April 14, 2023

Kate Kornak
Deputy Regional Permit Administrator
New York State Department of Environmental Conservation
Division of Environmental Permits, Region 4
1130 North Westcott Road
Schenectady, New York 12306-2014

RE**:** Response to January 17, 2023 Notice of Incomplete Application
S.A. Dunn Mine and C&D Facility DEC #4-3899-00006
Part 360 Permit Renewal and Modification; MLR Permit Renewal and Modification

Dear Ms. Kornak,

Civil & Environmental Engineering, Land Survey, and Landscape Architects, PLLC (CEE) and GHD have prepared this letter in response to comments received from the New York State Department of Environmental Conservation, dated January 17, 2023, regarding the Part 360 Permit Renewal and Modification Application and Mined Land Reclamation (MLR) Permit Renewal and Modification Application for the S.A. Dunn Mine and Construction & Demolition Debris (C&D) Facility (Dunn Facility).

For clarity, the Part 360 and MLR Permit Renewal and Modification Applications consist of the following two actions: (1) renewal of the Part 360 and MLR permits; and (2) modification of the permits to incorporate construction of a mechanically stabilized earthen (MSE) perimeter berm. No increase in emissions is proposed by either action. In fact, the MSE berm is itself a mitigation measure, as it reduces the permitted C&D disposal volume by approximately 220,000 cubic yards.

The Department's comments are provided below in bold, with the responses immediately following. GHD has also revised its Climate Leadership and Community Protection Act (CLCPA) assessment consistent with these comments, and Aurora Acoustical Consultants Inc. has prepared an addendum to the Facility Sound Survey.

Comments on CLCPA Assessment:

1) **The submitted CLCPA GHG Assessment Memorandum prepared by GHD, dated November 4, 2022 ("the analysis"), states several times that, "The landfill gas (LFG) generated within the Dunn Facility is assumed to be approximately 25 percent methane (CH4) and 75 percent carbon dioxide (CO2)." Please expand on how this assumption was derived.**

Response: Based on observations at the Dunn Facility, the methane concentration of landfill gas fluctuates over time—drifting above and below 25% methane. Based on this data, GHD initially assumed a long-term average of 25% methane, and that carbon dioxide makes up the balance (75%) of the gas. GHD has since updated the CLCPA Assessment based on the RM3C results of a laboratory analysis of a landfill gas sample collected from the Dunn Facility on February 22, 2023:

- Methane (CH_4) = 27%
- Carbon dioxide (CO_2) = 29%
- Oxygen (O_2) = 4.9%
- Nitrogen (N_2) = 35%

The analytical report is included as Appendix A. GHD used a methane concentration of 27%, with the balance of landfill gas (73%) conservatively assumed to be carbon dioxide.

2) **The landfill gas collection system currently in place at the facility is discussed throughout the analysis as a mitigation measure. Please expand the analysis to discuss potential mitigation measures which are not currently required by the permit that the facility could implement to reduce current and future emissions. Evaluate feasibility and implementation of the potential mitigation measures.**

Response: Appendix B, from Section 5.3 of the revised CLCPA Assessment, evaluates potential measures to increase landfill gas collection and mitigate emissions during construction, operation, and maintenance activities. As more fully explained in the appendix, upon approval of its permit renewal and modification applications, S.A. Dunn commits to implementing or continuing to implement the following measures to mitigate emissions at the Dunn Facility:

- Continued operation of the gas collection and control system with a utility flare, which efficiently destroys methane.
- Expansion of the gas collection and control system to capture more gas as additional waste placement reaches permitted grades.
- To the extent practical, S.A. Dunn coordinates, and will continue to coordinate, back hauls of loads leaving the Dunn Facility, such that after loads of inbound earthen material (e.g., crushed stone for roads, drainage stone and clay for liner system construction) are delivered to the Dunn Facility, those same trucks will then reload prior to leaving the Dunn Facility with outbound sand and gravel exports.
- Regular placement, inspection, and maintenance of all cover materials in areas where waste has been placed. In addition to existing inspection practices, S.A. Dunn commits to documentation of a monthly inspection of cover materials and undertaking maintenance, as needed.
- Preparation and submission of construction plans for Department review within 6 months of receiving the final permit. The construction plans will identify an area of at least 10 acres of final cap to be constructed within the construction season following Department

approval of the construction plans. Further, S.A. Dunn will complete final cap on at least 20 acres (inclusive of the initial 10 or more acres of final cap) by 2030, and on all remaining areas of the landfill footprint (62.1 acres) by 2050.

- Preparation and implementation of a surface emission monitoring (SEM) work plan, which will entail an annual SEM event substantively following the field procedures for SEM detailed in the New Source Performance Standards for municipal solid waste landfills.

- Vegetation of all areas of the Dunn Facility where feasible.

- Mine reclamation and closure will provide a final vegetated cap.

- Construction of the MSE berm, which will mitigate emissions by:

  - Reducing waste in place by approximately 220,000 cubic yards. This reduces the potential GHG emissions from landfill gas by approximately 914 tons per year at peak, and further reduces truck trips from waste disposal—and thus truck emissions—including in the proximate disadvantaged communities.
  - Reducing the amount of construction soils and sands to be hauled from the Dunn Facility by at least 500,000 cubic yards, thus decreasing truck and construction equipment emissions, including in the proximate disadvantaged communities. At 15 tons per truck, this is a potential reduction of approximately 90,000 truck trips.

- Mine reclamation and closure will provide a final vegetated cap.

- Incorporation of vegetation into the MSE berm.

- Use of the existing Dunn Facility potentially avoids the development of greenfield sites and the associated removal of vegetation.

The practice of consolidating waste through transfer stations, which reduces fuel consumption and GHG emissions, will also continue. In addition, the Department conducts enhanced air monitoring for hydrogen sulfide and particulate matter (PM) at the perimeter of the Dunn Facility.

The gas collection and control system is appropriately considered a mitigation measure since such a system is not currently a programmatic requirement for New York C&D landfills, and it significantly reduces GHG and hazardous air pollutant (HAP) emissions (including potential impacts to the proximate disadvantaged communities). If the waste were disposed at a C&D landfill without a gas collection and control system, then GHG and HAP emissions would dramatically increase. As shown in Table 1, attached to the CLCPA Assessment, a landfill with a gas collection and control system emits approximately 59% less GHG in 2030 and 82% less GHG in 2050; and 40% less HAPs in 2030 and 57% less HAPs in 2050 than a comparable landfill without a gas collection and control system (i.e., with uncontrolled emissions).

3) **Please clarify whether the emissions from the leachate collection tank are included in the fugitive emissions calculations.**

Response: The fugitive methane emissions calculations include emissions from the leachate collection tank, as the gas collection efficiency used in the calculations is assumed to be the same across the board. Attachment F to the CLCPA Assessment, which uses the equations provided in AP-42 Chapter 7, Liquid Storage Tanks, demonstrates that emissions of other compounds from the leachate tank are de minimis (< 1 pound per year).

4) **Section 4 of the analysis discusses insignificant emissions. Please clarify how the sources listed in this section were determined to be insignificant emission sources.**

Response: The potential emission sources listed below occur, at most, sporadically throughout the year, and may not occur during each year of operation:

- Equipment used for maintenance/cleaning of the leachate collection system (e.g., jetting)
- Equipment used for installing components of the LFG collection system (e.g., drill rigs for the installation of gas well collectors)
- Emissions from the production, delivery, and installation of geomembranes or geotextiles and related products
- Emissions from leachate storage tanks (calculations in Attachment F to the CLCPA Assessment, using the equations provided in AP 42, Fifth Edition, Volume I Chapter 7: Liquid Storage Tanks, demonstrate that emissions from these sources are de minimis at <1 pound per year).

Because these events—occurring over isolated, short periods of time each year—do not significantly contribute to the overall emissions at the Dunn Facility, they are considered "insignificant."

5) **As depicted in Section 2.2, Figure 1 of the analysis, the facility's landfill gas emissions are expected to increase until the peak emissions year in 2032. In Section 6.1 of the analysis, consistency with CLCPA is discussed only in terms of the projected 2030 and 2050 emission levels. Within the analysis, please include a discussion about the increase in greenhouse gas (GHG) emissions until the peak year in 2032, and how this relates to the goals of CLCPA.**

Response: The CLCPA Assessment addresses statewide GHG emission limits equal to a 40% reduction by 2030 and a 85% reduction by 2050 from 1990 levels. These limits apply in the aggregate across all sources of GHG (e.g., mobile, stationary), and no legal framework exists to apply these emission reductions rigidly to individual sources. Thus, Commissioner Policy-49 (CP-49) frames the inquiry by stating that CLCPA § 7(2) "requires the Department to consider whether agency administrative decisions … are inconsistent with or will interfere with the attainment of" statewide limits. CP-49 further states that "[r]outine permit renewals that would not lead to an increase in actual or potential GHG emissions would ordinarily be considered consistent with the CLCPA pending finalization of the Scoping Plan, the subsequent adoption of a state energy plan, and future regulations unless project specific facts support a finding of inconsistency."

With this context in mind, the methane generation model shows that—as is typical of all landfills—landfill gas generation increases each year waste is disposed of in the Dunn Facility (in this case, until 2032), with only a slight increase predicted between 2030 and 2032 because waste placement is predicted to continue until 2032 and then stop. Landfill gas production then declines in all subsequent years. Because the LFG model is generally considered conservative, it is also likely that the peak estimate of emissions for 2032 will never be realized.

The permit renewal and modifications applications do not propose to increase emissions; the modeled emissions have been anticipated and are actually *reduced* with the inclusion of the MSE berm because, if authorized, it will decrease the waste disposal volume that is otherwise authorized under the permit. These GHG reductions are addressed in further detail below. For these reasons, the permit renewal will not be inconsistent with and will not interfere with the attainment of New York's aggregate statewide limits.

However, to be responsive to the comment, year 2032 projected emissions (as well as year 2023 projected emissions) have been added to the CLCPA Assessment.

6) **Section 7 of the analysis states, "Approximately 20 percent of GHG emissions and 27 percent of HAP emissions in 2030 occur due to the transport of waste from the point of generation to the Dunn Facility, which does not impact the draft Disadvantaged Communities (DAC) located around the Dunn Facility." Please clarify how this conclusion was derived.**

Response: 84% of the waste that arrives at the Dunn Facility comes from ten off-site sources at an average distance of 138.1 miles away. While GHG and HAP emissions from the transport of this waste occur along the entirety of the 138.1 mile path, only approximately 1 mile of the 138.1 mile trip occurs within the disadvantaged communities proximate to the Dunn Facility. Of the 14,771 tons of per year of GHG emissions from waste hauling along the 138.1 mile route, only 107 tons per year are associated with this one-mile portion of the trip.

Because less than 1% of this total route has the potential to result in emissions within the disadvantaged communities proximate to the Dunn Facility, and only 107 tons per year of GHG emissions are associated with this one-mile portion of the trip, the GHG and HAP emissions do not result in increased impacts or burdens to the disadvantaged communities.

