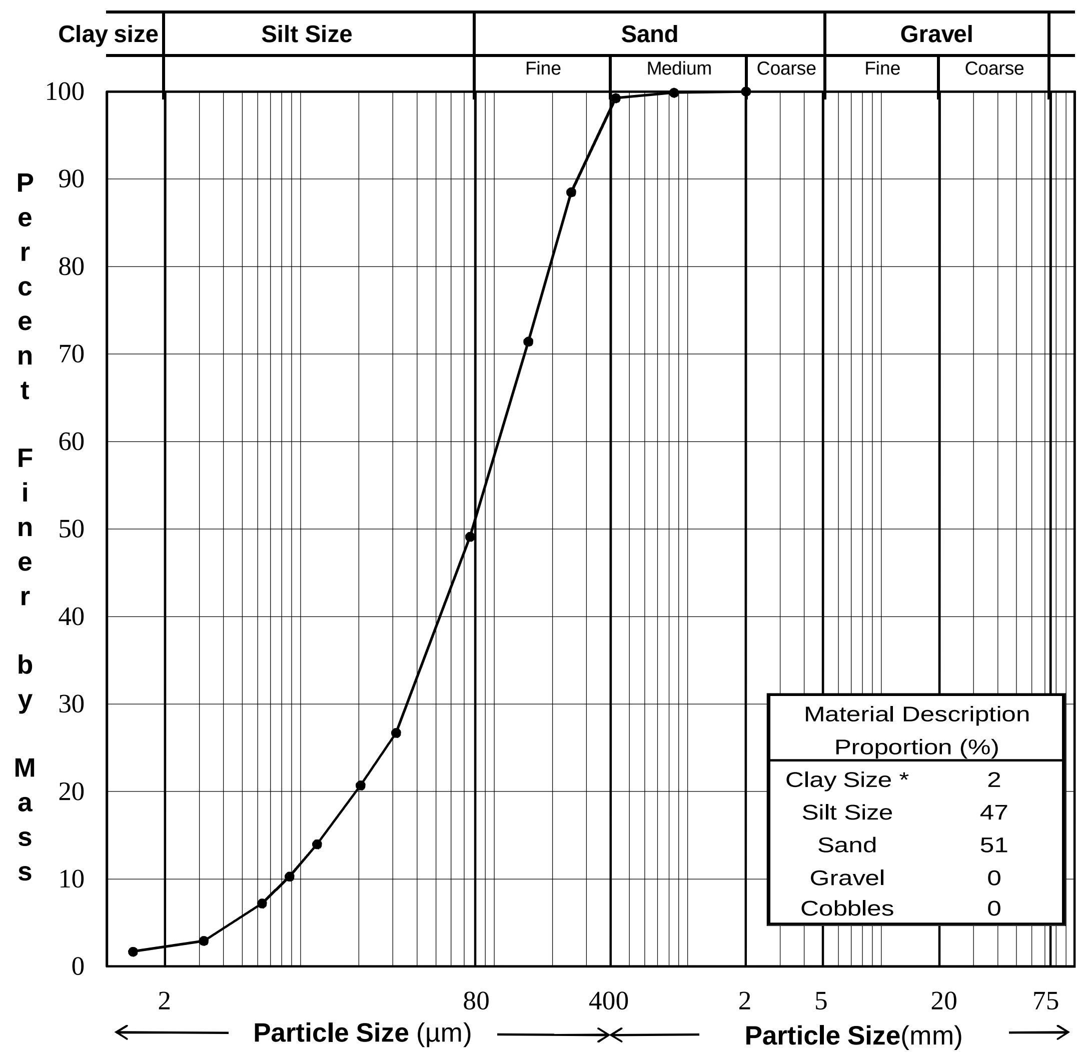
Reviewed By: ______________________ P.Eng.

