Appendix I-3a

Air Quality & Odour Detailed Impact Assessment Report

DRAFT REPORT

WALKER SOUTH LANDFILL PHASE 2

NIAGARA FALLS, ONTARIO

AIR QUALITY DETAILED IMPACT ASSESSMENT

RWDI #2402272

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SUBMITTED TO

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1 INTRODUCTION

This report documents the Air Quality impact assessment of the Preferred Method for the Environmental Assessment (EA) to develop the next phase of the existing South Landfill (i.e., South Landfill Phase 2) located at the Walker Resource Management Campus (Campus). The proposed South Landfill Phase 2 will add approximately 19.8 million cubic metres (m3) of landfill capacity over a 20-year period.

In the preceding Alternative Methods phase of the EA, net effects analyses as well as a comparative evaluation of three Alternative Landfill Configuration Options and two Leachate Management Options were carried out in order to identify a Preferred Landfill Footprint and a Preferred Leachate Management Option. The three Alternative Landfill Configuration Options and two Leachate Management Options presented in the Alternative Methods phase were developed to a conceptual level of design and documented in a Conceptual Design Report (CDR). The potential environmental effects, preliminary impact management measures to address the potential adverse environmental effects, and the remaining net effects following the application of the impact management measures were identified for all three Alternative Landfill Configuration Options and both Leachate Management Options. The Preferred Landfill Configuration Option was determined to be Option A (Same Height and Slopes as Current South Landfill Phase 11) and the Preferred Leachate Management Option was determined to be Option A (Continued and Expanded Use of the Municipal Wastewater Treatment System), hereafter collectively referred to as the Preferred Method.

At the detailed impact assessment phase, additional details are developed for the Preferred Method from a design and operations perspective, as documented in a Facilities Characteristics Report (FCR), so that potential environmental effects, preliminary impact management and compensation measures, and resultant net effects described at the Alternative Methods stage can be reviewed and more accurately defined, as required, along with enhancement opportunities and approval requirements. Specifically, the following can be accomplished:

- Potential environmental effects can be identified with more certainty.
- More site-specific impact management measures can be developed for application.
- Additional mitigation and impact management measures can be identified, as required.
- Net environmental effects can be identified with more certainty.
- Appropriate monitoring requirements can be clearly defined.
- Specific approval/permitting requirements for the proposed undertaking can be identified.

Climate change mitigation and adaptation measures are also reviewed as part of the detailed site design established for the Preferred Method. In addition, during the impact assessment stage of the South Landfill Phase 2 EA, Walker has committed to completing an assessment of the cumulative effects of the proposed undertaking and other non-Walker projects and activities that are existing, planned/approved or reasonably foreseeable within the Study Area.

[1] Following consultation on the comparative evaluation of the alternative methods, the Preferred Landfill Configuration Option was refined based on public, stakeholder and Government Review Team (GRT) comments and feedback received. Specifically, the proposed maximum height was decreased to reduce visual impact, the proposed Limit of Fill was adjusted in several areas to avoid sensitive natural features and to accommodate necessary infrastructure within the buffer, and slopes were adjusted to maximize compatibility with an agricultural end use, all of which resulted in a slightly reduced waste capacity.

The discipline-specific work plans developed during the Terms of Reference (ToR) outlined how impacts associated with the Preferred Method would be assessed. The results of these assessments are documented in 13 stand-alone Detailed Impact Assessment Reports:

- Geology and Hydrogeology
- Surface Water Resources
- Noise and Vibration
- Air Quality
- Terrestrial and Aquatic Environment
- Land Use
- Agriculture
- Transportation
- Social Environment
- Economic Environment
- Built Heritage and Cultural Heritage Landscapes
- Archaeology
- Visual

1.1 Description of the Preferred Landfill Configuration Option

Landfill Configuration Option A was originally selected as preferred due to its long-term benefits, including the largest waste capacity, longest operational lifespan, and associated economic and employment advantages. Following its selection, the design of Landfill Configuration Option A was refined in response to feedback received during consultation to reduce its visual impact and improve compatibility with a future agricultural end use. Furthermore, the Limit of Fill boundaries were adjusted to avoid natural features and to accommodate necessary infrastructure within the buffer. These refinements included a reduction in peak elevation to 211 metres above mean sea level (mAMSL) at the top of waste (TOW; 211.75 mAMSL at the top of cap), and adjustments to slope gradients, now designed to a maximum steepness of 3:1 (horizontal:vertical) for below-ground slopes and between 16:1 and 3.5:1 for above-ground slopes, improving the area compatible with an agricultural end use. These changes bring Option A closer in form to the Options B and C while preserving its advantage of a higher overall waste capacity. The refined Option A design would provide approximately 19.8 million m^3 of expanded landfill capacity and include 44 hectares (ha) of land compatible with an agricultural end use. From the Air Quality perspective, these adjustments do not impact the assessment from the original configuration.

1.2 Description of the Preferred Leachate Management Option

Leachate Management Option A builds upon the pre-existing leachate management system and approach while including the necessary expansion of the system capacity as South Landfill Phase 2 is expected to generate approximately 131,000 m^3 of additional leachate per year at the time of closure (2050) and approximately 147,000 m^3 of additional leachate per year in 2070 when considering climate change.

The expansion of the leachate management system would include a leachate sump, including a pump station equipped with the needed metering equipment and controls for monitoring and contingency purposes, a forcemain to transport the leachate from the pump station to the lagoon area, and lagoon upgrades consisting of two additional lagoons, if required (located adjacent to the existing two lagoons), for pretreatment and eventual discharge.

Once pretreated at the on-site lagoons, leachate will be conveyed via an existing force/gravity main to the Niagara-on-the-Lake sanitary sewer system for final treatment at the Region of Niagara's Port Weller Wastewater Treatment Plant. The need to upgrade the private sewer that connects to the Niagara-on-the-Lake sanitary sewer system has been identified and will be considered in the assessment.

1.3 Facility Characteristic Report for the Preferred Method

The FCR presents preliminary design and operations information for the Preferred Method and provides information on all main aspects of landfill design and operations including:

- Site layout design, including existing and proposed Site characteristics;
- Stormwater management;
- Leachate management;
- Landfill gas management; and
- Landfill development sequence and daily operations.

The FCR also provides estimates of parameters relevant to the detailed impact assessment, including estimates of leachate generation, landfill liner performance, landfill gas generation, and traffic levels associated with waste and construction materials haulage.

2 STUDY AREA

From an Air Quality perspective, the characterization of impacts within the following study areas are appropriate to this EA:

- Site Study Area (SSA): The SSA is consistent across all technical disciplines and encompasses a total of 81.30 ha of land owned and operated by Walker. The SSA includes the current quarry extraction limit, and encompasses the proposed limit of fill, the buffer area, and aligns with the proposed Waste Disposal Site Limit Boundary. While the SSA captures the core area of the proposed landfill development, certain ancillary features related to the landfill are proposed to be located outside the SSA. These features will be addressed within the broader Local Study Area.
- Local Study Area (LSA), including all lands within a 1 km radius of the SSA boundaries.
- Regional Study Area (RSA), including all lands within 5 km radius of the Walker Campus boundary.

Although the SSA is limited to the areas within the approved Southeast Quarry and surrounding buffer areas, the Air Quality assessment considered the combined impacts from the existing landfill operations at the South Landfill Phase I (SLF1), the East Landfill (ELF), and the other operations occurring at the Walker Campus that emit contaminants in common with the landfill.

For the Air Quality impact assessment, the potentially affected areas are defined based on the Ministry of Environment, Conservation, and Parks (MECP), modelling guidelines for air quality. For the Air Quality impact assessment, the study area is based on the RSA which includes the area approximately 5 km from the Niagara Campus property boundary. This 5 km RSA is consistent with MECP modelling guidelines and was used to establish predicted concentration isopleths for each contaminant within the wider area and ascertain there are no elevated concentration anomalies beyond the immediate vicinity represented by the 1 km LSA. The modelled domain used in the Air Quality assessment encompassed the entire RSA. **Figure 2-1** shows the study areas for Air Quality assessment.

3 METHODOLOGY

The assessment was conducted to evaluate the potential impacts associated with litter, odour, landfill gas (LFG) and combustion byproducts, and dust associated with the various stages of the future South Landfill Phase 2 landfill development. The assessment took into consideration the cumulative impacts from sources of like emissions from the entire Walker's Campus including:

- Quarry Operations;
- Compost Operations;
- Asphalt Operations;
- Integrated Gas Recovery System (IGRS) Operations; and
- Existing South Landfill Phase 1 and East Landfill Operations.

The following sections outline the criteria, methodology, receptors, and sources used in the analysis.

3.1 Assessment Approach and Confirmation of Effects

The assessment of impacts associated with the Preferred Method was undertaken through a series of steps that were based, in part, on a number of previously prepared reports (Existing Conditions Report, Air Quality Comparative Evaluation Technical Memorandum). The net effects associated with the three Alternative Landfill Configuration Options and two Alternative Leachate Management Options identified during the Alternative Methods phase of the EA were based on conceptual designs. These effects were reviewed within the context of the preliminary design plans developed for the Preferred Method, as identified in the FCR, to determine the type and extent of any additional investigations required to ensure a comprehensive assessment of net effects. Additional investigations were then carried out, where necessary, in order to augment the previous work undertaken. Feedback previously received from the EA consultation process was incorporated into the assessment approach, where appropriate.

The impact assessment built upon the pre-consultation completed in support of the Existing Conditions Report. RWDI, GHD, and WEG hosted a pre-consultation meeting with the MECP on December 17th, 2024, to decide and agree upon how the existing Air Quality environment would be characterized. The air quality impact assessment was completed using a combination of modelling and monitoring representing the future operating conditions of the site.

Background concentrations for particulate matter less than 10 microns (PM_{10}) were based on measured concentrations as part of the 2025 EA ambient monitoring program. Similarly to the existing conditions report, the historic ratios between PM_{10}, Total Suspended Particulate (TSP) and particulate matter less than 2.5 microns ($PM_{2.5}$) were used to determine concentrations of TSP and $PM_{2.5}$. These ratios were developed based on monitoring completed as part of the South Landfill Phase I EA.

Volatile organic compound (VOC) and total reduced sulphur (TRS) sampling collected as part of the 2025 EA ambient monitoring campaign were also used as background concentrations for the impact assessment.

Upwind measurements from all ambient monitoring programs were used to characterize background concentrations. Background concentrations for substances not included in the ambient monitoring program were based on publicly available data from Environment and Climate Change Canada's (ECCC) National Air Pollution Surveillance (NAPS) monitoring program.

Flux chamber analysis collected as part of the characterization of existing conditions were used to characterize odour emissions from specific landfill sources in the impact assessment.

Source specific flux chamber analysis collected as part of the characterization of existing conditions to characterize specific emissions of VOCs and hydrogen sulphide (H_2S) compounds at the landfill. These flux rates were considered in the impact assessment. Samples of the LFG from the existing landfill gas collection system were taken in order to characterize the LFG composition, which was considered in the impact assessment. Source specific sampling for dust sources included sampling of the existing paved and unpaved roads as well as bulk materials to determine silt loading/content, moisture content, and grain size analysis, which were considered in the impact assessment.

Further details on the ambient monitoring programs and site-specific sampling are provided in Section 3.3 and Section 3.4 of the Existing Conditions Report.

An analysis of how changes in landfill operations such as staging locations, waste in place, and haul routes may impact the likelihood of complaints was completed as part of the impact assessment.

With these additional investigations in mind, the potential impacts on the Air Quality environment of the Preferred Method were documented.

With a more detailed understanding of the potential impact from the preliminary landfill and leachate treatment designs on the Air Quality environment, the previously identified potential effects and recommended mitigation or compensation measures associated with the Preferred Method (documented in the Air Quality Comparative Evaluation Technical Memorandum) were reviewed to ensure their accuracy.

Based on this review, the potential effects, mitigation or compensation measures, and net effects associated with the Preferred Method were confirmed and documented. In addition to identifying mitigation or compensation measures, potential enhancement opportunities associated with the preliminary design for the Preferred Method were also identified, where possible.

Following this confirmatory exercise, the requirement for monitoring in relation to net effects was identified, where appropriate. Finally, any Air Quality approvals required as part of the implementation of the Preferred Method were identified.

3.2 Additional Investigations

Upon completion of the preliminary design for the Preferred Method as documented in the FCR, the environmental characteristics of the Study Area were reviewed to verify the accuracy of the assessment of net effects from the Preferred Method. From this review, it was determined that dispersion modelling was required in order to characterize the potential impacts on the Air Quality environment resulting from odour, landfill gas and combustion byproducts, and dust contaminants.

3.3 Data References

Available sources of information were collected and reviewed to characterize Air Quality conditions within the study areas. The following sources of information were collected and reviewed:

Table 3-1: Data References

Evaluation Criteria	Indicators	Data Source
Air Quality		
Effect of air quality on off-site receptors	• Predicted off-site point of impingement concentrations (µg/m³) of indicator compounds • Number of off-site receptors potentially affected (residential properties, public facilities, businesses, and institutions) • Frequency of any exceedance of applicable standards, limits, or guidelines at identified receptors	• Applicable MECP guidelines, technical standards and models • 2024 Terms of Reference: Walker South Landfill Phase 2 Environmental Assessment, dated June 28th, 2024 • 2005 EA South Landfill Phase I (2005 EA) • 2024 WEG, Walker Aggregates Inc. (WAI), and Integrated Gas Recovery Services (IGRS) Emission Summary and Dispersion Modelling (ESDM) Report, dated June 11, 2025 • 2023 Compost and Biosolids Facility ESDM, dated May 31, 2024 • Aerial mapping Imagery to confirm off-site points of reception • Topographic and land-use mapping • Facility Characteristics Report • Site specific monitoring data • Publicly available monitoring data • Site specific flux measurement data • Traffic reports for existing and future conditions • Acoustic Assessment Reports • Air Quality Existing Conditions Report • Site-specific meteorological data prepared by the MECP 2020 – 2024
Effect of odours on off-site receptors	• Predicted off-Site odour concentrations (mg /m3 and odour units) • Number of off-Site receptors potentially affected (residential properties, public facilities, businesses and institutions) • Frequency of any exceedance of applicable standards, limits, or guidelines at identified receptors	

3.3.1 Key Assumptions

The following key assumptions were made in the Air Quality effects assessment.

- Annual waste filling rate / total additional tonnage
  - Walker's South Landfill Phase 1 ECA 0084-78RKAM approves disposal of 1.1 million tonnes per year of waste including 850,000 tonnes of solid non-hazardous waste and 250,000 tonnes of contaminated soil for daily cover. The amount of waste disposed directly influences the scope of landfilling activity at the site, and air emissions associated with that activity, and also determines the quantity of LFG generated each year. No change in the annual waste filling rate was considered for the assessment of the Preferred Alternative.
  - The South Landfill Phase 2 would provide an additional airspace of approximately 19.8 million m^3 or 19.8 million tonnes, assuming the density of compacted waste as 1 tonne per cubic metre and extend the life of the landfill by approximately 20 years.
- Landfilling activities
  - Landfilling activities include removal of soil cover prior to waste placement, placement and compaction of waste at the active face, and placement of daily, interim, or final cover as per current landfill operations.
  - These operations will move around the landfill site over the life of the landfill, and as a result the effects assessment considers three future operational scenarios.
- Site Construction activities
  - Construction activities include activities involved in yearly construction of new cells, including the delivery and placement of soils and aggregate materials.
  - These operations will move around the landfill site over the life of the landfill, and as a result the effects assessment considers three future operational scenarios.
- Site traffic
  - Walker's South Landfill Phase I currently operates at approximately the maximum annual waste filling rate allowed by ECA 0084-78RKAM, and the landfill will continue to operate under similar current conditions based on the future demand for landfill capacity in Ontario. No changes are proposed for the vehicles travelling to and from the facility, and therefore traffic conditions are expected to remain consistent with current. A traffic analysis of current conditions (FCR, 2026) provided a peak traffic operating day for Walker's South Landfill Phase I, and this was used as the basis for estimation of hourly traffic volumes on the internal road network. While internal haul roads will change with the development of Walker's South Landfill Phase 2, the total volume of traffic is assumed to remain the same.
- Operating hours
  - The current operating hours of the Walker Campus are based on the Facility Characteristic Report for the Preferred Alternative and remain the same as South Landfill Phase 1.
- Site equipment
  - The types of nonroad equipment and the location of its operation at Walker Campus have been included in the effects assessment. All equipment is expected to be the same as the equipment present under existing conditions.

- LFG quantification parameters.
  - LFG quantification parameters were assumed to remain unchanged over the life of the landfill.
  - The percentage of degradable organic carbon in municipal solid waste directly impacts the quantity of LFG generated from each tonne of waste. Programs to divert organic waste from landfills are increasing in Ontario, and it is possible that the degradable organic carbon content will decrease. In addition, factors such as increased precipitation may alter the kinetics of the biodegradation reaction. However, it is assumed that the time constant, percent degradable organic carbon, and other parameters that define the rate of LFG generation will not change during the lifespan of the proposed expansion landfill.
- Indicator criteria unchanged.
  - From time to time the MECP reviews and may update the criteria for indicator contaminants. For the purpose of the Preferred Alternative assessment the criteria for all indicator contaminants remain the same.
- Discrete receptors unchanged.
  - The land use in the vicinity of the Walker Campus is assumed to remain the same with no change in the number or location of residential receptors.
- Background concentrations unchanged.
  - Emissions for five key air pollutants have decreased in Canada over the past 30 years (ECCC, 2025). This downward trend may decrease ambient background concentrations of key indicator contaminants used in this effects assessment, but background concentrations are assumed to remain the same during the projected lifespan of the proposed landfill expansion.
- Meteorological conditions unchanged.
  - The effects of climate change are expected to become more pronounced in the latter half of this century, with increased frequency of extreme weather events and changes in average temperature and precipitation patterns (MECP, 2023). The meteorological data set covers 5 years of hourly data and the model impacts were based on the worst-case result over the entire period of the dataset. In addition, the peak impacts are predicted to occur over the next 10 to 20 years, whereas the changes in meteorological conditions are expected to become more pronounced over a longer period time. Therefore, it is assumed that the meteorological data set used in the Air Quality effects assessment will continue to be representative of weather conditions at the Walker Campus.

3.4 Indicator Criteria

Quantitative assessment utilized dispersion modelling in order to predict concentrations of the key indicator contaminants at identified off-site discrete receptors.

The South Landfill Phase I has been well characterized through studies such as the 2005 South Landfill Environmental Assessment, the 2022 IGRS ECA application for the addition of the Renewable Natural Gas (RNG) facility at the South Landfill, and most recently, the 2025 ESDM Report which is a combined report including sources from the WEG landfills, Walker Aggregates Inc. (WAI) quarry and asphalt plant, and IGRS gas utilization. Based on the conclusions of these studies as well as an understanding of the contaminants typically emitted by landfill operations, a set of key indicator contaminants were selected for use in the EA.

The key indicators contaminants assessed for each environmental criterion are summarized below:

- Blowing Litter
  - Assessed qualitatively as there are no applicable criteria.
- Odour
  - Expressed in odour units per cubic metre (OU/m^3)
- LFG and Combustion Byproducts:
  - Vinyl Chloride (CAS# 75-01-4);
  - 1,1,2-Trichloroethane (CAS# 79-00-5);
  - Benzene (CAS# 71-43-2);
  - Hydrogen Sulphide (H2S) (CAS# 7783-06-4);
  - Total Reduced Sulphurs (TRS);
  - Nitrogen Oxides (NOx) / Nitrogen Dioxide (NO2) (CAS# 10102-44-0); and
  - Sulphur Dioxide (SO2) (CAS# 7446-09-5).
- Dust:
  - Total Suspended Particulate (TSP);
  - Particulate Matter less than 10 µm in diameter (PM_{10}); and
  - Particulate Matter less than 2.5 µm in diameter ($PM_{2.5}$).

Key indicator contaminants were compared against MECP criteria from O.Reg. 419/05, Ambient Air Quality Criteria (AAQC), and screening levels. In the absence of any MECP criteria, contaminants were compared to the ECCC Canadian Ambient Air Quality Standards (CAAQS) criteria. $PM_{2.5}$ does not have a criterion under O.Reg.419/05 or AAQC, so the CAAQS criteria was used for comparison. Both CAAQS 2020 and CAAQS 2030 criteria were used in the assessment as the landfill lifespan extends past 2030. CAAQS represent regional ambient air quality objectives and are not suitable for comparison for the purpose of facility level compliance. This criterion is only included to provide context for predicted concentrations of $PM_{2.5}$. CAAQs also provides criteria for nitrogen dioxide and sulphur dioxide. These criteria were not considered in this assessment as criteria for these contaminants are available under O.Reg. 419/05 and AAQC.

A summary of the contaminants and their applicable criteria are provided in **Table 3-2**.

Table 3-2: Assessment Criteria for Key Indicator Compounds

Contaminant	Applicable Sub-Assessment	Averaging Period	Air Quality Criteria (ug/m³)	Source
TSP	Dust	24-hour	120	AAQC & O.Reg 419/05
		Annual	60	AAQC
PM_{10}	Dust	24-hour	50	AAQC
$PM_{2.5}$	Dust	24-hour	27 [1]	2020 CAAQs
		Annual	8.8 [2]	2020 CAAQs
		24-hour	23 [1]	2030 CAAQs
		Annual	8.0 [2]	2030 CAAQs
Vinyl Chloride	Landfill Gas	24-hour	1.0	AAQC & O.Reg 419/05
		Annual	0.2	AAQC
Benzene	Landfill Gas	24-hour	2.3	AAQC
		Annual	0.45	AAQC & O.Reg 419/05
1,1,2-Trichloroethane	Landfill Gas	24-hour	0.3	Screening Level
H_2S	Landfill Gas	10-minute	13	AAQC & O.Reg 419/05
		24-hour	7	AAQC & O.Reg 419/05
TRS	Landfill Gas	10-minute	13	AAQC & O.Reg 419/05
		24-hour	7	AAQC & O.Reg 419/05
Odour	Odour	10-minute	1 OU/m³	MECP Guidance
NO_X	Combustion	1-hour	400	AAQC & O.Reg 419/05
		24-hour	200	AAQC & O.Reg 419/05
SO_2	Combustion	1-hour	100	O.Reg 419/05
		Annual	10	O.Reg 419/05

Notes:

[1] The 24-hour PM2.5 CAAQs criteria is based on the 3-year average of the annual 98th percentile of the daily 24-hour average concentration.

[2] The annual PM2.5 CAAQs criteria is based on the 3-year average of the annual average of the daily 24-hour average concentration.

Odour does not have any applicable standards or guidelines, instead odour was compared to levels typically deemed acceptable by the MECP. Odour concentrations that are greater than 1 OU/m³ are considered acceptable at sensitive receptor locations, as long as the frequency of exceedance is less than 0.5% of the time. An odour unit is defined as the quantity of odourous substance that, when dispersed in 1 m³ of odour free air, becomes just detectable by a "normal" human observer whose sensitivity to the odorant represents the mean of the population. The average odour detection threshold is 1 OU/m³, although odours at this level are not necessarily a nuisance. Odour concentrations that may cause a complaint due to their ability to annoy typically range from 3 to 5 OU/m³. Through experience with other landfills in Southern Ontario, the objectionable level for odour was generally in the range of 3 to 5 OU/m³. These levels are more closely related to public complaints.

For the purposes of this assessment, the predicted site-wide odours from the Walker Campus operations were compared to the 1 OU/m³ detection threshold, the 3 OU/m³ recognition threshold, and the 5 OU/m³ annoyance threshold.

As a conservative approach the evaluation of the 24-hour PM2.5 considered the first highest predicted concentration for comparison with the CAAQs criteria. Annual concentrations considered the average over 3-years as specified by the CAAQS criteria.

Evaluations of the Preferred Method against all criteria are made through the lens of an EA. While several criteria used in the evaluation are applicable under O.Reg. 419, the EA presents a broader assessment of potential impacts.

Under Reg. 419, facilities are required to comply with MECP Standards and Guidelines at points at and beyond the property line of the facility. The impacts presented in this EA should not be used for direct comparison to the Reg. 419 limits, as there are key differences in the way the EA assessment is conducted versus a Reg. 419 assessment, most notably the inclusion of background concentration.

The EA assessment considers additional differences relating to the sources considered and assumptions made. For instance, Reg. 419 excludes the contribution from motor vehicles when comparing to the standards and does not consider the cumulative effects non-Walker Campus sources.

Prior to beginning operations, Walker is required to demonstrate compliance with Reg. 419 which will be part of a subsequent study in support of its ECA amendment application.

3.5 Background Data

Background data refers to concentrations of contaminants of interest in the environment resulting from sources other than the Walker Campus. When available, background concentrations were obtained from the site-specific ambient monitoring data collected as part of the EA. For contaminants where site specific background data was not available, background data was obtained from publicly available sources such as the NAPS regional ambient monitoring program. No background concentration of odour was considered in the assessment.

Background data was used in conjunction with dispersion modelling in order to assess the potential for cumulative impacts on the surrounding areas from the SLF2, and surrounding industrial and agricultural activities, traffic, and other sources of air emissions. When calculating background concentrations from site-specific ambient monitoring data, only upwind sample data was considered so as not to double count emissions associated with landfill operations. The upwind analysis was completed in accordance with the methodology outlined in Section 3.3.1 of the Existing Conditions Report. For 1-hour and 24-hour averaging periods the 90th percentile upwind background value was used. For annual criteria the average upwind background concentration was used. Details on the ambient monitoring program are available in Section 3.3 of the Existing Conditions Report. A summary of the background values considered in the Detailed Impact Assessment are provided in **Table 3-3**.

Table 3-3: Background Concentrations

Contaminant	Averaging Period		Criteria (µg/m³)	Background Concentrations (µg/m³)	% of Criteria	Source of Data
TSP	24-hour		120	51.0	42%	[1]
	Annual		60	26.0	43%	[2]
PM_{10}	24-hour		50	21.9	44%	[3]
$PM_{2.5}$	CAAQS 2020	24-hour	27	17.8	66%	[1]
		Annual	8.8	9.1	103%	[2]
	CAAQS 2030	24-hour	23	17.8	78%	[1]
		Annual	8	9.1	114%	[2]
Vinyl Chloride	24-hour		1.0	0.05	5%	[3]
	Annual		0.2	0.05	26%	[4]
Benzene	24-hour		2.3	0.69	30%	[3]
	Annual		0.45	0.46	103%	[4]
1,1,2-Trichloroethane	24-hour		0.3	0.07	22%	[3]
H_2S	10-minute		13	4.1	32%	[5]
	24-hour		7	2.2	31%	[6]
TRS	10-minute		13	4.1	32%	[7]
	24-hour		7	2.2	31%	[8]
NO_x	1-hour		400	23.4	6%	[9]
	24-hour		200	21.6	11%	[10]
SO_2	1-hour		100	1.1	1%	[11]
	Annual		10	0.53	5%	[12]

Notes:

[1] Derived from the measured 24-hour PM10 concentration based on a scaling factor extracted from the monitoring results of the 2005 EA.

[2] Derived from the measured annual average PM10 based on a scaling factor extracted from the monitoring results of the 2005 EA.

[3] 90th percentile concentration of the upwind 24-hour monitoring data.

[4] Annual average of the upwind 24-hour monitoring data.

[5] Assumed the same as 10-minute TRS for conservative assessment due to the lack of H2S monitoring.

[6] Assumed the same as 24-hour TRS for conservative assessment due to the lack of H2S monitoring.

[7] Derived from the calculated 1-hour averages, which were based on the measured 5-minute averages, as per **Section 4.4** of MECP's Guideline A-11.

[8] Derived from the calculated 1-hour averages, which were based on the measured 5-minute averages.

[9] 5-year average of the 90th percentile of 1-hour averages from NAPS data for St. Catharines station (NAPS ID 061302) for the period of 2020-2024.

[10] 5-year average of the 90th percentile of 24-hour averages from NAPS data for St. Catharines station (NAPS ID 061302) for the period of 2020-2024.

[11] 5-year average of the 90th percentile of 1-hour averages from NAPS data for Toronto station (NAPS ID 060430) for the period of 2020-2024.

[12] 5-year average of the annual averages of 1-hour averages from NAPS data for Toronto station (NAPS ID 060430) for the period of 2020-2024.

3.6 Points of Reception

The focus of the modelling was on identified discrete receptors in the immediate vicinity (within ~1 kilometre) of the SSA. A total of 29 discrete receptors were identified. Discrete receptors consist mostly of residences with the addition of a few commercial businesses, and the Niagara Region vehicle service centre. Discrete receptors are closest to the landfill area in various compass directions and are expected to provide the worst-case estimate for predicted contaminant concentrations when compared to residences and businesses located further away. Of the 29 discrete receptors identified in the air quality study, 18 are designated as common receptors that were assessed for all disciplines. The remaining 11 receptors are included only for the air quality study for consistency with previous air quality studies completed at the Walker Campus.

Receptors for the air quality assessment were updated in consultation with Walker from previous studies to incorporate recent land acquisition. In instances where Walker has acquired land with a residence, and that residence is still used as a rental property, the residence was included as a receptor in the assessment. Acquired land without a residence was removed from the assessment. A review of updated aerial imagery as well as a site visit were also conducted prior to dispersion modelling. Receptor locations are presented in **Figure 3-1**. All discrete receptors were modelled using a flagpole height of 1.5m.

In addition, the modelling was performed using a receptor grid covering the off-site study area to produce predicted concentration isopleths. Concentrations for areas not specifically represented by discrete receptors can be extrapolated from these isopleths. The receptor grid extends a minimum of 5 kilometres from the SSA and utilizes the receptor spacing outlined in the MECP guideline A-11, “Air Dispersion Modelling Guideline for Ontario”, version 3.0, dated February 2017. The receptor grid used for generating the isopleths is presented in **Figure 3-2**. A full list of the discrete receptors considered in the assessment are provided in **Table 3-4**.

Table 3-4: Discrete Receptor Locations

Receptor ID	Common Receptor ID	Distance from South Landfill Phase 2 Fill Limit (m)	Description
R01	--	1177	Walker owned rental property located northwest of the SSA area.
R02	CR17	456	Representative of the nearest residence northeast of the SSA, and Gauld Nurseries, an important local business.
R03	CR19	1033	Walker-owned property that is currently tenanted, located southwest of the SSA.
R04	--	540	Residence located east of the SSA.
R05	--	640	Residence located east of the SSA.
R06	--	600	Residence located east of the SSA.
R07	--	760	Residence located southeast of the SSA.
R08	--	1015	Residence located southeast of the SSA.
R09	CR18	1054	Representative of the cluster of residences on Garner Rd south of the transmission line and north of Thorold Stone Rd, southeast of the SSA.
R10	CR05	740	Residence located south of the SSA.
R11	--	1100	Residence located southwest of the SSA.
R12	--	1400	This receptor is a Service Station (Gas, Tim Horton's, Convenience Store) located southwest of the SSA.
R13	--	1660	Residence located southwest of the SSA.
R14	--	1745	Residence located southwest of the SSA.
R15	CR10	1186	Niagara Region Traffic Systems and Operations. Representative of two public institutional facilities with outdoor components and industrial/commercial operations along Old Thorold Stone Road to the west and southwest of the SSA.
R16	--	1350	Residence located southwest of the SSA.
R17	CR01	1094	Residences on Warner Road and the Niagara Escarpment located northeast of the SSA.
R18	CR04	550	Representative of the residences on Garner Rd. south of Mountain Rd. and north of the transmission line that crosses Garner Rd. north of Thorold Stone Rd., located east of the SSA.
R19	CR06	2577	Located at the eastern edge of the urban boundary for the City of Thorold, it serves as representative of a wide variety of residential, institutional, recreational and commercial developments within the City. Located to the west of the SSA.

Receptor ID	Common Receptor ID	Distance from South Landfill Phase 2 Fill Limit (m)	Description
R20	CR07	2005	Representative of an important public facility, a cluster of residences backing onto Kalar Rd. at Thorold Stone Rd., commercial businesses at the corner of Kalar Rd. and Thorold Stone Rd. and the Shriner's Woodlot Park off Kalar Rd., southeast of the SSA.
R21	CR8	1280	Lakeview Cemetery located west of the SSA.
R22	CR11	1295	Representative of the outdoor recreational uses at the Bruce Trail along the Niagara Escarpment, Walker's Living Campus and Royal Niagara Golf Club. Serves as a location along Taylor Road, often used for biking and country drives. Located north of the SSA.
R23	CR12	1655	Representative of a cluster of residences east of the Queen Elizabeth Way, northeast of the SSA.
R24	CR13	1787	Representative of the outdoor recreational uses at the Beechwood Golf Course and along Beaver Dams Road, south of the SSA.
R25	CR14	1181	Representative of an area proposed for future residential development and the western edge of the City of Niagara Falls urban area boundary, east of the SSA.
R26	CR15	1984	Representative of the southern edge of the Glendale Secondary Plan Area proposed for future residential development and the Niagara-on-the Lake urban area boundary. Additionally representative of the Royal Niagara Golf Club and Niagara College. Located north of the SSA.
R27	CR16	2893	Representative of nearest area within the City of St. Catharines municipal boundary at the corner of Glendale Road and the Well and Canal Parkway and recreational trail, northwest of the SSA.
R28	CR20	1585	Representative of subdivision east of Kalar Road, east of the SSA.
R29	CR21	1175	Represents a golf course northwest of the SSA.

3.7 Modelling Approach

As discussed in **Sections 1.1** and **1.2**, Alternative Option A was selected as the Preferred Alternative for both the landfill and leachate management design. Alternative methods A through C for the landfill configuration and Alternative options A and B for leachate management were found to have no substantial difference for Air Quality. Thus, Options A and A were selected based on feedback provided by other disciplines. Among the 3 Landfill Configuration options, Option A was selected for its long-term benefits, including the largest waste capacity, longest operational lifespan, and associated economic and employment advantages, and then further refined to reduce its visual impact and improve compatibility with a future agricultural end use. The limit of fill boundaries were also adjusted to avoid natural features and to accommodate necessary infrastructure within the buffer.

As such, the effects assessment of the Preferred Alternative presented below is based on Alternative Option A for the landfill configuration and Option A for the leachate management.

The Impact Assessment of the Preferred Alternative was conducted using a combination of qualitative and quantitative analysis. Qualitative analysis was used for the evaluation of blowing litter, and quantitative analysis using dispersion modelling was used for the evaluation of odour, LFG and combustion byproducts, and dust.

The assessment of the Preferred Alternative for the South Landfill Phase 2 is divided into four operational stages. Operations will move around the landfill site over the life of the landfill. The impact assessment of the Preferred Method considers three future operational scenarios representing significant milestones in the landfill lifecycle and one 'Do Nothing' scenario representing future conditions if the Preferred Method is not pursued. The assessment of the three future operating scenarios is detailed in **Section 5** and the evaluation of the 'Do Nothing' alternative is addressed in **Section 4.2**.

3.7.1 Dispersion Model

Dispersion modelling was performed using the U.S. EPA's AERMOD dispersion model (AERMOD), version 24142, to predict concentrations of contaminants of interest emitted from the landfill operations at the discrete and gridded receptors, as described in **Section 3.6**.

3.7.2 Meteorological Data

To ensure that a broad range of dispersion conditions are addressed, five years of local meteorological data (2020-2024) were used in the AERMOD model. The meteorological data set was developed by the MECP's Environmental Monitoring and Reporting Branch (EMRB) specifically for the study site and provided on April 17, 2026.

3.7.3 Terrain Data

Terrain information for the area surrounding the facility was obtained from the MECP Regional Meteorological and Terrain Data for Air Dispersion Modelling website. These data were run through the AERMAP terrain pre-processor to estimate base elevations for sources and receptors to help the model account for changes in elevation.

3.7.4 Deposition and Dry Depletion

The dry deposition and dry depletion algorithms were utilized within the AERMOD model to simulate the settling of particulates as the plume propagates from the emission source.

Particulate matter plumes differ from gaseous plumes in that the particles can settle out due to gravity. Heavier particles will tend to settle out quickly, reducing the particulate concentration in the plume as it moves farther from the source. The AERMOD model allows the user to account for this settling through the use of deposition and plume depletion algorithms. The deposition results that are produced by the model represent the deposition flux rate, in grams per square metre (g/m^2). With the deposition algorithm, the model does not reduce the plume size by the deposition flux rate; it merely predicts the amount of deposition that could occur from the plume at any receptor point.

In order to decrease the plume by the deposited amount, the plume depletion algorithm must also be activated. For the purposes of this assessment, only the effects of dry deposition and dry plume depletion were considered. Further details regarding deposition parameters used in the assessment are provided in Section 9.5.1 of the Existing Conditions report.

3.7.5 Building Information

The Building Profile Input Program (BPIP) was used to calculate the effects of building downwash on point sources, such as stacks. The IGRS facility, Biosolids facility and the compost facility were included in the modelling, as these structures have the potential to affect emissions from their associated sources. The BPIP model was run prior to running the AERMOD model in order to incorporate the potential building downwash effects.

The potential building downwash effects were evaluated for all point sources within the dispersion model. Building downwash effects are not applicable to volume, line volume, or area sources. Although the landfill mound may be considered as a "structure", dispersion modelling tests completed by RWDI for a different landfill facility found that the effects of mound downwash have insignificant impacts on the maximum off-site concentrations. The effects of the mound downwash are insignificant as the sloping features of the mound do not act as a solid block building. Therefore, the landfill mound was not considered in the assessment of potential building downwash effects.

3.7.6 Averaging Periods Used

Emissions were modelled for 1-hour, 24-hour, and annual averaging times, to correspond with the criteria for the various compounds, as listed in **Table 3-2Table 3-2:** . A conversion factor of 1.65 was used to convert 1-hour results to 10-minute averages, based on guidance provided in the MECP's "Procedure for Preparing an Emission Summary and Dispersion Modelling Report", March 2018.

3.7.7 Modelled Sources

The sources considered for the assessment of the Preferred Alternative are the same as those characterized in the existing conditions. While the locations and quantities of sources change through the development of the South Landfill Phase 2, the overall types of emission sources remain consistent. The following landfill sources were included in the dispersion modelling assessment:

- Final cap areas;
- Interim cover areas;
- Active face area;
- Leachate ponds;
- Active face equipment;
- LFG flares;
- Contaminated soil pile;
- Material handling;
- Bulldozer activity;
- Vehicle traffic on internal haul routes;

- Idling vehicles at the active face and weigh scale;
- Generators;
- Onsite equipment; and
- Wind erosion.

In addition to modelling sources associated with landfill operations, sources of like emissions from the other operations at the Campus were considered in the dispersion modelling. These sources include:

- Vehicle traffic on internal haul routes.
- Quarry and Asphalt Plant sources such as:
  - Blasting;
  - Processing;
  - Material handling;
  - Storage piles; and
  - Onsite equipment.
- IGRS facility sources, such as:
  - LFG-fired generators;
  - RNG elevated flare;
  - Siloxane flare; and
  - Thermal oxidizer.
- Compost facility sources such as:
  - Compost windrows;
  - Handling and processing of compost material; and
  - Onsite equipment.

As part of the leachate management Preferred Alternative two new leachate treatment lagoons are proposed to provide additional capacity to the existing leachate management system. While the location and quantity of other landfill sources may change with the various stages of the Preferred Alternative, no other additional sources are proposed as part of the Preferred Alternative.

The landfill final cap areas, interim cover areas, active face area, leachate ponds, contaminated soil pile and compost windrows were modelled as area sources. The landfill active face, which moves throughout the landfill over the course of its life, was modelled in a single worst-case location within the active cell during each future operational scenario assessed. In general, the LFG flares, generators, RNG elevated flare, siloxane flare, thermal oxidizer, and baghouses at silos, were modelled as point sources. Material handling, idling vehicles, onsite equipment, blasting, and quarry processing were modelled as volume sources, while the internal haul routes were modelled as line volume sources.

Similarly to the Existing Conditions Assessment, all the landfill area sources were modelled at the grade level, for a conservative assessment. Locations of modelled sources for the various future scenarios are provided **in Section 3.7**.

All modelled sources were assumed to emit reasonable worst-case emissions concurrently throughout the modelled period. Emission rate calculations follow the same methodology described in Sections 7, 8, and 9 of the Existing Condition Report. Any modifications to these methodologies made during the assessment of the Preferred Alternative are described for odour, LFG and combustion byproducts, and dust in **Section 4.2**.

3.7.8 Best Management Practices

Walker's current South and East Landfill operations have detailed best management plans for blowing litter, odour, and dust. These best management practices plans (BMPPs) can be amended from time to time to address specific issues they may arise, including any potential issues related to the Preferred Alternative. However, given the similarity between the Preferred Alternative and Existing Conditions, existing best practices are expected to continue to effectively manage conditions on site. Details on each BMPP are provided below.

3.7.8.1 Blowing Litter

Walker has developed and implemented a Litter Control procedure as part of their South Landfill Standard Operating Procedures (SOP), dated February 18, 2025. This procedure is used to manage the migration of litter off-property. The plan implements mitigation controls such as:

- Monitoring the weather forecast to anticipate the need for operational changes and litter controls;
- Relocating the active face to minimize wind exposure;
- Repositioning unloading vehicles to minimize wind exposure;
- Use of portable litter fences that are moved around the active face and surrounding areas to capture blowing litter based on forecasted meteorological conditions;
- Suspension of unloading of waste until conditions become more favourable;
- Installation of permanent high fence along the entire eastern side of the south landfill;
- Inspection of the permanent high fence to ensure fences are in working condition;
- Application of soil cover to the active face tipping area at the end of each working day;
- Execution of the Community Litter Collection Program by completing continuous visual checks of the landfill litter control, ensure appropriate manpower is available to control litter, weekly/monthly drive-by inspections of all routes and properties listed in the procedure, and the collection of litter acceptable for receipt at Walker's landfill;
- Mobilization of litter collection crews in a timely manner after a high wind event has occurred; and
- Training of relevant staff on these policies.

Further details regarding the complete set of litter controls and protocols are provided in the copy of the blowing litter procedure provided in **Appendix A**.

3.7.8.2 Odour

Solid waste landfills have the potential to produce odour at several locations including the active face and fresh waste materials, spills on roadways, inactive work areas, LFG collection system, landfill utilization infrastructure, and the leachate collection system. Landfill gas escaping through the daily and interim covers and final cap are also potential odour sources.

The active face and adjacent working area are also significant sources of odour. In an effort to minimize odour emissions from the site, Walker's has prepared and implemented an odour BMPP, dated June 2024, to minimize the off-site impacts associated with odour. This BMPP (Odour) outlines details on standard operating procedures, mitigation measures, and training to control key operations typically associated with odour emissions. Key control measures outlined in the plan include:

- Inspection of incoming waste to identify overly offensive waste streams may be refused disposal, adhere to designated delivery windows, required bagging, or mandate pre-treatment with deodorizers;
- Washing of roadways when temperatures are above freezing to remove odourous spills;
- Where possible, limiting the size of the active face;
- Unloading and burial of waste material as quickly as possible;
- Application of a minimum of 150 mm / 6 inches of daily cover at the end of each working day;
- Monitoring cover integrity and reapplying as required;
- Application of biofilter material to be used as cover to absorb odours, where necessary;
- Application of surface deodorizer using a watering truck when temperatures are above freezing;
- Covering inactive areas with a minimum of 300 mm / 12 inches of interim cover;
- Daily monitoring of landfill gas collection volumes and quality;
- Continuous expansion of the landfill gas collection infrastructure;
- Minimized exposure of waste during maintenance or construction activities;
- Application of odour suppressant and defoamers to leachate lagoons;
- Routine inspection and maintenance of leachate infrastructure;
- Application of perimeter deodorizer system to help neutralize odours;
- Completing daily inspections and odour surveys and record any observable odours;
- Completing preventative maintenance following the schedule outlined in the BMPP;
- Maintain a public response line to provide the community an avenue to provide feedback;
- Log and investigate all odour related complaints received in relation to landfill operations following the procedure outlined in Section 12 of the BMPP; and
- Training of relevant staff.

The BMPP includes robust record keeping programs including daily diaries and notes, daily inspection checks and monthly EH&S inspections, and complaints for a minimum of 2 years.

Although it is impossible to eliminate odour from landfills, these mitigative measures and operating procedures help to minimize odours associated with landfill activities. A copy of the BMPP (Odour) is provided in **Appendix B.**

3.7.8.3 Dust

Landfill operations can be a significant source of fugitive dust. In an effort to minimize fugitive dust emissions from the site, Walker has previously prepared and implemented a dust SOP, dated February 19, 2025, to minimize the off-site migration of fugitive dust. This Dust SOP outlines details on standard operating procedures, mitigation measures, and training to control key operations typically associated with dust emissions.

Key control measures outlined in the plan include:

- Posting and enforcing paved and unpaved road speed limits;
- Application of chemical or water dust suppression systems on construction and haul roads when necessary;
- Wet vacuum sweeper on internal and external paved roadways;
- Water trucks to control internal and external paved roadways as well as internal gravel roads.
- Maintain a vegetated perimeter/inside property for dust screening;
- On windy days, refuse loads that have presented a dust control issue and direct loads to areas that minimize dust impacts, where possible;
- Requirement than any material that has a potential to create an abundance of dust is to be bagged prior to arrival at the landfill;
- Progressively vegetate and maintain final cap areas of the landfill with tall grasses that provide year-round density;
- Placement of access roads below grade, where possible;
- Monitoring of dust and wind conditions during each day's operation, and adjusting levels of control as necessary;
- Inspection and maintenance of internal and external roadways; and
- Training of relevant staff.

A copy of the Dust BMPP is provided in **Appendix C**.

4 DESCRIPTION OF THE ENVIRONMENT POTENTIALLY AFFECTED

In this section, a description of the Air Quality environment is presented. The information is extracted from the Air Quality Existing Conditions Report, and a more detailed description and list of reference sources can be found in that report.

4.1 Existing Conditions

The existing Air Quality environment at the South Landfill Phase 1 was characterized using a combination of ambient monitoring data and dispersion modelling. Existing Conditions considered conditions on site as of the 2025 operating year. This includes the quarry operations at the southeast quarry, the existing landfill operations at the South Landfill Phase I, the East Landfill, the asphalt plant, the RNG plant, the IGRS facility, and the compost facility.

Ambient monitoring conducted in 2025 to inform existing conditions included the following:

- Four months of TRS continuous monitoring at one location northwest of the SSA.
- 24-hour monitoring for PM_{10} on a six-day cycle over the entire year at two existing stations.
- 24-hour monitoring for VOCs on a six-day cycle from July to November at one location northwest of the SSA and one to the southeast.

Ambient monitoring results were used to develop background concentrations for use in the dispersion modelling assessment. Additionally, the monitoring results were used for an assessment of existing contributions from the Walker Campus to ambient air quality in the region, through a comparison of upwind, downwind, and crosswind results. Further details on the ambient monitoring campaign are provided in Section 3.3 of the Existing Conditions Report.

Dispersion modelling was completed for the identified discrete receptors for odour, landfill gas and combustion byproducts, and dust contaminants. Dispersion modelling considered cumulative impacts from the various activities occurring across the Walker Campus. Modelling results were combined with upwind background concentrations, in order to capture cumulative impacts from non-Walker related operations.

Blowing litter was assessed qualitatively. The Existing Conditions Report shows blowing litter impacts are being effectively managed. With current practices in place Walker is able to minimize off-site impacts such that existing impacts to residences are low.

Emissions were quantified from landfill sources for odour, landfill gas and combustion byproducts, and dust. Sources of like emissions from the other Walker Campus activities, such as the quarry, asphalt plant, IGRS landfill gas utilization, and the compost facility were also quantified and included in the modelling. Field sampling was completed in order to characterize emission sources at the site including odour flux chamber measurements of the landfill final cap, interim cover, and active face areas, leachate storage ponds, and contaminated waste pile(s). Flux chamber measurements were also completed at the same locations for H_2S emissions with the exception of the contaminated soil piles which are not expected to be a substantial source of H_2S compounds. Flux chamber sampling was completed in the spring/summer of 2025.

Gas samples were used to characterize the concentrations of VOC compounds within the landfill gas collected. Road dust sampling of paved and unpaved roads as well as material stockpiles is required to characterize the silt loading, silt content, moisture content, grain size for the quantification of emissions and application of deposition parameters in the dispersion modelling.

In addition to the source sampling program, emissions were quantified through the use of published emission factors and engineering calculations. The methodologies employed remain consistent with those used in the 2024 ESDM Report.

Odour modelling was completed for the 1-hour averaging period. One-hour concentrations were converted to 10-minute concentrations. Predicted concentrations were assessed at discrete receptors only.

Dispersion modelling predicts maximum odour concentrations at all sensitive receptors to exceed the MECP odour guideline objective of 1 OU/m³, based on detection of odours. Frequency of exceedance of the 1 OU/m³ detection level was predicted to be greater than 0.5% at 22 of the 29 receptors considered, while frequency of exceedance of the 3 OU/m³ recognition level was predicted to be greater than 0.5% of the time at 3 receptors.

Exceedances of the 5 OU/m³ annoyance level were predicted at 5 receptors, with frequencies less than 0.5% of the time at all receptors. Overall, modelling results indicate that odours from the landfill will be detectable at some off-site receptors from time to time, occasionally recognizable, and infrequently strong enough to trigger complaints. This aligns with the complaint record, where landfill-related odour complaints are occasionally received. Walker has implemented best management practices plan for odour, which assists in managing odours from their operations.

Landfill gas and combustion impacts were assessed based on indicator contaminants, including 1,1,2-trichloroethane, benzene, vinyl chloride, H_2S, TRS, NOx, and SO_2. From 2020-2025, no complaints related to LFG or combustion byproducts were received by Walker. Vinyl chloride, 1,1,2-trichlororethane, benzene, and TRS monitoring was conducted in 2025. Monitoring results were generally less than criteria, with one elevated sample for benzene associated with non-Walker Campus sources and two short-term elevated results for TRS. Vinyl chloride, 1,1,2-trichlororethane, benzene, and TRS monitoring results were similar across the upwind, downwind, and crosswind conditions, indicating that the ambient concentrations of these contaminants are not strongly influenced by the presence of the Walker operations. Dispersion modelling results predicted compliance with criteria for all contaminants at all discrete receptors, with the exception of annual benzene, where the elevated background concentration is above the criteria on its own; Walker operations are predicted to contribute only a small fraction (<1%) to the annual benzene concentrations. Overall, impacts of landfill gas and combustion contaminants are low.

For dust, monitoring data indicated that measured quantities of PM_{10} are generally less than the criteria, with one sample at the criteria in 2025. Dust complaints are rare, with only one complaint received over the past five years. Dispersion modelling predicted 24-hour concentrations of TSP, PM_{10}, and $PM_{2.5}$ to be below criteria at discrete receptors most of the time, with infrequent exceedances of the 24-hour criteria at three receptors, on the order of 1-6 days over five years and only when background is included. All exceedances are predicted only when background concentrations are applied. The impact associated with the Walker Campus operations are all below the criteria. The predicted annual TSP concentrations were below criteria at all times, while annual $PM_{2.5}$ was above criteria at multiple receptors based on elevated background values, with Walker Campus sources contributing <10% of the concentration. Based on the assessment, it appears that Walker is effectively managing fugitive dust at their site through the implementation of their best management practices plan for dust.

4.2 “Future” Existing Conditions (Do Nothing Option)

The Do Nothing Option considered what conditions would be on site in a scenario where the Preferred Alternative was not pursued. In the Do Nothing Option South Landfill Phase I landfilling operations would cease in 2030 when it reaches capacity, and the East Landfill operations would cease in 2034 when cell 16 reaches capacity.

For the evaluation of the Do Nothing Option it was assumed that all onsite traffic related to construction and landfilling activities will cease. Active landfilling activities including waste and material handling, wind erosion of exposed piles, and final cap construction will cease. Both the South Landfill Phase I and East Landfill will be completed and under final cover and the LFG collection system will be fully installed.

Normal operations of the LFG flares, the generators, the RNG facility and LFG generators, and leachate management will continue.

Like emissions of dust from compost operations were considered as they will continue to operate in the future regardless of South Landfill Phase 2 construction. Like emissions associated with quarry and asphalt operations were not included as their operations are expected to cease with the depletion of the southeast quarry deposit in 2034. The Do Nothing Option was compared to the existing conditions using a combination of qualitative and quantitative methodologies. As a result of the reduction in landfill activity, significant reductions in all indicators are expected for all Air Quality criteria.

Dispersion modelling of the Do Nothing Option was completed using AERMOD model version 24142 following the same methodology outlined in **Section 3.7**. Source locations during the Do Nothing Scenario are provided on **Figure 4-1**.

Predicted concentrations at discrete receptor locations were compared against criteria from O.Reg. 419/05 and/or AAQC where available for key indicator contaminants. In the absence of any MECP criteria, contaminants were compared to the CAAQs criteria.

4.2.1 Blowing Litter

Blowing Litter is a potential nuisance created by the landfill. Litter typically consists of loose, lightweight materials that can be picked up by the wind such as paper products, empty plastic bags, and cardboard. These materials are commonly found at the active face where freshly deposited waste is exposed to the wind. Litter may be transported off-site during events with above average wind speeds.

For the assessment of the Do Nothing Option, blowing litter was assessed qualitatively as there are no applicable criteria for comparison. In the Do Nothing scenario the existing South Landfill Phase I and East Landfill are closed and there are no active waste filling areas or exposed waste subject to wind erosion. There are not expected to be any sources of litter associated with compost facility operations. Therefore, blowing litter in the Do Nothing Scenario is expected to be decreased when compared to Existing Conditions.

4.2.2 Odour

Odour associated with landfill operations has the potential for nuisance effects at sensitive off-site receptors. Sources of odour from landfill operations considered in the Do Nothing assessment are:

- LFG odours from fugitive releases through the landfill cap; and
- Leachate odours from the leachate treatment system.

Odour emissions from fugitive sources were estimated based on the 2025 sampling campaign odour flux rates as described in **Section 3.4.1** the Existing Conditions Report. Since the South and East landfills will be complete and under final cover in the Do Nothing Scenario, only the flux rates from the existing capped South and East landfills and the leachate storage ponds were considered in the emission calculations. Odour from the landfill mound under final cap results from the fugitive emissions of LFG released through the surface of the landfill. Odour emissions from the landfill cap are generally proportional to the amount of LFG generated by the waste mound, therefore, the odour flux rates were linearly scaled based on the total landfill gas generated. Odour emissions from the leachate ponds were not scaled as odours associated with leachate management are not expected to be impacted with the change in gas quantity.

The quantity of landfill gas generated was estimated using the ECCC Landfill Methane Modelling Tool, version 1.3. Some key inputs of the model are the composition of the waste, local climate, and historic waste deposits. Details on the ECCC tool and parameters used in the emission calculation are provided in Section 8.3 of the Existing Conditions Report. Detailed scaling calculations for odour flux rates and a copy of the ECCC Methane Modelling Tool are provided in **Appendix D** and a summary of all modelled sources and their emission rates in provided in **Appendix E**.

Odour was assessed at identified odour sensitive receptors using dispersion modelling in odour units per cubic metre (OU/m³) following the approach outlined in the MECP guidance document, "Methodology for Modelling Assessments of Contaminants with 10-Minute Average Standards and Guidelines under O.Reg. 419/05", dated September 2016.

For the purposes of this assessment, the predicted site-wide odours from the landfill operations were compared to the 1 OU/m³ detection, 3 OU/m³ recognition, and 5 OU/m³ annoyance thresholds. Odour emissions in the Do Nothing Option are expected to be reduced as a result of the completion of the final cap and the cessation of active landfilling activities at the South Landfill Phase 1 and East landfill, coupled with the decrease in landfill gas generation over time.

A summary of the maximum predicted concentrations and frequency of exceedance of the 1 OU/m³, 3 OU/m³, and 5 OU/m³ thresholds is provided in **Table 4-1** of the Tables Section.

Maximum predicted concentrations at all receptors exceed the MECP odour guideline objective of 1 OU/m³. A frequency analysis was performed on the predicted concentrations. The 1 OU/m³ guideline shows exceedances at a frequency greater than 0.5% of the time at 4 of the 29 receptors. There were no predicted exceedances of 3 OU/m³ or 5 OU/m³. Modelling results indicate that odours from the landfill will be detectable at some off-site receptors from time to time but not recognizable and are unlikely to generate complaints. Overall, modelling predicts odour concentrations at discrete receptors will decrease in the Do Nothing Option when compared to Existing Conditions.

A comparison between the Do Nothing Option and Existing Conditions is provided in **Table 4-2** of the Tables Section.

A concentration isopleth for the Do Nothing Option is provided in **Appendix F**.

4.2.3 Landfill Gas and Combustion Byproducts

The LFG and combustion byproduct study assessed the potential impacts for a select list of key indicator contaminants, including:

- VOCs such as vinyl chloride, benzene, and 1,1,2-trichloroethane.
- Sulphur compounds such as H_2S and TRS.
- Combustion by-products such as NOx and SO_2.

VOCs and sulphur compounds are generated from the decomposition of the biodegradable waste within the landfill mound.

Combustion byproducts are generated by combustion equipment, such as flares and thermal oxidizers, and tailpipe emissions from onsite vehicles.

Sources of LFG and combustion byproducts considered in the Do Nothing Option are:

- Fugitive emissions of LFG through the capped surface of the landfill;
- VOCs from the leachate treatment system;

- Uncombusted LFG compounds and combustion byproducts emitted from the landfill flares;
- Uncombusted LFG compounds and combustion byproducts emitted from the RNG facility thermal oxidizers and flares; and
- Tailpipe emissions from mobile equipment.

Detailed emission estimate methodologies for each of these sources are provided in **Section 8** of the Air Quality Existing Conditions Report and form the basis for dispersion modelling. Similarly to odour, VOCs and sulphur compounds emitted from the various landfill sources were quantified using flux chamber measurements. Emissions of these contaminants are proportional to the quantity of gas generated by the landfill. The quantity of landfill gas was estimated using the ECCC Methane Generation Tool, a copy of the calculation spreadsheet is provided in **Appendix D**. Flux chamber measurements of VOCs and sulphur compounds were linearly scaled to account for the change in gas volume for all cover areas. Emissions from leachate management and the waste soil pile were not scaled as VOC and sulphur compounds emissions from these sources are not expected to be affected by the change in gas volume. Detailed calculations are provided in **Appendix G**. A summary of all sources considered in the Do Nothing Option and their emission rates are provided in **Appendix G**.

LFG and combustion byproduct emissions in the Do Nothing Option are expected to be reduced as a result of the completion of the final cap and the cessation of active landfilling activities at the South Landfill Phase 1 and East landfill, coupled with the decrease in landfill gas generation over time.

Predicted concentrations of all contaminants for all averaging periods are below their applicable criteria with the exception of annual benzene. Annual benzene concentrations are dominated by elevated background concentrations which exceed the annual criterion on its own. Benzene contribution from Walker operations accounts for less than 0.1% of the predicted concentration.

Tabular results of predicted concentrations for all LFG and combustion byproducts contaminants at all discrete receptors are provided in **Table 4-3** of the Tables Section.

Predicted concentrations without background for benzene, vinyl chloride, 1,1,2-trichloroethane, and TRS are below 10% of their criteria and therefore, isopleths for these contaminants are not provided. H_2S is also below 10% of the criteria but has been included for illustrative purposes. Concentration isopleths for 10-minute H_2S, 1-hour NOx, 24-hour NOx, and 1-hour SO_2 are provided in **Appendix H**.

Overall, the predicted concentrations of LFG and combustion byproducts at discrete receptors will decrease in the Do Nothing Option when compared to Existing Conditions. This is driven by the reduced quantity of gas generated from the landfill mound, reductions in site traffic, and reductions in the quantity of flared gas.

4.2.4 Dust

There are typically three contaminants of interest related to the dust emissions from landfills: TSP, PM_{10}, and $PM_{2.5}$. Sources of dust from landfill operations considered in the Do Nothing Option are:

- On-site vehicle traffic associated with compost operations (tailpipe and entrained dust);
- Compost material handling;

- Combustion sources;
- LFG flares;
- RNG facility flares and thermal oxidizers; and
- Emergency generators.

In the Do Nothing Option quarry and asphalt plant operations have ceased so no like emissions from these activities were considered.

Dust emissions are dominated by haul route traffic and final cap and landfill construction. With the removal of these sources, significant decreases in predicted concentrations are expected at all discrete receptor locations. Small quantities of fine particulates will be emitted from the LFG flare and other stationary combustion equipment, but these sources are not expected to substantially contribute to concentrations at discrete receptors.

Detailed emission estimate methodologies for each of these sources are provided in **Section 9** of the Air Quality Existing Conditions Report and form the basis for dispersion modelling. As described in **Section 4** of the Air Quality Existing Conditions Report, dispersion modelling for dust contaminants considered the effects of dry particle deposition, details on the factors applied are provided in **Section 9.5.1** of the Air Quality Existing Conditions Report. A summary of the sources included in the Do Nothing Option and their emission rates are provided in **Appendix E**.

Dust emissions in the Do Nothing Option are expected to be reduced as a result of the completion of the final cap installation and the cessation of active landfilling activities at the South Landfill Phase 1 and East Landfill, and the closing of the Southeast Quarry and asphalt plant.

Predicted concentrations for all averaging periods are below their applicable criteria with the exception of annual $PM_{2.5}$. Predicted concentrations of annual $PM_{2.5}$ are dominated by elevated background concentrations. Contributions from the Walker campus operations account for less than 1% of the predicted concentrations at discrete receptors.

Tabular results of predicted concentrations for all dust contaminants at all discrete receptors are provided in **Table 4-4** of the Tables Section. Concentration isopleths for 24-hour TSP, annual TSP, 24-hour PM_{10}, 24-hour $PM_{2.5}$ and annual $PM_{2.5}$ are provided in **Appendix I**.

Predicted concentrations for all contaminants decrease when compared to Existing Conditions due to the decrease in activity when the landfills, quarry, and asphalt plant are closed.

Overall, the Do Nothing Option predicts a decrease in potential impacts at all discrete receptors for all contaminants and averaging periods when compared to Existing Conditions.

5 AIR QUALITY NET EFFECTS

As described in **Section 1**, following the confirmation of the Preferred Landfill Configuration Option and the Preferred Leachate Management Option, these components, together with all other project elements that were consistent across the previously assessed alternative methods, collectively formed the "Preferred Method." The potential effects and associated mitigation or compensation measures identified were re-evaluated to confirm their validity in the context of the preliminary design. This review incorporated the refined engineering design details described in the FCR.

The potential effects of the Preferred Method were evaluated using a combination of qualitative and quantitative assessment. Similar to the evaluation of the Existing Conditions and the Do Nothing Option, the potential for impacts associated with blowing litter were evaluated qualitatively. Evaluation of the potential effects related to odour, landfill gas and combustion byproducts, and dust were completed quantitatively using detailed dispersion modelling. Dispersion modelling was completed following the same methodology outlined in **Section 3.7**. The Preferred Method was divided into three future operating scenarios. These operating scenarios represent key milestones in landfill lifecycle and were selected to capture the worst-case emissions scenario for each of the indicator criteria. Details on each of the three operating scenarios are provided below.

- Scenario 1 – The study period for Scenario 1 evaluates anticipated operations in the year 2033 at the end of Stage 1. This scenario was selected due to the high level of activity on site during this period. During the first few years of SLF2's operation, a portion of the annual waste receipt will be directed to either the SLF1 or ELF cell 16. **Table 5-1** summarizes the annual waste receipt for each landfill. Both South Landfill Phase 1 and East Landfill cell 16 will receive a much smaller portion of waste when compared with South Landfill Phase 2. In 2033, landfill filling operations are occurring at the SLF1 and South Landfill Phase 2 Stage 1 concurrently. As a more conservative assessment, landfilling at ELF cell 16, instead of South Landfill Phase 1, was assumed to occur concurrently with South Landfill Phase 2, with the consideration of a higher waste receipt and a smaller separation distance from the nearest receptors. Landfill capping activities are underway following behind each active face. Cell construction is underway in stage 2 of the South Landfill Phase 2. In addition to landfill operations, the southeast quarry and asphalt plant are both operating at maximum capacity. While the quantity of waste received at the site remains the same, and activity is spread throughout the site, the addition of two active faces, extensive interim cover and capping activities, cell construction, high site traffic, and like emissions from quarry and asphalt operations create a high emission scenario for fugitive dust, landfill gas, and odour. Landfill and other Walker Campus operations during Scenario 1 are provided in **Figure 5-1**. Active face operations were conservatively placed in the furthest northeastern corner of South Landfill Phase 2 stage 1 which represents the shortest separation between landfill operations and eastern discrete receptors. The East Landfill active face was placed in the northernmost section of cell 16 nearest to the northern receptors. The South Landfill Phase I is located central to the Walker Campus; final cap construction was placed near the middle of the final cell as to best capture cumulative impacts with the East Landfill and South Landfill Phase 2 Stage 1 active faces. The year 2033 was selected because it represents the end of Stage 1 operations when the maximum amount of waste will be in place, maximizing the potential for LFG and odour emissions.

- Scenario 2 - The study period for Scenario 2 evaluates anticipated operations in the year 2041 at the end of stage 3. This scenario was selected due to the close proximity of active landfilling operations to the discrete receptors located north of the South Landfill Phase 2. In this scenario, quarry and asphalt operations have ceased and the South Landfill Phase I and East Landfill have ceased operations and have been fully capped. Landfill filling operations are underway in Stage 3, with capping following behind the active face. Cell construction is underway in stage 4. Landfill operations during Scenario 2 are provided in **Figure 5-2**. Active face operations were conservatively placed in the furthest northeastern corner of stage 3 which represents the shortest separation between landfill operations and northeastern discrete receptors.
- Scenario 3 - The study period for Scenario 3 evaluates anticipated operations in the year 2045 at the end of Stage 4. This scenario was selected because it represents the final year before closure where the maximum amount of waste is in place, representing the maximum LFG generation potential. Landfilling operations are underway in Stage 4, with capping following behind the active face. All cell construction has been completed at the South Landfill Phase 2. Landfill operations during Scenario 3 are provided in **Figure 5-3**. Active face operations were conservatively placed in the furthest northeastern corner of stage 4 which represents the shortest separation between landfill operations and northeastern discrete receptors.

Table 5-1: Annual Waste Receipt during the First Stage of SLF2

Landfill	Annual Waste Receipt ('000's tonnes/year)				
	2030	2031	2032	2033	2034
ELF	0	0	0	0	400
SLF1	200	150	100	100	Closed
SLF2	1,100	1,100	1,100	1,100	(Stage 2)

The evaluation of the Preferred Method followed the methodology outlined in **Section 4.2**. In instances where changes to the methodology were required in order to assess unique operating conditions in future scenarios, details on those changes have been provided in the following sections.

5.1 Blowing Litter

A potential nuisance created by the landfill is wind-blown litter. Litter typically consists of loose, lightweight materials that can be picked up by the wind such as paper products, empty plastic bags, and cardboard. These materials are commonly found at the active face where freshly deposited waste is exposed to the wind.

Litter may be transported off-site during events with above average wind speeds. Non-active waste filling areas are covered by daily, interim, or final cover to minimize the potential for windblown litter. Control of wind-blown litter at the active face is managed using the litter BMPP. Details on blowing litter controls are provided in **Section 3.7.8.1**. The assessment of the Preferred Method followed the same methodology outlined in Section 6 of the Existing Conditions Report.

5.1.1 Methodology

The evaluation of litter impacts was based on potential zones of impact developed utilizing the 1990 Ontario's Interim Waste Authority Limited (IWA) literature review of the potential for blowing litter impacts during high wind speed events. The findings of this literature review are presented in **Table 5-2**.

Table 5-2: Blowing Litter Potential Zones of Impact for Above-Grade Landfills (IWA, 1994)

Distance from Landfill Perimeter	Finding	Impact Category
0 to 500 m	50% of escaping litter retained in this area	Medium
500 to 1,000 m	Remaining 50% of escaping litter retained in this area	Low
Beyond 1,000 m	Very little litter escapes beyond this distance	None

The potential litter zones presented previously in **Table 5-2** indicates that potential blowing litter impacts are expected to occur within 500 m of the landfill and to a lesser degree limited to within 1 km of the proposed landfill expansion. Litter zones for each scenario and their potential impact on discrete receptors are provided in **Figure 5-4** and **Figure 5-5**.

Litter events are highly dependent on meteorological conditions, primarily wind speed and wind direction. The Lapp study suggests minimum wind speeds for litter events of 16 - 24 km/h, whereas RWDI concluded that 22 - 33 km/h were the minimum wind speeds for litter events. As a conservative approach, the conclusions of the Lapp study, i.e. wind speeds ranging from 16 – 24 km/h, were considered the minimum wind speeds required for potential litter events. As wind speed increases, more materials have the potential to be lifted by the wind which then increases the potential for litter. The predominant wind direction can be used to determine where the litter from these events are most likely to impact. Understanding the zones for litter allows for effective implementation of mitigation measures.

An examination of the site-specific meteorological data provided by the MECP was completed to help inform the likelihood of blowing litter impacts occurring at discrete receptors within the identified zones. **Figure 5-6** provides the wind rose for 5 years of site-specific meteorological data prepared by the MECP for the years 2020 to 2024. The wind rose shows the joint distribution of wind speed and wind direction with lobes indicating the direction that the wind originated from and the percentage of time. A longer lobe means that that wind direction occurred more frequently.

Wind speeds above 16 km/h are relevant to blowing litter. Wind speeds below 16 km/h are considered calm for the purpose of this assessment. **Figure 5-6** shows that wind speeds greater than 16 km/h can be associated with any wind direction but are most often associated with winds blowing from south-westerly directions (SSW through WNW). The frequency of winds greater than 16 km/h vary between <1% to 8% depending on wind direction. Winds are less than 16 km/h for 60% of the time.

The potential litter zones presented in **Table 5-2** were used in combination with the local meteorological data in order to assess the potential for blowing litter impacts. In the Preferred Method the location of landfilling activities will change throughout the lifecycle of the South Landfill Phase 2.

Landfilling activities will occur at three major locations, the East Landfill, South Landfill Phase 1, and South Landfill Phase 2**. Figure 5-4** and **Figure 5-5** provide an overview of the predicted litter zones based on each landfilling location, as well as identification of discrete receptors within the zones of influence. The change in potential for litter impacts as a result of the various landfilling scenarios are discussed in the following sections.

5.1.2 Scenario 1

Unique to Scenario 1 is that active landfilling will be occurring simultaneously at three active face locations: South Landfill Phase I, East Landfill Cell 16, and Stage 1 of South Landfill Phase 2. The majority of blowing litter is associated with active face activities as freshly placed waste is exposed to the wind. There are no receptors that fall within the litter zones for multiple landfilling locations. Therefore, cumulative litter impacts are not expected.

As shown in **Figure 5-4**, no receptors are located within 500 m of the active portion of the existing South Landfill Phase I.

Between a distance of 500 m and 1,000 m there is one discrete receptor, R21, which is located southwest of the landfill area. As mentioned in **Table 5-2**, the impact in the area is expected to be low. Thus, the potential for litter impacts at these receptors is expected to be low.

As shown in **Figure 5-4**, no receptors are located within 500 m of the active portion of the East Landfill Cell 16.

Between a distance of 500 m and 1,000 m there are three discrete receptors, R01, R17, and R29 which are located north of the landfill area. As mentioned in **Table 5-2**, the impact in the area is expected to be low. Thus, the potential for litter impacts at these receptors is expected to be low.

As shown in **Figure 5-4**, two receptors, R02 and R04, are located within 500 m of the South Landfill Phase 2. R02 is located northeast of the landfill in the predominant wind direction and R04 is located east. Based on the wind rose presented in **Figure 5-6** high winds that could potentially cause litter to blow toward R02 are expected to occur approximately 8% of the time. Winds towards R04 are expected to occur less frequently at 5% of the time. Although R02 is located downwind of the predominant wind direction, the active face in Scenario 1 will be limited to the southernmost portion of the South Landfill Phase 2 footprint and the separation distance will be greater than 500 m. Therefore, the potential for litter impacts on R02 is expected to be low. Winds towards R04 are expected to be infrequent and the receptor is located on the edge of the 500 m threshold. Given R04's location relative to the active face, as well as the infrequency of westerly winds, the potential for litter impacts are low.

Between a distance of 500 m and 1,000 m there are 6 discrete receptors, R05, R06, R07, R08, R10, and R18, none of which are located in the predominant wind direction. As mentioned in **Table 5-2**, the impact in the area is expected to be low. Thus, the potential for litter impacts at these receptors is expected to be low.

Blowing litter will continue to be managed through the existing litter BMPP. However, given the high level of activity on site during Scenario 1 additional wind screens and litter fences may be required. Walker will continue to evaluate the appropriate level of litter controls on an ongoing basis and determine if enhanced litter clean up or screening is required.

5.1.3 Scenario 2

In Scenario 2 landfilling activities are limited to the northern portion of the South Landfill Phase 2 (Stage 3). As discussed in **Section 5.1.2**, only two receptors fall within 500 m of the South Landfill Phase 2, which are R02 and R04. **Figure 5-5** provides the litter zones for Scenario 2. R02 is located northwest of the site, downwind of the predominant wind direction. Winds from the southwest are expected to occur approximately 8% of the time. Although R02 is located downwind of the predominant wind direction, R02 is located on the very edge of the 500 m separation distance threshold. With the exception of operations in the northeast most corner of the landfill, the active face to source separation distance will be greater than 500 m. Typically operations this close to the boundary are short-term as these areas are used to develop the slide slope of the waste mound and have lower capacities for the landfilling of waste. Therefore, the potential for litter impacts on R02 is expected to be low. With operations restricted to the northmost portion of the landfill the separation distance between the active face and R04 will be greater than 500 m. Therefore, the potential for litter impacts on R04 is expected to be low. Continued implementation of the existing litter BMPP is expected to effectively manage the potential for blowing litter.

5.1.4 Scenario 3

In Scenario 3 landfilling activities are limited to the northeastern portion of the South Landfill Phase 2 (Stage 4). As discussed in **Section 5.1.2**, only two receptors fall within 500 m of the South Landfill Phase 2. **Figure 5-5** provides the litter zones for Scenario 3. In Scenario 3 separation between the active face and R02 and R04 and all other discrete receptors will be greater than 500 m. As discussed in **Section 5.1.2**, the potential for litter impacts on discrete receptors beyond 500 m is low.

Continued implementation of the existing litter BMPP is expected to effectively manage the potential for blowing litter.

5.1.5 Net Effects Assessment

During Scenario 1, operations active landfilling occurs at three active face locations: the East Landfill, South Landfill Phase I, and South Landfill Phase 2 (Stage 1). The majority of receptors are located beyond 500 m from any of the active faces. Stage 1 of the South Landfill Phase 2 is located on the southern portion of the landfill footprint. Only one receptor is within 500 m of the active face locations, and the potential for litter impacts at all receptors in Scenario 1 is expected to be low.

During Scenarios 2 active face activities are limited to the South Landfill Phase 2 (Stage 3), reducing the overall number of receptors potentially impacted by blowing litter. Receptors north and east of the landfill continue to have an elevated potential for litter impacts, with two receptors within 500 metres of the active face during Stage 3 operations. All other receptors remain beyond 500 m and the potential for litter impacts at all receptors is expected to be low.

During Scenario 3 active face activities are limited to the South Landfill Phase 2 (Stage 4) reducing the overall number of receptors potentially impacted by blowing litter. Receptors north and east of the landfill continue to have an elevated potential for litter impacts.

Receptors north and east of the landfill continue to have an elevated potential for litter impacts, with two receptors within 500 metres of the active face during Stage 4 operations. All other receptors remain beyond 500 m and the potential for litter impacts at all receptors is expected to be low.

Overall, for the majority of the landfill lifecycle the separation distance between the discrete receptors and the active face will be greater than 500 m. The South Landfill Phase 2 will have a similar final elevation, same size active face, and will apply the same BMPPs currently used to manage the South Landfill Phase I. As stated in Section 6 of the Existing Conditions Report, blowing litter related complaints are extremely limited, which suggests that the current BMPP is effective in managing blowing litter. Discrete receptors east of the landfilling area are located downwind of the predominant westerly winds. Despite this, with current BMPPs in place, and the separation distance between the landfill boundary and discrete receptors, the potential for blowing litter impacts remains low. Current blowing litter BMPPs will need to be monitored closely to ensure the continued effective management of blowing litter especially during period of high activity during Scenario 1.

5.2 Odour

Evaluation of the Preferred Method for odour was completed using dispersion modelling to assess the potential for nuisance conditions at identified odour sensitive receptors. Odour was evaluated using the following odour thresholds:

- 1 OU/m³ – associated with detection of odour;
- 3 OU/m³ – recognition of odour; and
- 5 OU/m³ – nuisance resulting from odour.

Sources of odour from landfill operations considered in the assessment of the Preferred Method are:

- LFG and waste odours from the landfill and waste acceptance activities including the active face, interim cover areas, and final cover areas for the South Landfill Phase I, East Landfill, and South Landfill Phase 2;
- Soil odours from the waste soil pile;
- Leachate odours from the leachate treatment system.

Odour emissions from fugitive sources were determined through site-specific measurements following the methodology presented in **Section 4.2.2**.

Details on the flux chamber sampling campaign are provided in Section 3.4 of the Existing Conditions Report. Odour flux rates were scaled to account for the variability in landfill gas generated in each of the Preferred Method Scenarios.

Flux rates for the South Landfill Phase I and East Landfill were scaled linearly based on the predicted total volume of methane generated in 2025 and the predicted total volume of methane generated in each scenario. This method allows the evaluation to account for the decrease in gas over the lifecycle of the South Landfill Phase 2. As less odour generating compounds are produced from the decomposition of waste, less odour is expected from the landfill mound.

Emissions from the South Landfill Phase 2 were based on the flux rate for the South Landfill Phase I. These flux rates were selected as the South Landfill Phase 2 will be similar to the South Landfill Phase I in both design and waste composition.

As a conservative estimate of odour flux rates from the South Landfill Phase 2 cover areas, flux rates measured from the South Landfill Phase I were applied for the active filling stage in each Scenario. For example, in Scenario 1 the South Landfill Phase 2 Stage 1 cells are being filled. Emissions from the interim and final cover areas were based on the unscaled flux rates measured as part of the 2025 sampling campaign at the South Landfill Phase I. This is conservative because at the time of sampling the South Landfill Phase I had more waste in place and more methane generation than what will be in place in the future Scenario 1 South Landfill Phase 2 Stage 1 area, resulting in higher odour emissions. This assumption was applied to the active stage in each scenario; odour flux rates for closed stages were scaled based on the final cover flux rate relative to the change in estimated methane generated from the landfill mound.

Odour flux rates for the active face, leachate storage ponds, and the waste soil pile remained constant throughout all future stages of the Preferred Method.

No odour emissions are associated with the haul routes or onsite traffic and therefore changes in haul routes on the landfill mound do not impact the odour evaluation. The landfill active face location will change throughout the lifecycle of the South Landfill Phase 2. The active face has the potential to be a significant source of odour emissions and the change in location is likely to affect predicted concentrations. As a conservative assumption the evaluation of Scenarios 1 – 3 consider the active face in worst-case locations, as discussed in **Section 5**. Odour levels are anticipated to decrease over time as more areas of the landfill are placed under final cover.

Source locations in each of the Preferred Method scenarios are provided in **Figure 5-1** to **Figure 5-3**.

5.2.1 Scenario 1

In Scenario 1 landfill operations are spread across two active faces: the East Landfill Cell 16 and the South Landfill Phase 2 Stage 1. All active faces were placed in worst-case locations closest to discrete receptors. During Scenario 1, the majority of the East Landfill and South Landfill Phase I are under final cover, with small areas around the active face assumed to be under interim cover. In Scenario 1 the first stage of South Landfill Phase 2 is in its last year of filling with the majority of the cell under interim cover. A small portion of the landfill is assumed to be under final cover as capping activities following behind the active face. The two additional leachate ponds required for the expansion of the leachate management system are assumed to be installed and operating during this scenario. A detailed source summary table and support calculations are provided in **Appendix J**.

5.2.1.1 Results

The results of the odour modelling are presented in **Table 5-1** of the Tables Section. The overall maximum predicted concentrations at each receptor have been presented, as well as the frequency of time concentrations are predicted about the 1, 3, and 5 OU/m³ thresholds.

Maximum predicted concentrations at all receptors exceed the detection threshold of 1 OU/m³. A frequency analysis was performed on the predicted concentrations. Exceedances of the 1 OU/m³ detection level were predicted at a frequency greater than 0.5% of the time at all receptors except R20, R23, R24, and R27. The highest overall frequency of exceedance of 1 OU/m³ is 4.0% or approximately 353 hours over 5 years predicted at R21. Results are based on 24-hour occupation of the receptor. R21 represents the local cemetery that is restricted to daytime operations which would reduce the predicted frequency of exceedance. The greatest frequency of exceedance of 1 OU/m³ at a residential receptor is 3.1% or approximately 274 hours over 5 years predicted at R04.

Exceedances of the 3 OU/m³ recognition level were predicted at all receptors except R02, R09, R20, R23, R24, R27, and R28. The frequency analysis suggests that exceedances of 3 OU/m³ are above 0.5% of the time at receptors R03, R04, R05, R06, R15, R18, R21, and R29. The highest overall frequency of exceedance of 3 OU/m³ is 0.7% or approximately 57 hours over 5 years predicted at R03 and R04.

Exceedances of the 5 OU/m³, annoyance level were predicted at R03, R15, R16, R21, and R29. The frequency analysis suggests that exceedances of 5 OU/m³ are less than 0.5% at all receptors. The highest overall frequency of exceedance of 5 OU/m³ is 0.2% or approximately 19 hours over 5 years predicted at R21.

A concentration isopleth is provided in **Appendix K**.

5.2.2 Scenario 2

In Scenario 2 the South Landfill Phase I and East landfill are under final cover. Landfilling activities are operating in Stage 3 of the South Landfill Phase 2. The Stage 1 and 2 areas have been completed, and final cap has been installed. All other areas excluding the active face area are assumed to be under interim cover. A small portion of Stage 3 is assumed to be under final cover as capping activities follow behind the active face. The two additional leachate ponds required for the expansion of the leachate management system are assumed to be installed and operating during this scenario. A detailed source summary table and support calculations are provided in **Appendix J**.

5.2.2.1 Results

The results of the odour modelling are presented in **Table 5-2** of the Tables Section. The overall maximum predicted concentrations at each receptor have been presented, as well as the frequency of time concentrations are predicted about the 1, 3, and 5 OU/m³ thresholds.

Maximum predicted concentrations at all receptors exceed the detection threshold of 1 OU/m³. A frequency analysis was performed on the predicted concentrations. Exceedances of the 1 OU/m³ detection level were predicted at a frequency greater than 0.5% of the time at all receptors except R09, R14, R19, R20, R24, R26, and R27. The highest overall frequency of exceedance of 1 OU/m³ is 2.8% or approximately 248 hours over 5 years predicted at R21.

Exceedances of the 3 OU/m³ recognition level were predicted at receptors R02, R03, R11, R12, R13, R15, R16, R21, and R29. The frequency analysis suggests that exceedances of 3 OU/m³ are less than 0.5% at all receptors. The highest overall frequency of exceedance of 3 OU/m³ is 0.48% or approximately 42 hours over 5 years predicted at R02.

Exceedances of the 5 OU/m³ annoyance level were predicted at R02, R03, and R21. The frequency analysis suggests that exceedances of 5 OU/m³ are less than 0.5% at all receptors. The highest overall frequency of exceedance of 5 OU/m³ is 0.03% or approximately 3 hours over 5 years predicted at R02.

A concentration isopleth is provided in **Appendix K**.

5.2.3 Scenario 3

In Scenario 3 the South Landfill Phase I and East landfill are under final cover. Waste filling activities are operating in Stage 4 of the South Landfill Phase 2. The Stage 1, 2, and 3 areas have been completed, and final cap has been installed. All other areas excluding the active face area are assumed to be under interim cover. A small portion of Stage 4 is assumed to be under final cover as capping activities follow behind the active face. The two additional leachate ponds required for the expansion of the leachate management system are assumed to be installed and operating during this scenario. A detailed source summary table and support calculations are provided in **Appendix J**.

5.2.3.1 Results

The results of the odour modelling are presented in **Table 5-3** of the Tables Section. The overall maximum predicted concentrations at each receptor have been presented, as well as the frequency of time concentrations are predicted about the 1, 3, and 5 OU/m³ thresholds.

Maximum predicted concentrations at all receptors exceed the detection threshold of 1 OU/m³. A frequency analysis was performed on the predicted concentrations. Exceedances of the 1 OU/m³ detection level were predicted at a frequency greater than 0.5% of the time at all receptors except R09, R13, R14, R19, R20, R23, R24, R26, R27, and R28. The highest overall frequency of exceedance of 1 OU/m³ is 2.3% or approximately 201 hours over 5 years predicted at R02.

Exceedances of the 3 OU/m³ recognition level were predicted at receptors R02, R03, R12, R13, R15, R16, and R21. The frequency analysis suggests that exceedances of 3 OU/m³ are less than 0.5% of the time at all receptors. The highest overall frequency of exceedance of 3 OU/m³ is 0.3% or approximately 24 hours over 5 years predicted at R02.

No exceedances of 5 OU/m³ annoyance level were predicted at any receptors.

A concentration isopleth is provided in **Appendix K**.

5.2.4 Net Effects Assessment

Dispersion modelling results from each landfilling scenario evaluated under the Preferred Method were compared to the Existing Conditions in order to quantify the net effect of the Preferred Method. Comparison tables for the worst-case odour impacts for the Existing Conditions and each scenario of the Preferred Method are provided in **Table 4-2** of the Tables Section.

The analysis indicates that in both the Existing Conditions and Preferred Method predicted concentrations at discrete receptors have odour events greater than 1 OU/m³. Frequency of events greater than 1 OU/m³ are expected to increase compared to Existing conditions in Scenario 1.

Scenario 1 considers 2 simultaneous active face locations which is directly related to the increase in predicted odour concentrations exceeding 1 OU/m³. Simultaneous operations at the 2 active faces are expected to occur over a relatively short period of time. In addition to simultaneous operations, each of the two active faces were placed in their individual worst-case locations. For the majority of the landfill life, the active face will be located more interior to the site which is expected to reduce the frequency and magnitude of elevated concentrations at discrete receptors.

In Scenarios 2 and 3 the predicted frequency of exceedances of 1 OU/m³ begins to decrease as more of the landfill is placed under final cover and landfilling operations are completed at the East and South Landfill Phase I. While the total number of events decreases, landfill operations shift further east bring operations closer to discrete receptors along the eastern boundary which increases the potential for more frequent odour exceedances at these locations.

While modelling predicts exceedance of 1, 3, and 5 OU/m³ at several discrete receptor locations over the lifecycle of the South Landfill Phase 2, predicted concentrations and exceedances align with Existing Conditions. Based on the predicted odour concentrations there is potential that landfill-related odours will be detectable at discrete receptors from time to time. Overall, modelling results indicate that odours from the landfill will be detectable at some off-site receptors from time to time, occasionally recognizable, and infrequently strong enough to trigger complaints. This aligns with the complaint record, where landfill-related odour complaints are occasionally received.

The low level of current complaints indicates that predicted concentrations are likely overpredicted. This is a result of the many conservatisms integrated into the modelling assessment. Maximum predicted concentrations are based on dispersion modelling pairing worst-case emissions with worst-case meteorological conditions, which is effective in capturing the worst-case dispersion scenario but often leads to overpredictions in the magnitude and frequency of exceedances. In reality, the magnitude and frequency of potential impacts at discrete receptors are expected to remain similar to levels experienced from existing operations which, as indicated by the complaints history, is low. This indicates current odour BMPPs are effective in managing odour from landfill operations. As operations progress Walker should continue to engage with the community and review their BMPPs accordingly.

5.3 Landfill Gas and Combustion Byproducts

Evaluation of the Preferred Alternative for LFG and combustion byproducts was completed using dispersion modelling for:

- Vinyl Chloride (CAS# 75-01-4);
- Benzene (CAS# 71-43-2);
- 1,1,2-Trichloroethane (CAS# 79-00-5);
- Total Reduced Sulphurs (TRS);
- Hydrogen Sulphide (H2S) (CAS# 7783-06-4);
- Nitrogen Oxides (NOx) / Nitrogen Dioxide (NO2) (CAS# 10102-44-0); and
- Sulphur Dioxide (SO2) (CAS# 7446-09-5).

LFG and combustion byproducts associated with landfill operations have the potential to impact sensitive off-site receptors.

VOCs and sulphur compounds are generated from the decomposition of the biodegradable waste within the landfill mound.

Combustion byproducts are generated by combustion equipment, such as flares and thermal oxidizers, and tailpipe emissions from onsite vehicles.