7) **The facility's potential impacts on the surrounding disadvantaged communities related to emissions of GHGs and co-pollutants must be evaluated. The department's DECinfo Locator tool should be used to find the most up-to-date draft disadvantaged community maps: DECinfo Locator - NYS Dept. of Environmental Conservation.**

This evaluation must include the potential impacts of mobile sources operating on site as well as transporting material and leachate through the local community. Please provide the following information:

a. **The facility submitted a map, prepared by CEC PLLC and titled Residents at Large Distribution Area, as part of the approved Public Participation Plan. This map identifies the local truck delivery and return route(s) near facility. Please use this predefined truck route in evaluating the facility's potential impacts on the surrounding DAC. Calculations of annual miles traveled per vehicle type on the identified route must be provided, based on round-trip distance.**

b. **To the extent not previously provided, please identify sources of emissions (facility vehicles and fossil fuel powered equipment) that will operate within the facility and their daily and annual estimated hours of operation.**

c. **For all the on- and off-site sources identified above, estimate and summarize GHG and co- pollutant emissions using the following emission factors, as appropriate:**

   i. **To estimate emissions of CO2, CH4, and N2O, use the EPA emission factors in Tables 2-4 at the following link: https://www.epa.gov/climateleadership/ghg-emission- factors-hub. Emissions calculations for on-road vehicles should be based on the total annual miles traveled as referenced in Item a above. Emissions calculations for non- road vehicles and fossil fuel powered equipment should be based on the estimated annual hours of operation as calculated in Item b above. When calculating carbon dioxide equivalents, please use the 20-year global warming potentials found in 6 NYCRR Section 496.5.**

   ii. **To estimate emissions of particulate matter (PM), a co-pollutant, use the AFLEET tool at the following link: https://afleet.es.anl.gov/afleet/. The 'Footprint – Onroad' and 'Footprint – Offroad' tabs should be used in conjunction with the data identified in Items a and b above to calculate co-pollutant emissions. Note that while the spreadsheet provides an estimate of GHG emissions as well it should not be used for the purposes of Item i above as the calculation methodology is inconsistent with the requirements of CLCPA. Please also include an electronic copy of the completed spreadsheet with the application materials for this facility.**

d. **Evaluate how estimated GHG and co-pollutants identified above may be reduced by an equal or greater amount within the disadvantaged community.**

Response:

(a.) As explained above, 84% of the waste that arrives at the Dunn Facility comes from ten off-site sources at an average distance of 138.1 miles away. Based on the Residents at Large Distribution Area, only one-mile of this 138.1 mile route occurs within the disadvantaged communities proximate to the Dunn Facility. Round trip waste truck emissions are shown on Table 5 attached to the CLCPA Assessment. Of the 14,771 tons per year of GHG emissions from waste hauling along the 138.1 mile route, only 107 tons per year are associated with this one-mile portion of the trip in the proximate disadvantaged communities.

(b.) Tables 3 and 4 attached to the CLCPA Assessment identify the hours of operation per day and per week, and annual number of weeks of operation for compactors, dozers, excavators, and haul trucks.

(c.) We used CH_4, CO_2, and N_2O emission factors directly from 40 CFR 98 Subpart C, which is what all facilities across the country use when calculating annual GHG emissions. The U.S. Environmental Protection Agency (EPA) similarly relies on these emission factors when publishing its total inventory of emissions. Further, GHD compared the resulting ton per year emissions using the emission factors provided in 40 CFR 98 Subpart C and those referenced in c.i. above, and there is less than a 1% difference in the resulting CO_2e between the two methods (see Appendix C). The 20-year GWP factors from NYCRR 496.5 were used as requested.

The Department has previously identified HAP as co-pollutants to be evaluated for the Section 7(3) analysis (according to Notice of Incomplete Application letter dated March 30, 2022, "co-pollutants are defined as hazardous air pollutants (HAPs) that are emitted by GHG sources."). The list of pollutants defined as HAPs under 6 NYCRR 200.1(ag) does not include particulate matter. Therefore, HAP emissions are included but not particulate matter (PM).

Moreover, with respect to PM, estimating emissions is not necessary in this instance because there is readily available data from the monitoring equipment on property that is adjacent to the Dunn Facility and within a disadvantaged community. In the hierarchy of estimating emissions, monitoring data is preferred over estimating emissions using emissions factors. Since 2019, the Department has collected PM10 data from the Rensselaer City School adjacent to the Dunn Facility to the north and compared the results to the Albany County Health Department monitor location to the west of the Dunn Facility. With minor exceptions, PM10 levels at the Rensselaer City School are consistently lower than those at the Albany County Health Department, and well below applicable standards protective of public health. This information is addressed in detail in Appendix F to Attachment D (EAF) to the Dunn Facility's January 13, 2022 permit application submission. The Department also maintains a summary of this information at https://www.dec.ny.gov/chemical/117071.html#Dust. This page has recently been updated to include 2022 data and confirms that PM levels in the disadvantaged community proximate to the Dunn Facility are far below established health standards, and typically lower than PM levels recorded at the Albany County Health Department monitor location to the west of the Dunn Facility.

In addition, on-site meteorological data for 2021 and 2022 was used to generate the wind roses at Appendix D. The wind roses indicate that the wind direction is from the south to the north (from the Dunn Facility towards the school) a significant portion of the time. Therefore, if measurable PM was being emitted from the Dunn Facility, it would be detected by the nearby monitoring device at the school. However, that is not the case.

Further, as addressed in Appendix F to Attachment D to the Dunn Facility's permit application, the Department also conducted a speciated analysis (for specific elemental components) of PM10 from October 12, 2019, to December 8, 2019, on the roof of the Rensselaer City School, which again is in the proximate disadvantaged community. The Department concluded that the air concentrations for the PM10 mass and associated elemental components were low and similar to measurements at an identical monitor in Loudonville, New York, during the same time period. The Department further concluded that the sampling results do not appear to indicate that the Dunn Facility's operations are measurably increasing the levels of PM10 monitored at the school above levels measured at other monitoring locations.

These data confirm that the area, including the proximate disadvantaged communities, is not experiencing burdens from PM emissions that are unhealthy or disproportionate.

(d.) The response to Comment #2 and Appendix B address potential emission reduction measures in detail. These measures include continued operation of the gas collection and control system, which may not be available at other C&D landfills, and construction of the MSE berm, which—if approved—would reduce the permitted waste disposal space at the Dunn Facility and would decrease emissions generally and in the disadvantaged communities. S.A. Dunn also commits to identifying an area of at least 10 acres of final cap to be constructed within the construction season following the Department approval of the construction plans, and to preparation and implementation of a SEM work plan.

8) **Please show how the Hazardous Air Pollution (HAP) emissions calculated in Tables 3 and 4 were determined.**

Response: HAP emissions are calculated based on the HAP emission factor, multiplied by the annual amount of diesel consumed. The HAP emission factor for diesel is obtained by multiplying the heating value of diesel (0.1389 MMBTU per gallon) by the sum of the individual speciated HAPs in Table 3.3-2 of EPA AP-42, Section 3.3 (summed in units of lb/MMBTU). This is an "uncontrolled" emission factor, and is therefore conservative for estimating emissions. This explanation is being added as a footnote to Tables 3 (footnote 15) and Table 4 (footnote 16).

9) **In Table 7 of the analysis, the actual upstream emissions of propane are calculated. Please provide calculations for the upstream emissions of propane on a potential to emit (PTE) basis as well.**

Response: Propane usage is mostly used for heating purposes at the Dunn Facility and is thus only used seasonally. It is not expected to change significantly on an average annual basis; therefore, the potential-to-emit (PTE) is not representative of current or future conditions. For completeness, the PTE for propane has been added to the tables but is not included in the facility-wide PTE, which is already conservative.

10) **Emissions projections for 2030 and 2050 are provided on an actual emissions basis. Please provide calculations for the 2030 and 2050 emissions projections on a PTE basis as well.**

Response: The uncontrolled emissions depicted in Table 1 attached to the CLCPA Assessment represent the PTE, or worst-case scenario, if the gas collection and control system is not utilized at the Dunn Facility. This PTE scenario does not represent normal operations at the Dunn Facility.

11) **The value calculated for the total 2030 CH4 generated (metric tons) in Attachment A may be inaccurate. Please check this calculation. If the calculation is accurate, please provide a description of how this value was determined.**

Response: The methane generation model in Attachment A to the CLCPA Assessment was taken from 40 CFR 98 Subpart HH, which is used for annual GHG Reports submitted to EPA each year by March 31. The calculation is accurate.

The methane generation within a landfill for a given year can be calculated based on historical waste records and future projections of waste acceptance. Equation 1 presents the formula used to calculate the methane generation within a landfill for a given year:

$$G_{CH4} = \sum \{W_x * L_{o,x} * (e^{-k(T-x-1)} - e^{-k(T-x)})\} \text{ [for x = S through T-1]}$$

where,

G_{CH4} = modeled methane generation rate in year T in metric tons per year

x = year in which waste was disposed

S = start year of calculation

T = reporting year for which emissions are calculated

W_x = quantity of waste disposed in year x (metric tons, wet weight)

L_o = CH_4 generation potential (metric tons CH_4 / metric tons waste)

k = rate constant from Table HH-1 (yr^{-1})

The methane generation potential L_o is calculated using Equation 2:

$$L_o = \frac{MCF * DOC * DOC_F * F * 16}{12}$$

where,

L_o = CH_4 generation potential (metric tons CH_4 / metric tons waste)

MCF = methane correction factor (default value is 1)

DOC = degradable organic carbon from Table HH-1 of 40 CFR 98 Subpart HH (metric tons C/metric ton waste)

DOC_F = Fraction of DOC dissimilated (default value is 0.5)

F = Fraction by volume of CH_4 in landfill gas from measurement data

12) **In the analysis, the 2030 and 2050 projected direct emissions for stationary sources are calculated. Please provide calculations for the direct emissions from the existing stationary sources at the facility and for the proposed operations described in the renewal/modification applications. The calculations for each scenario should be provided on a PTE and actual emissions basis.**

Response: Estimated actual emissions were provided in the CLCPA Assessment in the attached Tables 1-8. Table 1 shows the uncontrolled emissions, which represents the PTE, and includes stationary sources.

The permit application would not increase these emissions; in fact, the proposed MSE berm modification would result in a decrease in GHG and HAP emissions in 2032 and 2050 due to the reduction in the permitted waste disposal capacity at the Dunn Facility by approximately 220,000 cubic yards. This reduction was taken into account in the original calculations.

The table below summarizes the reduction in emissions that will result from construction of the MSE berm, if approved:

	Year 2023		Year 2030		Year 2032 or 2033		Year 2050	
Emissions Source	**Total CO_2 Equivalents (tons / year)**	**Total HAPs (tons / year)**	**Total CO_2 Equivalents (tons / year)**	**Total HAPs (tons / year)**	**Total CO_2 Equivalents (tons / year)**	**Total HAPs (tons / year)**	**Total CO_2 Equivalents (tons / year)**	**Total HAPs (tons / year)**
Total Emissions Under Currently Permitted Conditions	50,246	1.37	75,755	2.11	83,072	2.33	19,831	0.90
Total Emissions with the Modification	NA	NA	NA	NA	82,112	2.30	19,338	0.88
Change in Emissions as a Result of the Modification	**--**	**--**	**--**	**--**	**-960**	**-0.03**	**-482**	**-0.01**

13) **The HAP emissions from stationary sources are calculated in the emissions projections for 2030 and 2050. Please provide calculations for the HAP emissions from the stationary sources at the facility and for the proposed operations described in the renewal/modification applications. The calculations for each scenario should be provided on a PTE and actual emissions basis.**

Response: See response to Comment 12.

