April 21, 2025
File No. 04225008.00

MEMORANDUM

TO: Jeff Shepherd, P.E. – Civil & Environmental Consultants, Inc.

FROM: Jeff Leadford, P.E. – SCS Engineers

SUBJECT: Republic Services Coffin Butte Landfill – Odor Dispersion Modeling Study Response

This memorandum is provided in response to recent comments received from Benton County concerning the recent odor modeling study performed at the Coffin Butte Landfill. These comments were received on April 17, 2025 from Jesse Winterowd at Winter Brook Planning. Responses to each comment are addressed below.

- *there is insufficient supporting justification for the modeled release height and initial vertical dimension for the current landfill fugitive surface. The effective release heights appear to be nearly 100 feet above the highest point of the current landfill footprint based on a review of Google Earth terrain data (current as of July 2024) and would be inappropriate to represent existing conditions for 2023;*

The highest point of the landfill is 185 meters above sea level, with an average top height along the top ridge of 155 meters. The lowest point is 75 meters in elevation. Modeling used the lowest point of 75 meters as the elevation with the difference between the lowest point and the average top height (155 minus 75, or 80 meters) as the release height. The initial vertical dimension is calculated as the vertical dimension of the source divided by 2.15 for a surface-based source as described in Table 3-3 of the AERMOD User Guide.

- *there is insufficient justification for the modeled release height and initial vertical dimension for the expanded landfill fugitive surface;*

There is no direct guidance from the State or EPA on how to model area sources in a large mound. Fugitive landfill gas in the expanded landfill region (FUG_EXP) will be emitted into the air from as low as 75 meters and up to 122 meters in elevation based on engineering drawings. The release height was then calculated as 122 minus 75, or 47 meters. At each of those varied heights, landfill gas is entering into the wind at dispersed air elevations and carried off differently, diluting in the process.

The release height is representing this much like a conveyor belt dropping material onto a pile from 10 meters high, and thus the dust emissions are being spread out from 0 to 10 meters in elevation. This conveyor belt would claim the full 10 meter release height.

The initial vertical dimension is calculated as the vertical dimension of the source divided by 2.15 for a surface-based source as described in Table 3-3 of the AERMOD User Guide. This methodology for release height and initial vertical dimension has been approved in Oregon, Washington, and California modeling for numerous projects which can be presented if requested, including a Cleaner Air Oregon health risk assessment approved by ODEQ.

- *An outdated version of the AERMET program executable (v18081) was used to process the meteorological dataset included in the AERMOD model runs and the potential impacts to offsite modeled concentrations may be significantly impacted by using the latest AERMET executable version;*

On February 10th, 2025 SCS Engineers and Republic had a meeting with MFA to clarify modeling setup. All parties were in agreement to use the AERMOD-ready dataset from PNGC modeling that was approved by ODEQ last year. This approved meteorological dataset was used without adjustment as was agreed upon.

- *there is insufficient justification for the modeled emission rates where 81% of the total landfill surface area is in the current area, and 19% is in the southern proposed expansion, but the modeled emission rates for the current and expanded landfill fugitive source representations are equal;*

The current and expanded fugitive landfill sections (FUG and FUG_EXP, respectively) were both modeled at the same grams per second-meter squared (g/sec-m2) for each pollutant. For example, Dimethyl Sulfide was modeled at 2.027*10^-8 grams per second-meter squared (g/sec-m2) for each source. Thus taking into account the size difference between the two sources, FUG was modeled at a total of 0.01659 grams per second (g/s) and FUG_EXP was modeled at 0.00391 g/s. Landfill gas is projected to emit evenly in all portions of the landfill surface.

Given the responses above, SCS Engineers recommends additional consideration and approval of the odor modeling study at Coffin Butte Landfill. If any additional information is needed, please contact Jeff Leadford, P.E. at jleadford@scsengineers.com or 720-272-0172.

Sincerely,

Jeff Leadford, P.E.

Project Manager – SCS Engineers