Sources of LFG and combustion byproducts considered in the Preferred Method are:

- Fugitive emissions of LFG through the surface of the landfill, through both final cap and interim cover areas;
- VOCs from the leachate treatment system;
- VOCs from contaminated soils;
- Uncombusted LFG compounds and combustion byproducts emitted from the landfill flares and generators;
- Uncombusted LFG compounds and combustion byproducts emitted from the RNG facility, siloxane flare and thermal oxidizers and flares; and
- Tailpipe emissions from mobile equipment.

In general, the emission quantification and modelling methodology is consistent with those presented in **Section 4.2** for the Do Nothing Option. However, landfilling patterns vary from scenario to scenario based on the progressive filling of the landfill. This impacts the assumptions on which areas of the landfill are under interim or final cover which can significantly affect emissions of VOCs from the landfill mound.

Similarly to odour, emissions of VOCs and H_2S from the landfill mound were quantified using odour flux measurements. VOC and H_2S flux rates were scaled following the same methodology applied to odour, as described in **Section 5.2**.

Emissions from landfill gas flares, generators, and the RNG facility were adjusted to account for the change in landfill gas combusted through the respective sources. Emissions were scaled using the methodology outlined in **Section 4.2.3**. Emissions of SO_2 were developed following the refined SO_2 methodology outlined in Section 8.3.3 of the Existing Conditions Report.

Contributions from haul routes were considered for the evaluation of VOCs and combustion byproducts associated with tailpipe emissions. Haul route changes have the potential to affect predicted concentrations of tailpipe emissions but are not expected to significantly change results from Existing Conditions. Details on the haul routes and source locations in each Preferred Method scenario are provided in **Figure 5-1** to **Figure 5-3**.

5.3.1 Scenario 1

In Scenario 1 landfill operations are spread across two active faces, the East Landfill Cell 16 and the South Landfill Phase 2 Stage 1. The quantities of waste received at the two Landfills are provided in FCR. Haul route traffic for South Landfill Phase 2 Stage 1 is based on the daily maximum traffic scenario as outlined in the FCR, while that for East Landfill is scaled based on the waste receipt. The majority of the East Landfill and South Landfill Phase I are under final cover, with small areas around the active face assumed to be under interim cover. In Scenario 1 the first stage of South Landfill Phase 2 is in its last year of filling with the majority of the cell under interim cover. A small portion of the landfill is assumed to be under final cover as capping activities follow behind the active face. The two additional leachate ponds required for the expansion of the leachate management system are assumed to be installed and operating during this scenario. Unique to Scenario 1, operations at the Southeast Quarry and Asphalt plant continue to operate, with quarry extraction activities occurring in the northeastern portion of the South Landfill Phase 2 footprint. Like emissions from tailpipe emissions from quarry and asphalt plant trucks as well as benzene from the asphalt plant were considered in the assessment. The compost facility continues to operate with sources of like emissions considered in the evaluation. Emissions were calculated following the same methodology described in Section 8 of the Existing Conditions Report. A detailed source summary table and support calculations are provided in **Appendix L**.

5.3.1.1 Results

Predicted concentrations of all contaminants for all averaging periods are below their applicable criteria with the exception of annual benzene. Annual benzene concentrations are dominated by elevated background concentrations which exceed the annual criterion on its own. Benzene contributions from Walker Campus operations account for less than 0.1% of the predicted concentration.

Tabular results of predicted concentrations for all LFG and combustion byproducts contaminants at all discrete receptors are provided in **Table 5-4** of the Tables Section.

Predicted concentrations without background for benzene, vinyl chloride, 1,1,2-trichloroethane, and TRS are below 10% of their criteria and therefore, isopleths for these contaminants are not provided. H_2S is also below 10% of the criteria but has been included for illustrative purposes. Concentration isopleths for 1-H_2S, 1-hour NOx, 24-hour NOx, and 1-hour SO_2 are provided in **Appendix M**.

5.3.2 Scenario 2

In Scenario 2 the South Landfill Phase I and East landfill are under final cover, the Southeast Quarry has been depleted and all on-site quarry and asphalt plant operations have ceased. Landfilling activities are operating in Stage 3 of the South Landfill Phase 2. Stage 1 and 2 areas have been completed, and final cap has been installed. All other areas excluding the active face area are assumed to be under interim cover. A small portion of Stage 3 landfill is assumed to be under final cover as capping activities following behind the active face. The two additional leachate ponds required for the expansion of the leachate management system are assumed to be installed and operating during this scenario. The compost facility continues to operate with sources of like emissions considered in the evaluation. A detailed source summary table and support calculations are provided in **Appendix N**.

5.3.2.1 Results

Predicted concentrations of all contaminants for all averaging periods are below their applicable criteria with the exception of annual benzene. Annual benzene concentrations are dominated by elevated background concentrations which exceed the annual criterion on its own. Benzene contributions from Walker Campus operations account for less than 0.1% of the predicted concentration.

Tabular results of predicted concentrations for all LFG and combustion byproducts contaminants at all discrete receptors are provided in **Table 5-5**.

Predicted concentrations without background for benzene, vinyl chloride, 1,1,2-trichloroethane, and TRS are below 10% of their criteria and therefore, isopleths for these contaminants are not provided. H_2S is also below 10% of the criteria but has been included for illustrative purposes. Concentration isopleths for 10-minute H_2S, 1-hour NOx, 24-hour NOx, and 1-hour SO_2 are provided in **Appendix O**.

5.3.3 Scenario 3

In Scenario 3 the South Landfill Phase I and East landfill are under final cover, the Southeast Quarry has been depleted and all on-site quarry and asphalt plant operations have ceased. Waste filling activities are operating in Stage 4 of the South Landfill Phase 2. The Stage 1, 2, and 3 areas have been completed, and final cap has been installed. All other areas excluding the active face area are assumed to be under interim cover. A small portion of Stage 4 landfill is assumed to be under final cover as capping activities following behind the active face. The two additional leachate ponds required for the expansion of the leachate management system are assumed to be installed and operating during this scenario. The compost facility continues to operate with sources of like emissions considered in the evaluation. A detailed source summary table and support calculations are provided in **Appendix P**.

5.3.3.1 Results

Predicted concentrations of all contaminants for all averaging periods are below their applicable criteria with the exception of annual benzene. Annual benzene concentrations are dominated by elevated background concentrations which exceed the annual criterion on its own. Benzene contributions from Walker Campus operations account for less than 0.1% of the predicted concentration.

Tabular results of predicted concentrations for all LFG and combustion byproducts contaminants at all discrete receptors are provided in **Table 5-6** of the Tables Section.

Predicted concentrations without background for benzene, vinyl chloride, 1,1,2-trichloroethane, and TRS are below 10% of their criteria and therefore, isopleths for these contaminants are not provided. H_2S is also below 10% of the criteria but has been included for illustrative purposes. Concentration isopleths for 10-minute H_2S, 1-hour NOx, 24-hour NOx, and 1-hour SO_2 are provided in **Appendix Q**.

5.3.4 Net Effects Assessment

Dispersion modelling results from each of the three landfilling scenarios evaluated under the Preferred Method were compared to the Existing Conditions in order to quantify the net effect of the Preferred Method. Comparison tables for Existing Conditions and each scenario of the Preferred Method are provided in **Table 4-2** of the Tables Section.

The analysis indicates that in both the Existing Conditions and Preferred Method predicted concentrations at discrete receptors for all LFG and combustion byproduct remain below applicable criteria with the exception of annual benzene. Annual benzene concentrations are dominated by elevated background concentrations which exceed the criterion without any contribution from Walker Campus operations. Benzene contributions from Walker operations account for less than 0.1% of the predicted concentration.

Concentrations of LFG and combustion byproducts are expected to be similar to Existing Conditions in all Preferred Method scenarios. Discrete receptors are expected to continue to experience similar conditions throughout the lifecycle of the South Landfill Phase 2 as they do today.

Overall, the dispersion modelling results indicate that the contribution from Walker operations are relatively low relative to background. From 2020-2025, no complaints related to LFG or combustion byproducts were received by Walker. Monitoring results for vinyl chloride, 1,1,2-trichlororethane, benzene, and TRS are similar across the upwind, downwind, and crosswind conditions, indicating that the ambient concentrations of these contaminants are not strongly influenced by the presence of the Walker operations. Therefore, the Preferred Method net effect on LFG and combustion byproducts is expected to be low.

5.4 Dust

Evaluation of the Preferred Method for dust was completed using dispersion modelling for TSP, PM_{10}, and $PM_{2.5}$. In general, the emission quantification and modelling methodology is consistent with the those presented in **Section 4**. Dry dust deposition and dry depletion were considered in the dispersion modelling. Deposition and depletion allow the modelling to account for the natural settling of heavy particulates out of the plume as it propagates from the emission source. Deposition and dry depletion were applied in the Preferred Method assessment following the methodology outlined in Section 9.5.1 of the Existing Conditions Report.

In addition to dust emissions associated with landfill operations, source of like emissions from other activities at the Walker Campus, including the compost operations, quarry, asphalt plant, and construction activities were considered.

Types of sources of dust considered in the Preferred Method include:

- Paved and unpaved roadway re-entrained dust and vehicle tailpipe;
- Idling vehicles;
- Wind erosion of exposed areas;
- Material handling, including waste soils and daily cover material;
- Material processing (crushing, screening, conveying);
- Bulldozer activity;
- Blasting;
- Landfill gas flares;
- Portable generators; and
- RNG flares, siloxane flare and thermal oxidizer.

Landfill sources include: vehicles delivering waste to the site; handling of daily cover and interim cover material, wind erosion of the active landfilling area and daily cover storage pile, and combustion from the flares.

IGRS sources include: operation of landfill gas-fired generators and combustion sources associated with the RNG Facility.

Compost sources include: vehicles delivering compost materials to the processing area, material handling, screening, stacking, truck loading, silo bin vents, and diesel-fired generators.

Quarry and asphalt sources include: vehicles delivering aggregate to the processing plant from the active face, blasting, material handling, crushing, screening, conveyance, and vehicle loadout.

Construction sources include: vehicles transferring final cover material from on-site stockpiles to the construction face; bulldozing of the final cover area, material handling of the final cover material, wind erosion of the construction area, and operations associated with cell construction.

Haul road and tailpipe emissions were based on the maximum daily traffic volumes occurring every day providing an extremely conservative estimate of roadway emissions. In accordance with the FCR, the frequency of these peaks is limited to a few days per year.

Walker has a BMPP for dust which outlines control measures taken to minimize dust emissions from the site. Operation of the Preferred Method intends to maintain current dust control practices outlined in the BMPP. Details regarding the BMPP (Dust) are provided in **Section 3.7.8.3**.

As part of the ongoing implementation of the dust BMPP in the Preferred Method, Walker will continue apply enhanced dust suppression along unpaved internal haul routes in order to achieve a control efficiency of 95%. In order to achieve this high level of control, Walker will continue to apply controls such as high frequency water suppression, continued road maintenance, road resurfacing, and continuing education of dust best practices with facility personnel. Control of emissions from paved roads will be achieved through continued maintenance practices including but not limited to flushing and sweeping of paved areas. These controls typically achieve a silt loading of 1 g/m_2 which was considered in the evaluation of the Preferred Method.

As the landfilling activities move around the site over the life of the Preferred Method the on-site landfill haul routes were redrawn to consider the new active face locations. Active face locations were based on reasonable worst-case locations in order to capture the maximum potential effect on discrete receptors, as discussed in previous sections. On-site haul routes for landfilling activities change from Existing Conditions as operations move east into the South Landfill Phase 2 footprint. Source locations for each of the Preferred Method scenarios are provided in **Figure 5-1** to **Figure 5-3**.

Overall predicted concentrations of TSP, PM_{10}, and $PM_{2.5}$ at discrete receptors from landfill sources are dominated by fugitive emissions from haul route traffic related to final cap construction and waste deliveries. Fugitive emissions from bulldozing at the construction cap is also a significant source of emissions. Due to the significant contribution from other Walker Campus operations, two separate emission scenarios were considered. Landfill Only results include emissions associated with waste acceptance, landfilling, leachate management, capping, RNG and gas utilization infrastructure, and cell construction. All Walker Operations include emissions from the landfill operations as well as cumulative impacts from all Walker Campus sources including Southeast Quarry operations, the asphalt plant, and the compost facility.

5.4.1 Scenario 1

In Scenario 1, landfill operations are spread across two active faces, the East Landfill Cell 16 and the South Landfill Phase 2 Stage 1. The quantities of waste received at the two Landfills are provided in FCR. Haul route traffic was based on the daily maximum traffic scenario as outlined in the FCR. The majority of the East Landfill and South Landfill Phase I are under final cover, with small areas around the active face assumed to be under interim cover. Final cover construction activities are ongoing at the South Landfill Phase I, East Landfill, and South Landfill Phase 2 Stage 1. Construction of the South Landfill Phase 2 Stage 2 cell is underway and construction related emissions were considered in the assessment.

Unique to Scenario 1 operations at the Southeast Quarry and Asphalt plant continue to operate. Like emissions from material handling, processing, haul routes, combustion, and tailpipe from the quarry, asphalt plant, compost facility, and IGRS were considered in the assessment. Emissions were calculated following the same methodology described in Section 8 of the Existing Conditions Report. A detailed source summary table and support calculations are provided in **Appendix L**.

5.4.1.1 Results

Predicted concentrations were above their respective criteria at some discrete receptor location for all contaminants except for annual TSP. Overall, the number of affected receptors were low, and the frequency of exceedance were generally limited. A summary of the results is provided in **Table 5-7** of the Tables Section.

The maximum predicted 24-hour TSP concentration among all discrete receptors was 182 µg/m^3 at R29 based on the combined impacts of the landfill operations and the other Walker Campus operations. Exceedances of the criteria of 120 µg/m^3 were predicted at R01, R02, R21, and R29. The maximum frequency of exceedance among all discrete receptors is 0.9% or 16 events over the 5 modelled years which occurs at R29.

It should be noted that exceedances at R01, R02, and R21 are only predicted with background concentrations considered and only one exceedance is predicted at R29 without background concentrations included.

Considering predicted concentrations from landfill sources only, the maximum predicted 24-hour TSP concentration among all discrete receptors was 110 µg/m^3 at R29 based on the combined impacts of the landfill operations and the other Walker Campus operations. No exceedances of the criteria of 120 µg/m^3 were predicted at any discrete receptor locations.

The maximum predicted 24-hour PM_{10} concentration among all discrete receptors was 58 µg/m^3 at R29, which is above the criteria of 50 µg/m^3. Exceedances of the criteria of 50 µg/m^3 were predicted at R29 only, considering the combined impact from all Walker Campus sources. When only landfill-related operations are considered, there are no predicted exceedances of the PM_{10} criteria. The maximum frequency of exceedance at R29 is 0.2% or 3 events over the 5 modelled years. It should also be noted that exceedances are only predicted with background concentrations considered.

Considering predicted concentrations from landfill sources only, the maximum predicted 24-hour PM_{10} concentration among all discrete receptors was 39 µg/m3 at R29 based on the combined impacts of the landfill operations and the other Walker Campus operations. No exceedances of the criteria of 50 µg/m^3 were predicted at any discrete receptor locations.

The maximum predicted 24-hour $PM_{2.5}$ concentration among all discrete receptors was 25 µg/m³ at R29, which is below the CAAQS 2020 criteria of 27 µg/m³. However, this concentration exceeds the CAAQS 2030 criteria of 23 µg/m³. The maximum frequency of exceedance of the 2030 CAAQS is 0.3% percent of the time, or 5 events over the 5 modelled years. These results consider the combined impact from all Walker Campus sources. When only landfill-related operations are considered, there are no predicted exceedances of the $PM_{2.5}$ criteria under CAAQS 2020 or 2030. It should be noted that exceedances are only predicted with background concentrations considered, and predicted concentrations without background at all discrete receptors are below the criteria.

Considering predicted concentrations from landfill sources only, the maximum predicted 24-hour $PM_{2.5}$ concentration among all discrete receptors was 22 µg/m³ at R03 based on the combined impacts of the landfill operations and the other Walker Campus operations. No exceedances of the criteria of 23 µg/m³ were predicted at any discrete receptor locations.

The predicted annual $PM_{2.5}$ concentration at all discrete receptors exceed the CAAQS 2020 criteria of 8.8 µg/m³ and CAAQS 2030 criteria of 8 µg/m³. The maximum predicted annual $PM_{2.5}$ concentration was 9.8 µg/m³ at R29. The exceedances are due to the elevated background concentration of 9.1 µg/m³, which exceeds both criteria. It should be noted that exceedances are only predicted with background concentrations considered, and predicted concentrations without background at all discrete receptors are below the criteria for both the Walker Campus and landfill only scenarios.

Concentration isopleths for TSP, PM_{10}, and $PM_{2.5}$ are provided in **Appendix R** for all applicable averaging periods.

5.4.2 Scenario 2

In Scenario 2, the South Landfill Phase I and East landfill are under final cover, the Southeast Quarry has been depleted and asphalt operations have ceased. Landfilling activities are operating in Stage 3 of the South Landfill Phase 2. The Stage 1 and 2 areas have been completed, and final cap has been installed. All other areas excluding the active face area are assumed to be under interim cover. A small portion of Stage 3 landfill is assumed to be under final cover as capping activities following behind the active face. Construction of the South Landfill Phase 2 Stage 4 cell is underway and construction related emissions were considered in the assessment. Like emissions from the Compost Facility processing, handling, haul traffic, and combustion were included in the evaluation. A detailed source summary table and support calculations are provided in **Appendix N**.

5.4.2.1 Results

Predicted concentrations of all contaminants for all averaging periods are below their applicable criteria with the exception of annual $PM_{2.5}$. The predicted annual $PM_{2.5}$ concentration at all discrete receptors exceed the CAAQS 2020 criteria of 8.8 µg/m^3 and CAAQS 2030 criteria of 8 µg/m^3. The maximum predicted annual $PM_{2.5}$ concentration was 9.5 µg/m^3 at R21. The exceedances are due to the elevated background concentration of 9.1 µg/m^3, which exceeds both criteria. It should be noted that exceedances are only predicted with background concentrations considered, and predicted concentrations without background at all discrete receptors are below the criteria.

Tabular results of predicted concentrations for all dust species at all discrete receptors are provided in **Table 5-8** of the Tables Section.

Concentration isopleths for TSP, PM_{10}, and $PM_{2.5}$ are provided in **Appendix S** for all applicable averaging periods.

5.4.3 Scenario 3

In Scenario 3, the South Landfill Phase I and East landfill are under final cover, the Southeast Quarry has been depleted and asphalt operations have ceased. Waste filling activities are operating in Stage 4 of the South Landfill Phase 2. The Stage 1, 2, and 3 areas have been completed, and final cap has been installed. All other areas excluding the active face area are assumed to be under interim cover. A small portion of Stage 4 landfill is assumed to be under final cover as capping activities following behind the active face. All cell construction has been completed. Like emissions from the Compost Facility processing, handling, haul traffic, and combustion were included in the evaluation. A detailed source summary table and support calculations are provided in **Appendix P**.

5.4.3.1 Results

Predicted concentrations of all contaminants for all averaging periods are below their applicable criteria with the exception of annual $PM_{2.5}$. The predicted annual $PM_{2.5}$ concentration at all discrete receptors exceed the CAAQS 2020 criteria of 8.8 µg/m^3 and CAAQS 2030 criteria of 8 µg/m^3. The maximum predicted annual $PM_{2.5}$ concentration was 9.5 µg/m^3 at R21. The exceedances are due to the elevated background concentration of 9.5 µg/m^3, which exceeds both criteria. It should be noted that exceedances are only predicted with background concentrations considered, and predicted concentrations without background at all discrete receptors are below the criteria.

Tabular results of predicted concentrations for all dust species at all discrete receptors are provided in **Table 5-9** of the Tables Section.

Concentration isopleths for TSP, PM_{10}, and $PM_{2.5}$ are provided in **Appendix T** for all applicable averaging periods.

5.4.4 Net Effects Assessment

Dispersion modelling results from each of the three landfilling scenarios evaluated under the Preferred Method were compared to the Existing Conditions in order to quantify the net effect of the Preferred Method. Comparison tables for Existing Conditions and each scenario of the Preferred Method are provided in **Table 4-2** of the Tables Section.

Predicted annual TSP concentrations are well below the criteria at all discrete receptors in both Existing Conditions and the Preferred Method. The analysis indicates that in both the Existing Conditions and Preferred Method predicted concentrations of 24-hour TSP, PM_{10}, and $PM_{2.5}$ exceed applicable criteria at a limited number of discrete receptors at a very low frequency of occurrence. Exceedances of 24-hour criteria are limited to Scenario 1 of the Preferred Method, which coincides with the high level of activity on site. This period of high activity is expected to be short-term with filling activities at the South Landfill Phases 1 and 2 and the East Landfill Cell 16 occurring in a single year as well as continued operation of the Southeast quarry and asphalt plant during Scenario 1. The magnitude and frequency of exceedances of their respective criteria are limited to 2 – 3 discrete receptors with the maximum frequency ranging from 0.1 to 0.9% or 1 to 16 days over 5-year of modelling.

These exceedances are predicted only when background concentration is applied, with the exception of 24-hour TSP where a single exceedance without background was predicted. This single exceedance is based on the combined impact from all activities across the Walker Campus. When considering landfill operations only, no exceedances are predicted.

In addition, the maximum predicted concentrations and frequencies are based on a conservative model, which assumes reasonable worst-case operations and dry conditions occurring in worst-case locations every day for the 5-year modelled period, which is not realistic. The model considers several conservatisms including:

- All operations were assumed to take place at their maximum capacities every day;
- Haul road and tailpipe emissions considered maximum peak daily traffic occurring every day;
- When calculating emissions, conservative assumptions were made;
- The assessment did not consider the effects of precipitation and snow cover, which would serve to reduce particulate emissions; and
- No consideration of precipitation for vegetation interception of particulate matter.

Overall, owing to the above conservatisms included in the assessment, the magnitude and frequency of dust impacts from the landfill, quarry plant, asphalt plant and compost facility operations are expected to be low.

Although exceedances of criteria are predicted, concentrations of 24-hour TSP, PM10, and PM2.5 are shown to be similar to Existing Conditions in Scenarios 1 of the Preferred Method. Exceedances of criteria only occur when considering cumulative impacts from all Walker Campus operations and the addition of ambient background concentrations. Predicted concentrations from landfill operation sources only are below their respective criteria for all contaminants with the exception of annual PM2.5.

Predicted concentrations of 24-hour TSP, PM10, and PM2.5 are shown to decrease compared to Existing Conditions in Scenarios 2 and 3 of the Preferred Method with no exceedance of their respective criteria.

Predicted concentrations of annual PM2.5 exceed criteria for Existing Conditions and all Preferred Method Scenarios. These exceedances are the result of elevated background concentrations. Predicted concentrations without background are below the criterion for all modelling scenarios.

Over the past five years, only one dust-related complaint has been received by Walker regarding their Walker Campus operations. Monitoring data indicated that measured quantities of PM10 are generally less than the criteria, with only one sample at the criteria in 2025. Together, the complaint record and monitoring results indicate that dust impacts are well controlled, despite the large amount of activity occurring at the site. The evaluation indicates that the potential for dust impacts at discrete receptors will remain consistent or decrease from Existing Conditions in the Preferred Method. Therefore, the potential for dust impacts at discrete receptors in the Preferred Method are expected to be low and Walker's current management of fugitive dust through their BMPP is expected to continue to effectively manage dust in the Preferred Method.

The potential for dust emissions will continue to be managed through the existing dust BMPP. Ongoing review of the BMPP will be completed and amended as needed to support the operations under the Preferred Method.

The updated assessment of predicted potential effects, recommended impact management measures, and resulting net effects is provided in **Table 5-3** further elaborated upon in the subsections that follow.

5.5 Potential Effects on Air Quality

Net effects of Air Quality were evaluated by the change in potential impacts on discrete receptors from Existing Conditions and the Preferred Method. The evaluation considered both qualitative and quantitative assessment in order to determine the net effect for each Air Quality indicator.

5.5.1 Blowing Litter

The net effects of blowing litter are discussed in **Section 5.1**. Overall, the potential effects related to blowing litter are expected to be similar to Existing Conditions.

The potential for blowing litter impacts will be highest during Scenario 1 (Stage 1) operations of the South Landfill Phase 2. During this period active landfilling will occur at three active faces, the East Landfill Cell 16, the South Landfill Phase I, and South Landfill Phase 2 (Stage 1) simultaneously. Freshly deposited waste at the active face is exposed to the wind, creating the highest probability for windblown litter. Throughout all operating stages of the South Landfill Phase 2 the potential for wind-blown litter will be managed using the existing litter BMPP.

Operations after Scenario 1 (Stage 1) are expected to decrease overall potential for blowing litter with the capping of the East and South Landfill Phase I, reducing the number of active faces from three to one.

While the number of receptors impacted by blowing litter are expected to remain the same, the receptors to the east will have a higher potential for wind-blown litter impacts as operations move eastward into the South Landfill Phase 2 footprint. Receptors located west of the Walker Campus are expected to have lower potential for litter related impacts.

Overall, potential effects from the Preferred Method are expected to be low.

5.5.2 Odour

The net effects of odour are discussed in **Section 5.2**. Overall, the potential effects related to odour are expected to be similar to Existing Conditions.

The potential effects experienced at each discrete receptor will change through the lifecycle of the South Landfill Phase 2.

The highest potential effects occur during Scenario 1 (Stage 1) of the Preferred Method. During this period active landfilling will occur at three active faces, the East Landfill Cell 16, the South Landfill Phase I, and South Landfill Phase 2 (Stage 1) simultaneously. With three active landfilling areas large portions of the landfill will be under interim cover and will have a reduced gas collection efficiency. This increases the potential for odour related effects at discrete receptors. Predicted magnitude and frequency of odour events increase slightly in Scenario 1 when compared to Existing Conditions. The potential for impacts at discrete receptors located north of the East Landfill and east of the South Landfill Phase 2 are expected to increase slightly.

The potential effects are expected to decrease after Scenario 1 (Stage 1) as capping activities are completed at the East Landfill and South Landfill Phase I with predicted concentrations decreasing compared to Existing Conditions. While the overall frequency and magnitude of odour impacts may decrease, receptors located nearest the eastern property boundary are likely to experience more odour related events due to the closer proximity to the South Landfill Phase 2 footprint.

The Potential for odour impacts will continue to be managed through the implementation of the existing odour BMPP. Overall, potential effects from the Preferred Method are expected to be low.

5.5.3 LFG and Combustion Byproducts

The net effects of landfill gas and combustion byproducts are discussed in **Section 5.3**. Overall, the potential effects related to landfill gas and combustion byproducts are expected to be similar to Existing Conditions.

No exceedances of indicator criteria are predicted for any stage of the Preferred Method with the exception of annual benzene. Concentrations of annual benzene are dominated by elevated background concentrations. Benzene contribution from Walker operations accounts for less than 0.1% of the predicted concentration. A comparison of the VOC and TRS monitoring results for upwind, downwind, and crosswind conditions was conducted, to evaluate the potential influence of the Walker Campus operations on ambient air quality in the area. Where concentrations downwind of the Walker Campus are elevated relative to upwind or crosswind, it can be indicative that Walker operations are influencing ambient concentrations. Overall, no strong influence from the Walker Campus was observed in the monitoring data. Details on the ambient monitoring campaign is provided in Section 3.3.3 of the Existing Conditions Report. Overall, potential effects from the Preferred Method are expected to be low.

5.5.4 Dust

The net effects of dust are discussed in **Section 5.5**. Overall, the potential effects related to dust are expected to be similar to Existing Conditions.

The potential effects experienced at each discrete receptor will change through the lifecycle of the South Landfill Phase 2 as active landfilling operations and haul routes move over the landfill footprint.

Predicted annual TSP concentrations are well below the criteria at all discrete receptors in both Existing Conditions and the Preferred Method. Predicted concentrations in the Existing Conditions and Preferred Method predicted concentrations of 24-hour TSP, PM_{10}, $PM_{2.5}$, and Annual $PM_{2.5}$ exceed of applicable criteria at discrete receptors. Exceedances of 24-hour criteria are limited to Scenario 1 of the Preferred Method, which coincides with the high level of activity on site. This period of high activity is expected to be short-term with filling activities at the South Landfill Phases 1 and 2 and the East Landfill Cell 16 occurring in a single year as well as continued operation of the Southeast quarry and asphalt plant during Scenario 1. The magnitude and frequency of exceedances of their respective criteria are limited to 2 – 3 discrete receptors.

Predicted concentrations of 24-hour TSP, PM_{10}, and $PM_{2.5}$ are shown to decrease compared to Existing Conditions in Scenarios 2 and 3 of the Preferred Method with no exceedance of their respective criteria.

Predicted concentrations of annual PM2.5 exceed criteria for Existing Conditions and all Preferred Method Scenarios. These exceedances are the result of elevated background concentrations. Predicted concentrations without background are below the criterion for all modelling scenarios.

Overall, potential effects from the Preferred Method are expected to be low.

5.6 Proposed Mitigation and Compensation Measures

The evaluation of potential effects from the Preferred Method indicates low net effects for all indicator criteria without additional mitigation required. In order to manage the potential effects in the Preferred Method to levels similar to the Existing Conditions the facility should continue to implement current mitigation practices. This includes continued implementation of the litter, odour, and dust BMPPs. Walker will continue to operate and maintain the landfill gas collection system to mange the release of landfill gases. Emissions of the combustion byproduct SO_2 are sensitive to the concentration of sulphur compounds within the landfill gas. SO_2 emissions result from combustion of sulphur compounds in the gas stream. Walker should continue to monitor the concentration of sulphur compounds in the landfill gas and update dispersion modelling as required to ensure compliance with regulatory criteria at and beyond the property boundary. In the event concentrations of sulphur compounds result in elevated releases of SO2, pre-treatment incorporating the removal of sulphur in the landfill gas that is combusted onsite should be explored.

Since impacts from the Preferred Method are predicted to be similar to or improved relative to Existing Conditions, compensation measures for nuisances that cannot be mitigated are also expected to be similar to Existing Conditions.

5.7 Net Effects Summary

The updated assessment of predicted potential effects, recommended impact management measures, and resulting net effects is provided in **Table 5-3**.

Table 5-3: Air Quality Potential Environmental Effects, Proposed Impact Management Measures, and Net Effects

Criteria	Indicator	Potential Effects	Impact Management Measures	Net Effects
Effect of air quality on off-site receptors	• Predicted off-site point of impingement concentrations (µg/m³) of indicator compounds	Blowing Litter • Extent of zones potentially impacted by blowing litters may be enlarged as the landfill activities shift closer to the property boundary. • During Scenario 1 (Stage 1) up to three active faces may be operating simultaneously. Landfill Gas and Combustion Byproducts • Predicted concentrations may exceed criteria at discrete receptors. Dust • Predicted concentrations may exceed criteria at discrete receptors.	Blowing Litter • Continued implementation of the existing litter BMPP. Landfill Gas and Combustion Byproducts • Continue implementation of landfill gas collection and management. • Monitor sulphur levels in landfill gas and apply treatment as required. Dust • Continued implementation of existing dust BMPP. • Decommissioning of the Southeast Quarry and Asphalt plant after Scenario 1 (Stage 1). • Completion of landfilling and capping activities on the East and South Landfill Phase I.	Blowing Litter • Increase in extent of zones potentially impacted by blowing litter during Scenario 1 (Stage 1). • Increase in potential impacts on receptors located east of the South Landfill Phase 2. • Decrease in potential impacts on receptors located west of the Existing South Landfill Phase I. **LOW NET EFFECTS** Landfill Gas and Combustion Byproducts • Predicted annual benzene concentrations may exceed the criteria at all discrete receptors due to elevated background concentrations. • Predicted concentrations of all other contaminants are below their applicable criteria. • Predicted concentrations in the Preferred Method remains similar to Existing Conditions. **LOW NET EFFECTS** Dust • Predicted 24-hour TSP, PM_{10}, $PM_{2.5}$ concentrations may exceed criteria at discrete receptors. Exceedances are limited to Scenario 1 (Stage 1) of the Preferred Method. • Predicted concentrations at discrete receptors remain similar to Existing Conditions in Scenario 1 (Stage 1). • Decrease in predicted concentrations after Scenario 1 (Stage 1) below applicable criteria. • Predicted annual $PM_{2.5}$ concentrations exceed criteria at discrete receptors due to elevated background concentrations. **LOW NET EFFECTS**

Criteria	Indicator	Potential Effects	Impact Management Measures	Net Effects
	• Number of off-site receptors potentially affected (residential properties, public facilities, businesses, and institutions)	Blowing Litter • The number of discrete receptors impacted by blowing litter may increase. Landfill Gas and Combustion Byproducts • The number of discrete receptors with exceedance of criteria may increase. Dust • The number of discrete receptors with exceedance of criteria may increase.		Blowing Litter • Increase in the number of discrete receptors effected by blowing litter during Scenario 1 (Stage 1). • The number of discrete receptors effects remains similar to Existing Conditions. **LOW NET EFFECTS** Landfill Gas and Combustion Byproducts • No change in the number of affected receptors. **NO NET EFFECTS** Dust • The number of discrete receptors with exceedance of 24-hour TSP criteria remain similar to Existing Conditions in Scenario 1 (Stage 1). • No discrete receptors exceed criteria after Scenario 1 (Stage 1) with the exception of annual $PM_{2.5}$ due to elevated background concentrations. **LOW NET EFFECTS**
	• Frequency of any exceedance of applicable standards, limits, or guidelines at identified receptors.	Blowing Litter • The frequency of blowing litter events may increase. Landfill Gas and Combustion Byproducts • Frequency of exceedances of criteria at discrete receptors may increase. Dust • Frequency of exceedances of criteria at discrete receptors may increase.		Blowing Litter • The frequency of blowing litter events remains similar to Existing Conditions. **LOW NET EFFECTS** Landfill Gas and Combustion Byproducts • No exceedances of criteria are predicted besides annual benzene due to elevated background concentrations. **NO NET EFFECTS** Dust • Frequency of exceedances of 24-hour TSP, PM_{10} and $PM_{2.5}$ at discrete receptors may increase in Scenario 1 (Stage 1). • Frequency of exceedances at discrete receptors remain similar to Existing Conditions in Scenario 1 (Stage 1). • No exceedances at discrete receptors after Scenario 1 (Stage 1) except for annual $PM_{2.5}$ due to elevated background concentrations. **LOW NET EFFECTS**
Effect of odours on off-site receptors	• Predicted off-site odour concentrations (µg/m³ and odour units)	• Predicted odour concentrations may exceed criteria at discrete receptors.	• Continued implementation of existing odour BMPP. • Complete capping of the East and South Landfill Phase I after Scenario 1 (Stage 1).	• Predicted odour concentrations may exceed criteria at discrete receptor locations. • Predicted odour concentrations may increase during Scenario 1 (Stage 1). • Predicted odour concentrations may decrease after Scenario 1 (Stage 1). • Predicted odour levels may increase in the east and decrease in the west as landfill operations move eastward. • Predicted odour concentrations remain similar to Existing Conditions. **LOW NET EFFECTS**

Criteria	Indicator	Potential Effects	Impact Management Measures	Net Effects
	• Number of off-site receptors potentially affected (residential properties, public facilities, businesses, and institutions)	• Frequency of odour levels above defined odour benchmarks may increase.		• Frequency of odour levels above defined odour benchmarks may increase in Scenario 1 (Stage 1). • Frequency of odour levels above defined odour benchmarks may decrease after Scenario 1 (Stage 1). • Frequency of odour levels may increase in the east and decrease in the west as landfill operations move eastward. • Frequency of odour levels above defined odour benchmarks remain similar to Existing Conditions. **LOW NET EFFECTS**
	• Frequency of any exceedance of applicable standards, limits, or guidelines at identified receptors.	• The number of discrete receptors with exceedance of odour criteria may increase.		• The number of discrete receptors with exceedance of odour criteria may increase in Scenario 1 (Stage 1). • The number of discrete receptors with exceedance of odour criteria may decrease after Scenario 1 (Stage 1). • The number of discrete receptors with exceedance of odour criteria may increase. **LOW NET EFFECTS**

6 CUMULATIVE IMPACT ANALYSIS

As part of the approved Terms of Reference (ToR), Walker committed to undertaking an assessment of the cumulative effects of the landfill and other Campus components/facilities and other non-Walker projects that are existing, planned, approved or reasonably foreseeable. The following were considered in the assessment of cumulative impacts:

- Walker Activities/Projects on Campus:
  - Ongoing quarry operations
  - New residential drop off area
  - RNG 2 – expansion of existing renewable natural gas facilities
- Walker Projects off Campus:
  - Uppers Quarry
- Non-Walker Projects:
  - Garden City Bridge Twinning
  - Glendale Secondary Plan Area development
  - Development at Niagara College's Niagara-on-the-Lake Campus
  - Northwest Secondary Plan Area development
  - Golf course/agro-tourism development to east of the Walker Campus
  - Garner West Secondary Plan Area development
  - Welland Thorold Power Line Project

This assessment evaluated the cumulative impacts of the proposed South Landfill Phase 2 landfill and all existing Campus facilities within the LSA. This included an evaluation of existing and future quarry operations. The new residential drop off area was not included in the assessment. While the drop off area has the potential to be a source of odour, combustion byproducts, and dust, contributions are expected to be minimal when compared to the greater landfill operations. No expansion of the RNG facility was considered in the evaluation. In the future any expansions to the RNG facility would be required to comply with MECP standards at and beyond the property line. This would require additional dispersion modelling analysis to demonstrate compliance with the air quality criteria under Reg. 419 and Walker would be required to amend their ECA approval.

Walker's Uppers Quarry project was not directly assessed in the evaluation of the Preferred Method. The proposed Uppers Quarry is located approximately 2.5 km south of the SSA. At this separation distance, combined impacts between the Uppers Quarry and Walker Campus would be minimal. The existing 90th percentile background data used in the assessment of the Preferred Method would still be considered representative of background conditions.

Non-Walker projects in the study area may be source of like emission for combustion byproducts and dust but were not explicitly considered in the evaluation. The Garden City Bridge Twinning project is located approximately four kilometres from the Walker Campus and is not expected to significantly contribute to cumulative impacts at that separation distance. The various developments may introduce new receptors in the area, however, in many cases the list of receptors included discrete receptor locations representative of these potential future developments, or the developments are located further from the Walker Campus than existing discrete receptors. Additional development may increase contaminant loading in the airshed, increasing background concentrations.

The Welland Thorold Power Line Project may introduce additional background levels of particulate matter and combustion by products during its construction phase; however, the project is planned to be in-service as of 2029, indicating that construction of this project is unlikely to correspond with peak operations for the Preferred Method.

7 CLIMATE CHANGE CONSIDERATIONS

In accordance with the Minister-approved ToR, the detailed impact assessment is to include consideration of climate change. In support of the province of Ontario's Climate Change Action Plan, the MECP developed a Guide entitled "Consideration of Climate Change in Environmental Assessment in Ontario" (the Guide) to aid proponents in considering climate change as part of EAs for infrastructure and facilities (MECP 2016).

The Guide outlines the Ministry's expectations for considering climate change throughout the EA process. As stated in Section 3 of the Guide, consideration is to include:

- Greenhouse gas (GHG) emissions
- Effects of a project on climate change
- Effects of climate change on a project
- How the project will minimize identified negative effects on climate change.

The preceding was considered as part of the South Landfill Phase 2 EA in addressing the potential climate risks to the Alternative Methods. During the impact assessment, the climate change adaptation and mitigation analysis undertaken for the Alternative Methods stage was used and augmented, as needed, to develop climate change mitigation and adaptation measures for the Preferred Method. Climate change considerations relevant to Air Quality are documented in the following subsections.

7.1.1 Greenhouse Gas Emissions

A comprehensive greenhouse gas emissions assessment has been prepared in order to evaluate the potential impacts from greenhouse gas emissions from the Preferred Method. While analysis from the Air Quality report were used to support the greenhouse gas analysis, for information regarding greenhouse gas emissions from the Preferred Method please refer to the Greenhouse Gas Report.

7.2 Potential Effects of the Undertaking on Climate Change

Landfills are acknowledged as sources of GHGs, primarily through the production of methane during the anaerobic degradation of organic carbon content in the waste that is landfilled, and the fugitive escape of this methane to the atmosphere. Reducing the release of greenhouse gases requires proper management of the LFG that is generated.

Over the lifespan of the proposed landfill expansion, an additional 19.8 million cubic metres of waste will be deposited in the South Landfill Phase 2, and greenhouse gases will be generated from this waste.

Walker's existing South Landfill Phase I utilizes a robust landfill gas collection system to minimize impacts from odour and reduce the amount of fugitive LFG escaping to the atmosphere. A similar system will be constructed as part of the South Landfill Phase 2 operations to minimize the release of greenhouse gases.

Walker is a sustainability focused company who operates several renewable energy projects including the RNG facility, which treats collected landfill gas for addition to the natural gas pipeline; electricity generation using landfill gas; and an off-property partnership to supply landfill gas for electricity generation at a local industry. In support of these programs Walker is highly motivated to ensure high collection efficiency and minimize the release of landfill through the landfill cap. To achieve this, Walker operates and maintains a robust landfill gas collection system. Gas that is collected and cannot be diverted to one of their renewable programs is combusted through the LFG flares to destroy more harmful GHG compounds and converting them to CO2.

7.2.1 Mitigation

Walker has already taken several steps to mitigate the potential impacts of the undertaking on climate change. Continued management of potential climate change impacts can be achieved through the continued installation, operations, and maintenance of the landfill gas collection system. Walker may explore future opportunities to optimization/expansion of renewable programs such as the RNG facility in order to maximum landfill gas utilization and minimize fugitive releases. Overall, with existing mitigation measures in place, Walker is expected to continue to effectively manage potential effects of the undertaking on climate change.

7.3 Potential Effects of Climate Change on the Undertaking

It has been established that release of greenhouse gases from a wide range of human activity is causing climate change. Emissions scenarios are used to understand possible impacts of climate change many years into the future. Toronto and Region Conservation Authority (TRCA) “Climate Projects for Niagara Region”, (February 2022), which provide climate projects for the Niagara region based on the RC8.5, high emissions pathway and RC4.5 declining emissions pathway. As a conservative approach, climate projections for the RC8.5 pathway were considered when assessing the potential of climate change on the undertaking. This presents a “worst-case” for climate change impacts in the future.

A Summary of the future projected climate data are provided in **Table 7-1**below.

Table 7-1: Summary of Future Projected Climate Data

Year	Temperature (°C)	Precipitation (mm)
	Average Annual	Average Annual
1971-2000	8.7	1080.6
2021-2050	10.7	1135
2051-2080	12.3	1192

In addition to the projected increase in mean annual temperature and annual rainfall, the study suggests an increase in extreme weather events, including larger more frequent single day rain events, extreme temperature highs and lows, and overall, more “compound extreme events”. Potential risks related to climate change which may impact air quality include:

- Extreme precipitation associated with more intense storms may cause slope instability or erosion of cover materials allowing increased emissions of fugitive LFG and odour;
- Increased precipitation and water infiltration into the landfill may change the rate of LFG generation and potential for odour from the site;
- Increased temperatures and heat events of longer duration may lead to increased odour generation;
- Increased temperatures and drier summers may lead to drier road surfaces requiring more frequent watering for dust suppression; and
- Higher wind speeds may impact levels of blowing litter.

The current BMPPs for litter, odour, and dust include processes for monitoring, maintenance, and response that can address these risks, and will continue to be valuable as extreme weather events become more common. Enhancements to the BMPPs that may be required to adapt to changing climatic conditions could be considered and implemented as needed.

The air quality modelling used in this effects assessment considered a five-year set of hourly meteorological data. Predicted impacts are based on the worst-case conditions within this data set. The future wind, climate, and meteorological conditions are not expected to change to a degree within the lifespan of the proposed landfill expansion that would affect the assessment.

8 ENVIRONMENTAL MONITORING

To ensure that the mitigation measures identified in **Section 5.6** are implemented as envisioned, a strategy and schedule was developed for monitoring environmental effects. With these mitigation measures and monitoring requirements in mind, commitments have also been proposed for ensuring that they are carried out as part of the construction, operation, and maintenance of the landfill.

8.1 Environmental Effects Monitoring

No monitoring strategy or schedule is proposed based on the Air Quality Impact Assessment. PM10 monitoring is currently required under the Southeast Quarry Aggregate Resource Act License No. 7336 and No. 11175. Dispersion modelling predicts exceedances of PM10 criteria in Scenario 1 only with no predicted exceedance of PM10 following the closure of the quarry in 2033. Therefore, it is not recommended that the PM10 monitoring program be required beyond the operating period of the quarry.

8.2 Development of an Environmental Management Plan

An Environmental Management Plan (EMP) will be prepared following approval of the undertaking by the Minister of the Environment, Conservation and Parks and prior to construction. The EMP will include a description of the proposed mitigation measures, commitments, and monitoring.

9 COMMITMENTS

The following commitments have been proposed for ensuring that the identified mitigation or compensation measures and monitoring requirements are carried out as part of the construction, operation, and maintenance of the undertaking:

- Continued implementation of existing litter, odour, and dust BMPPs;
- Completion of capping on all interim cover areas once landfilling activities are complete;
- Continued response to community concerns and engagement with public interests; and
- Continued installation, operation, and maintenance of the landfill gas collection system.

With these commitments, in place Walker is expected to continue to effectively manage the potential effects of litter, odour, landfill gas and combustion byproducts, and dust associated with Walker Campus operations.

10 AIR QUALITY APPROVALS REQUIRED FOR THE UNDERTAKING

The following approvals are required for Air Quality-related components for the proposed undertaking:

- Application for an amendment to the existing WEG Air ECA #0502-AY7Q5Z to incorporate changes to landfill operations to ensure compliance with requirements under Ontario Regulation 419/05.
- Revocation or amendment of the Walker Aggregate Inc., ECA #8951-AXZLZY after decommissioning of quarry operations following Scenario 1 (Stage 1) of the Preferred Method to ensure compliance with requirements under Ontario Regulation 419/05.
- Application for an amendment to the existing IGRS Air ECA #6819-CF8NQR to incorporate any future expansions of the RNG to ensure compliance with requirements under Ontario Regulation 419/05.
- ECCC's new Landfill Methane Regulations (Dec. 12, 2025) set out specific methane monitoring requirements for landfills emitting greater than 1,000 tonnes per year of methane, which come into effect in 2028. Under this regulation, reporting to ECCC is required starting in 2026; which Walker has completed for the existing South Landfill Phase 1 and East Landfill. Walker's current methane monitoring program includes many of the provisions required under the incoming federal requirements. Walker will enhance their program to fully meet the incoming requirements in advance of the 2028 date.

11 STATEMENT OF LIMITATIONS

This report entitled "Draft Air Detailed Impact Assessment Report, Walker South Landfill Phase 2 Environmental Assessment" was prepared by RWDI AIR Inc. ("RWDI") for Walker Environmental Group. The findings and conclusions presented in this report have been prepared for the Client and are specific to the project described herein ("Project"). The conclusions and recommendations contained in this report are based on the information available to RWDI when this report was prepared. Because the contents of this report may not reflect the final design of the Project or subsequent changes made after the date of this report, RWDI recommends that it be retained by Client during the final stages of the project to verify that the results and recommendations provided in this report have been correctly interpreted in the final design of the Project.

The conclusions and recommendations contained in this report have also been made for the specific purpose(s) set out herein. Should the Client or any other third party utilize the report and/or implement the conclusions and recommendations contained therein for any other purpose or project without the involvement of RWDI, the Client or such third party assumes any and all risk of any and all consequences arising from such use and RWDI accepts no responsibility for any liability, loss, or damage of any kind suffered by Client or any other third party arising therefrom.

Finally, it is imperative that the Client and/or any party relying on the conclusions and recommendations in this report carefully review the stated assumptions contained herein and to understand the different factors which may impact the conclusions and recommendations provided.

12 REFERENCES

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TABLES

Table 4-1: Do Nothing Scenario Odour Dispersion Modelling Results

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment - Do Nothing Scenario - Landfill Source Group

Receptor Information		Maximum Predicted Concentration (OU)	Predicted Excursions Above Criteria (Maximum among All Modelled Years)					
			Events > 1 OU		Events > 3 OU		Events > 5 OU	
AQ Receptor ID	Common Receptor ID		Count	Frequency	Count	Frequency	Count	Frequency
R01	--	1.6	28	0.3%	0	0.0%	0	0.0%
R02	CR17	0.8	0	0.0%	0	0.0%	0	0.0%
R03	CR19	2.1	67	0.8%	0	0.0%	0	0.0%
R04	--	0.9	0	0.0%	0	0.0%	0	0.0%
R05	--	0.8	0	0.0%	0	0.0%	0	0.0%
R06	--	0.9	0	0.0%	0	0.0%	0	0.0%
R07	--	0.8	0	0.0%	0	0.0%	0	0.0%
R08	--	0.8	0	0.0%	0	0.0%	0	0.0%
R09	CR18	0.8	0	0.0%	0	0.0%	0	0.0%
R10	CR05	1.3	15	0.2%	0	0.0%	0	0.0%
R11	--	1.7	20	0.2%	0	0.0%	0	0.0%
R12	--	1.5	22	0.3%	0	0.0%	0	0.0%
R13	--	1.3	7	0.1%	0	0.0%	0	0.0%
R14	--	1.2	4	0.05%	0	0.0%	0	0.0%
R15	CR10	1.9	57	0.7%	0	0.0%	0	0.0%
R16	--	1.9	35	0.4%	0	0.0%	0	0.0%
R17	CR01	1.3	12	0.1%	0	0.0%	0	0.0%
R18	CR04	0.9	0	0.0%	0	0.0%	0	0.0%
R19	CR06	0.9	0	0.0%	0	0.0%	0	0.0%
R20	CR07	0.5	0	0.0%	0	0.0%	0	0.0%
R21	CR08	1.9	96	1.1%	0	0.0%	0	0.0%
R22	CR11	1.4	17	0.2%	0	0.0%	0	0.0%
R23	CR12	0.5	0	0.0%	0	0.0%	0	0.0%
R24	CR13	1.0	3	0.03%	0	0.0%	0	0.0%
R25	CR14	0.6	0	0.0%	0	0.0%	0	0.0%
R26	CR15	1.1	1	0.01%	0	0.0%	0	0.0%
R27	CR16	0.7	0	0.0%	0	0.0%	0	0.0%
R28	CR20	0.6	0	0.0%	0	0.0%	0	0.0%
R29	CR21	1.8	48	0.5%	0	0.0%	0	0.0%

Table 4-2-1: Modelling Comparison to Existing Conditions - 10-Minute Odour

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Comparison Against 1 OU/m³

Receptor Information		Existing Condition			"Do Nothing"			Scenario 1			Scenario 2			Scenario 3		
ID	Common ID	Max Conc (OU/m³)	Hours per Year	Freq (%)	Max Conc (OU/m³)	Hours per Year	Freq (%)	Max Conc (OU/m³)	Hours per Year	Freq (%)	Max Conc (OU/m³)	Hours per Year	Freq (%)	Max Conc (OU/m³)	Hours per Year	Freq (%)
R01	--	4.4	115	1.3%	1.6	28	0.3%	4.7	147	1.7%	2.7	104	1.2%	2.4	106	1%
R02	CR17	2.5	81	0.9%	0.8	0	0.0%	2.9	124	1.4%	5.5	209	2.4%	4.3	201	2%
R03	CR19	6.8	241	2.8%	2.1	67	0.8%	7.4	224	2.6%	5.2	149	1.7%	4.4	124	1%
R04	--	2.7	132	1.5%	0.9	0	0.0%	4.9	274	3.1%	2.9	210	2.4%	2.8	183	2%
R05	--	2.6	116	1.3%	0.8	0	0.0%	4.5	231	2.6%	2.7	174	2.0%	2.6	147	2%
R06	--	2.7	119	1.4%	0.9	0	0.0%	4.5	235	2.7%	2.6	176	2.0%	2.6	152	2%
R07	--	2.5	98	1.1%	0.8	0	0.0%	3.8	163	1.9%	2.1	118	1.3%	2.1	99	1%
R08	--	2.3	70	0.8%	0.8	0	0.0%	3.3	94	1.1%	1.9	55	0.6%	1.8	46	1%
R09	CR18	2.3	56	0.6%	0.8	0	0.0%	2.9	68	0.8%	1.7	40	0.5%	1.8	34	0%
R10	CR05	4.0	101	1.2%	1.3	15	0.2%	4.0	122	1.4%	2.6	79	0.9%	2.9	58	1%
R11	--	5.1	96	1.1%	1.7	20	0.2%	4.5	93	1.1%	3.2	72	0.8%	2.8	59	1%
R12	--	5.0	103	1.2%	1.5	22	0.3%	4.1	108	1.2%	3.9	70	0.8%	3.2	52	1%
R13	--	4.3	80	0.9%	1.3	7	0.1%	3.7	78	0.9%	3.6	51	0.6%	3.0	43	0%
R14	--	3.8	47	0.5%	1.2	4	0.0%	3.1	56	0.6%	2.8	42	0.5%	2.4	33	0%
R15	CR10	6.3	239	2.7%	1.9	57	0.7%	7.2	214	2.4%	4.5	142	1.6%	3.4	122	1%
R16	--	6.0	187	2.1%	1.9	35	0.4%	7.0	173	2.0%	4.5	114	1.3%	3.5	91	1%
R17	CR01	3.8	99	1.1%	1.3	12	0.1%	3.3	135	1.5%	2.2	121	1.4%	2.9	106	1%
R18	CR04	2.7	113	1.3%	0.9	0	0.0%	4.5	206	2.4%	2.5	167	1.9%	2.5	143	2%
R19	CR06	2.5	80	0.9%	0.9	0	0.0%	3.5	80	0.9%	2.3	43	0.5%	2.6	37	0%
R20	CR07	1.6	31	0.4%	0.5	0	0.0%	2.2	42	0.5%	1.3	18	0.2%	1.3	11	0%
R21	CR08	5.7	415	4.7%	1.9	96	1.1%	7.0	353	4.0%	5.1	248	2.8%	4.5	191	2%
R22	CR11	4.1	92	1.1%	1.4	17	0.2%	4.1	116	1.3%	2.3	88	1.0%	2.3	94	1%
R23	CR12	1.5	25	0.3%	0.5	0	0.0%	2.1	35	0.4%	2.4	47	0.5%	2.3	38	0%
R24	CR13	3.2	25	0.3%	1.0	3	0.0%	2.7	27	0.3%	2.0	17	0.2%	1.9	17	0%
R25	CR14	1.8	38	0.4%	0.6	0	0.0%	3.2	49	0.6%	2.4	78	0.9%	2.8	62	1%
R26	CR15	3.0	43	0.5%	1.1	1	0.0%	3.1	52	0.6%	1.6	35	0.4%	1.7	31	0%
R27	CR16	2.1	31	0.4%	0.7	0	0.0%	2.2	34	0.4%	1.4	14	0.2%	1.3	12	0%
R28	CR20	1.7	39	0.4%	0.6	0	0.0%	2.7	58	0.7%	1.7	50	0.6%	1.7	38	0%
R29	CR21	4.8	154	1.8%	1.8	48	0.5%	5.7	200	2.3%	3.2	144	1.6%	2.8	143	2%

Note:

[1] Criteria = 1 OU/m³

Table 4-2-2: Modelling Comparison to Existing Conditions - 10-Minute Odour

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Comparison Against 3 OU/m³

Receptor Information		Existing Condition			"Do Nothing"			Scenario 1			Scenario 2			Scenario 3		
ID	Common ID	Max Conc (OU/m³)	Hours per Year	Freq (%)	Max Conc (OU/m³)	Hours per Year	Freq (%)	Max Conc (OU/m³)	Hours per Year	Freq (%)	Max Conc (OU/m³)	Hours per Year	Freq (%)	Max Conc (OU/m³)	Hours per Year	Freq (%)
R01	--	4.4	18	0.2%	1.6	0	0.0%	4.7	19	0.2%	2.7	0	0.0%	2.4	0	0%
R02	CR17	2.5	0	0.0%	0.8	0	0.0%	2.9	0	0.0%	5.5	42	0.5%	4.3	24	0%
R03	CR19	6.8	62	0.7%	2.1	0	0.0%	7.4	57	0.7%	5.2	20	0.2%	4.4	12	0%
R04	--	2.7	0	0.0%	0.9	0	0.0%	4.9	57	0.7%	2.9	0	0.0%	2.8	0	0%
R05	--	2.6	0	0.0%	0.8	0	0.0%	4.5	46	0.5%	2.7	0	0.0%	2.6	0	0%
R06	--	2.7	0	0.0%	0.9	0	0.0%	4.5	50	0.6%	2.6	0	0.0%	2.6	0	0%
R07	--	2.5	0	0.0%	0.8	0	0.0%	3.8	27	0.3%	2.1	0	0.0%	2.1	0	0%
R08	--	2.3	0	0.0%	0.8	0	0.0%	3.3	3	0.0%	1.9	0	0.0%	1.8	0	0%
R09	CR18	2.3	0	0.0%	0.8	0	0.0%	2.9	0	0.0%	1.7	0	0.0%	1.8	0	0%
R10	CR05	4.0	15	0.2%	1.3	0	0.0%	4.0	6	0.1%	2.6	0	0.0%	2.9	0	0%
R11	--	5.1	20	0.2%	1.7	0	0.0%	4.5	14	0.2%	3.2	3	0.0%	2.8	0	0%
R12	--	5.0	24	0.3%	1.5	0	0.0%	4.1	24	0.3%	3.9	7	0.1%	3.2	3	0%
R13	--	4.3	15	0.2%	1.3	0	0.0%	3.7	7	0.1%	3.6	3	0.0%	3.0	2	0%
R14	--	3.8	5	0.1%	1.2	0	0.0%	3.1	3	0.0%	2.8	0	0.0%	2.4	0	0%
R15	CR10	6.3	55	0.6%	1.9	0	0.0%	7.2	44	0.5%	4.5	16	0.2%	3.4	3	0%
R16	--	6.0	34	0.4%	1.9	0	0.0%	7.0	28	0.3%	4.5	9	0.1%	3.5	3	0%
R17	CR01	3.8	8	0.1%	1.3	0	0.0%	3.3	6	0.1%	2.2	0	0.0%	2.9	0	0%
R18	CR04	2.7	0	0.0%	0.9	0	0.0%	4.5	50	0.6%	2.5	0	0.0%	2.5	0	0%
R19	CR06	2.5	0	0.0%	0.9	0	0.0%	3.5	4	0.0%	2.3	0	0.0%	2.6	0	0%
R20	CR07	1.6	0	0.0%	0.5	0	0.0%	2.2	0	0.0%	1.3	0	0.0%	1.3	0	0%
R21	CR08	5.7	88	1.0%	1.9	0	0.0%	7.0	65	0.7%	5.1	28	0.3%	4.5	11	0%
R22	CR11	4.1	13	0.1%	1.4	0	0.0%	4.1	13	0.1%	2.3	0	0.0%	2.3	0	0%
R23	CR12	1.5	0	0.0%	0.5	0	0.0%	2.1	0	0.0%	2.4	0	0.0%	2.3	0	0%
R24	CR13	3.2	2	0.0%	1.0	0	0.0%	2.7	0	0.0%	2.0	0	0.0%	1.9	0	0%
R25	CR14	1.8	0	0.0%	0.6	0	0.0%	3.2	4	0.0%	2.4	0	0.0%	2.8	0	0%
R26	CR15	3.0	1	0.0%	1.1	0	0.0%	3.1	1	0.0%	1.6	0	0.0%	1.7	0	0%
R27	CR16	2.1	0	0.0%	0.7	0	0.0%	2.2	0	0.0%	1.4	0	0.0%	1.3	0	0%
R28	CR20	1.7	0	0.0%	0.6	0	0.0%	2.7	0	0.0%	1.7	0	0.0%	1.7	0	0%
R29	CR21	4.8	35	0.4%	1.8	0	0.0%	5.7	44	0.5%	3.2	5	0.1%	2.8	0	0%

Note:

[1] Criteria = 3 OU/m³

Table 4-2-3: Modelling Comparison to Existing Conditions - 10-Minute Odour

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Comparison Against 5 OU/m³

Receptor Information		Existing Condition			"Do Nothing"			Scenario 1			Scenario 2			Scenario 3		
ID	Common ID	Max Conc (OU/m³)	Hours per Year	Freq (%)	Max Conc (OU/m³)	Hours per Year	Freq (%)	Max Conc (OU/m³)	Hours per Year	Freq (%)	Max Conc (OU/m³)	Hours per Year	Freq (%)	Max Conc (OU/m³)	Hours per Year	Freq (%)
R01	--	4.4	0	0.0%	1.6	0	0.0%	4.7	0	0.0%	2.7	0	0.0%	2.4	0	0%
R02	CR17	2.5	0	0.0%	0.8	0	0.0%	2.9	0	0.0%	5.5	3	0.0%	4.3	0	0%
R03	CR19	6.8	15	0.2%	2.1	0	0.0%	7.4	12	0.1%	5.2	1	0.0%	4.4	0	0%
R04	--	2.7	0	0.0%	0.9	0	0.0%	4.9	0	0.0%	2.9	0	0.0%	2.8	0	0%
R05	--	2.6	0	0.0%	0.8	0	0.0%	4.5	0	0.0%	2.7	0	0.0%	2.6	0	0%
R06	--	2.7	0	0.0%	0.9	0	0.0%	4.5	0	0.0%	2.6	0	0.0%	2.6	0	0%
R07	--	2.5	0	0.0%	0.8	0	0.0%	3.8	0	0.0%	2.1	0	0.0%	2.1	0	0%
R08	--	2.3	0	0.0%	0.8	0	0.0%	3.3	0	0.0%	1.9	0	0.0%	1.8	0	0%
R09	CR18	2.3	0	0.0%	0.8	0	0.0%	2.9	0	0.0%	1.7	0	0.0%	1.8	0	0%
R10	CR05	4.0	0	0.0%	1.3	0	0.0%	4.0	0	0.0%	2.6	0	0.0%	2.9	0	0%
R11	--	5.1	2	0.0%	1.7	0	0.0%	4.5	0	0.0%	3.2	0	0.0%	2.8	0	0%
R12	--	5.0	0	0.0%	1.5	0	0.0%	4.1	0	0.0%	3.9	0	0.0%	3.2	0	0%
R13	--	4.3	0	0.0%	1.3	0	0.0%	3.7	0	0.0%	3.6	0	0.0%	3.0	0	0%
R14	--	3.8	0	0.0%	1.2	0	0.0%	3.1	0	0.0%	2.8	0	0.0%	2.4	0	0%
R15	CR10	6.3	12	0.1%	1.9	0	0.0%	7.2	8	0.1%	4.5	0	0.0%	3.4	0	0%
R16	--	6.0	4	0.0%	1.9	0	0.0%	7.0	5	0.1%	4.5	0	0.0%	3.5	0	0%
R17	CR01	3.8	0	0.0%	1.3	0	0.0%	3.3	0	0.0%	2.2	0	0.0%	2.9	0	0%
R18	CR04	2.7	0	0.0%	0.9	0	0.0%	4.5	0	0.0%	2.5	0	0.0%	2.5	0	0%
R19	CR06	2.5	0	0.0%	0.9	0	0.0%	3.5	0	0.0%	2.3	0	0.0%	2.6	0	0%
R20	CR07	1.6	0	0.0%	0.5	0	0.0%	2.2	0	0.0%	1.3	0	0.0%	1.3	0	0%
R21	CR08	5.7	13	0.1%	1.9	0	0.0%	7.0	19	0.2%	5.1	2	0.0%	4.5	0	0%
R22	CR11	4.1	0	0.0%	1.4	0	0.0%	4.1	0	0.0%	2.3	0	0.0%	2.3	0	0%
R23	CR12	1.5	0	0.0%	0.5	0	0.0%	2.1	0	0.0%	2.4	0	0.0%	2.3	0	0%
R24	CR13	3.2	0	0.0%	1.0	0	0.0%	2.7	0	0.0%	2.0	0	0.0%	1.9	0	0%
R25	CR14	1.8	0	0.0%	0.6	0	0.0%	3.2	0	0.0%	2.4	0	0.0%	2.8	0	0%
R26	CR15	3.0	0	0.0%	1.1	0	0.0%	3.1	0	0.0%	1.6	0	0.0%	1.7	0	0%
R27	CR16	2.1	0	0.0%	0.7	0	0.0%	2.2	0	0.0%	1.4	0	0.0%	1.3	0	0%
R28	CR20	1.7	0	0.0%	0.6	0	0.0%	2.7	0	0.0%	1.7	0	0.0%	1.7	0	0%
R29	CR21	4.8	0	0.0%	1.8	0	0.0%	5.7	7	0.1%	3.2	0	0.0%	2.8	0	0%

Note:

[1] Criteria = 5 OU/m³

Table 4-2-4: Modelling Comparison to Existing Conditions - 24-Hour Vinyl Chloride

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Receptor Information		Background Concentration (µg/m³)	Existing Condition				"Do Nothing"				Scenario 1				Scenario 2				Scenario 3			
			Without Background		With Background		Without Background		With Background		Without Background		With Background		Without Background		With Background		Without Background		With Background	
ID	Common Receptor ID		Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)
R01	--	0.05	0.0204	2.04%	0.0742	7%	0.0011	0.11%	0.0549	5%	0.0270	2.7%	0.0808	8%	0.0103	1.0%	0.0641	6%	0.0091	0.9%	0.0630	6%
R02	CR17	0.05	0.0215	2.15%	0.0754	8%	0.0008	0.08%	0.0546	5%	0.0250	2.5%	0.0789	8%	0.0459	4.6%	0.0998	10%	0.0141	1.4%	0.0679	7%
R03	CR19	0.05	0.0608	6.08%	0.1147	11%	0.0023	0.23%	0.0562	6%	0.0249	2.5%	0.0787	8%	0.0053	0.5%	0.0592	6%	0.0057	0.6%	0.0596	6%
R04	--	0.05	0.0178	1.78%	0.0716	7%	0.0009	0.09%	0.0548	5%	0.0466	4.7%	0.1005	10%	0.0156	1.6%	0.0694	7%	0.0096	1.0%	0.0634	6%
R05	--	0.05	0.0155	1.55%	0.0694	7%	0.0008	0.08%	0.0546	5%	0.0390	3.9%	0.0928	9%	0.0124	1.2%	0.0662	7%	0.0084	0.8%	0.0622	6%
R06	--	0.05	0.0163	1.63%	0.0702	7%	0.0008	0.08%	0.0546	5%	0.0404	4.0%	0.0943	9%	0.0138	1.4%	0.0676	7%	0.0090	0.9%	0.0629	6%
R07	--	0.05	0.0165	1.65%	0.0703	7%	0.0008	0.08%	0.0546	5%	0.0305	3.0%	0.0843	8%	0.0103	1.0%	0.0642	6%	0.0068	0.7%	0.0606	6%
R08	--	0.05	0.0120	1.20%	0.0658	7%	0.0006	0.06%	0.0545	5%	0.0173	1.7%	0.0711	7%	0.0060	0.6%	0.0598	6%	0.0041	0.4%	0.0579	6%
R09	CR18	0.05	0.0120	1.20%	0.0658	7%	0.0005	0.05%	0.0544	5%	0.0173	1.7%	0.0712	7%	0.0049	0.5%	0.0587	6%	0.0043	0.4%	0.0581	6%
R10	CR05	0.05	0.0214	2.14%	0.0753	8%	0.0011	0.11%	0.0549	5%	0.0175	1.7%	0.0713	7%	0.0055	0.6%	0.0594	6%	0.0050	0.5%	0.0588	6%
R11	--	0.05	0.0283	2.83%	0.0822	8%	0.0011	0.11%	0.0549	5%	0.0243	2.4%	0.0781	8%	0.0068	0.7%	0.0606	6%	0.0040	0.4%	0.0578	6%
R12	--	0.05	0.0391	3.91%	0.0930	9%	0.0016	0.16%	0.0554	6%	0.0180	1.8%	0.0719	7%	0.0055	0.5%	0.0593	6%	0.0074	0.7%	0.0613	6%
R13	--	0.05	0.0304	3.04%	0.0843	8%	0.0011	0.11%	0.0550	5%	0.0140	1.4%	0.0678	7%	0.0032	0.3%	0.0570	6%	0.0042	0.4%	0.0581	6%
R14	--	0.05	0.0179	1.79%	0.0717	7%	0.0008	0.08%	0.0546	5%	0.0179	1.8%	0.0718	7%	0.0074	0.7%	0.0612	6%	0.0038	0.4%	0.0577	6%
R15	CR10	0.05	0.0509	5.09%	0.1047	10%	0.0019	0.19%	0.0558	6%	0.0184	1.8%	0.0723	7%	0.0076	0.8%	0.0614	6%	0.0044	0.4%	0.0582	6%
R16	--	0.05	0.0359	3.59%	0.0898	9%	0.0017	0.17%	0.0555	6%	0.0174	1.7%	0.0712	7%	0.0059	0.6%	0.0597	6%	0.0036	0.4%	0.0574	6%
R17	CR01	0.05	0.0142	1.42%	0.0681	7%	0.0012	0.12%	0.0551	6%	0.0201	2.0%	0.0739	7%	0.0116	1.2%	0.0654	7%	0.0111	1.1%	0.0649	6%
R18	CR04	0.05	0.0162	1.62%	0.0700	7%	0.0008	0.08%	0.0546	5%	0.0383	3.8%	0.0922	9%	0.0133	1.3%	0.0672	7%	0.0088	0.9%	0.0626	6%
R19	CR06	0.05	0.0144	1.44%	0.0683	7%	0.0010	0.10%	0.0549	5%	0.0156	1.6%	0.0695	7%	0.0064	0.6%	0.0603	6%	0.0055	0.6%	0.0594	6%
R20	CR07	0.05	0.0076	0.76%	0.0615	6%	0.0004	0.04%	0.0543	5%	0.0086	0.9%	0.0625	6%	0.0039	0.4%	0.0577	6%	0.0025	0.3%	0.0564	6%
R21	CR08	0.05	0.0951	9.51%	0.1490	15%	0.0042	0.42%	0.0580	6%	0.0500	5.0%	0.1038	10%	0.0102	1.0%	0.0640	6%	0.0074	0.7%	0.0612	6%
R22	CR11	0.05	0.0142	1.42%	0.0681	7%	0.0008	0.08%	0.0546	5%	0.0212	2.1%	0.0751	8%	0.0079	0.8%	0.0617	6%	0.0073	0.7%	0.0612	6%
R23	CR12	0.05	0.0088	0.88%	0.0626	6%	0.0005	0.05%	0.0543	5%	0.0115	1.2%	0.0654	7%	0.0085	0.9%	0.0624	6%	0.0056	0.6%	0.0595	6%
R24	CR13	0.05	0.0119	1.19%	0.0657	7%	0.0005	0.05%	0.0544	5%	0.0076	0.8%	0.0615	6%	0.0032	0.3%	0.0570	6%	0.0023	0.2%	0.0562	6%
R25	CR14	0.05	0.0103	1.03%	0.0642	6%	0.0004	0.04%	0.0543	5%	0.0171	1.7%	0.0710	7%	0.0088	0.9%	0.0627	6%	0.0043	0.4%	0.0582	6%
R26	CR15	0.05	0.0085	0.85%	0.0623	6%	0.0005	0.05%	0.0543	5%	0.0126	1.3%	0.0664	7%	0.0048	0.5%	0.0586	6%	0.0045	0.5%	0.0584	6%
R27	CR16	0.05	0.0068	0.68%	0.0607	6%	0.0005	0.05%	0.0543	5%	0.0109	1.1%	0.0648	6%	0.0052	0.5%	0.0590	6%	0.0042	0.4%	0.0581	6%
R28	CR20	0.05	0.0086	0.86%	0.0624	6%	0.0005	0.05%	0.0543	5%	0.0136	1.4%	0.0674	7%	0.0052	0.5%	0.0591	6%	0.0041	0.4%	0.0579	6%
R29	CR21	0.05	0.0288	2.88%	0.0827	8%	0.0017	0.17%	0.0555	6%	0.0247	2.5%	0.0785	8%	0.0093	0.9%	0.0631	6%	0.0097	1.0%	0.0636	6%

Note:

[1] Criteria = 1 µg/m³

Table 4-2-5: Modelling Comparison to Existing Conditions - Annual Vinyl Chloride

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Receptor Information		Background Concentration (µg/m³)	Existing Condition				"Do Nothing"				Scenario 1				Scenario 2				Scenario 3			
			Without Background		With Background		Without Background		With Background		Without Background		With Background		Without Background		With Background		Without Background		With Background	
ID	Common Receptor ID		Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)
R01	--	0.05	0.00137	0.69%	0.05356	27%	0.00011	0.06%	0.05230	26%	0.00191	0.96%	0.05410	27%	0.00073	0.37%	0.05292	26%	0.00066	0.33%	0.05285	26%
R02	CR17	0.05	0.00135	0.68%	0.05354	27%	0.00009	0.05%	0.05228	26%	0.00238	1.19%	0.05457	27%	0.00311	1.56%	0.05530	28%	0.00135	0.68%	0.05354	27%
R03	CR19	0.05	0.00414	2.07%	0.05633	28%	0.00020	0.10%	0.05239	26%	0.00170	0.85%	0.05389	27%	0.00052	0.26%	0.05271	26%	0.00046	0.23%	0.05265	26%
R04	--	0.05	0.00234	1.17%	0.05453	27%	0.00013	0.07%	0.05232	26%	0.00512	2.56%	0.05731	29%	0.00126	0.63%	0.05345	27%	0.00088	0.44%	0.05307	27%
R05	--	0.05	0.00209	1.05%	0.05428	27%	0.00011	0.06%	0.05230	26%	0.00415	2.08%	0.05634	28%	0.00105	0.53%	0.05324	27%	0.00074	0.37%	0.05293	26%
R06	--	0.05	0.00217	1.09%	0.05436	27%	0.00012	0.06%	0.05231	26%	0.00432	2.16%	0.05651	28%	0.00105	0.53%	0.05324	27%	0.00074	0.37%	0.05293	26%
R07	--	0.05	0.00172	0.86%	0.05391	27%	0.00009	0.05%	0.05228	26%	0.00271	1.36%	0.05490	27%	0.00069	0.35%	0.05288	26%	0.00049	0.25%	0.05268	26%
R08	--	0.05	0.00122	0.61%	0.05341	27%	0.00007	0.04%	0.05226	26%	0.00128	0.64%	0.05347	27%	0.00040	0.20%	0.05259	26%	0.00028	0.14%	0.05247	26%
R09	CR18	0.05	0.00098	0.49%	0.05317	27%	0.00005	0.03%	0.05224	26%	0.00096	0.48%	0.05315	27%	0.00031	0.16%	0.05250	26%	0.00024	0.12%	0.05243	26%
R10	CR05	0.05	0.00162	0.81%	0.05381	27%	0.00009	0.05%	0.05228	26%	0.00129	0.65%	0.05348	27%	0.00033	0.17%	0.05252	26%	0.00027	0.14%	0.05246	26%
R11	--	0.05	0.00138	0.69%	0.05357	27%	0.00007	0.04%	0.05226	26%	0.00102	0.51%	0.05321	27%	0.00031	0.16%	0.05250	26%	0.00024	0.12%	0.05243	26%
R12	--	0.05	0.00170	0.85%	0.05389	27%	0.00008	0.04%	0.05227	26%	0.00098	0.49%	0.05317	27%	0.00031	0.16%	0.05250	26%	0.00026	0.13%	0.05245	26%
R13	--	0.05	0.00128	0.64%	0.05347	27%	0.00007	0.04%	0.05226	26%	0.00079	0.40%	0.05298	26%	0.00025	0.13%	0.05244	26%	0.00021	0.11%	0.05240	26%
R14	--	0.05	0.00076	0.38%	0.05295	26%	0.00004	0.02%	0.05223	26%	0.00063	0.32%	0.05282	26%	0.00020	0.10%	0.05239	26%	0.00016	0.08%	0.05235	26%
R15	CR10	0.05	0.00375	1.88%	0.05594	28%	0.00020	0.10%	0.05239	26%	0.00163	0.82%	0.05382	27%	0.00051	0.26%	0.05270	26%	0.00043	0.22%	0.05262	26%
R16	--	0.05	0.00288	1.44%	0.05507	28%	0.00015	0.08%	0.05234	26%	0.00139	0.70%	0.05358	27%	0.00042	0.21%	0.05261	26%	0.00036	0.18%	0.05255	26%
R17	CR01	0.05	0.00126	0.63%	0.05345	27%	0.00010	0.05%	0.05229	26%	0.00193	0.97%	0.05412	27%	0.00089	0.45%	0.05308	27%	0.00082	0.41%	0.05301	27%
R18	CR04	0.05	0.00215	1.08%	0.05434	27%	0.00012	0.06%	0.05231	26%	0.00407	2.04%	0.05626	28%	0.00096	0.48%	0.05315	27%	0.00068	0.34%	0.05287	26%
R19	CR06	0.05	0.00093	0.47%	0.05312	27%	0.00006	0.03%	0.05225	26%	0.00081	0.41%	0.05300	26%	0.00027	0.14%	0.05246	26%	0.00023	0.12%	0.05242	26%
R20	CR07	0.05	0.00060	0.30%	0.05279	26%	0.00003	0.02%	0.05222	26%	0.00065	0.33%	0.05284	26%	0.00023	0.12%	0.05242	26%	0.00016	0.08%	0.05235	26%
R21	CR08	0.05	0.00495	2.48%	0.05714	29%	0.00030	0.15%	0.05249	26%	0.00282	1.41%	0.05501	28%	0.00073	0.37%	0.05292	26%	0.00060	0.30%	0.05279	26%
R22	CR11	0.05	0.00114	0.57%	0.05333	27%	0.00009	0.05%	0.05228	26%	0.00160	0.80%	0.05379	27%	0.00066	0.33%	0.05285	26%	0.00057	0.29%	0.05276	26%
R23	CR12	0.05	0.00053	0.27%	0.05272	26%	0.00004	0.02%	0.05223	26%	0.00076	0.38%	0.05295	26%	0.00052	0.26%	0.05271	26%	0.00033	0.17%	0.05252	26%
R24	CR13	0.05	0.00041	0.21%	0.05260	26%	0.00002	0.01%	0.05221	26%	0.00039	0.20%	0.05258	26%	0.00014	0.07%	0.05233	26%	0.00010	0.05%	0.05229	26%
R25	CR14	0.05	0.00089	0.45%	0.05308	27%	0.00005	0.03%	0.05224	26%	0.00140	0.70%	0.05359	27%	0.00083	0.42%	0.05302	27%	0.00048	0.24%	0.05267	26%
R26	CR15	0.05	0.00066	0.33%	0.05285	26%	0.00005	0.03%	0.05224	26%	0.00089	0.45%	0.05308	27%	0.00038	0.19%	0.05257	26%	0.00032	0.16%	0.05251	26%
R27	CR16	0.05	0.00046	0.23%	0.05265	26%	0.00003	0.02%	0.05222	26%	0.00050	0.25%	0.05269	26%	0.00020	0.10%	0.05239	26%	0.00016	0.08%	0.05235	26%
R28	CR20	0.05	0.00075	0.38%	0.05294	26%	0.00005	0.03%	0.05224	26%	0.00107	0.54%	0.05326	27%	0.00041	0.21%	0.05260	26%	0.00030	0.15%	0.05249	26%
R29	CR21	0.05	0.00165	0.83%	0.05384	27%	0.00013	0.07%	0.05232	26%	0.00211	1.06%	0.05430	27%	0.00072	0.36%	0.05291	26%	0.00061	0.31%	0.05280	26%

Note:

[1] Criteria = 0.2 µg/m³

Table 4-2-6: Modelling Comparison to Existing Conditions - 24-Hour Benzene

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Receptor Information			Existing Condition				"Do Nothing"				Scenario 1				Scenario 2				Scenario 3			
			Without Background		With Background		Without Background		With Background		Without Background		With Background		Without Background		With Background		Without Background		With Background	
ID	Common Receptor ID	Background Concentration (µg/m³)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)
R01	--	0.69	0.0191	0.83%	0.7041	31%	0.0012	0.05%	0.686	30%	0.0191	0.83%	0.7041	31%	0.0042	0.18%	0.6892	30%	0.0040	0.17%	0.6890	30%
R02	CR17	0.69	0.0163	0.71%	0.7013	30%	0.0010	0.04%	0.686	30%	0.0167	0.73%	0.7017	31%	0.0170	0.74%	0.7020	31%	0.0080	0.35%	0.6930	30%
R03	CR19	0.69	0.0233	1.01%	0.7083	31%	0.0046	0.20%	0.690	30%	0.0148	0.64%	0.6998	30%	0.0078	0.34%	0.6928	30%	0.0078	0.34%	0.6928	30%
R04	--	0.69	0.0098	0.42%	0.6948	30%	0.0020	0.09%	0.687	30%	0.0157	0.68%	0.7007	30%	0.0068	0.30%	0.6918	30%	0.0052	0.23%	0.6902	30%
R05	--	0.69	0.0086	0.37%	0.6936	30%	0.0018	0.08%	0.687	30%	0.0138	0.60%	0.6988	30%	0.0059	0.26%	0.6909	30%	0.0045	0.20%	0.6895	30%
R06	--	0.69	0.0092	0.40%	0.6942	30%	0.0018	0.08%	0.687	30%	0.0135	0.59%	0.6985	30%	0.0057	0.25%	0.6907	30%	0.0049	0.21%	0.6899	30%
R07	--	0.69	0.0086	0.37%	0.6936	30%	0.0013	0.06%	0.686	30%	0.0130	0.56%	0.6980	30%	0.0039	0.17%	0.6889	30%	0.0039	0.17%	0.6889	30%
R08	--	0.69	0.0081	0.35%	0.6931	30%	0.0012	0.05%	0.686	30%	0.0086	0.38%	0.6936	30%	0.0028	0.12%	0.6878	30%	0.0031	0.13%	0.6881	30%
R09	CR18	0.69	0.0065	0.28%	0.6915	30%	0.0011	0.05%	0.686	30%	0.0084	0.36%	0.6934	30%	0.0025	0.11%	0.6875	30%	0.0025	0.11%	0.6875	30%
R10	CR05	0.69	0.0130	0.56%	0.6980	30%	0.0019	0.08%	0.687	30%	0.0107	0.47%	0.6957	30%	0.0036	0.16%	0.6886	30%	0.0037	0.16%	0.6887	30%
R11	--	0.69	0.0123	0.53%	0.6973	30%	0.0024	0.10%	0.687	30%	0.0097	0.42%	0.6947	30%	0.0052	0.22%	0.6902	30%	0.0051	0.22%	0.6901	30%
R12	--	0.69	0.0178	0.77%	0.7028	31%	0.0019	0.08%	0.687	30%	0.0097	0.42%	0.6947	30%	0.0042	0.18%	0.6892	30%	0.0051	0.22%	0.6901	30%
R13	--	0.69	0.0128	0.56%	0.6978	30%	0.0024	0.10%	0.687	30%	0.0106	0.46%	0.6956	30%	0.0036	0.16%	0.6886	30%	0.0036	0.16%	0.6886	30%
R14	--	0.69	0.0088	0.38%	0.6938	30%	0.0013	0.06%	0.686	30%	0.0082	0.36%	0.6932	30%	0.0047	0.21%	0.6897	30%	0.0029	0.13%	0.6879	30%
R15	CR10	0.69	0.0205	0.89%	0.7055	31%	0.0057	0.25%	0.691	30%	0.0136	0.59%	0.6986	30%	0.0116	0.50%	0.6966	30%	0.0117	0.51%	0.6967	30%
R16	--	0.69	0.0163	0.71%	0.7013	30%	0.0035	0.15%	0.689	30%	0.0147	0.64%	0.6997	30%	0.0071	0.31%	0.6921	30%	0.0072	0.31%	0.6922	30%
R17	CR01	0.69	0.0199	0.86%	0.7049	31%	0.0013	0.06%	0.686	30%	0.0203	0.88%	0.7053	31%	0.0048	0.21%	0.6898	30%	0.0067	0.29%	0.6917	30%
R18	CR04	0.69	0.0094	0.41%	0.6944	30%	0.0017	0.07%	0.687	30%	0.0138	0.60%	0.6988	30%	0.0050	0.22%	0.6900	30%	0.0048	0.21%	0.6898	30%
R19	CR06	0.69	0.0080	0.35%	0.6930	30%	0.0015	0.06%	0.686	30%	0.0081	0.35%	0.6931	30%	0.0038	0.16%	0.6888	30%	0.0035	0.15%	0.6885	30%
R20	CR07	0.69	0.0060	0.26%	0.6910	30%	0.0007	0.03%	0.686	30%	0.0075	0.33%	0.6925	30%	0.0019	0.08%	0.6869	30%	0.0016	0.07%	0.6866	30%
R21	CR08	0.69	0.0340	1.48%	0.7190	31%	0.0045	0.20%	0.689	30%	0.0217	0.95%	0.7067	31%	0.0084	0.37%	0.6934	30%	0.0077	0.33%	0.6927	30%
R22	CR11	0.69	0.0137	0.60%	0.6987	30%	0.0010	0.04%	0.686	30%	0.0143	0.62%	0.6993	30%	0.0035	0.15%	0.6885	30%	0.0030	0.13%	0.6880	30%
R23	CR12	0.69	0.0067	0.29%	0.6917	30%	0.0008	0.04%	0.686	30%	0.0075	0.32%	0.6925	30%	0.0041	0.18%	0.6891	30%	0.0033	0.14%	0.6883	30%
R24	CR13	0.69	0.0071	0.31%	0.6921	30%	0.0011	0.05%	0.686	30%	0.0059	0.26%	0.6909	30%	0.0019	0.08%	0.6869	30%	0.0019	0.08%	0.6869	30%
R25	CR14	0.69	0.0068	0.29%	0.6918	30%	0.0008	0.04%	0.686	30%	0.0080	0.35%	0.6930	30%	0.0049	0.21%	0.6899	30%	0.0036	0.16%	0.6886	30%
R26	CR15	0.69	0.0074	0.32%	0.6924	30%	0.0008	0.03%	0.686	30%	0.0071	0.31%	0.6921	30%	0.0019	0.08%	0.6869	30%	0.0031	0.14%	0.6881	30%
R27	CR16	0.69	0.0060	0.26%	0.6910	30%	0.0006	0.03%	0.686	30%	0.0060	0.26%	0.6910	30%	0.0025	0.11%	0.6875	30%	0.0022	0.09%	0.6872	30%
R28	CR20	0.69	0.0070	0.30%	0.6920	30%	0.0009	0.04%	0.686	30%	0.0077	0.33%	0.6927	30%	0.0024	0.10%	0.6874	30%	0.0024	0.10%	0.6874	30%
R29	CR21	0.69	0.0247	1.07%	0.7097	31%	0.0018	0.08%	0.687	30%	0.0261	1.13%	0.7111	31%	0.0053	0.23%	0.6903	30%	0.0061	0.26%	0.6911	30%

Note:

[1] Criteria = 2.3 µg/m³

Table 4-2-7: Modelling Comparison to Existing Conditions - Annual Benzene

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Receptor Information		Background Concentration (µg/m³)	Existing Condition				"Do Nothing"				Scenario 1				Scenario 2				Scenario 3			
			Without Background		With Background		Without Background		With Background		Without Background		With Background		Without Background		With Background		Without Background		With Background	
ID	Common Receptor ID		Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)
R01	--	0.46	0.0011	0.25%	0.4638	103%	0.0002	0.04%	0.4629	103%	0.0013	0.3%	0.4640	103%	0.0006	0.13%	0.46326	103%	0.0006	0.13%	0.4632	103%
R02	CR17	0.46	0.0010	0.21%	0.4636	103%	0.0002	0.04%	0.4628	103%	0.0013	0.3%	0.4640	103%	0.0015	0.33%	0.46416	103%	0.0010	0.22%	0.4637	103%
R03	CR19	0.46	0.0020	0.44%	0.4646	103%	0.0004	0.10%	0.4631	103%	0.0013	0.3%	0.4640	103%	0.0008	0.18%	0.46350	103%	0.0008	0.17%	0.4634	103%
R04	--	0.46	0.0013	0.28%	0.4639	103%	0.0002	0.05%	0.4629	103%	0.0023	0.5%	0.4649	103%	0.0011	0.23%	0.46372	103%	0.0009	0.20%	0.4636	103%
R05	--	0.46	0.0011	0.25%	0.4638	103%	0.0002	0.05%	0.4629	103%	0.0019	0.4%	0.4645	103%	0.0009	0.20%	0.46356	103%	0.0008	0.17%	0.4634	103%
R06	--	0.46	0.0012	0.26%	0.4638	103%	0.0002	0.05%	0.4629	103%	0.0019	0.4%	0.4646	103%	0.0009	0.20%	0.46356	103%	0.0008	0.17%	0.4634	103%
R07	--	0.46	0.0009	0.20%	0.4636	103%	0.0002	0.04%	0.4628	103%	0.0013	0.3%	0.4639	103%	0.0006	0.14%	0.46328	103%	0.0005	0.12%	0.4632	103%
R08	--	0.46	0.0007	0.15%	0.4633	103%	0.0001	0.03%	0.4628	103%	0.0007	0.2%	0.4634	103%	0.0004	0.08%	0.46305	103%	0.0003	0.08%	0.4630	103%
R09	CR18	0.46	0.0006	0.12%	0.4632	103%	0.0001	0.03%	0.4628	103%	0.0006	0.1%	0.4632	103%	0.0003	0.07%	0.46298	103%	0.0003	0.06%	0.4630	103%
R10	CR05	0.46	0.0009	0.19%	0.4635	103%	0.0002	0.04%	0.4629	103%	0.0008	0.2%	0.4634	103%	0.0004	0.09%	0.46309	103%	0.0004	0.09%	0.4631	103%
R11	--	0.46	0.0007	0.16%	0.4634	103%	0.0002	0.04%	0.4628	103%	0.0006	0.1%	0.4633	103%	0.0004	0.08%	0.46305	103%	0.0003	0.08%	0.4630	103%
R12	--	0.46	0.0008	0.19%	0.4635	103%	0.0002	0.04%	0.4628	103%	0.0007	0.1%	0.4633	103%	0.0004	0.09%	0.46306	103%	0.0004	0.08%	0.4630	103%
R13	--	0.46	0.0007	0.15%	0.4633	103%	0.0001	0.03%	0.4628	103%	0.0005	0.1%	0.4632	103%	0.0003	0.07%	0.46299	103%	0.0003	0.07%	0.4630	103%
R14	--	0.46	0.0004	0.09%	0.4631	103%	0.0001	0.02%	0.4628	103%	0.0004	0.1%	0.4631	103%	0.0002	0.05%	0.46290	103%	0.0002	0.05%	0.4629	103%
R15	CR10	0.46	0.0019	0.41%	0.4645	103%	0.0004	0.10%	0.4631	103%	0.0013	0.3%	0.4640	103%	0.0008	0.18%	0.46349	103%	0.0008	0.17%	0.4634	103%
R16	--	0.46	0.0015	0.32%	0.4641	103%	0.0003	0.08%	0.4630	103%	0.0011	0.2%	0.4637	103%	0.0007	0.15%	0.46333	103%	0.0006	0.14%	0.4633	103%
R17	CR01	0.46	0.0012	0.26%	0.4639	103%	0.0002	0.04%	0.4629	103%	0.0014	0.3%	0.4641	103%	0.0007	0.15%	0.46333	103%	0.0007	0.14%	0.4633	103%
R18	CR04	0.46	0.0011	0.25%	0.4638	103%	0.0002	0.05%	0.4629	103%	0.0018	0.4%	0.4645	103%	0.0008	0.18%	0.46350	103%	0.0007	0.16%	0.4634	103%
R19	CR06	0.46	0.0005	0.12%	0.4632	103%	0.0001	0.02%	0.4628	103%	0.0005	0.1%	0.4632	103%	0.0003	0.06%	0.46293	103%	0.0003	0.06%	0.4629	103%
R20	CR07	0.46	0.0004	0.08%	0.4630	103%	0.0001	0.02%	0.4627	103%	0.0004	0.1%	0.4630	103%	0.0002	0.05%	0.46289	103%	0.0002	0.04%	0.4629	103%
R21	CR08	0.46	0.0023	0.50%	0.4649	103%	0.0005	0.10%	0.4631	103%	0.0016	0.4%	0.4643	103%	0.0008	0.18%	0.46350	103%	0.0007	0.16%	0.4634	103%
R22	CR11	0.46	0.0009	0.20%	0.4636	103%	0.0002	0.04%	0.4628	103%	0.0010	0.2%	0.4637	103%	0.0005	0.11%	0.46318	103%	0.0005	0.11%	0.4632	103%
R23	CR12	0.46	0.0004	0.09%	0.4631	103%	0.0001	0.02%	0.4627	103%	0.0005	0.1%	0.4631	103%	0.0004	0.08%	0.46302	103%	0.0003	0.07%	0.4630	103%
R24	CR13	0.46	0.0003	0.06%	0.4629	103%	0.0001	0.01%	0.4627	103%	0.0003	0.1%	0.4629	103%	0.0002	0.03%	0.46282	103%	0.0001	0.03%	0.4628	103%
R25	CR14	0.46	0.0006	0.13%	0.4632	103%	0.0001	0.03%	0.4628	103%	0.0008	0.2%	0.4634	103%	0.0006	0.12%	0.46322	103%	0.0004	0.10%	0.4631	103%
R26	CR15	0.46	0.0005	0.10%	0.4631	103%	0.0001	0.02%	0.4628	103%	0.0005	0.1%	0.4632	103%	0.0003	0.07%	0.46297	103%	0.0003	0.06%	0.4629	103%
R27	CR16	0.46	0.0003	0.06%	0.4629	103%	0.0001	0.01%	0.4627	103%	0.0003	0.1%	0.4630	103%	0.0002	0.04%	0.46284	103%	0.0002	0.04%	0.4628	103%
R28	CR20	0.46	0.0005	0.10%	0.4631	103%	0.0001	0.02%	0.4628	103%	0.0006	0.1%	0.4632	103%	0.0004	0.08%	0.46302	103%	0.0003	0.07%	0.4630	103%
R29	CR21	0.46	0.0014	0.32%	0.4641	103%	0.0002	0.05%	0.4629	103%	0.0015	0.3%	0.4642	103%	0.0007	0.15%	0.46333	103%	0.0006	0.14%	0.4633	103%

Note:

[1] Criteria = 0.45 µg/m³

Table 4-2-8: Modelling Comparison to Existing Conditions - 24-Hour 1,1,2-Trichloroethane

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Receptor Information		Background Concentration (µg/m³)	Existing Condition				"Do Nothing"				Scenario 1				Scenario 2				Scenario 3			
			Without Background		With Background		Without Background		With Background		Without Background		With Background		Without Background		With Background		Without Background		With Background	
ID	Common Receptor ID		Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)
R01	--	0.07	0.005	1.8%	0.070	23.5%	0.003	0.9%	0.068	22.6%	0.006	2.1%	0.071	23.7%	0.006	1.9%	0.071	23.6%	0.005	1.6%	0.070	23.3%
R02	CR17	0.07	0.004	1.3%	0.069	22.9%	0.002	0.7%	0.067	22.3%	0.005	1.6%	0.070	23.3%	0.012	4.0%	0.077	25.6%	0.014	4.5%	0.079	26.2%
R03	CR19	0.07	0.011	3.8%	0.076	25.5%	0.006	2.0%	0.071	23.7%	0.014	4.5%	0.079	26.2%	0.010	3.3%	0.075	24.9%	0.008	2.8%	0.073	24.4%
R04	--	0.07	0.005	1.5%	0.070	23.2%	0.002	0.8%	0.067	22.4%	0.007	2.4%	0.072	24.1%	0.010	3.2%	0.075	24.9%	0.008	2.7%	0.073	24.3%
R05	--	0.07	0.004	1.3%	0.069	23.0%	0.002	0.6%	0.067	22.3%	0.006	2.1%	0.071	23.7%	0.008	2.7%	0.073	24.4%	0.007	2.2%	0.072	23.9%
R06	--	0.07	0.004	1.4%	0.069	23.0%	0.002	0.7%	0.067	22.3%	0.007	2.2%	0.072	23.9%	0.008	2.7%	0.073	24.4%	0.007	2.2%	0.072	23.9%
R07	--	0.07	0.004	1.4%	0.069	23.1%	0.002	0.7%	0.067	22.3%	0.006	2.1%	0.071	23.8%	0.006	2.0%	0.071	23.7%	0.005	1.8%	0.070	23.4%
R08	--	0.07	0.003	1.1%	0.068	22.7%	0.002	0.5%	0.067	22.2%	0.004	1.3%	0.069	22.9%	0.005	1.5%	0.070	23.2%	0.004	1.4%	0.069	23.0%
R09	CR18	0.07	0.002	0.8%	0.067	22.5%	0.001	0.4%	0.066	22.1%	0.004	1.3%	0.069	23.0%	0.004	1.4%	0.069	23.1%	0.004	1.2%	0.069	22.9%
R10	CR05	0.07	0.006	1.9%	0.071	23.6%	0.003	0.9%	0.068	22.6%	0.007	2.3%	0.072	24.0%	0.006	1.9%	0.071	23.6%	0.005	1.6%	0.070	23.2%
R11	--	0.07	0.005	1.8%	0.070	23.4%	0.003	0.9%	0.068	22.6%	0.006	2.0%	0.071	23.7%	0.007	2.2%	0.072	23.9%	0.006	1.9%	0.071	23.6%
R12	--	0.07	0.008	2.7%	0.073	24.3%	0.004	1.4%	0.069	23.1%	0.009	3.1%	0.074	24.7%	0.008	2.5%	0.073	24.2%	0.007	2.3%	0.072	24.0%
R13	--	0.07	0.005	1.8%	0.070	23.5%	0.003	1.0%	0.068	22.7%	0.006	2.1%	0.071	23.7%	0.005	1.6%	0.070	23.3%	0.004	1.4%	0.069	23.1%
R14	--	0.07	0.004	1.4%	0.069	23.1%	0.002	0.7%	0.067	22.4%	0.006	2.1%	0.071	23.7%	0.007	2.2%	0.072	23.9%	0.006	1.9%	0.071	23.6%
R15	CR10	0.07	0.010	3.2%	0.075	24.9%	0.005	1.7%	0.070	23.3%	0.013	4.3%	0.078	25.9%	0.009	3.0%	0.074	24.7%	0.007	2.5%	0.072	24.1%
R16	--	0.07	0.008	2.8%	0.073	24.4%	0.004	1.3%	0.069	23.0%	0.010	3.2%	0.075	24.9%	0.008	2.7%	0.073	24.4%	0.007	2.2%	0.072	23.9%
R17	CR01	0.07	0.006	1.9%	0.071	23.6%	0.003	0.9%	0.068	22.6%	0.006	2.1%	0.071	23.8%	0.007	2.2%	0.072	23.9%	0.006	2.1%	0.071	23.8%
R18	CR04	0.07	0.004	1.4%	0.069	23.1%	0.002	0.7%	0.067	22.3%	0.007	2.3%	0.072	24.0%	0.008	2.6%	0.073	24.2%	0.006	2.1%	0.071	23.7%
R19	CR06	0.07	0.006	1.9%	0.071	23.5%	0.002	0.8%	0.067	22.5%	0.006	1.9%	0.071	23.6%	0.006	1.9%	0.071	23.5%	0.005	1.8%	0.070	23.5%
R20	CR07	0.07	0.002	0.8%	0.067	22.4%	0.001	0.4%	0.066	22.0%	0.003	0.9%	0.068	22.6%	0.002	0.7%	0.067	22.3%	0.002	0.7%	0.067	22.3%
R21	CR08	0.07	0.022	7.2%	0.087	28.9%	0.011	3.6%	0.076	25.3%	0.025	8.4%	0.090	30.0%	0.020	6.6%	0.085	28.3%	0.016	5.3%	0.081	26.9%
R22	CR11	0.07	0.004	1.4%	0.069	23.0%	0.002	0.7%	0.067	22.3%	0.005	1.6%	0.070	23.2%	0.005	1.6%	0.070	23.3%	0.004	1.4%	0.069	23.1%
R23	CR12	0.07	0.002	0.7%	0.067	22.4%	0.001	0.4%	0.066	22.0%	0.003	1.0%	0.068	22.7%	0.004	1.4%	0.069	23.1%	0.004	1.4%	0.069	23.1%
R24	CR13	0.07	0.003	0.8%	0.068	22.5%	0.001	0.4%	0.066	22.1%	0.003	0.9%	0.068	22.6%	0.002	0.8%	0.067	22.5%	0.002	0.8%	0.067	22.4%
R25	CR14	0.07	0.002	0.7%	0.067	22.4%	0.001	0.4%	0.066	22.0%	0.004	1.2%	0.069	22.9%	0.004	1.4%	0.069	23.0%	0.004	1.2%	0.069	22.9%
R26	CR15	0.07	0.002	0.7%	0.067	22.4%	0.001	0.4%	0.066	22.0%	0.003	0.9%	0.068	22.6%	0.003	1.1%	0.068	22.7%	0.003	1.0%	0.068	22.7%
R27	CR16	0.07	0.003	0.8%	0.068	22.5%	0.001	0.4%	0.066	22.0%	0.003	0.9%	0.068	22.5%	0.003	0.9%	0.068	22.6%	0.003	0.9%	0.068	22.6%
R28	CR20	0.07	0.002	0.8%	0.067	22.5%	0.001	0.4%	0.066	22.1%	0.003	1.1%	0.068	22.8%	0.004	1.2%	0.069	22.8%	0.003	1.1%	0.068	22.8%
R29	CR21	0.07	0.008	2.8%	0.073	24.5%	0.004	1.4%	0.069	23.1%	0.009	3.0%	0.074	24.7%	0.007	2.4%	0.072	24.0%	0.007	2.2%	0.072	23.9%

Note:

[1] Criteria = 0.3 µg/m³

Table 4-2-9: Modelling Comparison to Existing Conditions - 10-Minute Hydrogen Sulphide

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Receptor Information		Background Concentration (µg/m³)	Existing Condition				"Do Nothing"				Scenario 1				Scenario 2				Scenario 3			
			Without Background		With Background		Without Background		With Background		Without Background		With Background		Without Background		With Background		Without Background		With Background	
ID	Common Receptor ID		Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)
R01	--	2.4	0.4	3%	2.9	22%	0.1	1%	2.6	20%	0.4	3%	2.8	22%	0.4	3%	2.8	22%	0.4	3%	2.8	21%
R02	CR17	2.4	0.4	3%	2.9	22%	0.1	1%	2.6	20%	0.4	3%	2.9	22%	0.4	3%	2.9	22%	0.5	4%	2.9	22%
R03	CR19	2.4	1.0	7%	3.4	26%	0.4	3%	2.8	22%	1.1	8%	3.5	27%	1.1	8%	3.5	27%	1.1	8%	3.5	27%
R04	--	2.4	0.4	3%	2.9	22%	0.1	1%	2.6	20%	0.5	4%	3.0	23%	0.4	3%	2.9	22%	0.4	3%	2.9	22%
R05	--	2.4	0.4	3%	2.9	22%	0.1	1%	2.6	20%	0.5	4%	2.9	23%	0.4	3%	2.9	22%	0.4	3%	2.8	22%
R06	--	2.4	0.4	3%	2.9	22%	0.1	1%	2.6	20%	0.5	4%	2.9	22%	0.4	3%	2.9	22%	0.4	3%	2.8	22%
R07	--	2.4	0.4	3%	2.9	22%	0.1	1%	2.6	20%	0.4	3%	2.9	22%	0.4	3%	2.8	22%	0.4	3%	2.8	22%
R08	--	2.4	0.4	3%	2.9	22%	0.1	1%	2.6	20%	0.4	3%	2.9	22%	0.4	3%	2.8	22%	0.4	3%	2.8	22%
R09	CR18	2.4	0.4	3%	2.9	22%	0.1	1%	2.6	20%	0.4	3%	2.8	22%	0.4	3%	2.8	22%	0.4	3%	2.8	22%
R10	CR05	2.4	0.4	3%	2.9	22%	0.1	1%	2.5	20%	0.4	3%	2.8	22%	0.4	3%	2.8	22%	0.4	3%	2.8	21%
R11	--	2.4	0.4	3%	2.9	22%	0.2	1%	2.6	20%	0.4	3%	2.9	22%	0.4	3%	2.9	22%	0.4	3%	2.9	22%
R12	--	2.4	0.5	4%	2.9	22%	0.2	1%	2.6	20%	0.5	4%	2.9	23%	0.5	4%	2.9	23%	0.5	4%	2.9	23%
R13	--	2.4	0.5	4%	2.9	22%	0.1	1%	2.6	20%	0.4	3%	2.9	22%	0.4	3%	2.8	22%	0.4	3%	2.8	22%
R14	--	2.4	0.5	4%	2.9	22%	0.1	1%	2.6	20%	0.4	3%	2.9	22%	0.4	3%	2.8	22%	0.4	3%	2.8	22%
R15	CR10	2.4	0.9	7%	3.3	26%	0.3	3%	2.8	21%	1.0	8%	3.4	26%	1.0	8%	3.4	26%	1.0	8%	3.4	27%
R16	--	2.4	0.7	6%	3.2	24%	0.3	2%	2.7	21%	0.8	6%	3.3	25%	0.8	6%	3.3	25%	0.8	6%	3.3	25%
R17	CR01	2.4	0.4	3%	2.9	22%	0.1	1%	2.6	20%	0.4	3%	2.9	22%	0.4	3%	2.8	22%	0.4	3%	2.8	22%
R18	CR04	2.4	0.4	3%	2.9	22%	0.1	1%	2.6	20%	0.5	4%	2.9	22%	0.4	3%	2.9	22%	0.4	3%	2.8	22%
R19	CR06	2.4	0.4	3%	2.9	22%	0.1	1%	2.6	20%	0.4	3%	2.9	22%	0.4	3%	2.8	22%	0.4	3%	2.8	22%
R20	CR07	2.4	0.4	3%	2.8	22%	0.1	1%	2.6	20%	0.4	3%	2.8	22%	0.4	3%	2.8	21%	0.4	3%	2.8	21%
R21	CR08	2.4	1.2	9%	3.6	28%	0.4	3%	2.9	22%	1.3	10%	3.7	28%	1.3	10%	3.7	28%	1.3	10%	3.7	29%
R22	CR11	2.4	0.4	3%	2.9	22%	0.1	1%	2.6	20%	0.4	3%	2.8	22%	0.4	3%	2.8	21%	0.3	3%	2.8	21%
R23	CR12	2.4	0.4	3%	2.8	22%	0.1	1%	2.5	20%	0.4	3%	2.8	22%	0.4	3%	2.9	22%	0.4	3%	2.8	22%
R24	CR13	2.4	0.5	4%	2.9	22%	0.1	1%	2.6	20%	0.4	3%	2.9	22%	0.4	3%	2.8	22%	0.4	3%	2.8	22%
R25	CR14	2.4	0.4	3%	2.8	22%	0.1	1%	2.6	20%	0.4	3%	2.9	22%	0.4	3%	2.8	22%	0.4	3%	2.8	22%
R26	CR15	2.4	0.4	3%	2.8	21%	0.1	1%	2.6	20%	0.4	3%	2.8	21%	0.3	2%	2.8	21%	0.3	2%	2.8	21%
R27	CR16	2.4	0.3	2%	2.7	21%	0.1	1%	2.5	19%	0.3	2%	2.7	21%	0.3	2%	2.7	21%	0.3	2%	2.7	21%
R28	CR20	2.4	0.4	3%	2.8	22%	0.1	1%	2.6	20%	0.4	3%	2.9	22%	0.4	3%	2.8	22%	0.4	3%	2.8	22%
R29	CR21	2.4	0.4	3%	2.8	22%	0.1	1%	2.6	20%	0.4	3%	2.8	22%	0.3	3%	2.8	21%	0.3	2%	2.8	21%

Note:

[1] Criteria = 13 µg/m³

Table 4-2-10: Modelling Comparison to Existing Conditions - 24-Hour Hydrogen Sulphide

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Receptor Information		Background Concentration (µg/m³)	Existing Condition				"Do Nothing"				Scenario 1				Scenario 2				Scenario 3			
			Without Background		With Background		Without Background		With Background		Without Background		With Background		Without Background		With Background		Without Background		With Background	
ID	Common Receptor ID		Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)
R01	--	2.2	0.04	0.6%	2.24	32.0%	0.02	0.2%	2.21	31.6%	0.04	0.6%	2.24	32.0%	0.04	0.6%	2.24	32.0%	0.04	0.6%	2.24	32.0%
R02	CR17	2.2	0.04	0.6%	2.24	32.0%	0.01	0.2%	2.21	31.6%	0.05	0.7%	2.24	32.1%	0.06	0.8%	2.26	32.2%	0.06	0.8%	2.26	32.3%
R03	CR19	2.2	0.27	3.8%	2.47	35.2%	0.10	1.4%	2.30	32.8%	0.29	4.2%	2.49	35.6%	0.30	4.3%	2.50	35.7%	0.30	4.3%	2.50	35.7%
R04	--	2.2	0.08	1.1%	2.28	32.6%	0.03	0.4%	2.23	31.8%	0.09	1.3%	2.29	32.7%	0.09	1.3%	2.29	32.7%	0.09	1.3%	2.29	32.7%
R05	--	2.2	0.07	1.0%	2.27	32.4%	0.03	0.4%	2.22	31.8%	0.08	1.2%	2.28	32.6%	0.08	1.1%	2.28	32.6%	0.08	1.1%	2.28	32.5%
R06	--	2.2	0.07	1.0%	2.27	32.4%	0.03	0.4%	2.22	31.8%	0.08	1.2%	2.28	32.6%	0.08	1.1%	2.28	32.5%	0.08	1.1%	2.28	32.5%
R07	--	2.2	0.05	0.7%	2.25	32.1%	0.02	0.3%	2.22	31.7%	0.06	0.8%	2.26	32.2%	0.06	0.8%	2.25	32.2%	0.06	0.8%	2.25	32.2%
R08	--	2.2	0.05	0.7%	2.25	32.1%	0.02	0.3%	2.22	31.7%	0.05	0.7%	2.25	32.2%	0.06	0.8%	2.25	32.2%	0.06	0.8%	2.25	32.2%
R09	CR18	2.2	0.04	0.6%	2.24	32.0%	0.02	0.2%	2.21	31.6%	0.05	0.7%	2.25	32.1%	0.05	0.7%	2.25	32.1%	0.05	0.7%	2.25	32.1%
R10	CR05	2.2	0.09	1.3%	2.29	32.7%	0.03	0.5%	2.23	31.9%	0.10	1.4%	2.30	32.8%	0.10	1.4%	2.29	32.8%	0.10	1.4%	2.29	32.8%
R11	--	2.2	0.10	1.4%	2.30	32.8%	0.04	0.6%	2.24	32.0%	0.11	1.6%	2.31	33.0%	0.12	1.7%	2.32	33.1%	0.12	1.7%	2.32	33.1%
R12	--	2.2	0.11	1.5%	2.31	33.0%	0.04	0.5%	2.24	31.9%	0.11	1.6%	2.31	33.0%	0.11	1.6%	2.31	33.0%	0.11	1.6%	2.31	33.0%
R13	--	2.2	0.11	1.6%	2.31	33.0%	0.04	0.6%	2.24	32.0%	0.12	1.7%	2.32	33.1%	0.12	1.7%	2.32	33.1%	0.12	1.7%	2.32	33.1%
R14	--	2.2	0.06	0.9%	2.26	32.3%	0.02	0.3%	2.22	31.7%	0.06	0.9%	2.26	32.3%	0.06	0.9%	2.26	32.3%	0.06	0.9%	2.26	32.3%
R15	CR10	2.2	0.29	4.2%	2.49	35.6%	0.11	1.6%	2.31	33.0%	0.32	4.6%	2.52	36.0%	0.34	4.8%	2.54	36.2%	0.34	4.9%	2.54	36.3%
R16	--	2.2	0.17	2.5%	2.37	33.9%	0.06	0.8%	2.25	32.2%	0.18	2.5%	2.38	34.0%	0.17	2.5%	2.37	33.9%	0.17	2.5%	2.37	33.9%
R17	CR01	2.2	0.05	0.7%	2.25	32.1%	0.02	0.2%	2.22	31.6%	0.05	0.7%	2.25	32.1%	0.05	0.7%	2.25	32.1%	0.05	0.7%	2.24	32.1%
R18	CR04	2.2	0.07	1.0%	2.27	32.4%	0.02	0.4%	2.22	31.8%	0.08	1.1%	2.27	32.5%	0.07	1.1%	2.27	32.5%	0.07	1.0%	2.27	32.5%
R19	CR06	2.2	0.06	0.8%	2.26	32.2%	0.02	0.3%	2.22	31.7%	0.06	0.9%	2.26	32.3%	0.07	0.9%	2.26	32.4%	0.07	0.9%	2.26	32.4%
R20	CR07	2.2	0.03	0.4%	2.23	31.8%	0.01	0.2%	2.21	31.6%	0.03	0.5%	2.23	31.9%	0.03	0.5%	2.23	31.9%	0.03	0.4%	2.23	31.9%
R21	CR08	2.2	0.23	3.4%	2.43	34.8%	0.08	1.2%	2.28	32.6%	0.25	3.6%	2.45	35.0%	0.25	3.6%	2.45	35.0%	0.25	3.6%	2.45	35.0%
R22	CR11	2.2	0.04	0.5%	2.24	31.9%	0.01	0.2%	2.21	31.6%	0.04	0.5%	2.24	31.9%	0.04	0.5%	2.24	31.9%	0.04	0.5%	2.24	31.9%
R23	CR12	2.2	0.03	0.5%	2.23	31.9%	0.01	0.2%	2.21	31.6%	0.04	0.6%	2.24	32.0%	0.04	0.6%	2.24	32.0%	0.04	0.6%	2.24	32.0%
R24	CR13	2.2	0.04	0.6%	2.24	32.0%	0.02	0.2%	2.22	31.6%	0.05	0.7%	2.24	32.1%	0.05	0.7%	2.25	32.1%	0.05	0.7%	2.25	32.1%
R25	CR14	2.2	0.03	0.5%	2.23	31.9%	0.01	0.2%	2.21	31.6%	0.04	0.6%	2.24	32.0%	0.04	0.6%	2.24	32.0%	0.04	0.5%	2.24	32.0%
R26	CR15	2.2	0.03	0.4%	2.23	31.8%	0.01	0.2%	2.21	31.6%	0.03	0.4%	2.23	31.9%	0.03	0.4%	2.23	31.8%	0.03	0.4%	2.23	31.8%
R27	CR16	2.2	0.03	0.4%	2.23	31.8%	0.01	0.1%	2.21	31.5%	0.03	0.4%	2.23	31.8%	0.03	0.4%	2.23	31.8%	0.03	0.4%	2.23	31.8%
R28	CR20	2.2	0.04	0.5%	2.23	31.9%	0.01	0.2%	2.21	31.6%	0.04	0.6%	2.24	32.0%	0.04	0.5%	2.24	32.0%	0.04	0.5%	2.24	31.9%
R29	CR21	2.2	0.05	0.7%	2.25	32.1%	0.02	0.3%	2.22	31.7%	0.05	0.7%	2.25	32.1%	0.05	0.7%	2.25	32.1%	0.05	0.7%	2.25	32.1%

Note:

[1] Criteria = 7 µg/m³

Table 4-2-11: Modelling Comparison to Existing Conditions - 10-Minute Total Reduced Sulphur

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Receptor Information		Background Concentration (µg/m³)	Existing Condition				"Do Nothing"				Scenario 1				Scenario 2				Scenario 3			
			Without Background		With Background		Without Background		With Background		Without Background		With Background		Without Background		With Background		Without Background		With Background	
ID	Common Receptor ID		Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)
R01	--	2.4	0.4	3%	2.9	22%	0.1	1%	2.6	20%	0.4	3%	2.9	22%	0.4	3%	2.8	22%	0.4	3%	2.8	21%
R02	CR17	2.4	0.5	3%	2.9	22%	0.1	1%	2.6	20%	0.4	3%	2.9	22%	0.4	3%	2.9	22%	0.5	4%	2.9	23%
R03	CR19	2.4	1.0	8%	3.4	26%	0.4	3%	2.8	22%	1.1	8%	3.5	27%	1.1	8%	3.5	27%	1.1	9%	3.5	27%
R04	--	2.4	0.5	3%	2.9	22%	0.1	1%	2.6	20%	0.5	4%	3.0	23%	0.5	4%	2.9	22%	0.4	3%	2.9	22%
R05	--	2.4	0.4	3%	2.9	22%	0.1	1%	2.6	20%	0.5	4%	2.9	23%	0.4	3%	2.9	22%	0.4	3%	2.9	22%
R06	--	2.4	0.4	3%	2.9	22%	0.1	1%	2.6	20%	0.5	4%	2.9	23%	0.4	3%	2.9	22%	0.4	3%	2.8	22%
R07	--	2.4	0.4	3%	2.9	22%	0.1	1%	2.6	20%	0.4	3%	2.9	22%	0.4	3%	2.8	22%	0.4	3%	2.8	22%
R08	--	2.4	0.4	3%	2.9	22%	0.1	1%	2.6	20%	0.4	3%	2.9	22%	0.4	3%	2.8	22%	0.4	3%	2.8	22%
R09	CR18	2.4	0.4	3%	2.9	22%	0.1	1%	2.6	20%	0.4	3%	2.9	22%	0.4	3%	2.8	22%	0.4	3%	2.8	22%
R10	CR05	2.4	0.4	3%	2.9	22%	0.1	1%	2.6	20%	0.4	3%	2.8	22%	0.4	3%	2.8	22%	0.4	3%	2.8	22%
R11	--	2.4	0.4	3%	2.9	22%	0.2	1%	2.6	20%	0.5	3%	2.9	22%	0.5	3%	2.9	22%	0.5	3%	2.9	22%
R12	--	2.4	0.5	4%	2.9	22%	0.2	1%	2.6	20%	0.5	4%	3.0	23%	0.5	4%	3.0	23%	0.5	4%	3.0	23%
R13	--	2.4	0.5	4%	2.9	22%	0.1	1%	2.6	20%	0.4	3%	2.9	22%	0.4	3%	2.8	22%	0.4	3%	2.8	22%
R14	--	2.4	0.5	4%	2.9	22%	0.1	1%	2.6	20%	0.5	3%	2.9	22%	0.4	3%	2.9	22%	0.4	3%	2.8	22%
R15	CR10	2.4	0.9	7%	3.3	26%	0.3	3%	2.8	21%	1.0	8%	3.4	26%	1.0	8%	3.5	27%	1.0	8%	3.5	27%
R16	--	2.4	0.8	6%	3.2	25%	0.3	2%	2.7	21%	0.8	6%	3.3	25%	0.8	6%	3.3	25%	0.9	7%	3.3	25%
R17	CR01	2.4	0.4	3%	2.9	22%	0.1	1%	2.6	20%	0.4	3%	2.9	22%	0.4	3%	2.8	22%	0.4	3%	2.8	22%
R18	CR04	2.4	0.4	3%	2.9	22%	0.1	1%	2.6	20%	0.5	4%	2.9	23%	0.4	3%	2.9	22%	0.4	3%	2.9	22%
R19	CR06	2.4	0.4	3%	2.9	22%	0.1	1%	2.6	20%	0.4	3%	2.9	22%	0.4	3%	2.8	22%	0.4	3%	2.8	22%
R20	CR07	2.4	0.4	3%	2.8	22%	0.1	1%	2.6	20%	0.4	3%	2.8	22%	0.4	3%	2.8	22%	0.4	3%	2.8	22%
R21	CR08	2.4	1.2	9%	3.6	28%	0.4	3%	2.9	22%	1.3	10%	3.7	29%	1.3	10%	3.7	29%	1.3	10%	3.7	29%
R22	CR11	2.4	0.4	3%	2.9	22%	0.1	1%	2.6	20%	0.4	3%	2.8	22%	0.4	3%	2.8	22%	0.3	3%	2.8	21%
R23	CR12	2.4	0.4	3%	2.8	22%	0.1	1%	2.5	20%	0.4	3%	2.8	22%	0.4	3%	2.9	22%	0.4	3%	2.9	22%
R24	CR13	2.4	0.5	4%	2.9	22%	0.1	1%	2.6	20%	0.4	3%	2.9	22%	0.4	3%	2.9	22%	0.4	3%	2.8	22%
R25	CR14	2.4	0.4	3%	2.8	22%	0.1	1%	2.6	20%	0.5	4%	2.9	22%	0.4	3%	2.8	22%	0.4	3%	2.8	22%
R26	CR15	2.4	0.4	3%	2.8	22%	0.1	1%	2.6	20%	0.4	3%	2.8	22%	0.3	3%	2.8	21%	0.3	2%	2.8	21%
R27	CR16	2.4	0.3	2%	2.7	21%	0.1	1%	2.5	19%	0.3	2%	2.7	21%	0.3	2%	2.7	21%	0.3	2%	2.7	21%
R28	CR20	2.4	0.4	3%	2.9	22%	0.1	1%	2.6	20%	0.4	3%	2.9	22%	0.4	3%	2.8	22%	0.4	3%	2.8	22%
R29	CR21	2.4	0.4	3%	2.9	22%	0.1	1%	2.6	20%	0.4	3%	2.8	22%	0.3	3%	2.8	21%	0.3	2%	2.8	21%

Note:

[1] Criteria = 13 µg/m³

Table 4-2-12: Modelling Comparison to Existing Conditions - 24-Hour Total Reduced Sulphur

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Receptor Information		Background Concentration (µg/m³)	Existing Condition				"Do Nothing"				Scenario 1				Scenario 2				Scenario 3			
			Without Background		With Background		Without Background		With Background		Without Background		With Background		Without Background		With Background		Without Background		With Background	
ID	Common Receptor ID		Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)
R01	--	2.2	0.04	0.6%	2.24	32.0%	0.02	0.2%	2.21	31.6%	0.04	0.6%	2.24	32.0%	0.04	0.6%	2.24	32.0%	0.04	0.6%	2.24	32.0%
R02	CR17	2.2	0.04	0.6%	2.24	32.0%	0.01	0.2%	2.21	31.6%	0.05	0.7%	2.24	32.1%	0.06	0.8%	2.26	32.2%	0.06	0.9%	2.26	32.3%
R03	CR19	2.2	0.27	3.9%	2.47	35.3%	0.10	1.4%	2.30	32.8%	0.30	4.3%	2.50	35.7%	0.31	4.4%	2.50	35.8%	0.31	4.4%	2.51	35.8%
R04	--	2.2	0.08	1.2%	2.28	32.6%	0.03	0.4%	2.23	31.8%	0.09	1.3%	2.29	32.8%	0.09	1.3%	2.29	32.7%	0.09	1.3%	2.29	32.7%
R05	--	2.2	0.07	1.1%	2.27	32.5%	0.03	0.4%	2.22	31.8%	0.08	1.2%	2.28	32.6%	0.08	1.2%	2.28	32.6%	0.08	1.1%	2.28	32.6%
R06	--	2.2	0.07	1.0%	2.27	32.4%	0.03	0.4%	2.22	31.8%	0.08	1.2%	2.28	32.6%	0.08	1.1%	2.28	32.6%	0.08	1.1%	2.28	32.5%
R07	--	2.2	0.05	0.8%	2.25	32.2%	0.02	0.3%	2.22	31.7%	0.06	0.8%	2.26	32.2%	0.06	0.8%	2.26	32.2%	0.06	0.8%	2.26	32.2%
R08	--	2.2	0.05	0.7%	2.25	32.1%	0.02	0.3%	2.22	31.7%	0.05	0.8%	2.25	32.2%	0.06	0.8%	2.25	32.2%	0.06	0.8%	2.26	32.2%
R09	CR18	2.2	0.05	0.6%	2.24	32.1%	0.02	0.2%	2.22	31.6%	0.05	0.7%	2.25	32.1%	0.05	0.7%	2.25	32.1%	0.05	0.7%	2.25	32.1%
R10	CR05	2.2	0.09	1.4%	2.29	32.8%	0.03	0.5%	2.23	31.9%	0.10	1.4%	2.30	32.8%	0.10	1.4%	2.30	32.8%	0.10	1.4%	2.30	32.8%
R11	--	2.2	0.10	1.5%	2.30	32.9%	0.04	0.6%	2.24	32.0%	0.11	1.6%	2.31	33.0%	0.12	1.7%	2.32	33.1%	0.12	1.8%	2.32	33.2%
R12	--	2.2	0.11	1.6%	2.31	33.0%	0.04	0.5%	2.24	31.9%	0.12	1.7%	2.31	33.1%	0.11	1.6%	2.31	33.0%	0.11	1.6%	2.31	33.0%
R13	--	2.2	0.11	1.6%	2.31	33.0%	0.04	0.6%	2.24	32.0%	0.12	1.7%	2.32	33.1%	0.12	1.7%	2.32	33.1%	0.12	1.7%	2.32	33.1%
R14	--	2.2	0.06	0.9%	2.26	32.3%	0.02	0.3%	2.22	31.7%	0.07	0.9%	2.26	32.4%	0.07	0.9%	2.26	32.3%	0.07	0.9%	2.26	32.3%
R15	CR10	2.2	0.30	4.3%	2.50	35.7%	0.11	1.6%	2.31	33.0%	0.33	4.7%	2.53	36.1%	0.34	4.9%	2.54	36.3%	0.35	4.9%	2.54	36.3%
R16	--	2.2	0.18	2.5%	2.37	33.9%	0.06	0.8%	2.25	32.2%	0.18	2.6%	2.38	34.0%	0.18	2.5%	2.37	33.9%	0.18	2.5%	2.38	33.9%
R17	CR01	2.2	0.05	0.7%	2.25	32.1%	0.02	0.2%	2.22	31.6%	0.05	0.7%	2.25	32.1%	0.05	0.7%	2.25	32.1%	0.05	0.7%	2.25	32.1%
R18	CR04	2.2	0.07	1.0%	2.27	32.4%	0.02	0.4%	2.22	31.8%	0.08	1.1%	2.28	32.5%	0.08	1.1%	2.27	32.5%	0.07	1.1%	2.27	32.5%
R19	CR06	2.2	0.06	0.8%	2.26	32.3%	0.02	0.3%	2.22	31.7%	0.07	0.9%	2.26	32.3%	0.07	1.0%	2.27	32.4%	0.07	1.0%	2.27	32.4%
R20	CR07	2.2	0.03	0.4%	2.23	31.8%	0.01	0.2%	2.21	31.6%	0.03	0.5%	2.23	31.9%	0.03	0.5%	2.23	31.9%	0.03	0.5%	2.23	31.9%
R21	CR08	2.2	0.24	3.4%	2.44	34.8%	0.08	1.2%	2.28	32.6%	0.26	3.7%	2.46	35.1%	0.26	3.7%	2.45	35.1%	0.26	3.7%	2.46	35.1%
R22	CR11	2.2	0.04	0.5%	2.24	31.9%	0.01	0.2%	2.21	31.6%	0.04	0.5%	2.24	32.0%	0.04	0.5%	2.24	32.0%	0.04	0.5%	2.24	32.0%
R23	CR12	2.2	0.04	0.5%	2.23	31.9%	0.01	0.2%	2.21	31.6%	0.04	0.6%	2.24	32.0%	0.04	0.6%	2.24	32.0%	0.04	0.6%	2.24	32.0%
R24	CR13	2.2	0.04	0.6%	2.24	32.0%	0.02	0.2%	2.22	31.7%	0.05	0.7%	2.25	32.1%	0.05	0.7%	2.25	32.1%	0.05	0.7%	2.25	32.1%
R25	CR14	2.2	0.03	0.5%	2.23	31.9%	0.01	0.2%	2.21	31.6%	0.04	0.6%	2.24	32.0%	0.04	0.6%	2.24	32.0%	0.04	0.6%	2.24	32.0%
R26	CR15	2.2	0.03	0.4%	2.23	31.8%	0.01	0.2%	2.21	31.6%	0.03	0.5%	2.23	31.9%	0.03	0.4%	2.23	31.8%	0.03	0.4%	2.23	31.8%
R27	CR16	2.2	0.03	0.4%	2.23	31.8%	0.01	0.1%	2.21	31.5%	0.03	0.4%	2.23	31.8%	0.03	0.4%	2.23	31.8%	0.03	0.4%	2.23	31.8%
R28	CR20	2.2	0.04	0.5%	2.23	31.9%	0.01	0.2%	2.21	31.6%	0.04	0.6%	2.24	32.0%	0.04	0.6%	2.24	32.0%	0.04	0.5%	2.24	32.0%
R29	CR21	2.2	0.05	0.8%	2.25	32.2%	0.02	0.3%	2.22	31.7%	0.05	0.7%	2.25	32.2%	0.05	0.7%	2.25	32.1%	0.05	0.7%	2.25	32.1%

Note:

[1] Criteria = 7 µg/m³

Table 4-2-13: Modelling Comparison to Existing Conditions - 1-Hour Nitrogen Oxides

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Receptor Information		Background Concentration (µg/m³)	Existing Condition				"Do Nothing"				Scenario 1				Scenario 2				Scenario 3			
			Without Background		With Background		Without Background		With Background		Without Background		With Background		Without Background		With Background		Without Background		With Background	
ID	Common Receptor ID		Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)
R01	--	23.4	127	32%	151	38%	117	29%	140	35%	123	31%	147	37%	117	29%	141	35%	117	29%	141	35%
R02	CR17	23.4	97	24%	121	30%	90	22%	113	28%	158	40%	182	45%	137	34%	160	40%	123	31%	146	36%
R03	CR19	23.4	109	27%	132	33%	99	25%	122	31%	100	25%	124	31%	99	25%	123	31%	99	25%	123	31%
R04	--	23.4	116	29%	139	35%	77	19%	101	25%	176	44%	200	50%	86	21%	109	27%	82	20%	105	26%
R05	--	23.4	110	28%	134	33%	76	19%	99	25%	179	45%	202	51%	97	24%	120	30%	82	20%	105	26%
R06	--	23.4	123	31%	146	36%	73	18%	97	24%	183	46%	206	52%	89	22%	113	28%	77	19%	100	25%
R07	--	23.4	150	38%	174	43%	77	19%	100	25%	98	24%	121	30%	80	20%	103	26%	80	20%	103	26%
R08	--	23.4	166	41%	189	47%	71	18%	94	23%	91	23%	115	29%	75	19%	98	24%	74	19%	98	24%
R09	CR18	23.4	117	29%	140	35%	86	21%	109	27%	89	22%	113	28%	88	22%	111	28%	87	22%	111	28%
R10	CR05	23.4	98	25%	121	30%	70	18%	94	23%	73	18%	96	24%	72	18%	95	24%	72	18%	95	24%
R11	--	23.4	111	28%	134	34%	89	22%	113	28%	104	26%	127	32%	100	25%	124	31%	100	25%	123	31%
R12	--	23.4	99	25%	122	31%	94	24%	118	29%	95	24%	119	30%	95	24%	118	30%	95	24%	118	30%
R13	--	23.4	87	22%	110	28%	85	21%	108	27%	86	21%	109	27%	85	21%	108	27%	85	21%	108	27%
R14	--	23.4	89	22%	112	28%	82	21%	106	26%	87	22%	111	28%	86	22%	109	27%	86	21%	109	27%
R15	CR10	23.4	134	33%	157	39%	134	33%	157	39%	134	33%	157	39%	134	33%	157	39%	134	33%	157	39%
R16	--	23.4	110	28%	134	33%	108	27%	131	33%	108	27%	132	33%	108	27%	131	33%	108	27%	131	33%
R17	CR01	23.4	88	22%	111	28%	82	20%	105	26%	92	23%	115	29%	83	21%	106	26%	83	21%	106	26%
R18	CR04	23.4	139	35%	162	41%	71	18%	94	24%	127	32%	150	38%	75	19%	98	24%	74	19%	97	24%
R19	CR06	23.4	90	22%	113	28%	82	21%	105	26%	133	33%	157	39%	98	24%	121	30%	112	28%	135	34%
R20	CR07	23.4	113	28%	137	34%	63	16%	86	22%	87	22%	111	28%	65	16%	88	22%	65	16%	88	22%
R21	CR08	23.4	355	89%	378	95%	355	89%	378	95%	355	89%	378	95%	355	89%	378	95%	355	89%	378	95%
R22	CR11	23.4	90	22%	113	28%	82	20%	105	26%	98	25%	121	30%	83	21%	106	26%	82	21%	106	26%
R23	CR12	23.4	69	17%	92	23%	65	16%	89	22%	109	27%	132	33%	85	21%	108	27%	111	28%	135	34%
R24	CR13	23.4	87	22%	110	28%	69	17%	93	23%	85	21%	108	27%	82	21%	105	26%	82	20%	105	26%
R25	CR14	23.4	83	21%	106	27%	74	19%	98	24%	96	24%	119	30%	125	31%	148	37%	114	29%	138	34%
R26	CR15	23.4	57	14%	81	20%	54	14%	78	19%	66	16%	89	22%	56	14%	79	20%	56	14%	79	20%
R27	CR16	23.4	100	25%	123	31%	81	20%	104	26%	91	23%	115	29%	89	22%	112	28%	89	22%	112	28%
R28	CR20	23.4	77	19%	101	25%	57	14%	81	20%	96	24%	119	30%	60	15%	84	21%	60	15%	83	21%
R29	CR21	23.4	138	35%	162	40%	138	35%	162	40%	138	35%	162	40%	138	35%	162	40%	138	35%	162	40%

Note:

[1] Criteria = 400 µg/m³

Table 4-2-14: Modelling Comparison to Existing Conditions - 24-Hour Nitrogen Oxides

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Receptor Information		Background Concentration (µg/m³)	Existing Condition				"Do Nothing"				Scenario 1				Scenario 2				Scenario 3			
			Without Background		With Background		Without Background		With Background		Without Background		With Background		Without Background		With Background		Without Background		With Background	
ID	Common Receptor ID		Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)
R01	--	21.6	15	7%	36	18%	10	5%	31	16%	16	8%	38	19%	11	5%	32	16%	11	5%	32	16%
R02	CR17	21.6	14	7%	35	18%	9	5%	31	15%	14	7%	36	18%	13	6%	34	17%	15	7%	36	18%
R03	CR19	21.6	39	19%	60	30%	15	8%	37	19%	36	18%	57	29%	32	16%	54	27%	33	16%	54	27%
R04	--	21.6	13	6%	34	17%	6	3%	27	14%	17	9%	39	19%	8	4%	30	15%	8	4%	30	15%
R05	--	21.6	11	6%	33	16%	6	3%	27	14%	15	7%	36	18%	9	4%	30	15%	8	4%	29	15%
R06	--	21.6	11	5%	32	16%	6	3%	27	14%	14	7%	36	18%	9	4%	30	15%	8	4%	29	15%
R07	--	21.6	10	5%	32	16%	6	3%	27	14%	9	4%	30	15%	9	5%	31	15%	8	4%	29	15%
R08	--	21.6	13	7%	35	17%	5	3%	27	13%	11	5%	33	16%	8	4%	29	15%	8	4%	30	15%
R09	CR18	21.6	10	5%	32	16%	6	3%	27	14%	10	5%	31	16%	8	4%	30	15%	9	4%	30	15%
R10	CR05	21.6	14	7%	36	18%	7	4%	29	14%	14	7%	35	18%	13	7%	35	18%	13	7%	35	18%
R11	--	21.6	14	7%	36	18%	8	4%	30	15%	13	7%	35	17%	13	7%	35	17%	13	7%	35	17%
R12	--	21.6	15	8%	37	18%	9	5%	31	15%	15	7%	36	18%	13	7%	35	17%	13	7%	35	17%
R13	--	21.6	17	9%	39	19%	8	4%	30	15%	16	8%	38	19%	15	7%	36	18%	15	8%	37	18%
R14	--	21.6	10	5%	32	16%	7	3%	28	14%	10	5%	32	16%	10	5%	32	16%	10	5%	32	16%
R15	CR10	21.6	34	17%	56	28%	15	7%	36	18%	33	17%	55	27%	32	16%	54	27%	33	16%	54	27%
R16	--	21.6	26	13%	47	24%	11	6%	33	16%	24	12%	45	23%	21	11%	43	21%	22	11%	43	22%
R17	CR01	21.6	14	7%	35	18%	8	4%	30	15%	14	7%	35	18%	11	6%	33	16%	11	6%	33	16%
R18	CR04	21.6	11	5%	32	16%	6	3%	27	14%	12	6%	33	17%	9	4%	30	15%	8	4%	29	15%
R19	CR06	21.6	15	8%	37	18%	14	7%	35	18%	16	8%	38	19%	15	7%	36	18%	15	7%	36	18%
R20	CR07	21.6	9	5%	31	15%	5	3%	27	13%	8	4%	29	15%	6	3%	27	14%	6	3%	27	14%
R21	CR08	21.6	37	18%	58	29%	36	18%	58	29%	36	18%	58	29%	36	18%	58	29%	36	18%	58	29%
R22	CR11	21.6	14	7%	36	18%	9	4%	30	15%	13	7%	35	17%	10	5%	31	16%	10	5%	31	16%
R23	CR12	21.6	10	5%	32	16%	5	3%	27	13%	12	6%	34	17%	10	5%	32	16%	10	5%	31	16%
R24	CR13	21.6	8	4%	30	15%	5	3%	27	13%	9	5%	31	15%	8	4%	30	15%	8	4%	30	15%
R25	CR14	21.6	10	5%	32	16%	6	3%	27	14%	14	7%	35	18%	12	6%	33	17%	11	5%	32	16%
R26	CR15	21.6	8	4%	30	15%	5	3%	27	13%	8	4%	30	15%	6	3%	28	14%	6	3%	28	14%
R27	CR16	21.6	10	5%	32	16%	8	4%	29	15%	10	5%	32	16%	9	5%	31	15%	9	5%	31	15%
R28	CR20	21.6	7	4%	29	14%	4	2%	25	13%	7	4%	29	14%	5	3%	27	13%	5	3%	27	14%
R29	CR21	21.6	18	9%	40	20%	17	8%	38	19%	18	9%	40	20%	17	9%	39	19%	17	9%	39	19%

Note:

[1] Criteria = 200 µg/m³

Table 4-2-15: Modelling Comparison to Existing Conditions - 1-Hour Sulphur Dioxides

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Receptor Information		Background Concentration (µg/m³)	Existing Condition				"Do Nothing"				Scenario 1				Scenario 2				Scenario 3			
			Without Background		With Background		Without Background		With Background		Without Background		With Background		Without Background		With Background		Without Background		With Background	
ID	Common Receptor ID		Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)
R01	--	1.1	6	6%	7	7%	4	4%	6	6%	7	7%	8	8%	7	7%	8	8%	7	7%	8	8%
R02	CR17	1.1	9	9%	10	10%	5	5%	6	6%	8	8%	9	9%	7	7%	9	9%	10	10%	11	11%
R03	CR19	1.1	45	45%	46	46%	35	35%	36	36%	45	45%	46	46%	47	47%	48	48%	47	47%	48	48%
R04	--	1.1	9	9%	10	10%	4	4%	5	5%	9	9%	10	10%	9	9%	11	11%	9	9%	11	11%
R05	--	1.1	8	8%	10	10%	4	4%	5	5%	9	9%	10	10%	9	9%	10	10%	9	9%	10	10%
R06	--	1.1	9	9%	10	10%	4	4%	5	5%	9	9%	10	10%	9	9%	10	10%	9	9%	10	10%
R07	--	1.1	8	8%	10	10%	4	4%	5	5%	9	9%	10	10%	9	9%	10	10%	9	9%	10	10%
R08	--	1.1	9	9%	10	10%	4	4%	5	5%	8	8%	9	9%	8	8%	9	9%	8	8%	9	9%
R09	CR18	1.1	8	8%	9	9%	5	5%	6	6%	8	8%	9	9%	8	8%	10	10%	9	9%	10	10%
R10	CR05	1.1	12	12%	13	13%	5	5%	6	6%	13	13%	14	14%	13	13%	14	14%	13	13%	14	14%
R11	--	1.1	19	19%	20	20%	9	9%	10	10%	19	19%	20	20%	20	20%	21	21%	20	20%	21	21%
R12	--	1.1	20	20%	21	21%	11	11%	12	12%	21	21%	22	22%	22	22%	23	23%	22	22%	23	23%
R13	--	1.1	15	15%	16	16%	8	8%	9	9%	16	16%	17	17%	17	17%	18	18%	17	17%	18	18%
R14	--	1.1	11	11%	12	12%	5	5%	7	7%	12	12%	13	13%	13	13%	14	14%	13	13%	14	14%
R15	CR10	1.1	39	39%	40	40%	29	29%	30	30%	39	39%	40	40%	42	42%	43	43%	42	42%	43	43%
R16	--	1.1	31	31%	32	32%	21	21%	22	22%	33	33%	34	34%	35	35%	36	36%	35	35%	36	36%
R17	CR01	1.1	8	8%	9	9%	4	4%	5	5%	9	9%	10	10%	9	9%	10	10%	9	9%	10	10%
R18	CR04	1.1	9	9%	10	10%	4	4%	5	5%	9	9%	10	10%	10	10%	11	11%	9	9%	11	11%
R19	CR06	1.1	9	9%	10	10%	5	5%	6	6%	10	10%	11	11%	10	10%	12	12%	10	10%	12	12%
R20	CR07	1.1	8	8%	9	9%	3	3%	4	4%	7	7%	9	9%	7	7%	9	9%	7	7%	8	8%
R21	CR08	1.1	48	48%	49	49%	17	17%	18	18%	50	50%	51	51%	52	52%	53	53%	52	52%	53	53%
R22	CR11	1.1	6	6%	7	7%	4	4%	5	5%	7	7%	8	8%	6	6%	7	7%	6	6%	7	7%
R23	CR12	1.1	8	8%	10	10%	4	4%	5	5%	8	8%	9	9%	9	9%	10	10%	8	8%	9	9%
R24	CR13	1.1	10	10%	11	11%	5	5%	6	6%	11	11%	12	12%	11	11%	12	12%	11	11%	12	12%
R25	CR14	1.1	9	9%	10	10%	4	4%	5	5%	9	9%	10	10%	7	7%	9	9%	8	8%	9	9%
R26	CR15	1.1	6	6%	8	8%	3	3%	4	4%	7	7%	8	8%	7	7%	8	8%	7	7%	8	8%
R27	CR16	1.1	8	8%	9	9%	5	5%	6	6%	8	8%	9	9%	8	8%	9	9%	8	8%	9	9%
R28	CR20	1.1	8	8%	9	9%	3	3%	4	4%	8	8%	9	9%	8	8%	9	9%	8	8%	9	9%
R29	CR21	1.1	7	7%	8	8%	4	4%	5	5%	7	7%	8	8%	8	8%	9	9%	8	8%	9	9%

Note:

[1] Criteria = 100 µg/m³

Table 4-2-16: Modelling Comparison to Existing Conditions - Annual Sulphur Dioxides

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Receptor Information		Background Concentration (µg/m³)	Existing Condition				"Do Nothing"				Scenario 1				Scenario 2				Scenario 3			
			Without Background		With Background		Without Background		With Background		Without Background		With Background		Without Background		With Background		Without Background		With Background	
ID	Common Receptor ID		Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)
R01	--	0.5	0.14	1.4%	0.67	6.7%	0.06	0.6%	0.59	5.9%	0.19	1.9%	0.71	7.1%	0.16	1.6%	0.69	6.9%	0.17	1.7%	0.69	6.9%
R02	CR17	0.5	0.14	1.4%	0.66	6.6%	0.05	0.5%	0.57	5.7%	0.19	1.9%	0.71	7.1%	0.19	1.9%	0.72	7.2%	0.19	1.9%	0.71	7.1%
R03	CR19	0.5	0.50	5.0%	1.03	10.3%	0.16	1.6%	0.69	6.9%	0.64	6.4%	1.17	11.7%	0.64	6.4%	1.17	11.7%	0.65	6.5%	1.17	11.7%
R04	--	0.5	0.19	1.9%	0.72	7.2%	0.07	0.7%	0.59	5.9%	0.29	2.9%	0.81	8.1%	0.25	2.5%	0.77	7.7%	0.25	2.5%	0.78	7.8%
R05	--	0.5	0.18	1.8%	0.71	7.1%	0.06	0.6%	0.59	5.9%	0.26	2.6%	0.79	7.9%	0.23	2.3%	0.76	7.6%	0.23	2.3%	0.76	7.6%
R06	--	0.5	0.18	1.8%	0.71	7.1%	0.06	0.6%	0.59	5.9%	0.26	2.6%	0.79	7.9%	0.23	2.3%	0.76	7.6%	0.24	2.4%	0.76	7.6%
R07	--	0.5	0.15	1.5%	0.68	6.8%	0.05	0.5%	0.58	5.8%	0.21	2.1%	0.73	7.3%	0.20	2.0%	0.72	7.2%	0.20	2.0%	0.72	7.2%
R08	--	0.5	0.12	1.2%	0.65	6.5%	0.04	0.4%	0.57	5.7%	0.16	1.6%	0.69	6.9%	0.16	1.6%	0.69	6.9%	0.17	1.7%	0.69	6.9%
R09	CR18	0.5	0.11	1.1%	0.63	6.3%	0.04	0.4%	0.57	5.7%	0.14	1.4%	0.67	6.7%	0.14	1.4%	0.67	6.7%	0.14	1.4%	0.67	6.7%
R10	CR05	0.5	0.17	1.7%	0.69	6.9%	0.06	0.6%	0.58	5.8%	0.22	2.2%	0.75	7.5%	0.22	2.2%	0.75	7.5%	0.22	2.2%	0.75	7.5%
R11	--	0.5	0.17	1.7%	0.69	6.9%	0.06	0.6%	0.58	5.8%	0.22	2.2%	0.75	7.5%	0.22	2.2%	0.75	7.5%	0.23	2.3%	0.75	7.5%
R12	--	0.5	0.17	1.7%	0.70	7.0%	0.06	0.6%	0.59	5.9%	0.23	2.3%	0.76	7.6%	0.23	2.3%	0.75	7.5%	0.23	2.3%	0.75	7.5%
R13	--	0.5	0.14	1.4%	0.67	6.7%	0.06	0.6%	0.58	5.8%	0.19	1.9%	0.72	7.2%	0.19	1.9%	0.72	7.2%	0.19	1.9%	0.72	7.2%
R14	--	0.5	0.09	0.9%	0.62	6.2%	0.03	0.3%	0.56	5.6%	0.12	1.2%	0.65	6.5%	0.12	1.2%	0.64	6.4%	0.12	1.2%	0.64	6.4%
R15	CR10	0.5	0.49	4.9%	1.01	10.1%	0.19	1.9%	0.71	7.1%	0.63	6.3%	1.15	11.5%	0.62	6.2%	1.15	11.5%	0.63	6.3%	1.15	11.5%
R16	--	0.5	0.37	3.7%	0.89	8.9%	0.14	1.4%	0.67	6.7%	0.48	4.8%	1.00	10.0%	0.48	4.8%	1.00	10.0%	0.48	4.8%	1.01	10.1%
R17	CR01	0.5	0.16	1.6%	0.68	6.8%	0.06	0.6%	0.58	5.8%	0.21	2.1%	0.73	7.3%	0.17	1.7%	0.69	6.9%	0.17	1.7%	0.70	7.0%
R18	CR04	0.5	0.18	1.8%	0.71	7.1%	0.06	0.6%	0.59	5.9%	0.25	2.5%	0.78	7.8%	0.23	2.3%	0.76	7.6%	0.23	2.3%	0.76	7.6%
R19	CR06	0.5	0.11	1.1%	0.63	6.3%	0.05	0.5%	0.58	5.8%	0.15	1.5%	0.67	6.7%	0.14	1.4%	0.67	6.7%	0.14	1.4%	0.67	6.7%
R20	CR07	0.5	0.07	0.7%	0.60	6.0%	0.03	0.3%	0.55	5.5%	0.10	1.0%	0.62	6.2%	0.09	0.9%	0.62	6.2%	0.09	0.9%	0.62	6.2%
R21	CR08	0.5	0.39	3.9%	0.92	9.2%	0.25	2.5%	0.77	7.7%	0.51	5.1%	1.04	10.4%	0.49	4.9%	1.02	10.2%	0.50	5.0%	1.02	10.2%
R22	CR11	0.5	0.12	1.2%	0.65	6.5%	0.05	0.5%	0.58	5.8%	0.17	1.7%	0.69	6.9%	0.15	1.5%	0.67	6.7%	0.15	1.5%	0.68	6.8%
R23	CR12	0.5	0.07	0.7%	0.60	6.0%	0.03	0.3%	0.55	5.5%	0.10	1.0%	0.62	6.2%	0.10	1.0%	0.62	6.2%	0.10	1.0%	0.62	6.2%
R24	CR13	0.5	0.06	0.6%	0.58	5.8%	0.02	0.2%	0.55	5.5%	0.08	0.8%	0.60	6.0%	0.08	0.8%	0.60	6.0%	0.08	0.8%	0.60	6.0%
R25	CR14	0.5	0.10	1.0%	0.62	6.2%	0.03	0.3%	0.56	5.6%	0.14	1.4%	0.66	6.6%	0.13	1.3%	0.66	6.6%	0.13	1.3%	0.66	6.6%
R26	CR15	0.5	0.07	0.7%	0.60	6.0%	0.03	0.3%	0.56	5.6%	0.10	1.0%	0.63	6.3%	0.10	1.0%	0.62	6.2%	0.10	1.0%	0.62	6.2%
R27	CR16	0.5	0.05	0.5%	0.58	5.8%	0.02	0.2%	0.55	5.5%	0.07	0.7%	0.60	6.0%	0.07	0.7%	0.59	5.9%	0.07	0.7%	0.59	5.9%
R28	CR20	0.5	0.09	0.9%	0.61	6.1%	0.03	0.3%	0.55	5.5%	0.12	1.2%	0.64	6.4%	0.11	1.1%	0.64	6.4%	0.12	1.2%	0.64	6.4%
R29	CR21	0.5	0.15	1.5%	0.67	6.7%	0.07	0.7%	0.60	6.0%	0.19	1.9%	0.72	7.2%	0.18	1.8%	0.70	7.0%	0.18	1.8%	0.71	7.1%

Note:

[1] Criteria = 10 µg/m³

Table 4-2-17: Modelling Comparison to Existing Conditions - 24-Hour TSP

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Receptor Information		Background Concentration (µg/m³)	Existing Condition				"Do Nothing"				Scenario 1				Scenario 2				Scenario 3			
			Without Background		With Background		Without Background		With Background		Without Background		With Background		Without Background		With Background		Without Background		With Background	
ID	Common Receptor ID		Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)
R01	--	51	55.3	46.1%	106.3	89%	1.3	1.1%	52.3	44%	72.1	60.1%	123.1	103%	27.6	23.0%	78.6	66%	26.4	22.0%	77.4	65%
R02	CR17	51	37.0	30.8%	88.0	73%	1.3	1.1%	52.3	44%	82.1	68.4%	133.1	111%	43.5	36.3%	94.5	79%	36.7	30.6%	87.7	73%
R03	CR19	51	71.5	59.6%	122.5	102%	1.5	1.3%	52.5	44%	54.9	45.7%	105.9	88%	25.9	21.6%	76.9	64%	25.3	21.1%	76.3	64%
R04	--	51	25.5	21.2%	76.5	64%	0.5	0.4%	51.5	43%	60.8	50.7%	111.8	93%	25.1	21.0%	76.1	63%	22.1	18.4%	73.1	61%
R05	--	51	23.5	19.6%	74.5	62%	0.5	0.4%	51.5	43%	54.5	45.4%	105.5	88%	22.7	18.9%	73.7	61%	20.6	17.2%	71.6	60%
R06	--	51	24.0	20.0%	75.0	62%	0.5	0.4%	51.5	43%	53.5	44.5%	104.5	87%	23.8	19.9%	74.8	62%	21.1	17.6%	72.1	60%
R07	--	51	17.4	14.5%	68.3	57%	0.7	0.6%	51.7	43%	35.4	29.5%	86.4	72%	21.2	17.7%	72.2	60%	14.5	12.1%	65.5	55%
R08	--	51	16.3	13.6%	67.3	56%	0.6	0.5%	51.6	43%	30.0	25.0%	81.0	68%	13.5	11.2%	64.5	54%	11.4	9.5%	62.4	52%
R09	CR18	51	15.7	13.1%	66.7	56%	0.6	0.5%	51.6	43%	28.2	23.5%	79.2	66%	12.7	10.6%	63.7	53%	11.2	9.4%	62.2	52%
R10	CR05	51	29.8	24.8%	80.8	67%	0.7	0.6%	51.7	43%	32.0	26.7%	83.0	69%	15.8	13.2%	66.8	56%	15.3	12.7%	66.3	55%
R11	--	51	29.3	24.4%	80.3	67%	0.9	0.7%	51.9	43%	34.4	28.7%	85.4	71%	16.3	13.6%	67.3	56%	15.5	13.0%	66.5	55%
R12	--	51	45.5	37.9%	96.5	80%	0.9	0.8%	51.9	43%	36.2	30.2%	87.2	73%	17.5	14.5%	68.4	57%	16.8	14.0%	67.8	57%
R13	--	51	38.1	31.8%	89.1	74%	1.4	1.2%	52.4	44%	36.5	30.4%	87.5	73%	16.8	14.0%	67.8	57%	16.0	13.3%	67.0	56%
R14	--	51	21.0	17.5%	72.0	60%	0.7	0.6%	51.7	43%	22.6	18.8%	73.6	61%	11.4	9.5%	62.4	52%	9.3	7.7%	60.3	50%
R15	CR10	51	58.0	48.3%	108.9	91%	2.4	2.0%	53.4	45%	60.7	50.5%	111.6	93%	30.7	25.6%	81.7	68%	29.4	24.5%	80.4	67%
R16	--	51	54.0	45.0%	105.0	87%	1.9	1.6%	52.9	44%	59.4	49.5%	110.4	92%	29.6	24.7%	80.6	67%	28.8	24.0%	79.7	66%
R17	CR01	51	43.8	36.5%	94.8	79%	1.2	1.0%	52.2	43%	63.1	52.6%	114.1	95%	22.4	18.7%	73.4	61%	24.1	20.1%	75.1	63%
R18	CR04	51	22.5	18.7%	73.4	61%	0.5	0.5%	51.5	43%	45.4	37.8%	96.4	80%	25.7	21.4%	76.7	64%	19.9	16.6%	70.9	59%
R19	CR06	51	38.2	31.8%	89.1	74%	1.7	1.4%	52.7	44%	39.7	33.1%	90.7	76%	18.5	15.4%	69.5	58%	17.6	14.7%	68.6	57%
R20	CR07	51	11.0	9.2%	62.0	52%	0.5	0.4%	51.5	43%	16.8	14.0%	67.8	56%	8.2	6.8%	59.2	49%	7.3	6.1%	58.3	49%
R21	CR08	51	104.9	87.4%	155.9	130%	4.1	3.4%	55.1	46%	75.9	63.2%	126.9	106%	37.7	31.4%	88.7	74%	36.1	30.1%	87.1	73%
R22	CR11	51	41.2	34.3%	92.2	77%	1.2	1.0%	52.2	43%	56.4	47.0%	107.4	89%	22.1	18.4%	73.1	61%	21.3	17.7%	72.3	60%
R23	CR12	51	21.4	17.8%	72.4	60%	0.6	0.5%	51.6	43%	43.7	36.4%	94.7	79%	26.6	22.1%	77.6	65%	19.4	16.2%	70.4	59%
R24	CR13	51	18.0	15.0%	69.0	57%	0.6	0.5%	51.5	43%	18.6	15.5%	69.6	58%	9.2	7.7%	60.2	50%	8.8	7.3%	59.8	50%
R25	CR14	51	19.2	16.0%	70.2	59%	0.6	0.5%	51.6	43%	37.8	31.5%	88.8	74%	21.8	18.2%	72.8	61%	13.1	10.9%	64.1	53%
R26	CR15	51	20.5	17.1%	71.5	60%	0.7	0.6%	51.7	43%	38.8	32.3%	89.8	75%	12.6	10.5%	63.6	53%	14.4	12.0%	65.4	54%
R27	CR16	51	14.9	12.4%	65.9	55%	1.2	1.0%	52.2	44%	30.9	25.8%	81.9	68%	12.0	10.0%	63.0	52%	12.3	10.2%	63.3	53%
R28	CR20	51	16.2	13.5%	67.2	56%	0.3	0.3%	51.3	43%	29.2	24.4%	80.2	67%	15.4	12.8%	66.4	55%	10.7	8.9%	61.7	51%
R29	CR21	51	104.0	86.6%	155.0	129%	1.7	1.4%	52.7	44%	131.1	109.3%	182.1	152%	30.0	25.0%	81.0	67%	29.3	24.4%	80.3	67%

Note:

[1] Criteria = 120 µg/m³

Table 4-2-18: Modelling Comparison to Existing Conditions - Annual TSP

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Receptor Information		Background Concentration (µg/m³)	Existing Condition				"Do Nothing"				Scenario 1				Scenario 2				Scenario 3			
			Without Background		With Background		Without Background		With Background		Without Background		With Background		Without Background		With Background		Without Background		With Background	
ID	Common Receptor ID		Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)
R01	--	26	1.32	2.20%	27.37	46%	0.10	0.17%	26.15	44%	5.75	9.59%	31.80	53%	1.25	2.08%	27.30	45%	1.12	1.87%	27.17	45%
R02	CR17	26	0.82	1.37%	26.87	45%	0.06	0.10%	26.11	44%	5.56	9.27%	31.61	53%	2.86	4.77%	28.91	48%	1.58	2.64%	27.63	46%
R03	CR19	26	1.20	2.00%	27.25	45%	0.13	0.22%	26.18	44%	2.27	3.79%	28.32	47%	0.96	1.60%	27.01	45%	0.90	1.50%	26.95	45%
R04	--	26	0.81	1.35%	26.86	45%	0.07	0.11%	26.11	44%	4.51	7.52%	30.56	51%	1.77	2.96%	27.82	46%	1.37	2.28%	27.42	46%
R05	--	26	0.71	1.18%	26.76	45%	0.06	0.10%	26.11	44%	3.80	6.33%	29.84	50%	1.53	2.55%	27.57	46%	1.19	1.98%	27.23	45%
R06	--	26	0.71	1.19%	26.76	45%	0.06	0.11%	26.11	44%	3.81	6.36%	29.86	50%	1.50	2.51%	27.55	46%	1.19	1.99%	27.24	45%
R07	--	26	0.54	0.90%	26.58	44%	0.05	0.09%	26.10	44%	2.54	4.23%	28.59	48%	1.04	1.73%	27.08	45%	0.84	1.41%	26.89	45%
R08	--	26	0.36	0.59%	26.40	44%	0.04	0.07%	26.09	43%	1.47	2.45%	27.52	46%	0.62	1.03%	26.67	44%	0.53	0.88%	26.57	44%
R09	CR18	26	0.31	0.51%	26.35	44%	0.04	0.07%	26.09	43%	1.16	1.94%	27.21	45%	0.48	0.80%	26.53	44%	0.42	0.70%	26.47	44%
R10	CR05	26	0.49	0.82%	26.54	44%	0.05	0.09%	26.10	43%	1.60	2.67%	27.65	46%	0.65	1.09%	26.70	45%	0.58	0.96%	26.62	44%
R11	--	26	0.48	0.79%	26.52	44%	0.05	0.09%	26.10	44%	1.36	2.26%	27.40	46%	0.57	0.95%	26.62	44%	0.51	0.84%	26.55	44%
R12	--	26	0.50	0.84%	26.55	44%	0.06	0.10%	26.11	44%	1.38	2.30%	27.43	46%	0.58	0.96%	26.63	44%	0.53	0.88%	26.58	44%
R13	--	26	0.42	0.70%	26.47	44%	0.06	0.09%	26.10	44%	1.17	1.95%	27.22	45%	0.49	0.82%	26.54	44%	0.46	0.76%	26.50	44%
R14	--	26	0.27	0.45%	26.32	44%	0.03	0.06%	26.08	43%	0.91	1.51%	26.95	45%	0.38	0.63%	26.42	44%	0.33	0.56%	26.38	44%
R15	CR10	26	1.15	1.91%	27.20	45%	0.15	0.25%	26.19	44%	2.29	3.82%	28.34	47%	0.99	1.65%	27.03	45%	0.91	1.51%	26.95	45%
R16	--	26	0.93	1.55%	26.98	45%	0.12	0.19%	26.16	44%	1.98	3.30%	28.03	47%	0.84	1.40%	26.89	45%	0.77	1.28%	26.81	45%
R17	CR01	26	1.13	1.88%	27.18	45%	0.09	0.14%	26.13	44%	4.79	7.98%	30.84	51%	1.27	2.11%	27.31	46%	1.13	1.88%	27.18	45%
R18	CR04	26	0.68	1.14%	26.73	45%	0.06	0.10%	26.11	44%	3.54	5.90%	29.59	49%	1.38	2.31%	27.43	46%	1.11	1.86%	27.16	45%
R19	CR06	26	0.42	0.70%	26.47	44%	0.08	0.13%	26.13	44%	1.52	2.54%	27.57	46%	0.62	1.03%	26.66	44%	0.56	0.94%	26.61	44%
R20	CR07	26	0.20	0.33%	26.24	44%	0.03	0.04%	26.07	43%	0.87	1.45%	26.92	45%	0.38	0.63%	26.42	44%	0.32	0.54%	26.37	44%
R21	CR08	26	1.43	2.39%	27.48	46%	0.24	0.40%	26.28	44%	3.81	6.36%	29.86	50%	1.74	2.91%	27.79	46%	1.63	2.71%	27.67	46%
R22	CR11	26	0.92	1.53%	26.97	45%	0.09	0.14%	26.13	44%	4.04	6.74%	30.09	50%	1.02	1.70%	27.07	45%	0.92	1.53%	26.97	45%
R23	CR12	26	0.29	0.48%	26.34	44%	0.03	0.05%	26.08	43%	1.46	2.44%	27.51	46%	0.60	1.00%	26.65	44%	0.46	0.77%	26.51	44%
R24	CR13	26	0.18	0.29%	26.22	44%	0.02	0.04%	26.07	43%	0.65	1.08%	26.69	44%	0.27	0.45%	26.32	44%	0.23	0.39%	26.28	44%
R25	CR14	26	0.38	0.64%	26.43	44%	0.04	0.07%	26.09	43%	2.05	3.42%	28.10	47%	0.98	1.63%	27.03	45%	0.67	1.12%	26.72	45%
R26	CR15	26	0.38	0.63%	26.42	44%	0.04	0.07%	26.09	43%	1.65	2.75%	27.70	46%	0.53	0.88%	26.57	44%	0.46	0.77%	26.51	44%
R27	CR16	26	0.23	0.39%	26.28	44%	0.03	0.05%	26.08	43%	0.94	1.57%	26.99	45%	0.33	0.56%	26.38	44%	0.30	0.50%	26.35	44%
R28	CR20	26	0.30	0.51%	26.35	44%	0.03	0.05%	26.08	43%	1.36	2.26%	27.40	46%	0.57	0.95%	26.62	44%	0.43	0.71%	26.48	44%
R29	CR21	26	2.54	4.23%	28.59	48%	0.15	0.24%	26.19	44%	11.73	19.56%	37.78	63%	1.34	2.23%	27.38	46%	1.20	2.00%	27.25	45%

Note:

[1] Criteria = 60 µg/m³

Table 4-2-19: Modelling Comparison to Existing Conditions - 24-Hour PM10

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Receptor Information		Background Concentration (µg/m³)	Existing Condition				"Do Nothing"				Scenario 1				Scenario 2				Scenario 3			
			Without Background		With Background		Without Background		With Background		Without Background		With Background		Without Background		With Background		Without Background		With Background	
ID	Common Receptor ID		Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)
R01	--	22	16.6	33%	38.6	77%	0.8	1.6%	22.7	45%	22.4	45%	44.3	89%	6.8	14%	28.7	57%	6.5	13%	28.4	57%
R02	CR17	22	12.2	24%	34.2	68%	0.7	1.4%	22.6	45%	26.4	53%	48.4	97%	12.2	24%	34.1	68%	10.6	21%	32.6	65%
R03	CR19	22	20.9	42%	42.8	86%	1.4	2.9%	23.4	47%	16.4	33%	38.4	77%	6.9	14%	28.8	58%	6.9	14%	28.9	58%
R04	--	22	8.6	17%	30.5	61%	0.4	0.8%	22.3	45%	20.0	40%	41.9	84%	7.0	14%	28.9	58%	6.1	12%	28.0	56%
R05	--	22	7.9	16%	29.9	60%	0.4	0.8%	22.3	45%	17.6	35%	39.5	79%	6.2	12%	28.1	56%	5.6	11%	27.6	55%
R06	--	22	8.0	16%	30.0	60%	0.4	0.7%	22.3	45%	16.6	33%	38.5	77%	6.5	13%	28.4	57%	5.7	11%	27.6	55%
R07	--	22	5.7	11%	27.6	55%	0.5	0.9%	22.4	45%	11.4	23%	33.3	67%	6.1	12%	28.0	56%	3.9	8%	25.8	52%
R08	--	22	5.3	11%	27.3	55%	0.4	0.7%	22.3	45%	8.9	18%	30.8	62%	3.8	8%	25.7	51%	3.1	6%	25.0	50%
R09	CR18	22	5.1	10%	27.0	54%	0.4	0.9%	22.4	45%	9.1	18%	31.1	62%	3.9	8%	25.9	52%	3.7	7%	25.6	51%
R10	CR05	22	8.5	17%	30.5	61%	0.6	1.1%	22.5	45%	8.7	17%	30.6	61%	4.0	8%	25.9	52%	3.9	8%	25.8	52%
R11	--	22	8.3	17%	30.2	60%	0.7	1.4%	22.6	45%	10.1	20%	32.0	64%	4.2	8%	26.2	52%	4.1	8%	26.0	52%
R12	--	22	13.6	27%	35.6	71%	0.6	1.2%	22.5	45%	11.1	22%	33.0	66%	4.9	10%	26.8	54%	4.9	10%	26.8	54%
R13	--	22	11.1	22%	33.1	66%	0.9	1.7%	22.8	46%	10.9	22%	32.8	66%	4.4	9%	26.3	53%	4.3	9%	26.2	52%
R14	--	22	6.3	13%	28.2	56%	0.5	1.0%	22.4	45%	6.9	14%	28.8	58%	3.3	7%	25.2	50%	2.6	5%	24.5	49%
R15	CR10	22	16.7	33%	38.6	77%	1.6	3.2%	23.6	47%	17.6	35%	39.5	79%	8.2	16%	30.1	60%	7.9	16%	29.8	60%
R16	--	22	16.8	34%	38.7	77%	1.1	2.2%	23.0	46%	17.0	34%	38.9	78%	7.6	15%	29.5	59%	7.5	15%	29.4	59%
R17	CR01	22	13.9	28%	35.9	72%	0.8	1.5%	22.7	45%	19.8	40%	41.7	83%	6.1	12%	28.0	56%	6.9	14%	28.8	58%
R18	CR04	22	7.4	15%	29.3	59%	0.4	0.8%	22.3	45%	14.3	29%	36.2	72%	7.4	15%	29.3	59%	5.2	10%	27.2	54%
R19	CR06	22	11.4	23%	33.4	67%	1.0	2.1%	23.0	46%	11.8	24%	33.8	68%	5.1	10%	27.1	54%	4.9	10%	26.8	54%
R20	CR07	22	3.8	8%	25.7	51%	0.4	0.7%	22.3	45%	5.5	11%	27.4	55%	2.3	5%	24.2	48%	2.0	4%	23.9	48%
R21	CR08	22	30.9	62%	52.8	106%	2.2	4.4%	24.1	48%	23.4	47%	45.3	91%	10.1	20%	32.0	64%	9.8	20%	31.7	63%
R22	CR11	22	12.7	25%	34.7	69%	0.7	1.4%	22.6	45%	18.9	38%	40.9	82%	5.7	11%	27.6	55%	6.1	12%	28.0	56%
R23	CR12	22	6.7	13%	28.6	57%	0.4	0.9%	22.4	45%	13.8	28%	35.7	71%	7.5	15%	29.4	59%	5.5	11%	27.5	55%
R24	CR13	22	5.5	11%	27.4	55%	0.4	0.8%	22.3	45%	5.7	11%	27.7	55%	2.6	5%	24.5	49%	2.5	5%	24.5	49%
R25	CR14	22	6.5	13%	28.4	57%	0.4	0.9%	22.4	45%	13.8	28%	35.7	71%	6.9	14%	28.9	58%	4.4	9%	26.3	53%
R26	CR15	22	6.5	13%	28.4	57%	0.3	0.7%	22.3	45%	12.7	25%	34.7	69%	3.5	7%	25.4	51%	4.1	8%	26.1	52%
R27	CR16	22	5.0	10%	26.9	54%	0.7	1.4%	22.7	45%	10.1	20%	32.1	64%	3.3	7%	25.3	51%	3.6	7%	25.5	51%
R28	CR20	22	5.5	11%	27.5	55%	0.2	0.5%	22.2	44%	10.6	21%	32.5	65%	4.8	10%	26.7	53%	3.2	6%	25.1	50%
R29	CR21	22	29.1	58%	51.0	102%	0.9	1.9%	22.9	46%	35.6	71%	57.6	115%	9.2	18%	31.1	62%	9.1	18%	31.0	62%

Note:

[1] Criteria = 50 µg/m³

Table 4-2-20: Modelling Comparison to Existing Conditions - 24-Hour PM2.5

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Comparison Against 2020 CAAQS

Receptor Information			Existing Condition				"Do Nothing"				Scenario 1				Scenario 2				Scenario 3			
			Without Background		With Background		Without Background		With Background		Without Background		With Background		Without Background		With Background		Without Background		With Background	
ID	Common Receptor ID	Background Concentration (µg/m³)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)
R01	--	18	4.1	15%	21.9	81%	0.5	2%	18.3	68%	4.7	17%	22.6	84%	1.6	6%	19.5	72%	1.6	6%	19.4	72%
R02	CR17	18	3.2	12%	21.1	78%	0.4	2%	18.3	68%	4.8	18%	22.7	84%	3.2	12%	21.0	78%	2.7	10%	20.6	76%
R03	CR19	18	5.1	19%	23.0	85%	1.4	5%	19.3	71%	5.0	19%	22.8	85%	4.2	16%	22.1	82%	4.3	16%	22.1	82%
R04	--	18	2.2	8%	20.0	74%	0.4	1%	18.2	68%	4.1	15%	22.0	81%	1.8	7%	19.6	73%	1.6	6%	19.4	72%
R05	--	18	2.0	7%	19.9	74%	0.4	1%	18.2	67%	3.7	14%	21.5	80%	1.7	6%	19.5	72%	1.5	5%	19.3	72%
R06	--	18	2.0	8%	19.9	74%	0.4	1%	18.2	67%	3.4	12%	21.2	79%	1.7	6%	19.6	72%	1.5	6%	19.3	72%
R07	--	18	1.7	6%	19.6	72%	0.3	1%	18.1	67%	2.3	9%	20.2	75%	1.5	6%	19.4	72%	1.0	4%	18.8	70%
R08	--	18	1.7	6%	19.6	73%	0.3	1%	18.1	67%	2.2	8%	20.1	74%	1.1	4%	18.9	70%	1.0	4%	18.9	70%
R09	CR18	18	1.3	5%	19.2	71%	0.3	1%	18.2	67%	1.8	7%	19.6	73%	1.2	4%	19.0	70%	1.3	5%	19.1	71%
R10	CR05	18	2.2	8%	20.1	74%	0.5	2%	18.4	68%	2.2	8%	20.1	74%	1.3	5%	19.2	71%	1.3	5%	19.2	71%
R11	--	18	1.8	7%	19.6	73%	0.6	2%	18.5	68%	1.9	7%	19.8	73%	1.5	6%	19.4	72%	1.5	6%	19.4	72%
R12	--	18	3.5	13%	21.3	79%	0.6	2%	18.4	68%	2.4	9%	20.2	75%	1.7	6%	19.5	72%	1.7	6%	19.6	72%
R13	--	18	2.4	9%	20.2	75%	0.6	2%	18.5	68%	2.3	9%	20.2	75%	1.8	7%	19.7	73%	1.9	7%	19.8	73%
R14	--	18	1.5	5%	19.3	71%	0.4	1%	18.3	68%	1.6	6%	19.5	72%	1.0	4%	18.8	70%	1.0	4%	18.8	70%
R15	CR10	18	4.4	16%	22.2	82%	1.6	6%	19.5	72%	4.5	17%	22.4	83%	4.6	17%	22.4	83%	4.6	17%	22.5	83%
R16	--	18	3.6	13%	21.5	80%	0.9	3%	18.8	70%	3.7	14%	21.5	80%	3.0	11%	20.8	77%	3.1	11%	20.9	77%
R17	CR01	18	4.0	15%	21.8	81%	0.5	2%	18.4	68%	4.5	17%	22.4	83%	1.4	5%	19.3	71%	1.7	6%	19.5	72%
R18	CR04	18	2.0	7%	19.9	74%	0.3	1%	18.2	67%	2.9	11%	20.8	77%	1.8	7%	19.6	73%	1.4	5%	19.2	71%
R19	CR06	18	2.7	10%	20.6	76%	0.5	2%	18.4	68%	2.9	11%	20.7	77%	1.5	6%	19.4	72%	1.5	6%	19.4	72%
R20	CR07	18	1.1	4%	18.9	70%	0.2	1%	18.1	67%	1.4	5%	19.3	71%	0.6	2%	18.5	68%	0.7	3%	18.6	69%
R21	CR08	18	5.4	20%	23.2	86%	1.1	4%	19.0	70%	4.5	17%	22.4	83%	3.3	12%	21.2	78%	3.4	12%	21.2	79%
R22	CR11	18	3.2	12%	21.0	78%	0.4	2%	18.3	68%	3.6	13%	21.5	79%	1.3	5%	19.1	71%	1.6	6%	19.4	72%
R23	CR12	18	1.9	7%	19.7	73%	0.3	1%	18.2	67%	2.8	10%	20.6	76%	1.9	7%	19.8	73%	1.6	6%	19.4	72%
R24	CR13	18	1.6	6%	19.4	72%	0.3	1%	18.2	67%	1.7	6%	19.5	72%	0.9	3%	18.8	70%	0.9	4%	18.8	70%
R25	CR14	18	1.8	7%	19.7	73%	0.3	1%	18.2	67%	3.0	11%	20.9	77%	1.8	7%	19.6	73%	1.4	5%	19.3	71%
R26	CR15	18	1.7	6%	19.6	72%	0.2	1%	18.1	67%	2.5	9%	20.3	75%	0.8	3%	18.7	69%	1.1	4%	18.9	70%
R27	CR16	18	1.5	6%	19.4	72%	0.4	1%	18.2	68%	2.2	8%	20.1	74%	0.8	3%	18.6	69%	1.0	4%	18.8	70%
R28	CR20	18	1.5	5%	19.3	72%	0.2	1%	18.0	67%	1.8	7%	19.7	73%	1.0	4%	18.9	70%	0.8	3%	18.7	69%
R29	CR21	18	6.7	25%	24.6	91%	0.5	2%	18.4	68%	7.4	27%	25.2	93%	2.6	10%	20.5	76%	2.6	10%	20.4	76%

Note:

[1] Criteria = 27 µg/m³

Table 4-2-21: Modelling Comparison to Existing Conditions - Annual PM2.5

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Comparison Against 2020 CAAQS