14) **Please provide a source reference and/or explain from where the heating value used in Tables B.2 and C.2 came.**

Response: Because AP-42 Chapter 1.4 lists the heating value of methane as a range from 950 to 1,050 BTU/SCF, the application used 1,000 BTU/scf in the calculations. Gas with a 27% methane concentration would be 27% of this value, or 270 BTU/scf. This explanation has been added to Table B.2 in Attachment B and Table C.2 in Attachment C to the CLCPA Assessment.

15) **Please describe how the escape CH4 value was calculated in Tables B.2 and C.2.**

Response: A flare destruction efficiency of 99%, referenced from 40 CFR 98, Subpart HH, was used in the calculations. This means that 1% of the gas collected will "escape" destruction. This flare destruction efficiency is conservation because destruction efficiencies are typically measured to be higher than 99% for flares. This explanation has been added to Table B.2 in Attachment B and Table C.2 in Attachment C to the CLCPA Assessment.

16) **Tables B.3, B.5, C.3, and C.5 utilize emission factors compiled by the Waste Industry Air Coalition (WAIC) to calculate emissions of speciated HAP compounds. Please utilize the AP-42 emission factors in Chapter 2, Solid Waste Disposal, instead. The AP-42 Chapter 2 factors are enclosed for your convenience.**

Response: The AP-42 emission factors provided are considered "draft" and have not been finalized. S.A. Dunn disagrees that these emission factors, which have not been made final by EPA, should be used when recognized alternatives are available. Indeed, the WIAC values (relied on in the November 2022 CLCPA Assessment) are commonly used to estimate emissions from landfills and are already conservative since they are based on emissions from municipal solid waste (MSW). Because C&D does not contain the VOCs and other compounds present in MSW, these compounds would not be produced to the same extent.

Notwithstanding this concern, GHD has revised the HAP emissions estimate using the AP-42 Section 2.4 emission factors.

17) **Please clarify how the cover oxidation factor of 10% was utilized in the fugitive landfill gas calculations for the years 2030 and 2050.**

Response: The calculation methodology in 40 CFR 98 Subpart HH acknowledges that fugitive methane is oxidized within the soil cover before it escapes. See Table HH-4 for a summary of different cover oxidation factors. For the purposes of the calculations, the default value of 10% was assumed, although it is likely to be significantly higher in practice. Thus, 10% of fugitive methane is assumed to be oxidized to carbon dioxide. This oxidized portion is still accounted for as CO2 in the totals, further ensuring that the calculations are conservative.

18) **The 2022 Statewide GHG Emissions Report has been released, which means the "Appendix A" emission factors have been updated. Please utilize these updated emission factors in the analysis. The 2022 version of Appendix A is attached.**

Response: The CLCPA Assessment used the most current emission factors at the time of submittal. The calculations in the CLCPA Assessment are being updated using the recently published factors.

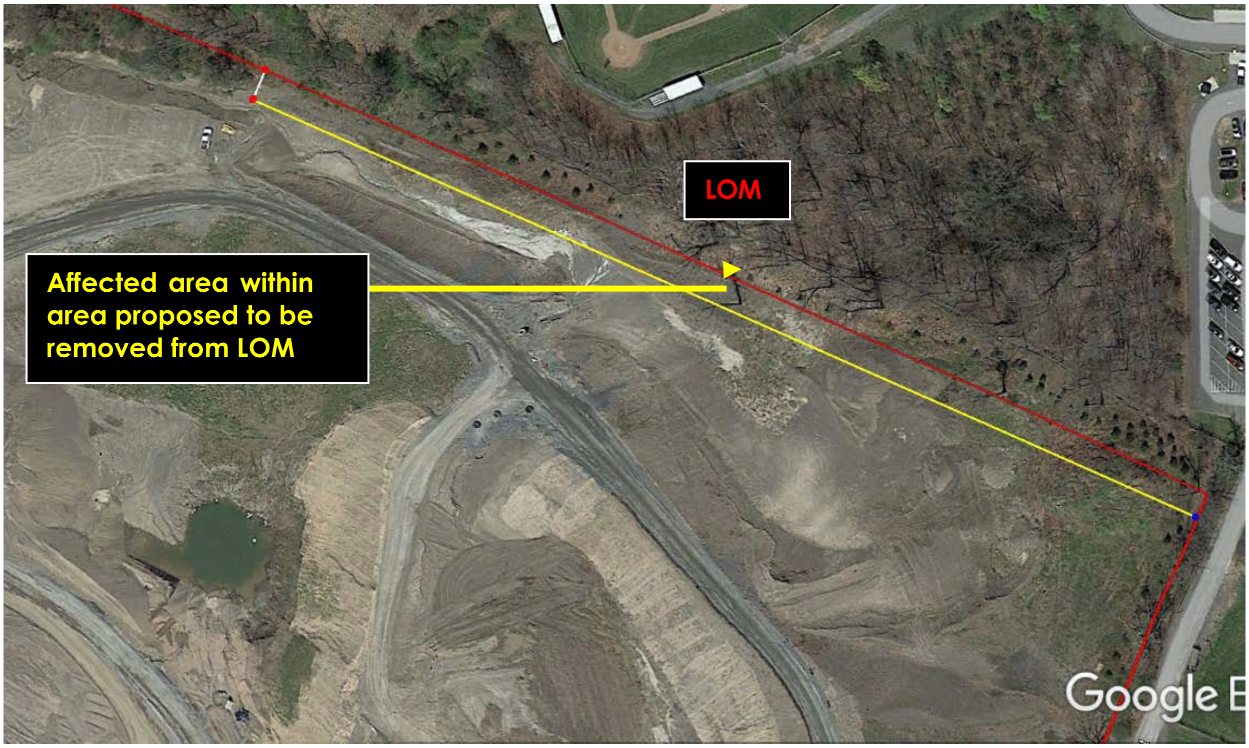
19) **The EPA AP-42 Chapter 3 table cited in footnotes 15 and 16 to Tables 3 and 4, respectively, is Table 3.3-2, which does not include a factor for PM. The EPA AP-42 table that includes an emission factor for PM is Table 3.3-1. Please correct.**

Response: As discussed above, PM is not included in the calculated HAP emissions total; therefore, a reference to Table 3.3-1 is not warranted.

Comments on Mined Land Reclamation Permit

20) **According to the January 2022 Mining Plan Map and Mined Land Use Plan, a total of 2.27 acres are proposed to be removed from the Life of Mine (LOM) along the northern and western boundaries of the mine. According to the most recent satellite imagery, a portion of the area proposed to be removed from the LOM along the northern perimeter of the site has been affected by mining activity (see image on Page 4 below). There is stockpiled material within this area and a portion of the perimeter storm water containment berm intersects this area. Provide a schedule for reclaiming all areas affected by mining activity within the area proposed to be removed from the LOM by *June 1, 2022.* Describe how the area will be reclaimed and provide details with regard to how the area will be covered with 6 inches of fertile cover material and planted to ensure that it is capable of achieving 75% vegetative coverage in the second year after planting.**

Mining Plan Map overlaid onto 2022 Google Earth Image



Response: In conjunction with the construction of the MSE berm, which will be built in two phases, S.A. Dunn will reclaim the area along the northern perimeter that will be removed from the Life of Mine area as a result of the proposed modification. The first phase of MSE berm construction will occur as the baseliner cell Phase 8B is built, and the second phase will occur as baseliner Phase 7B is built. Upon completion of each phase of the MSE berm, the adjacent area between the toe of slope and the property boundary will be reclaimed. S.A. Dunn will place a minimum of six inches of a cover material with a soil composition capable of sustaining plant growth, and apply a seed mixture—recommended from within the New York State Revegetation Procedures Manual – Surface Mining Reclamation—to all exposed soils to provide an acceptable vegetative cover, i.e., 75% vegetative cover by the end of the second growing season after planting.

Comments on Noise Analysis

21) **The Facility Sound Survey prepared by Aurora Acoustical Consultants Inc., dated November 14, 2022 (“noise analysis”), is deficient in not including the anticipated noise levels associated with the construction of the mechanically stabilized earthen (MSE) berm and focuses primarily on fill progression activities within the landfill footprint. Provide a revised noise analysis that describes:**

   a. **the proposed equipment to be utilized during the construction of the MSE berm and specific quantitative noise levels associated with the equipment models;**

b. **the duration of the proposed berm construction activity, including any necessary phasing or time-of-year construction constraints;**

c. **the anticipated noise levels at the nearest receptors to the proposed berm construction area in comparison to the measured ambient sound levels. The Rensselaer school athletic fields which are adjacent to the northern side of the facility should be identified as a receptor location;**

d. **the anticipated noise levels related to activity proposed to occur on top of the berm (such as traffic, earth moving, etc.) as well as landfill activities proposed to occur in the new landfill space just behind the berm (waste unloading, spreading, compacting, etc.);**

e. **clarification of the following statement on Page 53: "Facility sound levels were calculated using an environmental noise modeling program to determine the sound levels received at residential boundaries and at residential locations beyond the facility boundaries, for existing operations both with and without construction sources, and for planned modified operations at the northern end of the facility."**

Response: Attached is an April 13, 2023 addendum to the Facility Sound Survey that provides the requested data regarding anticipated noise levels related to the construction of the MSE berm, as well as truck traffic along the top of the proposed MSE berm.

The construction of the MSE berm will likely be completed in multiple stages, with the western portion of the MSE berm to be constructed first and the eastern portion of the MSE berm being constructed during a subsequent construction season. Based on experience with similar construction scopes, S.A. Dunn expects that the major berm construction activities (i.e., excavation, earth fills, and compaction) during each stage can be completed in a 5-to-7 week period, which S.A. Dunn will plan to occur during the neighboring Rensselaer City School summer break (late June to early September) to the greatest degree possible.

In the event that these major berm construction activities must occur during in-session periods, the attached addendum shows how noise mitigation measures can greatly reduce the noise levels associated with these short duration construction activities. Daily noise measurements will be taken and recorded at Locations 6 and E if major berm construction activities must occur during in-session periods. If these daily measured noise levels exceed 61.4 dBA at location 6 or 59.3 dBA at location E with the work ongoing, such mitigation measures (e.g., a continuous 12-foot vertical attenuation barrier on the exterior side of the major berm construction activities) will be implemented.

1) **In addition, the statement on Page 53 of the Facility Sound Survey is clarified as follows: "[S]ound levels received' refers to the noise level from an activity calculated to have attenuated from the noise source to the receptor location. "[P]lanned modified operations" refers to the presently permitted operations occurring at different locations based on the requested modified site geometry. The noise analysis**

deviates from the operating requirements under Part 360.19(j), which states that noise resulting from equipment or operations at the facility must not exceed the Leq sound levels beyond the property line owned or controlled by the owner or operator at locations authorized for residential purposes. Please provide a narrative discussion on how the noise level exceedances will be addressed and mitigated.

Response: As discussed during the February 15, 2023 meeting with the Department, the noise analysis does not indicate exceedances of the operating requirements under Part 360.19(j). As discussed, noise occurring during construction of the Dunn Facility is not subject to the noise level requirements of that section. In addition, locations authorized for residential purposes that are adjacent to the Dunn Facility are limited to areas on the southeast portion of the site (i.e., those represented by Boundary Location 2 from the Facility Sound Survey).

