Ambient Air & Emissions Monitoring Study

Proposal for additional modeling

Prepared For:

CHIQUITA CANYON LANDFILL

May 16, 2024

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Steve Cassulo,

RE: Stipulated Order for Abatement, Case No. 6177-4, Condition No. 32(b) Proposal (formerly Condition No. 26(b))

In accordance with the Stipulated Order for Abatement (Stipulated Order) with the South Coast Air Quality Management District (SCAQMD) in Case No. 6177-4, Blue Ridge Services Montana, Inc. (BRS) prepared this proposal for additional modeling as recommended in the **AMBIENT AIR & EMISSIONS MONITORING STUDY: REVIEW OF PRIOR AIR MOVEMENT AND DISPERSION STUDIES AND UPDATED MODELING** report submitted on December 1, 2023. This proposal was originally submitted on January 15, 2024. On March 28, 2024, SCAQMD submitted comments on the proposal to BRS. BRS has revised the original proposal and is resubmitting the same to address those comments and clarify the scope of the additional modeling as well as the final deliverables.

The Stipulated Order requires the following under Condition No. 32(a)-(c):

a. *The report shall include a recommendation on whether additional modeling is recommended to fully address the current odor circumstances at the landfill and potential odor impacts on the nearby community.*
b. *If such additional modeling is recommended by the DMS Committee, the DMS Committee shall, within 45 days of providing the report and recommendation, provide a proposal to the South Coast AQMD that shall, at a minimum, include the following:*
    i. *The identification and qualifications of the primary personnel and/or firms proposed to conduct the study, as well as the specific techniques and location(s) where the study will be conducted;*
    ii. *A timeline for completion of the study and submittal of the final written reports to South Coast AQMD no later than 150 days after South Coast AQMD approval of the study proposal.*
c. *Since the Reaction Committee recommended additional modeling, Respondent shall, within 14 calendar days of approval of this Order, revise the air modeling study proposal according to the comments received by email on March 28, 2024, and re-submit the revised proposal to South Coast AQMD for approval. Respondent shall submit a final written report on the additional modeling to South Coast AQMD by September 2, 2024 or 90 days following approval of the air modeling study proposal by South Coast AQMD, whichever is later.*

This proposal meets the above requirements by providing the necessary qualifications, techniques, and timeline for the recommended modeling. It is noted that the DMS Committee is now referred to as the Reaction Committee.

Respectfully,

Neal Bolton
President
Blue Ridge Services Montana, Inc.
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Qualifications

Neal Bolton, P.E., President of BRS, is a national expert in landfill operations and is serving as a member of the Reaction Committee to satisfy Condition No. 12(a)(i) of the Stipulated Order, which requires that the Reaction Committee include a subject matter expert in landfill design and operational best management practices. He has provided various consulting support to Chiquita Canyon, LLC (Chiquita) since 2020, including being part of the consulting team that solved the working face odor issue in 2022 under the Stipulated Order for Abatement in Case No. 6177-1. Additionally, he has broad operational experience within the heavy construction and solid waste industry that spans more than 45 years. During that time, Mr. Bolton has provided operational support for more than 500 landfills throughout North America and abroad.

Troy Kechely, Project Manager for BRS, has over 30 years of experience in the solid waste, environmental, mine reclamation, and civil site development industries. Troy has pioneered the use of computational fluid dynamics (CFD) software to address litter and odor related issues at landfills throughout North America and has performed all the CFD modeling for Chiquita since 2020. His landfill experience includes over 100 fill sequence and airspace management plans for landfills in North America, along with transfer station studies, site expansion design, and construction oversight. Along with his use of CFD software, he has more than three decades of experience instructing on the use of Computer Aided Design (CAD) software with extensive expertise in Autodesk civil design software including: Civil 3D, Map 3D, 3DSMax, Navisworks, Infraworks, AutoCAD, and Recap. He is also skilled in a variety of geographic information system (GIS) related software, including ArcGIS Pro, ArcMap, and Collector.

Proposed Modeling

Complaint Data Analysis

Prior to additional CFD modeling being performed, as we recommended in our **AMBIENT AIR & EMISSIONS MONITORING STUDY: REVIEW OF PRIOR AIR MOVEMENT AND DISPERSION STUDIES AND UPDATED MODELING** report submitted on December 1, 2023, we propose performing an analysis of all available complaint data to ascertain general locations of complaints in

relation to the Chiquita Canyon Landfill (Landfill) and meteorological (MET) data prior to and during the time of the complaint. The analysis will consist of both statistical and GIS assessment of the data when combined with the available MET data from stations located at the Landfill and surrounding region. This analysis will provide the critical wind velocity range that was absent in the initial modeling and will assist in developing models that are more accurate in relation to location and MET conditions. Integrating current complaint data with CFD modeling is an important step in calibrating the CFD modeling and ensuring it is as accurate as possible. With that in mind, we will be requesting updated complaint data prior to running the proposed next round of modeling. If updated complaint data is not available, we will integrate the most current complaint data in our possession.

Additional Flux Chamber Study

No additional CFD modeling should be performed until after the results of the additional flux chamber study pursuant to Stipulated Order Condition No. 12(i) (formerly Condition No. 12(d)) are available. The original modeling was performed utilizing the mixed gas data from the original flux chamber study, sampling for which was conducted on August 29-31, 2023. Given the extensive efforts to mitigate the reaction in the interim through the expansion of the landfill gas system, placement of additional cover, and other measures, it is expected that the composition and volume of odorous gases being released has changed. For that reason, the next round of CFD modeling should incorporate the most accurate and up to date data for the gases being released.

Proposed CFD Modeling

We propose that all CFD modeling performed originally per Condition 32 (previously Condition 26) be rerun with the following updated variables:

- There will be two sets of results. The first set of results will be based upon typical odor detections, in line with the previous study. The second set of results will use a lower detection threshold. We will account for seasonal variations by evaluating a range of wind speeds and wind directions. We will work with the Reaction Committee to determine appropriate odor thresholds and will present those criteria in the report.

- The mixed gas composition and properties per the additional flux chamber study will be established pursuant to Condition 12(i) (formerly Condition 12(d)) of the Stipulated Order. The mixed gas composition and properties will consist of the primary components that make up the majority of the gas mixture including gases known as being odorous and/or toxic – as determined by the Reaction Committee.

- The Reaction Committee shall evaluate the additional flux chamber study and identify additional gases and odorous compounds to include in the additional modeling. It shall then determine a minimum, maximum, and mean average detection threshold by humans in parts per million (ppm). The minimum will be at a value that is deemed realistic by the Reaction Committee that shall be a value toward the lower end of odor detection thresholds where sensitive individuals may notice the odor. This will allow modeling of odor plumes for typical

odor thresholds, and modeling of plumes for most sensitive thresholds. This range of detectability for the odor causing components shall be submitted to SCAQMD for approval prior to commencing modeling.

    - The recommended thresholds shall be based on experimental studies (where available) and regulatory/government agency thresholds.

- The revised wind velocity range and directions per the most recent available complaint data analysis where sufficient address information is available.

Additional modeling shall be performed to address any locations of complaints not covered by the prior modeling that are identified from the analysis of any updated complaint data that becomes available prior to running the new model(s).

All modeling shall be adjusted based on any field sampling and complaint data that becomes available by the time this proposed work receives SCAQMD's approval.

Timeline for Summary Report

Pursuant to Condition No. 32(c), the final written report on the additional modeling shall be submitted to SCAQMD by September 2, 2024, or 90 days following SCAQMD's approval of the air modeling study proposal, whichever is later.