PARTICLE SIZE ANALYSIS (Hydrometer) TEST REPORT

ASTM D422

Project:	2012 Tailings Characterization Testing - Keno	Sample No.:	June 2012
Client:	Alexco Keno Hill Mining Corporation	Borehole/ TP:	
Project No.:	W14101702	Depth:	
Location:		Date Tested	January 30, 2013
Description **:	SAND and SILT, trace clay.	Tested By:	KTP

Particle Size	Percent Passing
100 mm	
75 mm	
50 mm	
38 mm	
25 mm	
19 mm	
13 mm	
10 mm	
5 mm	
2 mm	100
850 µm	100
425 µm	99
250 µm	88
150 µm	71
75 µm	49
31 µm	27
20 µm	21
12 µm	14
9 µm	10
6 µm	7
3 µm	3
1 µm	2



Material Description	Proportion (%)
Clay Size *	2
Silt Size	47
Sand	51
Gravel	0
Cobbles	0

Remarks: * The upper clay size of 2 µm is as per the Canadian Foundation Manual.
** The description is behaviour based & subject to EBA description protocols

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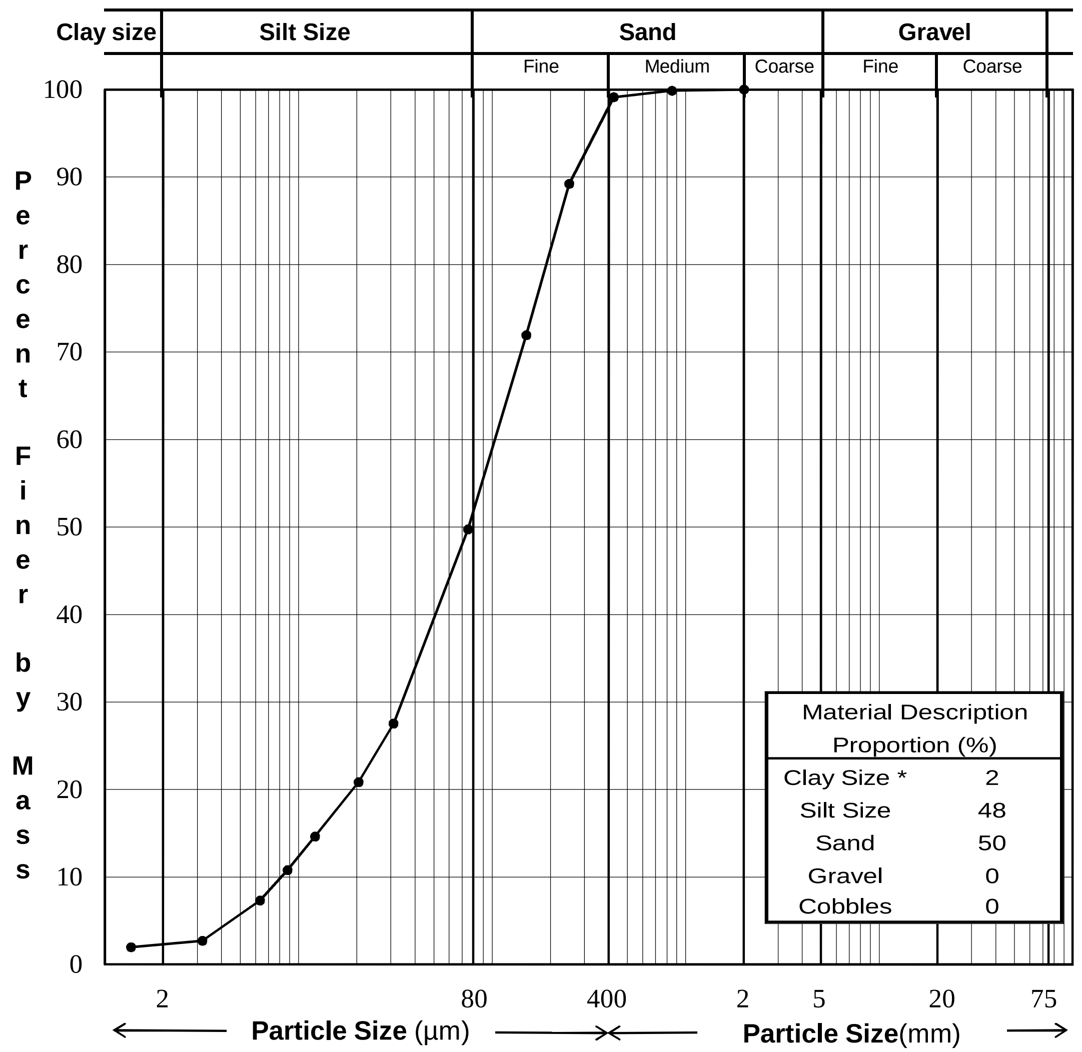
PARTICLE SIZE ANALYSIS (Hydrometer) TEST REPORT