Receptor Information			Existing Condition				"Do Nothing"				Scenario 1				Scenario 2				Scenario 3			
			Without Background		With Background		Without Background		With Background		Without Background		With Background		Without Background		With Background		Without Background		With Background	
ID	Common Receptor ID	Background Concentration (µg/m³)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)
R01	--	9	0.40	5%	9.51	108%	0.05	1%	9.17	104%	0.44	5%	9.56	109%	0.14	2%	9.25	105%	0.14	2%	9.25	105%
R02	CR17	9	0.26	3%	9.38	107%	0.04	0%	9.15	104%	0.40	5%	9.52	108%	0.24	3%	9.35	106%	0.18	2%	9.29	106%
R03	CR19	9	0.38	4%	9.49	108%	0.10	1%	9.21	105%	0.34	4%	9.46	107%	0.26	3%	9.38	107%	0.26	3%	9.38	107%
R04	--	9	0.26	3%	9.38	107%	0.05	1%	9.16	104%	0.40	5%	9.51	108%	0.20	2%	9.32	106%	0.18	2%	9.30	106%
R05	--	9	0.24	3%	9.35	106%	0.04	0%	9.16	104%	0.34	4%	9.45	107%	0.18	2%	9.30	106%	0.16	2%	9.28	105%
R06	--	9	0.24	3%	9.35	106%	0.04	1%	9.16	104%	0.34	4%	9.46	107%	0.18	2%	9.29	106%	0.17	2%	9.28	105%
R07	--	9	0.18	2%	9.30	106%	0.04	0%	9.15	104%	0.24	3%	9.35	106%	0.13	2%	9.25	105%	0.13	1%	9.24	105%
R08	--	9	0.13	1%	9.25	105%	0.03	0%	9.15	104%	0.16	2%	9.27	105%	0.10	1%	9.22	105%	0.10	1%	9.21	105%
R09	CR18	9	0.11	1%	9.23	105%	0.03	0%	9.14	104%	0.13	1%	9.25	105%	0.09	1%	9.20	105%	0.08	1%	9.20	105%
R10	CR05	9	0.17	2%	9.29	106%	0.04	0%	9.16	104%	0.18	2%	9.30	106%	0.12	1%	9.24	105%	0.12	1%	9.23	105%
R11	--	9	0.16	2%	9.27	105%	0.04	0%	9.16	104%	0.16	2%	9.27	105%	0.11	1%	9.23	105%	0.11	1%	9.23	105%
R12	--	9	0.17	2%	9.29	106%	0.04	0%	9.16	104%	0.16	2%	9.28	105%	0.12	1%	9.23	105%	0.12	1%	9.24	105%
R13	--	9	0.15	2%	9.27	105%	0.04	0%	9.15	104%	0.15	2%	9.27	105%	0.11	1%	9.22	105%	0.11	1%	9.22	105%
R14	--	9	0.10	1%	9.21	105%	0.02	0%	9.14	104%	0.10	1%	9.22	105%	0.07	1%	9.19	104%	0.07	1%	9.18	104%
R15	CR10	9	0.39	4%	9.51	108%	0.11	1%	9.23	105%	0.36	4%	9.48	108%	0.28	3%	9.40	107%	0.28	3%	9.39	107%
R16	--	9	0.31	4%	9.43	107%	0.08	1%	9.20	105%	0.29	3%	9.41	107%	0.22	3%	9.34	106%	0.22	3%	9.34	106%
R17	CR01	9	0.37	4%	9.49	108%	0.05	1%	9.16	104%	0.43	5%	9.55	109%	0.14	2%	9.25	105%	0.14	2%	9.26	105%
R18	CR04	9	0.23	3%	9.34	106%	0.04	0%	9.16	104%	0.32	4%	9.43	107%	0.17	2%	9.28	106%	0.16	2%	9.27	105%
R19	CR06	9	0.15	2%	9.27	105%	0.04	0%	9.16	104%	0.17	2%	9.28	105%	0.10	1%	9.22	105%	0.10	1%	9.22	105%
R20	CR07	9	0.08	1%	9.19	104%	0.02	0%	9.14	104%	0.09	1%	9.21	105%	0.06	1%	9.18	104%	0.06	1%	9.17	104%
R21	CR08	9	0.50	6%	9.62	109%	0.15	2%	9.26	105%	0.46	5%	9.58	109%	0.35	4%	9.46	108%	0.35	4%	9.46	108%
R22	CR11	9	0.29	3%	9.40	107%	0.04	0%	9.16	104%	0.33	4%	9.44	107%	0.12	1%	9.23	105%	0.12	1%	9.23	105%
R23	CR12	9	0.11	1%	9.22	105%	0.02	0%	9.14	104%	0.14	2%	9.25	105%	0.08	1%	9.19	104%	0.07	1%	9.19	104%
R24	CR13	9	0.06	1%	9.18	104%	0.02	0%	9.13	104%	0.07	1%	9.19	104%	0.05	1%	9.16	104%	0.05	1%	9.16	104%
R25	CR14	9	0.14	2%	9.25	105%	0.03	0%	9.14	104%	0.18	2%	9.30	106%	0.12	1%	9.23	105%	0.10	1%	9.21	105%
R26	CR15	9	0.13	1%	9.24	105%	0.02	0%	9.14	104%	0.15	2%	9.26	105%	0.07	1%	9.18	104%	0.07	1%	9.19	104%
R27	CR16	9	0.08	1%	9.20	105%	0.02	0%	9.13	104%	0.09	1%	9.21	105%	0.05	1%	9.17	104%	0.05	1%	9.17	104%
R28	CR20	9	0.11	1%	9.22	105%	0.02	0%	9.14	104%	0.13	1%	9.25	105%	0.08	1%	9.19	104%	0.07	1%	9.19	104%
R29	CR21	9	0.67	8%	9.79	111%	0.06	1%	9.18	104%	0.72	8%	9.83	112%	0.16	2%	9.27	105%	0.16	2%	9.27	105%

Note:

[1] Criteria = 8.8 µg/m³

Table 4-2-22: Modelling Comparison to Existing Conditions - 24-Hour PM2.5

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Comparison Against 2030 CAAQS

Receptor Information			Existing Condition				"Do Nothing"				Scenario 1				Scenario 2				Scenario 3			
			Without Background		With Background		Without Background		With Background		Without Background		With Background		Without Background		With Background		Without Background		With Background	
ID	Common Receptor ID	Background Concentration (µg/m³)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)
R01	--	18	4.1	18%	21.9	95%	0.5	2%	18.3	80%	4.7	20%	22.6	98%	1.6	7%	19.5	85%	1.6	7%	19.4	84%
R02	CR17	18	3.2	14%	21.1	92%	0.4	2%	18.3	79%	4.8	21%	22.7	99%	3.2	14%	21.0	91%	2.7	12%	20.6	89%
R03	CR19	18	5.1	22%	23.0	100%	1.4	6%	19.3	84%	5.0	22%	22.8	99%	4.2	18%	22.1	96%	4.3	19%	22.1	96%
R04	--	18	2.2	9%	20.0	87%	0.4	2%	18.2	79%	4.1	18%	22.0	95%	1.8	8%	19.6	85%	1.6	7%	19.4	84%
R05	--	18	2.0	9%	19.9	86%	0.4	2%	18.2	79%	3.7	16%	21.5	93%	1.7	7%	19.5	85%	1.5	6%	19.3	84%
R06	--	18	2.0	9%	19.9	86%	0.4	2%	18.2	79%	3.4	15%	21.2	92%	1.7	7%	19.6	85%	1.5	6%	19.3	84%
R07	--	18	1.7	7%	19.6	85%	0.3	1%	18.1	79%	2.3	10%	20.2	88%	1.5	7%	19.4	84%	1.0	4%	18.8	82%
R08	--	18	1.7	8%	19.6	85%	0.3	1%	18.1	79%	2.2	10%	20.1	87%	1.1	5%	18.9	82%	1.0	4%	18.9	82%
R09	CR18	18	1.3	6%	19.2	83%	0.3	1%	18.2	79%	1.8	8%	19.6	85%	1.2	5%	19.0	83%	1.3	6%	19.1	83%
R10	CR05	18	2.2	10%	20.1	87%	0.5	2%	18.4	80%	2.2	10%	20.1	87%	1.3	6%	19.2	83%	1.3	6%	19.2	83%
R11	--	18	1.8	8%	19.6	85%	0.6	3%	18.5	80%	1.9	8%	19.8	86%	1.5	7%	19.4	84%	1.5	7%	19.4	84%
R12	--	18	3.5	15%	21.3	93%	0.6	3%	18.4	80%	2.4	10%	20.2	88%	1.7	7%	19.5	85%	1.7	7%	19.6	85%
R13	--	18	2.4	10%	20.2	88%	0.6	3%	18.5	80%	2.3	10%	20.2	88%	1.8	8%	19.7	86%	1.9	8%	19.8	86%
R14	--	18	1.5	6%	19.3	84%	0.4	2%	18.3	79%	1.6	7%	19.5	85%	1.0	4%	18.8	82%	1.0	4%	18.8	82%
R15	CR10	18	4.4	19%	22.2	97%	1.6	7%	19.5	85%	4.5	20%	22.4	97%	4.6	20%	22.4	98%	4.6	20%	22.5	98%
R16	--	18	3.6	16%	21.5	93%	0.9	4%	18.8	82%	3.7	16%	21.5	93%	3.0	13%	20.8	91%	3.1	13%	20.9	91%
R17	CR01	18	4.0	17%	21.8	95%	0.5	2%	18.4	80%	4.5	20%	22.4	97%	1.4	6%	19.3	84%	1.7	7%	19.5	85%
R18	CR04	18	2.0	9%	19.9	86%	0.3	1%	18.2	79%	2.9	13%	20.8	90%	1.8	8%	19.6	85%	1.4	6%	19.2	84%
R19	CR06	18	2.7	12%	20.6	89%	0.5	2%	18.4	80%	2.9	12%	20.7	90%	1.5	7%	19.4	84%	1.5	7%	19.4	84%
R20	CR07	18	1.1	5%	18.9	82%	0.2	1%	18.1	79%	1.4	6%	19.3	84%	0.6	3%	18.5	80%	0.7	3%	18.6	81%
R21	CR08	18	5.4	23%	23.2	101%	1.1	5%	19.0	83%	4.5	20%	22.4	97%	3.3	15%	21.2	92%	3.4	15%	21.2	92%
R22	CR11	18	3.2	14%	21.0	91%	0.4	2%	18.3	79%	3.6	16%	21.5	93%	1.3	6%	19.1	83%	1.6	7%	19.4	84%
R23	CR12	18	1.9	8%	19.7	86%	0.3	1%	18.2	79%	2.8	12%	20.6	90%	1.9	8%	19.8	86%	1.6	7%	19.4	85%
R24	CR13	18	1.6	7%	19.4	84%	0.3	1%	18.2	79%	1.7	7%	19.5	85%	0.9	4%	18.8	82%	0.9	4%	18.8	82%
R25	CR14	18	1.8	8%	19.7	86%	0.3	1%	18.2	79%	3.0	13%	20.9	91%	1.8	8%	19.6	85%	1.4	6%	19.3	84%
R26	CR15	18	1.7	7%	19.6	85%	0.2	1%	18.1	79%	2.5	11%	20.3	88%	0.8	4%	18.7	81%	1.1	5%	18.9	82%
R27	CR16	18	1.5	7%	19.4	84%	0.4	2%	18.2	79%	2.2	10%	20.1	87%	0.8	3%	18.6	81%	1.0	4%	18.8	82%
R28	CR20	18	1.5	6%	19.3	84%	0.2	1%	18.0	78%	1.8	8%	19.7	86%	1.0	4%	18.9	82%	0.8	4%	18.7	81%
R29	CR21	18	6.7	29%	24.6	107%	0.5	2%	18.4	80%	7.4	32%	25.2	110%	2.6	11%	20.5	89%	2.6	11%	20.4	89%

Note:

[1] Criteria = 23 µg/m³

Table 4-2-23: Modelling Comparison to Existing Conditions - Annual PM2.5

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Comparison Against 2030 CAAQS

Receptor Information			Existing Condition				"Do Nothing"				Scenario 1				Scenario 2				Scenario 3			
			Without Background		With Background		Without Background		With Background		Without Background		With Background		Without Background		With Background		Without Background		With Background	
ID	Common Receptor ID	Background Concentration (µg/m³)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)	Max Modelled Conc. (µg/m³)	% of Criteria (%)
R01	--	9	0.40	5.0%	9.51	119%	0.05	0.6%	9.17	114.6%	0.44	5.5%	9.56	119%	0.14	1.7%	9.25	116%	0.14	1.7%	9.25	116%
R02	CR17	9	0.26	3.3%	9.38	117%	0.04	0.5%	9.15	114.4%	0.40	5.0%	9.52	119%	0.24	2.9%	9.35	117%	0.18	2.2%	9.29	116%
R03	CR19	9	0.38	4.7%	9.49	119%	0.10	1.2%	9.21	115.2%	0.34	4.2%	9.46	118%	0.26	3.3%	9.38	117%	0.26	3.3%	9.38	117%
R04	--	9	0.26	3.3%	9.38	117%	0.05	0.6%	9.16	114.5%	0.40	5.0%	9.51	119%	0.20	2.5%	9.32	116%	0.18	2.3%	9.30	116%
R05	--	9	0.24	2.9%	9.35	117%	0.04	0.5%	9.16	114.5%	0.34	4.2%	9.45	118%	0.18	2.3%	9.30	116%	0.16	2.1%	9.28	116%
R06	--	9	0.24	3.0%	9.35	117%	0.04	0.6%	9.16	114.5%	0.34	4.2%	9.46	118%	0.18	2.2%	9.29	116%	0.17	2.1%	9.28	116%
R07	--	9	0.18	2.3%	9.30	116%	0.04	0.5%	9.15	114.4%	0.24	2.9%	9.35	117%	0.13	1.7%	9.25	116%	0.13	1.6%	9.24	116%
R08	--	9	0.13	1.6%	9.25	116%	0.03	0.4%	9.15	114.3%	0.16	2.0%	9.27	116%	0.10	1.2%	9.22	115%	0.10	1.2%	9.21	115%
R09	CR18	9	0.11	1.4%	9.23	115%	0.03	0.4%	9.14	114.3%	0.13	1.6%	9.25	116%	0.09	1.1%	9.20	115%	0.08	1.1%	9.20	115%
R10	CR05	9	0.17	2.1%	9.29	116%	0.04	0.5%	9.16	114.4%	0.18	2.3%	9.30	116%	0.12	1.5%	9.24	115%	0.12	1.5%	9.23	115%
R11	--	9	0.16	2.0%	9.27	116%	0.04	0.5%	9.16	114.4%	0.16	2.0%	9.27	116%	0.11	1.4%	9.23	115%	0.11	1.4%	9.23	115%
R12	--	9	0.17	2.1%	9.29	116%	0.04	0.5%	9.16	114.5%	0.16	2.1%	9.28	116%	0.12	1.5%	9.23	115%	0.12	1.5%	9.24	115%
R13	--	9	0.15	1.9%	9.27	116%	0.04	0.5%	9.15	114.4%	0.15	1.9%	9.27	116%	0.11	1.3%	9.22	115%	0.11	1.3%	9.22	115%
R14	--	9	0.10	1.2%	9.21	115%	0.02	0.3%	9.14	114.2%	0.10	1.3%	9.22	115%	0.07	0.9%	9.19	115%	0.07	0.8%	9.18	115%
R15	CR10	9	0.39	4.9%	9.51	119%	0.11	1.4%	9.23	115.3%	0.36	4.5%	9.48	118%	0.28	3.5%	9.40	117%	0.28	3.5%	9.39	117%
R16	--	9	0.31	3.9%	9.43	118%	0.08	1.1%	9.20	115.0%	0.29	3.7%	9.41	118%	0.22	2.8%	9.34	117%	0.22	2.8%	9.34	117%
R17	CR01	9	0.37	4.7%	9.49	119%	0.05	0.6%	9.16	114.5%	0.43	5.4%	9.55	119%	0.14	1.7%	9.25	116%	0.14	1.8%	9.26	116%
R18	CR04	9	0.23	2.8%	9.34	117%	0.04	0.5%	9.16	114.5%	0.32	4.0%	9.43	118%	0.17	2.1%	9.28	116%	0.16	2.0%	9.27	116%
R19	CR06	9	0.15	1.9%	9.27	116%	0.04	0.5%	9.16	114.5%	0.17	2.1%	9.28	116%	0.10	1.3%	9.22	115%	0.10	1.3%	9.22	115%
R20	CR07	9	0.08	1.0%	9.19	115%	0.02	0.2%	9.14	114.2%	0.09	1.2%	9.21	115%	0.06	0.7%	9.18	115%	0.06	0.7%	9.17	115%
R21	CR08	9	0.50	6.3%	9.62	120%	0.15	1.8%	9.26	115.8%	0.46	5.8%	9.58	120%	0.35	4.3%	9.46	118%	0.35	4.3%	9.46	118%
R22	CR11	9	0.29	3.6%	9.40	118%	0.04	0.5%	9.16	114.5%	0.33	4.1%	9.44	118%	0.12	1.5%	9.23	115%	0.12	1.5%	9.23	115%
R23	CR12	9	0.11	1.3%	9.22	115%	0.02	0.3%	9.14	114.2%	0.14	1.7%	9.25	116%	0.08	0.9%	9.19	115%	0.07	0.9%	9.19	115%
R24	CR13	9	0.06	0.8%	9.18	115%	0.02	0.2%	9.13	114.1%	0.07	0.9%	9.19	115%	0.05	0.6%	9.16	115%	0.05	0.6%	9.16	115%
R25	CR14	9	0.14	1.7%	9.25	116%	0.03	0.3%	9.14	114.3%	0.18	2.2%	9.30	116%	0.12	1.5%	9.23	115%	0.10	1.2%	9.21	115%
R26	CR15	9	0.13	1.6%	9.24	116%	0.02	0.3%	9.14	114.3%	0.15	1.8%	9.26	116%	0.07	0.8%	9.18	115%	0.07	0.9%	9.19	115%
R27	CR16	9	0.08	1.0%	9.20	115%	0.02	0.2%	9.13	114.2%	0.09	1.2%	9.21	115%	0.05	0.6%	9.17	115%	0.05	0.6%	9.17	115%
R28	CR20	9	0.11	1.3%	9.22	115%	0.02	0.3%	9.14	114.2%	0.13	1.6%	9.25	116%	0.08	1.0%	9.19	115%	0.07	0.9%	9.19	115%
R29	CR21	9	0.67	8.4%	9.79	122%	0.06	0.8%	9.18	114.8%	0.72	8.9%	9.83	123%	0.16	2.0%	9.27	116%	0.16	2.0%	9.27	116%

Note:

[1] Criteria = 8 µg/m³

Table 4-3: Do Nothing Scenario Landfill Gas and Combustion Byproducts Dispersion Modelling Results **RWDI Project #2402272**

Table 4-3-1: Predicted Concentrations of 24-Hour Vinyl Chloride at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Do Nothing Scenario

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 1 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 1 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
1	R01	--	0.05	0.05	0.0011	5%	0.11%	0	0.05	0.0011	5%	0.11%	0
1	R02	CR17	0.05	0.05	0.0008	5%	0.08%	0	0.05	0.0008	5%	0.08%	0
1	R03	CR19	0.05	0.06	0.0023	6%	0.23%	0	0.06	0.0023	6%	0.23%	0
1	R04	--	0.05	0.05	0.0009	5%	0.09%	0	0.05	0.0009	5%	0.09%	0
1	R05	--	0.05	0.05	0.0008	5%	0.08%	0	0.05	0.0008	5%	0.08%	0
1	R06	--	0.05	0.05	0.0008	5%	0.08%	0	0.05	0.0008	5%	0.08%	0
1	R07	--	0.05	0.05	0.0008	5%	0.08%	0	0.05	0.0008	5%	0.08%	0
1	R08	--	0.05	0.05	0.0006	5%	0.06%	0	0.05	0.0006	5%	0.06%	0
1	R09	CR18	0.05	0.05	0.0005	5%	0.05%	0	0.05	0.0005	5%	0.05%	0
1	R10	CR05	0.05	0.05	0.0011	5%	0.11%	0	0.05	0.0011	5%	0.11%	0
1	R11	--	0.05	0.05	0.0011	5%	0.11%	0	0.05	0.0011	5%	0.11%	0
1	R12	--	0.05	0.06	0.0016	6%	0.16%	0	0.06	0.0016	6%	0.16%	0
1	R13	--	0.05	0.05	0.0011	5%	0.11%	0	0.05	0.0011	5%	0.11%	0
1	R14	--	0.05	0.05	0.0008	5%	0.08%	0	0.05	0.0008	5%	0.08%	0
1	R15	CR10	0.05	0.06	0.0019	6%	0.19%	0	0.06	0.0019	6%	0.19%	0
1	R16	--	0.05	0.06	0.0017	6%	0.17%	0	0.06	0.0017	6%	0.17%	0
1	R17	CR01	0.05	0.06	0.0012	6%	0.12%	0	0.06	0.0012	6%	0.12%	0
1	R18	CR04	0.05	0.05	0.0008	5%	0.08%	0	0.05	0.0008	5%	0.08%	0
1	R19	CR06	0.05	0.05	0.0010	5%	0.10%	0	0.05	0.0010	5%	0.10%	0
1	R20	CR07	0.05	0.05	0.0004	5%	0.04%	0	0.05	0.0004	5%	0.04%	0
1	R21	CR8	0.05	0.06	0.0042	6%	0.42%	0	0.06	0.0042	6%	0.42%	0
1	R22	CR11	0.05	0.05	0.0008	5%	0.08%	0	0.05	0.0008	5%	0.08%	0
1	R23	CR12	0.05	0.05	0.0005	5%	0.05%	0	0.05	0.0005	5%	0.05%	0
1	R24	CR13	0.05	0.05	0.0005	5%	0.05%	0	0.05	0.0005	5%	0.05%	0
1	R25	CR14	0.05	0.05	0.0004	5%	0.04%	0	0.05	0.0004	5%	0.04%	0
1	R26	CR15	0.05	0.05	0.0005	5%	0.05%	0	0.05	0.0005	5%	0.05%	0
1	R27	CR16	0.05	0.05	0.0005	5%	0.05%	0	0.05	0.0005	5%	0.05%	0
1	R28	CR20	0.05	0.05	0.0005	5%	0.05%	0	0.05	0.0005	5%	0.05%	0
1	R29	CR21	0.05	0.06	0.0017	6%	0.17%	0	0.06	0.0017	6%	0.17%	0

Table 4-3-2: Predicted Concentrations of Annual Vinyl Chloride at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Do Nothing Scenario

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included				Landfill Only			
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)	
				With Background	Without Background	With Background	Without Background	With Background	Without Background	With Background	Without Background
0.2	R01	--	0.05	0.05	0.00011	26%	0.06%	0.05	0.00011	26%	0.06%
0.2	R02	CR17	0.05	0.05	0.00009	26%	0.05%	0.05	0.00009	26%	0.05%
0.2	R03	CR19	0.05	0.05	0.00020	26%	0.10%	0.05	0.00020	26%	0.10%
0.2	R04	--	0.05	0.05	0.00013	26%	0.07%	0.05	0.00013	26%	0.07%
0.2	R05	--	0.05	0.05	0.00011	26%	0.06%	0.05	0.00011	26%	0.06%
0.2	R06	--	0.05	0.05	0.00012	26%	0.06%	0.05	0.00012	26%	0.06%
0.2	R07	--	0.05	0.05	0.00009	26%	0.05%	0.05	0.00009	26%	0.05%
0.2	R08	--	0.05	0.05	0.00007	26%	0.04%	0.05	0.00007	26%	0.04%
0.2	R09	CR18	0.05	0.05	0.00005	26%	0.03%	0.05	0.00005	26%	0.03%
0.2	R10	CR05	0.05	0.05	0.00009	26%	0.05%	0.05	0.00009	26%	0.05%
0.2	R11	--	0.05	0.05	0.00007	26%	0.04%	0.05	0.00007	26%	0.04%
0.2	R12	--	0.05	0.05	0.00008	26%	0.04%	0.05	0.00008	26%	0.04%
0.2	R13	--	0.05	0.05	0.00007	26%	0.04%	0.05	0.00007	26%	0.04%
0.2	R14	--	0.05	0.05	0.00004	26%	0.02%	0.05	0.00004	26%	0.02%
0.2	R15	CR10	0.05	0.05	0.00020	26%	0.10%	0.05	0.00020	26%	0.10%
0.2	R16	--	0.05	0.05	0.00015	26%	0.08%	0.05	0.00015	26%	0.08%
0.2	R17	CR01	0.05	0.05	0.00010	26%	0.05%	0.05	0.00010	26%	0.05%
0.2	R18	CR04	0.05	0.05	0.00012	26%	0.06%	0.05	0.00012	26%	0.06%
0.2	R19	CR06	0.05	0.05	0.00006	26%	0.03%	0.05	0.00006	26%	0.03%
0.2	R20	CR07	0.05	0.05	0.00003	26%	0.02%	0.05	0.00003	26%	0.02%
0.2	R21	CR8	0.05	0.05	0.00030	26%	0.15%	0.05	0.00030	26%	0.15%
0.2	R22	CR11	0.05	0.05	0.00009	26%	0.05%	0.05	0.00009	26%	0.05%
0.2	R23	CR12	0.05	0.05	0.00004	26%	0.02%	0.05	0.00004	26%	0.02%
0.2	R24	CR13	0.05	0.05	0.00002	26%	0.01%	0.05	0.00002	26%	0.01%
0.2	R25	CR14	0.05	0.05	0.00005	26%	0.03%	0.05	0.00005	26%	0.03%
0.2	R26	CR15	0.05	0.05	0.00005	26%	0.03%	0.05	0.00005	26%	0.03%
0.2	R27	CR16	0.05	0.05	0.00003	26%	0.02%	0.05	0.00003	26%	0.02%
0.2	R28	CR20	0.05	0.05	0.00005	26%	0.03%	0.05	0.00005	26%	0.03%
0.2	R29	CR21	0.05	0.05	0.00013	26%	0.07%	0.05	0.00013	26%	0.07%

Table 4-3-3: Predicted Concentrations of 24-Hour Benzene at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Do Nothing Scenario

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 2.3 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 2.3 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
2.3	R01	--	0.69	0.69	0.001	30%	0.05%	0	0.69	0.001	30%	0.05%	0
2.3	R02	CR17	0.69	0.69	0.001	30%	0.04%	0	0.69	0.001	30%	0.04%	0
2.3	R03	CR19	0.69	0.69	0.005	30%	0.20%	0	0.69	0.005	30%	0.20%	0
2.3	R04	--	0.69	0.69	0.002	30%	0.09%	0	0.69	0.002	30%	0.08%	0
2.3	R05	--	0.69	0.69	0.002	30%	0.08%	0	0.69	0.002	30%	0.08%	0
2.3	R06	--	0.69	0.69	0.002	30%	0.08%	0	0.69	0.002	30%	0.08%	0
2.3	R07	--	0.69	0.69	0.001	30%	0.06%	0	0.69	0.001	30%	0.06%	0
2.3	R08	--	0.69	0.69	0.001	30%	0.05%	0	0.69	0.001	30%	0.05%	0
2.3	R09	CR18	0.69	0.69	0.001	30%	0.05%	0	0.69	0.001	30%	0.05%	0
2.3	R10	CR05	0.69	0.69	0.002	30%	0.08%	0	0.69	0.002	30%	0.08%	0
2.3	R11	--	0.69	0.69	0.002	30%	0.10%	0	0.69	0.002	30%	0.10%	0
2.3	R12	--	0.69	0.69	0.002	30%	0.08%	0	0.69	0.002	30%	0.08%	0
2.3	R13	--	0.69	0.69	0.002	30%	0.10%	0	0.69	0.002	30%	0.10%	0
2.3	R14	--	0.69	0.69	0.001	30%	0.06%	0	0.69	0.001	30%	0.06%	0
2.3	R15	CR10	0.69	0.69	0.006	30%	0.25%	0	0.69	0.006	30%	0.25%	0
2.3	R16	--	0.69	0.69	0.004	30%	0.15%	0	0.69	0.004	30%	0.15%	0
2.3	R17	CR01	0.69	0.69	0.001	30%	0.06%	0	0.69	0.001	30%	0.05%	0
2.3	R18	CR04	0.69	0.69	0.002	30%	0.07%	0	0.69	0.002	30%	0.07%	0
2.3	R19	CR06	0.69	0.69	0.001	30%	0.06%	0	0.69	0.001	30%	0.06%	0
2.3	R20	CR07	0.69	0.69	0.001	30%	0.03%	0	0.69	0.001	30%	0.03%	0
2.3	R21	CR8	0.69	0.69	0.004	30%	0.20%	0	0.69	0.004	30%	0.20%	0
2.3	R22	CR11	0.69	0.69	0.001	30%	0.04%	0	0.69	0.001	30%	0.04%	0
2.3	R23	CR12	0.69	0.69	0.001	30%	0.04%	0	0.69	0.001	30%	0.04%	0
2.3	R24	CR13	0.69	0.69	0.001	30%	0.05%	0	0.69	0.001	30%	0.05%	0
2.3	R25	CR14	0.69	0.69	0.001	30%	0.04%	0	0.69	0.001	30%	0.04%	0
2.3	R26	CR15	0.69	0.69	0.001	30%	0.03%	0	0.69	0.001	30%	0.03%	0
2.3	R27	CR16	0.69	0.69	0.001	30%	0.03%	0	0.69	0.001	30%	0.02%	0
2.3	R28	CR20	0.69	0.69	0.001	30%	0.04%	0	0.69	0.001	30%	0.04%	0
2.3	R29	CR21	0.69	0.69	0.002	30%	0.08%	0	0.69	0.002	30%	0.08%	0

Table 4-3-4: Predicted Concentrations of Annual Benzene at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Do Nothing Scenario

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included				Landfill Only			
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)	
				With Background	Without Background	With Background	Without Background	With Background	Without Background	With Background	Without Background
0.45	R01	--	0.46	0.46	0.0002	103%	0.04%	0.46	0.0002	103%	0.04%
0.45	R02	CR17	0.46	0.46	0.0002	103%	0.04%	0.46	0.0002	103%	0.04%
0.45	R03	CR19	0.46	0.46	0.0004	103%	0.10%	0.46	0.0004	103%	0.10%
0.45	R04	--	0.46	0.46	0.0002	103%	0.05%	0.46	0.0002	103%	0.05%
0.45	R05	--	0.46	0.46	0.0002	103%	0.05%	0.46	0.0002	103%	0.05%
0.45	R06	--	0.46	0.46	0.0002	103%	0.05%	0.46	0.0002	103%	0.05%
0.45	R07	--	0.46	0.46	0.0002	103%	0.04%	0.46	0.0002	103%	0.04%
0.45	R08	--	0.46	0.46	0.0001	103%	0.03%	0.46	0.0001	103%	0.03%
0.45	R09	CR18	0.46	0.46	0.0001	103%	0.03%	0.46	0.0001	103%	0.03%
0.45	R10	CR05	0.46	0.46	0.0002	103%	0.04%	0.46	0.0002	103%	0.04%
0.45	R11	--	0.46	0.46	0.0002	103%	0.04%	0.46	0.0002	103%	0.04%
0.45	R12	--	0.46	0.46	0.0002	103%	0.04%	0.46	0.0002	103%	0.04%
0.45	R13	--	0.46	0.46	0.0001	103%	0.03%	0.46	0.0001	103%	0.03%
0.45	R14	--	0.46	0.46	0.0001	103%	0.02%	0.46	0.0001	103%	0.02%
0.45	R15	CR10	0.46	0.46	0.0004	103%	0.10%	0.46	0.0004	103%	0.10%
0.45	R16	--	0.46	0.46	0.0003	103%	0.08%	0.46	0.0003	103%	0.08%
0.45	R17	CR01	0.46	0.46	0.0002	103%	0.04%	0.46	0.0002	103%	0.04%
0.45	R18	CR04	0.46	0.46	0.0002	103%	0.05%	0.46	0.0002	103%	0.05%
0.45	R19	CR06	0.46	0.46	0.0001	103%	0.02%	0.46	0.0001	103%	0.02%
0.45	R20	CR07	0.46	0.46	0.0001	103%	0.02%	0.46	0.0001	103%	0.02%
0.45	R21	CR8	0.46	0.46	0.0005	103%	0.10%	0.46	0.0005	103%	0.10%
0.45	R22	CR11	0.46	0.46	0.0002	103%	0.04%	0.46	0.0002	103%	0.04%
0.45	R23	CR12	0.46	0.46	0.0001	103%	0.02%	0.46	0.0001	103%	0.02%
0.45	R24	CR13	0.46	0.46	0.0001	103%	0.01%	0.46	0.0001	103%	0.01%
0.45	R25	CR14	0.46	0.46	0.0001	103%	0.03%	0.46	0.0001	103%	0.03%
0.45	R26	CR15	0.46	0.46	0.0001	103%	0.02%	0.46	0.0001	103%	0.02%
0.45	R27	CR16	0.46	0.46	0.0001	103%	0.01%	0.46	0.0001	103%	0.01%
0.45	R28	CR20	0.46	0.46	0.0001	103%	0.02%	0.46	0.0001	103%	0.02%
0.45	R29	CR21	0.46	0.46	0.0002	103%	0.05%	0.46	0.0002	103%	0.05%

Table 4-3-5: Predicted Concentrations of 24-Hour 1,1,2-Trichloroethane at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Do Nothing Scenario

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 0.3 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 0.3 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
0.3	R01	--	0.07	0.07	0.003	23%	0.9%	0	0.07	0.003	23%	0.9%	0
0.3	R02	CR17	0.07	0.07	0.002	22%	0.7%	0	0.07	0.002	22%	0.7%	0
0.3	R03	CR19	0.07	0.07	0.006	24%	2.0%	0	0.07	0.006	24%	2.0%	0
0.3	R04	--	0.07	0.07	0.002	22%	0.8%	0	0.07	0.002	22%	0.8%	0
0.3	R05	--	0.07	0.07	0.002	22%	0.6%	0	0.07	0.002	22%	0.6%	0
0.3	R06	--	0.07	0.07	0.002	22%	0.7%	0	0.07	0.002	22%	0.7%	0
0.3	R07	--	0.07	0.07	0.002	22%	0.7%	0	0.07	0.002	22%	0.7%	0
0.3	R08	--	0.07	0.07	0.002	22%	0.5%	0	0.07	0.002	22%	0.5%	0
0.3	R09	CR18	0.07	0.07	0.001	22%	0.4%	0	0.07	0.001	22%	0.4%	0
0.3	R10	CR05	0.07	0.07	0.003	23%	0.9%	0	0.07	0.003	23%	0.9%	0
0.3	R11	--	0.07	0.07	0.003	23%	0.9%	0	0.07	0.003	23%	0.9%	0
0.3	R12	--	0.07	0.07	0.004	23%	1.4%	0	0.07	0.004	23%	1.4%	0
0.3	R13	--	0.07	0.07	0.003	23%	1.0%	0	0.07	0.003	23%	1.0%	0
0.3	R14	--	0.07	0.07	0.002	22%	0.7%	0	0.07	0.002	22%	0.7%	0
0.3	R15	CR10	0.07	0.07	0.005	23%	1.7%	0	0.07	0.005	23%	1.7%	0
0.3	R16	--	0.07	0.07	0.004	23%	1.3%	0	0.07	0.004	23%	1.3%	0
0.3	R17	CR01	0.07	0.07	0.003	23%	0.9%	0	0.07	0.003	23%	0.9%	0
0.3	R18	CR04	0.07	0.07	0.002	22%	0.7%	0	0.07	0.002	22%	0.7%	0
0.3	R19	CR06	0.07	0.07	0.002	22%	0.8%	0	0.07	0.002	22%	0.8%	0
0.3	R20	CR07	0.07	0.07	0.001	22%	0.4%	0	0.07	0.001	22%	0.4%	0
0.3	R21	CR8	0.07	0.08	0.011	25%	3.6%	0	0.08	0.011	25%	3.6%	0
0.3	R22	CR11	0.07	0.07	0.002	22%	0.7%	0	0.07	0.002	22%	0.7%	0
0.3	R23	CR12	0.07	0.07	0.001	22%	0.4%	0	0.07	0.001	22%	0.4%	0
0.3	R24	CR13	0.07	0.07	0.001	22%	0.4%	0	0.07	0.001	22%	0.4%	0
0.3	R25	CR14	0.07	0.07	0.001	22%	0.4%	0	0.07	0.001	22%	0.4%	0
0.3	R26	CR15	0.07	0.07	0.001	22%	0.4%	0	0.07	0.001	22%	0.4%	0
0.3	R27	CR16	0.07	0.07	0.001	22%	0.4%	0	0.07	0.001	22%	0.4%	0
0.3	R28	CR20	0.07	0.07	0.001	22%	0.4%	0	0.07	0.001	22%	0.4%	0
0.3	R29	CR21	0.07	0.07	0.004	23%	1.4%	0	0.07	0.004	23%	1.4%	0

Table 4-3-6: Predicted Concentrations of 10-Minute Hydrogen Sulphide at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Do Nothing Scenario

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Hours Exceeding 13 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Hours Exceeding 13 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
13	R01	--	2.44	2.57	0.14	20%	1%	0	2.57	0.14	20%	1%	0
13	R02	CR17	2.44	2.56	0.12	20%	1%	0	2.56	0.12	20%	1%	0
13	R03	CR19	2.44	2.80	0.36	22%	3%	0	2.80	0.36	22%	3%	0
13	R04	--	2.44	2.56	0.12	20%	1%	0	2.56	0.12	20%	1%	0
13	R05	--	2.44	2.56	0.12	20%	1%	0	2.56	0.12	20%	1%	0
13	R06	--	2.44	2.56	0.12	20%	1%	0	2.56	0.12	20%	1%	0
13	R07	--	2.44	2.55	0.12	20%	1%	0	2.55	0.12	20%	1%	0
13	R08	--	2.44	2.56	0.12	20%	1%	0	2.56	0.12	20%	1%	0
13	R09	CR18	2.44	2.55	0.12	20%	1%	0	2.55	0.12	20%	1%	0
13	R10	CR05	2.44	2.55	0.11	20%	1%	0	2.55	0.11	20%	1%	0
13	R11	--	2.44	2.59	0.15	20%	1%	0	2.59	0.15	20%	1%	0
13	R12	--	2.44	2.61	0.17	20%	1%	0	2.61	0.17	20%	1%	0
13	R13	--	2.44	2.57	0.13	20%	1%	0	2.57	0.13	20%	1%	0
13	R14	--	2.44	2.57	0.13	20%	1%	0	2.57	0.13	20%	1%	0
13	R15	CR10	2.44	2.77	0.34	21%	3%	0	2.77	0.34	21%	3%	0
13	R16	--	2.44	2.71	0.28	21%	2%	0	2.71	0.28	21%	2%	0
13	R17	CR01	2.44	2.57	0.14	20%	1%	0	2.57	0.14	20%	1%	0
13	R18	CR04	2.44	2.56	0.12	20%	1%	0	2.56	0.12	20%	1%	0
13	R19	CR06	2.44	2.55	0.11	20%	1%	0	2.55	0.11	20%	1%	0
13	R20	CR07	2.44	2.55	0.11	20%	1%	0	2.55	0.11	20%	1%	0
13	R21	CR8	2.44	2.85	0.42	22%	3%	0	2.85	0.42	22%	3%	0
13	R22	CR11	2.44	2.57	0.13	20%	1%	0	2.57	0.13	20%	1%	0
13	R23	CR12	2.44	2.55	0.11	20%	1%	0	2.55	0.11	20%	1%	0
13	R24	CR13	2.44	2.57	0.13	20%	1%	0	2.57	0.13	20%	1%	0
13	R25	CR14	2.44	2.55	0.12	20%	1%	0	2.55	0.12	20%	1%	0
13	R26	CR15	2.44	2.55	0.11	20%	1%	0	2.55	0.11	20%	1%	0
13	R27	CR16	2.44	2.52	0.09	19%	1%	0	2.52	0.09	19%	1%	0
13	R28	CR20	2.44	2.55	0.12	20%	1%	0	2.55	0.12	20%	1%	0
13	R29	CR21	2.44	2.56	0.12	20%	1%	0	2.56	0.12	20%	1%	0

Table 4-3-7: Predicted Concentrations of 24-Hour Hydrogen Sulphide at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Do Nothing Scenario

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 7 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 7 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
7	R01	--	2.20	2.21	0.02	32%	0.2%	0	2.21	0.02	32%	0.2%	0
7	R02	CR17	2.20	2.21	0.01	32%	0.2%	0	2.21	0.01	32%	0.2%	0
7	R03	CR19	2.20	2.30	0.10	33%	1.4%	0	2.30	0.10	33%	1.4%	0
7	R04	--	2.20	2.23	0.03	32%	0.4%	0	2.23	0.03	32%	0.4%	0
7	R05	--	2.20	2.22	0.03	32%	0.4%	0	2.22	0.03	32%	0.4%	0
7	R06	--	2.20	2.22	0.03	32%	0.4%	0	2.22	0.03	32%	0.4%	0
7	R07	--	2.20	2.22	0.02	32%	0.3%	0	2.22	0.02	32%	0.3%	0
7	R08	--	2.20	2.22	0.02	32%	0.3%	0	2.22	0.02	32%	0.3%	0
7	R09	CR18	2.20	2.21	0.02	32%	0.2%	0	2.21	0.02	32%	0.2%	0
7	R10	CR05	2.20	2.23	0.03	32%	0.5%	0	2.23	0.03	32%	0.5%	0
7	R11	--	2.20	2.24	0.04	32%	0.6%	0	2.24	0.04	32%	0.6%	0
7	R12	--	2.20	2.24	0.04	32%	0.5%	0	2.24	0.04	32%	0.5%	0
7	R13	--	2.20	2.24	0.04	32%	0.6%	0	2.24	0.04	32%	0.6%	0
7	R14	--	2.20	2.22	0.02	32%	0.3%	0	2.22	0.02	32%	0.3%	0
7	R15	CR10	2.20	2.31	0.11	33%	1.6%	0	2.31	0.11	33%	1.6%	0
7	R16	--	2.20	2.25	0.06	32%	0.8%	0	2.25	0.06	32%	0.8%	0
7	R17	CR01	2.20	2.22	0.02	32%	0.2%	0	2.22	0.02	32%	0.2%	0
7	R18	CR04	2.20	2.22	0.02	32%	0.4%	0	2.22	0.02	32%	0.4%	0
7	R19	CR06	2.20	2.22	0.02	32%	0.3%	0	2.22	0.02	32%	0.3%	0
7	R20	CR07	2.20	2.21	0.01	32%	0.2%	0	2.21	0.01	32%	0.2%	0
7	R21	CR8	2.20	2.28	0.08	33%	1.2%	0	2.28	0.08	33%	1.2%	0
7	R22	CR11	2.20	2.21	0.01	32%	0.2%	0	2.21	0.01	32%	0.2%	0
7	R23	CR12	2.20	2.21	0.01	32%	0.2%	0	2.21	0.01	32%	0.2%	0
7	R24	CR13	2.20	2.22	0.02	32%	0.2%	0	2.22	0.02	32%	0.2%	0
7	R25	CR14	2.20	2.21	0.01	32%	0.2%	0	2.21	0.01	32%	0.2%	0
7	R26	CR15	2.20	2.21	0.01	32%	0.2%	0	2.21	0.01	32%	0.2%	0
7	R27	CR16	2.20	2.21	0.01	32%	0.1%	0	2.21	0.01	32%	0.1%	0
7	R28	CR20	2.20	2.21	0.01	32%	0.2%	0	2.21	0.01	32%	0.2%	0
7	R29	CR21	2.20	2.22	0.02	32%	0.3%	0	2.22	0.02	32%	0.3%	0

Table 4-3-8: Predicted Concentrations of 10-Minute Total Reduced Sulphur at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Do Nothing Scenario

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Hours Exceeding 13 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Hours Exceeding 13 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
13	R01	--	2.44	2.57	0.14	20%	1%	0	2.57	0.14	20%	1%	0
13	R02	CR17	2.44	2.56	0.12	20%	1%	0	2.56	0.12	20%	1%	0
13	R03	CR19	2.44	2.80	0.37	22%	3%	0	2.80	0.37	22%	3%	0
13	R04	--	2.44	2.56	0.13	20%	1%	0	2.56	0.13	20%	1%	0
13	R05	--	2.44	2.56	0.12	20%	1%	0	2.56	0.12	20%	1%	0
13	R06	--	2.44	2.56	0.12	20%	1%	0	2.56	0.12	20%	1%	0
13	R07	--	2.44	2.56	0.12	20%	1%	0	2.56	0.12	20%	1%	0
13	R08	--	2.44	2.56	0.12	20%	1%	0	2.56	0.12	20%	1%	0
13	R09	CR18	2.44	2.55	0.12	20%	1%	0	2.55	0.12	20%	1%	0
13	R10	CR05	2.44	2.55	0.11	20%	1%	0	2.55	0.11	20%	1%	0
13	R11	--	2.44	2.59	0.15	20%	1%	0	2.59	0.15	20%	1%	0
13	R12	--	2.44	2.61	0.18	20%	1%	0	2.61	0.18	20%	1%	0
13	R13	--	2.44	2.57	0.14	20%	1%	0	2.57	0.14	20%	1%	0
13	R14	--	2.44	2.57	0.13	20%	1%	0	2.57	0.13	20%	1%	0
13	R15	CR10	2.44	2.78	0.34	21%	3%	0	2.78	0.34	21%	3%	0
13	R16	--	2.44	2.72	0.28	21%	2%	0	2.72	0.28	21%	2%	0
13	R17	CR01	2.44	2.58	0.14	20%	1%	0	2.58	0.14	20%	1%	0
13	R18	CR04	2.44	2.56	0.12	20%	1%	0	2.56	0.12	20%	1%	0
13	R19	CR06	2.44	2.55	0.12	20%	1%	0	2.55	0.12	20%	1%	0
13	R20	CR07	2.44	2.55	0.12	20%	1%	0	2.55	0.12	20%	1%	0
13	R21	CR8	2.44	2.86	0.42	22%	3%	0	2.86	0.42	22%	3%	0
13	R22	CR11	2.44	2.57	0.13	20%	1%	0	2.57	0.13	20%	1%	0
13	R23	CR12	2.44	2.55	0.11	20%	1%	0	2.55	0.11	20%	1%	0
13	R24	CR13	2.44	2.57	0.13	20%	1%	0	2.57	0.13	20%	1%	0
13	R25	CR14	2.44	2.56	0.12	20%	1%	0	2.56	0.12	20%	1%	0
13	R26	CR15	2.44	2.55	0.12	20%	1%	0	2.55	0.12	20%	1%	0
13	R27	CR16	2.44	2.53	0.09	19%	1%	0	2.53	0.09	19%	1%	0
13	R28	CR20	2.44	2.56	0.12	20%	1%	0	2.56	0.12	20%	1%	0
13	R29	CR21	2.44	2.56	0.13	20%	1%	0	2.56	0.13	20%	1%	0

[1] As TRS sampling was not conducted at the landfill areas and H2S is the major constitutent of TRS, concentrations of TRS were derived based on the ratio of H2S emission rate to TRS emission rate obtained in the sampling of landfill gas collection system.

Table 4-3-9: Predicted Concentrations of 24-Hour Total Reduced Sulphur at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Do Nothing Scenario

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 7 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 7 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
7	R01	--	2.20	2.21	0.02	32%	0.2%	0	2.21	0.02	32%	0.2%	0
7	R02	CR17	2.20	2.21	0.01	32%	0.2%	0	2.21	0.01	32%	0.2%	0
7	R03	CR19	2.20	2.30	0.10	33%	1.4%	0	2.30	0.10	33%	1.4%	0
7	R04	--	2.20	2.23	0.03	32%	0.4%	0	2.23	0.03	32%	0.4%	0
7	R05	--	2.20	2.22	0.03	32%	0.4%	0	2.22	0.03	32%	0.4%	0
7	R06	--	2.20	2.22	0.03	32%	0.4%	0	2.22	0.03	32%	0.4%	0
7	R07	--	2.20	2.22	0.02	32%	0.3%	0	2.22	0.02	32%	0.3%	0
7	R08	--	2.20	2.22	0.02	32%	0.3%	0	2.22	0.02	32%	0.3%	0
7	R09	CR18	2.20	2.22	0.02	32%	0.2%	0	2.22	0.02	32%	0.2%	0
7	R10	CR05	2.20	2.23	0.03	32%	0.5%	0	2.23	0.03	32%	0.5%	0
7	R11	--	2.20	2.24	0.04	32%	0.6%	0	2.24	0.04	32%	0.6%	0
7	R12	--	2.20	2.24	0.04	32%	0.5%	0	2.24	0.04	32%	0.5%	0
7	R13	--	2.20	2.24	0.04	32%	0.6%	0	2.24	0.04	32%	0.6%	0
7	R14	--	2.20	2.22	0.02	32%	0.3%	0	2.22	0.02	32%	0.3%	0
7	R15	CR10	2.20	2.31	0.11	33%	1.6%	0	2.31	0.11	33%	1.6%	0
7	R16	--	2.20	2.25	0.06	32%	0.8%	0	2.25	0.06	32%	0.8%	0
7	R17	CR01	2.20	2.22	0.02	32%	0.2%	0	2.22	0.02	32%	0.2%	0
7	R18	CR04	2.20	2.22	0.02	32%	0.4%	0	2.22	0.02	32%	0.4%	0
7	R19	CR06	2.20	2.22	0.02	32%	0.3%	0	2.22	0.02	32%	0.3%	0
7	R20	CR07	2.20	2.21	0.01	32%	0.2%	0	2.21	0.01	32%	0.2%	0
7	R21	CR8	2.20	2.28	0.08	33%	1.2%	0	2.28	0.08	33%	1.2%	0
7	R22	CR11	2.20	2.21	0.01	32%	0.2%	0	2.21	0.01	32%	0.2%	0
7	R23	CR12	2.20	2.21	0.01	32%	0.2%	0	2.21	0.01	32%	0.2%	0
7	R24	CR13	2.20	2.22	0.02	32%	0.2%	0	2.22	0.02	32%	0.2%	0
7	R25	CR14	2.20	2.21	0.01	32%	0.2%	0	2.21	0.01	32%	0.2%	0
7	R26	CR15	2.20	2.21	0.01	32%	0.2%	0	2.21	0.01	32%	0.2%	0
7	R27	CR16	2.20	2.21	0.01	32%	0.1%	0	2.21	0.01	32%	0.1%	0
7	R28	CR20	2.20	2.21	0.01	32%	0.2%	0	2.21	0.01	32%	0.2%	0
7	R29	CR21	2.20	2.22	0.02	32%	0.3%	0	2.22	0.02	32%	0.3%	0

[1] As TRS sampling was not conducted at the landfill areas and H2S is the major constitutent of TRS, concentrations of TRS were derived based on the ratio of H2S emission rate to TRS emission rate obtained in the sampling of landfill gas collection system.

Table 4-3-10: Predicted Concentrations of 1-Hour Nitrogen Oxides at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Do Nothing Scenario

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Hours Exceeding 400 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Hours Exceeding 400 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
400	R01	--	23.4	140	117	35%	29%	0	30	7	7%	2%	0
400	R02	CR17	23.4	113	90	28%	22%	0	31	8	8%	2%	0
400	R03	CR19	23.4	122	99	31%	25%	0	45	21	11%	5%	0
400	R04	--	23.4	101	77	25%	19%	0	32	9	8%	2%	0
400	R05	--	23.4	99	76	25%	19%	0	32	9	8%	2%	0
400	R06	--	23.4	97	73	24%	18%	0	33	9	8%	2%	0
400	R07	--	23.4	100	77	25%	19%	0	32	9	8%	2%	0
400	R08	--	23.4	94	71	23%	18%	0	32	9	8%	2%	0
400	R09	CR18	23.4	109	86	27%	21%	0	31	8	8%	2%	0
400	R10	CR05	23.4	94	70	23%	18%	0	32	9	8%	2%	0
400	R11	--	23.4	113	89	28%	22%	0	33	9	8%	2%	0
400	R12	--	23.4	118	94	29%	24%	0	36	12	9%	3%	0
400	R13	--	23.4	108	85	27%	21%	0	35	11	9%	3%	0
400	R14	--	23.4	106	82	26%	21%	0	33	9	8%	2%	0
400	R15	CR10	23.4	157	134	39%	33%	0	47	23	12%	6%	0
400	R16	--	23.4	131	108	33%	27%	0	43	19	11%	5%	0
400	R17	CR01	23.4	105	82	26%	20%	0	30	7	8%	2%	0
400	R18	CR04	23.4	94	71	24%	18%	0	32	9	8%	2%	0
400	R19	CR06	23.4	105	82	26%	21%	0	33	9	8%	2%	0
400	R20	CR07	23.4	86	63	22%	16%	0	31	7	8%	2%	0
400	R21	CR8	23.4	378	355	95%	89%	0	47	24	12%	6%	0
400	R22	CR11	23.4	105	82	26%	20%	0	30	6	7%	2%	0
400	R23	CR12	23.4	89	65	22%	16%	0	30	7	7%	2%	0
400	R24	CR13	23.4	93	69	23%	17%	0	32	9	8%	2%	0
400	R25	CR14	23.4	98	74	24%	19%	0	31	7	8%	2%	0
400	R26	CR15	23.4	78	54	19%	14%	0	29	5	7%	1%	0
400	R27	CR16	23.4	104	81	26%	20%	0	29	6	7%	1%	0
400	R28	CR20	23.4	81	57	20%	14%	0	31	8	8%	2%	0
400	R29	CR21	23.4	162	138	40%	35%	0	30	6	7%	2%	0

Table 4-3-11: Predicted Concentrations of 24-Hour Nitrogen Oxides at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Do Nothing Scenario

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 200 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 200 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
200	R01	--	21.6	31	10	16%	4.8%	0	22	1	11%	0.5%	0
200	R02	CR17	21.6	31	9	15%	4.6%	0	23	1	11%	0.5%	0
200	R03	CR19	21.6	37	15	19%	7.7%	0	30	9	15%	4.3%	0
200	R04	--	21.6	27	6	14%	2.8%	0	24	2	12%	1.0%	0
200	R05	--	21.6	27	6	14%	2.8%	0	23	2	12%	0.9%	0
200	R06	--	21.6	27	6	14%	2.9%	0	23	2	12%	0.9%	0
200	R07	--	21.6	27	6	14%	2.8%	0	23	1	11%	0.7%	0
200	R08	--	21.6	27	5	13%	2.7%	0	23	1	11%	0.6%	0
200	R09	CR18	21.6	27	6	14%	2.8%	0	23	1	11%	0.6%	0
200	R10	CR05	21.6	29	7	14%	3.7%	0	24	2	12%	1.1%	0
200	R11	--	21.6	30	8	15%	4.1%	0	24	3	12%	1.3%	0
200	R12	--	21.6	31	9	15%	4.7%	0	25	3	12%	1.6%	0
200	R13	--	21.6	30	8	15%	4.2%	0	25	3	12%	1.6%	0
200	R14	--	21.6	28	7	14%	3.4%	0	23	2	12%	0.8%	0
200	R15	CR10	21.6	36	15	18%	7.3%	0	32	10	16%	5.0%	0
200	R16	--	21.6	33	11	16%	5.6%	0	28	7	14%	3.3%	0
200	R17	CR01	21.6	30	8	15%	4.2%	0	23	1	11%	0.5%	0
200	R18	CR04	21.6	27	6	14%	2.9%	0	23	2	12%	0.8%	0
200	R19	CR06	21.6	35	14	18%	6.8%	0	23	2	12%	0.8%	0
200	R20	CR07	21.6	27	5	13%	2.6%	0	22	1	11%	0.4%	0
200	R21	CR8	21.6	58	36	29%	18.0%	0	28	7	14%	3.4%	0
200	R22	CR11	21.6	30	9	15%	4.3%	0	22	1	11%	0.4%	0
200	R23	CR12	21.6	27	5	13%	2.7%	0	22	1	11%	0.4%	0
200	R24	CR13	21.6	27	5	13%	2.7%	0	23	1	11%	0.6%	0
200	R25	CR14	21.6	27	6	14%	2.8%	0	22	1	11%	0.4%	0
200	R26	CR15	21.6	27	5	13%	2.6%	0	22	1	11%	0.3%	0
200	R27	CR16	21.6	29	8	15%	3.8%	0	22	1	11%	0.4%	0
200	R28	CR20	21.6	25	4	13%	1.8%	0	22	1	11%	0.5%	0
200	R29	CR21	21.6	38	17	19%	8.4%	0	23	1	11%	0.6%	0

Table 4-3-12: Predicted Concentrations of 1-Hour Sulphur Dioxides at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Do Nothing Scenario

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Hours Exceeding 100 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Hours Exceeding 100 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
100	R01	--	1.1	6	4	6%	4%	0	3	2	3%	2%	0
100	R02	CR17	1.1	6	5	6%	5%	0	4	3	4%	3%	0
100	R03	CR19	1.1	36	35	36%	35%	0	36	35	36%	35%	0
100	R04	--	1.1	5	4	5%	4%	0	4	3	4%	3%	0
100	R05	--	1.1	5	4	5%	4%	0	4	3	4%	3%	0
100	R06	--	1.1	5	4	5%	4%	0	4	3	4%	3%	0
100	R07	--	1.1	5	4	5%	4%	0	4	3	4%	3%	0
100	R08	--	1.1	5	4	5%	4%	0	4	3	4%	3%	0
100	R09	CR18	1.1	6	5	6%	5%	0	4	3	4%	3%	0
100	R10	CR05	1.1	6	5	6%	5%	0	6	5	6%	5%	0
100	R11	--	1.1	10	9	10%	9%	0	10	9	10%	9%	0
100	R12	--	1.1	12	11	12%	11%	0	12	11	12%	11%	0
100	R13	--	1.1	9	8	9%	8%	0	9	8	9%	8%	0
100	R14	--	1.1	7	5	7%	5%	0	7	5	7%	5%	0
100	R15	CR10	1.1	30	29	30%	29%	0	30	29	30%	29%	0
100	R16	--	1.1	22	21	22%	21%	0	22	21	22%	21%	0
100	R17	CR01	1.1	5	4	5%	4%	0	5	4	5%	4%	0
100	R18	CR04	1.1	5	4	5%	4%	0	4	3	4%	3%	0
100	R19	CR06	1.1	6	5	6%	5%	0	5	3	5%	3%	0
100	R20	CR07	1.1	4	3	4%	3%	0	4	3	4%	3%	0
100	R21	CR8	1.1	18	17	18%	17%	0	18	17	18%	17%	0
100	R22	CR11	1.1	5	4	5%	4%	0	3	2	3%	2%	0
100	R23	CR12	1.1	5	4	5%	4%	0	4	3	4%	3%	0
100	R24	CR13	1.1	6	5	6%	5%	0	5	3	5%	3%	0
100	R25	CR14	1.1	5	4	5%	4%	0	4	3	4%	3%	0
100	R26	CR15	1.1	4	3	4%	3%	0	3	2	3%	2%	0
100	R27	CR16	1.1	6	5	6%	5%	0	4	3	4%	3%	0
100	R28	CR20	1.1	4	3	4%	3%	0	4	3	4%	3%	0
100	R29	CR21	1.1	5	4	5%	4%	0	4	3	4%	3%	0

[1] 1-Hour SO_2 results are based on the maximum among the three operating secenarios, namely Normal Operating Scenario, Maintenance Scenario and Tailgas Scenario, considered in the SO_2 model.

Table 4-3-13: Predicted Concentrations of Annual Sulphur Dioxides at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Do Nothing Scenario

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included				Landfill Only			
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)	
				With Background	Without Background	With Background	Without Background	With Background	Without Background	With Background	Without Background
10	R01	--	0.5	0.6	0.06	6%	0.6%	0.6	0.03	6%	0.3%
10	R02	CR17	0.5	0.6	0.05	6%	0.5%	0.6	0.03	6%	0.3%
10	R03	CR19	0.5	0.7	0.16	7%	1.6%	0.7	0.15	7%	1.5%
10	R04	--	0.5	0.6	0.07	6%	0.7%	0.6	0.05	6%	0.5%
10	R05	--	0.5	0.6	0.06	6%	0.6%	0.6	0.05	6%	0.5%
10	R06	--	0.5	0.6	0.06	6%	0.6%	0.6	0.05	6%	0.5%
10	R07	--	0.5	0.6	0.05	6%	0.5%	0.6	0.04	6%	0.4%
10	R08	--	0.5	0.6	0.04	6%	0.4%	0.6	0.04	6%	0.4%
10	R09	CR18	0.5	0.6	0.04	6%	0.4%	0.6	0.03	6%	0.3%
10	R10	CR05	0.5	0.6	0.06	6%	0.6%	0.6	0.05	6%	0.5%
10	R11	--	0.5	0.6	0.06	6%	0.6%	0.6	0.05	6%	0.5%
10	R12	--	0.5	0.6	0.06	6%	0.6%	0.6	0.06	6%	0.6%
10	R13	--	0.5	0.6	0.06	6%	0.6%	0.6	0.05	6%	0.5%
10	R14	--	0.5	0.6	0.03	6%	0.3%	0.6	0.03	6%	0.3%
10	R15	CR10	0.5	0.7	0.19	7%	1.9%	0.7	0.17	7%	1.7%
10	R16	--	0.5	0.7	0.14	7%	1.4%	0.7	0.13	7%	1.3%
10	R17	CR01	0.5	0.6	0.06	6%	0.6%	0.6	0.04	6%	0.4%
10	R18	CR04	0.5	0.6	0.06	6%	0.6%	0.6	0.05	6%	0.5%
10	R19	CR06	0.5	0.6	0.05	6%	0.5%	0.6	0.04	6%	0.4%
10	R20	CR07	0.5	0.6	0.03	6%	0.3%	0.5	0.02	5%	0.2%
10	R21	CR8	0.5	0.8	0.25	8%	2.5%	0.7	0.21	7%	2.1%
10	R22	CR11	0.5	0.6	0.05	6%	0.5%	0.6	0.03	6%	0.3%
10	R23	CR12	0.5	0.6	0.03	6%	0.3%	0.5	0.02	5%	0.2%
10	R24	CR13	0.5	0.5	0.02	5%	0.2%	0.5	0.02	5%	0.2%
10	R25	CR14	0.5	0.6	0.03	6%	0.3%	0.6	0.03	6%	0.3%
10	R26	CR15	0.5	0.6	0.03	6%	0.3%	0.5	0.02	5%	0.2%
10	R27	CR16	0.5	0.5	0.02	5%	0.2%	0.5	0.02	5%	0.2%
10	R28	CR20	0.5	0.6	0.03	6%	0.3%	0.5	0.02	5%	0.2%
10	R29	CR21	0.5	0.6	0.07	6%	0.7%	0.6	0.04	6%	0.4%

[1] Annual SO_2 results are based on the Normal Operating Scenario considered in the SO_2 model, as the other two scenarios rarely happen and should not be taken into account in the long-term impact.

Table 4-4: Do Nothing Scenario Dust Dispersion Modelling Results

RWDI Project #2402272

Table 4-4-1: Predicted Concentrations of 24-Hour TSP at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Do Nothing Scenario

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 120 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 120 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
120	R01	--	51	52	1.3	44%	1.1%	0	51	0.2	43%	0.1%	0
120	R02	CR17	51	52	1.3	44%	1.1%	0	51	0.2	43%	0.1%	0
120	R03	CR19	51	53	1.5	44%	1.3%	0	52	1.4	44%	1.2%	0
120	R04	--	51	51	0.5	43%	0.4%	0	51	0.4	43%	0.3%	0
120	R05	--	51	51	0.5	43%	0.4%	0	51	0.3	43%	0.3%	0
120	R06	--	51	52	0.5	43%	0.4%	0	51	0.3	43%	0.3%	0
120	R07	--	51	52	0.7	43%	0.6%	0	51	0.2	43%	0.2%	0
120	R08	--	51	52	0.6	43%	0.5%	0	51	0.2	43%	0.2%	0
120	R09	CR18	51	52	0.6	43%	0.5%	0	51	0.2	43%	0.2%	0
120	R10	CR05	51	52	0.7	43%	0.6%	0	51	0.4	43%	0.3%	0
120	R11	--	51	52	0.9	43%	0.7%	0	51	0.5	43%	0.4%	0
120	R12	--	51	52	0.9	43%	0.8%	0	51	0.5	43%	0.4%	0
120	R13	--	51	52	1.4	44%	1.2%	0	52	0.5	43%	0.4%	0
120	R14	--	51	52	0.7	43%	0.6%	0	51	0.3	43%	0.2%	0
120	R15	CR10	51	53	2.4	45%	2.0%	0	53	1.6	44%	1.3%	0
120	R16	--	51	53	1.9	44%	1.6%	0	52	0.9	43%	0.8%	0
120	R17	CR01	51	52	1.2	43%	1.0%	0	51	0.2	43%	0.1%	0
120	R18	CR04	51	52	0.5	43%	0.5%	0	51	0.3	43%	0.2%	0
120	R19	CR06	51	53	1.7	44%	1.4%	0	51	0.3	43%	0.2%	0
120	R20	CR07	51	52	0.5	43%	0.4%	0	51	0.1	43%	0.1%	0
120	R21	CR8	51	55	4.1	46%	3.4%	0	52	1.1	43%	0.9%	0
120	R22	CR11	51	52	1.2	43%	1.0%	0	51	0.1	43%	0.1%	0
120	R23	CR12	51	52	0.6	43%	0.5%	0	51	0.1	43%	0.1%	0
120	R24	CR13	51	52	0.6	43%	0.5%	0	51	0.2	43%	0.2%	0
120	R25	CR14	51	52	0.6	43%	0.5%	0	51	0.1	43%	0.1%	0
120	R26	CR15	51	52	0.7	43%	0.6%	0	51	0.1	43%	0.1%	0
120	R27	CR16	51	52	1.2	44%	1.0%	0	51	0.1	43%	0.1%	0
120	R28	CR20	51	51	0.3	43%	0.3%	0	51	0.2	43%	0.1%	0
120	R29	CR21	51	53	1.7	44%	1.4%	0	51	0.2	43%	0.2%	0

Table 4-4: Do Nothing Scenario Dust Dispersion Modelling Results

Table 4-4-2: Predicted Concentrations of 24-Hour PM10 at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Do Nothing Scenario

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 50 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 50 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
50	R01	--	22	23	0.8	45%	1.6%	0	22	0.2	44%	0.3%	0
50	R02	CR17	22	23	0.7	45%	1.4%	0	22	0.2	44%	0.3%	0
50	R03	CR19	22	23	1.4	47%	2.9%	0	23	1.4	47%	2.8%	0
50	R04	--	22	22	0.4	45%	0.8%	0	22	0.4	45%	0.7%	0
50	R05	--	22	22	0.4	45%	0.8%	0	22	0.3	45%	0.7%	0
50	R06	--	22	22	0.4	45%	0.7%	0	22	0.3	45%	0.7%	0
50	R07	--	22	22	0.5	45%	0.9%	0	22	0.2	44%	0.5%	0
50	R08	--	22	22	0.4	45%	0.7%	0	22	0.2	44%	0.5%	0
50	R09	CR18	22	22	0.4	45%	0.9%	0	22	0.2	44%	0.4%	0
50	R10	CR05	22	22	0.6	45%	1.1%	0	22	0.4	45%	0.8%	0
50	R11	--	22	23	0.7	45%	1.4%	0	22	0.5	45%	1.0%	0
50	R12	--	22	23	0.6	45%	1.2%	0	22	0.5	45%	1.0%	0
50	R13	--	22	23	0.9	46%	1.7%	0	22	0.5	45%	1.1%	0
50	R14	--	22	22	0.5	45%	1.0%	0	22	0.3	44%	0.5%	0
50	R15	CR10	22	24	1.6	47%	3.2%	0	24	1.6	47%	3.2%	0
50	R16	--	22	23	1.1	46%	2.2%	0	23	0.9	46%	1.8%	0
50	R17	CR01	22	23	0.8	45%	1.5%	0	22	0.2	44%	0.3%	0
50	R18	CR04	22	22	0.4	45%	0.8%	0	22	0.3	44%	0.6%	0
50	R19	CR06	22	23	1.0	46%	2.1%	0	22	0.3	44%	0.6%	0
50	R20	CR07	22	22	0.4	45%	0.7%	0	22	0.1	44%	0.3%	0
50	R21	CR8	22	24	2.2	48%	4.4%	0	23	1.1	46%	2.3%	0
50	R22	CR11	22	23	0.7	45%	1.4%	0	22	0.1	44%	0.3%	0
50	R23	CR12	22	22	0.4	45%	0.9%	0	22	0.1	44%	0.3%	0
50	R24	CR13	22	22	0.4	45%	0.8%	0	22	0.2	44%	0.4%	0
50	R25	CR14	22	22	0.4	45%	0.9%	0	22	0.1	44%	0.3%	0
50	R26	CR15	22	22	0.3	45%	0.7%	0	22	0.1	44%	0.2%	0
50	R27	CR16	22	23	0.7	45%	1.4%	0	22	0.1	44%	0.2%	0
50	R28	CR20	22	22	0.2	44%	0.5%	0	22	0.2	44%	0.3%	0
50	R29	CR21	22	23	0.9	46%	1.9%	0	22	0.2	44%	0.4%	0

Table 4-4-3a: Predicted Concentrations of 24-Hour PM2.5 at Discrete Receptors - 2020 CAAQS

Walker South Landfill Phase 2 Environmental Assessment - Do Nothing Scenario

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 27 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 27 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
27	R01	--	18	18	0.5	68%	1.8%	0	18	0.2	67%	0.6%	0
27	R02	CR17	18	18	0.4	68%	1.6%	0	18	0.2	67%	0.6%	0
27	R03	CR19	18	19	1.4	71%	5.3%	0	19	1.4	71%	5.2%	0
27	R04	--	18	18	0.4	68%	1.5%	0	18	0.4	67%	1.3%	0
27	R05	--	18	18	0.4	67%	1.3%	0	18	0.3	67%	1.2%	0
27	R06	--	18	18	0.4	67%	1.3%	0	18	0.3	67%	1.2%	0
27	R07	--	18	18	0.3	67%	1.1%	0	18	0.2	67%	0.9%	0
27	R08	--	18	18	0.3	67%	1.1%	0	18	0.2	67%	0.9%	0
27	R09	CR18	18	18	0.3	67%	1.2%	0	18	0.2	67%	0.7%	0
27	R10	CR05	18	18	0.5	68%	1.9%	0	18	0.4	68%	1.4%	0
27	R11	--	18	18	0.6	68%	2.3%	0	18	0.5	68%	1.8%	0
27	R12	--	18	18	0.6	68%	2.1%	0	18	0.5	68%	1.8%	0
27	R13	--	18	18	0.6	68%	2.3%	0	18	0.5	68%	2.0%	0
27	R14	--	18	18	0.4	68%	1.5%	0	18	0.3	67%	1.0%	0
27	R15	CR10	18	19	1.6	72%	6.0%	0	19	1.6	72%	6.0%	0
27	R16	--	18	19	0.9	70%	3.4%	0	19	0.9	69%	3.4%	0
27	R17	CR01	18	18	0.5	68%	1.9%	0	18	0.2	67%	0.6%	0
27	R18	CR04	18	18	0.3	67%	1.2%	0	18	0.3	67%	1.1%	0
27	R19	CR06	18	18	0.5	68%	2.0%	0	18	0.3	67%	1.0%	0
27	R20	CR07	18	18	0.2	67%	0.9%	0	18	0.1	67%	0.5%	0
27	R21	CR8	18	19	1.1	70%	4.2%	0	19	1.1	70%	4.2%	0
27	R22	CR11	18	18	0.4	68%	1.6%	0	18	0.1	67%	0.5%	0
27	R23	CR12	18	18	0.3	67%	1.2%	0	18	0.1	67%	0.5%	0
27	R24	CR13	18	18	0.3	67%	1.3%	0	18	0.2	67%	0.8%	0
27	R25	CR14	18	18	0.3	67%	1.3%	0	18	0.1	67%	0.6%	0
27	R26	CR15	18	18	0.2	67%	0.8%	0	18	0.1	67%	0.4%	0
27	R27	CR16	18	18	0.4	68%	1.4%	0	18	0.1	67%	0.4%	0
27	R28	CR20	18	18	0.2	67%	0.6%	0	18	0.2	67%	0.6%	0
27	R29	CR21	18	18	0.5	68%	1.9%	0	18	0.2	67%	0.7%	0

Table 4-4-3b: Predicted Concentrations of 24-Hour PM2.5 at Discrete Receptors - 2030 CAAQS

Walker South Landfill Phase 2 Environmental Assessment - Do Nothing Scenario

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 23 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 23 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
23	R01	--	18	18	0.5	80%	2.1%	0	18	0.2	78%	0.7%	0
23	R02	CR17	18	18	0.4	79%	1.9%	0	18	0.2	78%	0.7%	0
23	R03	CR19	18	19	1.4	84%	6.2%	0	19	1.4	84%	6.1%	0
23	R04	--	18	18	0.4	79%	1.7%	0	18	0.4	79%	1.6%	0
23	R05	--	18	18	0.4	79%	1.6%	0	18	0.3	79%	1.4%	0
23	R06	--	18	18	0.4	79%	1.5%	0	18	0.3	79%	1.4%	0
23	R07	--	18	18	0.3	79%	1.3%	0	18	0.2	79%	1.0%	0
23	R08	--	18	18	0.3	79%	1.3%	0	18	0.2	79%	1.0%	0
23	R09	CR18	18	18	0.3	79%	1.4%	0	18	0.2	78%	0.8%	0
23	R10	CR05	18	18	0.5	80%	2.2%	0	18	0.4	79%	1.7%	0
23	R11	--	18	18	0.6	80%	2.7%	0	18	0.5	80%	2.2%	0
23	R12	--	18	18	0.6	80%	2.5%	0	18	0.5	80%	2.1%	0
23	R13	--	18	18	0.6	80%	2.7%	0	18	0.5	80%	2.3%	0
23	R14	--	18	18	0.4	79%	1.8%	0	18	0.3	79%	1.2%	0
23	R15	CR10	18	19	1.6	85%	7.0%	0	19	1.6	85%	7.0%	0
23	R16	--	18	19	0.9	82%	4.0%	0	19	0.9	82%	4.0%	0
23	R17	CR01	18	18	0.5	80%	2.2%	0	18	0.2	78%	0.7%	0
23	R18	CR04	18	18	0.3	79%	1.4%	0	18	0.3	79%	1.3%	0
23	R19	CR06	18	18	0.5	80%	2.3%	0	18	0.3	79%	1.2%	0
23	R20	CR07	18	18	0.2	79%	1.1%	0	18	0.1	78%	0.6%	0
23	R21	CR8	18	19	1.1	83%	5.0%	0	19	1.1	83%	4.9%	0
23	R22	CR11	18	18	0.4	79%	1.9%	0	18	0.1	78%	0.6%	0
23	R23	CR12	18	18	0.3	79%	1.4%	0	18	0.1	78%	0.6%	0
23	R24	CR13	18	18	0.3	79%	1.5%	0	18	0.2	79%	0.9%	0
23	R25	CR14	18	18	0.3	79%	1.5%	0	18	0.1	78%	0.7%	0
23	R26	CR15	18	18	0.2	79%	0.9%	0	18	0.1	78%	0.5%	0
23	R27	CR16	18	18	0.4	79%	1.7%	0	18	0.1	78%	0.5%	0
23	R28	CR20	18	18	0.2	78%	0.7%	0	18	0.2	78%	0.7%	0
23	R29	CR21	18	18	0.5	80%	2.3%	0	18	0.2	78%	0.9%	0

Table 4-4-4: Predicted Concentrations of Annual TSP at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Do Nothing Scenario

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included				Landfill Only			
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)	
				With Background	Without Background	With Background	Without Background	With Background	Without Background	With Background	Without Background
60	R01	--	26	26	0.10	44%	0.17%	26	0.02	43%	0.04%
60	R02	CR17	26	26	0.06	44%	0.10%	26	0.02	43%	0.04%
60	R03	CR19	26	26	0.13	44%	0.22%	26	0.08	44%	0.14%
60	R04	--	26	26	0.07	44%	0.11%	26	0.04	43%	0.06%
60	R05	--	26	26	0.06	44%	0.10%	26	0.03	43%	0.05%
60	R06	--	26	26	0.06	44%	0.11%	26	0.03	43%	0.05%
60	R07	--	26	26	0.05	44%	0.09%	26	0.03	43%	0.05%
60	R08	--	26	26	0.04	43%	0.07%	26	0.02	43%	0.04%
60	R09	CR18	26	26	0.04	43%	0.07%	26	0.02	43%	0.03%
60	R10	CR05	26	26	0.05	43%	0.09%	26	0.03	43%	0.05%
60	R11	--	26	26	0.05	44%	0.09%	26	0.03	43%	0.05%
60	R12	--	26	26	0.06	44%	0.10%	26	0.03	43%	0.05%
60	R13	--	26	26	0.06	44%	0.09%	26	0.03	43%	0.05%
60	R14	--	26	26	0.03	43%	0.06%	26	0.02	43%	0.03%
60	R15	CR10	26	26	0.15	44%	0.25%	26	0.09	44%	0.15%
60	R16	--	26	26	0.12	44%	0.19%	26	0.07	44%	0.11%
60	R17	CR01	26	26	0.09	44%	0.14%	26	0.02	43%	0.04%
60	R18	CR04	26	26	0.06	44%	0.10%	26	0.03	43%	0.05%
60	R19	CR06	26	26	0.08	44%	0.13%	26	0.02	43%	0.04%
60	R20	CR07	26	26	0.03	43%	0.04%	26	0.01	43%	0.02%
60	R21	CR8	26	26	0.24	44%	0.40%	26	0.10	44%	0.17%
60	R22	CR11	26	26	0.09	44%	0.14%	26	0.02	43%	0.03%
60	R23	CR12	26	26	0.03	43%	0.05%	26	0.01	43%	0.02%
60	R24	CR13	26	26	0.02	43%	0.04%	26	0.01	43%	0.02%
60	R25	CR14	26	26	0.04	43%	0.07%	26	0.02	43%	0.03%
60	R26	CR15	26	26	0.04	43%	0.07%	26	0.01	43%	0.02%
60	R27	CR16	26	26	0.03	43%	0.05%	26	0.01	43%	0.02%
60	R28	CR20	26	26	0.03	43%	0.05%	26	0.02	43%	0.03%
60	R29	CR21	26	26	0.15	44%	0.24%	26	0.02	43%	0.04%

Table 4-4-5a: Predicted Concentrations of Annual PM2.5 at Discrete Receptors - 2020 CAAQS

Walker South Landfill Phase 2 Environmental Assessment - Do Nothing Scenario

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included				Landfill Only			
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)	
				With Background	Without Background	With Background	Without Background	With Background	Without Background	With Background	Without Background
8.8	R01	--	9.1	9.2	0.05	104%	0.6%	9.1	0.02	104%	0.3%
8.8	R02	CR17	9.1	9.2	0.04	104%	0.4%	9.1	0.02	104%	0.3%
8.8	R03	CR19	9.1	9.2	0.10	105%	1.1%	9.2	0.08	105%	0.9%
8.8	R04	--	9.1	9.2	0.05	104%	0.5%	9.2	0.04	104%	0.4%
8.8	R05	--	9.1	9.2	0.04	104%	0.5%	9.1	0.03	104%	0.4%
8.8	R06	--	9.1	9.2	0.04	104%	0.5%	9.1	0.03	104%	0.4%
8.8	R07	--	9.1	9.2	0.04	104%	0.4%	9.1	0.03	104%	0.3%
8.8	R08	--	9.1	9.1	0.03	104%	0.4%	9.1	0.02	104%	0.3%
8.8	R09	CR18	9.1	9.1	0.03	104%	0.3%	9.1	0.02	104%	0.2%
8.8	R10	CR05	9.1	9.2	0.04	104%	0.4%	9.1	0.03	104%	0.4%
8.8	R11	--	9.1	9.2	0.04	104%	0.4%	9.1	0.03	104%	0.4%
8.8	R12	--	9.1	9.2	0.04	104%	0.5%	9.1	0.03	104%	0.4%
8.8	R13	--	9.1	9.2	0.04	104%	0.4%	9.1	0.03	104%	0.3%
8.8	R14	--	9.1	9.1	0.02	104%	0.3%	9.1	0.02	104%	0.2%
8.8	R15	CR10	9.1	9.2	0.11	105%	1.2%	9.2	0.09	105%	1.0%
8.8	R16	--	9.1	9.2	0.08	105%	1.0%	9.2	0.07	104%	0.8%
8.8	R17	CR01	9.1	9.2	0.05	104%	0.5%	9.1	0.02	104%	0.3%
8.8	R18	CR04	9.1	9.2	0.04	104%	0.5%	9.1	0.03	104%	0.4%
8.8	R19	CR06	9.1	9.2	0.04	104%	0.5%	9.1	0.02	104%	0.2%
8.8	R20	CR07	9.1	9.1	0.02	104%	0.2%	9.1	0.01	104%	0.2%
8.8	R21	CR8	9.1	9.3	0.15	105%	1.7%	9.2	0.10	105%	1.2%
8.8	R22	CR11	9.1	9.2	0.04	104%	0.5%	9.1	0.02	104%	0.2%
8.8	R23	CR12	9.1	9.1	0.02	104%	0.2%	9.1	0.01	104%	0.2%
8.8	R24	CR13	9.1	9.1	0.02	104%	0.2%	9.1	0.01	104%	0.1%
8.8	R25	CR14	9.1	9.1	0.03	104%	0.3%	9.1	0.02	104%	0.2%
8.8	R26	CR15	9.1	9.1	0.02	104%	0.3%	9.1	0.01	104%	0.2%
8.8	R27	CR16	9.1	9.1	0.02	104%	0.2%	9.1	0.01	104%	0.1%
8.8	R28	CR20	9.1	9.1	0.02	104%	0.2%	9.1	0.02	104%	0.2%
8.8	R29	CR21	9.1	9.2	0.06	104%	0.7%	9.1	0.02	104%	0.3%

Table 4-4-5b: Predicted Concentrations of Annual PM2.5 at Discrete Receptors - 2030 CAAQS

Walker South Landfill Phase 2 Environmental Assessment - Do Nothing Scenario

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included				Landfill Only			
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)	
				With Background	Without Background	With Background	Without Background	With Background	Without Background	With Background	Without Background
8.0	R01	--	9.1	9.2	0.05	115%	0.6%	9.1	0.02	114%	0.3%
8.0	R02	CR17	9.1	9.2	0.04	114%	0.5%	9.1	0.02	114%	0.3%
8.0	R03	CR19	9.1	9.2	0.10	115%	1.2%	9.2	0.08	115%	1.0%
8.0	R04	--	9.1	9.2	0.05	115%	0.6%	9.2	0.04	114%	0.4%
8.0	R05	--	9.1	9.2	0.04	115%	0.5%	9.1	0.03	114%	0.4%
8.0	R06	--	9.1	9.2	0.04	115%	0.6%	9.1	0.03	114%	0.4%
8.0	R07	--	9.1	9.2	0.04	114%	0.5%	9.1	0.03	114%	0.3%
8.0	R08	--	9.1	9.1	0.03	114%	0.4%	9.1	0.02	114%	0.3%
8.0	R09	CR18	9.1	9.1	0.03	114%	0.4%	9.1	0.02	114%	0.3%
8.0	R10	CR05	9.1	9.2	0.04	114%	0.5%	9.1	0.03	114%	0.4%
8.0	R11	--	9.1	9.2	0.04	114%	0.5%	9.1	0.03	114%	0.4%
8.0	R12	--	9.1	9.2	0.04	114%	0.5%	9.1	0.03	114%	0.4%
8.0	R13	--	9.1	9.2	0.04	114%	0.5%	9.1	0.03	114%	0.4%
8.0	R14	--	9.1	9.1	0.02	114%	0.3%	9.1	0.02	114%	0.2%
8.0	R15	CR10	9.1	9.2	0.11	115%	1.4%	9.2	0.09	115%	1.1%
8.0	R16	--	9.1	9.2	0.08	115%	1.1%	9.2	0.07	115%	0.9%
8.0	R17	CR01	9.1	9.2	0.05	115%	0.6%	9.1	0.02	114%	0.3%
8.0	R18	CR04	9.1	9.2	0.04	115%	0.5%	9.1	0.03	114%	0.4%
8.0	R19	CR06	9.1	9.2	0.04	114%	0.5%	9.1	0.02	114%	0.3%
8.0	R20	CR07	9.1	9.1	0.02	114%	0.2%	9.1	0.01	114%	0.2%
8.0	R21	CR8	9.1	9.3	0.15	116%	1.8%	9.2	0.10	115%	1.3%
8.0	R22	CR11	9.1	9.2	0.04	115%	0.5%	9.1	0.02	114%	0.3%
8.0	R23	CR12	9.1	9.1	0.02	114%	0.3%	9.1	0.01	114%	0.2%
8.0	R24	CR13	9.1	9.1	0.02	114%	0.2%	9.1	0.01	114%	0.1%
8.0	R25	CR14	9.1	9.1	0.03	114%	0.3%	9.1	0.02	114%	0.2%
8.0	R26	CR15	9.1	9.1	0.02	114%	0.3%	9.1	0.01	114%	0.2%
8.0	R27	CR16	9.1	9.1	0.02	114%	0.2%	9.1	0.01	114%	0.1%
8.0	R28	CR20	9.1	9.1	0.02	114%	0.3%	9.1	0.02	114%	0.2%
8.0	R29	CR21	9.1	9.2	0.06	115%	0.8%	9.1	0.02	114%	0.3%

Table 5-1: Scenario 1 Odour Dispersion Modelling Results

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment - Scenario 1 (End of Stage 1) - Landfill Source Group

Receptor Information		Maximum Predicted Concentration (OU)	Predicted Excursions Above Criteria (Maximum among All Modelled Years)					
			Events > 1 OU		Events > 3 OU		Events > 5 OU	
AQ Receptor ID	Common Receptor ID		Count	Frequency	Count	Frequency	Count	Frequency
R01	--	4.7	147	1.7%	19	0.2%	0	0.0%
R02	CR17	2.9	124	1.4%	0	0.0%	0	0.0%
R03	CR19	7.4	224	2.6%	57	0.7%	12	0.1%
R04	--	4.9	274	3.1%	57	0.7%	0	0.0%
R05	--	4.5	231	2.6%	46	0.5%	0	0.0%
R06	--	4.5	235	2.7%	50	0.6%	0	0.0%
R07	--	3.8	163	1.9%	27	0.3%	0	0.0%
R08	--	3.3	94	1.1%	3	0.0%	0	0.0%
R09	CR18	2.9	68	0.8%	0	0.0%	0	0.0%
R10	CR05	4.0	122	1.4%	6	0.1%	0	0.0%
R11	--	4.5	93	1.1%	14	0.2%	0	0.0%
R12	--	4.1	108	1.2%	24	0.3%	0	0.0%
R13	--	3.7	78	0.9%	7	0.1%	0	0.0%
R14	--	3.1	56	0.6%	3	0.03%	0	0.0%
R15	CR10	7.2	214	2.4%	44	0.5%	8	0.1%
R16	--	7.0	173	2.0%	28	0.3%	5	0.1%
R17	CR01	3.3	135	1.5%	6	0.1%	0	0.0%
R18	CR04	4.5	206	2.4%	50	0.6%	0	0.0%
R19	CR06	3.5	80	0.9%	4	0.05%	0	0.0%
R20	CR07	2.2	42	0.5%	0	0.0%	0	0.0%
R21	CR08	7.0	353	4.0%	65	0.7%	19	0.2%
R22	CR11	4.1	116	1.3%	13	0.1%	0	0.0%
R23	CR12	2.1	35	0.4%	0	0.0%	0	0.0%
R24	CR13	2.7	27	0.3%	0	0.0%	0	0.0%
R25	CR14	3.2	49	0.6%	4	0.05%	0	0.0%
R26	CR15	3.1	52	0.6%	1	0.01%	0	0.0%
R27	CR16	2.2	34	0.4%	0	0.0%	0	0.0%
R28	CR20	2.7	58	0.7%	0	0.0%	0	0.0%
R29	CR21	5.7	200	2.3%	44	0.5%	7	0.1%

Table 5-2: Scenario 2 Odour Dispersion Modelling Results

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment - Scenario 2 (End of Stage 3) - Landfill Source Group

Receptor Information		Maximum Predicted Concentration (OU)	Predicted Excursions Above Criteria (Maximum among All Modelled Years)					
			Events > 1 OU		Events > 3 OU		Events > 5 OU	
AQ Receptor ID	Common Receptor ID		Count	Frequency	Count	Frequency	Count	Frequency
R01	--	2.7	104	1.2%	0	0.0%	0	0.0%
R02	CR17	5.5	209	2.4%	42	0.5%	3	0.03%
R03	CR19	5.2	149	1.7%	20	0.2%	1	0.01%
R04	--	2.9	210	2.4%	0	0.0%	0	0.0%
R05	--	2.7	174	2.0%	0	0.0%	0	0.0%
R06	--	2.6	176	2.0%	0	0.0%	0	0.0%
R07	--	2.1	118	1.3%	0	0.0%	0	0.0%
R08	--	1.9	55	0.6%	0	0.0%	0	0.0%
R09	CR18	1.7	40	0.5%	0	0.0%	0	0.0%
R10	CR05	2.6	79	0.9%	0	0.0%	0	0.0%
R11	--	3.2	72	0.8%	3	0.03%	0	0.0%
R12	--	3.9	70	0.8%	7	0.1%	0	0.0%
R13	--	3.6	51	0.6%	3	0.03%	0	0.0%
R14	--	2.8	42	0.5%	0	0.0%	0	0.0%
R15	CR10	4.5	142	1.6%	16	0.2%	0	0.0%
R16	--	4.5	114	1.3%	9	0.1%	0	0.0%
R17	CR01	2.2	121	1.4%	0	0.0%	0	0.0%
R18	CR04	2.5	167	1.9%	0	0.0%	0	0.0%
R19	CR06	2.3	43	0.5%	0	0.0%	0	0.0%
R20	CR07	1.3	18	0.2%	0	0.0%	0	0.0%
R21	CR08	5.1	248	2.8%	28	0.3%	2	0.02%
R22	CR11	2.3	88	1.0%	0	0.0%	0	0.0%
R23	CR12	2.4	47	0.5%	0	0.0%	0	0.0%
R24	CR13	2.0	17	0.2%	0	0.0%	0	0.0%
R25	CR14	2.4	78	0.9%	0	0.0%	0	0.0%
R26	CR15	1.6	35	0.4%	0	0.0%	0	0.0%
R27	CR16	1.4	14	0.2%	0	0.0%	0	0.0%
R28	CR20	1.7	50	0.6%	0	0.0%	0	0.0%
R29	CR21	3.2	144	1.6%	5	0.1%	0	0.0%

