Alexco Resource Canada Corp.

Waste Rock Metals and Acid Base Accounting Testing Plan

Water Use Licence QZ07-078

October 2008

Prepared by:

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1.0 INTRODUCTION

1.1 Purpose of Plan

This plan is submitted to fulfill the condition set out in Section 24 of Water Licence QZ07-078 issued to Alexco Resource Canada Corp. on October 3, 2008:

> *"The Licensee shall, within 30 days of the effective date of this licence, submit a plan for metals and acid base accounting analyses of waste rock removed from the mine.*
>
> *a) The plan will identify testing and sampling methodology and, at a minimum, meet the tests per tonne frequency as described in Exhibit 1.2.8 of the Application.*
>
> *b) The plan shall indicate the time lag from excavation to testing.*
>
> *c) At a minimum, the annual testing completed will be representative of all new excavation during that given year."*

Proposed waste rock management practices were outlined in the Project Proposal submitted to Yukon Environmental and Socio-Economic Assessment Board (YESAB) on February 6, 2008 in Section 2.5.1 and in the Waste Rock Management Plan (Appendix D) of the Project Proposal. These guidelines have been successfully put into practice in managing waste rock from Bellekeno East Portal and Bellekeno 625. This plan augments those presented in the Project Proposal by clarifying testing and sampling methodology. In addition, it sets out practices for ICP and Acid Base Accounting (ABA) analysis of waste rock exposed during the Bellekeno Advanced Exploration and Development Program.

Geochemical and ABA testing of waste rock forms an important component of the waste rock management program. The purpose of this testing is to provide additional verification of the effectiveness of the field screening criteria (see Table 1) designed to distinguishing Potentially Acidic and/or Metal-Leaching (PAML) from geochemically benign, or Non-Acidic and/or Metal Leaching (Non-AML) waste rock. This Waste Rock Testing Plan will fulfill the following objectives:

- Review the method in which waste rock is sampled and classified using field screening criteria;
- Specify ICP and ABA sample selection and compositing practices;
- Specify the sampling schedule for both ICP and ABA analyses based on a per tonnage basis;
- Specify the maximum time lag between:
  - Blasting of a new face and testing/field screening;
  - Total time between exposure of a new face and receipt of analysis from a certified analytical laboratory;
- Specify analytical methods
- Specify reporting practices.

2.0 SAMPLING METHODS

The Waste Rock Management Program *Face Sampling Method* proposed in Section 2.5.1 of the Project Proposal submitted to YESAB February 6, 2008 has been put into practice. This method ensures accurate, representative characterization of each blast round and allows field screening tests to be performed in a timely manner so that waste rock can be most efficiently treated according to the waste rock management categories (Table 1). The Face Sampling Method is presented in Section 2.1. The second and equally important part insuring accurate representation is the selection of sample size and compositing methods. These practices are presented in Section 2.2.