ASTM D422

Project:	2012 Tailings Characterization Testing - Keno	Sample No.:	July 2012
Client:	Alexco Keno Hill Mining Corporation	Borehole/ TP:	
Project No.:	W14101702	Depth:	
Location:		Date Tested	January 30, 2013
Description **:	SAND and SILT, trace clay.	Tested By:	KTP

Particle Size	Percent Passing
100 mm	
75 mm	
50 mm	
38 mm	
25 mm	
19 mm	
13 mm	
10 mm	
5 mm	
2 mm	100
850 µm	100
425 µm	99
250 µm	89
150 µm	72
75 µm	50
31 µm	28
20 µm	21
12 µm	15
9 µm	11
6 µm	7
3 µm	3
1 µm	2



Material Description	Proportion (%)
Clay Size *	2
Silt Size	48
Sand	50
Gravel	0
Cobbles	0

Remarks: * The upper clay size of 2 µm is as per the Canadian Foundation Manual.
** The description is behaviour based & subject to EBA description protocols

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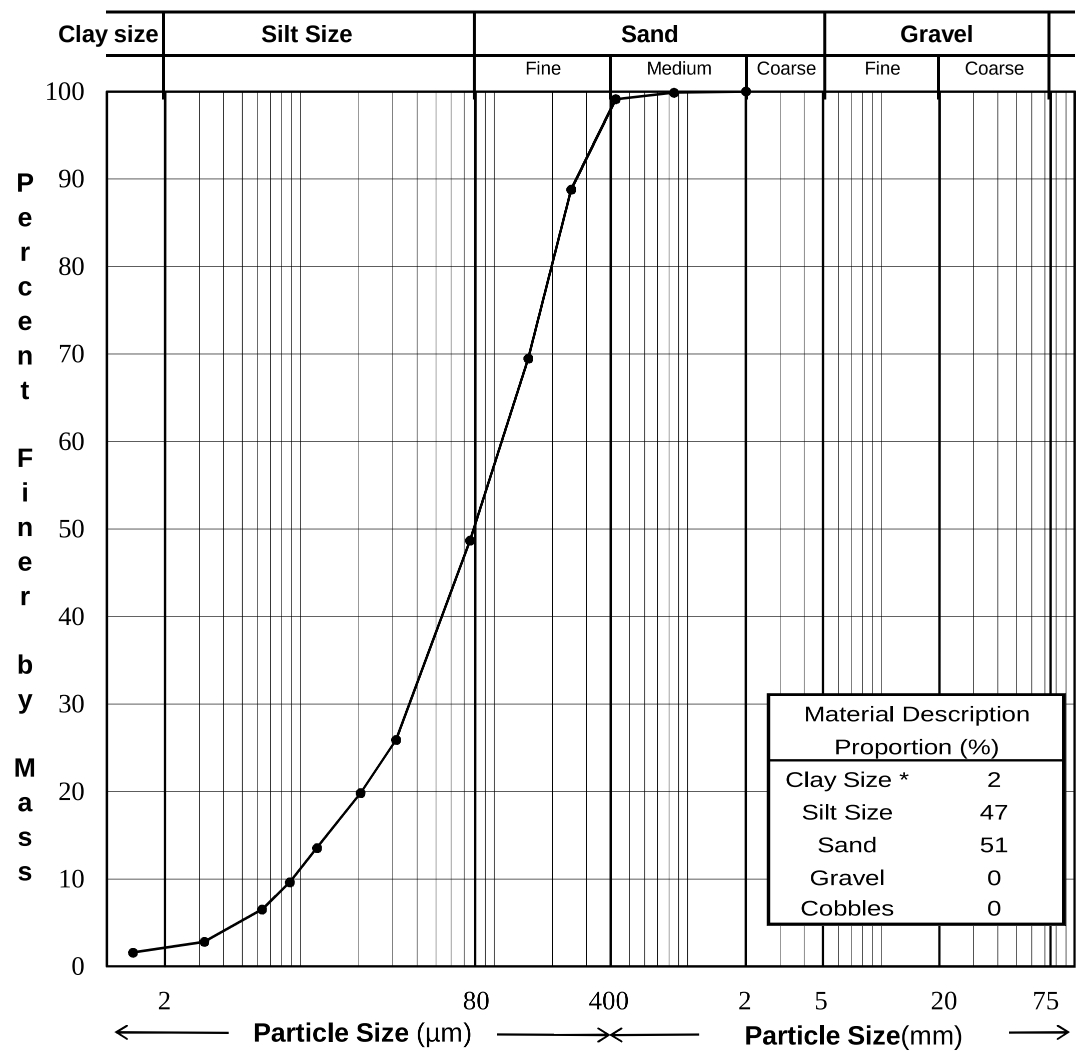
PARTICLE SIZE ANALYSIS (Hydrometer) TEST REPORT