Table 5-3: Scenario 3 Odour Dispersion Modelling Results

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment - Scenario 3 (End of Stage 4) - Landfill Source Group

Receptor Information		Maximum Predicted Concentration (OU)	Predicted Excursions Above Criteria (Maximum among All Modelled Years)					
			Events > 1 OU		Events > 3 OU		Events > 5 OU	
AQ Receptor ID	Common Receptor ID		Count	Frequency	Count	Frequency	Count	Frequency
R01	--	2.4	106	1.2%	0	0.0%	0	0.0%
R02	CR17	4.3	201	2.3%	24	0.3%	0	0.0%
R03	CR19	4.4	124	1.4%	12	0.1%	0	0.0%
R04	--	2.8	183	2.1%	0	0.0%	0	0.0%
R05	--	2.6	147	1.7%	0	0.0%	0	0.0%
R06	--	2.6	152	1.7%	0	0.0%	0	0.0%
R07	--	2.1	99	1.1%	0	0.0%	0	0.0%
R08	--	1.8	46	0.5%	0	0.0%	0	0.0%
R09	CR18	1.8	34	0.4%	0	0.0%	0	0.0%
R10	CR05	2.9	58	0.7%	0	0.0%	0	0.0%
R11	--	2.8	59	0.7%	0	0.0%	0	0.0%
R12	--	3.2	52	0.6%	3	0.03%	0	0.0%
R13	--	3.0	43	0.5%	2	0.02%	0	0.0%
R14	--	2.4	33	0.4%	0	0.0%	0	0.0%
R15	CR10	3.4	122	1.4%	3	0.03%	0	0.0%
R16	--	3.5	91	1.0%	3	0.03%	0	0.0%
R17	CR01	2.9	106	1.2%	0	0.0%	0	0.0%
R18	CR04	2.5	143	1.6%	0	0.0%	0	0.0%
R19	CR06	2.6	37	0.4%	0	0.0%	0	0.0%
R20	CR07	1.3	11	0.1%	0	0.0%	0	0.0%
R21	CR08	4.5	191	2.2%	11	0.1%	0	0.0%
R22	CR11	2.3	94	1.1%	0	0.0%	0	0.0%
R23	CR12	2.3	38	0.4%	0	0.0%	0	0.0%
R24	CR13	1.9	17	0.2%	0	0.0%	0	0.0%
R25	CR14	2.8	62	0.7%	0	0.0%	0	0.0%
R26	CR15	1.7	31	0.4%	0	0.0%	0	0.0%
R27	CR16	1.3	12	0.1%	0	0.0%	0	0.0%
R28	CR20	1.7	38	0.4%	0	0.0%	0	0.0%
R29	CR21	2.8	143	1.6%	0	0.0%	0	0.0%

Table 5-4: Scenario 1 Landfill Gas and Combustion Byproducts Dispersion Modelling Results **RWDI Project #2402272**

Table 5-4-1: Predicted Concentrations of 24-Hour Vinyl Chloride at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Scenario 1 (End of Stage 1)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 1 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 1 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
1	R01	--	0.05	0.08	0.03	8%	3%	0	0.08	0.03	8%	3%	0
1	R02	CR17	0.05	0.08	0.03	8%	3%	0	0.08	0.03	8%	3%	0
1	R03	CR19	0.05	0.08	0.02	8%	2%	0	0.08	0.02	8%	2%	0
1	R04	--	0.05	0.10	0.05	10%	5%	0	0.10	0.05	10%	5%	0
1	R05	--	0.05	0.09	0.04	9%	4%	0	0.09	0.04	9%	4%	0
1	R06	--	0.05	0.09	0.04	9%	4%	0	0.09	0.04	9%	4%	0
1	R07	--	0.05	0.08	0.03	8%	3%	0	0.08	0.03	8%	3%	0
1	R08	--	0.05	0.07	0.02	7%	2%	0	0.07	0.02	7%	2%	0
1	R09	CR18	0.05	0.07	0.02	7%	2%	0	0.07	0.02	7%	2%	0
1	R10	CR05	0.05	0.07	0.02	7%	2%	0	0.07	0.02	7%	2%	0
1	R11	--	0.05	0.08	0.02	8%	2%	0	0.08	0.02	8%	2%	0
1	R12	--	0.05	0.07	0.02	7%	2%	0	0.07	0.02	7%	2%	0
1	R13	--	0.05	0.07	0.01	7%	1%	0	0.07	0.01	7%	1%	0
1	R14	--	0.05	0.07	0.02	7%	2%	0	0.07	0.02	7%	2%	0
1	R15	CR10	0.05	0.07	0.02	7%	2%	0	0.07	0.02	7%	2%	0
1	R16	--	0.05	0.07	0.02	7%	2%	0	0.07	0.02	7%	2%	0
1	R17	CR01	0.05	0.07	0.02	7%	2%	0	0.07	0.02	7%	2%	0
1	R18	CR04	0.05	0.09	0.04	9%	4%	0	0.09	0.04	9%	4%	0
1	R19	CR06	0.05	0.07	0.02	7%	2%	0	0.07	0.02	7%	2%	0
1	R20	CR07	0.05	0.06	0.01	6%	1%	0	0.06	0.01	6%	1%	0
1	R21	CR8	0.05	0.10	0.05	10%	5%	0	0.10	0.05	10%	5%	0
1	R22	CR11	0.05	0.08	0.02	8%	2%	0	0.08	0.02	8%	2%	0
1	R23	CR12	0.05	0.07	0.01	7%	1%	0	0.07	0.01	7%	1%	0
1	R24	CR13	0.05	0.06	0.01	6%	1%	0	0.06	0.01	6%	1%	0
1	R25	CR14	0.05	0.07	0.02	7%	2%	0	0.07	0.02	7%	2%	0
1	R26	CR15	0.05	0.07	0.01	7%	1%	0	0.07	0.01	7%	1%	0
1	R27	CR16	0.05	0.06	0.01	6%	1%	0	0.06	0.01	6%	1%	0
1	R28	CR20	0.05	0.07	0.01	7%	1%	0	0.07	0.01	7%	1%	0
1	R29	CR21	0.05	0.08	0.02	8%	2%	0	0.08	0.02	8%	2%	0

Table 5-4-2: Predicted Concentrations of Annual Vinyl Chloride at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Scenario 1 (End of Stage 1)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included				Landfill Only			
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)	
				With Background	Without Background	With Background	Without Background	With Background	Without Background	With Background	Without Background
0.2	R01	--	0.05	0.05	0.0019	27%	1%	0.05	0.0019	27%	1%
0.2	R02	CR17	0.05	0.05	0.0024	27%	1%	0.05	0.0024	27%	1%
0.2	R03	CR19	0.05	0.05	0.0017	27%	1%	0.05	0.0017	27%	1%
0.2	R04	--	0.05	0.06	0.0051	29%	3%	0.06	0.0051	29%	3%
0.2	R05	--	0.05	0.06	0.0042	28%	2%	0.06	0.0042	28%	2%
0.2	R06	--	0.05	0.06	0.0043	28%	2%	0.06	0.0043	28%	2%
0.2	R07	--	0.05	0.05	0.0027	27%	1%	0.05	0.0027	27%	1%
0.2	R08	--	0.05	0.05	0.0013	27%	1%	0.05	0.0013	27%	1%
0.2	R09	CR18	0.05	0.05	0.0010	27%	0.5%	0.05	0.0010	27%	0.5%
0.2	R10	CR05	0.05	0.05	0.0013	27%	1%	0.05	0.0013	27%	1%
0.2	R11	--	0.05	0.05	0.0010	27%	1%	0.05	0.0010	27%	1%
0.2	R12	--	0.05	0.05	0.0010	27%	0%	0.05	0.0010	27%	0%
0.2	R13	--	0.05	0.05	0.0008	26%	0%	0.05	0.0008	26%	0%
0.2	R14	--	0.05	0.05	0.0006	26%	0.3%	0.05	0.0006	26%	0.3%
0.2	R15	CR10	0.05	0.05	0.0016	27%	1%	0.05	0.0016	27%	1%
0.2	R16	--	0.05	0.05	0.0014	27%	1%	0.05	0.0014	27%	1%
0.2	R17	CR01	0.05	0.05	0.0019	27%	1%	0.05	0.0019	27%	1%
0.2	R18	CR04	0.05	0.06	0.0041	28%	2%	0.06	0.0041	28%	2%
0.2	R19	CR06	0.05	0.05	0.0008	26%	0.4%	0.05	0.0008	26%	0.4%
0.2	R20	CR07	0.05	0.05	0.0007	26%	0.3%	0.05	0.0007	26%	0.3%
0.2	R21	CR8	0.05	0.06	0.0028	28%	1%	0.06	0.0028	28%	1%
0.2	R22	CR11	0.05	0.05	0.0016	27%	1%	0.05	0.0016	27%	1%
0.2	R23	CR12	0.05	0.05	0.0008	26%	0.4%	0.05	0.0008	26%	0.4%
0.2	R24	CR13	0.05	0.05	0.0004	26%	0.2%	0.05	0.0004	26%	0.2%
0.2	R25	CR14	0.05	0.05	0.0014	27%	0.7%	0.05	0.0014	27%	0.7%
0.2	R26	CR15	0.05	0.05	0.0009	27%	0.4%	0.05	0.0009	27%	0.4%
0.2	R27	CR16	0.05	0.05	0.0005	26%	0.3%	0.05	0.0005	26%	0.3%
0.2	R28	CR20	0.05	0.05	0.0011	27%	0.5%	0.05	0.0011	27%	0.5%
0.2	R29	CR21	0.05	0.05	0.0021	27%	1%	0.05	0.0021	27%	1%

Table 5-4-3: Predicted Concentrations of 24-Hour Benzene at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Scenario 1 (End of Stage 1)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 2.3 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 2.3 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
2.3	R01	--	0.69	0.70	0.02	31%	0.8%	0	0.69	0.010	30%	0.4%	0
2.3	R02	CR17	0.69	0.70	0.02	31%	0.7%	0	0.69	0.009	30%	0.4%	0
2.3	R03	CR19	0.69	0.70	0.01	30%	0.6%	0	0.70	0.012	30%	0.5%	0
2.3	R04	--	0.69	0.70	0.02	30%	0.7%	0	0.70	0.016	30%	0.7%	0
2.3	R05	--	0.69	0.70	0.01	30%	0.6%	0	0.70	0.013	30%	0.6%	0
2.3	R06	--	0.69	0.70	0.01	30%	0.6%	0	0.70	0.013	30%	0.6%	0
2.3	R07	--	0.69	0.70	0.01	30%	0.6%	0	0.69	0.009	30%	0.4%	0
2.3	R08	--	0.69	0.69	0.01	30%	0.4%	0	0.69	0.007	30%	0.3%	0
2.3	R09	CR18	0.69	0.69	0.01	30%	0.4%	0	0.69	0.007	30%	0.3%	0
2.3	R10	CR05	0.69	0.70	0.01	30%	0.5%	0	0.69	0.007	30%	0.3%	0
2.3	R11	--	0.69	0.69	0.01	30%	0.4%	0	0.69	0.010	30%	0.4%	0
2.3	R12	--	0.69	0.69	0.01	30%	0.4%	0	0.69	0.009	30%	0.4%	0
2.3	R13	--	0.69	0.70	0.01	30%	0.5%	0	0.69	0.006	30%	0.3%	0
2.3	R14	--	0.69	0.69	0.01	30%	0.4%	0	0.69	0.008	30%	0.3%	0
2.3	R15	CR10	0.69	0.70	0.01	30%	0.6%	0	0.70	0.012	30%	0.5%	0
2.3	R16	--	0.69	0.70	0.01	30%	0.6%	0	0.69	0.009	30%	0.4%	0
2.3	R17	CR01	0.69	0.71	0.02	31%	0.9%	0	0.69	0.008	30%	0.4%	0
2.3	R18	CR04	0.69	0.70	0.01	30%	0.6%	0	0.70	0.013	30%	0.6%	0
2.3	R19	CR06	0.69	0.69	0.01	30%	0.4%	0	0.69	0.006	30%	0.3%	0
2.3	R20	CR07	0.69	0.69	0.01	30%	0.3%	0	0.69	0.004	30%	0.2%	0
2.3	R21	CR8	0.69	0.71	0.02	31%	0.9%	0	0.71	0.022	31%	0.9%	0
2.3	R22	CR11	0.69	0.70	0.01	30%	0.6%	0	0.69	0.008	30%	0.4%	0
2.3	R23	CR12	0.69	0.69	0.01	30%	0.3%	0	0.69	0.005	30%	0.2%	0
2.3	R24	CR13	0.69	0.69	0.01	30%	0.3%	0	0.69	0.003	30%	0.1%	0
2.3	R25	CR14	0.69	0.69	0.01	30%	0.3%	0	0.69	0.007	30%	0.3%	0
2.3	R26	CR15	0.69	0.69	0.01	30%	0.3%	0	0.69	0.005	30%	0.2%	0
2.3	R27	CR16	0.69	0.69	0.01	30%	0.3%	0	0.69	0.004	30%	0.2%	0
2.3	R28	CR20	0.69	0.69	0.01	30%	0.3%	0	0.69	0.005	30%	0.2%	0
2.3	R29	CR21	0.69	0.71	0.03	31%	1.1%	0	0.70	0.015	30%	0.6%	0

Table 5-4-4: Predicted Concentrations of Annual Benzene at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Scenario 1 (End of Stage 1)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included				Landfill Only			
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)	
				With Background	Without Background	With Background	Without Background	With Background	Without Background	With Background	Without Background
0.45	R01	--	0.46	0.46	0.0013	103%	0.3%	0.46	0.0009	103%	0.2%
0.45	R02	CR17	0.46	0.46	0.0013	103%	0.3%	0.46	0.0011	103%	0.2%
0.45	R03	CR19	0.46	0.46	0.0013	103%	0.3%	0.46	0.0013	103%	0.3%
0.45	R04	--	0.46	0.46	0.0023	103%	0.5%	0.46	0.0021	103%	0.5%
0.45	R05	--	0.46	0.46	0.0019	103%	0.4%	0.46	0.0018	103%	0.4%
0.45	R06	--	0.46	0.46	0.0019	103%	0.4%	0.46	0.0018	103%	0.4%
0.45	R07	--	0.46	0.46	0.0013	103%	0.3%	0.46	0.0012	103%	0.3%
0.45	R08	--	0.46	0.46	0.0007	103%	0.2%	0.46	0.0006	103%	0.1%
0.45	R09	CR18	0.46	0.46	0.0006	103%	0.1%	0.46	0.0005	103%	0.1%
0.45	R10	CR05	0.46	0.46	0.0008	103%	0.2%	0.46	0.0007	103%	0.2%
0.45	R11	--	0.46	0.46	0.0006	103%	0.1%	0.46	0.0006	103%	0.1%
0.45	R12	--	0.46	0.46	0.0007	103%	0.1%	0.46	0.0006	103%	0.1%
0.45	R13	--	0.46	0.46	0.0005	103%	0.1%	0.46	0.0005	103%	0.1%
0.45	R14	--	0.46	0.46	0.0004	103%	0.1%	0.46	0.0004	103%	0.1%
0.45	R15	CR10	0.46	0.46	0.0013	103%	0.3%	0.46	0.0012	103%	0.3%
0.45	R16	--	0.46	0.46	0.0011	103%	0.2%	0.46	0.0010	103%	0.2%
0.45	R17	CR01	0.46	0.46	0.0014	103%	0.3%	0.46	0.0009	103%	0.2%
0.45	R18	CR04	0.46	0.46	0.0018	103%	0.4%	0.46	0.0017	103%	0.4%
0.45	R19	CR06	0.46	0.46	0.0005	103%	0.1%	0.46	0.0004	103%	0.1%
0.45	R20	CR07	0.46	0.46	0.0004	103%	0.1%	0.46	0.0003	103%	0.1%
0.45	R21	CR8	0.46	0.46	0.0016	103%	0.4%	0.46	0.0015	103%	0.3%
0.45	R22	CR11	0.46	0.46	0.0010	103%	0.2%	0.46	0.0008	103%	0.2%
0.45	R23	CR12	0.46	0.46	0.0005	103%	0.1%	0.46	0.0004	103%	0.1%
0.45	R24	CR13	0.46	0.46	0.0003	103%	0.1%	0.46	0.0002	103%	0.05%
0.45	R25	CR14	0.46	0.46	0.0008	103%	0.2%	0.46	0.0007	103%	0.1%
0.45	R26	CR15	0.46	0.46	0.0005	103%	0.1%	0.46	0.0004	103%	0.1%
0.45	R27	CR16	0.46	0.46	0.0003	103%	0.1%	0.46	0.0003	103%	0.06%
0.45	R28	CR20	0.46	0.46	0.0006	103%	0.1%	0.46	0.0005	103%	0.1%
0.45	R29	CR21	0.46	0.46	0.0015	103%	0.3%	0.46	0.0011	103%	0.2%

Table 5-4-5: Predicted Concentrations of 24-Hour 1,1,2-Trichloroethane at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Scenario 1 (End of Stage 1)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 0.3 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 0.3 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
0.3	R01	--	0.07	0.07	0.006	24%	2%	0	0.07	0.006	24%	2%	0
0.3	R02	CR17	0.07	0.07	0.005	23%	2%	0	0.07	0.005	23%	2%	0
0.3	R03	CR19	0.07	0.08	0.014	26%	5%	0	0.08	0.014	26%	5%	0
0.3	R04	--	0.07	0.07	0.007	24%	2%	0	0.07	0.007	24%	2%	0
0.3	R05	--	0.07	0.07	0.006	24%	2%	0	0.07	0.006	24%	2%	0
0.3	R06	--	0.07	0.07	0.007	24%	2%	0	0.07	0.007	24%	2%	0
0.3	R07	--	0.07	0.07	0.006	24%	2%	0	0.07	0.006	24%	2%	0
0.3	R08	--	0.07	0.07	0.004	23%	1%	0	0.07	0.004	23%	1%	0
0.3	R09	CR18	0.07	0.07	0.004	23%	1%	0	0.07	0.004	23%	1%	0
0.3	R10	CR05	0.07	0.07	0.007	24%	2%	0	0.07	0.007	24%	2%	0
0.3	R11	--	0.07	0.07	0.006	24%	2%	0	0.07	0.006	24%	2%	0
0.3	R12	--	0.07	0.07	0.009	25%	3%	0	0.07	0.009	25%	3%	0
0.3	R13	--	0.07	0.07	0.006	24%	2%	0	0.07	0.006	24%	2%	0
0.3	R14	--	0.07	0.07	0.006	24%	2%	0	0.07	0.006	24%	2%	0
0.3	R15	CR10	0.07	0.08	0.013	26%	4%	0	0.08	0.013	26%	4%	0
0.3	R16	--	0.07	0.07	0.010	25%	3%	0	0.07	0.010	25%	3%	0
0.3	R17	CR01	0.07	0.07	0.006	24%	2%	0	0.07	0.006	24%	2%	0
0.3	R18	CR04	0.07	0.07	0.007	24%	2%	0	0.07	0.007	24%	2%	0
0.3	R19	CR06	0.07	0.07	0.006	24%	2%	0	0.07	0.006	24%	2%	0
0.3	R20	CR07	0.07	0.07	0.003	23%	1%	0	0.07	0.003	23%	1%	0
0.3	R21	CR8	0.07	0.09	0.025	30%	8%	0	0.09	0.025	30%	8%	0
0.3	R22	CR11	0.07	0.07	0.005	23%	2%	0	0.07	0.005	23%	2%	0
0.3	R23	CR12	0.07	0.07	0.003	23%	1%	0	0.07	0.003	23%	1%	0
0.3	R24	CR13	0.07	0.07	0.003	23%	1%	0	0.07	0.003	23%	1%	0
0.3	R25	CR14	0.07	0.07	0.004	23%	1%	0	0.07	0.004	23%	1%	0
0.3	R26	CR15	0.07	0.07	0.003	23%	1%	0	0.07	0.003	23%	1%	0
0.3	R27	CR16	0.07	0.07	0.003	23%	1%	0	0.07	0.003	23%	1%	0
0.3	R28	CR20	0.07	0.07	0.003	23%	1%	0	0.07	0.003	23%	1%	0
0.3	R29	CR21	0.07	0.07	0.009	25%	3%	0	0.07	0.009	25%	3%	0

Table 5-4-6: Predicted Concentrations of 10-Minute Hydrogen Sulphide at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Scenario 1 (End of Stage 1)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Hours Exceeding 13 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Hours Exceeding 13 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
13	R01	--	2.44	2.84	0.41	22%	3%	0	2.84	0.41	22%	3%	0
13	R02	CR17	2.44	2.88	0.44	22%	3%	0	2.88	0.44	22%	3%	0
13	R03	CR19	2.44	3.49	1.05	27%	8%	0	3.49	1.05	27%	8%	0
13	R04	--	2.44	2.95	0.52	23%	4%	0	2.95	0.52	23%	4%	0
13	R05	--	2.44	2.93	0.49	23%	4%	0	2.93	0.49	23%	4%	0
13	R06	--	2.44	2.92	0.49	22%	4%	0	2.92	0.49	22%	4%	0
13	R07	--	2.44	2.86	0.43	22%	3%	0	2.86	0.43	22%	3%	0
13	R08	--	2.44	2.86	0.42	22%	3%	0	2.86	0.42	22%	3%	0
13	R09	CR18	2.44	2.85	0.41	22%	3%	0	2.85	0.41	22%	3%	0
13	R10	CR05	2.44	2.84	0.40	22%	3%	0	2.84	0.40	22%	3%	0
13	R11	--	2.44	2.88	0.45	22%	3%	0	2.88	0.45	22%	3%	0
13	R12	--	2.44	2.94	0.51	23%	4%	0	2.94	0.51	23%	4%	0
13	R13	--	2.44	2.87	0.44	22%	3%	0	2.87	0.44	22%	3%	0
13	R14	--	2.44	2.88	0.44	22%	3%	0	2.88	0.44	22%	3%	0
13	R15	CR10	2.44	3.41	0.98	26%	8%	0	3.41	0.98	26%	8%	0
13	R16	--	2.44	3.25	0.81	25%	6%	0	3.25	0.81	25%	6%	0
13	R17	CR01	2.44	2.85	0.42	22%	3%	0	2.85	0.42	22%	3%	0
13	R18	CR04	2.44	2.92	0.48	22%	4%	0	2.92	0.48	22%	4%	0
13	R19	CR06	2.44	2.85	0.42	22%	3%	0	2.85	0.42	22%	3%	0
13	R20	CR07	2.44	2.82	0.39	22%	3%	0	2.82	0.39	22%	3%	0
13	R21	CR8	2.44	3.70	1.27	28%	10%	0	3.70	1.27	28%	10%	0
13	R22	CR11	2.44	2.83	0.39	22%	3%	0	2.83	0.39	22%	3%	0
13	R23	CR12	2.44	2.84	0.40	22%	3%	0	2.84	0.40	22%	3%	0
13	R24	CR13	2.44	2.88	0.44	22%	3%	0	2.88	0.44	22%	3%	0
13	R25	CR14	2.44	2.88	0.45	22%	3%	0	2.88	0.45	22%	3%	0
13	R26	CR15	2.44	2.79	0.35	21%	3%	0	2.79	0.35	21%	3%	0
13	R27	CR16	2.44	2.74	0.30	21%	2%	0	2.74	0.30	21%	2%	0
13	R28	CR20	2.44	2.86	0.42	22%	3%	0	2.86	0.42	22%	3%	0
13	R29	CR21	2.44	2.80	0.36	22%	3%	0	2.80	0.36	22%	3%	0

Table 5-4-7: Predicted Concentrations of 24-Hour Hydrogen Sulphide at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Scenario 1 (End of Stage 1)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 7 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 7 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
7	R01	--	2.20	2.24	0.04	32%	1%	0	2.24	0.04	32%	1%	0
7	R02	CR17	2.20	2.24	0.05	32%	1%	0	2.24	0.05	32%	1%	0
7	R03	CR19	2.20	2.49	0.29	36%	4%	0	2.49	0.29	36%	4%	0
7	R04	--	2.20	2.29	0.09	33%	1%	0	2.29	0.09	33%	1%	0
7	R05	--	2.20	2.28	0.08	33%	1%	0	2.28	0.08	33%	1%	0
7	R06	--	2.20	2.28	0.08	33%	1%	0	2.28	0.08	33%	1%	0
7	R07	--	2.20	2.26	0.06	32%	1%	0	2.26	0.06	32%	1%	0
7	R08	--	2.20	2.25	0.05	32%	1%	0	2.25	0.05	32%	1%	0
7	R09	CR18	2.20	2.25	0.05	32%	1%	0	2.25	0.05	32%	1%	0
7	R10	CR05	2.20	2.30	0.10	33%	1%	0	2.30	0.10	33%	1%	0
7	R11	--	2.20	2.31	0.11	33%	2%	0	2.31	0.11	33%	2%	0
7	R12	--	2.20	2.31	0.11	33%	2%	0	2.31	0.11	33%	2%	0
7	R13	--	2.20	2.32	0.12	33%	2%	0	2.32	0.12	33%	2%	0
7	R14	--	2.20	2.26	0.06	32%	1%	0	2.26	0.06	32%	1%	0
7	R15	CR10	2.20	2.52	0.32	36%	5%	0	2.52	0.32	36%	5%	0
7	R16	--	2.20	2.38	0.18	34%	3%	0	2.38	0.18	34%	3%	0
7	R17	CR01	2.20	2.25	0.05	32%	1%	0	2.25	0.05	32%	1%	0
7	R18	CR04	2.20	2.27	0.08	32%	1%	0	2.27	0.08	32%	1%	0
7	R19	CR06	2.20	2.26	0.06	32%	1%	0	2.26	0.06	32%	1%	0
7	R20	CR07	2.20	2.23	0.03	32%	0.5%	0	2.23	0.03	32%	0.5%	0
7	R21	CR8	2.20	2.45	0.25	35%	4%	0	2.45	0.25	35%	4%	0
7	R22	CR11	2.20	2.24	0.04	32%	1%	0	2.24	0.04	32%	1%	0
7	R23	CR12	2.20	2.24	0.04	32%	1%	0	2.24	0.04	32%	1%	0
7	R24	CR13	2.20	2.24	0.05	32%	1%	0	2.24	0.05	32%	1%	0
7	R25	CR14	2.20	2.24	0.04	32%	1%	0	2.24	0.04	32%	1%	0
7	R26	CR15	2.20	2.23	0.03	32%	0.4%	0	2.23	0.03	32%	0.4%	0
7	R27	CR16	2.20	2.23	0.03	32%	0.4%	0	2.23	0.03	32%	0.4%	0
7	R28	CR20	2.20	2.24	0.04	32%	1%	0	2.24	0.04	32%	1%	0
7	R29	CR21	2.20	2.25	0.05	32%	1%	0	2.25	0.05	32%	1%	0

Table 5-4-8: Predicted Concentrations of 10-Minute Total Reduced Sulphur at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Table 5-4: Scenario 1 Landfill Gas and Combustion Byproducts Dispersion Modelling Results

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Hours Exceeding 13 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Hours Exceeding 13 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
13	R01	--	2.44	2.85	0.41	22%	3%	0	2.85	0.41	22%	3%	0
13	R02	CR17	2.44	2.89	0.45	22%	3%	0	2.89	0.45	22%	3%	0
13	R03	CR19	2.44	3.51	1.07	27%	8%	0	3.51	1.07	27%	8%	0
13	R04	--	2.44	2.96	0.53	23%	4%	0	2.96	0.53	23%	4%	0
13	R05	--	2.44	2.94	0.50	23%	4%	0	2.94	0.50	23%	4%	0
13	R06	--	2.44	2.93	0.49	23%	4%	0	2.93	0.49	23%	4%	0
13	R07	--	2.44	2.87	0.43	22%	3%	0	2.87	0.43	22%	3%	0
13	R08	--	2.44	2.87	0.43	22%	3%	0	2.87	0.43	22%	3%	0
13	R09	CR18	2.44	2.85	0.42	22%	3%	0	2.85	0.42	22%	3%	0
13	R10	CR05	2.44	2.85	0.41	22%	3%	0	2.85	0.41	22%	3%	0
13	R11	--	2.44	2.89	0.45	22%	3%	0	2.89	0.45	22%	3%	0
13	R12	--	2.44	2.95	0.51	23%	4%	0	2.95	0.51	23%	4%	0
13	R13	--	2.44	2.88	0.45	22%	3%	0	2.88	0.45	22%	3%	0
13	R14	--	2.44	2.89	0.45	22%	3%	0	2.89	0.45	22%	3%	0
13	R15	CR10	2.44	3.43	0.99	26%	8%	0	3.43	0.99	26%	8%	0
13	R16	--	2.44	3.27	0.83	25%	6%	0	3.27	0.83	25%	6%	0
13	R17	CR01	2.44	2.86	0.42	22%	3%	0	2.86	0.42	22%	3%	0
13	R18	CR04	2.44	2.93	0.49	23%	4%	0	2.93	0.49	23%	4%	0
13	R19	CR06	2.44	2.86	0.42	22%	3%	0	2.86	0.42	22%	3%	0
13	R20	CR07	2.44	2.83	0.39	22%	3%	0	2.83	0.39	22%	3%	0
13	R21	CR8	2.44	3.73	1.29	29%	10%	0	3.73	1.29	29%	10%	0
13	R22	CR11	2.44	2.84	0.40	22%	3%	0	2.84	0.40	22%	3%	0
13	R23	CR12	2.44	2.85	0.41	22%	3%	0	2.85	0.41	22%	3%	0
13	R24	CR13	2.44	2.89	0.45	22%	3%	0	2.89	0.45	22%	3%	0
13	R25	CR14	2.44	2.89	0.46	22%	4%	0	2.89	0.46	22%	4%	0
13	R26	CR15	2.44	2.80	0.36	22%	3%	0	2.80	0.36	22%	3%	0
13	R27	CR16	2.44	2.74	0.30	21%	2%	0	2.74	0.30	21%	2%	0
13	R28	CR20	2.44	2.87	0.43	22%	3%	0	2.87	0.43	22%	3%	0
13	R29	CR21	2.44	2.81	0.37	22%	3%	0	2.81	0.37	22%	3%	0

[1] As TRS sampling was not conducted at the landfill areas and H2S is the major constitutent of TRS, concentrations of TRS were derived based on the ratio of H2S emission rate to TRS emission rate obtained in the sampling of landfill gas collection system.

Table 5-4-9: Predicted Concentrations of 24-Hour Total Reduced Sulphur at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Table 5-4: Scenario 1 Landfill Gas and Combustion Byproducts Dispersion Modelling Results

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 7 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 7 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
7	R01	--	2.20	2.24	0.04	32%	1%	0	2.24	0.04	32%	1%	0
7	R02	CR17	2.20	2.24	0.05	32%	1%	0	2.24	0.05	32%	1%	0
7	R03	CR19	2.20	2.50	0.30	36%	4%	0	2.50	0.30	36%	4%	0
7	R04	--	2.20	2.29	0.09	33%	1%	0	2.29	0.09	33%	1%	0
7	R05	--	2.20	2.28	0.08	33%	1%	0	2.28	0.08	33%	1%	0
7	R06	--	2.20	2.28	0.08	33%	1%	0	2.28	0.08	33%	1%	0
7	R07	--	2.20	2.26	0.06	32%	1%	0	2.26	0.06	32%	1%	0
7	R08	--	2.20	2.25	0.05	32%	1%	0	2.25	0.05	32%	1%	0
7	R09	CR18	2.20	2.25	0.05	32%	1%	0	2.25	0.05	32%	1%	0
7	R10	CR05	2.20	2.30	0.10	33%	1%	0	2.30	0.10	33%	1%	0
7	R11	--	2.20	2.31	0.11	33%	2%	0	2.31	0.11	33%	2%	0
7	R12	--	2.20	2.31	0.12	33%	2%	0	2.31	0.12	33%	2%	0
7	R13	--	2.20	2.32	0.12	33%	2%	0	2.32	0.12	33%	2%	0
7	R14	--	2.20	2.26	0.07	32%	1%	0	2.26	0.07	32%	1%	0
7	R15	CR10	2.20	2.53	0.33	36%	5%	0	2.53	0.33	36%	5%	0
7	R16	--	2.20	2.38	0.18	34%	3%	0	2.38	0.18	34%	3%	0
7	R17	CR01	2.20	2.25	0.05	32%	1%	0	2.25	0.05	32%	1%	0
7	R18	CR04	2.20	2.28	0.08	33%	1%	0	2.28	0.08	33%	1%	0
7	R19	CR06	2.20	2.26	0.07	32%	1%	0	2.26	0.07	32%	1%	0
7	R20	CR07	2.20	2.23	0.03	32%	0.5%	0	2.23	0.03	32%	0.5%	0
7	R21	CR8	2.20	2.46	0.26	35%	4%	0	2.46	0.26	35%	4%	0
7	R22	CR11	2.20	2.24	0.04	32%	1%	0	2.24	0.04	32%	1%	0
7	R23	CR12	2.20	2.24	0.04	32%	0.6%	0	2.24	0.04	32%	0.6%	0
7	R24	CR13	2.20	2.25	0.05	32%	1%	0	2.25	0.05	32%	1%	0
7	R25	CR14	2.20	2.24	0.04	32%	0.6%	0	2.24	0.04	32%	0.6%	0
7	R26	CR15	2.20	2.23	0.03	32%	0.5%	0	2.23	0.03	32%	0.5%	0
7	R27	CR16	2.20	2.23	0.03	32%	0.4%	0	2.23	0.03	32%	0.4%	0
7	R28	CR20	2.20	2.24	0.04	32%	1%	0	2.24	0.04	32%	1%	0
7	R29	CR21	2.20	2.25	0.05	32%	1%	0	2.25	0.05	32%	1%	0

[1] As TRS sampling was not conducted at the landfill areas and H2S is the major constitutent of TRS, concentrations of TRS were derived based on the ratio of H2S emission rate to TRS emission rate obtained in the sampling of landfill gas collection system.

Table 5-4-10: Predicted Concentrations of 1-Hour Nitrogen Oxides at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Scenario 1 (End of Stage 1)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Hours Exceeding 400 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Hours Exceeding 400 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
400	R01	--	23.4	147	123	37%	31%	0	117	94	29%	23%	0
400	R02	CR17	23.4	182	158	45%	40%	0	93	70	23%	18%	0
400	R03	CR19	23.4	124	100	31%	25%	0	103	80	26%	20%	0
400	R04	--	23.4	200	176	50%	44%	0	195	172	49%	43%	0
400	R05	--	23.4	202	179	51%	45%	0	198	174	49%	44%	0
400	R06	--	23.4	206	183	52%	46%	0	202	179	51%	45%	0
400	R07	--	23.4	121	98	30%	24%	0	119	95	30%	24%	0
400	R08	--	23.4	115	91	29%	23%	0	76	53	19%	13%	0
400	R09	CR18	23.4	113	89	28%	22%	0	87	63	22%	16%	0
400	R10	CR05	23.4	96	73	24%	18%	0	95	72	24%	18%	0
400	R11	--	23.4	127	104	32%	26%	0	85	61	21%	15%	0
400	R12	--	23.4	119	95	30%	24%	0	101	77	25%	19%	0
400	R13	--	23.4	109	86	27%	21%	0	81	58	20%	15%	0
400	R14	--	23.4	111	87	28%	22%	0	78	55	20%	14%	0
400	R15	CR10	23.4	157	134	39%	33%	0	91	68	23%	17%	0
400	R16	--	23.4	132	108	33%	27%	0	83	60	21%	15%	0
400	R17	CR01	23.4	115	92	29%	23%	0	111	88	28%	22%	0
400	R18	CR04	23.4	150	127	38%	32%	0	146	122	36%	31%	0
400	R19	CR06	23.4	157	133	39%	33%	0	78	54	19%	14%	0
400	R20	CR07	23.4	111	87	28%	22%	0	104	80	26%	20%	0
400	R21	CR8	23.4	378	355	95%	89%	0	103	79	26%	20%	0
400	R22	CR11	23.4	121	98	30%	25%	0	117	93	29%	23%	0
400	R23	CR12	23.4	132	109	33%	27%	0	88	65	22%	16%	0
400	R24	CR13	23.4	108	85	27%	21%	0	77	54	19%	13%	0
400	R25	CR14	23.4	119	96	30%	24%	0	117	94	29%	24%	0
400	R26	CR15	23.4	89	66	22%	16%	0	84	60	21%	15%	0
400	R27	CR16	23.4	115	91	29%	23%	0	107	83	27%	21%	0
400	R28	CR20	23.4	119	96	30%	24%	0	95	72	24%	18%	0
400	R29	CR21	23.4	162	138	40%	35%	0	129	106	32%	26%	0

Table 5-4-11: Predicted Concentrations of 24-Hour Nitrogen Oxides at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Scenario 1 (End of Stage 1)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 200 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 200 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
200	R01	--	21.6	38	16	19%	8%	0	28	6	14%	3%	0
200	R02	CR17	21.6	36	14	18%	7%	0	29	7	14%	4%	0
200	R03	CR19	21.6	57	36	29%	18%	0	55	33	27%	17%	0
200	R04	--	21.6	39	17	19%	9%	0	36	15	18%	7%	0
200	R05	--	21.6	36	15	18%	7%	0	34	13	17%	6%	0
200	R06	--	21.6	36	14	18%	7%	0	33	12	17%	6%	0
200	R07	--	21.6	30	9	15%	4%	0	29	7	14%	4%	0
200	R08	--	21.6	33	11	16%	5%	0	27	6	14%	3%	0
200	R09	CR18	21.6	31	10	16%	5%	0	27	6	14%	3%	0
200	R10	CR05	21.6	35	14	18%	7%	0	30	9	15%	4%	0
200	R11	--	21.6	35	13	17%	7%	0	30	9	15%	4%	0
200	R12	--	21.6	36	15	18%	7%	0	34	12	17%	6%	0
200	R13	--	21.6	38	16	19%	8%	0	34	13	17%	6%	0
200	R14	--	21.6	32	10	16%	5%	0	28	7	14%	3%	0
200	R15	CR10	21.6	55	33	27%	17%	0	54	33	27%	16%	0
200	R16	--	21.6	45	24	23%	12%	0	45	23	22%	12%	0
200	R17	CR01	21.6	35	14	18%	7%	0	28	6	14%	3%	0
200	R18	CR04	21.6	33	12	17%	6%	0	33	11	16%	6%	0
200	R19	CR06	21.6	38	16	19%	8%	0	29	7	14%	4%	0
200	R20	CR07	21.6	29	8	15%	4%	0	27	5	14%	3%	0
200	R21	CR8	21.6	58	36	29%	18%	0	48	26	24%	13%	0
200	R22	CR11	21.6	35	13	17%	7%	0	28	6	14%	3%	0
200	R23	CR12	21.6	34	12	17%	6%	0	29	7	14%	4%	0
200	R24	CR13	21.6	31	9	15%	5%	0	28	6	14%	3%	0
200	R25	CR14	21.6	35	14	18%	7%	0	31	9	16%	5%	0
200	R26	CR15	21.6	30	8	15%	4%	0	25	4	13%	2%	0
200	R27	CR16	21.6	32	10	16%	5%	0	28	7	14%	3%	0
200	R28	CR20	21.6	29	7	14%	4%	0	26	4	13%	2%	0
200	R29	CR21	21.6	40	18	20%	9%	0	31	10	16%	5%	0

Table 5-4-12: Predicted Concentrations of 1-Hour Sulphur Dioxides at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Scenario 1 (End of Stage 1)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Hours Exceeding 100 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Hours Exceeding 100 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
100	R01	--	1.1	8	7	8%	7%	0	8	7	8%	7%	0
100	R02	CR17	1.1	9	8	9%	8%	0	9	7	9%	7%	0
100	R03	CR19	1.1	46	45	46%	45%	0	46	45	46%	45%	0
100	R04	--	1.1	10	9	10%	9%	0	10	9	10%	9%	0
100	R05	--	1.1	10	9	10%	9%	0	10	9	10%	9%	0
100	R06	--	1.1	10	9	10%	9%	0	10	9	10%	9%	0
100	R07	--	1.1	10	9	10%	9%	0	10	9	10%	9%	0
100	R08	--	1.1	9	8	9%	8%	0	9	8	9%	8%	0
100	R09	CR18	1.1	9	8	9%	8%	0	9	8	9%	8%	0
100	R10	CR05	1.1	14	13	14%	13%	0	13	12	13%	12%	0
100	R11	--	1.1	20	19	20%	19%	0	20	19	20%	19%	0
100	R12	--	1.1	22	21	22%	21%	0	21	20	21%	20%	0
100	R13	--	1.1	17	16	17%	16%	0	17	16	17%	16%	0
100	R14	--	1.1	13	12	13%	12%	0	13	12	13%	12%	0
100	R15	CR10	1.1	40	39	40%	39%	0	40	39	40%	39%	0
100	R16	--	1.1	34	33	34%	33%	0	34	33	34%	33%	0
100	R17	CR01	1.1	10	9	10%	9%	0	10	9	10%	9%	0
100	R18	CR04	1.1	10	9	10%	9%	0	10	9	10%	9%	0
100	R19	CR06	1.1	11	10	11%	10%	0	11	10	11%	10%	0
100	R20	CR07	1.1	9	7	9%	7%	0	9	7	9%	7%	0
100	R21	CR8	1.1	51	50	51%	50%	0	51	50	51%	50%	0
100	R22	CR11	1.1	8	7	8%	7%	0	8	7	8%	7%	0
100	R23	CR12	1.1	9	8	9%	8%	0	9	8	9%	8%	0
100	R24	CR13	1.1	12	11	12%	11%	0	10	9	10%	9%	0
100	R25	CR14	1.1	10	9	10%	9%	0	10	9	10%	9%	0
100	R26	CR15	1.1	8	7	8%	7%	0	8	7	8%	7%	0
100	R27	CR16	1.1	9	8	9%	8%	0	7	6	7%	6%	0
100	R28	CR20	1.1	9	8	9%	8%	0	9	8	9%	8%	0
100	R29	CR21	1.1	8	7	8%	7%	0	8	7	8%	7%	0

[1] 1-Hour SO_2 results are based on the maximum among the three operating secenarios, namely Normal Operating Scenario, Maintenance Scenario and Tailgas Scenario, considered in the SO_2 model.

Table 5-4-13: Predicted Concentrations of Annual Sulphur Dioxides at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Scenario 1 (End of Stage 1)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included				Landfill Only			
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)	
				With Background	Without Background	With Background	Without Background	With Background	Without Background	With Background	Without Background
10	R01	--	0.5	0.7	0.2	7%	2%	0.7	0.1	7%	1%
10	R02	CR17	0.5	0.7	0.2	7%	2%	0.7	0.2	7%	2%
10	R03	CR19	0.5	1.2	0.6	12%	6%	1.1	0.6	11%	6%
10	R04	--	0.5	0.8	0.3	8%	3%	0.8	0.3	8%	3%
10	R05	--	0.5	0.8	0.3	8%	3%	0.8	0.2	8%	2%
10	R06	--	0.5	0.8	0.3	8%	3%	0.8	0.2	8%	2%
10	R07	--	0.5	0.7	0.2	7%	2%	0.7	0.2	7%	2%
10	R08	--	0.5	0.7	0.2	7%	2%	0.7	0.2	7%	2%
10	R09	CR18	0.5	0.7	0.1	7%	1%	0.7	0.1	7%	1%
10	R10	CR05	0.5	0.7	0.2	7%	2%	0.7	0.2	7%	2%
10	R11	--	0.5	0.8	0.2	8%	2%	0.7	0.2	7%	2%
10	R12	--	0.5	0.8	0.2	8%	2%	0.7	0.2	7%	2%
10	R13	--	0.5	0.7	0.2	7%	2%	0.7	0.2	7%	2%
10	R14	--	0.5	0.6	0.1	6%	1%	0.6	0.1	6%	1%
10	R15	CR10	0.5	1.2	0.6	12%	6%	1.1	0.6	11%	6%
10	R16	--	0.5	1.0	0.5	10%	5%	1.0	0.5	10%	5%
10	R17	CR01	0.5	0.7	0.2	7%	2%	0.7	0.2	7%	2%
10	R18	CR04	0.5	0.8	0.3	8%	3%	0.8	0.2	8%	2%
10	R19	CR06	0.5	0.7	0.1	7%	1%	0.7	0.1	7%	1%
10	R20	CR07	0.5	0.6	0.1	6%	1%	0.6	0.1	6%	1%
10	R21	CR8	0.5	1.0	0.5	10%	5%	1.0	0.5	10%	5%
10	R22	CR11	0.5	0.7	0.2	7%	2%	0.7	0.1	7%	1%
10	R23	CR12	0.5	0.6	0.1	6%	1%	0.6	0.1	6%	1%
10	R24	CR13	0.5	0.6	0.1	6%	1%	0.6	0.1	6%	1%
10	R25	CR14	0.5	0.7	0.1	7%	1%	0.6	0.1	6%	1%
10	R26	CR15	0.5	0.6	0.1	6%	1%	0.6	0.1	6%	1%
10	R27	CR16	0.5	0.6	0.1	6%	1%	0.6	0.1	6%	1%
10	R28	CR20	0.5	0.6	0.1	6%	1%	0.6	0.1	6%	1%
10	R29	CR21	0.5	0.7	0.2	7%	2%	0.7	0.1	7%	1%

[1] Annual SO_2 results are based on the Normal Operating Scenario considered in the SO_2 model, as the other two scenarios rarely happen and should not be taken into account in the long-term impact.

Table 5-5: Scenario 2 Landfill Gas and Combustion Byproducts Dispersion Modelling Results

Table 5-5-1: Predicted Concentrations of 24-Hour Vinyl Chloride at Discrete Receptors

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment - Scenario 2 (End of Stage 3)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 1 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 1 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
1	R01	--	0.05	0.06	0.01	6.4%	1.0%	0	0.06	0.01	6.4%	1.0%	0
1	R02	CR17	0.05	0.10	0.05	10.0%	4.6%	0	0.10	0.05	10.0%	4.6%	0
1	R03	CR19	0.05	0.06	0.01	5.9%	0.5%	0	0.06	0.01	5.9%	0.5%	0
1	R04	--	0.05	0.07	0.02	6.9%	1.6%	0	0.07	0.02	6.9%	1.6%	0
1	R05	--	0.05	0.07	0.01	6.6%	1.2%	0	0.07	0.01	6.6%	1.2%	0
1	R06	--	0.05	0.07	0.01	6.8%	1.4%	0	0.07	0.01	6.8%	1.4%	0
1	R07	--	0.05	0.06	0.01	6.4%	1.0%	0	0.06	0.01	6.4%	1.0%	0
1	R08	--	0.05	0.06	0.01	6.0%	0.6%	0	0.06	0.01	6.0%	0.6%	0
1	R09	CR18	0.05	0.06	0.00	5.9%	0.5%	0	0.06	0.00	5.9%	0.5%	0
1	R10	CR05	0.05	0.06	0.01	5.9%	0.6%	0	0.06	0.01	5.9%	0.6%	0
1	R11	--	0.05	0.06	0.01	6.1%	0.7%	0	0.06	0.01	6.1%	0.7%	0
1	R12	--	0.05	0.06	0.01	5.9%	0.5%	0	0.06	0.01	5.9%	0.5%	0
1	R13	--	0.05	0.06	0.00	5.7%	0.3%	0	0.06	0.00	5.7%	0.3%	0
1	R14	--	0.05	0.06	0.01	6.1%	0.7%	0	0.06	0.01	6.1%	0.7%	0
1	R15	CR10	0.05	0.06	0.01	6.1%	0.8%	0	0.06	0.01	6.1%	0.8%	0
1	R16	--	0.05	0.06	0.01	6.0%	0.6%	0	0.06	0.01	6.0%	0.6%	0
1	R17	CR01	0.05	0.07	0.01	6.5%	1.2%	0	0.07	0.01	6.5%	1.2%	0
1	R18	CR04	0.05	0.07	0.01	6.7%	1.3%	0	0.07	0.01	6.7%	1.3%	0
1	R19	CR06	0.05	0.06	0.01	6.0%	0.6%	0	0.06	0.01	6.0%	0.6%	0
1	R20	CR07	0.05	0.06	0.00	5.8%	0.4%	0	0.06	0.00	5.8%	0.4%	0
1	R21	CR8	0.05	0.06	0.01	6.4%	1.0%	0	0.06	0.01	6.4%	1.0%	0
1	R22	CR11	0.05	0.06	0.01	6.2%	0.8%	0	0.06	0.01	6.2%	0.8%	0
1	R23	CR12	0.05	0.06	0.01	6.2%	0.9%	0	0.06	0.01	6.2%	0.9%	0
1	R24	CR13	0.05	0.06	0.00	5.7%	0.3%	0	0.06	0.00	5.7%	0.3%	0
1	R25	CR14	0.05	0.06	0.01	6.3%	0.9%	0	0.06	0.01	6.3%	0.9%	0
1	R26	CR15	0.05	0.06	0.00	5.9%	0.5%	0	0.06	0.00	5.9%	0.5%	0
1	R27	CR16	0.05	0.06	0.01	5.9%	0.5%	0	0.06	0.01	5.9%	0.5%	0
1	R28	CR20	0.05	0.06	0.01	5.9%	0.5%	0	0.06	0.01	5.9%	0.5%	0
1	R29	CR21	0.05	0.06	0.01	6.3%	0.9%	0	0.06	0.01	6.3%	0.9%	0

Table 5-5: Scenario 2 Landfill Gas and Combustion Byproducts Dispersion Modelling Results

Table 5-5-2: Predicted Concentrations of Annual Vinyl Chloride at Discrete Receptors

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment - Scenario 2 (End of Stage 3)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included				Landfill Only			
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)	
				With Background	Without Background	With Background	Without Background	With Background	Without Background	With Background	Without Background
0.2	R01	--	0.05	0.05	0.0007	26.5%	0.4%	0.05	0.0007	26.5%	0.4%
0.2	R02	CR17	0.05	0.06	0.0031	27.6%	1.6%	0.06	0.0031	27.6%	1.6%
0.2	R03	CR19	0.05	0.05	0.0005	26.4%	0.3%	0.05	0.0005	26.4%	0.3%
0.2	R04	--	0.05	0.05	0.0013	26.7%	0.6%	0.05	0.0013	26.7%	0.6%
0.2	R05	--	0.05	0.05	0.0011	26.6%	0.5%	0.05	0.0011	26.6%	0.5%
0.2	R06	--	0.05	0.05	0.0011	26.6%	0.5%	0.05	0.0011	26.6%	0.5%
0.2	R07	--	0.05	0.05	0.0007	26.4%	0.3%	0.05	0.0007	26.4%	0.3%
0.2	R08	--	0.05	0.05	0.0004	26.3%	0.2%	0.05	0.0004	26.3%	0.2%
0.2	R09	CR18	0.05	0.05	0.0003	26.2%	0.2%	0.05	0.0003	26.2%	0.2%
0.2	R10	CR05	0.05	0.05	0.0003	26.3%	0.2%	0.05	0.0003	26.3%	0.2%
0.2	R11	--	0.05	0.05	0.0003	26.2%	0.2%	0.05	0.0003	26.2%	0.2%
0.2	R12	--	0.05	0.05	0.0003	26.2%	0.2%	0.05	0.0003	26.2%	0.2%
0.2	R13	--	0.05	0.05	0.0003	26.2%	0.1%	0.05	0.0003	26.2%	0.1%
0.2	R14	--	0.05	0.05	0.0002	26.2%	0.1%	0.05	0.0002	26.2%	0.1%
0.2	R15	CR10	0.05	0.05	0.0005	26.3%	0.3%	0.05	0.0005	26.3%	0.3%
0.2	R16	--	0.05	0.05	0.0004	26.3%	0.2%	0.05	0.0004	26.3%	0.2%
0.2	R17	CR01	0.05	0.05	0.0009	26.5%	0.4%	0.05	0.0009	26.5%	0.4%
0.2	R18	CR04	0.05	0.05	0.0010	26.6%	0.5%	0.05	0.0010	26.6%	0.5%
0.2	R19	CR06	0.05	0.05	0.0003	26.2%	0.1%	0.05	0.0003	26.2%	0.1%
0.2	R20	CR07	0.05	0.05	0.0002	26.2%	0.1%	0.05	0.0002	26.2%	0.1%
0.2	R21	CR8	0.05	0.05	0.0007	26.5%	0.4%	0.05	0.0007	26.5%	0.4%
0.2	R22	CR11	0.05	0.05	0.0007	26.4%	0.3%	0.05	0.0007	26.4%	0.3%
0.2	R23	CR12	0.05	0.05	0.0005	26.4%	0.3%	0.05	0.0005	26.4%	0.3%
0.2	R24	CR13	0.05	0.05	0.0001	26.2%	0.1%	0.05	0.0001	26.2%	0.1%
0.2	R25	CR14	0.05	0.05	0.0008	26.5%	0.4%	0.05	0.0008	26.5%	0.4%
0.2	R26	CR15	0.05	0.05	0.0004	26.3%	0.2%	0.05	0.0004	26.3%	0.2%
0.2	R27	CR16	0.05	0.05	0.0002	26.2%	0.1%	0.05	0.0002	26.2%	0.1%
0.2	R28	CR20	0.05	0.05	0.0004	26.3%	0.2%	0.05	0.0004	26.3%	0.2%
0.2	R29	CR21	0.05	0.05	0.0007	26.5%	0.4%	0.05	0.0007	26.5%	0.4%

Table 5-5: Scenario 2 Landfill Gas and Combustion Byproducts Dispersion Modelling Results

Table 5-5-3: Predicted Concentrations of 24-Hour Benzene at Discrete Receptors

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment - Scenario 2 (End of Stage 3)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 2.3 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 2.3 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
2.3	R01	--	0.69	0.69	0.00	30.0%	0.2%	0	0.69	0.004	30.0%	0.2%	0
2.3	R02	CR17	0.69	0.70	0.02	30.5%	0.7%	0	0.70	0.017	30.5%	0.7%	0
2.3	R03	CR19	0.69	0.69	0.01	30.1%	0.3%	0	0.69	0.008	30.1%	0.3%	0
2.3	R04	--	0.69	0.69	0.01	30.1%	0.3%	0	0.69	0.007	30.1%	0.3%	0
2.3	R05	--	0.69	0.69	0.01	30.0%	0.3%	0	0.69	0.006	30.0%	0.3%	0
2.3	R06	--	0.69	0.69	0.01	30.0%	0.2%	0	0.69	0.006	30.0%	0.2%	0
2.3	R07	--	0.69	0.69	0.00	30.0%	0.2%	0	0.69	0.004	30.0%	0.2%	0
2.3	R08	--	0.69	0.69	0.00	29.9%	0.1%	0	0.69	0.003	29.9%	0.1%	0
2.3	R09	CR18	0.69	0.69	0.00	29.9%	0.1%	0	0.69	0.003	29.9%	0.1%	0
2.3	R10	CR05	0.69	0.69	0.00	29.9%	0.2%	0	0.69	0.004	29.9%	0.2%	0
2.3	R11	--	0.69	0.69	0.01	30.0%	0.2%	0	0.69	0.005	30.0%	0.2%	0
2.3	R12	--	0.69	0.69	0.00	30.0%	0.2%	0	0.69	0.004	30.0%	0.2%	0
2.3	R13	--	0.69	0.69	0.00	29.9%	0.2%	0	0.69	0.004	29.9%	0.2%	0
2.3	R14	--	0.69	0.69	0.00	30.0%	0.2%	0	0.69	0.005	30.0%	0.2%	0
2.3	R15	CR10	0.69	0.70	0.01	30.3%	0.5%	0	0.70	0.012	30.3%	0.5%	0
2.3	R16	--	0.69	0.69	0.01	30.1%	0.3%	0	0.69	0.007	30.1%	0.3%	0
2.3	R17	CR01	0.69	0.69	0.00	30.0%	0.2%	0	0.69	0.005	30.0%	0.2%	0
2.3	R18	CR04	0.69	0.69	0.01	30.0%	0.2%	0	0.69	0.005	30.0%	0.2%	0
2.3	R19	CR06	0.69	0.69	0.00	29.9%	0.2%	0	0.69	0.004	29.9%	0.2%	0
2.3	R20	CR07	0.69	0.69	0.00	29.9%	0.1%	0	0.69	0.002	29.9%	0.1%	0
2.3	R21	CR8	0.69	0.69	0.01	30.1%	0.4%	0	0.69	0.008	30.1%	0.4%	0
2.3	R22	CR11	0.69	0.69	0.00	29.9%	0.2%	0	0.69	0.004	29.9%	0.2%	0
2.3	R23	CR12	0.69	0.69	0.00	30.0%	0.2%	0	0.69	0.004	30.0%	0.2%	0
2.3	R24	CR13	0.69	0.69	0.00	29.9%	0.1%	0	0.69	0.002	29.9%	0.1%	0
2.3	R25	CR14	0.69	0.69	0.00	30.0%	0.2%	0	0.69	0.005	30.0%	0.2%	0
2.3	R26	CR15	0.69	0.69	0.00	29.9%	0.1%	0	0.69	0.002	29.9%	0.1%	0
2.3	R27	CR16	0.69	0.69	0.00	29.9%	0.1%	0	0.69	0.003	29.9%	0.1%	0
2.3	R28	CR20	0.69	0.69	0.00	29.9%	0.1%	0	0.69	0.002	29.9%	0.1%	0
2.3	R29	CR21	0.69	0.69	0.01	30.0%	0.2%	0	0.69	0.005	30.0%	0.2%	0

Table 5-5: Scenario 2 Landfill Gas and Combustion Byproducts Dispersion Modelling Results

Table 5-5-4: Predicted Concentrations of Annual Benzene at Discrete Receptors

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment - Scenario 2 (End of Stage 3)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included				Landfill Only			
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)	
				With Background	Without Background	With Background	Without Background	With Background	Without Background	With Background	Without Background
0.45	R01	--	0.46	0.46	0.0006	103%	0.13%	0.46	0.0006	103%	0.13%
0.45	R02	CR17	0.46	0.46	0.0015	103%	0.33%	0.46	0.0015	103%	0.33%
0.45	R03	CR19	0.46	0.46	0.0008	103%	0.18%	0.46	0.0008	103%	0.18%
0.45	R04	--	0.46	0.46	0.0011	103%	0.23%	0.46	0.0010	103%	0.23%
0.45	R05	--	0.46	0.46	0.0009	103%	0.20%	0.46	0.0009	103%	0.20%
0.45	R06	--	0.46	0.46	0.0009	103%	0.20%	0.46	0.0009	103%	0.20%
0.45	R07	--	0.46	0.46	0.0006	103%	0.14%	0.46	0.0006	103%	0.14%
0.45	R08	--	0.46	0.46	0.0004	103%	0.08%	0.46	0.0004	103%	0.08%
0.45	R09	CR18	0.46	0.46	0.0003	103%	0.07%	0.46	0.0003	103%	0.07%
0.45	R10	CR05	0.46	0.46	0.0004	103%	0.09%	0.46	0.0004	103%	0.09%
0.45	R11	--	0.46	0.46	0.0004	103%	0.08%	0.46	0.0004	103%	0.08%
0.45	R12	--	0.46	0.46	0.0004	103%	0.09%	0.46	0.0004	103%	0.08%
0.45	R13	--	0.46	0.46	0.0003	103%	0.07%	0.46	0.0003	103%	0.07%
0.45	R14	--	0.46	0.46	0.0002	103%	0.05%	0.46	0.0002	103%	0.05%
0.45	R15	CR10	0.46	0.46	0.0008	103%	0.18%	0.46	0.0008	103%	0.18%
0.45	R16	--	0.46	0.46	0.0007	103%	0.15%	0.46	0.0007	103%	0.14%
0.45	R17	CR01	0.46	0.46	0.0007	103%	0.15%	0.46	0.0007	103%	0.14%
0.45	R18	CR04	0.46	0.46	0.0008	103%	0.18%	0.46	0.0008	103%	0.18%
0.45	R19	CR06	0.46	0.46	0.0003	103%	0.06%	0.46	0.0003	103%	0.06%
0.45	R20	CR07	0.46	0.46	0.0002	103%	0.05%	0.46	0.0002	103%	0.05%
0.45	R21	CR8	0.46	0.46	0.0008	103%	0.18%	0.46	0.0008	103%	0.18%
0.45	R22	CR11	0.46	0.46	0.0005	103%	0.11%	0.46	0.0005	103%	0.11%
0.45	R23	CR12	0.46	0.46	0.0004	103%	0.08%	0.46	0.0004	103%	0.08%
0.45	R24	CR13	0.46	0.46	0.0002	103%	0.03%	0.46	0.0002	103%	0.03%
0.45	R25	CR14	0.46	0.46	0.0006	103%	0.12%	0.46	0.0006	103%	0.12%
0.45	R26	CR15	0.46	0.46	0.0003	103%	0.07%	0.46	0.0003	103%	0.07%
0.45	R27	CR16	0.46	0.46	0.0002	103%	0.04%	0.46	0.0002	103%	0.04%
0.45	R28	CR20	0.46	0.46	0.0004	103%	0.08%	0.46	0.0004	103%	0.08%
0.45	R29	CR21	0.46	0.46	0.0007	103%	0.15%	0.46	0.0007	103%	0.14%

Table 5-5: Scenario 2 Landfill Gas and Combustion Byproducts Dispersion Modelling Results

Table 5-5-5: Predicted Concentrations of 24-Hour 1,1,2-Trichloroethane at Discrete Receptors

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment - Scenario 2 (End of Stage 3)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 0.3 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 0.3 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
0.3	R01	--	0.07	0.07	0.006	24%	2%	0	0.07	0.006	24%	2%	0
0.3	R02	CR17	0.07	0.08	0.012	26%	4%	0	0.08	0.012	26%	4%	0
0.3	R03	CR19	0.07	0.07	0.010	25%	3%	0	0.07	0.010	25%	3%	0
0.3	R04	--	0.07	0.07	0.010	25%	3%	0	0.07	0.010	25%	3%	0
0.3	R05	--	0.07	0.07	0.008	24%	3%	0	0.07	0.008	24%	3%	0
0.3	R06	--	0.07	0.07	0.008	24%	3%	0	0.07	0.008	24%	3%	0
0.3	R07	--	0.07	0.07	0.006	24%	2%	0	0.07	0.006	24%	2%	0
0.3	R08	--	0.07	0.07	0.005	23%	2%	0	0.07	0.005	23%	2%	0
0.3	R09	CR18	0.07	0.07	0.004	23%	1%	0	0.07	0.004	23%	1%	0
0.3	R10	CR05	0.07	0.07	0.006	24%	2%	0	0.07	0.006	24%	2%	0
0.3	R11	--	0.07	0.07	0.007	24%	2%	0	0.07	0.007	24%	2%	0
0.3	R12	--	0.07	0.07	0.008	24%	3%	0	0.07	0.008	24%	3%	0
0.3	R13	--	0.07	0.07	0.005	23%	2%	0	0.07	0.005	23%	2%	0
0.3	R14	--	0.07	0.07	0.007	24%	2%	0	0.07	0.007	24%	2%	0
0.3	R15	CR10	0.07	0.07	0.009	25%	3%	0	0.07	0.009	25%	3%	0
0.3	R16	--	0.07	0.07	0.008	24%	3%	0	0.07	0.008	24%	3%	0
0.3	R17	CR01	0.07	0.07	0.007	24%	2%	0	0.07	0.007	24%	2%	0
0.3	R18	CR04	0.07	0.07	0.008	24%	3%	0	0.07	0.008	24%	3%	0
0.3	R19	CR06	0.07	0.07	0.006	24%	2%	0	0.07	0.006	24%	2%	0
0.3	R20	CR07	0.07	0.07	0.002	22%	1%	0	0.07	0.002	22%	1%	0
0.3	R21	CR8	0.07	0.08	0.020	28%	7%	0	0.08	0.020	28%	7%	0
0.3	R22	CR11	0.07	0.07	0.005	23%	2%	0	0.07	0.005	23%	2%	0
0.3	R23	CR12	0.07	0.07	0.004	23%	1%	0	0.07	0.004	23%	1%	0
0.3	R24	CR13	0.07	0.07	0.002	22%	1%	0	0.07	0.002	22%	1%	0
0.3	R25	CR14	0.07	0.07	0.004	23%	1%	0	0.07	0.004	23%	1%	0
0.3	R26	CR15	0.07	0.07	0.003	23%	1%	0	0.07	0.003	23%	1%	0
0.3	R27	CR16	0.07	0.07	0.003	23%	1%	0	0.07	0.003	23%	1%	0
0.3	R28	CR20	0.07	0.07	0.004	23%	1%	0	0.07	0.004	23%	1%	0
0.3	R29	CR21	0.07	0.07	0.007	24%	2%	0	0.07	0.007	24%	2%	0

Table 5-5: Scenario 2 Landfill Gas and Combustion Byproducts Dispersion Modelling Results

Table 5-5-6: Predicted Concentrations of 10-Minute Hydrogen Sulphide at Discrete Receptors

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment - Scenario 2 (End of Stage 3)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Hours Exceeding 13 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Hours Exceeding 13 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
13	R01	--	2.44	2.80	0.37	22%	3%	0	2.80	0.37	22%	3%	0
13	R02	CR17	2.44	2.86	0.42	22%	3%	0	2.86	0.42	22%	3%	0
13	R03	CR19	2.44	3.51	1.08	27%	8%	0	3.51	1.08	27%	8%	0
13	R04	--	2.44	2.88	0.45	22%	3%	0	2.88	0.45	22%	3%	0
13	R05	--	2.44	2.86	0.43	22%	3%	0	2.86	0.43	22%	3%	0
13	R06	--	2.44	2.86	0.42	22%	3%	0	2.86	0.42	22%	3%	0
13	R07	--	2.44	2.81	0.38	22%	3%	0	2.81	0.38	22%	3%	0
13	R08	--	2.44	2.82	0.38	22%	3%	0	2.82	0.38	22%	3%	0
13	R09	CR18	2.44	2.81	0.37	22%	3%	0	2.81	0.37	22%	3%	0
13	R10	CR05	2.44	2.80	0.36	22%	3%	0	2.80	0.36	22%	3%	0
13	R11	--	2.44	2.88	0.44	22%	3%	0	2.88	0.44	22%	3%	0
13	R12	--	2.44	2.94	0.51	23%	4%	0	2.94	0.51	23%	4%	0
13	R13	--	2.44	2.84	0.40	22%	3%	0	2.84	0.40	22%	3%	0
13	R14	--	2.44	2.84	0.41	22%	3%	0	2.84	0.41	22%	3%	0
13	R15	CR10	2.44	3.44	1.00	26%	8%	0	3.44	1.00	26%	8%	0
13	R16	--	2.44	3.26	0.83	25%	6%	0	3.26	0.83	25%	6%	0
13	R17	CR01	2.44	2.81	0.38	22%	3%	0	2.81	0.38	22%	3%	0
13	R18	CR04	2.44	2.86	0.42	22%	3%	0	2.86	0.42	22%	3%	0
13	R19	CR06	2.44	2.82	0.38	22%	3%	0	2.82	0.38	22%	3%	0
13	R20	CR07	2.44	2.79	0.36	21%	3%	0	2.79	0.36	21%	3%	0
13	R21	CR8	2.44	3.70	1.26	28%	10%	0	3.70	1.26	28%	10%	0
13	R22	CR11	2.44	2.79	0.36	21%	3%	0	2.79	0.36	21%	3%	0
13	R23	CR12	2.44	2.86	0.42	22%	3%	0	2.86	0.42	22%	3%	0
13	R24	CR13	2.44	2.85	0.41	22%	3%	0	2.85	0.41	22%	3%	0
13	R25	CR14	2.44	2.84	0.40	22%	3%	0	2.84	0.40	22%	3%	0
13	R26	CR15	2.44	2.76	0.32	21%	2%	0	2.76	0.32	21%	2%	0
13	R27	CR16	2.44	2.71	0.28	21%	2%	0	2.71	0.28	21%	2%	0
13	R28	CR20	2.44	2.82	0.38	22%	3%	0	2.82	0.38	22%	3%	0
13	R29	CR21	2.44	2.77	0.33	21%	3%	0	2.77	0.33	21%	3%	0

Table 5-5: Scenario 2 Landfill Gas and Combustion Byproducts Dispersion Modelling Results

Table 5-5-7: Predicted Concentrations of 24-Hour Hydrogen Sulphide at Discrete Receptors

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment - Scenario 2 (End of Stage 3)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 7 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 7 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
7	R01	--	2.20	2.24	0.04	32%	0.6%	0	2.24	0.04	32%	0.6%	0
7	R02	CR17	2.20	2.26	0.06	32%	0.8%	0	2.26	0.06	32%	0.8%	0
7	R03	CR19	2.20	2.50	0.30	36%	4.3%	0	2.50	0.30	36%	4.3%	0
7	R04	--	2.20	2.29	0.09	33%	1.3%	0	2.29	0.09	33%	1.3%	0
7	R05	--	2.20	2.28	0.08	33%	1.1%	0	2.28	0.08	33%	1.1%	0
7	R06	--	2.20	2.28	0.08	33%	1.1%	0	2.28	0.08	33%	1.1%	0
7	R07	--	2.20	2.25	0.06	32%	0.8%	0	2.25	0.06	32%	0.8%	0
7	R08	--	2.20	2.25	0.06	32%	0.8%	0	2.25	0.06	32%	0.8%	0
7	R09	CR18	2.20	2.25	0.05	32%	0.7%	0	2.25	0.05	32%	0.7%	0
7	R10	CR05	2.20	2.29	0.10	33%	1.4%	0	2.29	0.10	33%	1.4%	0
7	R11	--	2.20	2.32	0.12	33%	1.7%	0	2.32	0.12	33%	1.7%	0
7	R12	--	2.20	2.31	0.11	33%	1.6%	0	2.31	0.11	33%	1.6%	0
7	R13	--	2.20	2.32	0.12	33%	1.7%	0	2.32	0.12	33%	1.7%	0
7	R14	--	2.20	2.26	0.06	32%	0.9%	0	2.26	0.06	32%	0.9%	0
7	R15	CR10	2.20	2.54	0.34	36%	4.8%	0	2.54	0.34	36%	4.8%	0
7	R16	--	2.20	2.37	0.17	34%	2.5%	0	2.37	0.17	34%	2.5%	0
7	R17	CR01	2.20	2.25	0.05	32%	0.7%	0	2.25	0.05	32%	0.7%	0
7	R18	CR04	2.20	2.27	0.07	32%	1.1%	0	2.27	0.07	32%	1.1%	0
7	R19	CR06	2.20	2.26	0.07	32%	0.9%	0	2.26	0.07	32%	0.9%	0
7	R20	CR07	2.20	2.23	0.03	32%	0.5%	0	2.23	0.03	32%	0.5%	0
7	R21	CR8	2.20	2.45	0.25	35%	3.6%	0	2.45	0.25	35%	3.6%	0
7	R22	CR11	2.20	2.24	0.04	32%	0.5%	0	2.24	0.04	32%	0.5%	0
7	R23	CR12	2.20	2.24	0.04	32%	0.6%	0	2.24	0.04	32%	0.6%	0
7	R24	CR13	2.20	2.25	0.05	32%	0.7%	0	2.25	0.05	32%	0.7%	0
7	R25	CR14	2.20	2.24	0.04	32%	0.6%	0	2.24	0.04	32%	0.6%	0
7	R26	CR15	2.20	2.23	0.03	32%	0.4%	0	2.23	0.03	32%	0.4%	0
7	R27	CR16	2.20	2.23	0.03	32%	0.4%	0	2.23	0.03	32%	0.4%	0
7	R28	CR20	2.20	2.24	0.04	32%	0.5%	0	2.24	0.04	32%	0.5%	0
7	R29	CR21	2.20	2.25	0.05	32%	0.7%	0	2.25	0.05	32%	0.7%	0

Table 5-5: Scenario 2 Landfill Gas and Combustion Byproducts Dispersion Modelling Results

Table 5-5-8: Predicted Concentrations of 10-Minute Total Reduced Sulphur at Discrete Receptors

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment - Scenario 2 (End of Stage 3)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Hours Exceeding 13 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Hours Exceeding 13 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
13	R01	--	2.44	2.81	0.38	22%	3%	0	2.81	0.38	22%	3%	0
13	R02	CR17	2.44	2.86	0.43	22%	3%	0	2.86	0.43	22%	3%	0
13	R03	CR19	2.44	3.53	1.10	27%	8%	0	3.53	1.10	27%	8%	0
13	R04	--	2.44	2.89	0.46	22%	4%	0	2.89	0.46	22%	4%	0
13	R05	--	2.44	2.87	0.44	22%	3%	0	2.87	0.44	22%	3%	0
13	R06	--	2.44	2.86	0.43	22%	3%	0	2.86	0.43	22%	3%	0
13	R07	--	2.44	2.82	0.38	22%	3%	0	2.82	0.38	22%	3%	0
13	R08	--	2.44	2.83	0.39	22%	3%	0	2.83	0.39	22%	3%	0
13	R09	CR18	2.44	2.82	0.38	22%	3%	0	2.82	0.38	22%	3%	0
13	R10	CR05	2.44	2.81	0.37	22%	3%	0	2.81	0.37	22%	3%	0
13	R11	--	2.44	2.89	0.45	22%	3%	0	2.89	0.45	22%	3%	0
13	R12	--	2.44	2.95	0.52	23%	4%	0	2.95	0.52	23%	4%	0
13	R13	--	2.44	2.85	0.41	22%	3%	0	2.85	0.41	22%	3%	0
13	R14	--	2.44	2.85	0.42	22%	3%	0	2.85	0.42	22%	3%	0
13	R15	CR10	2.44	3.46	1.02	27%	8%	0	3.46	1.02	27%	8%	0
13	R16	--	2.44	3.28	0.84	25%	6%	0	3.28	0.84	25%	6%	0
13	R17	CR01	2.44	2.82	0.38	22%	3%	0	2.82	0.38	22%	3%	0
13	R18	CR04	2.44	2.87	0.43	22%	3%	0	2.87	0.43	22%	3%	0
13	R19	CR06	2.44	2.83	0.39	22%	3%	0	2.83	0.39	22%	3%	0
13	R20	CR07	2.44	2.80	0.36	22%	3%	0	2.80	0.36	22%	3%	0
13	R21	CR8	2.44	3.72	1.29	29%	10%	0	3.72	1.29	29%	10%	0
13	R22	CR11	2.44	2.80	0.36	22%	3%	0	2.80	0.36	22%	3%	0
13	R23	CR12	2.44	2.87	0.43	22%	3%	0	2.87	0.43	22%	3%	0
13	R24	CR13	2.44	2.85	0.42	22%	3%	0	2.85	0.42	22%	3%	0
13	R25	CR14	2.44	2.85	0.41	22%	3%	0	2.85	0.41	22%	3%	0
13	R26	CR15	2.44	2.77	0.33	21%	3%	0	2.77	0.33	21%	3%	0
13	R27	CR16	2.44	2.72	0.28	21%	2%	0	2.72	0.28	21%	2%	0
13	R28	CR20	2.44	2.83	0.39	22%	3%	0	2.83	0.39	22%	3%	0
13	R29	CR21	2.44	2.77	0.34	21%	3%	0	2.77	0.34	21%	3%	0

[1] As TRS sampling was not conducted at the landfill areas and H2S is the major constitutent of TRS, concentrations of TRS were derived based on the ratio of H2S emission rate to TRS emission rate obtained in the sampling of landfill gas collection system.

Table 5-5: Scenario 2 Landfill Gas and Combustion Byproducts Dispersion Modelling Results

Table 5-5-9: Predicted Concentrations of 24-Hour Total Reduced Sulphur at Discrete Receptors

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment - Scenario 2 (End of Stage 3)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 7 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 7 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
7	R01	--	2.20	2.24	0.04	32%	0.6%	0	2.24	0.04	32%	0.6%	0
7	R02	CR17	2.20	2.26	0.06	32%	0.8%	0	2.26	0.06	32%	0.8%	0
7	R03	CR19	2.20	2.50	0.31	36%	4.4%	0	2.50	0.31	36%	4.4%	0
7	R04	--	2.20	2.29	0.09	33%	1.3%	0	2.29	0.09	33%	1.3%	0
7	R05	--	2.20	2.28	0.08	33%	1.2%	0	2.28	0.08	33%	1.2%	0
7	R06	--	2.20	2.28	0.08	33%	1.1%	0	2.28	0.08	33%	1.1%	0
7	R07	--	2.20	2.26	0.06	32%	0.8%	0	2.26	0.06	32%	0.8%	0
7	R08	--	2.20	2.25	0.06	32%	0.8%	0	2.25	0.06	32%	0.8%	0
7	R09	CR18	2.20	2.25	0.05	32%	0.7%	0	2.25	0.05	32%	0.7%	0
7	R10	CR05	2.20	2.30	0.10	33%	1.4%	0	2.30	0.10	33%	1.4%	0
7	R11	--	2.20	2.32	0.12	33%	1.7%	0	2.32	0.12	33%	1.7%	0
7	R12	--	2.20	2.31	0.11	33%	1.6%	0	2.31	0.11	33%	1.6%	0
7	R13	--	2.20	2.32	0.12	33%	1.7%	0	2.32	0.12	33%	1.7%	0
7	R14	--	2.20	2.26	0.07	32%	0.9%	0	2.26	0.07	32%	0.9%	0
7	R15	CR10	2.20	2.54	0.34	36%	4.9%	0	2.54	0.34	36%	4.9%	0
7	R16	--	2.20	2.37	0.18	34%	2.5%	0	2.37	0.18	34%	2.5%	0
7	R17	CR01	2.20	2.25	0.05	32%	0.7%	0	2.25	0.05	32%	0.7%	0
7	R18	CR04	2.20	2.27	0.08	32%	1.1%	0	2.27	0.08	32%	1.1%	0
7	R19	CR06	2.20	2.27	0.07	32%	1.0%	0	2.27	0.07	32%	1.0%	0
7	R20	CR07	2.20	2.23	0.03	32%	0.5%	0	2.23	0.03	32%	0.5%	0
7	R21	CR8	2.20	2.45	0.26	35%	3.7%	0	2.45	0.26	35%	3.7%	0
7	R22	CR11	2.20	2.24	0.04	32%	0.5%	0	2.24	0.04	32%	0.5%	0
7	R23	CR12	2.20	2.24	0.04	32%	0.6%	0	2.24	0.04	32%	0.6%	0
7	R24	CR13	2.20	2.25	0.05	32%	0.7%	0	2.25	0.05	32%	0.7%	0
7	R25	CR14	2.20	2.24	0.04	32%	0.6%	0	2.24	0.04	32%	0.6%	0
7	R26	CR15	2.20	2.23	0.03	32%	0.4%	0	2.23	0.03	32%	0.4%	0
7	R27	CR16	2.20	2.23	0.03	32%	0.4%	0	2.23	0.03	32%	0.4%	0
7	R28	CR20	2.20	2.24	0.04	32%	0.6%	0	2.24	0.04	32%	0.6%	0
7	R29	CR21	2.20	2.25	0.05	32%	0.7%	0	2.25	0.05	32%	0.7%	0

[1] As TRS sampling was not conducted at the landfill areas and H2S is the major constitutent of TRS, concentrations of TRS were derived based on the ratio of H2S emission rate to TRS emission rate obtained in the sampling of landfill gas collection system.

Table 5-5: Scenario 2 Landfill Gas and Combustion Byproducts Dispersion Modelling Results

Table 5-5-10: Predicted Concentrations of 1-Hour Nitrogen Oxides at Discrete Receptors

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment - Scenario 2 (End of Stage 3)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Hours Exceeding 400 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Hours Exceeding 400 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
400	R01	--	23.4	141	117	35%	29%	0	82	59	21%	15%	0
400	R02	CR17	23.4	160	137	40%	34%	0	160	136	40%	34%	0
400	R03	CR19	23.4	123	99	31%	25%	0	89	66	22%	16%	0
400	R04	--	23.4	109	86	27%	21%	0	109	86	27%	21%	0
400	R05	--	23.4	120	97	30%	24%	0	120	96	30%	24%	0
400	R06	--	23.4	113	89	28%	22%	0	112	89	28%	22%	0
400	R07	--	23.4	103	80	26%	20%	0	102	78	25%	20%	0
400	R08	--	23.4	98	75	24%	19%	0	83	60	21%	15%	0
400	R09	CR18	23.4	111	88	28%	22%	0	69	45	17%	11%	0
400	R10	CR05	23.4	95	72	24%	18%	0	79	56	20%	14%	0
400	R11	--	23.4	124	100	31%	25%	0	65	42	16%	10%	0
400	R12	--	23.4	118	95	30%	24%	0	65	42	16%	10%	0
400	R13	--	23.4	108	85	27%	21%	0	58	35	15%	9%	0
400	R14	--	23.4	109	86	27%	22%	0	61	38	15%	9%	0
400	R15	CR10	23.4	157	134	39%	33%	0	90	67	23%	17%	0
400	R16	--	23.4	131	108	33%	27%	0	77	54	19%	13%	0
400	R17	CR01	23.4	106	83	26%	21%	0	88	65	22%	16%	0
400	R18	CR04	23.4	98	75	24%	19%	0	97	74	24%	18%	0
400	R19	CR06	23.4	121	98	30%	24%	0	61	38	15%	9%	0
400	R20	CR07	23.4	88	65	22%	16%	0	58	34	14%	9%	0
400	R21	CR8	23.4	378	355	95%	89%	0	100	76	25%	19%	0
400	R22	CR11	23.4	106	83	26%	21%	0	83	60	21%	15%	0
400	R23	CR12	23.4	108	85	27%	21%	0	99	75	25%	19%	0
400	R24	CR13	23.4	105	82	26%	21%	0	56	32	14%	8%	0
400	R25	CR14	23.4	148	125	37%	31%	0	108	84	27%	21%	0
400	R26	CR15	23.4	79	56	20%	14%	0	72	49	18%	12%	0
400	R27	CR16	23.4	112	89	28%	22%	0	53	30	13%	8%	0
400	R28	CR20	23.4	84	60	21%	15%	0	58	35	15%	9%	0
400	R29	CR21	23.4	162	138	40%	35%	0	76	53	19%	13%	0

Table 5-5: Scenario 2 Landfill Gas and Combustion Byproducts Dispersion Modelling Results

Table 5-5-11: Predicted Concentrations of 24-Hour Nitrogen Oxides at Discrete Receptors

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment - Scenario 2 (End of Stage 3)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 200 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 200 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
200	R01	--	21.6	32	11	16%	5%	0	27	5	13%	3%	0
200	R02	CR17	21.6	34	13	17%	6%	0	33	11	16%	5%	0
200	R03	CR19	21.6	54	32	27%	16%	0	52	30	26%	15%	0
200	R04	--	21.6	30	8	15%	4%	0	29	7	14%	4%	0
200	R05	--	21.6	30	9	15%	4%	0	28	7	14%	3%	0
200	R06	--	21.6	30	9	15%	4%	0	28	7	14%	3%	0
200	R07	--	21.6	31	9	15%	5%	0	27	5	13%	3%	0
200	R08	--	21.6	29	8	15%	4%	0	26	4	13%	2%	0
200	R09	CR18	21.6	30	8	15%	4%	0	27	5	13%	2%	0
200	R10	CR05	21.6	35	13	18%	7%	0	30	8	15%	4%	0
200	R11	--	21.6	35	13	17%	7%	0	30	9	15%	4%	0
200	R12	--	21.6	35	13	17%	7%	0	33	11	16%	6%	0
200	R13	--	21.6	36	15	18%	7%	0	33	12	17%	6%	0
200	R14	--	21.6	32	10	16%	5%	0	27	6	14%	3%	0
200	R15	CR10	21.6	54	32	27%	16%	0	54	32	27%	16%	0
200	R16	--	21.6	43	21	21%	11%	0	43	21	21%	11%	0
200	R17	CR01	21.6	33	11	16%	6%	0	28	6	14%	3%	0
200	R18	CR04	21.6	30	9	15%	4%	0	27	6	14%	3%	0
200	R19	CR06	21.6	36	15	18%	7%	0	28	6	14%	3%	0
200	R20	CR07	21.6	27	6	14%	3%	0	24	3	12%	1%	0
200	R21	CR8	21.6	58	36	29%	18%	0	46	25	23%	12%	0
200	R22	CR11	21.6	31	10	16%	5%	0	26	5	13%	2%	0
200	R23	CR12	21.6	32	10	16%	5%	0	27	6	14%	3%	0
200	R24	CR13	21.6	30	8	15%	4%	0	25	4	13%	2%	0
200	R25	CR14	21.6	33	12	17%	6%	0	29	8	15%	4%	0
200	R26	CR15	21.6	28	6	14%	3%	0	24	2	12%	1%	0
200	R27	CR16	21.6	31	9	15%	5%	0	25	3	12%	2%	0
200	R28	CR20	21.6	27	5	13%	3%	0	25	3	12%	2%	0
200	R29	CR21	21.6	39	17	19%	9%	0	26	4	13%	2%	0

Table 5-5: Scenario 2 Landfill Gas and Combustion Byproducts Dispersion Modelling Results

Table 5-5-12: Predicted Concentrations of 1-Hour Sulphur Dioxides at Discrete Receptors

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment - Scenario 2 (End of Stage 3)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Hours Exceeding 100 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Hours Exceeding 100 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
100	R01	--	1.1	8	7	8%	7%	0	8	7	8%	7%	0
100	R02	CR17	1.1	9	7	9%	7%	0	9	7	9%	7%	0
100	R03	CR19	1.1	48	47	48%	47%	0	48	47	48%	47%	0
100	R04	--	1.1	11	9	11%	9%	0	11	9	11%	9%	0
100	R05	--	1.1	10	9	10%	9%	0	10	9	10%	9%	0
100	R06	--	1.1	10	9	10%	9%	0	10	9	10%	9%	0
100	R07	--	1.1	10	9	10%	9%	0	10	9	10%	9%	0
100	R08	--	1.1	9	8	9%	8%	0	9	8	9%	8%	0
100	R09	CR18	1.1	10	8	10%	8%	0	10	8	10%	8%	0
100	R10	CR05	1.1	14	13	14%	13%	0	14	13	14%	13%	0
100	R11	--	1.1	21	20	21%	20%	0	21	20	21%	20%	0
100	R12	--	1.1	23	22	23%	22%	0	23	22	23%	22%	0
100	R13	--	1.1	18	17	18%	17%	0	18	17	18%	17%	0
100	R14	--	1.1	14	13	14%	13%	0	14	13	14%	13%	0
100	R15	CR10	1.1	43	42	43%	42%	0	43	42	43%	42%	0
100	R16	--	1.1	36	35	36%	35%	0	36	35	36%	35%	0
100	R17	CR01	1.1	10	9	10%	9%	0	10	9	10%	9%	0
100	R18	CR04	1.1	11	10	11%	10%	0	11	10	11%	10%	0
100	R19	CR06	1.1	12	10	12%	10%	0	12	10	12%	10%	0
100	R20	CR07	1.1	9	7	9%	7%	0	9	7	9%	7%	0
100	R21	CR8	1.1	53	52	53%	52%	0	53	52	53%	52%	0
100	R22	CR11	1.1	7	6	7%	6%	0	7	6	7%	6%	0
100	R23	CR12	1.1	10	9	10%	9%	0	10	8	10%	8%	0
100	R24	CR13	1.1	12	11	12%	11%	0	10	9	10%	9%	0
100	R25	CR14	1.1	9	7	9%	7%	0	9	7	9%	7%	0
100	R26	CR15	1.1	8	7	8%	7%	0	8	7	8%	7%	0
100	R27	CR16	1.1	9	8	9%	8%	0	8	7	8%	7%	0
100	R28	CR20	1.1	9	8	9%	8%	0	9	8	9%	8%	0
100	R29	CR21	1.1	9	8	9%	8%	0	9	8	9%	8%	0

[1] 1-Hour SO_2 results are based on the maximum among the three operating secenarios, namely Normal Operating Scenario, Maintenance Scenario and Tailgas Scenario, considered in the SO_2 model.