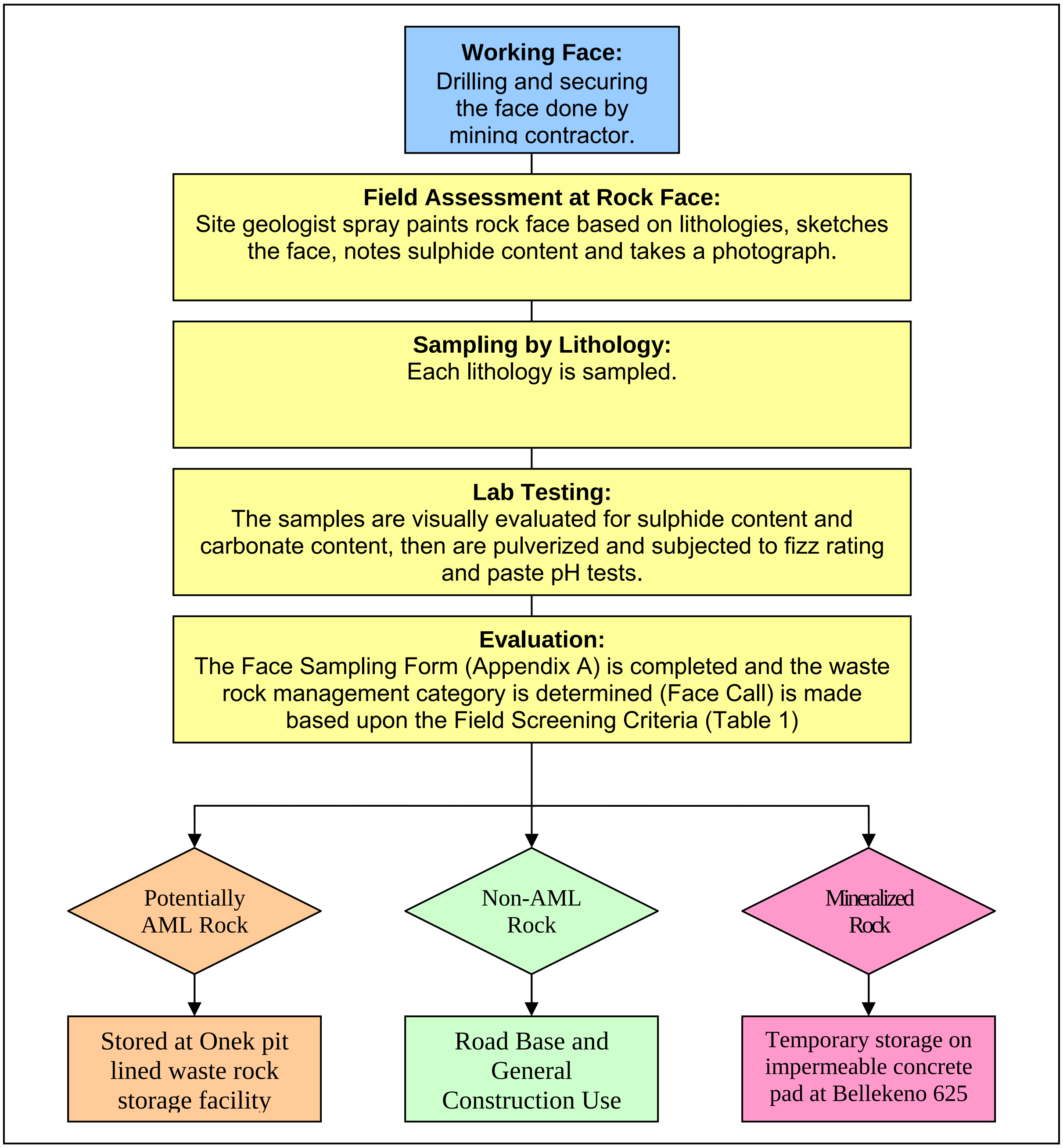
2.1 Face Sampling Method

The Face Sampling Method (summarized in Figure 1) has been developed into the following procedure: First, the site geologist assesses the rock face by spray painting the boundaries between each lithology and paints the sample for each lithology on the face. Next, the geologist makes a pencil sketch and takes a photograph of the face. The geologist then samples each lithology and visually estimates each lithology/sample for sulphide and carbonate content and records the data on the Face Sampling Form (see Appendix A). The samples then are taken to the geology field laboratory located at Bellekeno 625 where they are dried using a convection dryer, then crushed and

