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ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION

AARON B. KEATLEY
COMMISSIONER

300 SOWER BOULEVARD
FRANKFORT, KENTUCKY 40601

October 13, 2017

CERTIFIED MAIL No. 7015 3430 0000 4915 4510
Return Receipt Requested

Mr. Philip Comella, Esq.
Freeborn & Peters, LLP
311 S. Wacker Dr. Ste. 3000
Chicago, IL 60606

Re: AI Name: Advanced Disposal Services Blue Ridge Landfill Inc.
AI No. 998
Case No. DWM-160048
Activity No. ERF20160001
Estill County

Dear Mr. Comella:

As part of the Agreed Order executed on January 3, 2017, the Cabinet received a Corrective Action Plan (CAP) on May 4, 2017. The Cabinet reviewed the CAP and commented on it in a letter dated July 21, 2017. Blue Ridge submitted a revised CAP on August 28, 2017. The Cabinet has reviewed the revised CAP and is subsequently providing these attached comments on the revised CAP. As required by the Agreed Order, please provide a revised CAP addressing the comments pursuant to paragraph 20 within thirty (30) days of receipt of the comments.

We appreciate your cooperation in this matter. Should you have questions regarding the comments you may contact me at (502) 782-6848 or Tim Hubbard, Environmental Scientist Consultant Senior in the Division of Waste Management's Director's office at (502) 782-6660.

Sincerely,

Jeffery A. Cummins, Director
Division of Enforcement

Enclosure

Cabinet Comments
Revised Corrective Action Plan (CAP)
Blue Ridge Landfill, Estill County, Kentucky
October 5, 2017

The Response to Cabinet Comments dated July 21, 2017 and the CAP for the Blue Ridge Landfill, Estill County, Kentucky, prepared for Advanced Disposal Services (ADS) Blue Ridge Landfill, Inc. by Gradient Corporation, dated August 28, 2017 have been reviewed. The CAP was revised to address previous comments provided by the cabinet. Throughout the following comments below, this document will be referred to as the CAP.

1. There is no final compliance date specified in the CAP as required by paragraph 19 (e) of the agreed order. The final compliance date is the date Blue Ridge anticipates completing all remedial actions listed in the CAP. Please provide a final compliance date in accordance with the agreed order.

2. In response to cabinet comment 3 requesting monitoring for radionuclides for groundwater, surface water, and leachate, ADS proposes to work with the cabinet to develop a Radionuclide Sampling Plan. The groundwater sampling plan proposed in the August 28, 2017 submission that includes monitoring for groundwater (quarterly at all groundwater monitoring well locations presumably for a year then monitoring of two downgradient wells-MW-13 and MW-15R on a semi-annual basis) for radionuclides is acceptable. The broader Sampling Plan must also include sampling of leachate and the two underdrains at the landfill for radionuclides on at least a semi-annual basis as these locations would provide more timely data points to determine if there are any resultant impacts from the BES waste. See comment 3 below. The cabinet recognizes the importance of determining background radioactivity levels in groundwater for the site, given the fact that the New Albany Shale has been demonstrated through screening to have naturally occurring radioactivity levels of Ra-226 and Ra-228. Further, it is important to establish the background activity levels and the ranges of activity in groundwater in order to use the data to determine potential future impacts from the BES waste. However, please note that in order to determine truly representative background levels in groundwater, a comparison must be made of the monitoring results from upgradient wells related to downgradient wells. Also, any changes to the groundwater monitoring requirements will need to be incorporated as amendments to the solid waste landfill permit.

3. **Section 4.2.1 Remediation Alternative 1: Closure-in-Place and Monitoring**. In Section 2.1 Blue Ridge Landfill Overview, it is stated that the landfill operations are expected to continue until 2034 (unless an expansion is approved under the solid waste permit). In order to reduce

potential exposure to workers and others to the BES waste during the active disposal life of the landfill, it is important to comply with the primary radiation safety principle "As Low as Reasonably Achievable" (ALARA), which in essence means to make every reasonable effort to maintain exposures to ionizing radiation as far below the dose limits as practical. In order to ensure this level of protectiveness related to the BES waste, the cabinet requires an Interim Remedial Measures Plan (IRMP) be developed and implemented. The IRMP should include at a minimum: 1) a proposal for placing an additional low-permeable layer (clay, geosynthetic or a combination thereof) over the BES wastes (including a minimum 30-yard buffer around the waste area) as an interim measure to prevent surface water infiltration; 2) procedures for ensuring the BES waste remains covered and undisturbed until closure; 3) a plan for routine monitoring of leachate and the underdrains for radionuclides; 4) prohibiting recirculation of leachate at the landfill, and 5) procedures for notification of the City of Irvine Waste Water Treatment Plant if levels of radioactivity are found in leachate exceeding an action level and a plan for its proper handling and disposal. A radiation worker training and safety program must also be developed and implemented to meet the requirements of pending regulations by CHFS and 902 KAR 100:019.