Comments on Dust Management Plan

2) **Please note that the facility's Dust Management Plan should be incorporated as a Best Management Practice in the SWPPP under the facility's existing Multi-Sector General Permit.**

Response: S.A. Dunn will incorporate the Dunn Facility's Dust Management Plan as a Best Management Practice in the SWPPP under the Facility's existing Multi-Sector General Permit.

Sincerely,

CIVIL & ENVIRONMENTAL ENGINEERING, LANDSCAPE ARCHITECTURE AND LAND SURVEYING, PLLC

Christopher S. Dohner, P.E.
Project Manager

Amy J. Knight, P.E.
Principal

Attachments: Dunn Facility CLCPA GHG Assessment (GHD)
Dunn Facility Sound Survey Addendum (Aurora Acoustical Consultants, Inc.)

cc: Curt Taylor, S.A. Dunn & Company, LLC.
Jeff Burrier, S.A. Dunn & Company, LLC.
Corey Judd, S.A. Dunn & Company, LLC.
Alanah Keddell-Tuckey, NYSDEC OEJ
Jon Whitcomb, NYSDEC-DMM
Jami June, NYSDEC-MLR
Carrie Buetow, NYSDEC-DOW

APPENDIX A

eurofins Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Corey Judd
Waste Connections, Inc.
209 Partition Street Extension
Rensselaer, New York 12144

Generated 3/2/2023 11:19:17 AM

JOB DESCRIPTION

Dunn Landfill

JOB NUMBER

480-206423-1

Eurofins Buffalo
10 Hazelwood Drive
Amherst NY 14228-2298

See page two for job notes and contact information.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17

Eurofins Buffalo

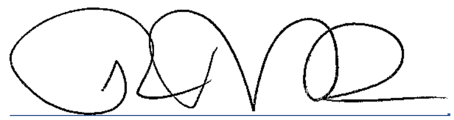
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17

Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of Eurofins Environment Testing Northeast, LLC Buffalo and its client. All questions regarding this report should be directed to the Eurofins Environment Testing Northeast, LLC Buffalo Project Manager or designee who has signed this report.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northeast, LLC Project Manager.

Authorization



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Authorized for release by
Ryan VanDette, Project Manager II
Ryan.VanDette@et.eurofinsus.com
(716)504-9830

Table of Contents

Qualifiers

Air - GC VOA

Qualifier	Qualifier Description
E	Result exceeded calibration range.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 480-206423-1

Laboratory: Eurofins Buffalo

Narrative

Job Narrative
480-206423-1

Comments
No additional comments.

Receipt
The samples were received on 2/23/2023 10:35 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice.

Air Toxics
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Waste Connections, Inc.
Project/Site: Dunn Landfill

Job ID: 480-206423-1

Client Sample ID: LFG-1

Lab Sample ID: 480-206423-1

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Carbon dioxide	29		0.25		% v/v	10.08		EPA 3C	Total/NA
Methane	27		0.040		% v/v	1.59		EPA 3C	Total/NA
Oxygen	4.6		0.97		% v/v	1.59		EPA 3C	Total/NA
Nitrogen	34		2.2		% v/v	1.59		EPA 3C	Total/NA

Client Sample ID: LFG-2

Lab Sample ID: 480-206423-2

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Carbon dioxide	29		0.32		% v/v	12.67		EPA 3C	Total/NA
Methane	27		0.047		% v/v	1.88		EPA 3C	Total/NA
Oxygen	4.9		1.1		% v/v	1.88		EPA 3C	Total/NA
Nitrogen	35		2.6		% v/v	1.88		EPA 3C	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Waste Connections, Inc.
Job ID: 480-206423-1
Project/Site: Dunn Landfill

Client Sample ID: LFG-1
Lab Sample ID: 480-206423-1
Date Collected: 02/22/23 11:52
Matrix: Air
Date Received: 02/23/23 10:35
Sample Container: Summa Canister 6L

Method: EPA 3C - Fixed Gases from Stationary Sources

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	29		0.25		% v/v			03/01/23 09:23	10.08
Methane	27		0.040		% v/v			02/28/23 17:27	1.59
Oxygen	4.6		0.97		% v/v			02/28/23 17:27	1.59
Nitrogen	34		2.2		% v/v			02/28/23 17:27	1.59

Client Sample Results

Client: Waste Connections, Inc.
Project/Site: Dunn Landfill

Job ID: 480-206423-1

Client Sample ID: LFG-2
Date Collected: 02/22/23 12:01
Date Received: 02/23/23 10:35
Sample Container: Summa Canister 6L

Lab Sample ID: 480-206423-2
Matrix: Air

Method: EPA 3C - Fixed Gases from Stationary Sources

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	29		0.32		% v/v			03/01/23 10:15	12.67
Methane	27		0.047		% v/v			02/28/23 18:19	1.88
Oxygen	4.9		1.1		% v/v			02/28/23 18:19	1.88
Nitrogen	35		2.6		% v/v			02/28/23 18:19	1.88

Client: Waste Connections, Inc. Job ID: 480-206423-1
Project/Site: Dunn Landfill

Method: EPA 3C - Fixed Gases from Stationary Sources

Lab Sample ID: MB 200-188992/3 **Client Sample ID: Method Blank**
Matrix: Air **Prep Type: Total/NA**
Analysis Batch: 188992

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	ND		0.025		% v/v			02/28/23 13:32	1
Methane	ND		0.025		% v/v			02/28/23 13:32	1
Oxygen	ND		0.61		% v/v			02/28/23 13:32	1
Nitrogen	ND		1.4		% v/v			02/28/23 13:32	1

Lab Sample ID: LCS 200-188992/2 **Client Sample ID: Lab Control Sample**
Matrix: Air **Prep Type: Total/NA**
Analysis Batch: 188992

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Carbon dioxide	5.00	5.30	E	% v/v		106	70 - 130
Methane	5.00	5.08		% v/v		102	70 - 130
Oxygen	5.02	5.12		% v/v		102	70 - 130
Nitrogen	5.07	5.42		% v/v		107	70 - 130

Air - GC VOA

Analysis Batch: 188992

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-206423-1	LFG-1	Total/NA	Air	EPA 3C	
480-206423-1	LFG-1	Total/NA	Air	EPA 3C	
480-206423-2	LFG-2	Total/NA	Air	EPA 3C	
480-206423-2	LFG-2	Total/NA	Air	EPA 3C	
MB 200-188992/3	Method Blank	Total/NA	Air	EPA 3C	
LCS 200-188992/2	Lab Control Sample	Total/NA	Air	EPA 3C	

Lab Chronicle

Client: Waste Connections, Inc. Job ID: 480-206423-1
Project/Site: Dunn Landfill

Client Sample ID: LFG-1 **Lab Sample ID: 480-206423-1**
Date Collected: 02/22/23 11:52 **Matrix: Air**
Date Received: 02/23/23 10:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 3C		1.59	188992	WRD	EET BUR	02/28/23 17:27
Total/NA	Analysis	EPA 3C		10.08	188992	WRD	EET BUR	03/01/23 09:23

Client Sample ID: LFG-2 **Lab Sample ID: 480-206423-2**
Date Collected: 02/22/23 12:01 **Matrix: Air**
Date Received: 02/23/23 10:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 3C		1.88	188992	WRD	EET BUR	02/28/23 18:19
Total/NA	Analysis	EPA 3C		12.67	188992	WRD	EET BUR	03/01/23 10:15

Laboratory References:

EET BUR = Eurofins Burlington, 530 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Accreditation/Certification Summary

Client: Waste Connections, Inc. Job ID: 480-206423-1
Project/Site: Dunn Landfill

Laboratory: Eurofins Burlington

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP	L2336	02-25-26
Connecticut	State	PH-0751	09-30-23
DE Haz. Subst. Cleanup Act (HSCA)	State	N/A	05-17-23
Florida	NELAP	E87467	06-30-23
Minnesota	NELAP	050-999-436	12-31-23
New Hampshire	NELAP	2006	12-18-23
New Jersey	NELAP	VT972	06-30-23
New York	NELAP	10391	04-01-23
Pennsylvania	NELAP	68-00489	04-30-23
Rhode Island	State	LAO00298	12-30-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-17-00272	10-30-23
Vermont	State	VT4000	02-10-24
Virginia	NELAP	460209	12-14-23
Wisconsin	State	399133350	08-31-23

Method Summary

Client: Waste Connections, Inc.
Job ID: 480-206423-1
Project/Site: Dunn Landfill

Method	Method Description	Protocol	Laboratory
EPA 3C	Fixed Gases from Stationary Sources	EPA	EET BUR

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

EET BUR = Eurofins Burlington, 530 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Sample Summary

Client: Waste Connections, Inc.
Project/Site: Dunn Landfill

Job ID: 480-206423-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
480-206423-1	LFG-1	Air	02/22/23 11:52	02/23/23 10:35	Air Canister (6-Liter) #4148
480-206423-2	LFG-2	Air	02/22/23 12:01	02/23/23 10:35	Air Canister (6-Liter) #3666

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Post-Sampling Air Canister Pressure Check Record

Login # (w/ Location Code)	Date	Time (Military)	Lab BP ("Hg)	Lab Temp (°C)	Pressure Gauge ID	Analyst
480-206423	02/23/23	15:00	29.6	22	G35	ZK

Sampling Information and Return Equipment Check	Yes	No	Comments
(1) Is a Field Test Data Sheet (FTDS) or similar sampling documentation present?	Yes		
(2) Is the flow controller ID used for each canister recorded?	Yes		
(3) MA MCP & NJ DKQP: Check return flow rate for flow controllers		No	
(4) Is visible sign of damage to canister and/or flow controller (FC) present?		No	
If damage observed, list equipment IDs and describe condition:			

Post-Sampling Return Pressure Check

Lab ID	Canister ID	Pressure[1] ("Hg)	Anomaly[2] (Y/N)	FC ID[3]	FC Check[4] Reference	FC Return (Y/N)	Can Cert Batch ID	Comments
480-206423-A-1	4148	-2.2	N	6588	*	Y	6150-54219	
480-206423-A-2	3666	-3.4	N	6588	*	Y	6150-54219	

[1] Criteria: Return Pressure should be between -1 and -10 ("Hg) with the exception of grab samples or those using 100 or 200mL/minute flow controllers. These samples must be returned at no lower than -10"Hg, but have no specific criteria otherwise.

[2] If return pressure is not within criteria, initiate Non-Conformance Memo.

[3] Record the ID of the FC used for sampling if information is provided, otherwise leave blank.