Table 1 Waste Rock Management Categories

	Potentially AML Waste Rock	Non-AML Waste Rock	Mineralized Rock
Environmental Characteristics	Potentially acid-generating and/or metal leaching	Non- acid-generating and non-metal leaching	Ag, Pb, and Zn grades of potential economic interest. Can contain materials with potential for net acidity and/or metal leaching
Uses and Storage	Not suitable for general construction purposes Storage on surface where water infiltration is minimized. Where there is potential for infiltration, provide for drainage collection. While some AML rock may be amenable to alternate storage options such as engineered blending or creating 'cells' of AML rock within non-AML material, detailed test work and design is required prior to implementing	May be used for general construction purposes	To be stockpiled for future metallurgical testing and/or processing Storage on surface where water infiltration is minimized. Where there is potential for infiltration, provide for drainage collection.
Geochemical Criteria	a) Ca% ≤ 0.75% and S_{ICP} ≥ 0.25 % b) or S_{ICP} ≥ 1.50 % c) or Pb ≥ 5000 ppm d) or Zn ≥ 5000 ppm	All waste rock samples not meeting AML criteria, namely: a) S_{ICP} < 0.25 % b) or Ca% > 0.75% and S_{ICP} < 1.50 % c) and Pb < 5000 ppm d) and Zn < 5000 ppm	a) Ag ≥ 100 ppm b) or Pb ≥ 10000 ppm c) or Zn ≥ 10000 ppm
Field Screening Criteria	a) Slight or no effervescence of pulverized sample with 25% HCl (eg. presence of none or only a few bubbles), and visual estimated pyrite >0.5%, or; b) Any sample with one or more of the following: i. visual estimated sphalerite >0.75% ii. visual estimated galena >0.5% iii. visual estimated pyrite >2% iv. any Vein material not deemed to be in "Mineralized" category v. paste pH ≤ 6.0 (to be measured on any highly altered/oxidized samples)	All waste rock samples not meeting AML criteria, namely: a) Virtually no visible pyrite under magnification, or if some sulphides present: i. Steady effervescence of pulverized sample with 25% HCl (continuous stream of bubbles and visual estimated pyrite <2% b) and visual estimated sphalerite <0.75% c) and visual estimated galena <0.5%	Visual estimation of galena, sphalerite and sulphosalt minerals followed by confirmatory assay.

Figure 1 Face Sampling Method and Waste Rock Management



pulverized by a geologist or lab technician. The pulverized samples are subjected to a fizz rating test and paste pH measurement.

2.1.1 Evaluation

The results of all screening criteria are evaluated and entire round is designated to the appropriate waste rock management category (Face Call). A special case may occur when a given blast round contains a complex mixture of lithologies including both non-AML and potentially AML units. If overall less than 30% of the working face is deemed as potentially AML, and the remainder of the face consists of rock with a high neutralization potential (such as calcareous quartzite) the geologist *may* assign the entire blast round as Non-AML. The rationale here is that upon blasting and transport, the rocks from all units are mixed and the small portion of potentially AML rocks would be overwhelmed by other the net neutralizing potential non-AML units and bulk chemistry of the round would be Non-AML. As an example, consider the following 240 tonne blast round which contains 30% graphitic schist (1.75% S, 1% Ca) intercalated with 70% calcareous quartzite (0.25% S, 2.8% Ca). This is an extreme example, as 1.75% sulfur is well above the 95th percentile for graphite schist analyses presented in the *Geoenvironmental Characterization, Bellekeno* in Appendix D of the Project Proposal. In contrast, Ca = 2.8% for the calcareous quartzite is the *average* value calcareous quartzite samples from analyses used in Appendix D of the Project Proposal. Thus, upon blasting and transport the 240-tonne muck pile of mixed lithology has a bulk chemical composition of:

For Sulfur 1.75%*0.3
+0.25%*0.7
0.775%

For Ca 1%*0.3
+2.8%*0.7
2.26%

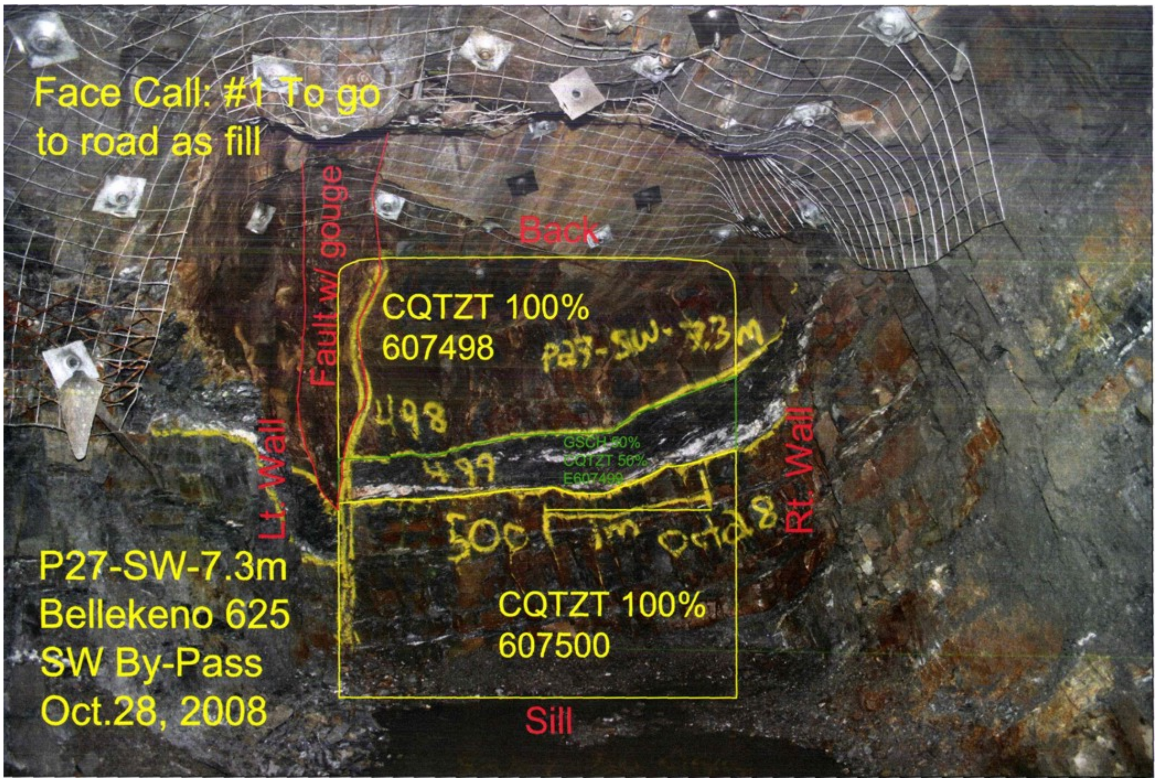
The bulk composition of this blast round falls well within the non-AML criteria of having S ≤ 1.5% and Ca ≥ 0.75%. Translating the geochemical data into the more industry standard NP:MPA ratio using the relationship derived by Altura Environmental Consulting for Keno Hill rocks (Geoenvironmental Characterization, Bellekeno, in Appendix D of the Project Proposal), NP = 25.76[%Ca] + 7.537 and MPA = %S*31.25. Using these relationships, the preceding example would have a NP:MPA ratio of 3.01, which meets the 3:1 ratio above which samples are inferred to be unlikely to produce net acidity with no further testwork or study.

Some discretionary decisions on the part of the geologist are necessary; for example in a case of 20% of the working face comprised of a highly sulphidic zone in an otherwise benign working face, the geologist may opt to designate the entire round as AML due to the high concentration of AML potential in a small zone. It is also important to note that this scenario in which the blast face contains up to 30% potentially-AML rock is relatively uncommon, and in all cases, testing and determination is made on a conservative basis, meaning that the site geologist will only allow these potentially-AML containing blast rounds to be classified as Non-AML if the remainder of the blast face is determined to have ample neutralization potential.

2.2 Data Processing and Sample Compositing

After initial field screening, samples are composited to insure that they are representative of the blast rounds from which they are taken. First, samples from each face are combined based on their respective tonnages, which are calculated based on their areas on the digitized face photo (See Figure 2). These areas are multiplied by the length of the blast round to produce volumes. The volumes are then multiplied by average density to produce the tonnage represented by each sample. Sample composites are first made of each blast round (face), and are weighted according to their calculated tonnages. Additional compositing is done on these composite blast round samples depending on the analytical method and schedule, which is presented below. Where a number of blast rounds are composited, they are weighted to reflect the tonnage of each respective round.