Table 5-5: Scenario 2 Landfill Gas and Combustion Byproducts Dispersion Modelling Results

Table 5-5-13: Predicted Concentrations of Annual Sulphur Dioxides at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Scenario 2 (End of Stage 3)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included				Landfill Only			
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)	
				With Background	Without Background	With Background	Without Background	With Background	Without Background	With Background	Without Background
10	R01	--	0.5	0.7	0.2	7%	2%	0.7	0.1	7%	1%
10	R02	CR17	0.5	0.7	0.2	7%	2%	0.7	0.2	7%	2%
10	R03	CR19	0.5	1.2	0.6	12%	6%	1.2	0.6	12%	6%
10	R04	--	0.5	0.8	0.2	8%	2%	0.8	0.2	8%	2%
10	R05	--	0.5	0.8	0.2	8%	2%	0.7	0.2	7%	2%
10	R06	--	0.5	0.8	0.2	8%	2%	0.8	0.2	8%	2%
10	R07	--	0.5	0.7	0.2	7%	2%	0.7	0.2	7%	2%
10	R08	--	0.5	0.7	0.2	7%	2%	0.7	0.2	7%	2%
10	R09	CR18	0.5	0.7	0.1	7%	1%	0.7	0.1	7%	1%
10	R10	CR05	0.5	0.7	0.2	7%	2%	0.7	0.2	7%	2%
10	R11	--	0.5	0.8	0.2	8%	2%	0.7	0.2	7%	2%
10	R12	--	0.5	0.8	0.2	8%	2%	0.7	0.2	7%	2%
10	R13	--	0.5	0.7	0.2	7%	2%	0.7	0.2	7%	2%
10	R14	--	0.5	0.6	0.1	6%	1%	0.6	0.1	6%	1%
10	R15	CR10	0.5	1.1	0.6	11%	6%	1.1	0.6	11%	6%
10	R16	--	0.5	1.0	0.5	10%	5%	1.0	0.5	10%	5%
10	R17	CR01	0.5	0.7	0.2	7%	2%	0.7	0.1	7%	1%
10	R18	CR04	0.5	0.8	0.2	8%	2%	0.7	0.2	7%	2%
10	R19	CR06	0.5	0.7	0.1	7%	1%	0.7	0.1	7%	1%
10	R20	CR07	0.5	0.6	0.1	6%	1%	0.6	0.1	6%	1%
10	R21	CR8	0.5	1.0	0.5	10%	5%	1.0	0.5	10%	5%
10	R22	CR11	0.5	0.7	0.1	7%	1%	0.7	0.1	7%	1%
10	R23	CR12	0.5	0.6	0.1	6%	1%	0.6	0.1	6%	1%
10	R24	CR13	0.5	0.6	0.1	6%	1%	0.6	0.1	6%	1%
10	R25	CR14	0.5	0.7	0.1	7%	1%	0.7	0.1	7%	1%
10	R26	CR15	0.5	0.6	0.1	6%	1%	0.6	0.1	6%	1%
10	R27	CR16	0.5	0.6	0.1	6%	1%	0.6	0.1	6%	1%
10	R28	CR20	0.5	0.6	0.1	6%	1%	0.6	0.1	6%	1%
10	R29	CR21	0.5	0.7	0.2	7%	2%	0.7	0.1	7%	1%

[1] Annual SO_2 results are based on the Normal Operating Scenario considered in the SO_2 model, as the other two scenarios rarely happen and should not be taken into account in the long-term impact.

Table 5-6-1: Predicted Concentrations of 24-Hour Vinyl Chloride at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Scenario 3 (End of Stage 4)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 1 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 1 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
1	R01	--	0.05	0.06	0.009	6%	0.9%	0	0.06	0.009	6%	0.9%	0
1	R02	CR17	0.05	0.07	0.014	7%	1.4%	0	0.07	0.014	7%	1.4%	0
1	R03	CR19	0.05	0.06	0.006	6%	0.6%	0	0.06	0.006	6%	0.6%	0
1	R04	--	0.05	0.06	0.010	6%	1.0%	0	0.06	0.010	6%	1.0%	0
1	R05	--	0.05	0.06	0.008	6%	0.8%	0	0.06	0.008	6%	0.8%	0
1	R06	--	0.05	0.06	0.009	6%	0.9%	0	0.06	0.009	6%	0.9%	0
1	R07	--	0.05	0.06	0.007	6%	0.7%	0	0.06	0.007	6%	0.7%	0
1	R08	--	0.05	0.06	0.004	6%	0.4%	0	0.06	0.004	6%	0.4%	0
1	R09	CR18	0.05	0.06	0.004	6%	0.4%	0	0.06	0.004	6%	0.4%	0
1	R10	CR05	0.05	0.06	0.005	6%	0.5%	0	0.06	0.005	6%	0.5%	0
1	R11	--	0.05	0.06	0.004	6%	0.4%	0	0.06	0.004	6%	0.4%	0
1	R12	--	0.05	0.06	0.007	6%	0.7%	0	0.06	0.007	6%	0.7%	0
1	R13	--	0.05	0.06	0.004	6%	0.4%	0	0.06	0.004	6%	0.4%	0
1	R14	--	0.05	0.06	0.004	6%	0.4%	0	0.06	0.004	6%	0.4%	0
1	R15	CR10	0.05	0.06	0.004	6%	0.4%	0	0.06	0.004	6%	0.4%	0
1	R16	--	0.05	0.06	0.004	6%	0.4%	0	0.06	0.004	6%	0.4%	0
1	R17	CR01	0.05	0.06	0.011	6%	1.1%	0	0.06	0.011	6%	1.1%	0
1	R18	CR04	0.05	0.06	0.009	6%	0.9%	0	0.06	0.009	6%	0.9%	0
1	R19	CR06	0.05	0.06	0.006	6%	0.6%	0	0.06	0.006	6%	0.6%	0
1	R20	CR07	0.05	0.06	0.003	6%	0.3%	0	0.06	0.003	6%	0.3%	0
1	R21	CR8	0.05	0.06	0.007	6%	0.7%	0	0.06	0.007	6%	0.7%	0
1	R22	CR11	0.05	0.06	0.007	6%	0.7%	0	0.06	0.007	6%	0.7%	0
1	R23	CR12	0.05	0.06	0.006	6%	0.6%	0	0.06	0.006	6%	0.6%	0
1	R24	CR13	0.05	0.06	0.002	6%	0.2%	0	0.06	0.002	6%	0.2%	0
1	R25	CR14	0.05	0.06	0.004	6%	0.4%	0	0.06	0.004	6%	0.4%	0
1	R26	CR15	0.05	0.06	0.005	6%	0.5%	0	0.06	0.005	6%	0.5%	0
1	R27	CR16	0.05	0.06	0.004	6%	0.4%	0	0.06	0.004	6%	0.4%	0
1	R28	CR20	0.05	0.06	0.004	6%	0.4%	0	0.06	0.004	6%	0.4%	0
1	R29	CR21	0.05	0.06	0.010	6%	1.0%	0	0.06	0.010	6%	1.0%	0

Table 5-6-2: Predicted Concentrations of Annual Vinyl Chloride at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Scenario 3 (End of Stage 4)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included				Landfill Only			
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)	
				With Background	Without Background	With Background	Without Background	With Background	Without Background	With Background	Without Background
0.2	R01	--	0.05	0.05	0.0007	26%	0.3%	0.05	0.0007	26%	0.3%
0.2	R02	CR17	0.05	0.05	0.0014	27%	0.7%	0.05	0.0014	27%	0.7%
0.2	R03	CR19	0.05	0.05	0.0005	26%	0.2%	0.05	0.0005	26%	0.2%
0.2	R04	--	0.05	0.05	0.0009	27%	0.4%	0.05	0.0009	27%	0.4%
0.2	R05	--	0.05	0.05	0.0007	26%	0.4%	0.05	0.0007	26%	0.4%
0.2	R06	--	0.05	0.05	0.0007	26%	0.4%	0.05	0.0007	26%	0.4%
0.2	R07	--	0.05	0.05	0.0005	26%	0.2%	0.05	0.0005	26%	0.2%
0.2	R08	--	0.05	0.05	0.0003	26%	0.1%	0.05	0.0003	26%	0.1%
0.2	R09	CR18	0.05	0.05	0.0002	26%	0.1%	0.05	0.0002	26%	0.1%
0.2	R10	CR05	0.05	0.05	0.0003	26%	0.1%	0.05	0.0003	26%	0.1%
0.2	R11	--	0.05	0.05	0.0002	26%	0.1%	0.05	0.0002	26%	0.1%
0.2	R12	--	0.05	0.05	0.0003	26%	0.1%	0.05	0.0003	26%	0.1%
0.2	R13	--	0.05	0.05	0.0002	26%	0.1%	0.05	0.0002	26%	0.1%
0.2	R14	--	0.05	0.05	0.0002	26%	0.1%	0.05	0.0002	26%	0.1%
0.2	R15	CR10	0.05	0.05	0.0004	26%	0.2%	0.05	0.0004	26%	0.2%
0.2	R16	--	0.05	0.05	0.0004	26%	0.2%	0.05	0.0004	26%	0.2%
0.2	R17	CR01	0.05	0.05	0.0008	27%	0.4%	0.05	0.0008	27%	0.4%
0.2	R18	CR04	0.05	0.05	0.0007	26%	0.3%	0.05	0.0007	26%	0.3%
0.2	R19	CR06	0.05	0.05	0.0002	26%	0.1%	0.05	0.0002	26%	0.1%
0.2	R20	CR07	0.05	0.05	0.0002	26%	0.1%	0.05	0.0002	26%	0.1%
0.2	R21	CR8	0.05	0.05	0.0006	26%	0.3%	0.05	0.0006	26%	0.3%
0.2	R22	CR11	0.05	0.05	0.0006	26%	0.3%	0.05	0.0006	26%	0.3%
0.2	R23	CR12	0.05	0.05	0.0003	26%	0.2%	0.05	0.0003	26%	0.2%
0.2	R24	CR13	0.05	0.05	0.0001	26%	0.1%	0.05	0.0001	26%	0.1%
0.2	R25	CR14	0.05	0.05	0.0005	26%	0.2%	0.05	0.0005	26%	0.2%
0.2	R26	CR15	0.05	0.05	0.0003	26%	0.2%	0.05	0.0003	26%	0.2%
0.2	R27	CR16	0.05	0.05	0.0002	26%	0.1%	0.05	0.0002	26%	0.1%
0.2	R28	CR20	0.05	0.05	0.0003	26%	0.2%	0.05	0.0003	26%	0.2%
0.2	R29	CR21	0.05	0.05	0.0006	26%	0.3%	0.05	0.0006	26%	0.3%

Table 5-6-3: Predicted Concentrations of 24-Hour Benzene at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Scenario 3 (End of Stage 4)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 2.3 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 2.3 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
2.3	R01	--	0.69	0.69	0.004	30%	0.2%	0	0.69	0.004	30%	0.2%	0
2.3	R02	CR17	0.69	0.69	0.008	30%	0.3%	0	0.69	0.008	30%	0.3%	0
2.3	R03	CR19	0.69	0.69	0.008	30%	0.3%	0	0.69	0.008	30%	0.3%	0
2.3	R04	--	0.69	0.69	0.005	30%	0.2%	0	0.69	0.005	30%	0.2%	0
2.3	R05	--	0.69	0.69	0.005	30%	0.2%	0	0.69	0.005	30%	0.2%	0
2.3	R06	--	0.69	0.69	0.005	30%	0.2%	0	0.69	0.005	30%	0.2%	0
2.3	R07	--	0.69	0.69	0.004	30%	0.2%	0	0.69	0.004	30%	0.2%	0
2.3	R08	--	0.69	0.69	0.003	30%	0.1%	0	0.69	0.003	30%	0.1%	0
2.3	R09	CR18	0.69	0.69	0.003	30%	0.1%	0	0.69	0.003	30%	0.1%	0
2.3	R10	CR05	0.69	0.69	0.004	30%	0.2%	0	0.69	0.004	30%	0.2%	0
2.3	R11	--	0.69	0.69	0.005	30%	0.2%	0	0.69	0.005	30%	0.2%	0
2.3	R12	--	0.69	0.69	0.005	30%	0.2%	0	0.69	0.005	30%	0.2%	0
2.3	R13	--	0.69	0.69	0.004	30%	0.2%	0	0.69	0.004	30%	0.2%	0
2.3	R14	--	0.69	0.69	0.003	30%	0.1%	0	0.69	0.003	30%	0.1%	0
2.3	R15	CR10	0.69	0.70	0.012	30%	0.5%	0	0.70	0.012	30%	0.5%	0
2.3	R16	--	0.69	0.69	0.007	30%	0.3%	0	0.69	0.007	30%	0.3%	0
2.3	R17	CR01	0.69	0.69	0.007	30%	0.3%	0	0.69	0.007	30%	0.3%	0
2.3	R18	CR04	0.69	0.69	0.005	30%	0.2%	0	0.69	0.005	30%	0.2%	0
2.3	R19	CR06	0.69	0.69	0.004	30%	0.2%	0	0.69	0.004	30%	0.2%	0
2.3	R20	CR07	0.69	0.69	0.002	30%	0.1%	0	0.69	0.002	30%	0.1%	0
2.3	R21	CR8	0.69	0.69	0.008	30%	0.3%	0	0.69	0.008	30%	0.3%	0
2.3	R22	CR11	0.69	0.69	0.003	30%	0.1%	0	0.69	0.003	30%	0.1%	0
2.3	R23	CR12	0.69	0.69	0.003	30%	0.1%	0	0.69	0.003	30%	0.1%	0
2.3	R24	CR13	0.69	0.69	0.002	30%	0.1%	0	0.69	0.002	30%	0.1%	0
2.3	R25	CR14	0.69	0.69	0.004	30%	0.2%	0	0.69	0.004	30%	0.2%	0
2.3	R26	CR15	0.69	0.69	0.003	30%	0.1%	0	0.69	0.003	30%	0.1%	0
2.3	R27	CR16	0.69	0.69	0.002	30%	0.1%	0	0.69	0.002	30%	0.1%	0
2.3	R28	CR20	0.69	0.69	0.002	30%	0.1%	0	0.69	0.002	30%	0.1%	0
2.3	R29	CR21	0.69	0.69	0.006	30%	0.3%	0	0.69	0.006	30%	0.3%	0

Table 5-6-4: Predicted Concentrations of Annual Benzene at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Scenario 3 (End of Stage 4)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included				Landfill Only			
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)	
				With Background	Without Background	With Background	Without Background	With Background	Without Background	With Background	Without Background
0.45	R01	--	0.46	0.46	0.0006	103%	0.13%	0.46	0.0006	103%	0.13%
0.45	R02	CR17	0.46	0.46	0.0010	103%	0.22%	0.46	0.0010	103%	0.22%
0.45	R03	CR19	0.46	0.46	0.0008	103%	0.17%	0.46	0.0008	103%	0.17%
0.45	R04	--	0.46	0.46	0.0009	103%	0.20%	0.46	0.0009	103%	0.20%
0.45	R05	--	0.46	0.46	0.0008	103%	0.17%	0.46	0.0008	103%	0.17%
0.45	R06	--	0.46	0.46	0.0008	103%	0.17%	0.46	0.0008	103%	0.17%
0.45	R07	--	0.46	0.46	0.0005	103%	0.12%	0.46	0.0005	103%	0.12%
0.45	R08	--	0.46	0.46	0.0003	103%	0.08%	0.46	0.0003	103%	0.08%
0.45	R09	CR18	0.46	0.46	0.0003	103%	0.06%	0.46	0.0003	103%	0.06%
0.45	R10	CR05	0.46	0.46	0.0004	103%	0.09%	0.46	0.0004	103%	0.09%
0.45	R11	--	0.46	0.46	0.0003	103%	0.08%	0.46	0.0003	103%	0.08%
0.45	R12	--	0.46	0.46	0.0004	103%	0.08%	0.46	0.0004	103%	0.08%
0.45	R13	--	0.46	0.46	0.0003	103%	0.07%	0.46	0.0003	103%	0.07%
0.45	R14	--	0.46	0.46	0.0002	103%	0.05%	0.46	0.0002	103%	0.05%
0.45	R15	CR10	0.46	0.46	0.0008	103%	0.17%	0.46	0.0008	103%	0.17%
0.45	R16	--	0.46	0.46	0.0006	103%	0.14%	0.46	0.0006	103%	0.14%
0.45	R17	CR01	0.46	0.46	0.0007	103%	0.14%	0.46	0.0007	103%	0.14%
0.45	R18	CR04	0.46	0.46	0.0007	103%	0.16%	0.46	0.0007	103%	0.16%
0.45	R19	CR06	0.46	0.46	0.0003	103%	0.06%	0.46	0.0002	103%	0.05%
0.45	R20	CR07	0.46	0.46	0.0002	103%	0.04%	0.46	0.0002	103%	0.04%
0.45	R21	CR8	0.46	0.46	0.0007	103%	0.16%	0.46	0.0007	103%	0.16%
0.45	R22	CR11	0.46	0.46	0.0005	103%	0.11%	0.46	0.0005	103%	0.11%
0.45	R23	CR12	0.46	0.46	0.0003	103%	0.07%	0.46	0.0003	103%	0.07%
0.45	R24	CR13	0.46	0.46	0.0001	103%	0.03%	0.46	0.0001	103%	0.03%
0.45	R25	CR14	0.46	0.46	0.0004	103%	0.10%	0.46	0.0004	103%	0.10%
0.45	R26	CR15	0.46	0.46	0.0003	103%	0.06%	0.46	0.0003	103%	0.06%
0.45	R27	CR16	0.46	0.46	0.0002	103%	0.04%	0.46	0.0002	103%	0.04%
0.45	R28	CR20	0.46	0.46	0.0003	103%	0.07%	0.46	0.0003	103%	0.07%
0.45	R29	CR21	0.46	0.46	0.0006	103%	0.14%	0.46	0.0006	103%	0.14%

Table 5-6-5: Predicted Concentrations of 24-Hour 1,1,2-Trichloroethane at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Scenario 3 (End of Stage 4)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 0.3 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 0.3 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
0.3	R01	--	0.07	0.07	0.005	23%	2%	0	0.07	0.005	23%	2%	0
0.3	R02	CR17	0.07	0.08	0.014	26%	5%	0	0.08	0.014	26%	5%	0
0.3	R03	CR19	0.07	0.07	0.008	24%	3%	0	0.07	0.008	24%	3%	0
0.3	R04	--	0.07	0.07	0.008	24%	3%	0	0.07	0.008	24%	3%	0
0.3	R05	--	0.07	0.07	0.007	24%	2%	0	0.07	0.007	24%	2%	0
0.3	R06	--	0.07	0.07	0.007	24%	2%	0	0.07	0.007	24%	2%	0
0.3	R07	--	0.07	0.07	0.005	23%	2%	0	0.07	0.005	23%	2%	0
0.3	R08	--	0.07	0.07	0.004	23%	1%	0	0.07	0.004	23%	1%	0
0.3	R09	CR18	0.07	0.07	0.004	23%	1%	0	0.07	0.004	23%	1%	0
0.3	R10	CR05	0.07	0.07	0.005	23%	2%	0	0.07	0.005	23%	2%	0
0.3	R11	--	0.07	0.07	0.006	24%	2%	0	0.07	0.006	24%	2%	0
0.3	R12	--	0.07	0.07	0.007	24%	2%	0	0.07	0.007	24%	2%	0
0.3	R13	--	0.07	0.07	0.004	23%	1%	0	0.07	0.004	23%	1%	0
0.3	R14	--	0.07	0.07	0.006	24%	2%	0	0.07	0.006	24%	2%	0
0.3	R15	CR10	0.07	0.07	0.007	24%	2%	0	0.07	0.007	24%	2%	0
0.3	R16	--	0.07	0.07	0.007	24%	2%	0	0.07	0.007	24%	2%	0
0.3	R17	CR01	0.07	0.07	0.006	24%	2%	0	0.07	0.006	24%	2%	0
0.3	R18	CR04	0.07	0.07	0.006	24%	2%	0	0.07	0.006	24%	2%	0
0.3	R19	CR06	0.07	0.07	0.005	23%	2%	0	0.07	0.005	23%	2%	0
0.3	R20	CR07	0.07	0.07	0.002	22%	1%	0	0.07	0.002	22%	1%	0
0.3	R21	CR8	0.07	0.08	0.016	27%	5%	0	0.08	0.016	27%	5%	0
0.3	R22	CR11	0.07	0.07	0.004	23%	1%	0	0.07	0.004	23%	1%	0
0.3	R23	CR12	0.07	0.07	0.004	23%	1%	0	0.07	0.004	23%	1%	0
0.3	R24	CR13	0.07	0.07	0.002	22%	1%	0	0.07	0.002	22%	1%	0
0.3	R25	CR14	0.07	0.07	0.004	23%	1%	0	0.07	0.004	23%	1%	0
0.3	R26	CR15	0.07	0.07	0.003	23%	1%	0	0.07	0.003	23%	1%	0
0.3	R27	CR16	0.07	0.07	0.003	23%	1%	0	0.07	0.003	23%	1%	0
0.3	R28	CR20	0.07	0.07	0.003	23%	1%	0	0.07	0.003	23%	1%	0
0.3	R29	CR21	0.07	0.07	0.007	24%	2%	0	0.07	0.007	24%	2%	0

Table 5-6-6: Predicted Concentrations of 10-Minute Hydrogen Sulphide at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Scenario 3 (End of Stage 4)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Hours Exceeding 13 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Hours Exceeding 13 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
13	R01	--	2.44	2.79	0.35	21%	3%	0	2.79	0.35	21%	3%	0
13	R02	CR17	2.44	2.92	0.49	22%	4%	0	2.92	0.49	22%	4%	0
13	R03	CR19	2.44	3.52	1.09	27%	8%	0	3.52	1.09	27%	8%	0
13	R04	--	2.44	2.86	0.43	22%	3%	0	2.86	0.43	22%	3%	0
13	R05	--	2.44	2.84	0.41	22%	3%	0	2.84	0.41	22%	3%	0
13	R06	--	2.44	2.84	0.40	22%	3%	0	2.84	0.40	22%	3%	0
13	R07	--	2.44	2.81	0.37	22%	3%	0	2.81	0.37	22%	3%	0
13	R08	--	2.44	2.82	0.38	22%	3%	0	2.82	0.38	22%	3%	0
13	R09	CR18	2.44	2.81	0.37	22%	3%	0	2.81	0.37	22%	3%	0
13	R10	CR05	2.44	2.79	0.36	21%	3%	0	2.79	0.36	21%	3%	0
13	R11	--	2.44	2.88	0.45	22%	3%	0	2.88	0.45	22%	3%	0
13	R12	--	2.44	2.95	0.51	23%	4%	0	2.95	0.51	23%	4%	0
13	R13	--	2.44	2.84	0.40	22%	3%	0	2.84	0.40	22%	3%	0
13	R14	--	2.44	2.83	0.40	22%	3%	0	2.83	0.40	22%	3%	0
13	R15	CR10	2.44	3.45	1.01	27%	8%	0	3.45	1.01	27%	8%	0
13	R16	--	2.44	3.27	0.84	25%	6%	0	3.27	0.84	25%	6%	0
13	R17	CR01	2.44	2.80	0.36	22%	3%	0	2.80	0.36	22%	3%	0
13	R18	CR04	2.44	2.84	0.41	22%	3%	0	2.84	0.41	22%	3%	0
13	R19	CR06	2.44	2.82	0.38	22%	3%	0	2.82	0.38	22%	3%	0
13	R20	CR07	2.44	2.79	0.35	21%	3%	0	2.79	0.35	21%	3%	0
13	R21	CR8	2.44	3.71	1.28	29%	10%	0	3.71	1.28	29%	10%	0
13	R22	CR11	2.44	2.78	0.34	21%	3%	0	2.78	0.34	21%	3%	0
13	R23	CR12	2.44	2.85	0.41	22%	3%	0	2.85	0.41	22%	3%	0
13	R24	CR13	2.44	2.84	0.40	22%	3%	0	2.84	0.40	22%	3%	0
13	R25	CR14	2.44	2.82	0.39	22%	3%	0	2.82	0.39	22%	3%	0
13	R26	CR15	2.44	2.75	0.32	21%	2%	0	2.75	0.32	21%	2%	0
13	R27	CR16	2.44	2.71	0.28	21%	2%	0	2.71	0.28	21%	2%	0
13	R28	CR20	2.44	2.81	0.37	22%	3%	0	2.81	0.37	22%	3%	0
13	R29	CR21	2.44	2.76	0.32	21%	2%	0	2.76	0.32	21%	2%	0

Table 5-6-7: Predicted Concentrations of 24-Hour Hydrogen Sulphide at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Scenario 3 (End of Stage 4)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 7 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 7 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
7	R01	--	2.20	2.24	0.04	32%	0.6%	0	2.24	0.04	32%	0.6%	0
7	R02	CR17	2.20	2.26	0.06	32%	0.8%	0	2.26	0.06	32%	0.8%	0
7	R03	CR19	2.20	2.50	0.30	36%	4.3%	0	2.50	0.30	36%	4.3%	0
7	R04	--	2.20	2.29	0.09	33%	1.3%	0	2.29	0.09	33%	1.3%	0
7	R05	--	2.20	2.28	0.08	33%	1.1%	0	2.28	0.08	33%	1.1%	0
7	R06	--	2.20	2.28	0.08	33%	1.1%	0	2.28	0.08	33%	1.1%	0
7	R07	--	2.20	2.25	0.06	32%	0.8%	0	2.25	0.06	32%	0.8%	0
7	R08	--	2.20	2.25	0.06	32%	0.8%	0	2.25	0.06	32%	0.8%	0
7	R09	CR18	2.20	2.25	0.05	32%	0.7%	0	2.25	0.05	32%	0.7%	0
7	R10	CR05	2.20	2.29	0.10	33%	1.4%	0	2.29	0.10	33%	1.4%	0
7	R11	--	2.20	2.32	0.12	33%	1.7%	0	2.32	0.12	33%	1.7%	0
7	R12	--	2.20	2.31	0.11	33%	1.6%	0	2.31	0.11	33%	1.6%	0
7	R13	--	2.20	2.32	0.12	33%	1.7%	0	2.32	0.12	33%	1.7%	0
7	R14	--	2.20	2.26	0.06	32%	0.9%	0	2.26	0.06	32%	0.9%	0
7	R15	CR10	2.20	2.54	0.34	36%	4.9%	0	2.54	0.34	36%	4.9%	0
7	R16	--	2.20	2.37	0.17	34%	2.5%	0	2.37	0.17	34%	2.5%	0
7	R17	CR01	2.20	2.24	0.05	32%	0.7%	0	2.24	0.05	32%	0.7%	0
7	R18	CR04	2.20	2.27	0.07	32%	1.0%	0	2.27	0.07	32%	1.0%	0
7	R19	CR06	2.20	2.26	0.07	32%	0.9%	0	2.26	0.07	32%	0.9%	0
7	R20	CR07	2.20	2.23	0.03	32%	0.4%	0	2.23	0.03	32%	0.4%	0
7	R21	CR8	2.20	2.45	0.25	35%	3.6%	0	2.45	0.25	35%	3.6%	0
7	R22	CR11	2.20	2.24	0.04	32%	0.5%	0	2.24	0.04	32%	0.5%	0
7	R23	CR12	2.20	2.24	0.04	32%	0.6%	0	2.24	0.04	32%	0.6%	0
7	R24	CR13	2.20	2.25	0.05	32%	0.7%	0	2.25	0.05	32%	0.7%	0
7	R25	CR14	2.20	2.24	0.04	32%	0.5%	0	2.24	0.04	32%	0.5%	0
7	R26	CR15	2.20	2.23	0.03	32%	0.4%	0	2.23	0.03	32%	0.4%	0
7	R27	CR16	2.20	2.23	0.03	32%	0.4%	0	2.23	0.03	32%	0.4%	0
7	R28	CR20	2.20	2.24	0.04	32%	0.5%	0	2.24	0.04	32%	0.5%	0
7	R29	CR21	2.20	2.25	0.05	32%	0.7%	0	2.25	0.05	32%	0.7%	0

Table 5-6-8: Predicted Concentrations of 10-Minute Total Reduced Sulphur at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Scenario 3 (End of Stage 4)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Hours Exceeding 13 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Hours Exceeding 13 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
13	R01	--	2.44	2.79	0.36	21%	3%	0	2.79	0.36	21%	3%	0
13	R02	CR17	2.44	2.93	0.49	23%	4%	0	2.93	0.49	23%	4%	0
13	R03	CR19	2.44	3.54	1.11	27%	9%	0	3.54	1.11	27%	9%	0
13	R04	--	2.44	2.87	0.43	22%	3%	0	2.87	0.43	22%	3%	0
13	R05	--	2.44	2.85	0.42	22%	3%	0	2.85	0.42	22%	3%	0
13	R06	--	2.44	2.84	0.41	22%	3%	0	2.84	0.41	22%	3%	0
13	R07	--	2.44	2.81	0.38	22%	3%	0	2.81	0.38	22%	3%	0
13	R08	--	2.44	2.82	0.39	22%	3%	0	2.82	0.39	22%	3%	0
13	R09	CR18	2.44	2.81	0.38	22%	3%	0	2.81	0.38	22%	3%	0
13	R10	CR05	2.44	2.80	0.36	22%	3%	0	2.80	0.36	22%	3%	0
13	R11	--	2.44	2.89	0.45	22%	3%	0	2.89	0.45	22%	3%	0
13	R12	--	2.44	2.96	0.52	23%	4%	0	2.96	0.52	23%	4%	0
13	R13	--	2.44	2.84	0.41	22%	3%	0	2.84	0.41	22%	3%	0
13	R14	--	2.44	2.84	0.40	22%	3%	0	2.84	0.40	22%	3%	0
13	R15	CR10	2.44	3.47	1.03	27%	8%	0	3.47	1.03	27%	8%	0
13	R16	--	2.44	3.29	0.85	25%	7%	0	3.29	0.85	25%	7%	0
13	R17	CR01	2.44	2.81	0.37	22%	3%	0	2.81	0.37	22%	3%	0
13	R18	CR04	2.44	2.85	0.41	22%	3%	0	2.85	0.41	22%	3%	0
13	R19	CR06	2.44	2.82	0.39	22%	3%	0	2.82	0.39	22%	3%	0
13	R20	CR07	2.44	2.80	0.36	22%	3%	0	2.80	0.36	22%	3%	0
13	R21	CR8	2.44	3.74	1.30	29%	10%	0	3.74	1.30	29%	10%	0
13	R22	CR11	2.44	2.78	0.35	21%	3%	0	2.78	0.35	21%	3%	0
13	R23	CR12	2.44	2.85	0.42	22%	3%	0	2.85	0.42	22%	3%	0
13	R24	CR13	2.44	2.85	0.41	22%	3%	0	2.85	0.41	22%	3%	0
13	R25	CR14	2.44	2.83	0.39	22%	3%	0	2.83	0.39	22%	3%	0
13	R26	CR15	2.44	2.76	0.32	21%	2%	0	2.76	0.32	21%	2%	0
13	R27	CR16	2.44	2.72	0.28	21%	2%	0	2.72	0.28	21%	2%	0
13	R28	CR20	2.44	2.82	0.38	22%	3%	0	2.82	0.38	22%	3%	0
13	R29	CR21	2.44	2.76	0.32	21%	2%	0	2.76	0.32	21%	2%	0

[1] As TRS sampling was not conducted at the landfill areas and H2S is the major constitutent of TRS, concentrations of TRS were derived based on the ratio of H2S emission rate to TRS emission rate obtained in the sampling of landfill gas collection system.

Table 5-6-9: Predicted Concentrations of 24-Hour Total Reduced Sulphur at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Scenario 3 (End of Stage 4)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 7 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 7 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
7	R01	--	2.20	2.24	0.04	32%	0.6%	0	2.24	0.04	32%	0.6%	0
7	R02	CR17	2.20	2.26	0.06	32%	0.9%	0	2.26	0.06	32%	0.9%	0
7	R03	CR19	2.20	2.51	0.31	36%	4.4%	0	2.51	0.31	36%	4.4%	0
7	R04	--	2.20	2.29	0.09	33%	1.3%	0	2.29	0.09	33%	1.3%	0
7	R05	--	2.20	2.28	0.08	33%	1.1%	0	2.28	0.08	33%	1.1%	0
7	R06	--	2.20	2.28	0.08	33%	1.1%	0	2.28	0.08	33%	1.1%	0
7	R07	--	2.20	2.26	0.06	32%	0.8%	0	2.26	0.06	32%	0.8%	0
7	R08	--	2.20	2.26	0.06	32%	0.8%	0	2.26	0.06	32%	0.8%	0
7	R09	CR18	2.20	2.25	0.05	32%	0.7%	0	2.25	0.05	32%	0.7%	0
7	R10	CR05	2.20	2.30	0.10	33%	1.4%	0	2.30	0.10	33%	1.4%	0
7	R11	--	2.20	2.32	0.12	33%	1.8%	0	2.32	0.12	33%	1.8%	0
7	R12	--	2.20	2.31	0.11	33%	1.6%	0	2.31	0.11	33%	1.6%	0
7	R13	--	2.20	2.32	0.12	33%	1.7%	0	2.32	0.12	33%	1.7%	0
7	R14	--	2.20	2.26	0.07	32%	0.9%	0	2.26	0.07	32%	0.9%	0
7	R15	CR10	2.20	2.54	0.35	36%	4.9%	0	2.54	0.35	36%	4.9%	0
7	R16	--	2.20	2.38	0.18	34%	2.5%	0	2.38	0.18	34%	2.5%	0
7	R17	CR01	2.20	2.25	0.05	32%	0.7%	0	2.25	0.05	32%	0.7%	0
7	R18	CR04	2.20	2.27	0.07	32%	1.1%	0	2.27	0.07	32%	1.1%	0
7	R19	CR06	2.20	2.27	0.07	32%	1.0%	0	2.27	0.07	32%	1.0%	0
7	R20	CR07	2.20	2.23	0.03	32%	0.5%	0	2.23	0.03	32%	0.5%	0
7	R21	CR8	2.20	2.46	0.26	35%	3.7%	0	2.46	0.26	35%	3.7%	0
7	R22	CR11	2.20	2.24	0.04	32%	0.5%	0	2.24	0.04	32%	0.5%	0
7	R23	CR12	2.20	2.24	0.04	32%	0.6%	0	2.24	0.04	32%	0.6%	0
7	R24	CR13	2.20	2.25	0.05	32%	0.7%	0	2.25	0.05	32%	0.7%	0
7	R25	CR14	2.20	2.24	0.04	32%	0.6%	0	2.24	0.04	32%	0.6%	0
7	R26	CR15	2.20	2.23	0.03	32%	0.4%	0	2.23	0.03	32%	0.4%	0
7	R27	CR16	2.20	2.23	0.03	32%	0.4%	0	2.23	0.03	32%	0.4%	0
7	R28	CR20	2.20	2.24	0.04	32%	0.5%	0	2.24	0.04	32%	0.5%	0
7	R29	CR21	2.20	2.25	0.05	32%	0.7%	0	2.25	0.05	32%	0.7%	0

[1] As TRS sampling was not conducted at the landfill areas and H2S is the major constitutent of TRS, concentrations of TRS were derived based on the ratio of H2S emission rate to TRS emission rate obtained in the sampling of landfill gas collection system.

Table 5-6-10: Predicted Concentrations of 1-Hour Nitrogen Oxides at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Scenario 3 (End of Stage 4)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Hours Exceeding 400 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Hours Exceeding 400 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
400	R01	--	23.4	141	117	35%	29%	0	103	80	26%	20%	0
400	R02	CR17	23.4	146	123	36%	31%	0	145	122	36%	31%	0
400	R03	CR19	23.4	123	99	31%	25%	0	90	66	22%	17%	0
400	R04	--	23.4	105	82	26%	20%	0	105	82	26%	20%	0
400	R05	--	23.4	105	82	26%	20%	0	105	81	26%	20%	0
400	R06	--	23.4	100	77	25%	19%	0	91	67	23%	17%	0
400	R07	--	23.4	103	80	26%	20%	0	59	36	15%	9%	0
400	R08	--	23.4	98	74	24%	19%	0	74	50	18%	13%	0
400	R09	CR18	23.4	111	87	28%	22%	0	81	58	20%	14%	0
400	R10	CR05	23.4	95	72	24%	18%	0	69	45	17%	11%	0
400	R11	--	23.4	123	100	31%	25%	0	67	44	17%	11%	0
400	R12	--	23.4	118	95	30%	24%	0	73	50	18%	12%	0
400	R13	--	23.4	108	85	27%	21%	0	71	48	18%	12%	0
400	R14	--	23.4	109	86	27%	21%	0	56	33	14%	8%	0
400	R15	CR10	23.4	157	134	39%	33%	0	94	70	23%	18%	0
400	R16	--	23.4	131	108	33%	27%	0	90	67	23%	17%	0
400	R17	CR01	23.4	106	83	26%	21%	0	99	76	25%	19%	0
400	R18	CR04	23.4	97	74	24%	19%	0	66	43	16%	11%	0
400	R19	CR06	23.4	135	112	34%	28%	0	65	42	16%	10%	0
400	R20	CR07	23.4	88	65	22%	16%	0	50	26	12%	7%	0
400	R21	CR8	23.4	378	355	95%	89%	0	99	76	25%	19%	0
400	R22	CR11	23.4	106	82	26%	21%	0	86	63	21%	16%	0
400	R23	CR12	23.4	135	111	34%	28%	0	81	58	20%	15%	0
400	R24	CR13	23.4	105	82	26%	20%	0	56	33	14%	8%	0
400	R25	CR14	23.4	138	114	34%	29%	0	94	70	23%	18%	0
400	R26	CR15	23.4	79	56	20%	14%	0	73	50	18%	12%	0
400	R27	CR16	23.4	112	89	28%	22%	0	48	25	12%	6%	0
400	R28	CR20	23.4	83	60	21%	15%	0	69	45	17%	11%	0
400	R29	CR21	23.4	162	138	40%	35%	0	86	63	22%	16%	0

Table 5-6-11: Predicted Concentrations of 24-Hour Nitrogen Oxides at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Scenario 3 (End of Stage 4)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 200 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 200 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
200	R01	--	21.6	32	11	16%	5%	0	26	5	13%	2%	0
200	R02	CR17	21.6	36	15	18%	7%	0	29	8	15%	4%	0
200	R03	CR19	21.6	54	33	27%	16%	0	52	31	26%	15%	0
200	R04	--	21.6	30	8	15%	4%	0	29	7	14%	4%	0
200	R05	--	21.6	29	8	15%	4%	0	28	7	14%	3%	0
200	R06	--	21.6	29	8	15%	4%	0	28	7	14%	3%	0
200	R07	--	21.6	29	8	15%	4%	0	27	5	13%	3%	0
200	R08	--	21.6	30	8	15%	4%	0	26	4	13%	2%	0
200	R09	CR18	21.6	30	9	15%	4%	0	26	5	13%	2%	0
200	R10	CR05	21.6	35	13	18%	7%	0	30	8	15%	4%	0
200	R11	--	21.6	35	13	17%	7%	0	30	9	15%	4%	0
200	R12	--	21.6	35	13	17%	7%	0	33	11	16%	6%	0
200	R13	--	21.6	37	15	18%	8%	0	34	12	17%	6%	0
200	R14	--	21.6	32	10	16%	5%	0	27	6	14%	3%	0
200	R15	CR10	21.6	54	33	27%	16%	0	54	32	27%	16%	0
200	R16	--	21.6	43	22	22%	11%	0	43	22	22%	11%	0
200	R17	CR01	21.6	33	11	16%	6%	0	26	5	13%	2%	0
200	R18	CR04	21.6	29	8	15%	4%	0	27	6	14%	3%	0
200	R19	CR06	21.6	36	15	18%	7%	0	28	6	14%	3%	0
200	R20	CR07	21.6	27	6	14%	3%	0	24	3	12%	1%	0
200	R21	CR8	21.6	58	36	29%	18%	0	46	25	23%	12%	0
200	R22	CR11	21.6	31	10	16%	5%	0	25	4	13%	2%	0
200	R23	CR12	21.6	31	10	16%	5%	0	27	5	13%	3%	0
200	R24	CR13	21.6	30	8	15%	4%	0	25	4	13%	2%	0
200	R25	CR14	21.6	32	11	16%	5%	0	29	7	14%	4%	0
200	R26	CR15	21.6	28	6	14%	3%	0	25	3	12%	2%	0
200	R27	CR16	21.6	31	9	15%	5%	0	25	3	12%	2%	0
200	R28	CR20	21.6	27	5	14%	3%	0	25	3	12%	2%	0
200	R29	CR21	21.6	39	17	19%	9%	0	27	6	14%	3%	0

Table 5-6-12: Predicted Concentrations of 1-Hour Sulphur Dioxides at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Scenario 3 (End of Stage 4)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Hours Exceeding 100 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Hours Exceeding 100 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
100	R01	--	1.1	8	7	8%	7%	0	8	7	8%	7%	0
100	R02	CR17	1.1	11	10	11%	10%	0	11	9	11%	9%	0
100	R03	CR19	1.1	48	47	48%	47%	0	48	47	48%	47%	0
100	R04	--	1.1	11	9	11%	9%	0	11	9	11%	9%	0
100	R05	--	1.1	10	9	10%	9%	0	10	9	10%	9%	0
100	R06	--	1.1	10	9	10%	9%	0	10	9	10%	9%	0
100	R07	--	1.1	10	9	10%	9%	0	10	9	10%	9%	0
100	R08	--	1.1	9	8	9%	8%	0	9	8	9%	8%	0
100	R09	CR18	1.1	10	9	10%	9%	0	10	9	10%	9%	0
100	R10	CR05	1.1	14	13	14%	13%	0	14	13	14%	13%	0
100	R11	--	1.1	21	20	21%	20%	0	21	20	21%	20%	0
100	R12	--	1.1	23	22	23%	22%	0	23	22	23%	22%	0
100	R13	--	1.1	18	17	18%	17%	0	18	17	18%	17%	0
100	R14	--	1.1	14	13	14%	13%	0	14	13	14%	13%	0
100	R15	CR10	1.1	43	42	43%	42%	0	43	42	43%	42%	0
100	R16	--	1.1	36	35	36%	35%	0	36	35	36%	35%	0
100	R17	CR01	1.1	10	9	10%	9%	0	10	9	10%	9%	0
100	R18	CR04	1.1	11	9	11%	9%	0	11	9	11%	9%	0
100	R19	CR06	1.1	12	10	12%	10%	0	12	10	12%	10%	0
100	R20	CR07	1.1	8	7	8%	7%	0	8	7	8%	7%	0
100	R21	CR8	1.1	53	52	53%	52%	0	53	52	53%	52%	0
100	R22	CR11	1.1	7	6	7%	6%	0	7	6	7%	6%	0
100	R23	CR12	1.1	9	8	9%	8%	0	9	8	9%	8%	0
100	R24	CR13	1.1	12	11	12%	11%	0	10	9	10%	9%	0
100	R25	CR14	1.1	9	8	9%	8%	0	9	8	9%	8%	0
100	R26	CR15	1.1	8	7	8%	7%	0	8	7	8%	7%	0
100	R27	CR16	1.1	9	8	9%	8%	0	8	7	8%	7%	0
100	R28	CR20	1.1	9	8	9%	8%	0	9	8	9%	8%	0
100	R29	CR21	1.1	9	8	9%	8%	0	9	8	9%	8%	0

[1] 1-Hour SO_2 results are based on the maximum among the three operating secenarios, namely Normal Operating Scenario, Maintenance Scenario and Tailgas Scenario, considered in the SO_2 model.

Table 5-6-13: Predicted Concentrations of Annual Sulphur Dioxides at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Scenario 3 (End of Stage 4)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included				Landfill Only			
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)	
				With Background	Without Background	With Background	Without Background	With Background	Without Background	With Background	Without Background
10	R01	--	0.5	0.7	0.2	7%	2%	0.7	0.1	7%	1%
10	R02	CR17	0.5	0.7	0.2	7%	2%	0.7	0.2	7%	2%
10	R03	CR19	0.5	1.2	0.6	12%	6%	1.2	0.6	12%	6%
10	R04	--	0.5	0.8	0.3	8%	3%	0.8	0.2	8%	2%
10	R05	--	0.5	0.8	0.2	8%	2%	0.7	0.2	7%	2%
10	R06	--	0.5	0.8	0.2	8%	2%	0.8	0.2	8%	2%
10	R07	--	0.5	0.7	0.2	7%	2%	0.7	0.2	7%	2%
10	R08	--	0.5	0.7	0.2	7%	2%	0.7	0.2	7%	2%
10	R09	CR18	0.5	0.7	0.1	7%	1%	0.7	0.1	7%	1%
10	R10	CR05	0.5	0.7	0.2	7%	2%	0.7	0.2	7%	2%
10	R11	--	0.5	0.8	0.2	8%	2%	0.7	0.2	7%	2%
10	R12	--	0.5	0.8	0.2	8%	2%	0.7	0.2	7%	2%
10	R13	--	0.5	0.7	0.2	7%	2%	0.7	0.2	7%	2%
10	R14	--	0.5	0.6	0.1	6%	1%	0.6	0.1	6%	1%
10	R15	CR10	0.5	1.2	0.6	12%	6%	1.1	0.6	11%	6%
10	R16	--	0.5	1.0	0.5	10%	5%	1.0	0.5	10%	5%
10	R17	CR01	0.5	0.7	0.2	7%	2%	0.7	0.1	7%	1%
10	R18	CR04	0.5	0.8	0.2	8%	2%	0.7	0.2	7%	2%
10	R19	CR06	0.5	0.7	0.1	7%	1%	0.7	0.1	7%	1%
10	R20	CR07	0.5	0.6	0.1	6%	1%	0.6	0.1	6%	1%
10	R21	CR8	0.5	1.0	0.5	10%	5%	1.0	0.5	10%	5%
10	R22	CR11	0.5	0.7	0.1	7%	1%	0.7	0.1	7%	1%
10	R23	CR12	0.5	0.6	0.1	6%	1%	0.6	0.1	6%	1%
10	R24	CR13	0.5	0.6	0.1	6%	1%	0.6	0.1	6%	1%
10	R25	CR14	0.5	0.7	0.1	7%	1%	0.7	0.1	7%	1%
10	R26	CR15	0.5	0.6	0.1	6%	1%	0.6	0.1	6%	1%
10	R27	CR16	0.5	0.6	0.1	6%	1%	0.6	0.1	6%	1%
10	R28	CR20	0.5	0.6	0.1	6%	1%	0.6	0.1	6%	1%
10	R29	CR21	0.5	0.7	0.2	7%	2%	0.7	0.1	7%	1%

[1] Annual SO_2 results are based on the Normal Operating Scenario considered in the SO_2 model, as the other two scenarios rarely happen and should not be taken into account in the long-term impact.

Table 5-7: Scenario 1 Dust Dispersion Modelling Results

RWDI Project #2402272

Table 5-7-1: Predicted Concentrations of 24-Hour TSP at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Scenario 1 (End of Stage 1)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 120 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 120 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
120	R01	--	51	123	72	103%	60%	2	105	54	88%	45%	0
120	R02	CR17	51	133	82	111%	68%	1	110	59	91%	49%	0
120	R03	CR19	51	106	55	88%	46%	0	97	46	81%	38%	0
120	R04	--	51	112	61	93%	51%	0	104	53	86%	44%	0
120	R05	--	51	106	55	88%	45%	0	99	48	82%	40%	0
120	R06	--	51	104	53	87%	45%	0	98	47	82%	39%	0
120	R07	--	51	86	35	72%	30%	0	78	27	65%	23%	0
120	R08	--	51	81	30	68%	25%	0	75	24	63%	20%	0
120	R09	CR18	51	79	28	66%	24%	0	73	22	61%	18%	0
120	R10	CR05	51	83	32	69%	27%	0	78	27	65%	22%	0
120	R11	--	51	85	34	71%	29%	0	81	30	67%	25%	0
120	R12	--	51	87	36	73%	30%	0	79	28	66%	23%	0
120	R13	--	51	88	37	73%	30%	0	80	29	66%	24%	0
120	R14	--	51	74	23	61%	19%	0	69	18	58%	15%	0
120	R15	CR10	51	112	61	93%	51%	0	102	51	85%	42%	0
120	R16	--	51	110	59	92%	50%	0	101	50	84%	42%	0
120	R17	CR01	51	114	63	95%	53%	0	95	44	79%	37%	0
120	R18	CR04	51	96	45	80%	38%	0	90	39	75%	33%	0
120	R19	CR06	51	91	40	76%	33%	0	85	34	71%	29%	0
120	R20	CR07	51	68	17	56%	14%	0	66	15	55%	12%	0
120	R21	CR8	51	127	76	106%	63%	1	109	58	91%	49%	0
120	R22	CR11	51	107	56	89%	47%	0	95	44	79%	37%	0
120	R23	CR12	51	95	44	79%	36%	0	83	32	69%	26%	0
120	R24	CR13	51	70	19	58%	16%	0	66	15	55%	13%	0
120	R25	CR14	51	89	38	74%	32%	0	75	24	62%	20%	0
120	R26	CR15	51	90	39	75%	32%	0	81	30	68%	25%	0
120	R27	CR16	51	82	31	68%	26%	0	74	23	62%	19%	0
120	R28	CR20	51	80	29	67%	24%	0	70	19	58%	16%	0
120	R29	CR21	51	182	131	152%	109%	16	110	59	91%	49%	0

Table 5-7-2: Predicted Concentrations of 24-Hour PM10 at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Scenario 1 (End of Stage 1)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 50 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 50 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
50	R01	--	22	44	22	89%	45%	0	39	17	78%	34%	0
50	R02	CR17	22	48	26	97%	53%	0	39	17	78%	34%	0
50	R03	CR19	22	38	16	77%	33%	0	35	13	70%	26%	0
50	R04	--	22	42	20	84%	40%	0	37	15	74%	30%	0
50	R05	--	22	40	18	79%	35%	0	35	13	71%	27%	0
50	R06	--	22	39	17	77%	33%	0	35	13	69%	26%	0
50	R07	--	22	33	11	67%	23%	0	30	8	60%	16%	0
50	R08	--	22	31	9	62%	18%	0	29	7	57%	13%	0
50	R09	CR18	22	31	9	62%	18%	0	29	7	57%	13%	0
50	R10	CR05	22	31	9	61%	17%	0	29	7	57%	13%	0
50	R11	--	22	32	10	64%	20%	0	30	8	60%	16%	0
50	R12	--	22	33	11	66%	22%	0	30	8	60%	16%	0
50	R13	--	22	33	11	66%	22%	0	30	8	60%	16%	0
50	R14	--	22	29	7	58%	14%	0	27	5	54%	10%	0
50	R15	CR10	22	39	18	79%	35%	0	36	14	71%	28%	0
50	R16	--	22	39	17	78%	34%	0	35	14	71%	27%	0
50	R17	CR01	22	42	20	83%	40%	0	35	14	71%	27%	0
50	R18	CR04	22	36	14	72%	29%	0	32	10	65%	21%	0
50	R19	CR06	22	34	12	68%	24%	0	32	10	63%	19%	0
50	R20	CR07	22	27	5	55%	11%	0	26	4	52%	9%	0
50	R21	CR8	22	45	23	91%	47%	0	38	16	76%	33%	0
50	R22	CR11	22	41	19	82%	38%	0	37	15	73%	29%	0
50	R23	CR12	22	36	14	71%	28%	0	31	9	62%	18%	0
50	R24	CR13	22	28	6	55%	11%	0	26	4	53%	9%	0
50	R25	CR14	22	36	14	71%	28%	0	30	8	60%	16%	0
50	R26	CR15	22	35	13	69%	25%	0	31	9	63%	19%	0
50	R27	CR16	22	32	10	64%	20%	0	29	7	58%	14%	0
50	R28	CR20	22	32	11	65%	21%	0	28	6	57%	13%	0
50	R29	CR21	22	58	36	115%	71%	3	37	16	75%	31%	0

Table 5-7-3a: Predicted Concentrations of 24-Hour PM2.5 at Discrete Receptors - 2020 CAAQS

Walker South Landfill Phase 2 Environmental Assessment - Scenario 1 (End of Stage 1)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 27 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 27 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
27	R01	--	18	23	5	84%	17%	0	21	3	77%	10%	0
27	R02	CR17	18	23	5	84%	18%	0	21	3	78%	11%	0
27	R03	CR19	18	23	5	85%	19%	0	22	4	83%	17%	0
27	R04	--	18	22	4	81%	15%	0	21	3	77%	11%	0
27	R05	--	18	22	4	80%	14%	0	20	3	76%	10%	0
27	R06	--	18	21	3	79%	12%	0	20	3	75%	9%	0
27	R07	--	18	20	2	75%	9%	0	20	2	72%	6%	0
27	R08	--	18	20	2	74%	8%	0	20	2	73%	7%	0
27	R09	CR18	18	20	2	73%	7%	0	19	1	71%	5%	0
27	R10	CR05	18	20	2	74%	8%	0	20	2	72%	6%	0
27	R11	--	18	20	2	73%	7%	0	19	2	72%	6%	0
27	R12	--	18	20	2	75%	9%	0	20	2	73%	7%	0
27	R13	--	18	20	2	75%	9%	0	20	2	73%	7%	0
27	R14	--	18	19	2	72%	6%	0	19	1	70%	4%	0
27	R15	CR10	18	22	5	83%	17%	0	22	4	83%	16%	0
27	R16	--	18	22	4	80%	14%	0	21	3	78%	12%	0
27	R17	CR01	18	22	5	83%	17%	0	20	2	75%	9%	0
27	R18	CR04	18	21	3	77%	11%	0	20	2	75%	9%	0
27	R19	CR06	18	21	3	77%	11%	0	20	3	75%	9%	0
27	R20	CR07	18	19	1	71%	5%	0	19	1	70%	4%	0
27	R21	CR8	18	22	5	83%	17%	0	21	3	78%	12%	0
27	R22	CR11	18	21	4	79%	13%	0	20	2	75%	9%	0
27	R23	CR12	18	21	3	76%	10%	0	20	2	73%	7%	0
27	R24	CR13	18	20	2	72%	6%	0	19	1	71%	5%	0
27	R25	CR14	18	21	3	77%	11%	0	20	2	73%	7%	0
27	R26	CR15	18	20	2	75%	9%	0	20	2	73%	7%	0
27	R27	CR16	18	20	2	74%	8%	0	19	2	72%	6%	0
27	R28	CR20	18	20	2	73%	7%	0	19	1	70%	4%	0
27	R29	CR21	18	25	7	93%	27%	0	21	3	79%	13%	0

Table 5-7-3b: Predicted Concentrations of 24-Hour PM2.5 at Discrete Receptors - 2030 CAAQS

Walker South Landfill Phase 2 Environmental Assessment - Scenario 1 (End of Stage 1)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 23 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 23 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
23	R01	--	18	23	5	98%	20%	0	21	3	90%	12%	0
23	R02	CR17	18	23	5	99%	21%	0	21	3	91%	13%	0
23	R03	CR19	18	23	5	99%	22%	0	22	4	97%	19%	0
23	R04	--	18	22	4	95%	18%	0	21	3	90%	13%	0
23	R05	--	18	22	4	93%	16%	0	20	3	89%	12%	0
23	R06	--	18	21	3	92%	15%	0	20	3	88%	11%	0
23	R07	--	18	20	2	88%	10%	0	20	2	85%	7%	0
23	R08	--	18	20	2	87%	10%	0	20	2	85%	8%	0
23	R09	CR18	18	20	2	85%	8%	0	19	1	83%	5%	0
23	R10	CR05	18	20	2	87%	10%	0	20	2	85%	7%	0
23	R11	--	18	20	2	86%	8%	0	19	2	85%	7%	0
23	R12	--	18	20	2	88%	10%	0	20	2	85%	8%	0
23	R13	--	18	20	2	88%	10%	0	20	2	86%	8%	0
23	R14	--	18	19	2	85%	7%	0	19	1	83%	5%	0
23	R15	CR10	18	22	5	97%	20%	0	22	4	97%	19%	0
23	R16	--	18	22	4	93%	16%	0	21	3	92%	14%	0
23	R17	CR01	18	22	5	97%	20%	0	20	2	88%	11%	0
23	R18	CR04	18	21	3	90%	13%	0	20	2	88%	11%	0
23	R19	CR06	18	21	3	90%	12%	0	20	3	89%	11%	0
23	R20	CR07	18	19	1	84%	6%	0	19	1	83%	5%	0
23	R21	CR8	18	22	5	97%	20%	0	21	3	92%	14%	0
23	R22	CR11	18	21	4	93%	16%	0	20	2	88%	10%	0
23	R23	CR12	18	21	3	90%	12%	0	20	2	86%	8%	0
23	R24	CR13	18	20	2	85%	7%	0	19	1	83%	5%	0
23	R25	CR14	18	21	3	91%	13%	0	20	2	86%	8%	0
23	R26	CR15	18	20	2	88%	11%	0	20	2	86%	8%	0
23	R27	CR16	18	20	2	87%	10%	0	19	2	84%	7%	0
23	R28	CR20	18	20	2	86%	8%	0	19	1	83%	5%	0
23	R29	CR21	18	25	7	110%	32%	5	21	3	92%	15%	0

Table 5-7-4: Predicted Concentrations of Annual TSP at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Scenario 1 (End of Stage 1)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included				Landfill Only			
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)	
				With Background	Without Background	With Background	Without Background	With Background	Without Background	With Background	Without Background
60	R01	--	26	32	6	53%	10%	28	2.0	47%	3%
60	R02	CR17	26	32	6	53%	9%	29	2.6	48%	4%
60	R03	CR19	26	28	2	47%	4%	28	1.7	46%	3%
60	R04	--	26	31	5	51%	8%	29	3.4	49%	6%
60	R05	--	26	30	4	50%	6%	29	2.8	48%	5%
60	R06	--	26	30	4	50%	6%	29	2.8	48%	5%
60	R07	--	26	29	3	48%	4%	28	1.9	47%	3%
60	R08	--	26	28	1	46%	2%	27	1.1	45%	2%
60	R09	CR18	26	27	1	45%	2%	27	0.8	45%	1%
60	R10	CR05	26	28	2	46%	3%	27	1.2	45%	2%
60	R11	--	26	27	1	46%	2%	27	1.0	45%	2%
60	R12	--	26	27	1	46%	2%	27	1.0	45%	2%
60	R13	--	26	27	1	45%	2%	27	0.8	45%	1%
60	R14	--	26	27	1	45%	2%	27	0.6	44%	1%
60	R15	CR10	26	28	2	47%	4%	28	1.7	46%	3%
60	R16	--	26	28	2	47%	3%	27	1.4	46%	2%
60	R17	CR01	26	31	5	51%	8%	28	2.0	47%	3%
60	R18	CR04	26	30	4	49%	6%	29	2.7	48%	4%
60	R19	CR06	26	28	2	46%	3%	27	1.0	45%	2%
60	R20	CR07	26	27	1	45%	1%	27	0.6	44%	1%
60	R21	CR8	26	30	4	50%	6%	29	2.8	48%	5%
60	R22	CR11	26	30	4	50%	7%	28	1.6	46%	3%
60	R23	CR12	26	28	1	46%	2%	27	0.8	45%	1%
60	R24	CR13	26	27	1	44%	1%	26	0.4	44%	1%
60	R25	CR14	26	28	2	47%	3%	27	1.2	45%	2%
60	R26	CR15	26	28	2	46%	3%	27	0.8	45%	1%
60	R27	CR16	26	27	1	45%	2%	27	0.5	44%	1%
60	R28	CR20	26	27	1	46%	2%	27	0.8	45%	1%
60	R29	CR21	26	38	12	63%	20%	28	2.1	47%	3%

Table 5-7-5a: Predicted Concentrations of Annual PM2.5 at Discrete Receptors - 2020 CAAQS

Walker South Landfill Phase 2 Environmental Assessment - Scenario 1 (End of Stage 1)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included				Landfill Only			
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)	
				With Background	Without Background	With Background	Without Background	With Background	Without Background	With Background	Without Background
8.8	R01	--	9.1	9.6	0.4	109%	5%	9.3	0.15	105%	2%
8.8	R02	CR17	9.1	9.5	0.4	108%	5%	9.3	0.19	106%	2%
8.8	R03	CR19	9.1	9.5	0.3	107%	4%	9.4	0.28	107%	3%
8.8	R04	--	9.1	9.5	0.4	108%	5%	9.4	0.31	107%	3%
8.8	R05	--	9.1	9.5	0.3	107%	4%	9.4	0.26	107%	3%
8.8	R06	--	9.1	9.5	0.3	107%	4%	9.4	0.26	107%	3%
8.8	R07	--	9.1	9.4	0.2	106%	3%	9.3	0.18	106%	2%
8.8	R08	--	9.1	9.3	0.2	105%	2%	9.2	0.12	105%	1%
8.8	R09	CR18	9.1	9.2	0.1	105%	1%	9.2	0.10	105%	1%
8.8	R10	CR05	9.1	9.3	0.2	106%	2%	9.3	0.14	105%	2%
8.8	R11	--	9.1	9.3	0.2	105%	2%	9.2	0.12	105%	1%
8.8	R12	--	9.1	9.3	0.2	105%	2%	9.2	0.13	105%	1%
8.8	R13	--	9.1	9.3	0.2	105%	2%	9.2	0.12	105%	1%
8.8	R14	--	9.1	9.2	0.1	105%	1%	9.2	0.08	104%	1%
8.8	R15	CR10	9.1	9.5	0.4	108%	4%	9.4	0.30	107%	3%
8.8	R16	--	9.1	9.4	0.3	107%	3%	9.4	0.24	106%	3%
8.8	R17	CR01	9.1	9.5	0.4	109%	5%	9.3	0.17	105%	2%
8.8	R18	CR04	9.1	9.4	0.3	107%	4%	9.4	0.25	106%	3%
8.8	R19	CR06	9.1	9.3	0.2	105%	2%	9.2	0.11	105%	1%
8.8	R20	CR07	9.1	9.2	0.1	105%	1%	9.2	0.07	104%	1%
8.8	R21	CR8	9.1	9.6	0.5	109%	5%	9.5	0.36	108%	4%
8.8	R22	CR11	9.1	9.4	0.3	107%	4%	9.2	0.13	105%	2%
8.8	R23	CR12	9.1	9.3	0.1	105%	2%	9.2	0.08	104%	1%
8.8	R24	CR13	9.1	9.2	0.1	104%	1%	9.2	0.05	104%	1%
8.8	R25	CR14	9.1	9.3	0.2	106%	2%	9.2	0.11	105%	1%
8.8	R26	CR15	9.1	9.3	0.1	105%	2%	9.2	0.07	104%	1%
8.8	R27	CR16	9.1	9.2	0.1	105%	1%	9.2	0.06	104%	1%
8.8	R28	CR20	9.1	9.2	0.1	105%	1%	9.2	0.09	105%	1%
8.8	R29	CR21	9.1	9.8	0.7	112%	8%	9.3	0.17	106%	2%

Table 5-7-5b: Predicted Concentrations of Annual PM2.5 at Discrete Receptors - 2030 CAAQS

Walker South Landfill Phase 2 Environmental Assessment - Scenario 1 (End of Stage 1)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included				Landfill Only			
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)	
				With Background	Without Background	With Background	Without Background	With Background	Without Background	With Background	Without Background
8.0	R01	--	9.1	9.6	0.4	119%	6%	9.3	0.15	116%	2%
8.0	R02	CR17	9.1	9.5	0.4	119%	5%	9.3	0.19	116%	2%
8.0	R03	CR19	9.1	9.5	0.3	118%	4%	9.4	0.28	117%	4%
8.0	R04	--	9.1	9.5	0.4	119%	5%	9.4	0.31	118%	4%
8.0	R05	--	9.1	9.5	0.3	118%	4%	9.4	0.26	117%	3%
8.0	R06	--	9.1	9.5	0.3	118%	4%	9.4	0.26	117%	3%
8.0	R07	--	9.1	9.4	0.2	117%	3%	9.3	0.18	116%	2%
8.0	R08	--	9.1	9.3	0.2	116%	2%	9.2	0.12	115%	1%
8.0	R09	CR18	9.1	9.2	0.1	116%	2%	9.2	0.10	115%	1%
8.0	R10	CR05	9.1	9.3	0.2	116%	2%	9.3	0.14	116%	2%
8.0	R11	--	9.1	9.3	0.2	116%	2%	9.2	0.12	116%	2%
8.0	R12	--	9.1	9.3	0.2	116%	2%	9.2	0.13	116%	2%
8.0	R13	--	9.1	9.3	0.2	116%	2%	9.2	0.12	115%	1%
8.0	R14	--	9.1	9.2	0.1	115%	1%	9.2	0.08	115%	1%
8.0	R15	CR10	9.1	9.5	0.4	118%	5%	9.4	0.30	118%	4%
8.0	R16	--	9.1	9.4	0.3	118%	4%	9.4	0.24	117%	3%
8.0	R17	CR01	9.1	9.5	0.4	119%	5%	9.3	0.17	116%	2%
8.0	R18	CR04	9.1	9.4	0.3	118%	4%	9.4	0.25	117%	3%
8.0	R19	CR06	9.1	9.3	0.2	116%	2%	9.2	0.11	115%	1%
8.0	R20	CR07	9.1	9.2	0.1	115%	1%	9.2	0.07	115%	1%
8.0	R21	CR8	9.1	9.6	0.5	120%	6%	9.5	0.36	118%	4%
8.0	R22	CR11	9.1	9.4	0.3	118%	4%	9.2	0.13	116%	2%
8.0	R23	CR12	9.1	9.3	0.1	116%	2%	9.2	0.08	115%	1%
8.0	R24	CR13	9.1	9.2	0.1	115%	1%	9.2	0.05	115%	1%
8.0	R25	CR14	9.1	9.3	0.2	116%	2%	9.2	0.11	115%	1%
8.0	R26	CR15	9.1	9.3	0.1	116%	2%	9.2	0.07	115%	1%
8.0	R27	CR16	9.1	9.2	0.1	115%	1%	9.2	0.06	115%	1%
8.0	R28	CR20	9.1	9.2	0.1	116%	2%	9.2	0.09	115%	1%
8.0	R29	CR21	9.1	9.8	0.7	123%	9%	9.3	0.17	116%	2%

Table 5-8-1: Predicted Concentrations of 24-Hour TSP at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Scenario 2 (End of Stage 3)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 120 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 120 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
120	R01	--	51	79	28	66%	23%	0	78	28	65%	23%	0
120	R02	CR17	51	95	44	79%	36%	0	93	42	78%	35%	0
120	R03	CR19	51	77	26	64%	22%	0	77	26	64%	22%	0
120	R04	--	51	76	25	63%	21%	0	76	25	63%	21%	0
120	R05	--	51	74	23	61%	19%	0	73	22	61%	19%	0
120	R06	--	51	75	24	62%	20%	0	74	23	62%	20%	0
120	R07	--	51	72	21	60%	18%	0	72	21	60%	18%	0
120	R08	--	51	64	13	54%	11%	0	64	13	53%	11%	0
120	R09	CR18	51	64	13	53%	11%	0	63	12	53%	10%	0
120	R10	CR05	51	67	16	56%	13%	0	67	16	56%	13%	0
120	R11	--	51	67	16	56%	14%	0	67	16	56%	14%	0
120	R12	--	51	68	17	57%	15%	0	68	17	57%	14%	0
120	R13	--	51	68	17	57%	14%	0	68	17	56%	14%	0
120	R14	--	51	62	11	52%	10%	0	62	11	52%	9%	0
120	R15	CR10	51	82	31	68%	26%	0	81	30	68%	25%	0
120	R16	--	51	81	30	67%	25%	0	80	29	67%	24%	0
120	R17	CR01	51	73	22	61%	19%	0	73	22	61%	18%	0
120	R18	CR04	51	77	26	64%	21%	0	76	25	64%	21%	0
120	R19	CR06	51	70	19	58%	15%	0	69	18	58%	15%	0
120	R20	CR07	51	59	8	49%	7%	0	59	8	49%	7%	0
120	R21	CR8	51	89	38	74%	31%	0	88	37	73%	31%	0
120	R22	CR11	51	73	22	61%	18%	0	73	22	61%	18%	0
120	R23	CR12	51	78	27	65%	22%	0	77	26	64%	22%	0
120	R24	CR13	51	60	9	50%	8%	0	60	9	50%	8%	0
120	R25	CR14	51	73	22	61%	18%	0	72	21	60%	18%	0
120	R26	CR15	51	64	13	53%	11%	0	63	12	53%	10%	0
120	R27	CR16	51	63	12	52%	10%	0	63	12	52%	10%	0
120	R28	CR20	51	66	15	55%	13%	0	66	15	55%	13%	0
120	R29	CR21	51	81	30	67%	25%	0	81	30	67%	25%	0

Table 5-8-2: Predicted Concentrations of 24-Hour PM10 at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Scenario 2 (End of Stage 3)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 50 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 50 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
50	R01	--	22	29	7	57%	14%	0	29	7	57%	13%	0
50	R02	CR17	22	34	12	68%	24%	0	33	12	67%	23%	0
50	R03	CR19	22	29	7	58%	14%	0	29	7	57%	14%	0
50	R04	--	22	29	7	58%	14%	0	29	7	58%	14%	0
50	R05	--	22	28	6	56%	12%	0	28	6	56%	12%	0
50	R06	--	22	28	6	57%	13%	0	28	6	56%	13%	0
50	R07	--	22	28	6	56%	12%	0	28	6	56%	12%	0
50	R08	--	22	26	4	51%	8%	0	25	4	51%	7%	0
50	R09	CR18	22	26	4	52%	8%	0	26	4	51%	7%	0
50	R10	CR05	22	26	4	52%	8%	0	26	4	52%	8%	0
50	R11	--	22	26	4	52%	8%	0	26	4	52%	8%	0
50	R12	--	22	27	5	54%	10%	0	27	5	54%	10%	0
50	R13	--	22	26	4	53%	9%	0	26	4	52%	9%	0
50	R14	--	22	25	3	50%	7%	0	25	3	50%	6%	0
50	R15	CR10	22	30	8	60%	16%	0	30	8	60%	16%	0
50	R16	--	22	30	8	59%	15%	0	29	7	59%	15%	0
50	R17	CR01	22	28	6	56%	12%	0	28	6	56%	12%	0
50	R18	CR04	22	29	7	59%	15%	0	29	7	58%	14%	0
50	R19	CR06	22	27	5	54%	10%	0	27	5	54%	10%	0
50	R20	CR07	22	24	2	48%	5%	0	24	2	48%	4%	0
50	R21	CR8	22	32	10	64%	20%	0	32	10	63%	19%	0
50	R22	CR11	22	28	6	55%	11%	0	27	6	55%	11%	0
50	R23	CR12	22	29	8	59%	15%	0	29	7	58%	14%	0
50	R24	CR13	22	25	3	49%	5%	0	24	3	49%	5%	0
50	R25	CR14	22	29	7	58%	14%	0	29	7	57%	13%	0
50	R26	CR15	22	25	3	51%	7%	0	25	3	50%	7%	0
50	R27	CR16	22	25	3	51%	7%	0	25	3	50%	7%	0
50	R28	CR20	22	27	5	53%	10%	0	27	5	53%	9%	0
50	R29	CR21	22	31	9	62%	18%	0	31	9	62%	18%	0

Table 5-8: Scenario 2 Dust Dispersion Modelling Results **RWDI Project #2402272**

Table 5-8-3a: Predicted Concentrations of 24-Hour PM2.5 at Discrete Receptors - 2020 CAAQS

Walker South Landfill Phase 2 Environmental Assessment - Scenario 2 (End of Stage 3)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 27 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 27 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
27	R01	--	18	19	2	72%	6%	0	19	1	72%	6%	0
27	R02	CR17	18	21	3	78%	12%	0	21	3	78%	12%	0
27	R03	CR19	18	22	4	82%	16%	0	22	4	82%	16%	0
27	R04	--	18	20	2	73%	7%	0	20	2	72%	6%	0
27	R05	--	18	20	2	72%	6%	0	20	2	72%	6%	0
27	R06	--	18	20	2	72%	6%	0	19	2	72%	6%	0
27	R07	--	18	19	2	72%	6%	0	19	1	71%	5%	0
27	R08	--	18	19	1	70%	4%	0	19	1	69%	3%	0
27	R09	CR18	18	19	1	70%	4%	0	19	1	70%	4%	0
27	R10	CR05	18	19	1	71%	5%	0	19	1	70%	4%	0
27	R11	--	18	19	2	72%	6%	0	19	1	71%	5%	0
27	R12	--	18	20	2	72%	6%	0	19	2	72%	6%	0
27	R13	--	18	20	2	73%	7%	0	20	2	73%	6%	0
27	R14	--	18	19	1	70%	4%	0	19	1	70%	3%	0
27	R15	CR10	18	22	5	83%	17%	0	22	5	83%	17%	0
27	R16	--	18	21	3	77%	11%	0	21	3	77%	11%	0
27	R17	CR01	18	19	1	71%	5%	0	19	1	71%	5%	0
27	R18	CR04	18	20	2	73%	7%	0	20	2	72%	6%	0
27	R19	CR06	18	19	2	72%	6%	0	19	1	72%	5%	0
27	R20	CR07	18	18	1	68%	2%	0	18	1	68%	2%	0
27	R21	CR8	18	21	3	78%	12%	0	21	3	78%	12%	0
27	R22	CR11	18	19	1	71%	5%	0	19	1	71%	4%	0
27	R23	CR12	18	20	2	73%	7%	0	20	2	73%	6%	0
27	R24	CR13	18	19	1	70%	3%	0	19	1	69%	3%	0
27	R25	CR14	18	20	2	73%	7%	0	19	2	72%	6%	0
27	R26	CR15	18	19	1	69%	3%	0	19	1	69%	3%	0
27	R27	CR16	18	19	1	69%	3%	0	19	1	69%	3%	0
27	R28	CR20	18	19	1	70%	4%	0	19	1	70%	4%	0
27	R29	CR21	18	20	3	76%	10%	0	20	3	76%	9%	0

Table 5-8-3b: Predicted Concentrations of 24-Hour PM2.5 at Discrete Receptors - 2030 CAAQS

Walker South Landfill Phase 2 Environmental Assessment - Scenario 2 (End of Stage 3)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 23 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 23 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
23	R01	--	18	19	2	85%	7%	0	19	1	84%	7%	0
23	R02	CR17	18	21	3	91%	14%	0	21	3	91%	14%	0
23	R03	CR19	18	22	4	96%	18%	0	22	4	96%	18%	0
23	R04	--	18	20	2	85%	8%	0	20	2	85%	7%	0
23	R05	--	18	20	2	85%	7%	0	20	2	85%	7%	0
23	R06	--	18	20	2	85%	7%	0	19	2	85%	7%	0
23	R07	--	18	19	2	84%	7%	0	19	1	84%	6%	0
23	R08	--	18	19	1	82%	5%	0	19	1	82%	4%	0
23	R09	CR18	18	19	1	83%	5%	0	19	1	82%	4%	0
23	R10	CR05	18	19	1	83%	6%	0	19	1	83%	5%	0
23	R11	--	18	19	2	84%	7%	0	19	1	84%	6%	0
23	R12	--	18	20	2	85%	7%	0	19	2	85%	7%	0
23	R13	--	18	20	2	86%	8%	0	20	2	85%	8%	0
23	R14	--	18	19	1	82%	4%	0	19	1	82%	4%	0
23	R15	CR10	18	22	5	98%	20%	0	22	5	98%	20%	0
23	R16	--	18	21	3	91%	13%	0	21	3	91%	13%	0
23	R17	CR01	18	19	1	84%	6%	0	19	1	83%	5%	0
23	R18	CR04	18	20	2	85%	8%	0	20	2	85%	7%	0
23	R19	CR06	18	19	2	84%	7%	0	19	1	84%	6%	0
23	R20	CR07	18	18	1	80%	3%	0	18	1	80%	3%	0
23	R21	CR8	18	21	3	92%	15%	0	21	3	92%	15%	0
23	R22	CR11	18	19	1	83%	6%	0	19	1	83%	5%	0
23	R23	CR12	18	20	2	86%	8%	0	20	2	85%	8%	0
23	R24	CR13	18	19	1	82%	4%	0	19	1	81%	4%	0
23	R25	CR14	18	20	2	85%	8%	0	19	2	84%	7%	0
23	R26	CR15	18	19	1	81%	4%	0	19	1	81%	3%	0
23	R27	CR16	18	19	1	81%	3%	0	19	1	81%	3%	0
23	R28	CR20	18	19	1	82%	4%	0	19	1	82%	4%	0
23	R29	CR21	18	20	3	89%	11%	0	20	3	89%	11%	0

Table 5-8-4: Predicted Concentrations of Annual TSP at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Scenario 2 (End of Stage 3)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included				Landfill Only			
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)	
				With Background	Without Background	With Background	Without Background	With Background	Without Background	With Background	Without Background
60	R01	--	26	27	1.2	45%	2.1%	27	1.2	45%	2.0%
60	R02	CR17	26	29	2.9	48%	4.8%	29	2.8	48%	4.7%
60	R03	CR19	26	27	1.0	45%	1.6%	27	0.9	45%	1.5%
60	R04	--	26	28	1.8	46%	3.0%	28	1.7	46%	2.9%
60	R05	--	26	28	1.5	46%	2.5%	28	1.5	46%	2.5%
60	R06	--	26	28	1.5	46%	2.5%	28	1.5	46%	2.5%
60	R07	--	26	27	1.0	45%	1.7%	27	1.0	45%	1.7%
60	R08	--	26	27	0.6	44%	1.0%	27	0.6	44%	1.0%
60	R09	CR18	26	27	0.5	44%	0.8%	27	0.5	44%	0.8%
60	R10	CR05	26	27	0.7	45%	1.1%	27	0.6	44%	1.1%
60	R11	--	26	27	0.6	44%	1.0%	27	0.5	44%	0.9%
60	R12	--	26	27	0.6	44%	1.0%	27	0.5	44%	0.9%
60	R13	--	26	27	0.5	44%	0.8%	27	0.5	44%	0.8%
60	R14	--	26	26	0.4	44%	0.6%	26	0.4	44%	0.6%
60	R15	CR10	26	27	1.0	45%	1.6%	27	0.9	45%	1.6%
60	R16	--	26	27	0.8	45%	1.4%	27	0.8	45%	1.3%
60	R17	CR01	26	27	1.3	46%	2.1%	27	1.2	45%	2.0%
60	R18	CR04	26	27	1.4	46%	2.3%	27	1.4	46%	2.3%
60	R19	CR06	26	27	0.6	44%	1.0%	27	0.6	44%	0.9%
60	R20	CR07	26	26	0.4	44%	0.6%	26	0.4	44%	0.6%
60	R21	CR8	26	28	1.7	46%	2.9%	28	1.6	46%	2.7%
60	R22	CR11	26	27	1.0	45%	1.7%	27	1.0	45%	1.6%
60	R23	CR12	26	27	0.6	44%	1.0%	27	0.6	44%	1.0%
60	R24	CR13	26	26	0.3	44%	0.5%	26	0.3	44%	0.4%
60	R25	CR14	26	27	1.0	45%	1.6%	27	1.0	45%	1.6%
60	R26	CR15	26	27	0.5	44%	0.9%	27	0.5	44%	0.8%
60	R27	CR16	26	26	0.3	44%	0.6%	26	0.3	44%	0.5%
60	R28	CR20	26	27	0.6	44%	1.0%	27	0.6	44%	0.9%
60	R29	CR21	26	27	1.3	46%	2.2%	27	1.2	45%	2.1%

Table 5-8-5a: Predicted Concentrations of Annual PM2.5 at Discrete Receptors - 2020 CAAQS

Walker South Landfill Phase 2 Environmental Assessment - Scenario 2 (End of Stage 3)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included				Landfill Only			
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)	
				With Background	Without Background	With Background	Without Background	With Background	Without Background	With Background	Without Background
8.8	R01	--	9.1	9.3	0.14	105%	1.5%	9.2	0.11	105%	1.3%
8.8	R02	CR17	9.1	9.4	0.24	106%	2.7%	9.3	0.22	106%	2.5%
8.8	R03	CR19	9.1	9.4	0.26	107%	3.0%	9.4	0.25	106%	2.8%
8.8	R04	--	9.1	9.3	0.20	106%	2.3%	9.3	0.19	106%	2.2%
8.8	R05	--	9.1	9.3	0.18	106%	2.0%	9.3	0.17	106%	1.9%
8.8	R06	--	9.1	9.3	0.18	106%	2.0%	9.3	0.17	105%	1.9%
8.8	R07	--	9.1	9.3	0.13	105%	1.5%	9.2	0.12	105%	1.4%
8.8	R08	--	9.1	9.2	0.10	105%	1.1%	9.2	0.09	105%	1.0%
8.8	R09	CR18	9.1	9.2	0.09	105%	1.0%	9.2	0.08	104%	0.9%
8.8	R10	CR05	9.1	9.2	0.12	105%	1.4%	9.2	0.11	105%	1.3%
8.8	R11	--	9.1	9.2	0.11	105%	1.3%	9.2	0.10	105%	1.2%
8.8	R12	--	9.1	9.2	0.12	105%	1.3%	9.2	0.11	105%	1.2%
8.8	R13	--	9.1	9.2	0.11	105%	1.2%	9.2	0.10	105%	1.1%
8.8	R14	--	9.1	9.2	0.07	104%	0.8%	9.2	0.06	104%	0.7%
8.8	R15	CR10	9.1	9.4	0.28	107%	3.2%	9.4	0.26	107%	3.0%
8.8	R16	--	9.1	9.3	0.22	106%	2.5%	9.3	0.21	106%	2.3%
8.8	R17	CR01	9.1	9.3	0.14	105%	1.6%	9.2	0.12	105%	1.3%
8.8	R18	CR04	9.1	9.3	0.17	106%	1.9%	9.3	0.16	105%	1.8%
8.8	R19	CR06	9.1	9.2	0.10	105%	1.2%	9.2	0.09	105%	1.0%
8.8	R20	CR07	9.1	9.2	0.06	104%	0.7%	9.2	0.05	104%	0.6%
8.8	R21	CR8	9.1	9.5	0.35	108%	4.0%	9.4	0.30	107%	3.5%
8.8	R22	CR11	9.1	9.2	0.12	105%	1.3%	9.2	0.10	105%	1.1%
8.8	R23	CR12	9.1	9.2	0.08	104%	0.9%	9.2	0.07	104%	0.8%
8.8	R24	CR13	9.1	9.2	0.05	104%	0.5%	9.2	0.04	104%	0.5%
8.8	R25	CR14	9.1	9.2	0.12	105%	1.3%	9.2	0.11	105%	1.2%
8.8	R26	CR15	9.1	9.2	0.07	104%	0.8%	9.2	0.06	104%	0.6%
8.8	R27	CR16	9.1	9.2	0.05	104%	0.6%	9.2	0.04	104%	0.5%
8.8	R28	CR20	9.1	9.2	0.08	104%	0.9%	9.2	0.07	104%	0.8%
8.8	R29	CR21	9.1	9.3	0.16	105%	1.8%	9.2	0.12	105%	1.4%

Table 5-8-5b: Predicted Concentrations of Annual PM2.5 at Discrete Receptors - 2030 CAAQS

Walker South Landfill Phase 2 Environmental Assessment - Scenario 2 (End of Stage 3)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included				Landfill Only			
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)	
				With Background	Without Background	With Background	Without Background	With Background	Without Background	With Background	Without Background
8.0	R01	--	9.1	9.3	0.14	116%	2%	9.2	0.11	115%	1%
8.0	R02	CR17	9.1	9.4	0.24	117%	3%	9.3	0.22	117%	3%
8.0	R03	CR19	9.1	9.4	0.26	117%	3%	9.4	0.25	117%	3%
8.0	R04	--	9.1	9.3	0.20	116%	3%	9.3	0.19	116%	2%
8.0	R05	--	9.1	9.3	0.18	116%	2%	9.3	0.17	116%	2%
8.0	R06	--	9.1	9.3	0.18	116%	2%	9.3	0.17	116%	2%
8.0	R07	--	9.1	9.3	0.13	116%	2%	9.2	0.12	116%	2%
8.0	R08	--	9.1	9.2	0.10	115%	1%	9.2	0.09	115%	1%
8.0	R09	CR18	9.1	9.2	0.09	115%	1%	9.2	0.08	115%	1%
8.0	R10	CR05	9.1	9.2	0.12	115%	1%	9.2	0.11	115%	1%
8.0	R11	--	9.1	9.2	0.11	115%	1%	9.2	0.10	115%	1%
8.0	R12	--	9.1	9.2	0.12	115%	1%	9.2	0.11	115%	1%
8.0	R13	--	9.1	9.2	0.11	115%	1%	9.2	0.10	115%	1%
8.0	R14	--	9.1	9.2	0.07	115%	1%	9.2	0.06	115%	1%
8.0	R15	CR10	9.1	9.4	0.28	117%	4%	9.4	0.26	117%	3%
8.0	R16	--	9.1	9.3	0.22	117%	3%	9.3	0.21	117%	3%
8.0	R17	CR01	9.1	9.3	0.14	116%	2%	9.2	0.12	115%	1%
8.0	R18	CR04	9.1	9.3	0.17	116%	2%	9.3	0.16	116%	2%
8.0	R19	CR06	9.1	9.2	0.10	115%	1%	9.2	0.09	115%	1%
8.0	R20	CR07	9.1	9.2	0.06	115%	1%	9.2	0.05	115%	1%
8.0	R21	CR8	9.1	9.5	0.35	118%	4%	9.4	0.30	118%	4%
8.0	R22	CR11	9.1	9.2	0.12	115%	1%	9.2	0.10	115%	1%
8.0	R23	CR12	9.1	9.2	0.08	115%	1%	9.2	0.07	115%	1%
8.0	R24	CR13	9.1	9.2	0.05	115%	1%	9.2	0.04	114%	1%
8.0	R25	CR14	9.1	9.2	0.12	115%	1%	9.2	0.11	115%	1%
8.0	R26	CR15	9.1	9.2	0.07	115%	1%	9.2	0.06	115%	1%
8.0	R27	CR16	9.1	9.2	0.05	115%	1%	9.2	0.04	114%	1%
8.0	R28	CR20	9.1	9.2	0.08	115%	1%	9.2	0.07	115%	1%
8.0	R29	CR21	9.1	9.3	0.16	116%	2%	9.2	0.12	115%	1%

Table 5-9-1: Predicted Concentrations of 24-Hour TSP at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Scenario 3 (End of Stage 4)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 120 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 120 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
120	R01	--	51	77	26	65%	22%	0	77	26	64%	22%	0
120	R02	CR17	51	88	37	73%	31%	0	86	35	72%	30%	0
120	R03	CR19	51	76	25	64%	21%	0	76	25	63%	21%	0
120	R04	--	51	73	22	61%	18%	0	73	22	61%	18%	0
120	R05	--	51	72	21	60%	17%	0	71	20	59%	17%	0
120	R06	--	51	72	21	60%	18%	0	72	21	60%	17%	0
120	R07	--	51	65	14	55%	12%	0	65	14	54%	11%	0
120	R08	--	51	62	11	52%	9%	0	62	11	52%	9%	0
120	R09	CR18	51	62	11	52%	9%	0	62	11	52%	9%	0
120	R10	CR05	51	66	15	55%	13%	0	66	15	55%	13%	0
120	R11	--	51	67	16	55%	13%	0	66	15	55%	13%	0
120	R12	--	51	68	17	57%	14%	0	68	17	56%	14%	0
120	R13	--	51	67	16	56%	13%	0	67	16	56%	13%	0
120	R14	--	51	60	9	50%	8%	0	60	9	50%	8%	0
120	R15	CR10	51	80	29	67%	24%	0	80	29	67%	24%	0
120	R16	--	51	80	29	66%	24%	0	79	28	66%	24%	0
120	R17	CR01	51	75	24	63%	20%	0	75	24	62%	20%	0
120	R18	CR04	51	71	20	59%	17%	0	70	19	59%	16%	0
120	R19	CR06	51	69	18	57%	15%	0	68	17	57%	14%	0
120	R20	CR07	51	58	7	49%	6%	0	58	7	49%	6%	0
120	R21	CR8	51	87	36	73%	30%	0	86	35	72%	29%	0
120	R22	CR11	51	72	21	60%	18%	0	72	21	60%	18%	0
120	R23	CR12	51	70	19	59%	16%	0	70	19	58%	16%	0
120	R24	CR13	51	60	9	50%	7%	0	60	9	50%	7%	0
120	R25	CR14	51	64	13	53%	11%	0	64	13	53%	11%	0
120	R26	CR15	51	65	14	54%	12%	0	65	14	54%	12%	0
120	R27	CR16	51	63	12	53%	10%	0	63	12	53%	10%	0
120	R28	CR20	51	62	11	51%	9%	0	62	11	51%	9%	0
120	R29	CR21	51	80	29	67%	24%	0	80	29	67%	24%	0