4. **Section 4.2.1 Remediation Alternative 1: Closure-in-Place and Monitoring**. In this section and in other portions of the CAP, an "enhanced cap" is proposed to be placed over the BES waste as part of the final cover system when the landfill closes. The purpose of the enhanced cap, consisting of a low-permeability geo-synthetic clay liner (GCL) will be to further reduce long-term infiltration of surface water into the BES wastes. The cabinet agrees with the proposal to design and place the enhanced cap as outlined above in accordance with the updated pending regulatory requirements in 401 KAR 48:090 and 902 KAR 100:180, Section 6(2) (a). ADS must ensure that the construction methods and specifications for the additional low-permeability liner are consistent with the pending regulations. Financial assurance for the enhanced cap and additional monitoring must be provided pursuant to the closure care requirements in 401 KAR 48:310.

5. In response to cabinet comment 8 which related to the likelihood of radon in the landfill gas that is extracted and used to generate electricity on-site, and the potential for contamination in condensate that is collected from cooling of landfill gas, ADS proposes to relocate the existing landfill gas extraction wells in the BES waste area to other areas of the landfill and prohibit drilling extraction wells in the BES waste area. The proposed modifications will require amending the solid waste permit, and would reduce potential exposure to workers in future drilling of gas extraction wells in the area. However, moving the existing landfill gas extraction wells from the BES Waste area will not reduce the landfill gas generation from that area, and does not address potentially radon-contaminated methane gas, which could be released into the atmosphere. As an option, the extraction wells could remain in the BES Waste area, and the methane gas monitored for radon contamination. In addition, the leachate, including the condensate from the cooled landfill gas, should be monitored for radionuclides (see comment 3).

6. **Section 6.6 Implementability**. Other issues related to the logistics of implementation of Remedial Alternative 2 (Excavate and Redispose BES waste) which should be considered include whether there may be temporary disruptions of routine waste disposal of MSW from Estill, Madison and other surrounding counties during the removal operation, and the likelihood of additional heavy truck traffic at BRL and in the vicinity of BRL from trucks hauling BES waste out while trucks are hauling MSW to the landfill. Please provide an assessment of these potential impacts.

7. **Section 6.7 Cost**. **Table 6.6**. **Attachment E**

   A. For Remedial Alternative 1 (Closure-in-Place and Monitoring), the estimate must include:

      1. Development and implementation of the Interim Remedial Measures Plan (IRMP) referenced in Comment 3 including:
         a. Design and construction costs for the IRMP liner.
         b. Cost of routine monitoring for radionuclides in groundwater, leachate and underdrains and contingency disposal costs in the event leachate is contaminated with radionuclides and would need to be disposed at an alternate facility other than the WWTP.
      2. Financial Assurance Costs for the enhanced cap and long-term monitoring.

   B. For Remedial Alternative 2 (Excavate and Redispose BES Waste), the cost estimate for remedy implementation must include:

      1. Additional project management costs if work is required to be conducted under radiation health and safety protocols with oversight by a certified health physicist. At a minimum, excavations of BES waste with material at these levels entails potential worker exposure and contamination that requires protective measures including: radiation hazard safety training for workers, protective clothing, personnel monitoring devices if radiation levels are such that a worker may exceed 100 mrems per year, monitoring of workers and equipment to assure absence of surface contamination, and initial air monitoring for particulate and radon levels to determine need for ongoing air monitoring during excavation work.
      2. Stormwater controls to prevent contaminant migration during removal.
      3. Air monitoring and potential mitigation measures (use of enzymes, deodorizers, etc) to address nuisance odors and other potentially harmful gases, including hydrogen sulfide and methane, during the excavation.

8. **Section 6.7 Cost. Table 6.6. Attachment E.** A 7.0% annual discount rate was used to calculate the net present value of future costs based on a USEPA and USACE reference from 2000. The rate may not be realistic at the current time. It may be more appropriate to use a more recent

discount rate utilized by the U.S. Office of Management and Budget (OMB) of 1.7 to 2.7% in order to ensure the project costs are not underfunded.

9. **Section 6.7 Cost. Attachment E.** Under Remediation Alternative 1: Closure-in-Place and Monitoring, the future monitoring costs are projected for a timeframe of 30 years, typical for post-closure monitoring of solid waste landfills. However, due to the presence of the BES waste, which includes radionuclides with very long half-lives, monitoring costs should be estimated for a minimum of 100 years, consistent with the maximum period controls can be relied upon per 902 KAR 100:022 Section 27.

10. **Section 6.7 Cost. Attachment E.** Section 4.0 includes estimated disposal cost (quoted from a third party provided by ADS) in a commercial hazardous waste landfill at $1,585,200 for 39,630 cubic yards. Is this the Mostoller Landfill in Pennsylvania? Also, Section 4.1 has the cost itemized as “Landfill Non-hazardous Solid Bulk Waste”. Please clarify the description in the chart.