



## **Bureau of Mining Regulation and Reclamation**

### GUIDANCE DOCUMENT

#### METEORIC WATER MOBILITY PROCEDURE – BOTTLE ROLL EXTRACTION OPTION

This option is to be used in the event of either 1) Solution does not percolate through the column; or 2) The material is fine-grained (i.e., tailings, pond sludge, etc.)

#### **Non-percolating materials (failed column extraction)**

1. Decant any solution retained (R) on the surface of the column charge. Record volume and set aside. Collect and determine the volume of extract that has percolated (P) through the column charge. Set aside separately. Determine the amount of lixiviant (L) not yet applied, if any.
2. Transfer entire column charge sample to an appropriate-sized Nalgene-type extraction vessel.
3. Add retained solution (R) and lixiviant (L) to the extraction vessel.
4. Extract at  $30 \pm 2$  rpm for 8 hours.
5. Decant and filter solution.
6. Measure total solution recovered from bottle roll. Combine this solution with the percolated solution (P). Record total volume ( $TV = R + L + P$ ).
7. Filter extract solution at 0.45 microns and analyze as required.

#### **Fine-grained materials** (Defined by BMRR as 100% passing 10 mesh of as-received material.)

1. Obtain approximately 5 kg of sample. This bulk sample must be homogenized, then a sub-sample of approximately 1000 grams  $\pm$  50 grams can be split using appropriate techniques.
2. If material is moist, weigh separate split of approximately 100g and perform moisture determination.
3. Measure volume of de-ionized water equal to total sample weight, taking into account the existing moisture content of the sample.
4. Place sample and lixiviant into appropriate-sized Nalgene-type extraction vessel.
5. Extract at  $30 \pm 2$  rpm for 8 hours.
6. Decant and filter solution. Record total volume.
7. Filter extract solution at 0.45 microns and analyze as required.

## MWMP Reporting Requirements

<b>Sample Description:</b>	<b>Result</b>	<b>Units</b>
<b>Weight of moisture sample after drying</b>		grams
<b>Weight of moisture sample before drying</b>		grams
<b>Drying temperature</b>		°C
<b>Drying time</b>		min
<b>Moisture Content</b>		%
<b>Sieve retained weight (+5 cm)</b>		grams
<b>Sieve passing weight (-5 cm)</b>		grams
<b>Retained percent (+5 cm)</b>		%
<b>Weight of wet test sample</b>		grams
<b>Weight of dry test sample</b>		grams
<b>Volume of water used</b>		mL
<b>Rate of water addition</b>		mL/min
<b>pH of extraction water</b>		standard units
<b>Extraction temperature</b>		°C
<b>Date/time water addition started</b>		mo/day/year, time a.m. p.m.
<b>Date/time water addition completed</b>		mo/day/year, time a.m. p.m.
<b>pH of final effluent</b>		Standard units
<b>Weight of final effluent</b>		grams
<b>Filter type</b>		
<b>Filter pore size</b>		microns
<b>pH of extract</b>		standard units
<b>Weight of extract</b>		grams
<b>Weight of residue sample after drying</b>		grams
<b>Weight of residue sample before drying</b>		grams
<b>Drying temperature</b>		°C
<b>Drying time</b>		min.
<b>Residue moisture</b>		%

Analyst Name \_\_\_\_\_

Date analyzed \_\_\_\_\_