ASTM D422

Project:	2012 Tailings Characterization Testing - Keno	Sample No.:	August 2012
Client:	Alexco Keno Hill Mining Corporation	Borehole/ TP:	
Project No.:	W14101702	Depth:	
Location:		Date Tested	January 30, 2013
Description **:	SAND and SILT, trace clay.	Tested By:	KTP

Particle Size	Percent Passing
100 mm	
75 mm	
50 mm	
38 mm	
25 mm	
19 mm	
13 mm	
10 mm	
5 mm	
2 mm	100
850 µm	100
425 µm	99
250 µm	89
150 µm	69
75 µm	49
31 µm	26
20 µm	20
12 µm	14
9 µm	10
6 µm	7
3 µm	3
1 µm	2



Material Description	Proportion (%)
Clay Size *	2
Silt Size	47
Sand	51
Gravel	0
Cobbles	0

Remarks: * The upper clay size of 2 µm is as per the Canadian Foundation Manual.
** The description is behaviour based & subject to EBA description protocols

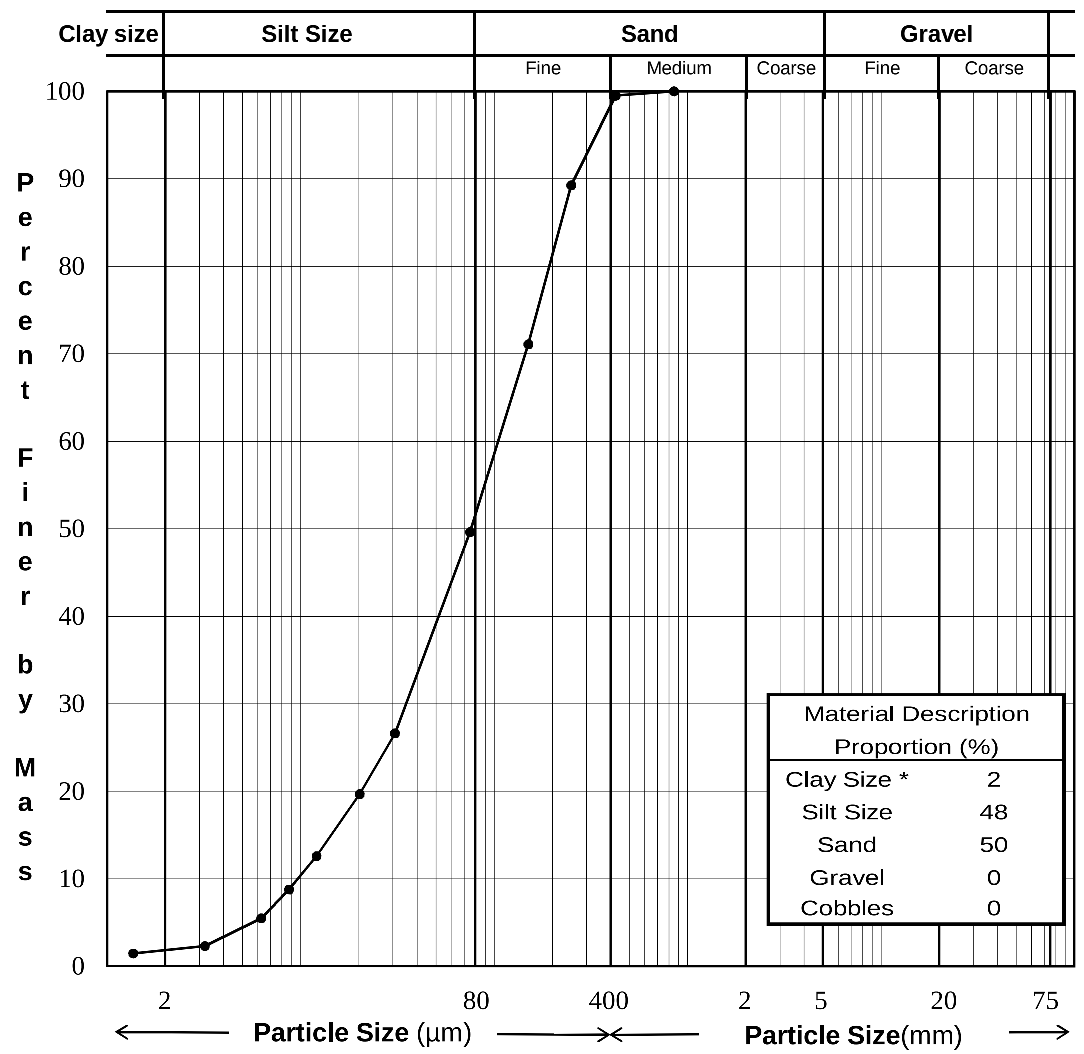
Reviewed By: ______________________ P.Eng.