Figure 2 Face photo of Bellekeno 625 By-Pass Showing Sampling According to Lithology and Calculated Sample Areas.



2.3 Sampling Frequency and Schedule

ABA and ICP sampling frequencies were set out in Section 2.5.1 and Appendix D of the Project Proposal at a minimum of 1 ABA sample per 10,000 tonnes and 1 ICP analysis per 1,000 tonnes in Non-AML waste rock. In potentially AML waste rock, the sampling density is increased to 1 ABA sample per 2,000 tonnes and 1 ICP analysis per 500 tonnes. In reflection of Alexco's commitment to adaptive management, this plan further refines the ICP and ABA sampling program while maintaining or exceeding the aforementioned proposed standards for sampling frequency. See Table 2 for a proposed sampling schedule in both Non-AML and Potentially AML waste rock.

2.3.1 ICP Sampling Frequency

While meeting per tonnage sampling frequency, the more natural sampling unit is based on number of blast rounds (each represented by a face sample composite). This tonnage depends on several variables including the length of the round, the dimension of the heading, and whether or not there is overblast. In the current most active heading (Bellekeno East) ICP sampling has been based upon 3 blast rounds per sample. As of Oct 8, 2008, the average sample size for the Bellekeno East ICP 3 round composite samples (all non-AML) has been 722.54 tonnes, which is well below the 1,000 tonne maximum for Non-AML waste rock. In all headings where ICP sampling frequency is based on number of blast rounds, the sampling will fall within the per tonnage frequency committed to in the Project Proposal and in Section 2.3 above.

2.3.1.1 ICP Feedback Sampling for Face Screening

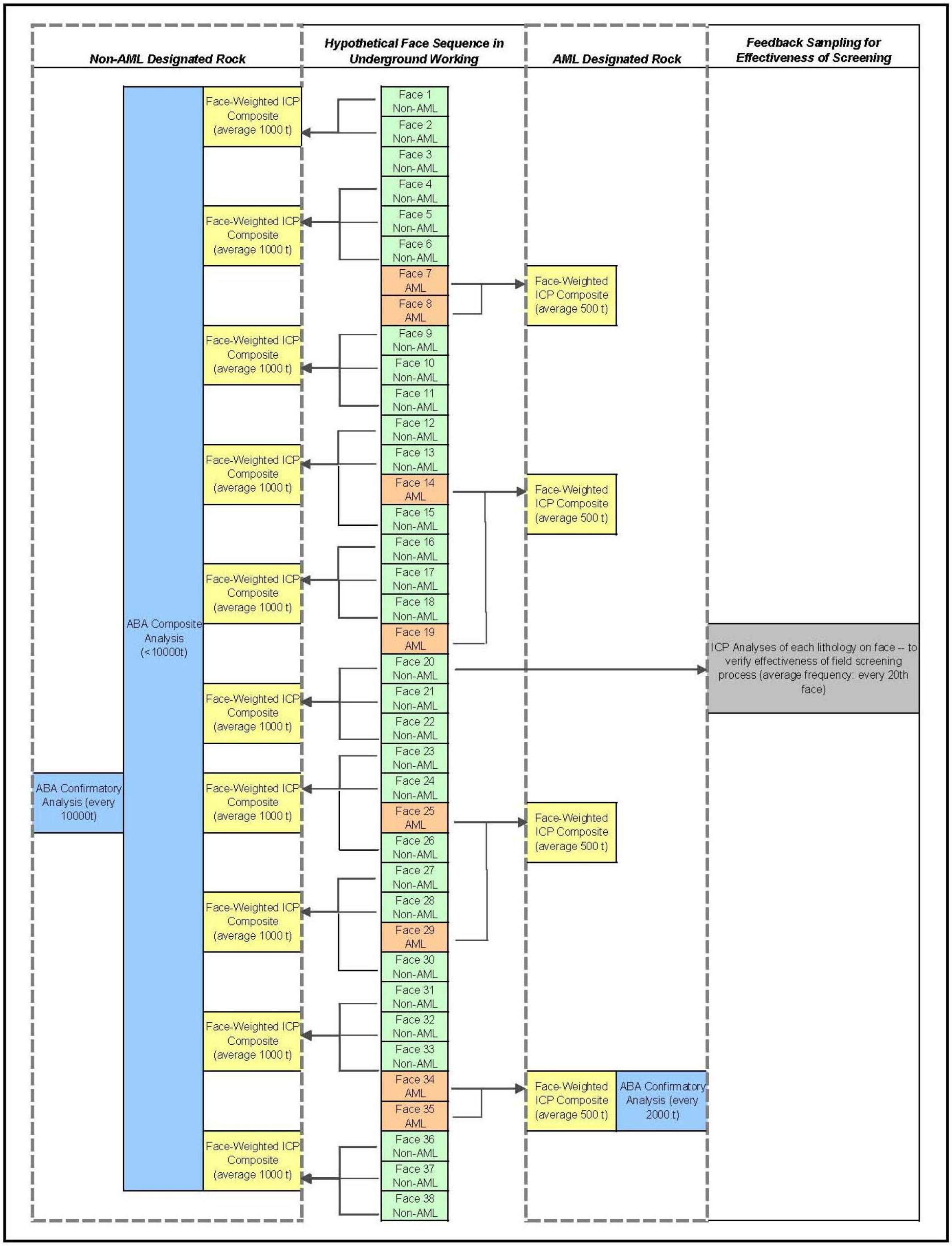
In addition to routine, per tonnage frequency ICP composites described in 2.3.1, ICP samples will be analyzed for each sample of every 20th face. These results will be used as a feedback for the Face Sampling Method described in section 2.1