[4] Record the Flow Controller Set Flow Rate Logbook ID and Page number in which the original FC Check was recorded

FSR021:05.10.16:1
TestAmerica Burlington

Eurofins TestAmerica, Burlington
530 Community Drive
Suite 11
South Burlington, VT 05403-6809
phone 802.660 1990 fax 802 660.1919

Canister Samples Chain of Custody Record

TestAmerica Laboratories, Inc. assumes no liability with respect to the collection and shipment of these samples

eurofins | Environment Testing America

TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica

Client Contact Information	**Client Project Manager:** CURT TAYLOR	**Samples Collected By:** CURT TAYLOR	COC No.
Company Name: SA DUNN & COMPANY, LLC	Phone: (518) 470 3830		____ of ____ COCs
Address: 209 PARTITION ST. EXT.	Email: CURTT@WCNX.ORG		TALS Project #:
City/State/Zip: RENSSELAER, NY 12144			**For Lab Use Only:**
Phone: (518) 470-3830	Site Contact: CURT TAYLOR		Walk-in Client:
FAX.	Tel/Fax: (518) 470-3830		Lab Sampling:
Project Name.	**Analysis Turnaround Time**		
Site/Location	Standard (Specific)		Job / SDG No:
P O #	Rush (Specify):		(See below for Add'l Items)

Sample Identification	Sample Start Date	Time Start	Sample End Date	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-14/15 (Standard / Low Level)	TO-15 SIM	EPA 3C	EPA 25C	ASTM D-1946	EPA 15/16	Other (Please specify in notes section)	Sample Type: Indoor Air/Ambient Air	Sub-Slab	Soil Gas	Soil Vapor Extraction (SVE)	Landfill Gas	Other (Please specify in notes section)	Sample Specific Notes:
LFG - 1	2/22/23	1152	1152	2/22							1									X		
LFG - 2	2/22	1200	1201	2/22							1									X		

480-206423 Chain of Custody

	Temperature (Fahrenheit)		
Start	Interior	Ambient	
Stop			
	Pressure (inches of Hg)		
Start	Interior	Ambient	
Stop			

Special Instructions/QC Requirements & Comments:

Samples Shipped by: CURT TAYLOR	**Date / Time:** 2/22/23 1315	**Samples Received by:**	2/23/23 10:35 [signature]
Samples Relinquished by:	**Date / Time:**	**Received by:**	
Relinquished by:	**Date / Time:**	**Received by:**	
Lab Use Only: **Shipper Name:**	**Opened by:**	**Condition:**	

Form No. CA-C-WI-003, Rev. 2.28, dated 1/8/2021

ORIGIN ID:BTVA (802) 923-1058
CURT TAYLOR
WASTE CONNECTIONS, INC.
209 PARTITION STREET EXTENSION

RENSSELAER, NY 12144
UNITED STATES US

SHIP DATE: 09FEB23
ACTWGT: 10.00 LB MAN
CAD: 000890364/CAFE3

TO SAMPLE MANAGEMENT
EUROFINS TESTAMERICA BURLINGTON
30 COMMUNITY DRIVE
SUITE 11
SOUTH BURLINGTON VT 05403
(802) 923-1058
REF: S480-182155

RMA:

Fe

FedEx
TRK# 0221 6269 5353 3950

THU - 23 FE
PRIORITY OV

XE BTVA

VT-

Login Sample Receipt Checklist

Client: Waste Connections, Inc. | Job Number: 480-206423-1

Login Number: 206423 | **List Source: Eurofins Buffalo**

List Number: 1

Creator: Khudaier, Zahraa

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	NA: Lab does not accept radioactive samples
The cooler's custody seal, if present, is intact.	True	1998590, 591
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	No: Thermal preservation not required
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	N/A	No: Thermal preservation not required
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	N/A	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	N/A	

Login Sample Receipt Checklist

Client: Waste Connections, Inc. | Job Number: 480-206423-1

Login Number: 206423 | **List Source: Eurofins Burlington**
List Number: 2 | **List Creation: 02/23/23 02:52 PM**
Creator: Khudaier, Zahraa

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

Pre-Shipment Clean Canister Certification Report

Canister Cleaning & Pre-Shipment Leak Test

System ID	Max DF#	# Cycles	Cleaning Start Date/Time		System Start Temp(s):		Technician	Can Size	Certification Type:
Bottom Rack	10	25	2/2/2023	1500	22	22	SML	6 liter	batch

Port	Can ID	Initial[1] (psia)	Final (psia)	Diff.[3]	Final ("Hg)	Initial Reading Gauge:	Initial Reading Date:	Initial Reading Time:	Initial Reading Tech:	Initial Reading Temp:	Final Reading Gauge:	Final Reading Date:	Final Reading Time:	Final Reading Tech:	Final Reading Temp:
1	5437	.04	.04	Ø	29.8	G26	2/05/23	1047	✓	22.0	G26	2/7/23	1134	✓	22.0
2	3514		.04	Ø		G26					G26				
3	5677		.04	Ø		G26					G26				
4	6150	.04	.04	Ø	29.8	G26	2/7/23	1205	✓	22.0	G26	2/10/23	1400	✓	22.0
5	5053	.04	.04	Ø	29.8	G26	2/5/23	1047	✓	22.0	G26	2/7/23	1134	✓	22.0
6	8450		.04	Ø		G26					G26				
7	5140		.04	Ø		G26					G26				
8	4829		.04	Ø		G26					G26				
9	6311		.04	Ø		G26					G26				
10	3666		.04	Ø		G26					G26				
11	4148		.04	Ø		G26					G26				
12	5159		.04	Ø		G26					G26				

[1] Batch Certification: The reading is taken on the "batch" canister and this value is used as the initial pressure for all canisters in the batch.

[3] Difference = Final Pressure - Initial Pressure . Acceptance Criteria: (1) The difference must be less than or equal to + 0.25psi. (2) Pressure readings must be at least 24 hours apart.

If time frame was not met, the PM must authorize shipment of canister **PM Authorization** **Date:**

NJ

Clean Canister Certification Analysis & Authorization of Release to Inventory

Test Method: ☒ TO15 Routine ☐ TO15 LL

Can ID	Date	Sequence	Analyst	Inventory Level 1	Inventory Level 2	Inventory Level 3	Inventory Level 4	Secondary Review Limited	Secondary Review Review Date	Secondary Review Revie
6150	2/7/23	54219	KPI		XXXXXXX				2/7/23	TPB

Inventory Level 1: Individual Canister Certification (TO15LL 0.01).

Inventory Level 2: Individual or Batch Certification (TO15 0.04 ppbv).

Inventory Level 3: Individual or Batch Certification (TO15 0.2 ppbv).

Inventory Level Limited: Canisters may only be used for certain projects.

Dup Tees/Vac gauges (enter IDs if included):

Comments:

0.04 IND CERTIFIED

200-66698-A-4
6150
Location: Air-Storage
Bottle: Summa Canister 6L
Sampled: 2/2/2023 12:00 AM 200-1701087

Loc: 200
66698
#4 A
Air-Storag

Form ID: FAI023:12
Revision Date: 12/18/2018

TestAmerica Burlington

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Burlington Job No.: 200-66698-1

SDG No.:

Client Sample ID: 6150 Lab Sample ID: 200-66698-4

Matrix: Air Lab File ID: 54219-005.d

Analysis Method: TO-15 Date Collected: 02/02/2023 00:00

Sample wt/vol: 1000(mL) Date Analyzed: 02/06/2023 10:26

Soil Aliquot Vol: Dilution Factor: 0.2

Soil Extract Vol.: GC Column: RTX-624 ID: 0.32(mm)

Purge Volume: Heated Purge: (Y/N) pH:

% Moisture: % Solids: Level: (low/med) Low

Analysis Batch No.: 188127 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
100-41-4	Ethylbenzene	0.040	U	0.040	0.010
100-42-5	Styrene	0.040	U	0.040	0.012
10061-01-5	1,3-Dichloropropene, cis-	0.040	U	0.040	0.0090
10061-02-6	1,3-Dichloropropene, trans-	0.040	U	0.040	0.011
106-46-7	1,4-Dichlorobenzene	0.040	U	0.040	0.018
106-93-4	1,2-Dibromoethane	0.040	U	0.040	0.0084
106-99-0	1,3-Butadiene	0.040	U	0.040	0.0078
107-05-1	Allyl chloride	0.10	U	0.10	0.024
107-06-2	1,2-Dichloroethane	0.040	U	0.040	0.019
108-10-1	Methyl isobutyl ketone (MIBK)	0.10	U	0.10	0.026
108-67-8	1,3,5-Trimethylbenzene	0.040	U	0.040	0.0094
108-88-3	Toluene	0.040	U	0.040	0.0084
108-90-7	Chlorobenzene	0.040	U	0.040	0.0088
109-99-9	Tetrahydrofuran	1.0	U	1.0	0.26
110-54-3	Hexane	0.10	U	0.10	0.022
110-82-7	Cyclohexane	0.040	U	0.040	0.012
120-82-1	1,2,4-Trichlorobenzene	0.10	U	0.10	0.066
123-91-1	1,4-Dioxane	0.040	U	0.040	0.016
124-48-1	Dibromochloromethane	0.040	U	0.040	0.013
127-18-4	Tetrachloroethene	0.040	U	0.040	0.0042
142-82-5	n-Heptane	0.040	U	0.040	0.011
156-59-2	1,2-Dichloroethene, cis-	0.040	U	0.040	0.0042
156-60-5	1,2-Dichloroethene, trans-	0.040	U	0.040	0.0046
1634-04-4	Methyl tert-butyl ether	0.040	U	0.040	0.0072
179601-23-1	m,p-Xylene	0.10	U	0.10	0.019
540-84-1	2,2,4-Trimethylpentane	0.040	U	0.040	0.0076
541-73-1	1,3-Dichlorobenzene	0.040	U	0.040	0.015
56-23-5	Carbon tetrachloride	0.040	U	0.040	0.0044
593-60-2	Vinyl bromide	0.040	U	0.040	0.010
622-96-8	4-Ethyltoluene	0.040	U	0.040	0.0098
64-17-5	Ethanol	1.0	U	1.0	0.52
67-63-0	Isopropanol	1.0	U	1.0	0.32
67-64-1	Acetone	1.0	U	1.0	0.32
67-66-3	Chloroform	0.040	U	0.040	0.0082

FORM I TO-15

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Burlington | Job No.: 200-66698-1

SDG No.:

Client Sample ID: 6150 | Lab Sample ID: 200-66698-4

Matrix: Air | Lab File ID: 54219-005.d

Analysis Method: TO-15 | Date Collected: 02/02/2023 00:00

Sample wt/vol: 1000(mL) | Date Analyzed: 02/06/2023 10:26

Soil Aliquot Vol: | Dilution Factor: 0.2

Soil Extract Vol.: | GC Column: RTX-624 ID: 0.32(mm)

Purge Volume: | Heated Purge: (Y/N) pH:

% Moisture: % Solids: | Level: (low/med) Low

Analysis Batch No.: 188127 | Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-43-2	Benzene	0.040	U	0.040	0.0088
71-55-6	1,1,1-Trichloroethane	0.040	U	0.040	0.0088
74-83-9	Bromomethane	0.040	U	0.040	0.014
74-87-3	Chloromethane	0.10	U	0.10	0.030
75-00-3	Chloroethane	0.10	U	0.10	0.036
75-01-4	Vinyl chloride	0.040	U	0.040	0.0042
75-09-2	Methylene Chloride	0.10	U	0.10	0.036
75-15-0	Carbon disulfide	0.10	U	0.10	0.026
75-25-2	Bromoform	0.040	U	0.040	0.024
75-27-4	Bromodichloromethane	0.040	U	0.040	0.010
75-34-3	1,1-Dichloroethane	0.040	U	0.040	0.0050
75-35-4	1,1-Dichloroethene	0.040	U	0.040	0.0052
75-65-0	tert-Butyl alcohol	1.0	U	1.0	0.24
75-69-4	Trichlorofluoromethane	0.040	U	0.040	0.010
75-71-8	Dichlorodifluoromethane	0.10	U	0.10	0.022
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.040	U	0.040	0.011
76-14-2	1,2-Dichlorotetrafluoroethane	0.040	U	0.040	0.0096
78-87-5	1,2-Dichloropropane	0.040	U	0.040	0.019
78-93-3	Methyl ethyl ketone (MEK)	0.10	U	0.10	0.098
79-00-5	1,1,2-Trichloroethane	0.040	U	0.040	0.015
79-01-6	Trichloroethene	0.040	U	0.040	0.0050
79-34-5	1,1,2,2-Tetrachloroethane	0.040	U	0.040	0.0086
80-62-6	Methyl methacrylate	0.10	U	0.10	0.028
87-68-3	Hexachlorobutadiene	0.040	U	0.040	0.022
91-20-3	Naphthalene	0.10	U	0.10	0.060
95-47-6	Xylene, o-	0.040	U	0.040	0.010
95-49-8	2-Chlorotoluene	0.040	U	0.040	0.0092
95-50-1	1,2-Dichlorobenzene	0.040	U	0.040	0.013
95-63-6	1,2,4-Trimethylbenzene	0.040	U	0.040	0.016
591-78-6	2-Hexanone	0.10	U	0.10	0.030

FORM I TO-15

Eurofins Burlington
Target Compound Quantitation Report

Data File:	\\chromfs\Burlington\ChromData\CHW.i\20230206-54219.b\54219-005.d				
Lims ID:	200-66698-A-4				
Client ID:	6150				
Sample Type:	Client				
Inject. Date:	06-Feb-2023 10:26:30	ALS Bottle#:	4	Worklist Smp#:	5
Purge Vol:	200.000 mL	Dil. Factor:	0.2000		
Sample Info:	200-0054219-005				
Misc. Info.:	666984-4				
Operator ID:	wrd	Instrument ID:	CHW.i		
Method:	\\chromfs\Burlington\ChromData\CHW.i\20230206-54219.b\TO15_TO3_MasterMethod_W.m				
Limit Group:	AI_TO15_ICAL				
Last Update:	07-Feb-2023 10:33:25	Calib Date:	01-Feb-2023 00:48:30		
Integrator:	RTE	ID Type:	Deconvolution ID		
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\chromfs\Burlington\ChromData\CHW.i\20230131-54170.b\54170-013.d				
Column 1 :	RTX-624 (0.32 mm)		Det: MS SCAN		
Process Host:	CTX1666				
First Level Reviewer: puangmaleek		Date:	07-Feb-2023 10:35:27		

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
1 Propene	41		4.089				ND	7
2 Dichlorodifluoromethane	85		4.180				ND	
3 Chlorodifluoromethane	51		4.223				ND	
4 1,2-Dichloro-1,1,2,2-tetrafluoro	85		4.522				ND	
5 Chloromethane	50		4.634				ND	
6 Vinyl chloride	62		4.934				ND	
7 Butane	43		4.939				ND	7
8 Butadiene	54		5.046				ND	
9 Bromomethane	94		5.747				ND	
10 Chloroethane	64		6.015				ND	
13 Vinyl bromide	106		6.427				ND	
14 Trichlorofluoromethane	101		6.587				ND	
16 Ethanol	45		6.962				ND	
20 1,1-Dichloroethene	96		7.636				ND	
21 1,1,2-Trichloro-1,2,2-trifluoroe	101		7.684				ND	
22 Acetone	43		7.716				ND	
23 Isopropyl alcohol	45		8.015				ND	
24 Carbon disulfide	76	8.037	8.042	-0.005	94	2194	0.0437	
26 3-Chloro-1-propene	41		8.331				ND	
27 Methylene Chloride	49		8.556				ND	7
28 2-Methyl-2-propanol	59		8.780				ND	
30 trans-1,2-Dichloroethene	61		9.053				ND	
31 Methyl tert-butyl ether	73		9.069				ND	
32 Hexane	57		9.562				ND	
33 1,1-Dichloroethane	63		9.808				ND	
34 Vinyl acetate	43		9.824				ND	
S 35 1,2-Dichloroethene, Total	61		10.200				ND	7
36 2-Butanone (MEK)	72		10.765				ND	
37 cis-1,2-Dichloroethene	96		10.792				ND	
38 Ethyl acetate	88		10.861				ND	
* 39 Chlorobromomethane	128	11.193	11.199	-0.006	92	107792	10.0	

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
40 Tetrahydrofuran	42		11.252				ND	
41 Chloroform	83		11.375				ND	
42 1,1,1-Trichloroethane	97		11.680				ND	
43 Cyclohexane	84		11.819				ND	
44 Carbon tetrachloride	117		11.958				ND	
45 Benzene	78		12.301				ND	
46 1,2-Dichloroethane	62		12.375				ND	
47 Isooctane	57		12.520				ND	
48 n-Heptane	43		12.836				ND	
* 49 1,4-Difluorobenzene	114	13.039	13.039	0.000	94	578374	10.0	
51 Trichloroethene	95		13.467				ND	
53 1,2-Dichloropropane	63		13.922				ND	
54 Methyl methacrylate	69		14.018				ND	
55 1,4-Dioxane	88		14.061				ND	
57 Dibromomethane	174		14.077				ND	
58 Dichlorobromomethane	83		14.387				ND	
59 cis-1,3-Dichloropropene	75		15.189				ND	
61 4-Methyl-2-pentanone (MIBK)	43		15.452				ND	
62 Toluene	92		15.826				ND	
66 trans-1,3-Dichloropropene	75		16.243				ND	
67 1,1,2-Trichloroethane	83		16.618				ND	
68 Tetrachloroethene	166		16.816				ND	
69 2-Hexanone	43		17.035				ND	
70 Chlorodibromomethane	129		17.351				ND	
71 Ethylene Dibromide	107		17.591				ND	
* 73 Chlorobenzene-d5	117	18.501	18.501	0.000	87	465737	10.0	
74 Chlorobenzene	112		18.560				ND	
75 Ethylbenzene	91		18.758				ND	7
76 m-Xylene & p-Xylene	106	19.014	19.014	0.000	0	750	0.0243	
78 o-Xylene	106		19.790				ND	
79 Styrene	104		19.828				ND	
S 80 Xylenes, Total	106				0		0.0243	
81 Bromoform	173		20.181				ND	
82 Isopropylbenzene	105		20.518				ND	
83 1,1,2,2-Tetrachloroethane	83		21.047				ND	
85 N-Propylbenzene	91		21.256				ND	7
86 2-Chlorotoluene	91		21.406				ND	7
87 4-Ethyltoluene	105		21.465				ND	7
88 1,3,5-Trimethylbenzene	105		21.561				ND	7
91 tert-Butylbenzene	119		22.048				ND	
92 1,2,4-Trimethylbenzene	105		22.139				ND	
93 sec-Butylbenzene	105		22.379				ND	
94 1,3-Dichlorobenzene	146		22.551				ND	7
95 4-Isopropyltoluene	119		22.599				ND	
96 1,4-Dichlorobenzene	146		22.695				ND	7
97 Benzyl chloride	91		22.845				ND	7
98 n-Butylbenzene	91		23.155				ND	7
99 1,2-Dichlorobenzene	146	23.187	23.177	0.011	84	420	0.009688	
102 1,2,4-Trichlorobenzene	180		25.557				ND	
103 Hexachlorobutadiene	225		25.798				ND	
104 Naphthalene	128		26.012				ND	7

QC Flag Legend

Processing Flags

7 - Failed Limit of Detection

Reagents:

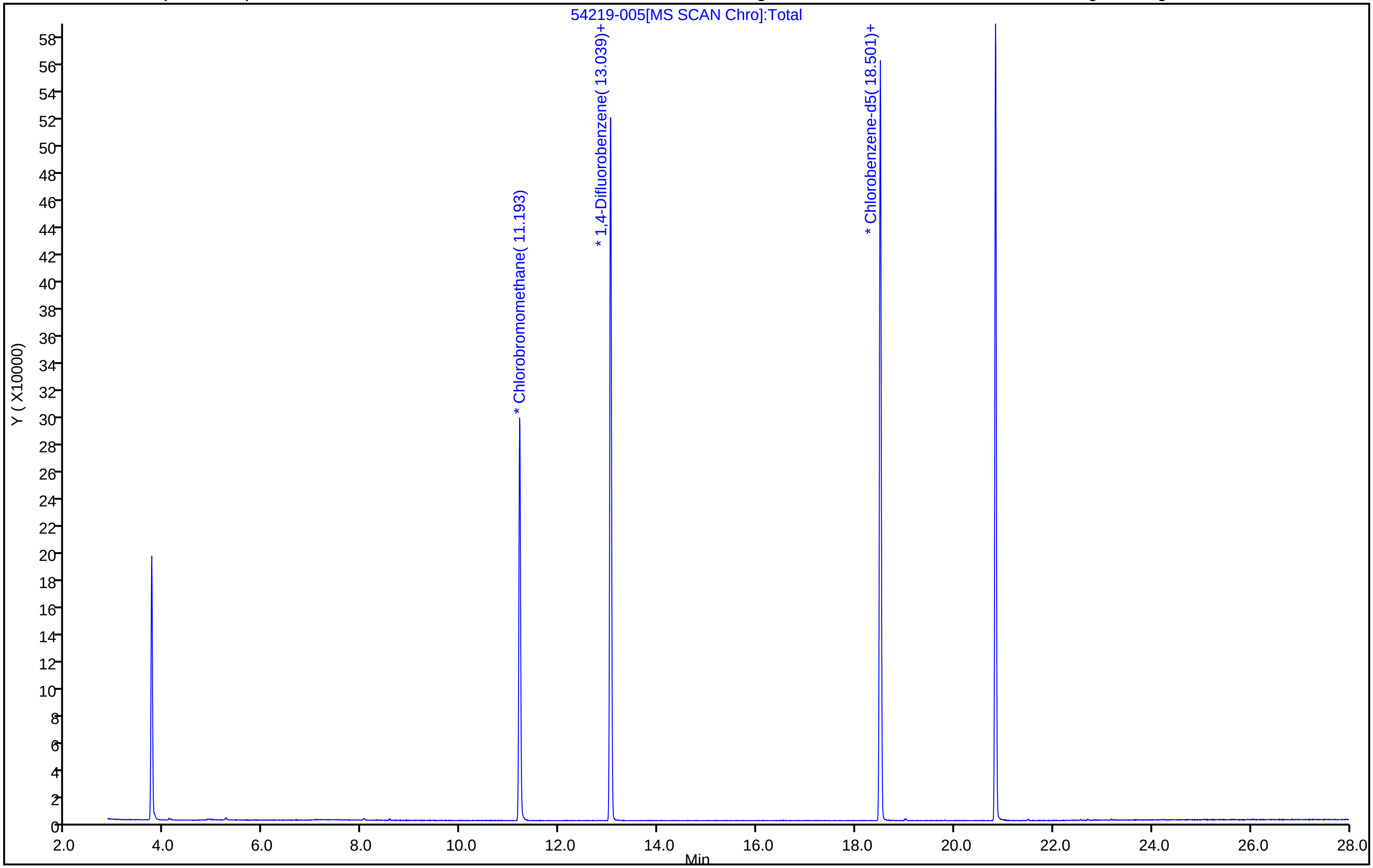
ATTO15WISs_00010	Amount Added: 20.00	Units: mL	Run Reagent