PARTICLE SIZE ANALYSIS (Hydrometer) TEST REPORT

ASTM D422

Project:	2012 Tailings Characterization Testing - Keno	Sample No.:	September 2012
Client:	Alexco Keno Hill Mining Corporation	Borehole/ TP:	
Project No.:	W14101702	Depth:	
Location:		Date Tested	January 30, 2013
Description **:	SAND and SILT, trace clay.	Tested By:	KTP

Particle Size	Percent Passing
100 mm	
75 mm	
50 mm	
38 mm	
25 mm	
19 mm	
13 mm	
10 mm	
5 mm	
2 mm	
850 µm	100
425 µm	100
250 µm	89
150 µm	71
75 µm	50
31 µm	27
20 µm	20
12 µm	13
9 µm	9
6 µm	6
3 µm	2
1 µm	1



Remarks: * The upper clay size of 2 µm is as per the Canadian Foundation Manual.
** The description is behaviour based & subject to EBA description protocols

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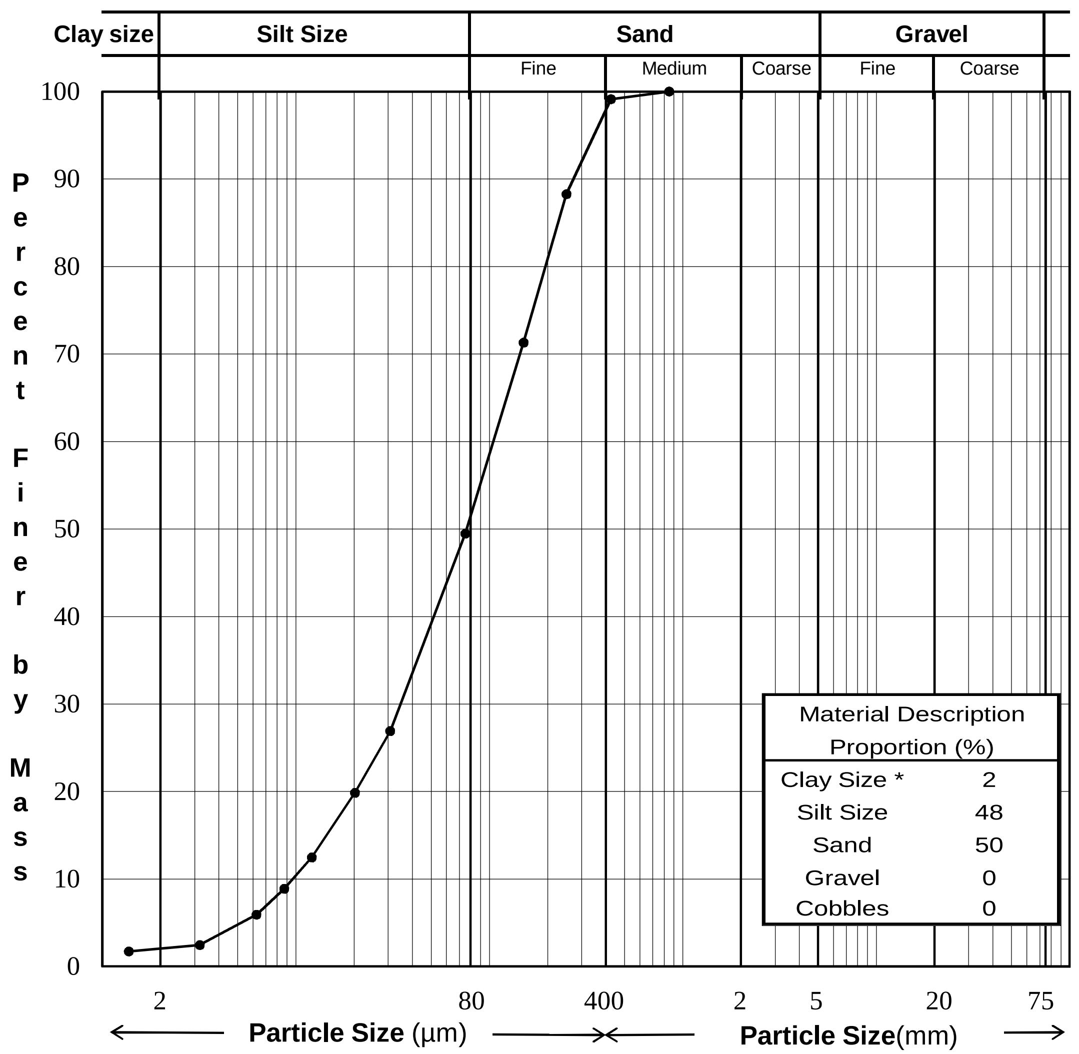
PARTICLE SIZE ANALYSIS (Hydrometer) TEST REPORT

