

## ADDENDUM – 1 Radionuclide Monitoring Plan

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Pursuant to an Agreed Order between the Kentucky Energy and Environment Cabinet and Advanced Disposal Services Blue Ridge Landfill, Inc., (Kentucky EEC and ADS), ADS prepared a Corrective Action Plan report (CAP) for the purpose of evaluating remedial alternatives to address the possible disposal of Technologically Enhanced Naturally Occurring Radioactive Materials (TENORM) at the Blue Ridge Landfill between July 20, 2015 and February 3, 2016. As part of the Agreed Order additional groundwater monitoring is to be performed by Blue Ridge Landfill beginning in 2018 to test for the presence of radionuclides in the groundwater. A permit modification will be submitted to detail the additional groundwater monitoring as well as other agreed-upon tasks resulting from the CAP. However, it was suggested that in order to expedite the regulatory approval of the additional groundwater monitoring, an addendum to the MW-7 Groundwater Assessment Report would also be submitted.

As part of the CAP at the facility, additional monitoring for TENORM constituents that are part of the U-238 and Th-232 decay series will be performed during the normal groundwater sampling events beginning in the first quarter of 2018. The additional monitoring will target certain radionuclides that could indicate the presence of possible TENORM constituents, including Ra-226, Ra-228, gross alpha and beta activity.

Currently, the groundwater monitoring well network (Herst & Associates, Inc., 2009) consists of monitoring wells MW-7, MW-10, MW-13, MW-15R, and MW-17R. This network of groundwater monitoring wells is sampled for temperature, chloride, chemical oxygen demand, total dissolved solids, total organic carbon, specific conductivity, pH, iron, sodium, and total organic halides on a quarterly basis. Additional parameters, including inorganics and volatile organic compounds (VOCs) are sampled annually, as listed in 401 KAR 48:300 Section 11(3).

In addition to these parameters, samples will be collected for radionuclides (Ra-226, Ra-228, and gross alpha and beta activity) from each of the five wells during the normal quarterly groundwater monitoring events in 2018. After a one year period (4 consecutive quarters) of the additional monitoring, radionuclides will continue to be sampled only from the downgradient groundwater monitoring wells MW-13 and MW-15R on a semiannual basis. This semiannual monitoring will continue for a period of 5 years (2019-2023 inclusive). At the end of the 5 year period and beginning in 2023, groundwater monitoring wells MW-13 and MW-15R will be monitored every 5 years (2023, 2028 and 2033, etc.) thereafter for the operating life of the facility. Once the facility enters the post-closure period and barring any positive detections of the radionuclides, this additional radionuclide monitoring will cease.

The following USEPA test methods will be used for this additional monitoring:

- 900.0 – Gross Alpha and Gross Beta
- 903.0 – RA-226
- 904.0 – RA-228

It is the intent of ADS to begin the additional radionuclide monitoring with the first quarter groundwater sampling event scheduled in 2018. Additionally, the radionuclide results will be submitted as part of the normal groundwater reporting process with the Kentucky EEC.