2.3.2 ABA Sampling Frequency

Similar to ICP sample composites, ABA sampling will be composited based on number of blast rounds and in accordance to per tonnage limits in order to be represent the tonnage as a whole. With respect to the current Bellekeno East decline development, this amounts to approximately 40 blast rounds based on the average result of 240 tonnes per round. Table 2 offers a more conservative approximation of 1 composite ABA sample per 37 blast rounds based upon a 4.6x4.6 meter heading. In addition to an ABA composite over the entire tonnage, an additional smaller composite over less than 1,000 tonnes will be taken within each 10,000 tonne composite. This provision is made as an additional check to test for anomalous rock which might otherwise be missed in the large composite sample.

It is important to note that the above criteria represent a high sample density. This is in large part driven by the fact that the proposed work is the first rock excavation activity in the district under Alexco's management, and as such it is important to conduct relatively detailed monitoring to develop a sound information base for decision-making and enhancements to future waste rock management strategies. As the understanding increases, such a high sample density will likely no longer be justified.

Table 2 Bellekeno Waste Rock Hypothetical Sampling Schedule



2.4 Time Lag

2.4.1 Time Lag between Excavation and Sampling

The time between blasting and exposure of a new face to sampling and the Face Call (waste rock management category designation) for a given round shall not exceed 48 hours; notwithstanding unforeseen and extenuating circumstances such as breakdown of analytical or lab equipment.

2.4.2 Time Lag between Excavation and Receipt of Analytical Data

The total time between excavation and receipt of analytical data is dependent on a number of factors. First, the size of the composite sample being tested can extend the length of time between excavation and receipt of data especially for individual blast rounds near the beginning of the composite sample. For example, at a rate of development of two blast rounds per day at approximately 240 tonnes per round would take 21 days to accumulate the rock required to complete a composite ABA sample of 10,000 tonnes. Second, standard laboratory practices for individual analytical packages take varying amounts of time for completion (e.g. ABA analysis takes longer than ICP). In spite of these uncertainties we are able to suggest the following limits of time lag between excavation and receipt of analytical data for ABA and ICP analysis data.