ASTM D422

Project:	2012 Tailings Characterization Testing - Keno	Sample No.:	October 2012
Client:	Alexco Keno Hill Mining Corporation	Borehole/ TP:	
Project No.:	W14101702	Depth:	
Location:		Date Tested	January 30, 2013
Description **:	SAND and SILT, trace clay.	Tested By:	KTP

Particle Size	Percent Passing
100 mm	
75 mm	
50 mm	
38 mm	
25 mm	
19 mm	
13 mm	
10 mm	
5 mm	
2 mm	
850 µm	100
425 µm	99
250 µm	88
150 µm	71
75 µm	50
31 µm	27
20 µm	20
12 µm	12
9 µm	9
6 µm	6
3 µm	2
1 µm	2



Material Description	Proportion (%)
Clay Size *	2
Silt Size	48
Sand	50
Gravel	0
Cobbles	0

Remarks: * The upper clay size of 2 µm is as per the Canadian Foundation Manual.

** The description is behaviour based & subject to EBA description protocols

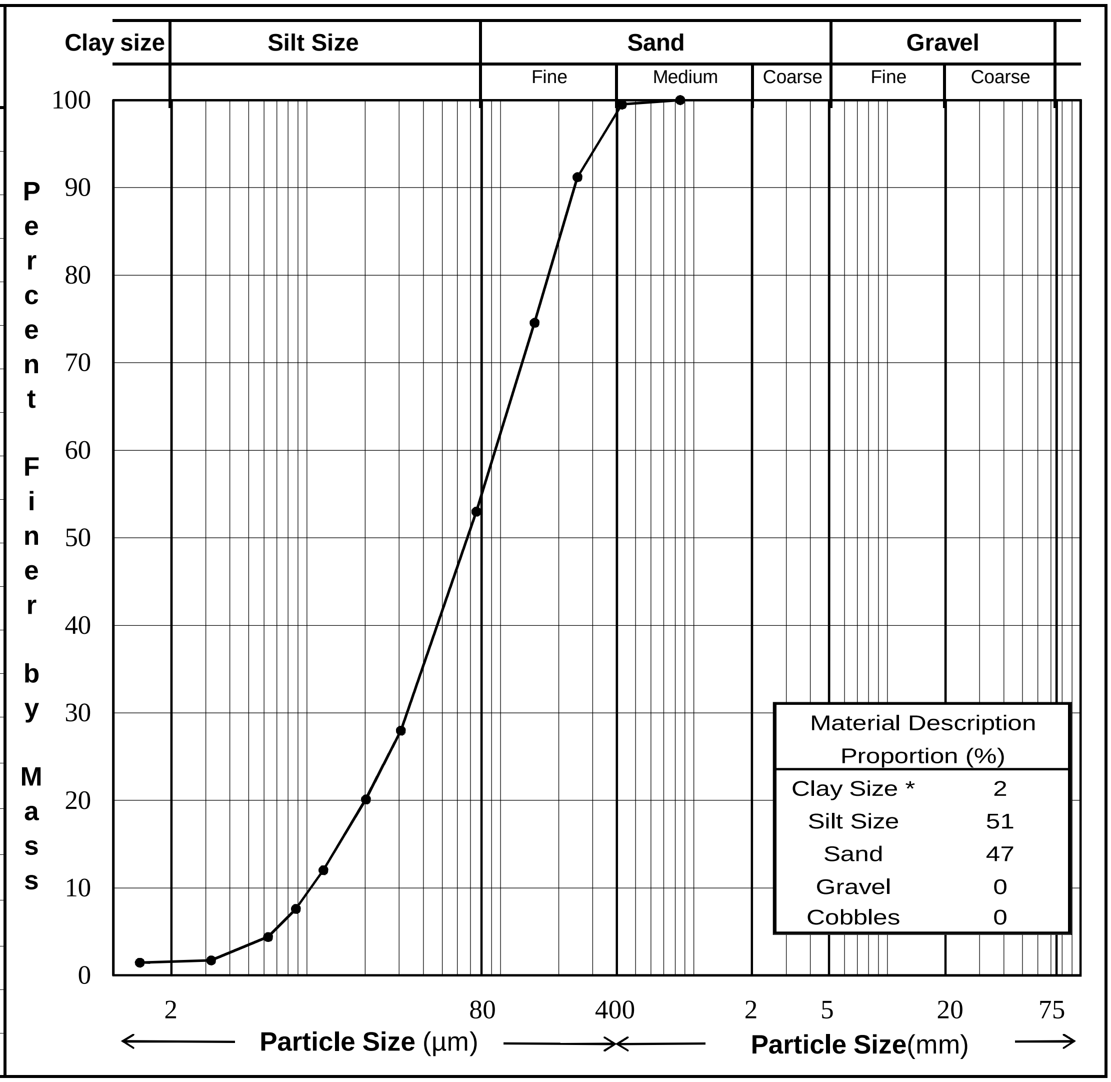
Reviewed By: ____________________ P.Eng.