Report Date: 07-Feb-2023 10:35:27 Chrom Revision: 2.3 01-Feb-2023 13:23:06

Eurofins Burlington

Data File:	\\chromfs\Burlington\ChromData\CHW.i\20230206-54219.b\54219-005.d				
Injection Date:	06-Feb-2023 10:26:30	Instrument ID:	CHW.i	Operator ID:	wrd
Lims ID:	200-66698-A-4	Lab Sample ID:	200-66698-4	Worklist Smp#:	5
Client ID:	6150				
Purge Vol:	200.000 mL	Dil. Factor:	0.2000	ALS Bottle#:	4
Method:	TO15_TO3_MasterMethod_W	Limit Group:	AI_TO15_ICAL		

Column: RTX-624 (0.32 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Summa Canister Dilution Worksheet

Client: Waste Connections, Inc.
Project/Site: Dunn Landfill

Job No.: 480-206423-1

Lab Sample ID	Canister Volume (L)	Preadjusted Pressure ("Hg)	Preadjusted Pressure (atm)	Preadjusted Volume (L)	Adjusted Pressure (psig)	Adjusted Pressure (atm)	Adjusted Volume (L)	Initial Volume (mL)	Dilution Factor	Final Dilution Factor	Pressure Gauge ID	Date	Analyst Initals
480-206423-1	6	0	1.00	6.00	8.7	1.59	9.55		1.59	1.59	g23	02/28/23 16:01	WRD
480-206423-1	6	1.01801	1.03	6.20	38.5	3.62	21.71		3.50	5.57	g23	03/01/23 15:44	WRD
480-206423-1	6	2.23962	1.07	6.45	13.9	1.95	11.67		1.81	10.08	g23	03/01/23 15:44	WRD
480-206423-2	6	-4.2	0.86	5.16	9.0	1.61	9.67		1.88	1.88	g23	02/28/23 16:01	WRD
480-206423-2	6	2.23962	1.07	6.45	38.5	3.62	21.71		3.37	6.32	g23	03/01/23 15:45	WRD
480-206423-2	6	1.62882	1.05	6.33	16.4	2.12	12.69		2.01	12.67	g23	03/01/23 15:46	WRD

Formulae:

Preadjusted Volume (L) = ((Preadjusted Pressure ("Hg) + 29.92 "Hg) * Vol L) / 29.92 "Hg
Adjusted Volume (L) = ((Adjusted Pressure (psig) + 14.7 psig)* Vol L) / 14.7 psig
Dilution Factor = Adjusted Volume (L) / Preadjusted Volume (L)

Where:

29.92 "Hg = Standard atmospheric pressure in inches of Mercury ("Hg)
14.7 psig = Standard atmospheric pressure in pounds per square inch gauge (psig)

APPENDIX B

Appendix B

Potential Emission Reduction Measures
From Section 5.3 of the Revised CLCPA Assessment

This section discusses potential measures to increase landfill gas (LFG) collection and mitigate emissions during the construction, operation, and maintenance activities described in Sections 2 and 3 of the CLCPA Assessment.

Upon approval of its permit renewal and modification applications, S.A. Dunn commits to implementing or continuing to implement the following measures to mitigate emissions at the Dunn Facility:

- Continued operation of the gas collection and control system. Since 2019, after the issuance of the initial solid waste permit, S.A. Dunn has operated a gas collection and control system with a utility flare at the Dunn Facility, which efficiently destroys methane. Not all C&D landfills have or are required to have a gas collection and control system; therefore, other alternative C&D landfill sites (in-state or out-of-state) may not provide this greenhouse gas (GHG) reduction benefit that the Dunn Facility provides. As shown in Table 1, attached to the CLCPA Assessment, a landfill with a gas collection and control system emits approximately 59% less GHG in 2030 and 82% less GHG in 2050; and 40% less HAPs in 2030 and 57% less HAPs in 2050 than a comparable landfill without a gas collection and control system (i.e., with uncontrolled emissions).
- Expansion of the gas collection and control system to capture more gas as additional waste placement reaches permitted grades.
- To the extent practical, S.A. Dunn coordinates, and will continue to coordinate, back hauls of loads leaving the Dunn Facility, such that after loads of inbound earthen material (e.g., crushed stone for roads, drainage stone and clay for liner system construction) are delivered to the Dunn Facility, those same trucks will then reload prior to leaving the Dunn Facility with outbound sand and gravel exports. This coordination reduces truck trips—and thus truck emissions, including in the proximate disadvantaged communities.
- Regular placement, inspection, and maintenance of all cover materials in areas where waste has been placed. In addition to existing inspection practices, S.A. Dunn commits to documentation of a monthly inspection of cover materials and undertaking maintenance, as needed. The regular inspection and maintenance of cover materials will aid in the reduction of fugitive emissions through the cover soil by strengthening the interface between the gas collection zone (within the waste mass) and the ambient air. In strengthening this cover barrier, the gas collection system is able to operate more effectively by capturing additional gas and thereby reducing fugitive emissions to the atmosphere. In addition, an effective cover barrier will result in increased oxidation of methane and hydrogen sulfide within the cover soil.
- Preparation and submission of construction plans for NYSDEC review within 6 months of receiving the final permit. The construction plans will identify an area of at least 10 acres of final cap to be constructed within the construction season following NYSDEC approval

of the construction plans. Further, S.A. Dunn will complete final cap on at least 20 acres (inclusive of the initial 10 or more acres of final cap) by 2030, and on all remaining areas of the landfill footprint (62.1 acres) by 2050. While an intermediate cover system does provide an adequate barrier between the waste mass and the ambient air, a final cover system is the highest level cover system that a facility can employ and results in maximized gas capture and oxidation. The GHG Reporting Rule regulations (under 40 CFR 98 Subpart HH) specify an average collection efficiency of 75% for areas with intermediate cover and 95% for areas with final cover. The installation of final cover—particularly where earlier than required—will thus result in a significant reduction of GHG emissions.

- Preparation and submission of a surface emission monitoring (SEM) work plan for NYSDEC review within 6 months of receiving the final permit. The work plan will entail an annual SEM event substantively following the field procedures for SEM detailed in the New Source Performance Standards for municipal solid waste landfills. The first SEM event will be completed within a year of receiving NYSDEC approval of the work plan. SEM results will be provided to NYSDEC upon completion, and any indicated corrective measures will be implemented by S.A. Dunn in a timely manner.
- Vegetation of all areas of the Dunn Facility where feasible. The presence of vegetation within the cover soil has been shown in studies to increase the rate of cover oxidation compared with areas that do not have vegetation.
- Mine reclamation and closure will provide a final vegetated cap, which—as explained above—will increase the rate of cover oxidation.
- Construction of the MSE berm, which will mitigate emissions by:
  - Reducing waste in place by approximately 220,000 cubic yards. This reduces the potential GHG emissions from LFG by approximately 914 tons per year at peak, and further reduces truck trips from waste disposal—and thus truck emissions—including in the proximate disadvantaged communities.
  - Reducing the amount of construction soils and sands to be hauled from the Dunn Facility by at least 500,000 cubic yards, thus decreasing truck and construction equipment emissions, including in the proximate disadvantaged communities. At 15 tons per truck, this is a potential reduction of approximately 90,000 truck trips.
  - The reductions in emissions (in tons) that will result from construction of the MSE berm, if approved, are summarized in the table below.

	Year 2023		Year 2030		Year 2032 or 2033		Year 2050	
Emissions Source	**Total CO_2 Equivalents (tons / year)**	**Total HAPs (tons / year)**	**Total CO_2 Equivalents (tons / year)**	**Total HAPs (tons / year)**	**Total CO_2 Equivalents (tons / year)**	**Total HAPs (tons / year)**	**Total CO_2 Equivalents (tons / year)**	**Total HAPs (tons / year)**
Total Emissions Under Currently Permitted Conditions	50,246	1.37	75,755	2.11	83,072	2.33	19,831	0.90
Total Emissions with the Modification	NA	NA	NA	NA	82,112	2.30	19,338	0.88
Change in Emissions as a Result of the Modification	--	--	--	--	**-960**	**-0.03**	**-482**	**-0.01**

- Incorporation of vegetation into the MSE berm, which—as explained above—will further increase the rate of cover oxidation.
- Use of the existing Dunn Facility potentially avoids the development of greenfield sites and the associated removal of vegetation.

NYSDEC's March 30 notice of incomplete application identified possible mitigation measures in addition to those already incorporated into the Dunn Facility's current design and operational practices. Those potential mitigation measures, and S.A. Dunn's evaluation of their feasibility, are provided below.

- Evaluation and introduction of intermediate waste processing methods, such as separating and treating methane-generating wastes using a co-located anaerobic digester or composting facility at the site or using similar technologies at another facility.
  - Feasibility assessment: The Dunn Facility is a C&D waste processing facility that does not, and is not intended to, manage organic wastes that would be suitable for a digester. Further it does not have the space, infrastructure, or vehicles appropriate to transport organic wastes. Nevertheless, S.A. Dunn and its parent company, Waste Connections, routinely evaluate new and developing technologies for best managing C&D and minimizing GHG emissions, and will continue to do so throughout the life of the Dunn Facility.
- Assessment and implementation of additional emissions monitoring, including additional methods for periodic inspection of fugitive methane sources in the gas collection and control system and across the facility to identify and repair leaks.
  - Feasibility assessment:
    - Since 2019, after the issuance of the initial solid waste permit, the Dunn Facility has had enhanced air monitoring in place. Beyond monitoring required by permit or regulation, NYSDEC collects hydrogen sulfide (H_2S) measurements from a number of locations at the perimeter of the Dunn Facility using Acrulog monitors. Levels of H_2S are generally indicative of other LFG constituents, including GHGs like methane. The Acrulog data shows very low H_2S levels overall, which is indicative of well controlled landfill emissions. NYSDEC also collects particulate matter (PM) measurements at the Rensselaer City School, near the Facility perimeter. PM_{10} levels at the School are consistently lower than at the Albany County Health Department monitor location to the west of the Dunn Facility.
    - As discussed above, S.A. Dunn will prepare and implement a SEM work plan.
- Adoption of new approaches for reducing GHG emissions from offsite transport of materials, such as contracting with companies that utilize electric or low-emission vehicles.
  - Feasibility assessment: Reducing GHG emissions through consolidated waste transportation is addressed below. An evaluation of regional contractors or vendors located near the Dunn Facility indicates that no nearby companies strictly utilize electric or low-emission vehicles. However, should such options become available, S.A. Dunn will continue to evaluate the feasibility of this measure.

- Adoption of new approaches for reducing GHG emissions from onsite vehicle usage by upgrading to a fleet that operates on renewable energy sources.
  - Feasibility assessment: An evaluation has determined that this technology is currently not feasible at the Dunn Facility. However, S.A. Dunn will continue to assess the feasibility of this measure in the future.
- Consolidation of loads to and from the facility in order to reduce the number of trucks entering and exiting on a daily basis.
  - Feasibility assessment: S.A. Dunn does not directly control how third parties act in terms of consolidating their C&D prior to transportation to the Dunn Facility; however, waste consolidation through transfer stations is an integral characteristic of current industry practices to reduce fuel consumption, which in turn reduces GHG emissions. This practice of consolidation will continue.