2.4.2.1 Time Lag between Excavation and Receipt of ICP Data

The time between blasting and exposure of a new face to receipt of ICP analytical data shall not exceed two months; notwithstanding extenuating circumstances such as breakdown of lab equipment or delays at the analytical laboratory.

2.4.2.2 Time Lag between Excavation and Receipt of ABA Data

The time between blasting and exposure of a new face to receipt of ABA analytical data shall not exceed three months; notwithstanding extenuating circumstances such as breakdown of lab equipment, or delays at the analytical laboratory.

2.5 Analytical Methods

Samples submitted for ICP analysis with be pulverized and analysed for multi-elements via ICP-AES using either aqua regia, 4-acid, or strong acid digestion. Sulphur will be included in the analytical suite.

Samples submitted for acid base accounting will be pulverized and analysed via modified acid base accounting methods, including total sulphur via Leco furnace, sulphate via either sodium carbonate leach or HCl digestion, neutralization potential via modified method, total inorganic carbon, and paste pH at a 1:1 solids to water ratio.

3.0 REPORTING

Documentation of waste rock management activities including operational field screening and segregation and ongoing geochemical monitoring and analyses will be compiled and included in the annual mining land use and water use licence annual report. Annual testing completed will be representative of all new excavation during that given year.

Alexco Resource Canada Corp.

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Appendix A

Sample Keno Hill Project Face Sampling Form

ALEXCO RESOURCE CORP. KENO HILL PROJECT
FACE SAMLPING FORM

Mine: BK 625 **Geologist:** T.M / M.W. **Date:** 28-Oct-06

Development: SW B-PASS 625 **Production:** Waste **Sample Type:** CHIP

Face Location	Spad #	Dist. (m)	Direction	Face Dimensions	Width (m)	Height (m)	Length (m)
	P27	7.3m	SW		2.4	2.4	

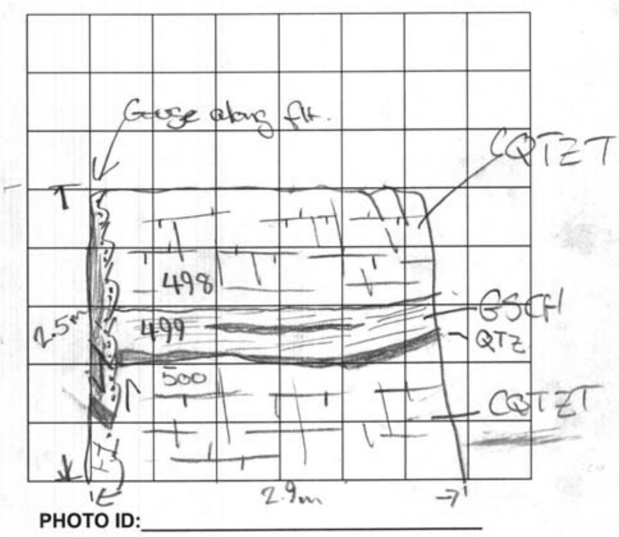
Face Name: P27-SW-7.3m

		Lab Testing		Visual Estimate				
Sample#	Primary Lithology	Paste pH	Fizz Rating	%Pyrite	%Sphal.	%Galena	%CaCO3	Area(m²)
E607498	CQTZT	9.65	4	0	0	0	>0.75	2.48
499	GSCH 50%, CQTZT 50%	9.11	4	0.25	0	0	>0.75	0.80
500	CQTZT	9.56	4	0	0	0	>0.75	3.04

Notes: FAULT ON L.H.S. SINISTRAL OFFSET - 0.35 m. 15cm THICK GOUGE ALONG FAULT. MUCK AS ROAD BASE
CQTZT units both have strongly developed jointsets w/ mod-heavy limonite staining. No visible Py on freshly broken CQTZT. Minor Py in GSCH band.

ABA Classification:

1



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