Table 5-9-2: Predicted Concentrations of 24-Hour PM10 at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Scenario 3 (End of Stage 4)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 50 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 50 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
50	R01	--	22	28	6	57%	13%	0	28	6	57%	13%	0
50	R02	CR17	22	33	11	65%	21%	0	32	10	64%	20%	0
50	R03	CR19	22	29	7	58%	14%	0	29	7	58%	14%	0
50	R04	--	22	28	6	56%	12%	0	28	6	56%	12%	0
50	R05	--	22	28	6	55%	11%	0	27	5	55%	11%	0
50	R06	--	22	28	6	55%	11%	0	27	5	55%	11%	0
50	R07	--	22	26	4	52%	8%	0	25	4	51%	7%	0
50	R08	--	22	25	3	50%	6%	0	25	3	50%	6%	0
50	R09	CR18	22	26	4	51%	7%	0	25	3	51%	7%	0
50	R10	CR05	22	26	4	52%	8%	0	26	4	51%	8%	0
50	R11	--	22	26	4	52%	8%	0	26	4	52%	8%	0
50	R12	--	22	27	5	54%	10%	0	27	5	54%	10%	0
50	R13	--	22	26	4	52%	9%	0	26	4	52%	8%	0
50	R14	--	22	24	3	49%	5%	0	24	3	49%	5%	0
50	R15	CR10	22	30	8	60%	16%	0	30	8	59%	15%	0
50	R16	--	22	29	8	59%	15%	0	29	7	59%	15%	0
50	R17	CR01	22	29	7	58%	14%	0	29	7	57%	13%	0
50	R18	CR04	22	27	5	54%	10%	0	27	5	54%	10%	0
50	R19	CR06	22	27	5	54%	10%	0	27	5	53%	10%	0
50	R20	CR07	22	24	2	48%	4%	0	24	2	48%	4%	0
50	R21	CR8	22	32	10	63%	20%	0	31	9	63%	19%	0
50	R22	CR11	22	28	6	56%	12%	0	28	6	56%	12%	0
50	R23	CR12	22	27	6	55%	11%	0	27	5	54%	10%	0
50	R24	CR13	22	24	3	49%	5%	0	24	2	49%	5%	0
50	R25	CR14	22	26	4	53%	9%	0	26	4	52%	8%	0
50	R26	CR15	22	26	4	52%	8%	0	26	4	52%	8%	0
50	R27	CR16	22	26	4	51%	7%	0	25	4	51%	7%	0
50	R28	CR20	22	25	3	50%	6%	0	25	3	50%	6%	0
50	R29	CR21	22	31	9	62%	18%	0	31	9	62%	18%	0

Table 5-9-3a: Predicted Concentrations of 24-Hour PM2.5 at Discrete Receptors - 2020 CAAQS

Walker South Landfill Phase 2 Environmental Assessment - Scenario 3 (End of Stage 4)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 27 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 27 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
27	R01	--	18	19	2	72%	6%	0	19	1	72%	5%	0
27	R02	CR17	18	21	3	76%	10%	0	20	2	75%	9%	0
27	R03	CR19	18	22	4	82%	16%	0	22	4	82%	16%	0
27	R04	--	18	19	2	72%	6%	0	19	1	72%	5%	0
27	R05	--	18	19	1	72%	5%	0	19	1	71%	5%	0
27	R06	--	18	19	1	72%	6%	0	19	1	71%	5%	0
27	R07	--	18	19	1	70%	4%	0	19	1	69%	3%	0
27	R08	--	18	19	1	70%	4%	0	19	1	69%	3%	0
27	R09	CR18	18	19	1	71%	5%	0	19	1	70%	4%	0
27	R10	CR05	18	19	1	71%	5%	0	19	1	71%	4%	0
27	R11	--	18	19	2	72%	6%	0	19	1	71%	5%	0
27	R12	--	18	20	2	72%	6%	0	19	2	72%	6%	0
27	R13	--	18	20	2	73%	7%	0	20	2	73%	7%	0
27	R14	--	18	19	1	70%	4%	0	19	1	70%	4%	0
27	R15	CR10	18	22	5	83%	17%	0	22	5	83%	17%	0
27	R16	--	18	21	3	77%	11%	0	21	3	77%	11%	0
27	R17	CR01	18	20	2	72%	6%	0	19	2	72%	6%	0
27	R18	CR04	18	19	1	71%	5%	0	19	1	70%	4%	0
27	R19	CR06	18	19	2	72%	6%	0	19	1	72%	5%	0
27	R20	CR07	18	19	1	69%	3%	0	19	1	69%	3%	0
27	R21	CR8	18	21	3	79%	12%	0	21	3	79%	12%	0
27	R22	CR11	18	19	2	72%	6%	0	19	2	72%	6%	0
27	R23	CR12	18	19	2	72%	6%	0	19	1	71%	5%	0
27	R24	CR13	18	19	1	70%	4%	0	19	1	69%	3%	0
27	R25	CR14	18	19	1	71%	5%	0	19	1	71%	4%	0
27	R26	CR15	18	19	1	70%	4%	0	19	1	70%	4%	0
27	R27	CR16	18	19	1	70%	4%	0	19	1	70%	3%	0
27	R28	CR20	18	19	1	69%	3%	0	19	1	69%	3%	0
27	R29	CR21	18	20	3	76%	10%	0	20	3	75%	9%	0

Table 5-9-3b: Predicted Concentrations of 24-Hour PM2.5 at Discrete Receptors - 2030 CAAQS

Walker South Landfill Phase 2 Environmental Assessment - Scenario 3 (End of Stage 4)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included					Landfill Only				
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 23 µg/m³ over 5-Years	Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Days Exceeding 23 µg/m³ over 5-Years
				With Background	Without Background	With Background	Without Background		With Background	Without Background	With Background	Without Background	
23	R01	--	18	19	2	84%	7%	0	19	1	84%	6%	0
23	R02	CR17	18	21	3	89%	12%	0	20	2	88%	10%	0
23	R03	CR19	18	22	4	96%	19%	0	22	4	96%	18%	0
23	R04	--	18	19	2	84%	7%	0	19	1	84%	6%	0
23	R05	--	18	19	1	84%	6%	0	19	1	84%	6%	0
23	R06	--	18	19	1	84%	6%	0	19	1	83%	6%	0
23	R07	--	18	19	1	82%	4%	0	19	1	82%	4%	0
23	R08	--	18	19	1	82%	4%	0	19	1	81%	4%	0
23	R09	CR18	18	19	1	83%	6%	0	19	1	82%	5%	0
23	R10	CR05	18	19	1	83%	6%	0	19	1	83%	5%	0
23	R11	--	18	19	2	84%	7%	0	19	1	84%	6%	0
23	R12	--	18	20	2	85%	7%	0	19	2	85%	7%	0
23	R13	--	18	20	2	86%	8%	0	20	2	85%	8%	0
23	R14	--	18	19	1	82%	4%	0	19	1	82%	4%	0
23	R15	CR10	18	22	5	98%	20%	0	22	5	98%	20%	0
23	R16	--	18	21	3	91%	13%	0	21	3	91%	13%	0
23	R17	CR01	18	20	2	85%	7%	0	19	2	85%	7%	0
23	R18	CR04	18	19	1	84%	6%	0	19	1	83%	5%	0
23	R19	CR06	18	19	2	84%	7%	0	19	1	84%	6%	0
23	R20	CR07	18	19	1	81%	3%	0	19	1	81%	3%	0
23	R21	CR8	18	21	3	92%	15%	0	21	3	92%	15%	0
23	R22	CR11	18	19	2	84%	7%	0	19	2	84%	7%	0
23	R23	CR12	18	19	2	85%	7%	0	19	1	84%	6%	0
23	R24	CR13	18	19	1	82%	4%	0	19	1	81%	4%	0
23	R25	CR14	18	19	1	84%	6%	0	19	1	83%	5%	0
23	R26	CR15	18	19	1	82%	5%	0	19	1	82%	5%	0
23	R27	CR16	18	19	1	82%	4%	0	19	1	82%	4%	0
23	R28	CR20	18	19	1	81%	4%	0	19	1	81%	3%	0
23	R29	CR21	18	20	3	89%	11%	0	20	3	89%	11%	0

Table 5-9-4: Predicted Concentrations of Annual TSP at Discrete Receptors

Walker South Landfill Phase 2 Environmental Assessment - Scenario 3 (End of Stage 4)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included				Landfill Only			
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)	
				With Background	Without Background	With Background	Without Background	With Background	Without Background	With Background	Without Background
60	R01	--	26	27	1.1	45%	1.9%	27	1.1	45%	1.8%
60	R02	CR17	26	28	1.6	46%	2.6%	28	1.5	46%	2.6%
60	R03	CR19	26	27	0.9	45%	1.5%	27	0.9	45%	1.4%
60	R04	--	26	27	1.4	46%	2.3%	27	1.3	46%	2.2%
60	R05	--	26	27	1.2	45%	2.0%	27	1.2	45%	1.9%
60	R06	--	26	27	1.2	45%	2.0%	27	1.2	45%	1.9%
60	R07	--	26	27	0.8	45%	1.4%	27	0.8	45%	1.4%
60	R08	--	26	27	0.5	44%	0.9%	27	0.5	44%	0.8%
60	R09	CR18	26	26	0.4	44%	0.7%	26	0.4	44%	0.7%
60	R10	CR05	26	27	0.6	44%	1.0%	27	0.6	44%	0.9%
60	R11	--	26	27	0.5	44%	0.8%	27	0.5	44%	0.8%
60	R12	--	26	27	0.5	44%	0.9%	27	0.5	44%	0.8%
60	R13	--	26	27	0.5	44%	0.8%	26	0.4	44%	0.7%
60	R14	--	26	26	0.3	44%	0.6%	26	0.3	44%	0.5%
60	R15	CR10	26	27	0.9	45%	1.5%	27	0.8	45%	1.4%
60	R16	--	26	27	0.8	45%	1.3%	27	0.7	45%	1.2%
60	R17	CR01	26	27	1.1	45%	1.9%	27	1.1	45%	1.8%
60	R18	CR04	26	27	1.1	45%	1.9%	27	1.1	45%	1.8%
60	R19	CR06	26	27	0.6	44%	0.9%	27	0.5	44%	0.9%
60	R20	CR07	26	26	0.3	44%	0.5%	26	0.3	44%	0.5%
60	R21	CR8	26	28	1.6	46%	2.7%	28	1.5	46%	2.5%
60	R22	CR11	26	27	0.9	45%	1.5%	27	0.9	45%	1.4%
60	R23	CR12	26	27	0.5	44%	0.8%	26	0.4	44%	0.7%
60	R24	CR13	26	26	0.2	44%	0.4%	26	0.2	44%	0.4%
60	R25	CR14	26	27	0.7	45%	1.1%	27	0.7	44%	1.1%
60	R26	CR15	26	27	0.5	44%	0.8%	26	0.4	44%	0.7%
60	R27	CR16	26	26	0.3	44%	0.5%	26	0.3	44%	0.5%
60	R28	CR20	26	26	0.4	44%	0.7%	26	0.4	44%	0.7%
60	R29	CR21	26	27	1.2	45%	2.0%	27	1.1	45%	1.8%

Table 5-9-5a: Predicted Concentrations of Annual PM2.5 at Discrete Receptors - 2020 CAAQS

Walker South Landfill Phase 2 Environmental Assessment - Scenario 3 (End of Stage 4)

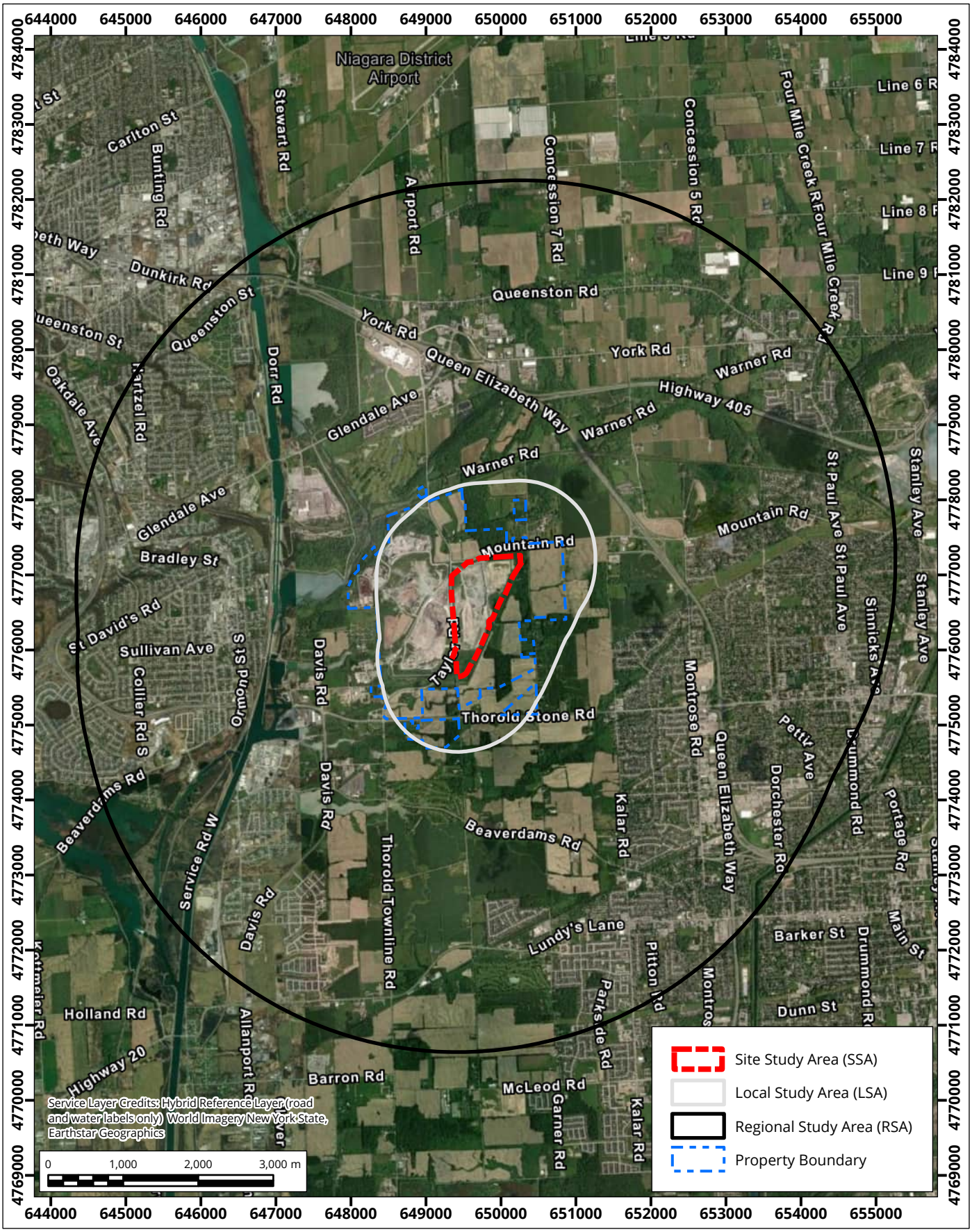
Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included				Landfill Only			
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)	
				With Background	Without Background	With Background	Without Background	With Background	Without Background	With Background	Without Background
8.8	R01	--	9.1	9.3	0.14	105%	1.6%	9.2	0.11	105%	1.3%
8.8	R02	CR17	9.1	9.3	0.18	106%	2.0%	9.3	0.17	105%	1.9%
8.8	R03	CR19	9.1	9.4	0.26	107%	3.0%	9.4	0.25	106%	2.8%
8.8	R04	--	9.1	9.3	0.18	106%	2.1%	9.3	0.17	106%	1.9%
8.8	R05	--	9.1	9.3	0.16	105%	1.9%	9.3	0.15	105%	1.7%
8.8	R06	--	9.1	9.3	0.17	105%	1.9%	9.3	0.15	105%	1.7%
8.8	R07	--	9.1	9.2	0.13	105%	1.4%	9.2	0.12	105%	1.3%
8.8	R08	--	9.1	9.2	0.10	105%	1.1%	9.2	0.09	105%	1.0%
8.8	R09	CR18	9.1	9.2	0.08	105%	1.0%	9.2	0.08	104%	0.9%
8.8	R10	CR05	9.1	9.2	0.12	105%	1.3%	9.2	0.11	105%	1.3%
8.8	R11	--	9.1	9.2	0.11	105%	1.3%	9.2	0.10	105%	1.2%
8.8	R12	--	9.1	9.2	0.12	105%	1.4%	9.2	0.11	105%	1.3%
8.8	R13	--	9.1	9.2	0.11	105%	1.2%	9.2	0.10	105%	1.1%
8.8	R14	--	9.1	9.2	0.07	104%	0.8%	9.2	0.06	104%	0.7%
8.8	R15	CR10	9.1	9.4	0.28	107%	3.2%	9.4	0.26	107%	3.0%
8.8	R16	--	9.1	9.3	0.22	106%	2.5%	9.3	0.20	106%	2.3%
8.8	R17	CR01	9.1	9.3	0.14	105%	1.6%	9.2	0.12	105%	1.4%
8.8	R18	CR04	9.1	9.3	0.16	105%	1.8%	9.3	0.15	105%	1.7%
8.8	R19	CR06	9.1	9.2	0.10	105%	1.2%	9.2	0.09	105%	1.0%
8.8	R20	CR07	9.1	9.2	0.06	104%	0.7%	9.2	0.05	104%	0.6%
8.8	R21	CR8	9.1	9.5	0.35	108%	4.0%	9.4	0.30	107%	3.5%
8.8	R22	CR11	9.1	9.2	0.12	105%	1.3%	9.2	0.10	105%	1.1%
8.8	R23	CR12	9.1	9.2	0.07	104%	0.8%	9.2	0.06	104%	0.7%
8.8	R24	CR13	9.1	9.2	0.05	104%	0.5%	9.2	0.04	104%	0.5%
8.8	R25	CR14	9.1	9.2	0.10	105%	1.1%	9.2	0.09	105%	1.0%
8.8	R26	CR15	9.1	9.2	0.07	104%	0.8%	9.2	0.06	104%	0.7%
8.8	R27	CR16	9.1	9.2	0.05	104%	0.6%	9.2	0.04	104%	0.5%
8.8	R28	CR20	9.1	9.2	0.07	104%	0.8%	9.2	0.07	104%	0.7%
8.8	R29	CR21	9.1	9.3	0.16	105%	1.8%	9.2	0.12	105%	1.3%

Table 5-9-5b: Predicted Concentrations of Annual PM2.5 at Discrete Receptors - 2030 CAAQS

Walker South Landfill Phase 2 Environmental Assessment - Scenario 3 (End of Stage 4)

Criteria (µg/m³)	Receptor ID	Common Receptor ID	Background Concentration (µg/m³)	All Walker Operations Included				Landfill Only			
				Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)		Maximum Predicted Concentration (µg/m³)		Percentage of Criteria (µg/m³)	
				With Background	Without Background	With Background	Without Background	With Background	Without Background	With Background	Without Background
8.0	R01	--	9.1	9.3	0.14	116%	2%	9.2	0.11	115%	1%
8.0	R02	CR17	9.1	9.3	0.18	116%	2%	9.3	0.17	116%	2%
8.0	R03	CR19	9.1	9.4	0.26	117%	3%	9.4	0.25	117%	3%
8.0	R04	--	9.1	9.3	0.18	116%	2%	9.3	0.17	116%	2%
8.0	R05	--	9.1	9.3	0.16	116%	2%	9.3	0.15	116%	2%
8.0	R06	--	9.1	9.3	0.17	116%	2%	9.3	0.15	116%	2%
8.0	R07	--	9.1	9.2	0.13	116%	2%	9.2	0.12	115%	1%
8.0	R08	--	9.1	9.2	0.10	115%	1%	9.2	0.09	115%	1%
8.0	R09	CR18	9.1	9.2	0.08	115%	1%	9.2	0.08	115%	1%
8.0	R10	CR05	9.1	9.2	0.12	115%	1%	9.2	0.11	115%	1%
8.0	R11	--	9.1	9.2	0.11	115%	1%	9.2	0.10	115%	1%
8.0	R12	--	9.1	9.2	0.12	115%	1%	9.2	0.11	115%	1%
8.0	R13	--	9.1	9.2	0.11	115%	1%	9.2	0.10	115%	1%
8.0	R14	--	9.1	9.2	0.07	115%	1%	9.2	0.06	115%	1%
8.0	R15	CR10	9.1	9.4	0.28	117%	3%	9.4	0.26	117%	3%
8.0	R16	--	9.1	9.3	0.22	117%	3%	9.3	0.20	117%	3%
8.0	R17	CR01	9.1	9.3	0.14	116%	2%	9.2	0.12	115%	2%
8.0	R18	CR04	9.1	9.3	0.16	116%	2%	9.3	0.15	116%	2%
8.0	R19	CR06	9.1	9.2	0.10	115%	1%	9.2	0.09	115%	1%
8.0	R20	CR07	9.1	9.2	0.06	115%	1%	9.2	0.05	115%	1%
8.0	R21	CR8	9.1	9.5	0.35	118%	4%	9.4	0.30	118%	4%
8.0	R22	CR11	9.1	9.2	0.12	115%	1%	9.2	0.10	115%	1%
8.0	R23	CR12	9.1	9.2	0.07	115%	1%	9.2	0.06	115%	1%
8.0	R24	CR13	9.1	9.2	0.05	115%	1%	9.2	0.04	114%	1%
8.0	R25	CR14	9.1	9.2	0.10	115%	1%	9.2	0.09	115%	1%
8.0	R26	CR15	9.1	9.2	0.07	115%	1%	9.2	0.06	115%	1%
8.0	R27	CR16	9.1	9.2	0.05	115%	1%	9.2	0.04	114%	1%
8.0	R28	CR20	9.1	9.2	0.07	115%	1%	9.2	0.07	115%	1%
8.0	R29	CR21	9.1	9.3	0.16	116%	2%	9.2	0.12	115%	1%

FIGURES



Site Plan Showing Site Study Area, Local Study Area, and Regional Study Area

True North

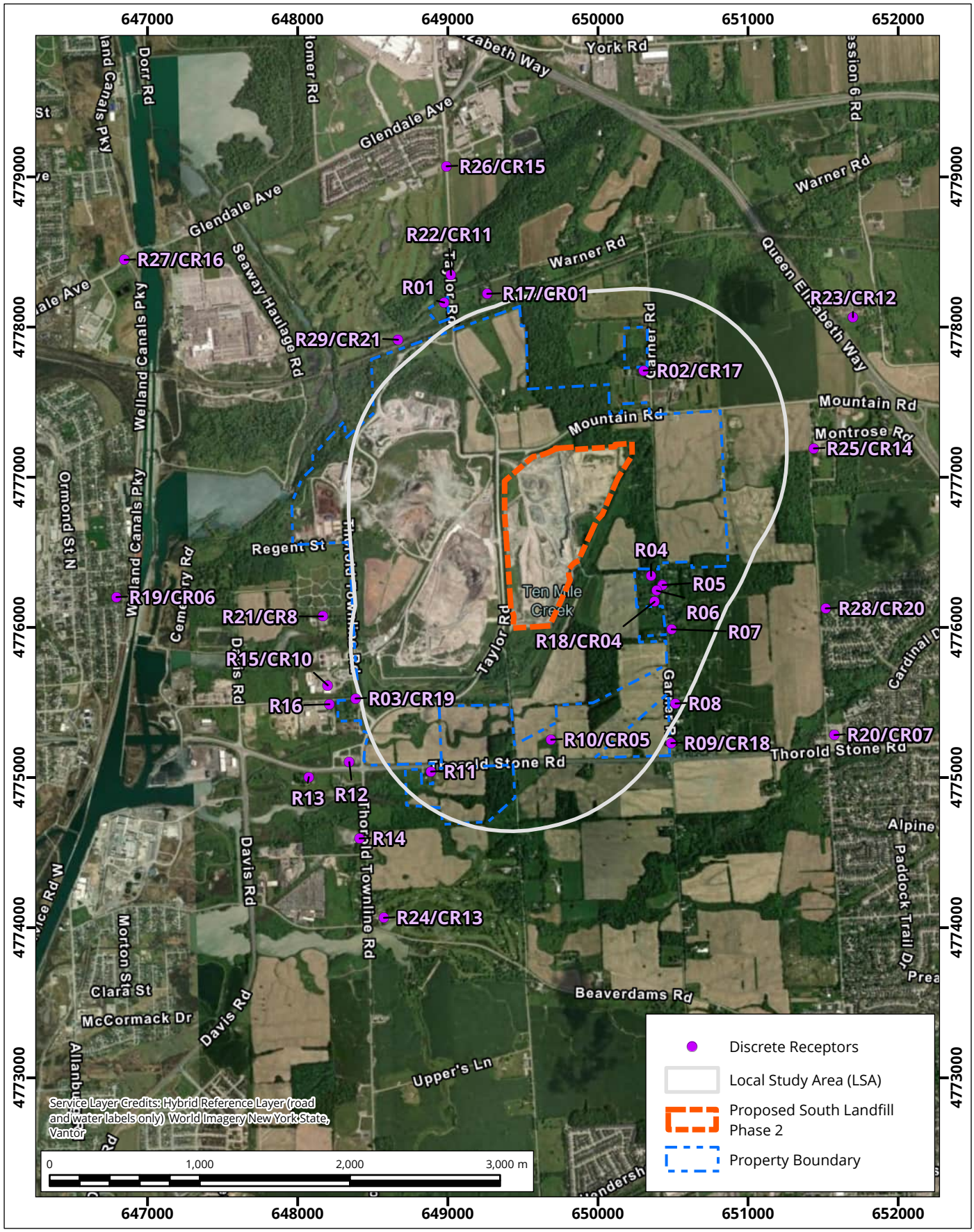
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Approx. Scale:	1:70,000	
Date Revised:	Jun 11, 2026	

Map Projection: NAD 1983 UTM Zone 17N

Walker Landfill - Regional Municipality of Niagara, Ontario

Project #: 2402272

Map Document: C:\Working\Folder\Jobs_AMER\P2402272\P2402272.aprx



Map Document: C:\Working\Folder\Jobs_AMER\P2402272\P2402272.aprx

Site Plan Showing Discrete Receptor Locations

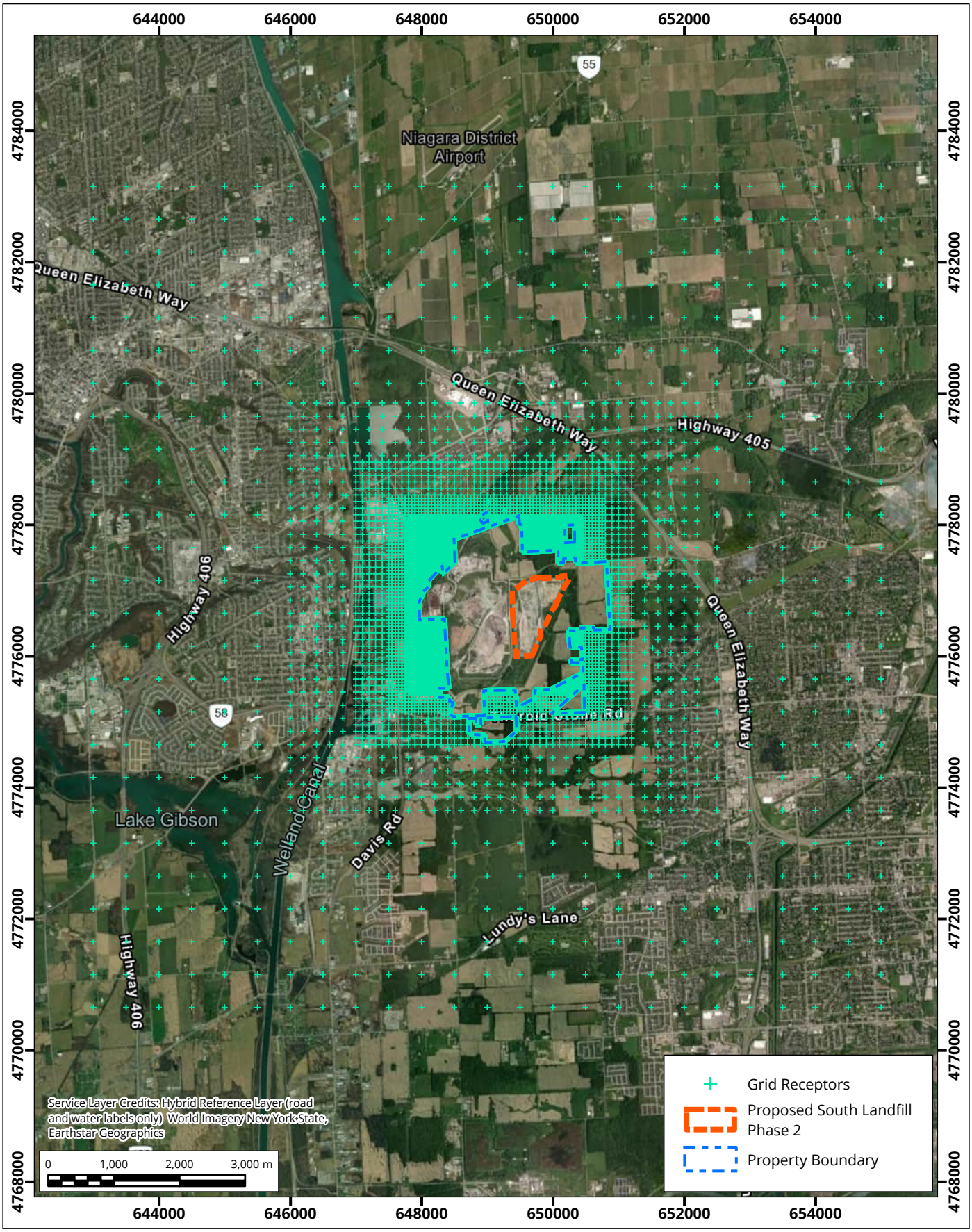
True North

Map Projection: NAD 1983 UTM Zone 17N

Walker Landfill - Regional Municipality of Niagara, Ontario

Project #: 2402272

Drawn by: PIP	Figure: 3-1	
Approx. Scale:	1:35,000	
Date Revised:	Jun 15, 2026	



Site Plan Showing Grid Receptor Locations

True North

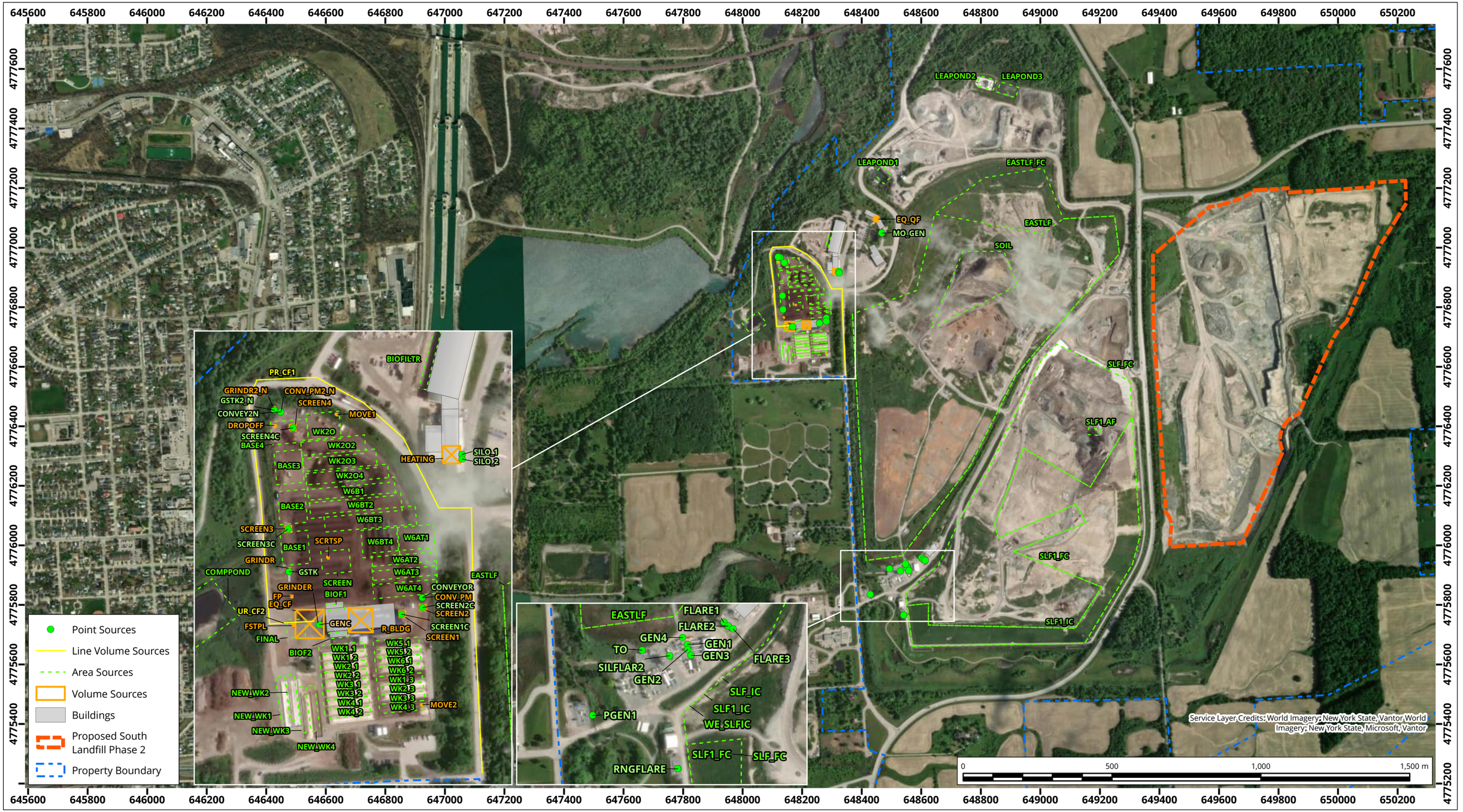
Map Projection: NAD 1983 UTM Zone 17N

Walker Landfill - Regional Municipality of Niagara, Ontario

Project #: 2402272

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Approx. Scale:	1:80,000	
Date Revised:	Jun 18, 2026	

Map Document: C:\Working\Folder\Jobs_AMER\P2402272\P2402272.aprx



Map Document: C:\Working Folder\Jobs_AMER\P2402272\P2402272.aprx

Site Plan Showing Location of Significant Sources, Buildings, and Property Boundary

Do Nothing Scenario

Map Projection: NAD 1983 UTM Zone 17N

Walker Landfill - Regional Municipality of Niagara, Ontario

True North

Project #: 2402272

Drawn by:	PIP	Figure:	4-1
Approx. Scale:		1:12,000	
Date Revised:		Jun 19, 2026	



Site Plan Showing Location of Significant Sources, Buildings, and Property Boundary

Preferred Method - Scenario 1

Map Projection: NAD 1983 UTM Zone 17N

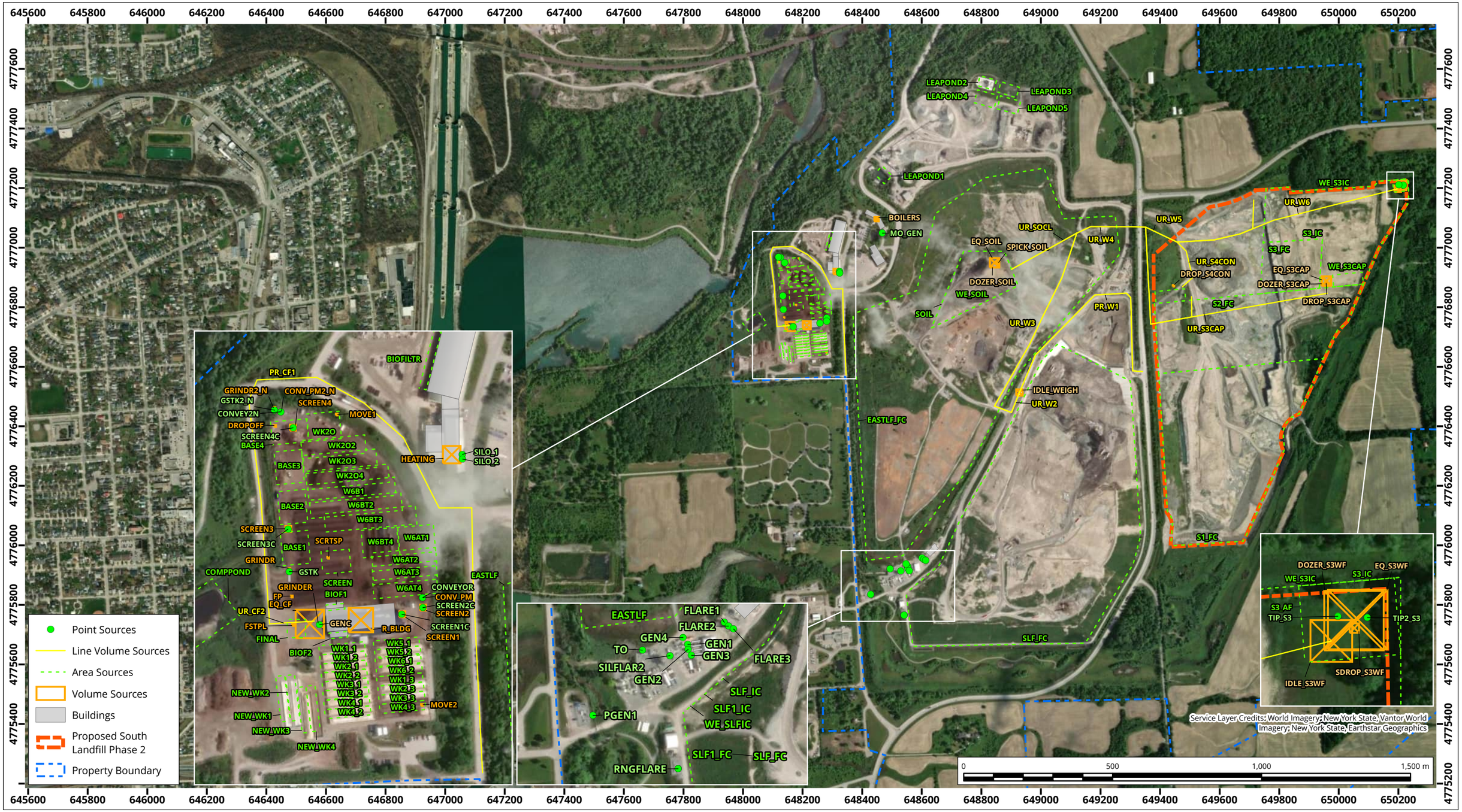
Walker Landfill - Regional Municipality of Niagara, Ontario

True North

Project #: 2402272

Drawn by:	PIP	Figure:	5-1
Approx. Scale:		1:12,000	
Date Revised:		Jun 12, 2026	

Map Document: C:\Working\Folder\Jobs_AMER\P\2402272\P2402272.aprx



Site Plan Showing Location of Significant Sources, Buildings, and Property Boundary

Preferred Method - Scenario 2

Map Projection: NAD 1983 UTM Zone 17N

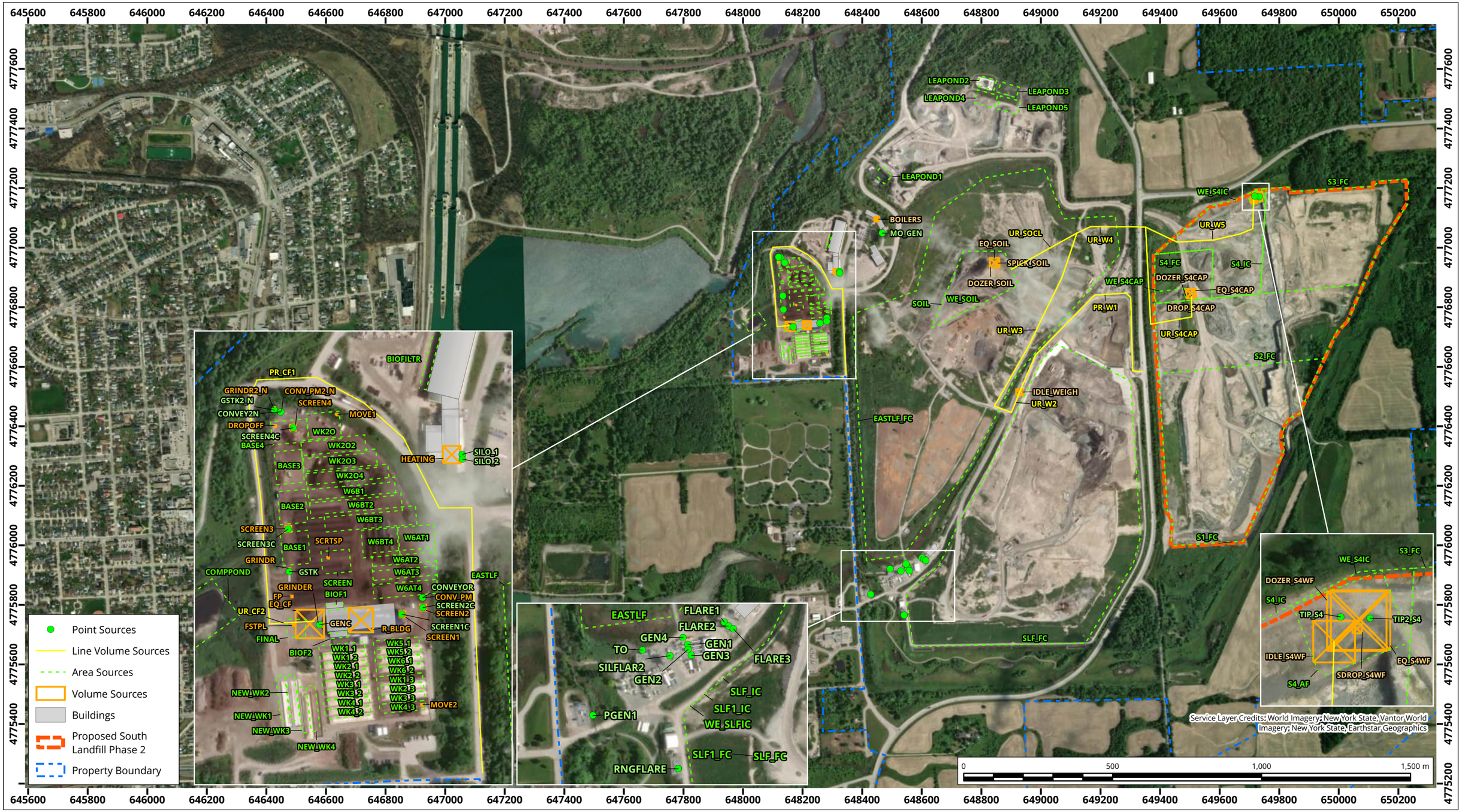
Walker Landfill - Regional Municipality of Niagara, Ontario

True North

Project #: 2402272

Drawn by:	PIP	Figure:	5-2
Approx. Scale:			1:12,000
Date Revised:			Jun 12, 2026

Map Document: C:\Working\Folder\Jobs_AMER\P2402272\P2402272.aprx



Map Document: C:\Working Folder\Jobs_AMER\P2402272\P2402272.aprx

Site Plan Showing Location of Significant Sources, Buildings, and Property Boundary

Preferred Method - Scenario 3

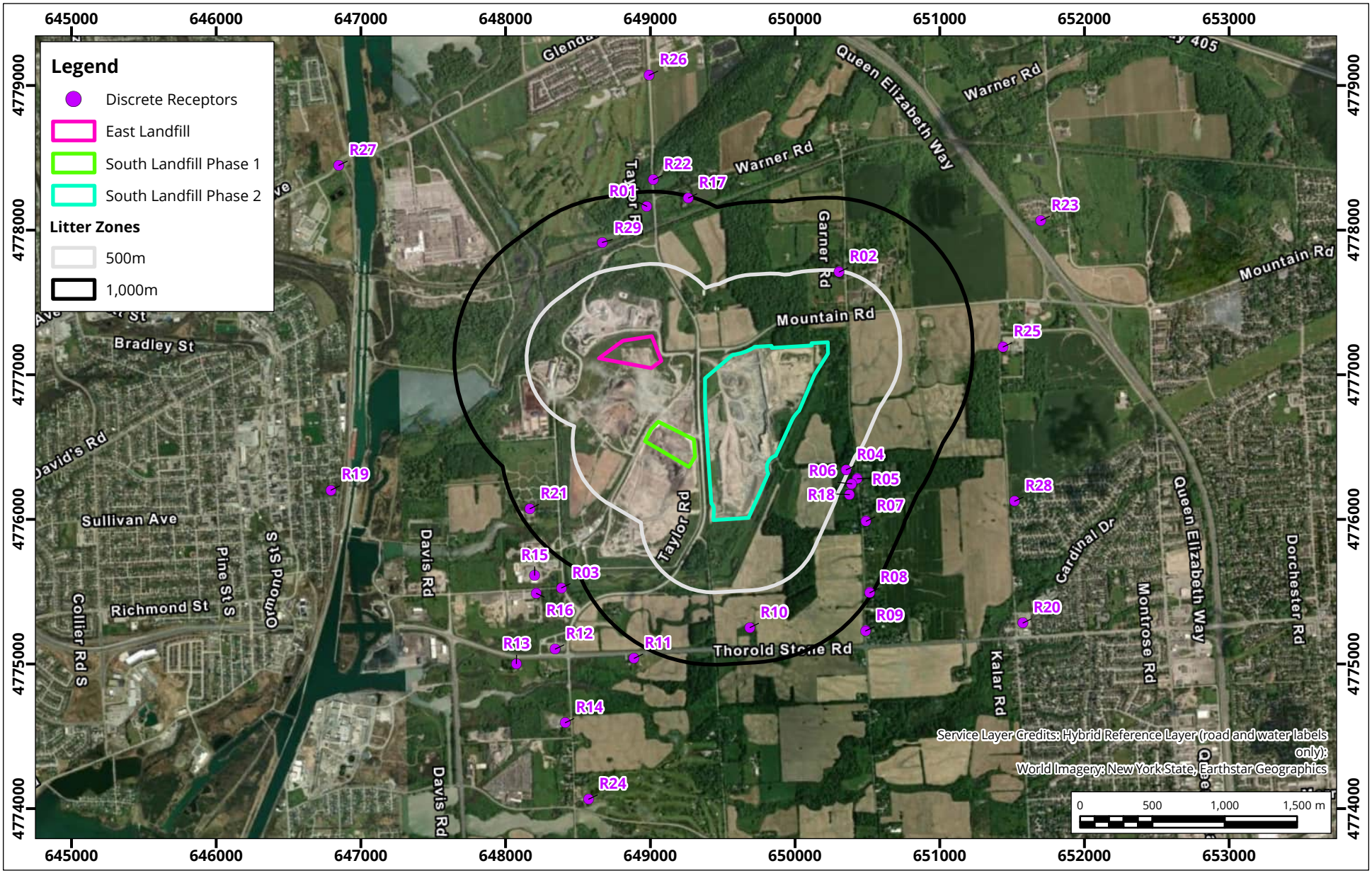
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Walker Landfill - Regional Municipality of Niagara, Ontario

True North

Project #: 2402272

Drawn by:	PIP	Figure:	5-3
Approx. Scale:			1:12,000
Date Revised:			Jun 12, 2026



Scenario 1 - Litter Zones

True North

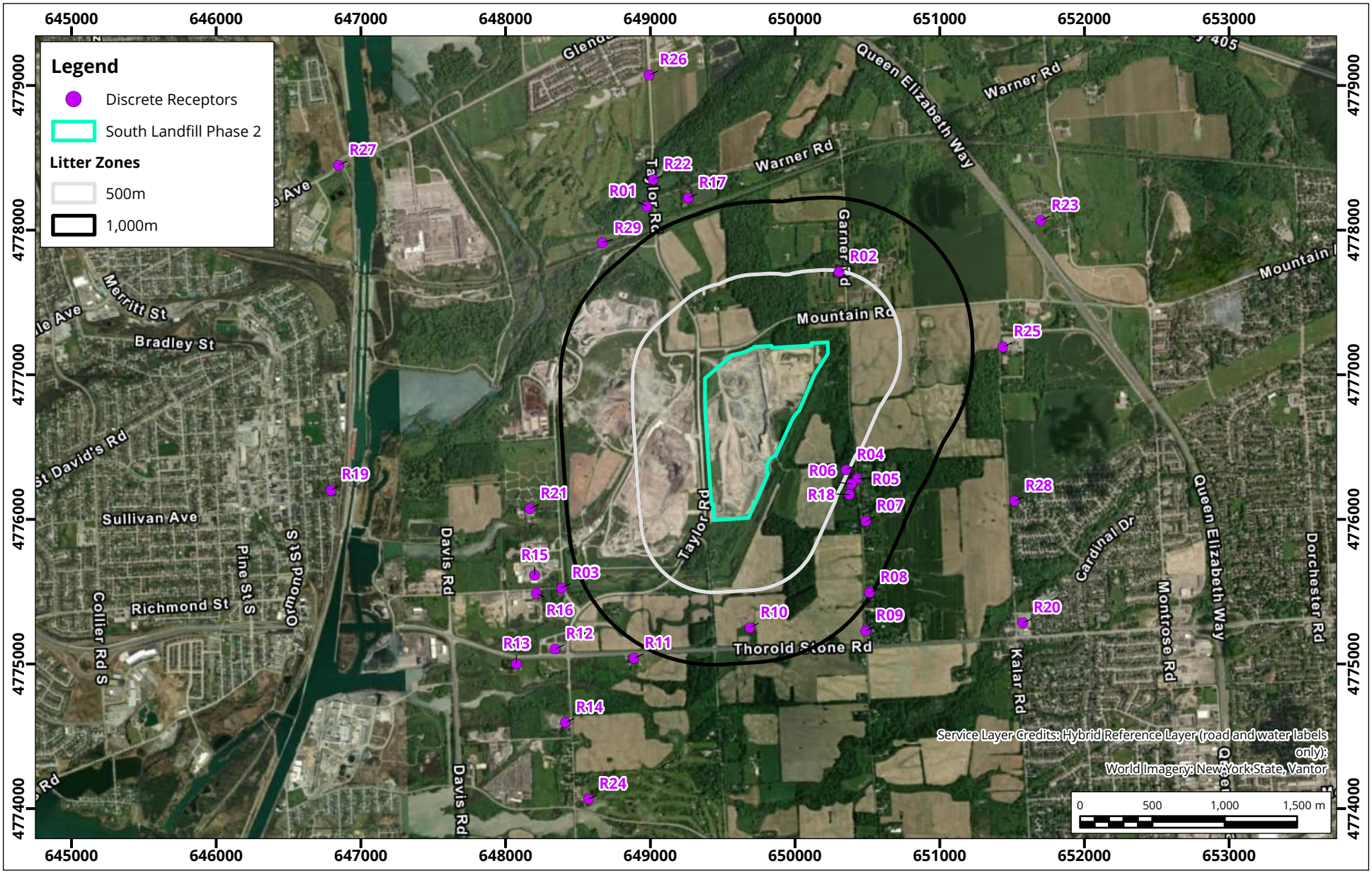
Map Projection: NAD 1983 UTM Zone 17N

South Landfill Phase 2 EA - Thorold, Ontario

Project #: 2402272

Drawn by: PIP	Figure: 5-4
Approx. Scale:	1:37,000
Date Revised:	Jun 19, 2026

Map Document: C:\WorkingFolder\Jobs.AMER\P2402272\P2402272.aprx



Scenario 2/3 - Litter Zones

True North

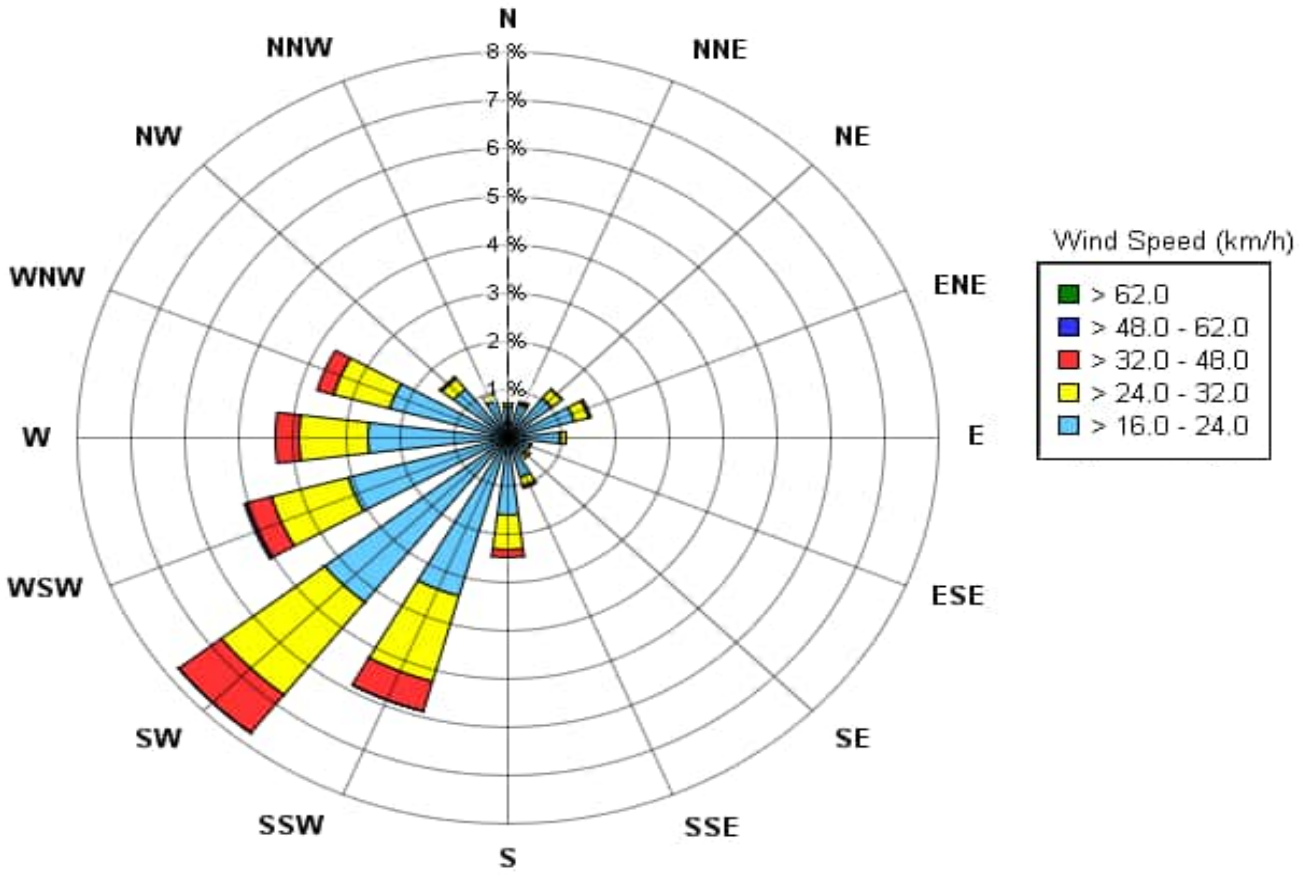
Map Projection: NAD 1983 UTM Zone 17N

South Landfill Phase 2 EA - Thorold, Ontario

Project #: 2402272

Drawn by: PIP	Figure: 5-5
Approx. Scale:	1:37,000
Date Revised:	Jun 19, 2026

Map Document: C:\WorkingFolder\Jobs AMER\P2402272\P2402272.aprx



Wind Rose (Blowing From)
Wind Speeds > 16 km/h
Site-Specific Meteorological Data 2020 - 2024

Walker's South Landfill Phase 2 Existing Conditions - Thorold, ON RWDI# 2402272

Drawn by: MW	Figure: 5-6	
Approx. Scale: not to scale		
Date Revised: May 27, 2026		

APPENDIX A

1. PURPOSE

To summarize and expand upon the requirements of the Environmental Assessment (EA), Environmental Compliance Approval (ECA), and Design and Operations (D&O) report for the South Landfill (SLF) in providing additional details and directions for the control and management of litter.

2. BACKGROUND

The EA, ECA and D&O all place requirements for the control and management of litter as follows:

- Section 8.1.2 of the EA report describes our commitment to a community litter collection program throughout the life of the SLF within the areas shown in Figure 8-1 of the EA.
- Condition 67 of the ECA requires the SLF to take all reasonable steps to operate and maintain the site so litter does not create a nuisance.
- Section 7.2.5.3 of the EA report and 5.6.1 of the Design and Operations (D&O) report anticipates the SLF to require 2 full-time Ground Maintenance Staff.

3. PROCEDURE

3.1. Litter Prevention

Unloading of Waste During Wind Events

The Operations Manager will monitor the weather forecast in anticipation of having to make operational changes to prevent and control litter and will take all necessary corrective actions to prevent and minimize the blowing of litter offsite. Steps may include the relocation of working face(s), re-positioning of vehicles unloading, placement of portable fencing, or the suspension of unloading wastes that can become airborne until winds return to more favorable conditions.

When sustained wind speeds are greater than 30 km per hour the unloading of wastes that can become easily airborne will be evaluated (i.e. loose and light wastes such mixed recycling residuals, loose paper…). Of particular concern is sustained high winds from the west and southwest as these winds have the greatest potential to blow litter offsite onto non-Walker owner properties and Taylor Road.

3.2. Litter Control

Litter Control Fencing

Portable litter fences: these portable structures can be moved by onsite equipment and are to be strategically placed at the working face and surrounding areas. These portable fences are the first line of defense in preventing litter from blowing away from the working face.

Permanent High Fence: This high fence is constructed with large hydro poles and heavy netting and covers the entire eastern side of the SLF. This fence is meant to collect blowing waste that was not captured by the portable fences.

The Operations Manager will ensure these fences are available and in working condition at all times.

Covering of Waste

Covering of waste is an important task in controlling blowing litter. Refer to SOP 6.1 Cover, Maintenance and Construction Material Management for more information on the requirements for covering waste to control litter, vector and vermin, and odours.

3.3. Litter Collection

Section 8.1.2 of the EA outlines the litter collection program for the SLF as follows:

> **8.1.2 Community Litter Collection Program**
>
> Walker has been in the practice of collecting litter in the surrounding community for some time. This includes not only litter that may have blown from its landfill, but also litter from others. Walker will commit to continuing this program throughout the operational life of the landfill expansion, within the area shown in Figure 8-1. Among other benefits, this program will help improve general community aesthetics and thereby offset any residual views of the landfill operations by the traveling public.
>
> Key elements of the program include:
>
> - Continuous visual checks of the landfill litter control by the Landfill Superintendent and immediate communication with the Litter Control Person should additional attention be required outside normal operating conditions.
> - Review of weather forecasts to identify problem conditions and plan additional manpower, if required.
> - Drive-by inspections of all routes and properties a minimum of twice per week to ensure problem areas are identified in a timely manner.
> - Collected litter acceptable for receipt at Walker's landfill is placed in garbage bags and transported back to the site for disposal.
> - Regional Niagara's Works Department is contacted to deal with off-site litter or wastes that are unacceptable for receipt at Walker's landfill, such as fridges, propane tanks, tires, etc.

To this end, the following litter collection program will be undertaken.

1. The site will employ at least one full-time Grounds Maintenance employee. Additional employees will be hired or subcontracted as demands for grounds maintenance activities warrant.

2. The site will promote one Grounds Maintenance employee to the position of Grounds Maintenance Lead Hand. This employee will be responsible for the daily coordination of grounds maintenance activities, under the direction of the Operations Manager.

3. Ground maintenance activities will be undertaken by Ground Maintenance staff in the following areas as identified in figure 8-1 of the EA under the following schedule:

   a) Daily visual inspections and grounds maintenance of the following roadways and adjacent lands:
      - Taylor Road: Beachwood Road to Mountain Road including main entrance to landfill
      - Mountain Road: Taylor Road to Garner Road
      - Thorold Townline Road: Taylor Road to Head Office

   b) Weekly visual inspections and grounds maintenance of the following roadways and adjacent lands:
      - Taylor Road: Beachwood Road to Thorold Stone Road and Mountain Road to Glendale Avenue, including entrance to Woodend Conservation Area
      - Mountain Road: Garner Road to Kalar Road
      - Garner Road: Mountain Road to Thorold Stone Road
      - Old Thorold Stone Road: Thorold Townline Road to Davis Road
      - Davis Road: Old Thorold Stone Road to Thorold Stone Road
      - Entrance road from landfill gates to landfill scales
      - Entrance road from Thorold Townline Road to the Residential Drop-off
      - Main internal roads running from Taylor Road to Thorold Townline Road
      - Head Office and WEG Building grounds and parking lot

   c) Monthly visual inspection and grounds maintenance of the following roadways and adjacent lands:
      - Old Thorold Stone Road: Davis Road to Seaway Haulage Road
      - Warner Road: Taylor Road to Garner Road
      - Davis Road: Old Thorold Stone Road to Hoover Street – if accessible
      - Thorold Stone Road: Highway 58 to Kalar Road – Note: road speed and traffic along this stretch of road may require additional safety measures to allow for safe grounds maintenance activities. Any grounds maintenance activities in this area must be approved by the Operations Manager.

   d) The following onsite areas are the responsibility of other WEG business units. However, the Grounds Maintenance Lead Hand and the Operations Manager will monitor these areas frequently and offer assistance in ground maintenance activities as necessary:
      - Wooding Systems: Main parking lot and fuel station

- Compost Site: all composting production areas, Regent Street and grinder pad and adjacent Bruce Trail areas
- Residential Drop-off (RDO): roadway from 4-way stop to scales, roadway from scales to dump pad and back to scales, bin yard and bin yard entrance areas, and adjacent Bruce Trail areas

4. Litter materials collected by staff will be transported back to the SLF or the RDO for disposal.

5. Collected materials that are not acceptable for receipt at the SLF or RDO (i.e. batteries, propane tanks, paint cans…) will be delivered by staff to the Region of Niagara's Hazardous Waste Depot at 3557 Thorold Townline Road.

   Staff should not collect materials they believe could pose a risk to their health or safety. In these cases, the Ground Maintenance Lead Hand will report the issue to the Operations Manager who will investigate, and coordinate removal as required.

   Note, this requirement is different than the EA requirement to contact the Region for pick-up. This change was made when the Region of Niagara developed their Hazardous Waste Depot on Thorold Townline Road.

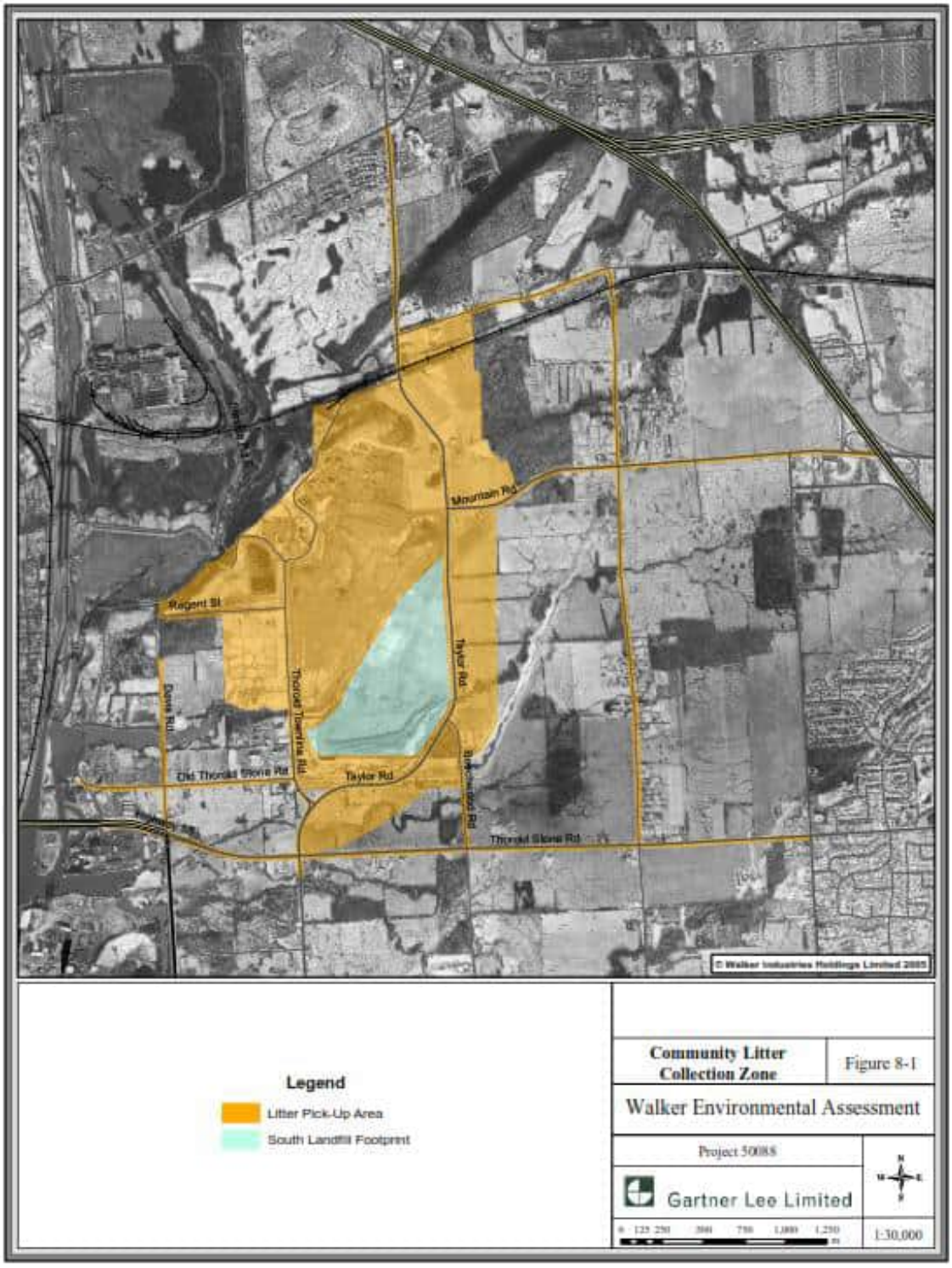
6. The Grounds Maintenance Lead Hand will record daily grounds maintenance activities in a daily litter log. Completed logs will be given to the Operations Manager who will ensure they are filed with the Operations Assistant for future reference and inspection.

7. The Operations Manager will inspect all litter control areas / routes twice per week.

8. The Operations Manager will arrange for increased litter control as necessary (i.e. after high wind events) to ensure compliance with EA, ECA and D&D commitments.

4. ADDITIONAL RESOURCES

4.1. Photographs & Figures



5. APPLICABILITY

The following individuals must review and acknowledge their awareness of this SOP and its requirements:

- SLF General Manager, Operations Manager, and Operations Supervisor, SLF (all sections)
- SLF Grounds Maintenance Staff
- WIHL Environmental Coordinator(s) / Manager(s) assigned to the SLF (all sections)

6. Manager(s) of LFG operations, IGRS / Comcor (section 3.1 landfill gas)

7. AMENDMENT RECORD

Revision no.	Page no.	Section no.	Reason/detail	Date	Who
1	Entire SOP	Entire SOP	Revision of old SOP 11.2, change to section 6	05-Apr-2021	SJ
2.	Entire SOP	Entire SOP	SOP name changed back to section 11.2 (from 6.2). SOP reviewed by GM. No other updated made	08-Feb-2022	SJ
3.	Entire SOP	Entire SOP	Minor grammar and spelling revisions made to SOP.	13-Feb-2025	RK/LP

APPENDIX B

Walker Environmental Group

Best Management Practices Plan for Odour Mitigation For Landfill Operations at the Niagara Campus

June 2024

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1.0 Introduction

This Best Management Practices Plan (BMPP) provides guidance for the identification and mitigation of odours from the South Landfill and East Landfills.

2.0 Facility Description

South Landfill

Located at 3081 Taylor Road, Niagara Falls, Ontario, L0S 1P0, the South Landfill is a 53.9 hectare waste disposal site within a total site area of 85.68 hectares.

The South Landfill has a maximum capacity of 17.7 million cubic meters to accept solid non-hazardous waste, including asbestos. Only waste generated in Ontario from residential, commercial, institutional and industrial sources are accepted at the site. The site can receive a maximum quantity of 1,100,000 tonnes of waste per year (850,000 tonnes of solid non-hazardous waste and 250,000 tonnes of solid non-hazardous waste that meets the description of waste permitted for use as daily/interim cover), and a maximum quantity of 10,000 tonnes of waste per day. 100,000 tonnes of the maximum capacity annually is dedicated exclusively to the Region of Niagara.

Waste shall only be accepted at the site between 7:00 am and 7:00 pm Monday to Friday with the exception of statutory holidays, and between 7:00 am to 1:00 pm on Saturdays.

Currently, the site accepts waste from 7am to 5pm, Monday to Friday, and 7am to 1pm on Saturdays with the following exceptions:

1. Site operations maybe suspended Saturday during the year (i.e. from January to March). These decisions are reviewed annually with Operations and Sales.
2. Saturdays following a Statutory Holiday the site may be required to stay open until 4pm to accept Municipal (curbside) waste from the Region of Niagara. The decision to open on these days are made by Operations and Sales in conjunction / instruction from Region of Niagara staff.

East Landfill

Located at 3081 Taylor Road, Niagara Falls, Ontario, L0S 1P0, the East Landfill is a 69.8 hectare waste disposal site within a total site area of 119 hectares.

The East Landfill is approved to accept solid non-hazardous waste, including asbestos. Only waste generated in Ontario from residential, commercial, institutional and industrial sources are accepted at the site. The site can receive a maximum quantity of 627,750 tonnes of waste per year, and a maximum quantity of 5,000 tonnes of waste per day.

Waste shall only be accepted at the site between 7:00 am and 7:00 pm Monday to Friday with the exception of statutory holidays, and between 7:00 am to 1:00 pm on Saturdays.

Currently, the site accepts waste from 7am to 5pm, Monday to Friday, and 7am to 1pm on Saturdays with the following exceptions:

1. Site operations maybe suspended Saturday during the year (i.e. from January to March). These decisions are reviewed annually with Operations and Sales.
2. Saturdays following a Statutory Holiday the site may be required to stay open until 4pm to accept Municipal (curbside) waste from the Region of Niagara. The decision to open on these days are made by Operations and Sales in conjunction / instruction from Region of Niagara staff.

3.0 ECA Requirements

In addition to requirements from the EPA and other environmental laws and regulations, the South and East landfills are also bound by specific ECA requirements to operate in a manner that does not create an adverse effect:

South Landfill ECA Approval Number: 0084-78RKAM

Per condition 67 of ECA#0084-78RKAM, "The Owner shall take all reasonable steps to operate and maintain the Site such that the vermin, vectors, dust, litter, odour, noise and traffic do not create an adverse effect.

East Landfill ECA Approval Number: A120211

Per condition 5.15 of ECA#A120211, "The Owner shall take all reasonable steps to operate and maintain the Site such that the vermin, vectors, dust, litter, odour, noise and traffic do not create an adverse effect."

4.0 Responsibilities

Senior Management (EVP, VP and GM of Operations)

- Provide the support and resources for the successful implementation of this BMPP.

Site Management (Operations Manager and Operations Supervisor)

- Implement, guide, and support the actions and resources identified in this BMPP.
- Communicate issues and facilitate corrective actions to control odours, as necessary.

Environmental Performance Department (Business Managers and Business Partners)

- Lead an annual review of this BMPP with operations.
- Update this BMPP as needed, including those updates made from the annal review or continuous improvements.
- Coordinate the response to odour complaints including:
  - Monitoring and maintaining the odour complaint Public Response Line,
  - Providing information about complaint(s) to operations,
  - Coordinating responses to odour complaints, including notifications to the MECP, and
  - Coordinate complaint investigations with Operations, where warranted (i.e. intensity of complaint(s) is abnormal is frequency, duration, or severity).
- Ensure all identified personnel are trained on the contents of the BMPP and other odour control procedures.

Landfill Operations Staff (Scalehouse Operators, Inspection Booth Operator, Compactor and Tipper Operators, Grounds Maintenance Staff)

- Undertake actions in this BMPP to help identify and control potential odours from operations.
- Adhere to the requirements of this BMPP and notify their immediate supervisor of any nonconformances with this BMPP.
- Notify their immediate supervisor, as soon as practicable, of any release or potential generation of excessive odorous emissions.

5.0 Process Description and Process Flow

1. Waste Screening and Approval
   - Before accepting a customer's waste, the waste must be screened and approved by the EPD. This involves:
     - Reviewing the waste type and volume.

    - Setting conditions for acceptance as necessary.
- Contact the EPD or the Operations Manager, or their designate, to review detailed procedures for waste acceptance.

2. Site Entry and Scalehouse Verification
    - The customer arrives at the site and proceeds to the scalehouse.
    - The scalehouse operator collects the customer's information and verifies that the waste is acceptable for receipt.

3. Waste Inspection
    - The waste is inspected at the inspection booth to ensure it matches the approved waste type and volume.

4. Staging Area
    - The driver is directed to the staging area to wait for further instructions.

5. Tipping Face Unloading
    - When called, the driver proceeds to the tipping face.
    - The driver unloads the waste at the tipping face, where landfill operators inspect the waste during unloading to ensure compliance with approved waste types.

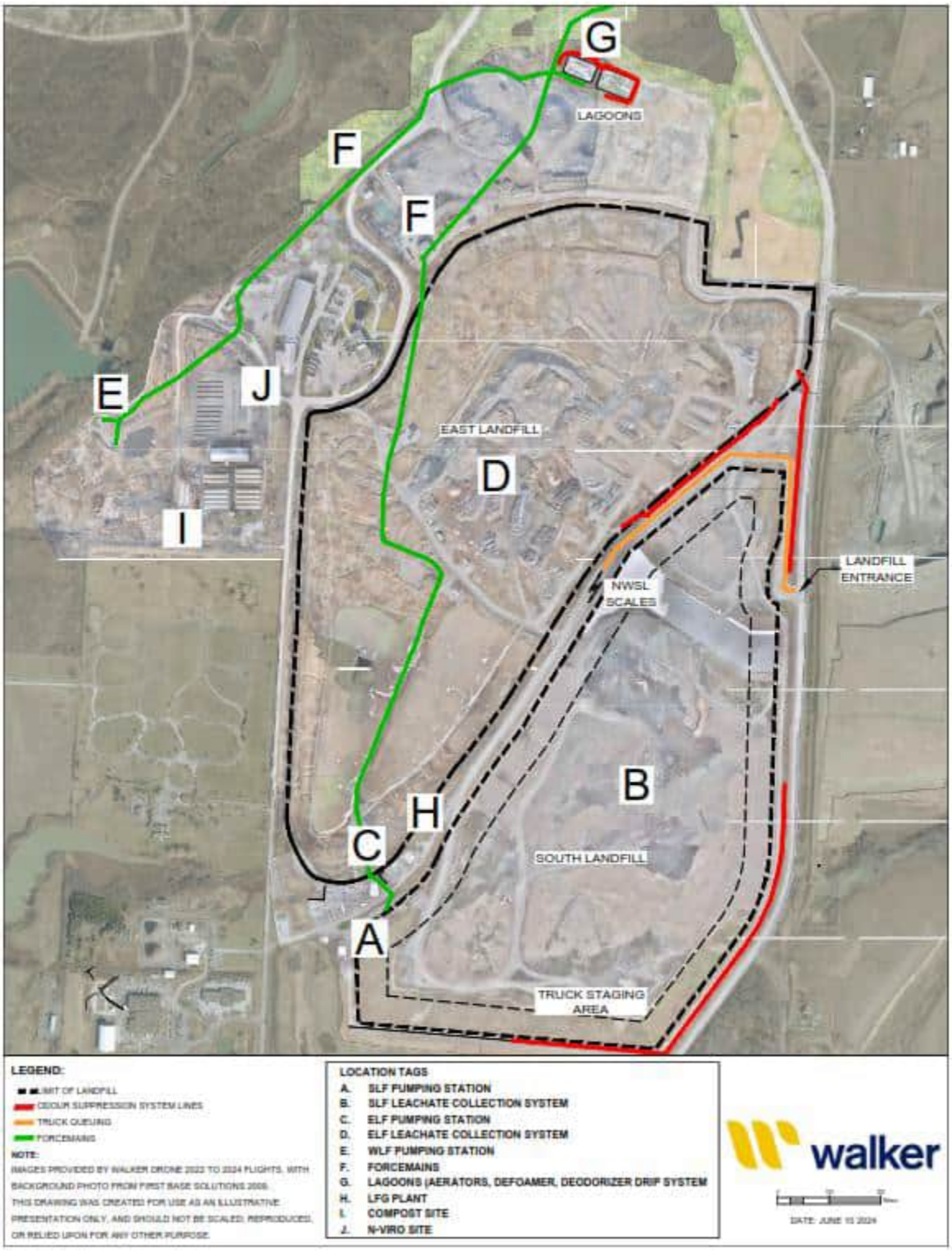
6. Clean-Out Area
    - After unloading, the driver moves to the clean-out area to clean their vehicle as necessary.

7. Transaction Completion
    - The driver returns to the scalehouse to complete the transaction, including final weight verification and documentation.

8. Site Exit
    - The driver leaves the site.

6.0 Facility Maps

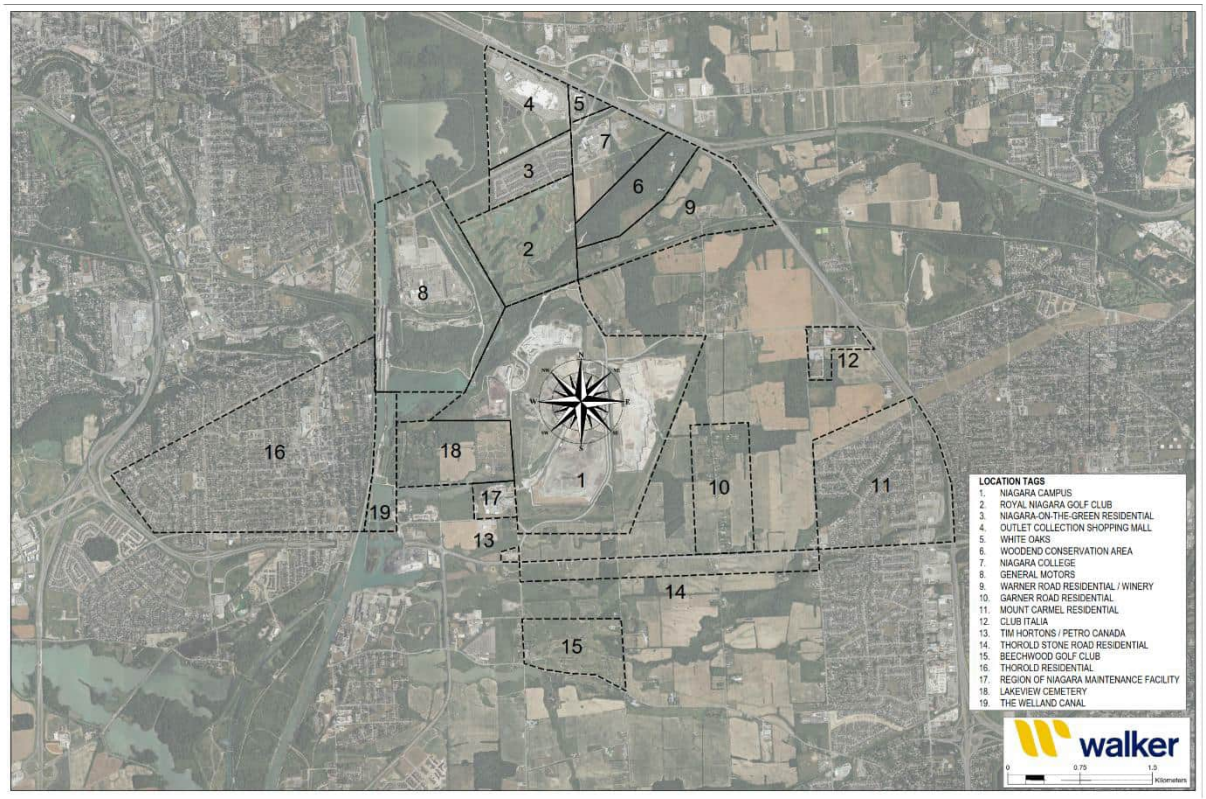
Facility Process Map



Surrounding Community Map

The Walker Industries Niagara Campus, including the East Landfill and South Landfill, is located on the Niagara Escarpment in Niagara Falls. Winds in this area predominantly prevail from the southwest, south, and east. The following residential, community, and business areas located around the Niagara Campus are areas for which operations should be aware, specifically for the potential to cause odour impacts:

Areas to the:			
North	**East**	**South**	**West**
• Royal Niagara Golf Club, • Niagara-on-the Green residential subdivision • Niagara Collations Outlet, shopping mall • White Oaks, conference center, hotel, spa and fitness complex • Woodend Conservation Area, community hiking • Niagara College • General Motors, manufacturing facility • Warner Road, residential house and local winery	• Garner Road, residential • Mount Carmel, residential community • Club Italia, business / community center	• Tim Hortons and Petro Canada, business center • Thorold Stone Road, a few residential homes • Beachwood Golf Club	• Thorold, large residential community • Region of Niagara Maintenance Facilities, business • Lakeview Cemetery • The Welland Canal



Based on historical complaint data and prevailing wind and weather patterns, site operations typically have a greater potential to cause odour issues for residents in Niagara-on-the-Green and Thorold. As such, operations should take extra precautions when wind and weather conditions are aligned with these areas.

7.0 Odour Perception and Impacts

Odour is perceived by our brains in response to chemicals present in the air we breathe – it is the effect those chemicals have on us. The effect arises from a two-stage process where the brain first senses the chemical stimulus and then interprets it based on previous life experiences; we often give meaning to odour. Natural variation in sensitivity and life experiences can result in individuals having different sensations and emotional responses to the same odour compounds. For example, odours that are widely perceived as offensive may be acceptable to those working in the 'industry'.

Humans have a sensitive sense of smell and can detect odour even when chemicals are present in very, very low concentrations. It is generally accepted that people will tolerate an offensive odour for about 10 minutes before complaining.

Negative impacts from offensive odours can include nausea, headaches, frustration, annoyance, stress, and embarrassment. All of these contribute to a reduced quality of life for the individuals who are exposed to the odour and underscore the importance of taking odour complaints seriously and ensuring operations are managed in a way that reduced the potential for odour impacts.

8.0 Relationship Management

The starting point for effective odour management is to build a positive relationship with the community through effective and open communication. This helps establish trust and a good relationship, which are crucial during times when odour problems occur. Involving the community in the problem-solving process is important, both to help identify issues and to negotiate solutions, including timeframes for implementation.

Abnormal odour events can occur without warning or may result from planned maintenance. Informing people surrounding the site about such events as early as possible helps reduce annoyance in the community. When an odour incident does occur, the discharger should inform people about what is being done to remedy the problem, prevent its recurrence, and how long the problem will take to fix. The level of annoyance may reduce if people see that the discharger is genuinely addressing adverse effects in a proactive manner.

9.0 Identification and Control of Potential Odour Sources

Potential odour sources from landfill operations have been identified by management based on visual and factory observations as well as historical data on odour generation. The following table represents landfill activities that have been identified as having the potential to generate odours and the mitigation measures to control these potential impacts:

Source	Potential Odour and Intensity	Mitigation Measures	Responsibility
Waste Materials	General odours from daily fresh waste receipts are similar to black garbage bag waste and maybe described as an unpleasant odour that combines elements of rotting food, decaying organic matter, and sometimes a sharp, acidic or sour note from decomposing fruits and vegetables. Odours from fresh waste can range in intensity based on several factors including the mix of organics in the waste and the age of the waste material. These odours can also be	Per the site's Waste Acceptance Procedures, all waste streams undergo a thorough review to identify any potentially overly offensive waste streams. Waste streams known to be overly offensive, such as sewage sludge, are prohibited from disposal. For waste streams with the potential to produce overly offensive odours, specific restrictions are required. These may include adhering to	EPD

	impacted by weather conditions such as increased temperature. Some specific waste stream can also have a unique odour, such as biosolids wastes which can have a cabbage like odour.	designated delivery windows, requiring waste to be bagged, or mandating pre-treatment with deodorizers.	
Roads	Any liquids that have dripped from a waste trailer / container have the potential to generate odours that can range from low to medium in intensity similar to the odours of fresh waste.	When temperatures are above freezing, roads are washed as necessary.	Site Management
Active Fill Areas / Working Face	General odours from daily fresh waste receipts are similar to black garbage bag waste and maybe described as an unpleasant odour that combines elements of rotting food, decaying organic matter, and sometimes a sharp, acidic or sour note from decomposing fruits and vegetables. Odours from fresh waste can range in intensity based on several factors including the mix of organics in the waste and the age of the waste material. These odours can also be impacted by weather conditions such as increased temperature.	The working face should be kept as small as possible while maintaining a safe work environment for operators and customers.	Operations Manager or their designate
		Waste materials should be unloaded and buried as quickly as possible while maintaining a safe working environment for staff and customers.	
		Application of minimum 150 mm / 6 inches of cover at the working face at the end of each working day. Monitor cover and reapply as needed.	
		Biofilter material can also be purchased from the compost site and used as a top dressing or cover to help absorb odours. Caution must be taken to ensure the biofilter does not become an odour source itself, as saturated material can release its own unpleasant musty odours.	
		A surface deodorizer can be deployed to deal with odours as well. The surface deodorizer is water based and applied by water truck limiting it use to temperatures above freezing.	
	Water (i.e. rainwater) that was come in contact with waste can create a damp, earthy odour mixed with the initial stages of decomposition from the fresh waste. The rainwater can bring out a more pronounced scent from the waste, highlighting organic, vegetative smells or the freshness of discarded food products.	Maintain proper drainage to prevent ponding / pooling of water.	
Inactive Areas	Odours from buried and aged waste can be a complex mix of odours, featuring an earthy and musty scent, underscored by the decomposition of organic material. As the waste breaks down anaerobically (without	Areas of fill that remain inactive for six months must be covered with at least 300 mm / 12 inches of interim cover. For areas that will remain untouched for an extended period, operations will evaluate the opportunity to apply a thicker layer of	Operations Manager or their designate

	oxygen), it can produce a sulfurous or methane-like smell, which can be quite pungent and similar to the smell of rotten eggs.	cover using denser materials, such as silty-clay soil.	
		Filling at the site should be designed to bring areas to final grade as quickly as possible. Once areas are at final grade Final Cap it to be applied. Final Cap material must be • At least 600 mm / 24 inches thick • A denser materials, such as silty-clay soil • Free of large materials such as rocks • Seeded as soon as possible to control erosion See the sites DnO report or O.Reg 232/98 for more details on the application of Final Cover.	
Landfill Gas Infrastructure	Odours from buried and aged waste can be a complex mix of odours, featuring an earthy and musty scent, underscored by the decomposition of organic material. As the waste breaks down anaerobically (without oxygen), it can produce a sulfurous or methane-like smell, which can be quite pungent and similar to the smell of rotten eggs.	The site monitors gas collection volumes and gas quality daily. These values are generally reported to site operators daily. This data can be used to identify potential collection issues and alert staff to investigate operations.	Operations Manager or their designate in coordination with Comcor & IGRS Staff
		Expansion of the landfill gas collection system (e.g., new wells, horizontal collectors, laterals) should be completed as soon as practicable following the completion of all filling activities in a cell. Areas that are not at final grade but may remain inactive for longer periods of time should also be evaluated for the installation of landfill gas collection infrastructure.	
		During landfill gas installation and maintenance activities that require exposure of waste: • Minimize areas exposed • Apply surface deodorizers • Place deodorizers in the area • Backfill excavations at the end of the day.	
Leachate Collection System	Odours from leachate may have a musty or earthy odour, with hints of decay and organic material. Some may also detect a slightly sour or acidic note.	Leachate Lagoons Operations • Maintain active aeration (4 aerators per active lagoon) • Operation of Hinsilblon odour control system wraps around the lagoons • Added odour suppressant and defoamer to lagoons	Operations Manger
		Pumping Stations • Ensure pumps, controls and valves are sealed to prevent leaks	

		Interior Cleanouts (Rockets) • Inspect for leaks at seams and top hats, and repair as necessary • Rockets identified as containing landfill gas are to be connected to the landfill gas system • When raising Rockets insure the use of air bladder to contain and control landfill gas.	Operations Manager or their designate in coordination with Comcor & IGRS Staff
		Exterior Cleanouts (Manholes) • Inspect for leaks at seams / seals and repair as necessary.	Operations Manager or their designate
Miscellaneous	The permitter deodorize use a product called HEV300. This product is oil based and has a citrus odour. The intensity of this odour can be increased and decreased at the systems controls.	The site operates a perimeter deodorizer system to help mask / neutralize odours that have the potential to leave the site. Care needs to be taken to ensure the smell of the deodorizer does not become a nuisance as well. This involves controlling when the system is operated and how much deodorizer is used or diffused	Operations Manager or their designate
	Odours from buried and aged waste can be a complex mix of odours, featuring an earthy and musty scent, underscored by the decomposition of organic material. As the waste breaks down anaerobically (without oxygen), it can produce a sulfurous or methane-like smell, which can be quite pungent and similar to the smell of rotten eggs.	The following controls should be implemented during waste excavation activities: • Minimize areas of excavation. • Limit time of operation. • Cover at the end of the day. • Apply surface deodorizers. • Monitor weather conditions; if not favourable, do not proceed with excavation activities.	