PARTICLE SIZE ANALYSIS (Hydrometer) TEST REPORT

ASTM D422

Project:	2012 Tailings Characterization Testing - Keno	Sample No.:	November 2012
Client:	Alexco Keno Hill Mining Corporation	Borehole/ TP:	
Project No.:	W14101702	Depth:	
Location:		Date Tested	January 30, 2013
Description **:	SILT and SAND, trace clay.	Tested By:	KTP

Particle Size	Percent Passing
100 mm	
75 mm	
50 mm	
38 mm	
25 mm	
19 mm	
13 mm	
10 mm	
5 mm	
2 mm	
850 µm	100
425 µm	100
250 µm	91
150 µm	75
75 µm	53
31 µm	28
20 µm	20
12 µm	12
9 µm	8
6 µm	4
3 µm	2
1 µm	1



Material Description Proportion (%)	
Clay Size *	2
Silt Size	51
Sand	47
Gravel	0
Cobbles	0

Remarks: * The upper clay size of 2 µm is as per the Canadian Foundation Manual.

** The description is behaviour based & subject to EBA description protocols

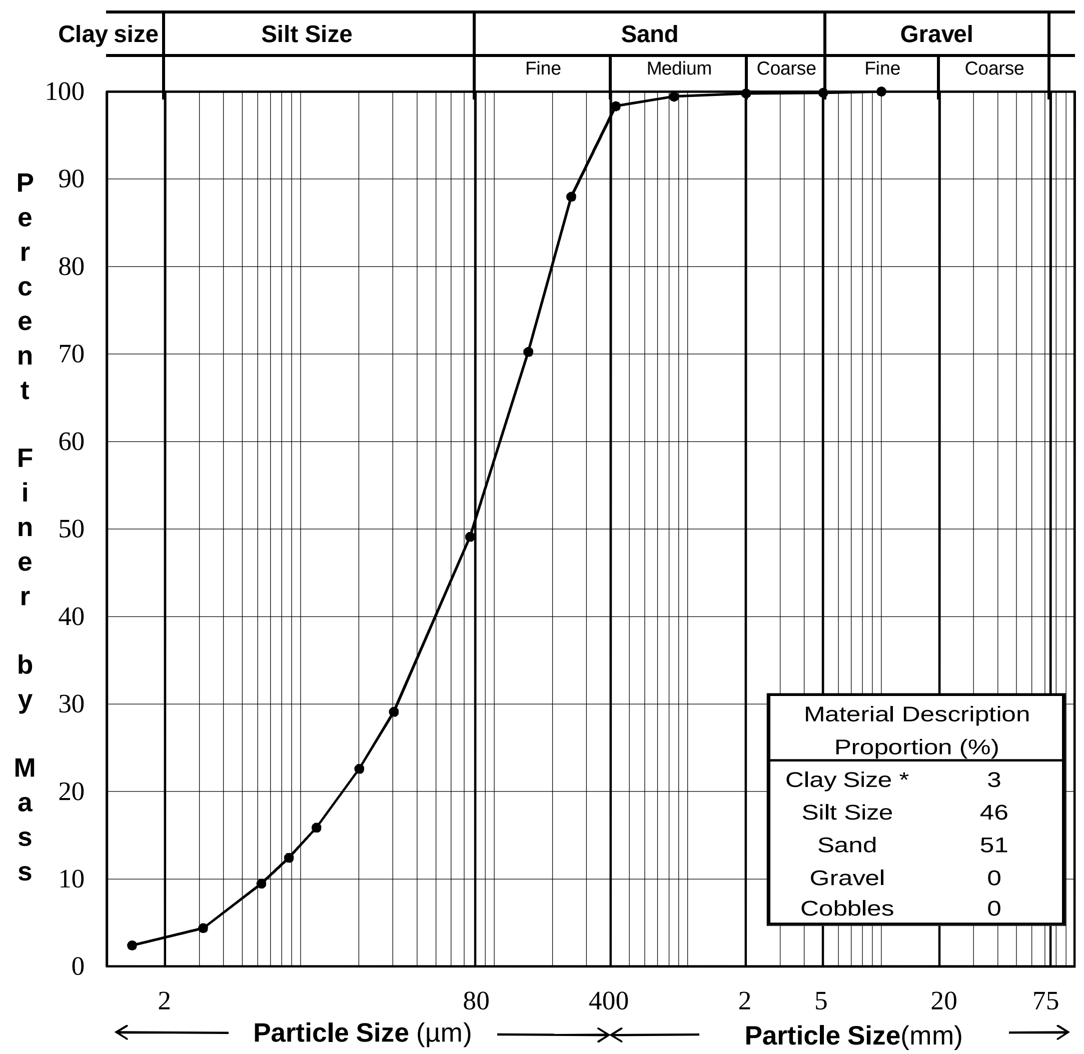
Reviewed By: ______________________ P.Eng.

PARTICLE SIZE ANALYSIS (Hydrometer) TEST REPORT

ASTM D422

Project:	2012 Tailings Characterization Testing - Keno	Sample No.:	December 2012
Client:	Alexco Keno Hill Mining Corporation	Borehole/ TP:	
Project No.:	W14101702	Depth:	
Location:		Date Tested	February 11, 2013
Description **:	SAND and SILT, trace clay.	Tested By:	KTP

Particle Size	Percent Passing
100 mm	
75 mm	
50 mm	
38 mm	
25 mm	
19 mm	
13 mm	
10 mm	100
5 mm	100
2 mm	100
850 µm	99
425 µm	98
250 µm	88
150 µm	70
75 µm	49
30 µm	29
20 µm	23
12 µm	16
9 µm	12