As discussed in Section 6.1 of the CLCPA Assessment, the permit application is considered consistent with CLCPA goals under NYSDEC guidance because the permit will not change or expand existing facility operations, other than incorporating construction of the MSE berm as a visual mitigation measure. That said, the above measures will be implemented (or continue to be implemented) or assessed for potential incorporation in the future.

APPENDIX C

		Waste Trucks														
		CO2[1] *kg/gal*	**Fuel Consumption** *gal/year*	**Emissions per year** *kg/year*	**CH4**[1] *g/mile*	**Distance per Delivery** *miles*	**Estimated Vehicle Trips** *trips/year*	**Emissions per year** *kg/year*	**N2O**[1] *g/mile*	**Distance per Delivery** *miles*	**Estimated Vehicle Trips** *trips/year*	**Emissions per year** *kg/year*	**CO2e**[2] *kg/year*	**CO2e** *tpy*	**CLCPA CO2e**[3] *tpy*	**Difference** *(%)*
Diesel Fuel	Light Duty	10.21	657,185	6,709,859	0.029	138.9	26,000	104.73	0.0214	138.9	26,000	77.28	6,739,059	7,428.4	7434.8	**0.09**
	Heavy Duty	10.21	657,185	6,709,859	0.0095	138.9	26,000	34.31	0.0431	138.9	26,000	155.65	6,753,833	7,444.7		
Motor Gasoline	Light Duty	8.78	657,185	5,770,084	0.008	138.9	26,000	28.89	0.0013	138.9	26,000	4.69	5,773,751	6,364.4		
	Heavy Duty	8.78	657,185	5,770,084	0.033	138.9	26,000	119.18	0.0091	138.9	26,000	32.86	5,788,771	6,380.9		

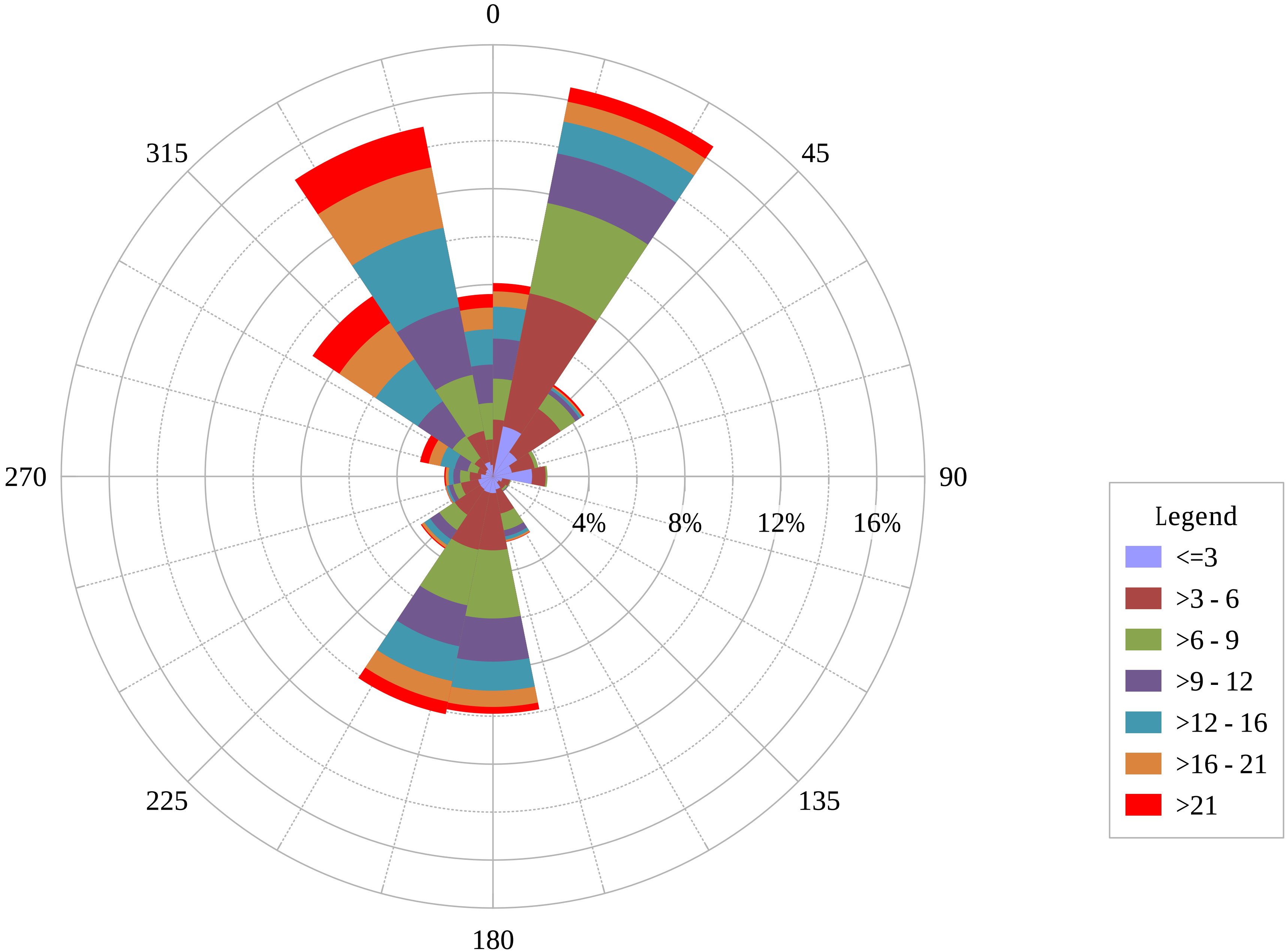
		Leachate Tanker Trucks														
		CO2[1] *kg/gal*	**Adjusted Fuel Consumption** *gal/year*	**Emissions per year** *kg/year*	**CH4**[1] *g/mile*	**Average Distance per Delivery** *miles*	**Estimated Vehicle Trips** *trips/year*	**Emissions per year** *kg/year*	**N2O**[1] *g/mile*	**Distance per Delivery** *miles*	**Estimated Vehicle Trips** *trips/year*	**Emissions per year** *kg/year*	**CO2e**[2] *kg/year*	**CO2e** *tpy*	**CLCPA CO2e**[3] *tpy*	**Difference** *(%)*
Diesel Fuel	Light Duty	10.21	1,345	13,732	0.029	3.7	2,000	0.21	0.0214	3.7	2,000	0.16	13,792	15.2	15.2	**0.02**
	Heavy Duty	10.21	1,345	13,732	0.0095	3.7	2,000	0.07	0.0431	3.7	2,000	0.32	13,823	15.2		
Motor Gasoline	Light Duty	8.78	1,345	11,809	0.008	3.7	2,000	0.06	0.0013	3.7	2,000	0.01	11,817	13.0		
	Heavy Duty	8.78	1,345	11,809	0.033	3.7	2,000	0.24	0.0091	3.7	2,000	0.07	11,847	13.1		

[1] Emission factors taken from 'GHG Emission Factors Hub' https://www.epa.gov/climateleadership/ghg-emission-factors-hub

[2] 20-yr GWP values assumed to calculate CO2 equivalents: CO2 = 1, CH4 = 84, N2O = 264.

[3] CLCPA CO2e values are found in Table 3 of the Dunn Landfill CLCPA

APPENDIX D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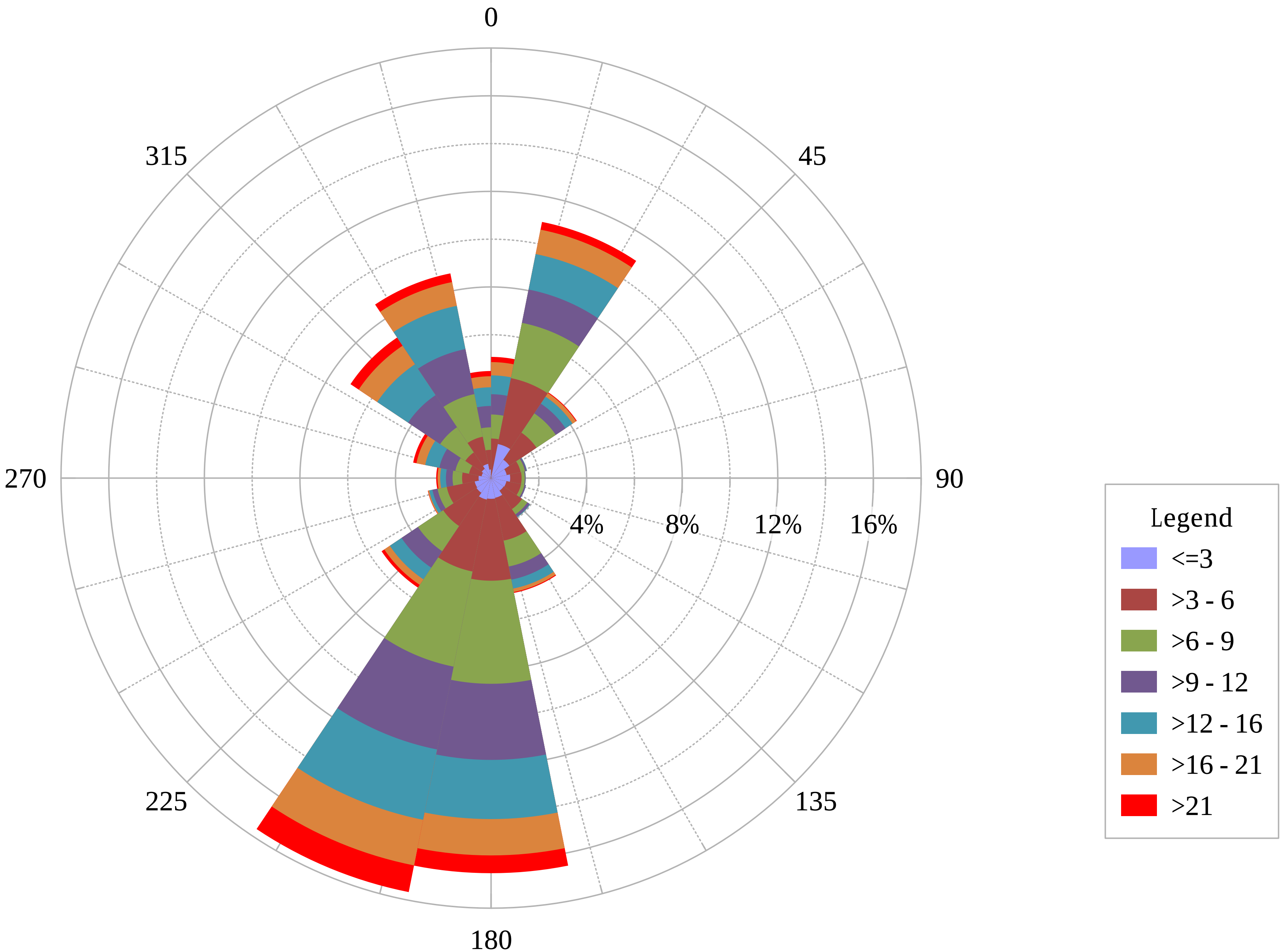

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