

**STEBEN COUNTY
DEPARTMENT OF PUBLIC WORKS
ENVIRONMENTAL MONITORING PLAN AMENDMENT
(Brown & Caldwell, April 2003)**

APPENDIX G – Additional Considerations for Radionuclide Sampling

- A. Background Sampling: Prior to acceptance of drilling cuttings, the background leachate radiological conditions will be determined by obtaining leachate samples from New Bath Landfill Lateral Expansion Cell 1 and Cell 2. The samples will be sampled as described herein and tested for the radionuclide analytes listed in Section B, Item 2 below.

- B. Semi-Annual Sampling: Semi-annual sampling will commence after background sampling results are received and the first load of drill cuttings are received. Semi-annual sampling will not be implemented until drill cutting acceptance commences.

In order to assess existing leachate radiological conditions, leachate samples will be collected and analyzed over the first three years after acceptance on a semi-annual basis for radioactivity, following the normal collection procedure for the type of water being sampled with the following provisions:

- 1. The first six sampling events will be conducted at the locations listed below according to the following schedule;

Year 1	First Sample –	Cells 1 and 2
	Second Sample -	Cell 1 and 2
Year 2	First Sample –	Cells 1 and 2
	Second Sample -	Cell 1 and 2
Year 3	First Sample –	Cells 1 and 2
	Second Sample -	Cell 1 and 2

Once the first three (3) years of sampling are obtained, the leachate sampling frequency will be reduced to an annual basis. The samples will continue to be obtained from Cell Nos. 1 and 2 during the second quarter sampling event. If an additional cell is constructed and brought on-line, radionuclide annual sampling will be incorporated into the plan for the new cell once drill cuttings are disposed of within the new cell limits. Sampling for the new cell will coincide with the sampling of Cell Nos. 1 and 2.

2. For a normal round of sampling, radionuclide analytes will include:
 - a. Radium-226 per EPA 903.1
 - b. Radium-228 per EPA 904.0
 - c. Total Uranium per EPA 908.0
 - d. Gamma Spectrum per EPA 901.1

If special investigation is necessary, isotopic thorium and/or isotopic uranium may be specified.

3. Before sampling, the laboratory will be contacted to determine:
 - a. how much water is necessary for analysis of each analyte; and
 - b. if acid (type and how much) should be added to the water to keep the radionuclides from absorbing to the wall of the container.

After this information is obtained, field technicians will ensure that the proper containers and reagents are available for use in the field.

4. Two sets of samples will be collected: one to be filtered and one sent as unfiltered.
 5. "Filtered" samples will be filtered using a 0.45 micron filter via the standard technique specified in this Plan. (Note: The presence of sediment or suspended solids in a sample can greatly affect the apparent radionuclide concentration and thus care should be used to ensure filtering is effective.)
 6. Once the samples are appropriately obtained, the samples will be sent to the laboratory via ground shipping.
- C. In addition to the leachate sampling outlined above, the facility will also conduct radiological analysis on the leachate tank sediment on an annual basis provided the leachate tank is in use. The sediment will be obtained from the tank during the first semi-annual event and sampled for the radionuclides referenced in B.2. Thereafter, the leachate tank sediments shall be sampled for radionuclides whenever the sediment in the tank is cleaned out.
- D. The results of these analyses will be submitted to the NYSDEC Region 8 and Central Office with the environmental monitoring reports for the facility.