6 µm	9
3 µm	4
1 µm	2



Material Description	Proportion (%)
Clay Size *	3
Silt Size	46
Sand	51
Gravel	0
Cobbles	0

Remarks: * The upper clay size of 2 µm is as per the Canadian Foundation Manual.

** The description is behaviour based & subject to EBA description protocols

Reviewed By: ______________________ P.Eng.

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SPECIFIC GRAVITY OF SOIL SOLIDS BY WATER PYCNOMETER

ASTM D854

Project: 2012 Tailings Characterization Testing - Keno

Project No.: W14101702

Client: Alexco Keno Hill Mining Corporation

Date Tested:

Tested By:

Test Hole Number	Depth (m)	Average Specific Gravity @ 20ºC	Soil Description Type, constituents/composition, structure, moisture, consistency, plasticity, colour, odour, inclusions.
Jan. 2012	-	3.077	SAND and SILT, trace clay
Feb. 2012	-	3.133	SAND and SILT, trace clay
Mar. 2012	-	3.191	SILT and SAND, trace clay
Apr. 2012	-	3.003	SILT and SAND, trace clay
May 2012	-	3.042	SAND and SILT, trace clay
Jun. 2012	-	3.115	SAND and SILT, trace clay
Jul. 2012	-	3.112	SAND and SILT, trace clay
Aug. 2012	-	3.109	SAND and SILT, trace clay
Sep. 2012	-	3.033	SAND and SILT, trace clay
Oct. 2012	-	3.017	SAND and SILT, trace clay
Nov. 2012	-	2.997	SILT and SAND, trace clay
Dec. 2012	-	2.971	SAND and SILT, trace clay

Reviewed By: ______________________ P.Eng.

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