10.0 Inspection, Maintenance and Monitoring Procedures

Daily Inspections

The Operations Manager or their designate is responsible for visually inspecting the site daily and recording observations of their inspections in their diaries. Notes should include the date, time, weather, a general description of operational activities, and any odour observations. Upon identification of an odour complaint, these daily notes will be used to aid in the investigation.

This inspection and notes are in tandem with the requirement for the Operations Manager or their designate to complete the site's Daily Inspection Check List for each day of site operations.

Daily Odour Surveys

In addition to daily site inspections, the Operations Manager or their designate is responsible for completing daily odour surveys during working hours. Security personnel are responsible for conducting odour surveys after hours, on weekends, and on holidays. The routes for odour surveys depend on the current wind direction, as listed below:

Winds Blowing To:				
North	**SW, W, NW**	**South**	**East, Northeast**	**Southeast**
• Head office Flag	• Head office Flag	• Head office Flag	• Head office Flag	• Head office Flag

• 4 way stop at head office • RDO scale house • Regent Street and Townline Road • Cemetery • 3 way stop at Mountain Road and Taylor Road • Lower Entrance	• 4 way stop at head office • RDO scale house • Regent Street and Townline Road • Cemetery • 3 way stop at Mountain Road and Taylor Road • 3482 Garner Road • 9688 Warner Road • Lower Entrance	• 4 way stop at head office • IMS scale house • Regent Street and Townline Road • Cemetery • 3 way stop at Mountain Road and Taylor Road • 3482 Garner Road • 9688 Warner Road • Young Crescent • Wright Crescent • Cole Crescent • Stevens Drive • Lower Entrance	• 4 way stop at head office • RDO scale house • Regent Street and Townline Road • Cemetery • Old Thorold Stone Road and Davis Road • Portland Street and Chapel Street S • Albert Street E and Chapel Street S • York Street • Regent Street • Albert Street W and Pine Street S • Lower Entrance	• 4 way stop at head office • RDO scale house • Regent Street and Townline Road • Cemetery • Old Thorold Stone Road and Davis Road • Portland Street and Chapel Street S • Albert Street E and Chapel Street S • York Street • Regent Street • Albert Street W and Pine Street S • GM Plant • Lower Entrance

Windsocks are located at various points across the Niagara Campus, and weather station data from RWDI is used to monitor meteorological conditions. Operations are responsible for monitoring this data and adjusting operations accordingly to minimize the potential for off-site impacts.

Like daily inspections, the Operations Manager or their designate must record observations from their daily odour surveys in their diaries. Notes should include the date, time, weather, a general description of operational activities, and any odour observations. Depending on site activities and weather conditions, it may be necessary to complete more than one odour survey per day. This is also required when a complaint is received.

Monthly Inspections

The Operations Manager or their designate is responsible for ensuring Monthly Environmental, Health and Safety inspections are completed monthly, and that action items or deficiencies are documents, communicated and acted upon.

Preventative Maintenance

The following table lists general preventive maintenance tasks for site equipment or features related to odour management. For detailed maintenance and troubleshooting requirements, please refer to the operations manuals for the equipment (e.g., pumps, controls).

Leachate Management	
Equipment / Device Name / Description	**General Requirements**
South Landfill primary liners high pump, low pump and secondary liner pump. East Landfill trash pump. West Landfill trash pumps Well 1, Well 2, Well 3 and Well 4.	Pumps are to be removed from service annually for cleaning and inspection by a 3rd party contractor familiar with pump operations and maintenance.
Valves and control	Visually inspect monthly, looking for leaks or signs of damage. Replace or repair as needed.

VFD	Ensure adequate airflow to the VFD to prevent overheating. Inspect and clean monthly, removing any accumulated dust or debris. The VFD should be inspected by a licensed electrician annually.
Digital controls	Inspect controls for correct display readings. Replace controls as required.
Flow Meters / Mag Meters	Meters are to be inspected, cleaned, and calibrated at least every two years or when meter readings become inconsistent (e.g., flow readings do not match hour meter readings). This work is to be completed by an experienced third-party contractor.
Buildings	Inspect building monthly for housekeeping, security, and signs of damage. Repair damage as necessary.
Leachate Collection Pipes	Collection pipes must be inspected at least annually for the first five years after placement of waste over top of each pipe and then as often as future inspections indicate to be necessary. Collection pipes must be cleaned whenever an inspection indicates that cleaning is necessary.
Forcemains	Forcemains should be inspected by video at least every 2 years and no longer than 5 years. Forcemains must be cleaned whenever an inspection indicates that cleaning is necessary.
Leachate Lagoons	Inspect monthly looking for sign of leaking. Cut grass and vegetation around ponds, prevent clipping from entering the pond.
Lagoon Aerators	Inspect and grease shafts every 3 months. Inspect shaft bearings annually and replace as needed from inspection. Inspect pontoon straps bi-annually and replace as needed.
Lagoon Defoamer	Inspect diaphragm on pump annually and replace as necessary.
Lagoon Deodorizer (drip system)	Inspect blower housing annually, replace as needed.

Odour Control Units	
Equipment / Device Name / Description	**General Requirements**
Hinsilblon Vapor Odour Control Units 3 at SLF, 1 at Leachate Lagoon	Inspect and clean blower monthly. Grease blower bearings every 6 weeks. Change air filters every 3 weeks or as needed based on site conditions. Inspect deodorizer delivery pipes monthly looking for cracks or separation of pipe.
Landfill Gas Collection	
Equipment / Device Name / Description	**General Requirements**
Wellfield and Landfill Gas Plant	Maintenance programs for the Landfill Gas Wellfield and Collection plant are maintained by Comcor environmental. Contact the Operations Manager or their designate or the EPD for more information.
Daily / Interim / Final Cover	
Equipment / Device Name / Description	**General Requirements**
Daily / Interim / Final Cover used to cover waste	Areas of daily, interim, and final cover are to be frequently inspected (i.e., daily) by Operations staff for potential waste exposure (such as soil erosion, desiccation, or loss of thickness). When issues are discovered, Operations should make plans to correct these areas (e.g., filling, compacting, re-surfacing) as soon as practicably possible.

11.0 Public Response Line (PRL)

The Walker Niagara Falls / Thorold Campus has a Public Response Line (1-866-699-9425). This number was established as a means for residents and local community members to share concerns about campus operations, including odour complaints. It is communicated to residents and local community members through multiple outlets such as our bi-annual newsletter, spring open house, fall open house, and our website.

12.0 Odour Complaint Response Procedure

Per section 79 of the SLF ECA, the site is required to undertake the following in response to complaints:

"If at any time, the Owner receives complaints regarding the operation of the Site, the Owner shall respond to these complaints according to the following procedure:

a. The Owner shall record and number each complaint, either electronically or in a log book, and shall include the following information: the nature of the complaint, the name, address and the telephone number of the complainant if the complainant will provide this information and the time and date of the complaint;

b. The Owner, upon notification of the complaint, shall initiate appropriate steps to determine all possible causes of the complaint, proceed to take the necessary actions to eliminate the cause(s) (related to the Site) of the complaint and forward a reply to the complainant; and

c. The Owner shall complete and retain on-site a report written within one (1) week of the complaint date, listing the actions taken to resolve the complaint and any recommendations for remedial measures, and managerial or operational changes to reasonably avoid the recurrence of similar incidents.

To comply with these requirements, and in line with the MECP Best management practices for industrial sources of odour, the following process is to be followed when responding to an odour complaint.

<table>
<tr><th>Step</th><th>Action</th></tr>
<tr><td>Step 1: Complaint is Received</td><td>When a complaint is made to the Public Response Line (PRL), it goes to voicemail where the complaint is recorded and emailed to:

• Environmental Performance Department
• Operations Manager
• Security

Complaints received during working hours are managed by the EPD. Calls received after hours are investigated by Security. Complaints received in any other format (e.g., by text, email, call to head office) are to be forwarded to the EPD for management.</td></tr>
<tr><td>Step 2a: Initial Response to Complaint</td><td>The EPD will contact the complainant as soon as possible after the complaint is received to confirm receipt, collect more information (see FIDLO below), and determine if the complainant would like to meet with a Walker staff member to assess the odour (if it is still present).</td></tr>
<tr><td>Step 2b: Initial Notification to MECP</td><td>Within one business day, the EPD will send an email to the MECP indicating that a complaint was received, the nature of the complaint, and that Walker staff have been notified and are investigating.</td></tr>
<tr><td>Step 3: Investigate the Complaint</td><td>During Working Hours:

The EPD will start the complaint investigation process by sending an email to the Odour Control Group (a listing of site operations and other Walker staff). In the email, the EPD will:

a. Provide details about the complaint.
b. Share the complainant's voicemail.
c. Provide weather data from the site weather station.
d. Request operations investigate the location of the complainant.
e. Request information about daily operations and any upset conditions.

Once this email is received, the Operations Manager or their designate should visit the site of the complainant as soon as possible. When visiting the location of the complaint, the following activities should be taken:

a. Visit the area of the complaint for at least 10 minutes. If the complainant is available, the site visit should include a meeting with the complainant to obtain more information and verify any issues together.
b. Record:
• The time of arrival.
• Weather conditions during your visit (wind speed, direction, temperature, cloud cover).
c. Assess and record FIDOL factors.

1) Frequency: How often an individual is exposed to the odour (is this a one-time event or frequent event?)

2) Intensity: Strength of any odours on a scale of 0 to 6 with
<table><tr><td>0 = No Odour</td></tr><tr><td>1 = Faint / Very Weak</td></tr><tr><td>2 = Weak</td></tr><tr><td>3 = Noticeable / Distinct</td></tr><tr><td>4 = Strong</td></tr></table></td></tr>
</table>

	5 = Very Strong
	6 = Extremely Strong

3) **Duration:** Time frame in which odour is observed.

4) **Offensiveness Characteristics:** How would you describe the odours? When describing the odours, it is important to remain unbiased. This can help determine the source of the odour if it is coming from campus operations. Some common odour characteristics include:

Odour Description	Possible Source
Perfumy / Fragrant	Site deodorizers
Fruity / Sweet	Compost Processing
Sour	Compost Processing, SSO receipt, Waste Receipt
Musty, Earthy	Compost Processing, Waste Receipt
Sharp / Pungent	Compost Processing, Waste Receipt
Putrid / Foul	Compost Processing, SSO receipt, Waste Receipt
Rotten Eggs / Sulphur	Landfill Gas
Manure / Sewer	Compost Processing, Biosolids Processing at NVIRO

5) **Location:** Note the type of land use and nature of human activity in the vicinity (i.e. residential with residents outside their homes).

- Record areas where odours were observed.
- Record any conversation had with the complainant or others in the area.
- Record inspection completion time.

Outside of Working Hours: Security will investigate the area of the complaint following the same steps outlined above and report their findings to the EPD. The EPD will then share these findings with the Odour Control Group during working hours to start the investigation process.

Step 3: If there is an odour observed and the source is identified as being or possibly being a Walker operation

The person complaint the investigation should:

a. Assess the odour upwind of the suspected source. Where practicable, conduct a 360^{o} sweep around the source to eliminate other possible sources of odour.
b. Record any observations of recognizable odour at other locations surrounding the alleged source, including times of observations at each location.
c. Visit the site suspected of causing the odour
d. Confirm the site operations taking place at the time of the complaint and any other operations that may have occurred recently that may be related to the odour discharge.

Step 4: Make Overall Assessment and Undertake any Identified Actions

Within 48 hours of the investigation, the data collected by the Operations Manager or their designate is to be shared with the EPD and used to complete the site Odour Complaint Investigation Form, which can be made available. In addition to the information collected during the investigation, this form also requests:

a. specific information be provided about operations

	b. actions taken, or to be take, to address source of odour Once complete this form will be reviewed with the General Manager of Operations to finalize next steps and necessary actions. ** Ideally, the Operations Manager or their designate will provide ongoing updates to the EPD and the General Manager regarding their investigation findings.
Step 5a: Follow up with Complainant	Once the investigation and assessments are complete, the EPD will follow up with the complainant, noting our findings, conclusions and any corrective actions being taken. Depending on the nature of the complaint, it may be beneficial to consult with the General Manager to ensure clear and effective communication before sending our response.
Step 5b: Follow up with MECP	Once the investigation and assessments are complete, the EPD will notify the MECP, noting our findings, conclusions and any corrective actions being taken.

Depending on the nature of the complaint, the above process may need to be modified to complete investigations and assessments. For example, calls from several complainants would likely warrant a more direct and focused investigation and assessment, while calls received several days after a suspected odour event could be more difficult to investigate.

13.0 Record Keeping

Daily Diaries and Notes (Site Inspections, Odour Surveys, General Observations…): Daily notes made by staff are to be maintained by the individuals completing the notes. These diaries and notes must be retained for a minimum of 2 years.

Daily Inspection Check List and Monthly EH&S Inspections: The Operations Manager or their designate are to forward complete Daily Inspection Check Lists and Monthly EH&S Inspections to the Operations Assistance for filing. These records are scanned and uploaded to the company electronic servers for safe keeping.

Complaints: Complaint records and details of complaints are managed by the EPD and stored electronically on the company's electronic servers (i.e. MS Teams & Network Drives). Access to the site is limited to those individuals directly involved in the management of complaints. The MS Teams site is managed by the EPD.

All complaint records will be kept on-site for a minimum of 2 years.

14.0 Training

The following personnel required training on this procedure within 90 days of being hired, and annual there after:

Management	Landfill Operations Staff	EPD Staff
• VP T&D • GM T&D • Operations Manager, Landfill • Site Supervisor, Landfill	• Ground Maintenance • Compactor / Tipper / Equipment Operators • Scalehouse Operator	• VP EPD • Business Partner, Landfill • Business Partner Manager, Landfill

The EPD is responsible for coordinating, delivering, and tracking training.

15.0 BMPP Review Procedure and Schedule

The EPD will coordinate the review of this BMPP annually with operations. The BMPP may be reviewed sooner based on operational changes or responses to complaints. The BMPP will be updated as required, including updates made from the annual review or continuous improvements. Reviews and updates of the BMPP are coordinated by the EPD.

Log of reviews and updates

Date	Review / Update	Summary of Changes
June 13, 2024	Update	Major update sites odour control SOP to MECP BMP format.

APPENDIX C

1. PURPOSE

To summarize and expand upon the requirements of the Environmental Assessment (EA), Environmental Compliance Approval (ECA), and Design and Operations (D&O) report for the South Landfill (SLF) in providing additional details and directions for the control of excessive dust generation during the daily operations.

2. BACKGROUND

The EA, ECA and D&O all place requirements for the control and management of dust as follows:

- Condition 67 of the ECA requires the SLF to take all reasonable steps to operate and maintain the site so dust does not create a nuisance.
- Section 7.4.2 of the EA report and 5.8.2 of the D&O report contains mitigative measures that WEG will use to control dust.
- Particulate Matter (dust) Assessment Report includes reduction in posted on-site speed limit and use of vacuum wet-sweeping
- Table 8-1: Compliance Monitoring Summary of Commitments from the EA Report includes reduction of on-site speed limit, use of vacuum wet sweeping and use of dust suppressant compounds

3. PROCEDURE

3.1. Dust Reduction

Walker Niagara Campus Asphalt Roads Speed Limit

Walker has implemented a traffic enforcement program that monitors and enforces the posted speed limits within the Niagara Campus internal asphalt roads. This includes Thorold Townline Road and the lower road up passed the quarry from Taylor Road. The Traffic Enforcement employee will report any vehicle disobeying posted speed limits to the Manager of Health and Safety.

SLF Internal Roads Speed Limit

The posted speed limits on all internal SLF roads is 25 km/h, this includes the road from Taylor Rd to Scalehouse, the gravel road to the working face, etc. This will be monitored and enforced by the Operations Manager to ensure safety at the site and to prevent and control dust from being generated.

3.2. Dust Control & Prevention

The three main pieces of equipment used to control dust are:

- SLF Sweeper
- Quarry Water Truck
- Off-Road Water Truck (subcontracted)

SLF Sweeper

The SLF will maintain a full time Sweeper operator. The sweeper will be deployed as the Landfill Operations Manager deems necessary to sweep all internal and external asphalt roads at Walkers Niagara Campus. The Sweeper Operator will record all sweeping events in the Sweeper Log Book and file completed logs with the Operations Manager.

Quarry Water Truck

The Quarry will maintain a full time Water Truck Driver (acting as snow plow driver in winter months). The water truck will work in conjunction with the Landfill Sweeper is responsible for all internal and external asphalt roads.

Off-Road Water Truck

When conditions for dust are favourable (i.e. dry, windy, high temperature) the Operations Manager will coordinate an off-road water truck to maintain all of the SLF Internal gravel roads. These areas include the road from the scale to the working face, the road from the scale to the ELF soil pile, or any other road/ pad the Quarry Water Truck is unable to manage.

Dust Suppressants

Use of winter dust suppressant compounds on the unpaved internal landfill roads in order to reduce roadway dust levels during the critical winter months when water can't be used.

3.3. Other Mitigative Measures

Screening

Maintain vegetation around perimeter/inside property for dust screening. (Vegetation over 2 meters tall that provides year-round density is preferred.)

Administrative

During the review of the waste generators Waste Stream Information Sheet (WSIS), ensure that any material that has a potential to create an abundance of dust is bagged prior to arrival at the SLF. If a material shows up that risks creating an adverse effect, the Operations Manager may refuse the load or if possible, direct the load to an area that minimizes offsite impacts.

Operations

Refuse loads that have presented a dust control issue on windy days. On windy days, direct loads to areas that minimize dust impacts where possible

Progressive Rehabilitation

To assist in controlling dust; as areas of the landfill reach final elevations, the Operations Manager will progressively vegetate and maintain final covered areas with tall grasses that provide year round density.

Access Roads

Access roads within the landfill will be placed below grade wherever possible, to reduce the amount of dust that will be carried by the wind from the site.

3.4. Monitor Wind Conditions

It is the responsibility of the Landfill Operations Manager, compactor operators and the water truck operator to monitor the dust and wind conditions during the day's operation.

When dust and wind conditions dictate the need for control, the Landfill Operations Manager will contact the water truck operator to determine the availability of the water truck. The Landfill Superintendent will contact the driver of this vehicle to describe the areas in need of attention.

Compactor operators are responsible for contacting the Landfill Operations Manager when dust and wind conditions dictate the need for control. Should the Landfill Superintendent not be available, the compactor operator will contact the water truck operator to determine the availability of the water truck and will describe to the driver of this vehicle the areas in need of attention.

The Water Truck Operator should automatically control problem areas on the paved roads leading to all WIHL operations located at the Niagara Campus when dust and wind conditions dictate the need for control.

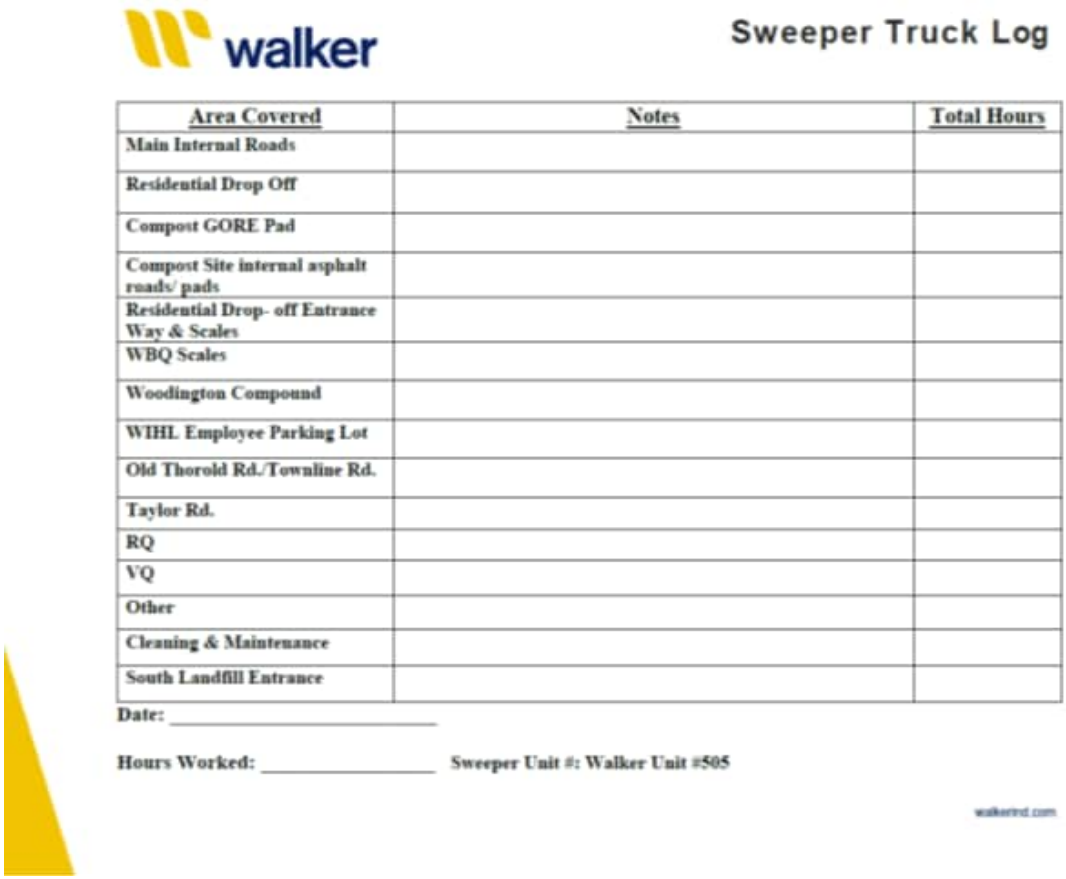
4. APPLICABILITY

The following individuals must review and acknowledge their awareness of this SOP and its requirements:

- SLF General Manager, Operations Manager, and Operations Supervisor (all sections)
- SLF Operators (all sections)
- SLF Scalehouse / Inspection Staff (all sections)
- WIHL Environmental Coordinator(s) / Manager(s) assigned to the SLF (all sections)Manager(s) of LFG operations, IGRS / Comcor (section 3.1 landfill gas)

5. ADDITIONAL RESOURCES

5.1. SLF Sweeper Daily Log



walker

Sweeper Truck Log

Area Covered	Notes	Total Hours
Main Internal Roads		
Residential Drop Off		
Compost GORE Pad		
Compost Site internal asphalt roads/ pads		
Residential Drop- off Entrance Way & Scales		
WBQ Scales		
Woodington Compound		
WIHL Employee Parking Lot		
Old Thorold Rd./Townline Rd.		
Taylor Rd.		
RQ		
VQ		
Other		
Cleaning & Maintenance		
South Landfill Entrance		

Date: _____

Hours Worked: _____ Sweeper Unit #: Walker Unit #505

walkerind.com

6. AMENDMENT RECORD

Revision no.	Page no.	Section no.	Reason/detail	Date	Who
1	Entire SOP	Entire SOP	Revision of old SOP 11.3	19-Feb-2025	RK/LP

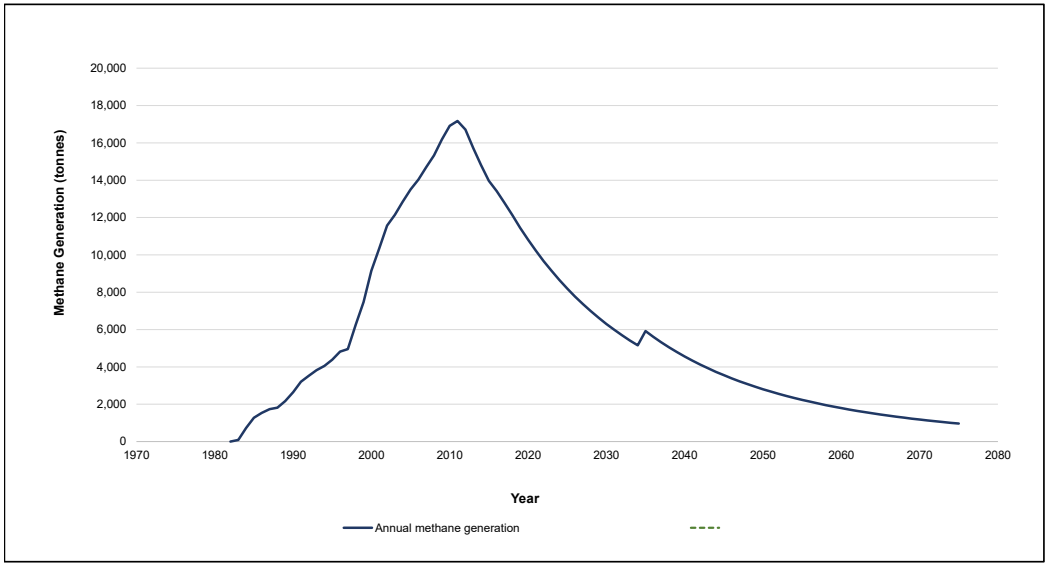
APPENDIX D

Landfill Methane Modelling Tool: Results

Landfill Name: Walker East Landfill

Year opened: 1982 **Province :** ON

Closure year: 2034



Year	Total Annual Waste Disposed	Total Waste in Place	Methane generation (no diversion)		
	tonnes/year	tonnes	tonnes/year	m^3 methane/year	scfm methane (standard cubic feet per minute)
1982	24,365	24,365	0	0	0
1983	172,820	197,185	91	138,778	28,445
1984	156,931	354,116	731	1,114,679	228,473
1985	90,330	444,446	1,273	1,940,758	397,792
1986	79,125	523,571	1,534	2,337,826	479,178
1987	48,729	572,300	1,737	2,647,940	542,741
1988	124,125	696,425	1,815	2,767,241	567,194
1989	160,702	857,127	2,171	3,310,009	678,443
1990	190,079	1,047,206	2,643	4,029,349	825,884
1991	133,415	1,180,621	3,206	4,887,314	1,001,739
1992	136,711	1,317,332	3,520	5,365,127	1,099,675
1993	120,328	1,437,660	3,827	5,833,163	1,195,607
1994	152,810	1,590,470	4,053	6,178,721	1,266,435
1995	182,732	1,773,202	4,390	6,691,560	1,371,550
1996	111,998	1,885,200	4,819	7,346,367	1,505,764
1997	423,809	2,309,009	4,955	7,553,776	1,548,276
1998	419,774	2,728,783	6,264	9,548,703	1,957,171
1999	562,124	3,290,907	7,476	11,395,963	2,335,799
2000	464,649	3,755,556	9,151	13,950,161	2,859,325

User-selected and Default Model parameters

The following material parameters were used in the methane generation calculations, based on user sele inputs:

Waste Type	Decay Rate (k) (User-selected)	DOC (Default)	DOC_f (Default)
	Average annual precipitation		
	>500 to 1000mm		
Food	0.09	0.15	0.7
Paper	0.04	0.4	0.5
Yard and Garden	0.09	0.2	0.7
Soiled Paper	0.09	0.4	0.5
Wood	0.02	0.43	0.1
Textiles	0.04	0.24	0.5
Pet Waste	0.09	0.24	0.5
Diapers and Sanitary	0.09	0.24	0.5
Rubber and Leather	0.02	0.39	0.1
Other - Residential	0.09	0.1	0.5
Other - ICI	0.09	0.05	0.5
Other - Unknown	0.09	0.05	0.5
Sludge	0.09	0.05	0.7
Soil	0.02	0.03	0.1

Other Parameters and Defaults		Constants	
Methane Correction Factor (MCF)	1	Molar ratio of CH_4:C	1.33
CH_4 content in LFG (%CH_4)	50%	CH_4 density (at 25 °C and 1 atm) (kg/m^3)	0.656

Waste modelled	Bulk MSW
User-specified waste composition?	No
Diversion?	No

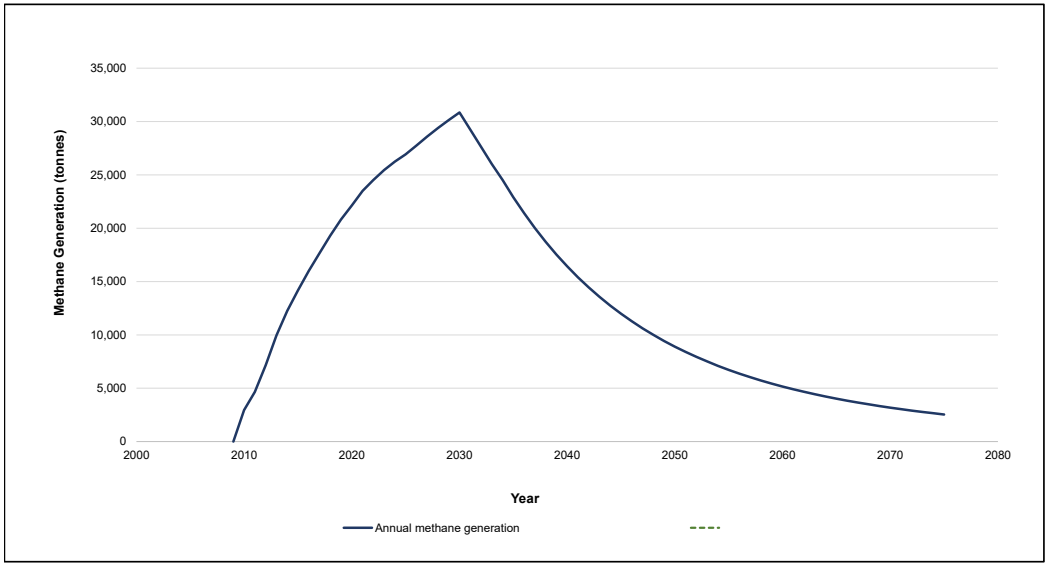
2001	487,143	4,242,699	10,354	15,784,073	3,235,217
2002	433,609	4,676,308	11,570	17,636,545	3,614,913
2003	483,057	5,159,365	12,145	18,513,845	3,794,731
2004	483,057	5,642,422	12,842	19,576,196	4,012,478
2005	446,699	6,089,121	13,507	20,590,670	4,220,412
2006	498,249	6,587,370	14,036	21,396,562	4,385,593
2007	499,459	7,086,829	14,694	22,400,055	4,591,277
2008	507,718	7,594,547	15,326	23,363,531	4,788,757
2009	488,585	8,083,132	16,186	24,673,139	5,057,184
2010	369,023	8,452,155	16,911	25,779,540	5,283,960
2011	162,929	8,615,083	17,173	26,178,195	5,365,671
2012	1,104	8,616,187	16,710	25,473,112	5,221,152
2013	304	8,616,491	15,727	23,974,535	4,913,993
2014	4,478	8,620,969	14,809	22,574,634	4,627,059
2015	71,412	8,692,381	13,967	21,291,641	4,364,088
2016	39,422	8,731,803	13,410	20,441,985	4,189,936
2017	21,587	8,753,391	12,780	19,481,295	3,993,026
2018	0	8,753,391	12,132	18,494,120	3,790,688
2019	0	8,753,391	11,451	17,456,465	3,578,003
2020	0	8,753,391	10,816	16,487,070	3,379,309
2021	0	8,753,391	10,221	15,580,872	3,193,568
2022	0	8,753,391	9,665	14,733,213	3,019,825
2023	0	8,753,391	9,145	13,939,804	2,857,202
2024	0	8,753,391	8,657	13,196,696	2,704,890
2025	0	8,753,391	8,200	12,500,253	2,562,142
2026	0	8,753,391	7,772	11,847,125	2,428,272
2027	0	8,753,391	7,370	11,234,224	2,302,647
2028	0	8,753,391	6,992	10,658,702	2,184,684
2029	0	8,753,391	6,637	10,117,934	2,073,845
2030	0	8,753,391	6,304	9,609,497	1,969,632
2031	0	8,753,391	5,990	9,131,154	1,871,587
2032	0	8,753,391	5,695	8,680,841	1,779,288
2033	0	8,753,391	5,416	8,256,649	1,692,342
2034	312,000	9,065,391	5,154	7,856,816	1,610,389
2035	0	9,065,391	5,916	9,018,389	1,848,474
2036	0	9,065,391	5,609	8,551,024	1,752,680
2037	0	9,065,391	5,322	8,112,305	1,662,756
2038	0	9,065,391	5,051	7,700,208	1,578,290
2039	0	9,065,391	4,797	7,312,869	1,498,898
2040	0	9,065,391	4,558	6,948,566	1,424,228
2041	0	9,065,391	4,333	6,605,712	1,353,954
2042	0	9,065,391	4,122	6,282,839	1,287,776
2043	0	9,065,391	3,922	5,978,591	1,225,415
2044	0	9,065,391	3,734	5,691,715	1,166,615
2045	0	9,065,391	3,556	5,421,053	1,111,138
2046	0	9,065,391	3,389	5,165,533	1,058,765
2047	0	9,065,391	3,230	4,924,162	1,009,292

Landfill Methane Modelling Tool: Results

Landfill Name: Walker South Landfill Phase 1

Year opened: 2009 **Province :** ON

Closure year: 2033



Year	Total Annual Waste Disposed	Total Waste in Place	Methane generation (no diversion)		
	tonnes/year	tonnes	tonnes/year	m^3 methane/year	scfm methane (standard cubic feet per minute)
2009	867,310	867,310	0	0	0
2010	562,486	1,429,796	2,948	4,494,461	921,217
2011	839,394	2,269,190	4,646	7,082,463	1,451,673
2012	973,641	3,242,831	7,163	10,919,355	2,238,110
2013	885,361	4,128,192	9,956	15,176,165	3,110,616
2014	824,271	4,952,463	12,248	18,670,867	3,826,915
2015	834,513	5,786,976	14,171	21,601,563	4,427,612
2016	825,541	6,612,517	15,993	24,380,244	4,997,150
2017	830,748	7,443,265	17,659	26,919,396	5,517,593
2018	823,194	8,266,459	19,307	29,431,507	6,032,493
2019	802,355	9,068,814	20,812	31,726,054	6,502,800
2020	837,075	9,905,890	22,139	33,749,073	6,917,453
2021	830,209	10,736,099	23,496	35,817,209	7,341,353
2022	820,073	11,556,171	24,520	37,377,489	7,661,159
2023	798,633	12,354,804	25,446	38,788,990	7,950,471
2024	775,916	13,130,720	26,244	40,006,797	8,200,081
2025	832,054	13,962,774	26,921	41,038,623	8,411,572
2026	858,000	14,820,774	27,740	42,286,718	8,667,390
2027	858,000	15,678,774	28,593	43,586,316	8,933,765

User-selected and Default Model parameters

The following material parameters were used in the methane generation calculations, based on user sele inputs:

Waste Type	Decay Rate (k) (User-selected)	DOC (Default)	DOC_f (Default)
	Average annual precipitation		
	>500 to 1000mm		
Food	0.09	0.15	0.7
Paper	0.04	0.4	0.5
Yard and Garden	0.09	0.2	0.7
Soiled Paper	0.09	0.4	0.5
Wood	0.02	0.43	0.1
Textiles	0.04	0.24	0.5
Pet Waste	0.09	0.24	0.5
Diapers and Sanitary	0.09	0.24	0.5
Rubber and Leather	0.02	0.39	0.1
Other - Residential	0.09	0.1	0.5
Other - ICI	0.09	0.05	0.5
Other - Unknown	0.09	0.05	0.5
Sludge	0.09	0.05	0.7
Soil	0.02	0.03	0.1

Other Parameters and Defaults		Constants	
Methane Correction Factor (MCF)	1	Molar ratio of CH_4:C	1.33
CH_4 content in LFG (%CH_4)	50%	CH_4 density (at 25 °C and 1 atm) (kg/m^3)	0.656

Waste modelled	Bulk MSW
User-specified waste composition?	No
Diversion?	No

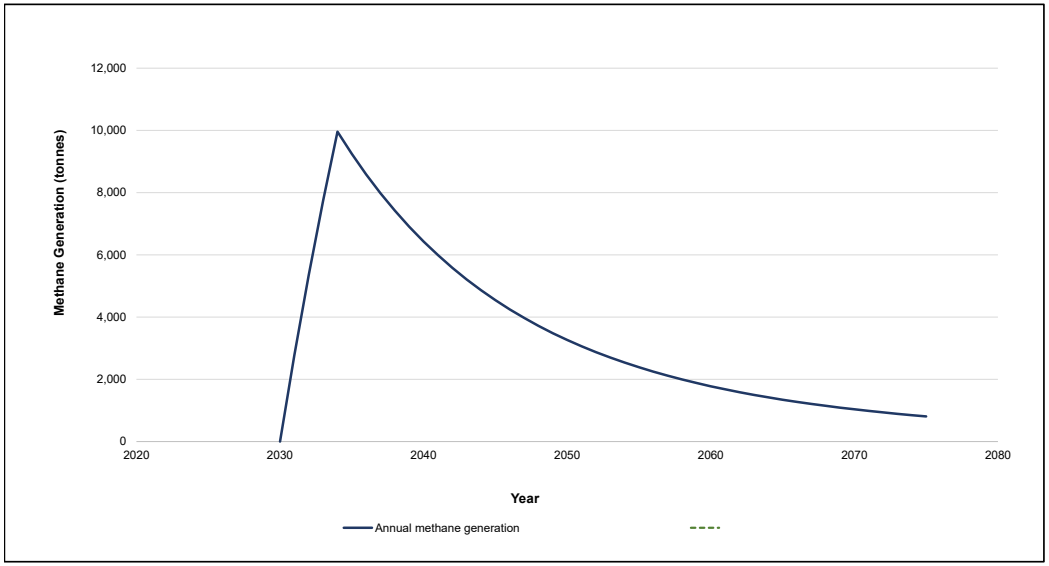
2028	858,000	16,536,774	29,393	44,805,649	9,183,688
2029	858,000	17,394,774	30,144	45,950,479	9,418,341
2030	156,000	17,550,774	30,849	47,026,117	9,638,811
2031	117,000	17,667,774	29,241	44,575,432	9,136,501
2032	78,000	17,745,774	27,633	42,123,456	8,633,927
2033	78,000	17,823,774	26,022	39,668,444	8,130,730
2034	0	17,823,774	24,535	37,401,201	7,666,019
2035	0	17,823,774	22,909	34,921,790	7,157,821
2036	0	17,823,774	21,404	32,628,763	6,687,826
2037	0	17,823,774	20,013	30,507,099	6,252,955
2038	0	17,823,774	18,724	28,543,028	5,850,384
2039	0	17,823,774	17,531	26,723,930	5,477,529
2040	0	17,823,774	16,425	25,038,235	5,132,017
2041	0	17,823,774	15,400	23,475,332	4,811,673
2042	0	17,823,774	14,449	22,025,492	4,514,503
2043	0	17,823,774	13,566	20,679,789	4,238,678
2044	0	17,823,774	12,746	19,430,037	3,982,520
2045	0	17,823,774	11,984	18,268,721	3,744,489
2046	0	17,823,774	11,276	17,188,949	3,523,171
2047	0	17,823,774	10,617	16,184,391	3,317,269

Landfill Methane Modelling Tool: Results

Landfill Name: Walker South Landfill Phase 2 - Stage 1

Year opened: 2030 **Province :** ON

Closure year: 2033



Year	Total Annual Waste Disposed	Total Waste in Place	Methane generation (no diversion)		
	tonnes/year	tonnes	tonnes/year	m^3 methane/year	scfm methane (standard cubic feet per minute)
2030	858,000	858,000	0	0	0
2031	858,000	1,716,000	2,776	4,231,364	867,291
2032	858,000	2,574,000	5,350	8,156,160	1,671,745
2033	858,000	3,432,000	7,740	11,798,641	2,418,334
2034	0	3,432,000	9,959	15,181,056	3,111,618
2035	0	3,432,000	9,245	14,092,450	2,888,490
2036	0	3,432,000	8,587	13,089,487	2,682,916
2037	0	3,432,000	7,980	12,165,101	2,493,447
2038	0	3,432,000	7,421	11,312,823	2,318,758
2039	0	3,432,000	6,906	10,526,730	2,157,634
2040	0	3,432,000	6,430	9,801,397	2,008,965
2041	0	3,432,000	5,990	9,131,856	1,871,731
2042	0	3,432,000	5,585	8,513,556	1,745,000
2043	0	3,432,000	5,210	7,942,329	1,627,917
2044	0	3,432,000	4,864	7,414,355	1,519,700
2045	0	3,432,000	4,544	6,926,136	1,419,631
2046	0	3,432,000	4,247	6,474,464	1,327,053
2047	0	3,432,000	3,973	6,056,401	1,241,364

User-selected and Default Model parameters

The following material parameters were used in the methane generation calculations, based on user sele inputs:

Waste Type	Decay Rate (k) (User-selected)	DOC (Default)	DOC_f (Default)
	Average annual precipitation		
	>500 to 1000mm		
Food	0.09	0.15	0.7
Paper	0.04	0.4	0.5
Yard and Garden	0.09	0.2	0.7
Soiled Paper	0.09	0.4	0.5
Wood	0.02	0.43	0.1
Textiles	0.04	0.24	0.5
Pet Waste	0.09	0.24	0.5
Diapers and Sanitary	0.09	0.24	0.5
Rubber and Leather	0.02	0.39	0.1
Other - Residential	0.09	0.1	0.5
Other - ICI	0.09	0.05	0.5
Other - Unknown	0.09	0.05	0.5
Sludge	0.09	0.05	0.7
Soil	0.02	0.03	0.1

Other Parameters and Defaults		Constants	
Methane Correction Factor (MCF)	1	Molar ratio of CH_4:C	1.33
CH_4 content in LFG (%CH_4)	50%	CH_4 density (at 25 °C and 1 atm) (kg/m^3)	0.656

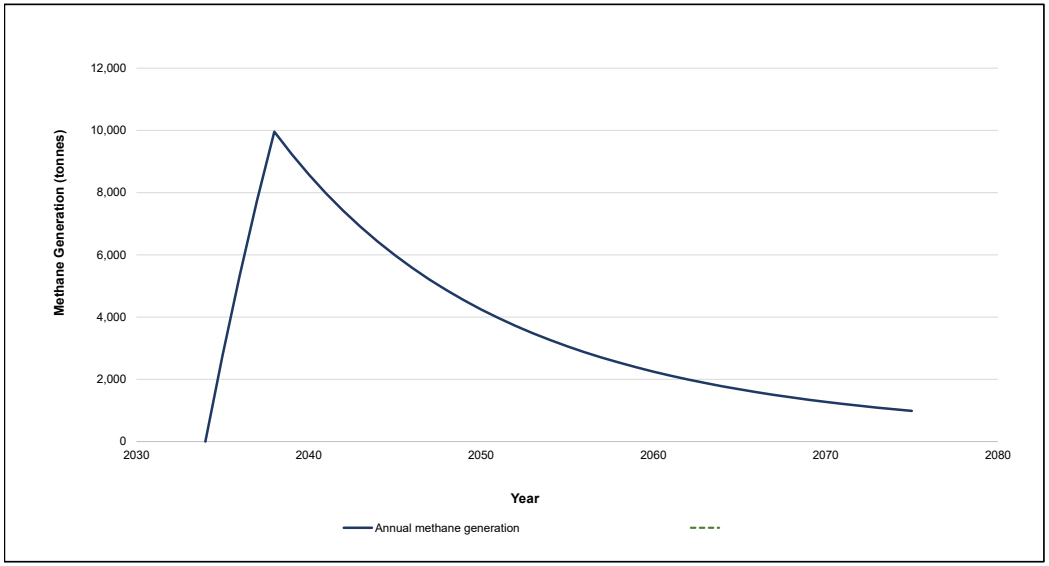
Waste modelled	Bulk MSW
User-specified waste composition?	No
Diversion?	No

Landfill Methane Modelling Tool: Results

Landfill Name: Walker Study Landfill Phase 2 - Stage 2

Year opened: 2034 **Province :** ON

Closure year: 2037



Year	Total Annual Waste Disposed	Total Waste in Place	Methane generation (no diversion)		
	tonnes/year	tonnes	tonnes/year	m^3 methane/year	scfm methane (standard cubic feet per minute)
2034	858,000	858,000	0	0	0
2035	858,000	1,716,000	2,776	4,231,364	867,291
2036	858,000	2,574,000	5,350	8,156,160	1,671,745
2037	858,000	3,432,000	7,740	11,798,641	2,418,334
2038	0	3,432,000	9,959	15,181,056	3,111,618
2039	0	3,432,000	9,245	14,092,450	2,888,490
2040	0	3,432,000	8,587	13,089,487	2,682,916
2041	0	3,432,000	7,980	12,165,101	2,493,447
2042	0	3,432,000	7,421	11,312,823	2,318,758
2043	0	3,432,000	6,906	10,526,730	2,157,634
2044	0	3,432,000	6,430	9,801,397	2,008,965
2045	0	3,432,000	5,990	9,131,856	1,871,731
2046	0	3,432,000	5,585	8,513,556	1,745,000
2047	0	3,432,000	5,210	7,942,329	1,627,917

User-selected and Default Model parameters

The following material parameters were used in the methane generation calculations, based on user sele inputs:

Waste Type	Decay Rate (k) (User-selected)	DOC (Default)	DOC_f (Default)
	Average annual precipitation		
	>500 to 1000mm		
Food	0.09	0.15	0.7
Paper	0.04	0.4	0.5
Yard and Garden	0.09	0.2	0.7
Soiled Paper	0.09	0.4	0.5
Wood	0.02	0.43	0.1
Textiles	0.04	0.24	0.5
Pet Waste	0.09	0.24	0.5
Diapers and Sanitary	0.09	0.24	0.5
Rubber and Leather	0.02	0.39	0.1
Other - Residential	0.09	0.1	0.5
Other - ICI	0.09	0.05	0.5
Other - Unknown	0.09	0.05	0.5
Sludge	0.09	0.05	0.7
Soil	0.02	0.03	0.1

Other Parameters and Defaults		Constants	
Methane Correction Factor (MCF)	1	Molar ratio of CH_4:C	1.33
CH_4 content in LFG (%CH_4)	50%	CH_4 density (at 25 °C and 1 atm) (kg/m^3)	0.656

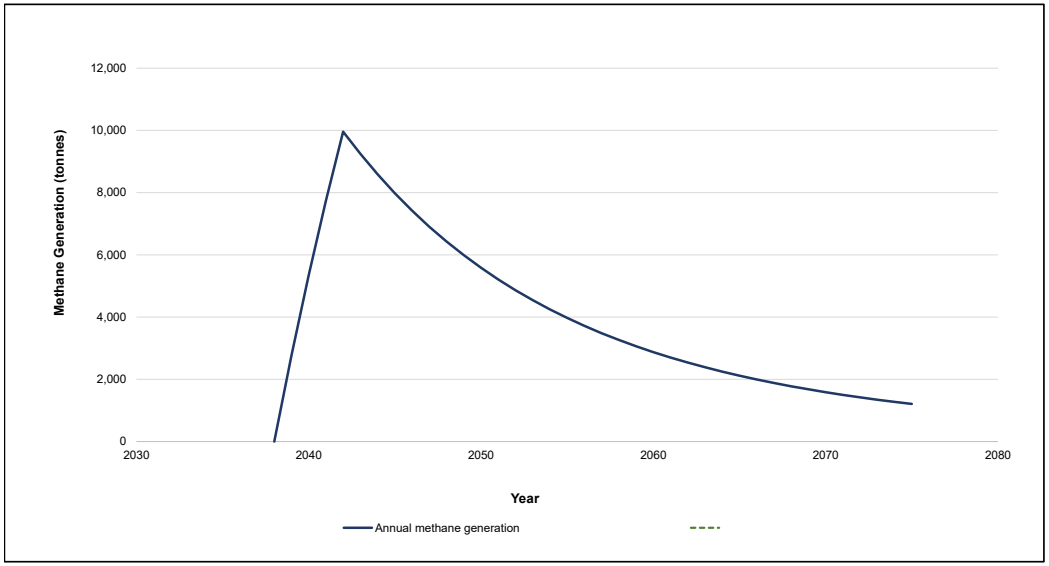
Waste modelled	Bulk MSW
User-specified waste composition?	No
Diversion?	No

Landfill Methane Modelling Tool: Results

Landfill Name: Walker Study Landfill Phase 2 - Stage 3

Year opened: 2038 **Province :** ON

Closure year: 2041



Year	Total Annual Waste Disposed	Total Waste in Place	Methane generation (no diversion)		
	tonnes/year	tonnes	tonnes/year	m^3 methane/year	scfm methane (standard cubic feet per minute)
2038	858,000	858,000	0	0	0
2039	858,000	1,716,000	2,776	4,231,364	867,291
2040	858,000	2,574,000	5,350	8,156,160	1,671,745
2041	858,000	3,432,000	7,740	11,798,641	2,418,334
2042	0	3,432,000	9,959	15,181,056	3,111,618
2043	0	3,432,000	9,245	14,092,450	2,888,490
2044	0	3,432,000	8,587	13,089,487	2,682,916
2045	0	3,432,000	7,980	12,165,101	2,493,447
2046	0	3,432,000	7,421	11,312,823	2,318,758
2047	0	3,432,000	6,906	10,526,730	2,157,634

User-selected and Default Model parameters

The following material parameters were used in the methane generation calculations, based on user sele inputs:

Waste Type	Decay Rate (k) (User-selected)	DOC (Default)	DOC_f (Default)
	Average annual precipitation		
	>500 to 1000mm		
Food	0.09	0.15	0.7
Paper	0.04	0.4	0.5
Yard and Garden	0.09	0.2	0.7
Soiled Paper	0.09	0.4	0.5
Wood	0.02	0.43	0.1
Textiles	0.04	0.24	0.5
Pet Waste	0.09	0.24	0.5
Diapers and Sanitary	0.09	0.24	0.5
Rubber and Leather	0.02	0.39	0.1
Other - Residential	0.09	0.1	0.5
Other - ICI	0.09	0.05	0.5
Other - Unknown	0.09	0.05	0.5
Sludge	0.09	0.05	0.7
Soil	0.02	0.03	0.1

Other Parameters and Defaults		Constants	
Methane Correction Factor (MCF)	1	Molar ratio of CH_4:C	1.33
CH_4 content in LFG (%CH_4)	50%	CH_4 density (at 25 °C and 1 atm) (kg/m^3)	0.656

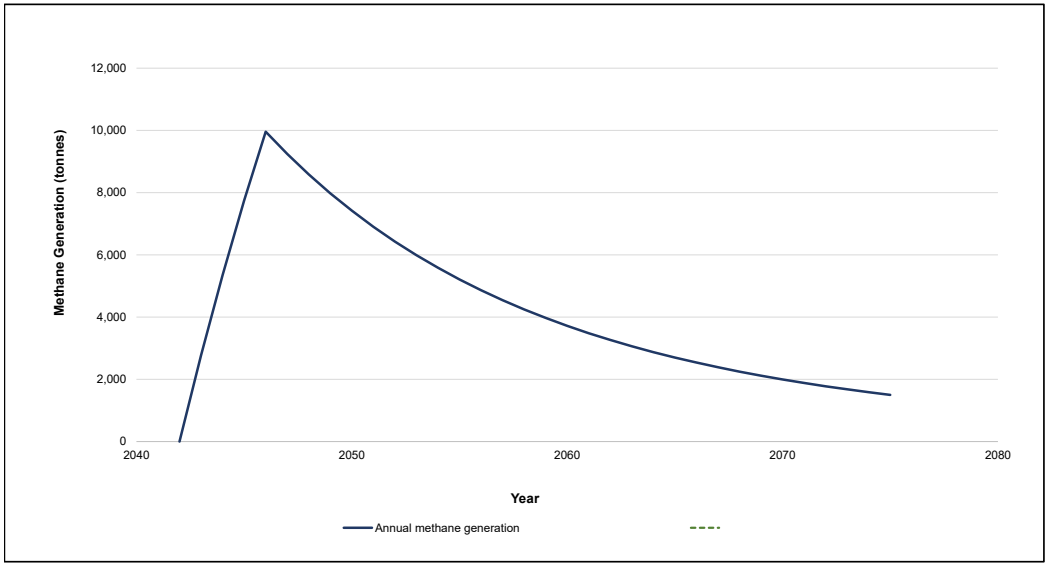
Waste modelled	Bulk MSW
User-specified waste composition?	No
Diversion?	No

Landfill Methane Modelling Tool: Results

Landfill Name: Walker Study Landfill Phase 2 - Stage 4

Year opened: 2042 **Province :** ON

Closure year: 2045



Year	Total Annual Waste Disposed	Total Waste in Place	Methane generation (no diversion)		
	tonnes/year	tonnes	tonnes/year	m^3 methane/year	scfm methane (standard cubic feet per minute)
2042	858,000	858,000	0	0	0
2043	858,000	1,716,000	2,776	4,231,364	867,291
2044	858,000	2,574,000	5,350	8,156,160	1,671,745
2045	858,000	3,432,000	7,740	11,798,641	2,418,334
2046	0	3,432,000	9,959	15,181,056	3,111,618
2047	0	3,432,000	9,245	14,092,450	2,888,490

User-selected and Default Model parameters

The following material parameters were used in the methane generation calculations, based on user sele inputs:

Waste Type	Decay Rate (k) (User-selected)	DOC (Default)	DOC_f (Default)
	Average annual precipitation		
	>500 to 1000mm		
Food	0.09	0.15	0.7
Paper	0.04	0.4	0.5
Yard and Garden	0.09	0.2	0.7
Soiled Paper	0.09	0.4	0.5
Wood	0.02	0.43	0.1
Textiles	0.04	0.24	0.5
Pet Waste	0.09	0.24	0.5
Diapers and Sanitary	0.09	0.24	0.5
Rubber and Leather	0.02	0.39	0.1
Other - Residential	0.09	0.1	0.5
Other - ICI	0.09	0.05	0.5
Other - Unknown	0.09	0.05	0.5
Sludge	0.09	0.05	0.7
Soil	0.02	0.03	0.1

Other Parameters and Defaults		Constants	
Methane Correction Factor (MCF)	1	Molar ratio of CH_4:C	1.33
CH_4 content in LFG ($\%CH_4$)	50%	CH_4 density (at 25 °C and 1 atm) (kg/m^3)	0.656

Waste modelled	Bulk MSW
User-specified waste composition?	No
Diversion?	No

APPENDIX E

Appendix E1: Source Summary Table - Odour (Do Nothing Scenario - Year 2047)

RWDI #2402272

Walker South Landfill Phase 2 Environmental Assessment

Source ID	Source Type	Source Description	Source Data								Emission Data							
			Stack Volumetric Flow Rate (Am^3/s)	Stack Exit Gas Temp. (°C)	Stack Inner Diameter (m)	Stack Exit Velocity (m/s)	Stack Height Above Grade	Stack Height Above Roof	Source Coordinates		Contaminant	CAS Number	Emission Rate		Averaging Period (hours)	Emission Estimating Technique [1]	Emissions Data Quality [2]	Percentage of Overall Emissions (%)
									X (m)	Y (m)			(OU/s)	(OU/m2/s)				
Walker Environmental Group Inc. – Landfill																		
LEAPOND1	AREA	Leachate Aeration Pond 1	n/a	n/a	n/a	n/a	n/a	n/a	648441.16	4777248.47	Odour	n/a	294	1.69E-01	10 minute	V-ST	Above-Average	1%
LEAPOND2	AREA	Leachate Aeration Pond 2	n/a	n/a	n/a	n/a	n/a	n/a	648787.21	4777544.02	Odour	n/a	328	1.69E-01	10 minute	V-ST	Above-Average	1%
LEAPOND3	AREA	Leachate Aeration Pond 3	n/a	n/a	n/a	n/a	n/a	n/a	648855.81	4777522.57	Odour	n/a	389	1.69E-01	10 minute	V-ST	Above-Average	2%
EASTLF_FC	AREA_POLY	Fugitive Emissions from Areas under Final Cover at East Landfill	n/a	n/a	n/a	n/a	n/a	n/a	648368.73	4776777.27	Odour	n/a	9443	1.59E-02	10 minute	V-ST	Above-Average	39%
SLF_FC	AREA_POLY	Fugitive Emissions from Areas under Final Cover at South Landfill Phase 1	n/a	n/a	n/a	n/a	n/a	n/a	648547.48	4775839.48	Odour	n/a	11700	2.30E-02	10 minute	V-ST	Above-Average	48%
Sources at N-Viro Facility																		
BIOFILTR	AREA	Biofilter Exhaust (including emissions from Natural Gas Dryer Flue Gas)	n/a	n/a	n/a	n/a	n/a	N/A	648277.09	4776992.66	Odour	n/a	221	4.20E-01	10 minute	V-ST	Above-Average	<1%
Sources at WEG Compost Facility																		
COMPPOND	AREA	Compost Pond	n/a	n/a	n/a	n/a	n/a	n/a	648028.62	4776705.82	Odour	n/a	36	1.10E-02	10 minute	V-ST	Above-Average	<1%
GRINDER	VOLUME	Fugitive emissions from Grinder [7]	n/a	n/a	n/a	n/a	n/a	n/a	648169.14	4776734.05	Odour	n/a	8	-	10 minute	V-ST	Above-Average	<1%
R_BLDG	VOLUME	Receiving Building - During Operation of Grinder with Doors Open	n/a	n/a	n/a	n/a	n/a	n/a	648213.65	4776739.37	Odour	n/a	100	-	10 minute	V-ST	Above-Average	<1%
WK1_1	AREA	Windrow of Compost Material in Week 1 of Treatment	n/a	n/a	n/a	n/a	n/a	n/a	648168.53	4776701.38	Odour	n/a	51	1.01E-01	10 minute	V-ST	Above-Average	<1%
WK1_2	AREA	Windrow of Compost Material in Week 1 of Treatment	n/a	n/a	n/a	n/a	n/a	n/a	648169.54	4776691.31	Odour	n/a	51	1.01E-01	10 minute	V-ST	Above-Average	<1%
WK2_1	AREA	Windrow of Compost Material in Week 2	n/a	n/a	n/a	n/a	n/a	n/a	648170.30	4776681.48	Odour	n/a	37	7.35E-02	10 minute	V-ST	Above-Average	<1%
WK2_2	AREA	Windrow of Compost Material in Week 2	n/a	n/a	n/a	n/a	n/a	n/a	648171.05	4776671.91	Odour	n/a	37	7.35E-02	10 minute	V-ST	Above-Average	<1%
WK3_1	AREA	Windrow of Compost Material in Week 3	n/a	n/a	n/a	n/a	n/a	n/a	648172.06	4776661.84	Odour	n/a	23	4.56E-02	10 minute	V-ST	Above-Average	<1%
WK3_2	AREA	Windrow of Compost Material in Week 3	n/a	n/a	n/a	n/a	n/a	n/a	648172.82	4776652.26	Odour	n/a	23	4.56E-02	10 minute	V-ST	Above-Average	<1%
WK4_1	AREA	Windrow of Compost Material in Week 4	n/a	n/a	n/a	n/a	n/a	n/a	648173.82	4776641.43	Odour	n/a	14	2.70E-02	10 minute	V-ST	Above-Average	<1%
WK4_2	AREA	Windrow of Compost Material in Week 4	n/a	n/a	n/a	n/a	n/a	n/a	648174.83	4776631.61	Odour	n/a	14	2.70E-02	10 minute	V-ST	Above-Average	<1%
WK5_1	AREA	Windrow of Compost Material in Week 5	n/a	n/a	n/a	n/a	n/a	n/a	648227.98	4776706.67	Odour	n/a	9	1.89E-02	10 minute	V-ST	Above-Average	<1%
WK5_2	AREA	Windrow of Compost Material in Week 5	n/a	n/a	n/a	n/a	n/a	n/a	648229.24	4776697.10	Odour	n/a	9	1.89E-02	10 minute	V-ST	Above-Average	<1%
WK6_1	AREA	Windrow of Compost Material in Week 6	n/a	n/a	n/a	n/a	n/a	n/a	648229.74	4776688.54	Odour	n/a	8	1.59E-02	10 minute	V-ST	Above-Average	<1%
WK6_2	AREA	Windrow of Compost Material in Week 6	n/a	n/a	n/a	n/a	n/a	n/a	648231.00	4776677.45	Odour	n/a	8	1.59E-02	10 minute	V-ST	Above-Average	<1%
WK1_3	AREA	Windrow of Compost Material in Week 1	n/a	n/a	n/a	n/a	n/a	n/a	648231.50	4776667.63	Odour	n/a	51	1.01E-01	10 minute	V-ST	Above-Average	<1%
WK2_3	AREA	Windrow of Compost Material in Week 2	n/a	n/a	n/a	n/a	n/a	n/a	648232.76	4776657.30	Odour	n/a	37	7.35E-02	10 minute	V-ST	Above-Average	<1%
WK3_3	AREA	Windrow of Compost Material in Week 3	n/a	n/a	n/a	n/a	n/a	n/a	648233.77	4776647.48	Odour	n/a	23	4.56E-02	10 minute	V-ST	Above-Average	<1%
WK4_3	AREA	Windrow of Compost Material in Week 4	n/a	n/a	n/a	n/a	n/a	n/a	648234.53	4776637.40	Odour	n/a	14	2.70E-02	10 minute	V-ST	Above-Average	<1%
SCREEN	AREA	Screening Operations	n/a	n/a	n/a	n/a	n/a	n/a	648172.19	4776789.55	Odour	n/a	49	6.38E-02	10 minute	V-ST	Above-Average	<1%
BIOF1	AREA	Processing and Screening Building Biofilter 1	n/a	n/a	n/a	n/a	n/a	n/a	648176.20	4776749.75	Odour	n/a	7	6.10E-02	10 minute	V-ST	Above-Average	<1%
BIOF2	AREA	Processing and Screening Building Biofilter 2	n/a	n/a	n/a	n/a	n/a	n/a	648179.34	4776719.11	Odour	n/a	7	6.10E-02	10 minute	V-ST	Above-Average	<1%
BASE1	AREA	Incoming Leaf & Yard Material (Open Windrow Pad)	n/a	n/a	n/a	n/a	n/a	n/a	648128.82	4776798.87	Odour	n/a	28	2.58E-02	10 minute	V-ST	Above-Average	<1%
BASE2	AREA	Incoming Leaf & Yard Material (Open Windrow Pad)	n/a	n/a	n/a	n/a	n/a	n/a	648125.68	4776843.47	Odour	n/a	28	2.58E-02	10 minute	V-ST	Above-Average	<1%
BASE3	AREA	Incoming Leaf & Yard Material (Open Windrow Pad)	n/a	n/a	n/a	n/a	n/a	n/a	648122.00	4776887.03	Odour	n/a	28	2.58E-02	10 minute	V-ST	Above-Average	<1%
BASE4	AREA	Incoming Leaf & Yard Material (Open Windrow Pad)	n/a	n/a	n/a	n/a	n/a	n/a	648117.28	4776930.58	Odour	n/a	26	2.58E-02	10 minute	V-ST	Above-Average	<1%
WK2O	AREA	Open Windrow - Week 2 Material	n/a	n/a	n/a	n/a	n/a	n/a	648156.64	4776934.26	Odour	n/a	118	1.09E-01	10 minute	V-ST	Above-Average	<1%
WK2O2	AREA	Open Windrow - Week 2 Material	n/a	n/a	n/a	n/a	n/a	n/a	648149.81	4776915.36	Odour	n/a	153	1.09E-01	10 minute	V-ST	Above-Average	<1%
WK2O3	AREA	Open Windrow - Week 2 Material	n/a	n/a	n/a	n/a	n/a	n/a	648151.91	4776899.10	Odour	n/a	174	1.09E-01	10 minute	V-ST	Above-Average	<1%
WK2O4	AREA	Open Windrow - Week 2 Material	n/a	n/a	n/a	n/a	n/a	n/a	648155.06	4776881.78	Odour	n/a	196	1.09E-01	10 minute	V-ST	Above-Average	<1%
W6B1	AREA	Open Windrow - Week 6 Material (Before Turning)	n/a	n/a	n/a	n/a	n/a	n/a	648157.16	4776867.09	Odour	n/a	60	3.15E-02	10 minute	V-ST	Above-Average	<1%
W6BT2	AREA	Open Windrow - Week 6 Material (Before Turning)	n/a	n/a	n/a	n/a	n/a	n/a	648159.26	4776850.30	Odour	n/a	63	3.15E-02	10 minute	V-ST	Above-Average	<1%
W6BT3	AREA	Open Windrow - Week 6 Material (Before Turning)	n/a	n/a	n/a	n/a	n/a	n/a	648175.09	4776835.43	Odour	n/a	63	3.15E-02	10 minute	V-ST	Above-Average	<1%
W6BT4	AREA	Open Windrow - Week 6 Material (Before Turning)	n/a	n/a	n/a	n/a	n/a	n/a	648216.46	4776807.27	Odour	n/a	38	3.15E-02	10 minute	V-ST	Above-Average	<1%
W6AT1	AREA	Open Windrow - Week 6 Material (After Turning)	n/a	n/a	n/a	n/a	n/a	n/a	648255.29	4776810.41	Odour	n/a	74	6.16E-02	10 minute	V-ST	Above-Average	<1%
W6AT2	AREA	Open Windrow - Week 6 Material (After Turning)	n/a	n/a	n/a	n/a	n/a	n/a	648226.95	4776792.57	Odour	n/a	86	6.16E-02	10 minute	V-ST	Above-Average	<1%
W6AT3	AREA	Open Windrow - Week 6 Material (After Turning)	n/a	n/a	n/a	n/a	n/a	n/a	648227.48	4776777.88	Odour	n/a	86	6.16E-02	10 minute	V-ST	Above-Average	<1%
W6AT4	AREA	Open Windrow - Week 6 Material (After Turning)	n/a	n/a	n/a	n/a	n/a	n/a	648228.00	4776762.66	Odour	n/a	86	6.16E-02	10 minute	V-ST	Above-Average	<1%
FINAL	AREA	Final Product Storage	n/a	n/a	n/a	n/a	n/a	n/a	648133.35	4776720.14	Odour	n/a	2	4.99E-03	10 minute	V-ST	Above-Average	<1%
NEW_WK1	AREA	Windrow of Compost Material in Week 1	n/a	n/a	n/a	n/a	n/a	n/a	648136.48	4776629.44	Odour	n/a	51	1.01E-01	10 minute	V-ST	Above-Average	<1%
NEW_WK2	AREA	Windrow of Compost Material in Week 2	n/a	n/a	n/a	n/a	n/a	n/a	648147.15	4776630.35	Odour	n/a	37	7.35E-02	10 minute	V-ST	Above-Average	<1%
NEW_WK3	AREA	Windrow of Compost Material in Week 3	n/a	n/a	n/a	n/a	n/a	n/a	648159.68	4776617.28	Odour	n/a	23	4.56E-02	10 minute	V-ST	Above-Average	<1%
NEW_WK4	AREA	Windrow of Compost Material in Week 4	n/a	n/a	n/a	n/a	n/a	n/a	648169.44	4776618.75	Odour	n/a	14	2.70E-02	10 minute	V-ST	Above-Average	<1%
										Total	**Odour**	**n/a**	**24,420**	**-**	**-**	**-**	**-**	**100%**

Notes:

[1] Emission Estimating Technique Short-Forms are V-ST (Validated Source Test), "ST" (Source Test), EF (Emission Factor), MB (Mass Balance), and EC (Engineering Calculation).

[2] Data Quality Categories: Highest; Above-Average; Average; and Marginal.

Appendix E2: Odour Flux Chamber Sampling Data

RWDI #2402272

Walker South Landfill Phase 2 Environmental Assessment

Odour sampling was completed at the Walker's Facility located in Thorold Ontario on September 2nd 2025 to September 5th and September 29th 2025.

Flux Chamber Flow Rate = 5 (L/min)

Source	Sample Location	Sample ID	Lab No.	Analysis Date	Analysis Time	Flux Chamber Area	ODTV-Detection		ORTV-Recognition	
							Lab Results	Flux Rate	Lab Results	Flux Rate
					Unit	(m^2)	(ou/m^3)	($ou/(s*m2)$)	(ou/m^3)	($ou/(s*m2)$)
South Landfill Phase 1 Interim Cover	ICA #1	WSL - ICA #1	-	2025-09-02	11:05 - 11:15	0.13	88	0.056	42	0.027
	ICA #2	WSL - ICA #2	-	2025-09-02	11:13 - 11:23	0.13	159	0.102	59	0.038
	ICA #3	WSL - ICA #3	-	2025-09-02	12:14 - 12:24	0.13	578	0.371	226	0.145
	ICA #4	WSL - ICA #4	-	2025-09-02	13:11 - 13:21	0.13	74	0.047	41	0.026
	ICA #5	WSL - ICA #5	-	2025-09-02	13:10 - 13:20	0.13	81	0.052	41	0.026
	ICA #6	WSL - ICA #6	-	2025-09-02	14:37 - 14:47	0.13	53	0.034	29	0.019
	ICA #7	WSL - ICA #7	-	2025-09-02	14:35 - 14:45	0.13	49	0.031	31	0.020
	ICA #8	WSL - ICA #8	-	2025-09-02	15:51 - 16:01	0.13	53	0.034	29	0.019
	ICA #9	WSL - ICA #9	-	2025-09-02	15:52 - 16:02	0.13	48	0.031	27	0.017
	Blank	Blank	-	2025-09-02	-	-	37	-	20	-
South Landfill Phase 1 Final Cover	FCA #1	WSL-FCA #1	-	2025-09-03	10:58 - 11:08	0.13	104	0.067	52	0.033
	FCA #2	WSL-FCA #2	-	2025-09-03	10:58 - 11:08	0.13	74	0.047	41	0.026
	FCA #3	WSL-FCA #3	-	2025-09-03	12:22 - 12:32	0.13	97	0.062	48	0.031
	FCA #4	WSL-FCA #4	-	2025-09-03	12:22 - 12:33	0.13	88	0.056	45	0.029
	FCA #5	WSL-FCA #5	-	2025-09-03	13:45 - 13:55	0.13	88	0.056	53	0.034
	FCA #6	WSL-FCA #6	-	2025-09-03	13:45 - 13:55	0.13	96	0.062	53	0.034
East Landfill Final Cover	FCA #7	ELF-FCA #7	-	2025-09-03	15:25 - 15:35	0.13	74	0.047	31	0.020
	FCA #8	ELF-FCA #8	-	2025-09-03	15:20 - 15:30	0.13	53	0.034	34	0.022
	FCA #9	ELF-FCA #9	-	2025-09-03	16:42 - 16:52	0.13	62	0.040	37	0.024
	Blank	Blank	-	2025-09-03	-	-	41	-	24	-
South Landfill Phase 1 Active Face	WF #1	WSL-WF #1	-	2025-09-04	10:50 - 11:00	0.13	268	0.172	136	0.087
	WF #2	WSL-WF #2	-	2025-09-04	10:50 - 11:00	0.13	413	0.265	174	0.112
	WF #3	WSL-WF #3	-	2025-09-04	11:50 - 12:00	0.13	411	0.263	190	0.122
	WF #4	WSL-WF #4	-	2025-09-04	11:50 - 12:00	0.13	319	0.204	176	0.113
	WF #5	WSL-WF #5	-	2025-09-04	12:36 - 12:46	0.13	268	0.172	147	0.094
	WF #6	WSL-WF #6	-	2025-09-04	12:50 - 1:00	0.13	490	0.314	226	0.145
	Blank	Blank	-	2025-09-04	-	0.13	75	0.048	34	0.022
Waste Soil Stockpile	WSS#1A	WSL - WSS#1A	-	2025-09-05	9:15 - 9:25	0.13	69	0.044	29	0.019
	WSS#1B	WSL - WSS#1B	-	2025-09-05	9:34 - 9:44	0.13	68	0.044	45	0.029
	WSS#2A	WSL - WSS#2A	-	2025-09-05	9:08 - 9:18	0.13	105	0.067	58	0.037
	WSS#2B	WSL - SSF#2B	-	2025-09-05	9:27 - 9:37	0.13	89	0.057	48	0.031
	WSS#3A	WSL - WSS#3A	-	2025-09-05	10:17 - 10:27	0.13	68	0.044	41	0.026
	WSS#3B	WSL - WSS#3B	-	2025-09-05	10:37 - 10:47	0.13	63	0.040	40	0.026
	Blank	Blank	-	2025-09-05	-	-	58	-	31	-
Leachate Pond	SLFLP#1	SLFLP#1	-	2025-09-29	10:44 - 10:54	0.13	219	0.140	114	0.073
	SLFLP#2	SLFLP#2	-	2025-09-29	10:55 - 11:05	0.13	262	0.168	153	0.098
	SLFLP#3	SLFLP#3	-	2025-09-29	11:10 - 11:20	0.13	310	0.199	152	0.097

Notes:

ODTV- Odour Detection Threshold Values
ORTV- Odour Recognition Threshold Values

Table 1: Summary of Average Odour Detection Results

Source	Average Flux Rate ($ou/m^2 s$)	Note
East Landfill Final Cover	4.04E-02	-
South Landfill Phase 1 Final Cover	5.84E-02	-
South Landfill Phase 2 Final Cover	5.84E-02	[1]
East Landfill Interim Cover	8.43E-02	[2]
South Landfill Phase 1 Interim Cover	8.43E-02	-
South Landfill Phase 2 Interim Cover	8.43E-02	[3]
East Landfill Active Face	2.32E-01	[2]
South Landfill Phase 1 Active Face	2.32E-01	-
South Landfill Phase 2 Active Face	2.32E-01	[3]
Waste Soil Stockpile	4.94E-02	-
Leachate Pond	1.69E-01	-

Notes:
[1] Final cover emissions from the study site were assumed to be the higher of the two values between the East Landfill and South Landfill Phase 1.
[2] Interim cover and active working face emissions from the East Landfill were assumed to be same as South Landfill Phase 1.
[3] Interim cover and active working face emissions from the South Landfill Phase 2 were assumed to be same as South Landfill Phase 1.

Appendix E3: Landfill Odour Emission Rate Calculations

RWDI #2402272

Walker South Landfill Phase 2 Environmental Assessment

Table 1: Odour Source Testing Emission Rates

Source	Emission Rate (OU/m^2/s) [1]
East Landfill Final Cover	4.04E-02
South Landfill Phase 1 Final Cover	5.84E-02
Waste Soil Stockpile	4.94E-02
Leachate Pond	1.69E-01

Note:

[1] Based on odour sampling conducted at the Walker's Facility in Thorold Ontario on September 2nd 2025 to September 5th and September 29th 2025.

Table 2: Scaling of Emission Rate

Location	Methane Emission Rate (Tonnes/yr) [1]						Scaling Factor to Emission Flux Rate Obtained in Year 2025 Sampling [2]					
	2025	2033	2037	2041	2045	2047	2025	2033	2037	2041	2045	2047
East Landfill	8,200	5,416	5,322	4,333	3,556	3,230	1.000	0.660	0.649	0.528	0.434	0.394
South Landfill Phase 1	26,921	26,022	20,013	15,400	11,984	10,617	1.000	0.967	0.743	0.572	0.445	0.394

Note:

[1] Methane generation rates were obtained from the Landfill Methane Modelling Tool developed by Environment and Climate Change Canada (ECCC).

[2] Emission flux rates from sampling conducted in Year 2025 was adopted for Year 2025 as well as the first modelled year of each stage of South Landfill Phase 2. For future years, the emission flux rates were scaled based on the raito of methane generation rate in the future year to that in the first modelled year.

Table 3: Summary of Odour Emission Rates (OU/m^2/s)

Location	Type	Sampling Data	Source ID	2025	2033	2037	2041	2045	2047
East Landfill	Final Cover	East Landfill Final Cover	EASTLF_FC	4.04E-02	2.67E-02	2.62E-02	2.13E-02	1.75E-02	1.59E-02
South Landfill Phase 1	Final Cover	South Landfill Phase 1 Final Cover	SLF_FC	5.84E-02	5.65E-02	4.34E-02	3.34E-02	2.60E-02	2.30E-02
Campus	Waste Soil Stockpile	Waste Soil Stockpile	Soil	4.94E-02	4.94E-02	4.94E-02	4.94E-02	4.94E-02	4.94E-02
Campus	Leachate Pond	Leachate Pond	LEAPOND1	1.69E-01	1.69E-01	1.69E-01	1.69E-01	1.69E-01	1.69E-01
Campus	Leachate Pond	Leachate Pond	LEAPOND2	1.69E-01	1.69E-01	1.69E-01	1.69E-01	1.69E-01	1.69E-01
Campus	Leachate Pond	Leachate Pond	LEAPOND3	1.69E-01	1.69E-01	1.69E-01	1.69E-01	1.69E-01	1.69E-01

Appendix E4: Compost Material Windrow Odour Flux Rate Calculations

RWDI #2402272

Walker South Landfill Phase 2 Environmental Assessment

Source		Odour Concentration (OU)	Odour Control Efficiency (Based on comparison to Baseline Data) (%)	Odour Control Efficiencies Used in Modelling Assessment (%)	Odour Flux Rate ($OU/m^2/s$)
Baseline	Maximum	4,452	-		
	Average	2,942	-	-	0.128
	Minimum	1,164	-		
Week 1	Maximum	3,246	26%		
	Average	2,289	21%	21%	0.101
	Minimum	1,234	-7%		
Week 2	Maximum	2,662	40%		
	Average	1,679	43%	43%	0.074
	Minimum	644	44%		
Week 3	Maximum	2,077	55%		
	Average	1,068	64%	64%	0.046
	Minimum	54	95%		
Week 4	Maximum	1,220	73%		
	Average	630	79%	79%	0.027
	Minimum	257	78%		
Week 5	Maximum	717	84%		
	Average	426	85%	85%	0.019
	Minimum	127	89%		
Week 6	Maximum	534	87%		
	Average	356	88%	88%	0.016
	Minimum	66	94%		
Week 7	Maximum	368	91%		
	Average	268	90%	90%	0.012
	Minimum	111	90%		
Week 8	Maximum	202	95%		
	Average	180	93%	93%	0.009
	Minimum	156	85%		
Week 10	Maximum	119	97%		
	Average	98	96%	96%	0.005
	Minimum	84	92%		

Notes:

Source of Data Peel Curing Facility

Control Efficiency Data based on Pilot Study Completed with Region of Peel and GORE™

Week 2 not tested, therefore reduction = avg of wk 1 and wk 3 reductions

Week 7 not tested, therefore reduction = avg of wk 6 and wk 8 reductions

Surface Area Per Windrow = 500 m^2

Appendix E5: Open Windrow Odour Flux Rate Calculations

RWDI #2402272

Walker South Landfill Phase 2 Environmental Assessment

Calculations of Open Windrow Odour Emission Rates

Flux Chamber Measurements

Client: Walker Brothers
Job No.: 0925058A
Sample Date :25-Nov-08

Chamber Data
Area = 0.4 m²
Sweep Rate = 17.2 L/min
Purge Start Time 8:54 AM
Purge End Time 9:29 AM
Pile Temp -2 °C
Chamber Temp 3 °C
Chamber Pressure 0.00 inches of Water

PILE AREA
Tank Raduis 30.5 m
Area = 2918.6 m²
Sample ID: Lawn / Yard
Taken 24-Nov-08

Max Tank Diameter
Max
200' tank diameter
60.96m

Lawn / Yard

ODOUR RESULTS			
Lab ID	**Lab Results**	**Flux Rate**	**Emission Rate**
Detection	**(ou)**	**(ou/s/m²)**	**(ou/s)**
LY1-T1	37	0.027	77
LY1-T2	37	0.027	77
LY2-T1	34	0.024	71
AVERAGE	**36**	**0.026**	**75**
Recognition			
LY1-T1	20	0.014	42
LY1-T2	21	0.015	44
LY2-T1	23	0.016	48
AVERAGE	**21**	**0.015**	**45**

Flux Chamber Measurements

Client: Walker Brothers
Job No.: 0925058A
Sample Date :25-Nov-08

Chamber Data
Area = 0.4 m²
Sweep Rate = 17.2 L/min
Purge Start Time 10:00 AM
Purge End Time 10:35 AM
Pile Temp -27 °C
Chamber Temp 4 °C
Chamber Pressure 0.02 inches of Water

PILE AREA
Tank Raduis 30.5 m
Area = 2918.6 m²
Sample ID: 6 Week Old Before Turning
Taken 24-Nov-08

Max Tank Diameter
Max
200' tank diameter
60.96m

6 Week Old Before Turning

ODOUR RESULTS			
Lab ID	**Lab Results**	**Flux Rate**	**Emission Rate**
Detection	**(ou)**	**(ou/s/m²)**	**(ou/s)**
W6-BT-T1	38	0.027	79
W6-BT-T2	41	0.029	86
W6-BT-T3	53	0.038	111
AVERAGE	**44**	**0.032**	**92**
Recognition			
W6-BT-T1	27	0.019	56
W6-BT-T2	32	0.023	67
W6-BT-T3	38	0.027	79
AVERAGE	**32**	**0.023**	**68**

Appendix E5: Open Windrow Odour Flux Rate Calculations

RWDI #2402272

Walker South Landfill Phase 2 Environmental Assessment

Calculations of Open Windrow Odour Emission Rates

Flux Chamber Measurements

Client: Walker Brothers
Job No.: 0925058A
Sample Date :25-Nov-08

Chamber Data
Area = 0.4 m²
Sweep Rate = 17.2 L/min
Purge Start Time 11:48 AM
Purge End Time 12:23 PM
Pile Temp 33 °C
Chamber Temp 11.0 °C
Chamber Pressure 0.02 inches of Water

PILE AREA
Tank Raduis 30.5 m
Area = 2918.6 m²
Sample ID: 6 Week Old After Turning
Taken 24-Nov-08

Max Tank Diameter
200' tank diameter
60.96m

6 Week Old After Turning

ODOUR RESULTS			
Lab ID	**Lab Results**	**Flux Rate**	**Emission Rate**
Detection	**(ou)**	**(ou/s/m^2)**	**(ou/s)**
W6-AT-T1	53	0.038	111
W6-AT-T2	116	0.083	243
W6-AT-T3	89	0.064	186
AVERAGE	**86**	**0.062**	**180**
Recognition			
W6-AT-T1	38	0.027	79
W6-AT-T2	82	0.059	172
W6-AT-T3	59	0.042	123
AVERAGE	**60**	**0.043**	**125**

Flux Chamber Measurements

Client: Walker Brothers
Job No.: 0925058A
Sample Date :25-Nov-08

Chamber Data
Area = 0.4 m²
Sweep Rate = 17.2 L/min
Purge Start Time 11:50 AM
Purge End Time 12:25 PM
Pile Temp 4 °C
Chamber Temp 4.0 °C
Chamber Pressure 0.00 inches of Water

PILE AREA
Tank Raduis 30.5 m
Area = 2918.6 m²
Sample ID: 2 Week Old After Turning
Taken 24-Nov-08

Max Tank Diameter
200' tank diameter
60.96m

2 Week Old After Turning

ODOUR RESULTS			
Lab ID	**Lab Results**	**Flux Rate**	**Emission Rate**
Detection	**(ou)**	**(ou/s/m^2)**	**(ou/s)**
W2-AT-T1	164	0.118	343
W2-AT-T2	195	0.140	408
W2-AT-T3	97	0.070	203
AVERAGE	**152**	**0.109**	**318**
Recognition			
W2-AT-T1	116	0.083	243
W2-AT-T2	138	0.099	289
W2-AT-T3	62	0.044	130
AVERAGE	**105**	**0.075**	**220**

Summary of Open Windrow Odour Emission Rates

Source	Average Odour Source Concentration (OU)	Average Odour Flux Rate (OU/m^2/s)
Incoming Lawn & Yard Waste	36	0.026
2 Week Old After Turning Windrow	152	0.109
6 Week Old Before Turning	44	0.032
6 Week Old After Turning	86	0.062

Appendix E6: Screener Odour Flux Rate Calculations

RWDI #2402272

Walker South Landfill Phase 2 Environmental Assessment

Client: Walker Brothers
Job No.: 0925058A
Sample Date :25-Nov-08

Chamber Data
Area = 0.4 m²
Sweep Rate = 17.2 L/min
Purge Start Time 10:16 AM
Purge End Time 10:50 AM
Pile Temp 35 °C
Chamber Temp 5.0 °C
Chamber Pressure 0.01 inches of Water

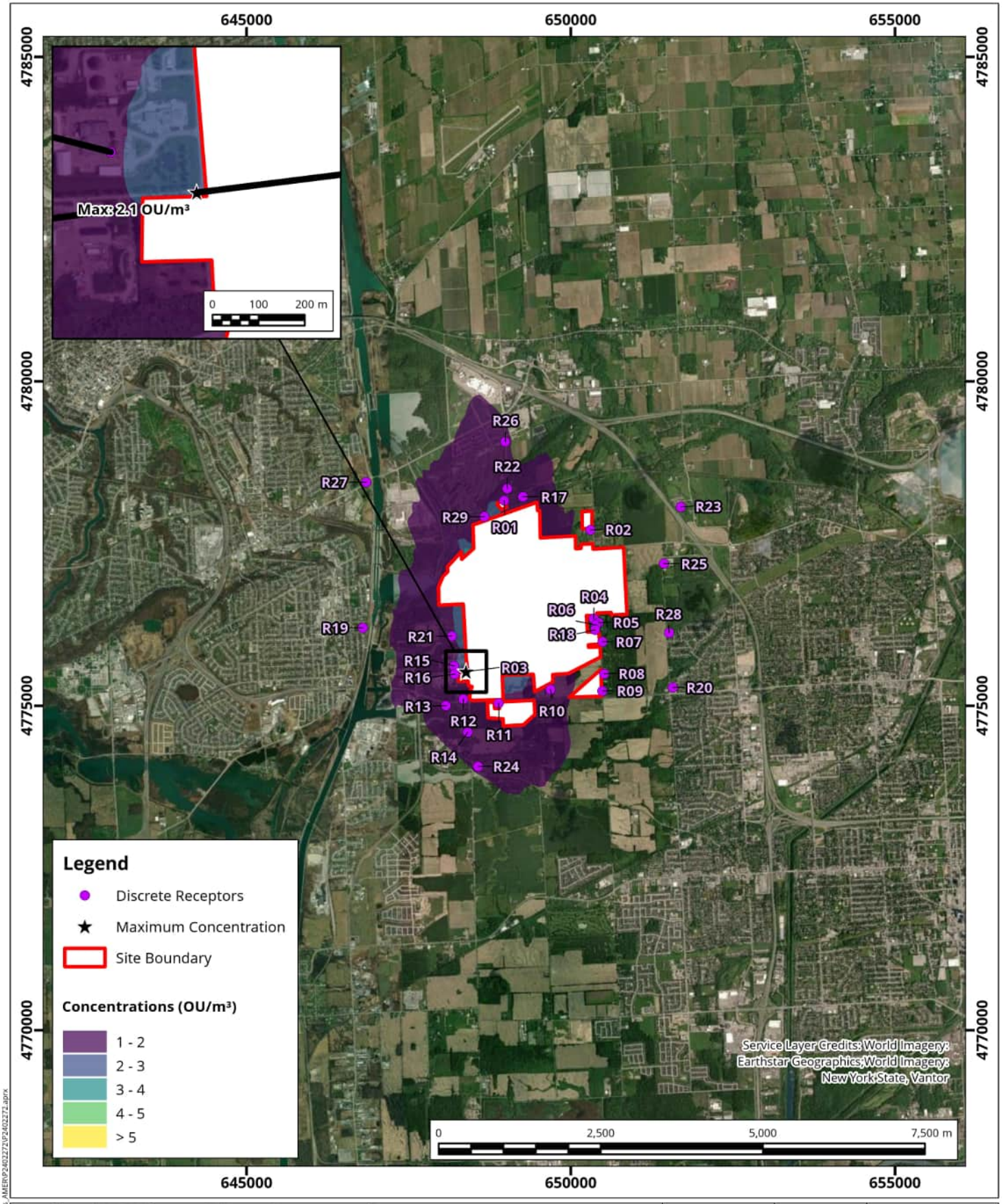
PILE AREA
Tank Raduis 30.5 m
Area = 2918.6 m²
Sample ID: Screening Material
Taken 24-Nov-08

Max Tank Diameter
200' tank diameter
60.96m

Screening Material

ODOUR RESULTS			
Lab ID Detection	**Lab Results (ou)**	**Flux Rate (ou/s/m^2)**	**Emission Rate (ou/s)**
Screening -T1	89	0.064	186
Screening -T2	57	0.041	119
Screening -T3	68	0.049	142
AVERAGE	**71**	**0.051**	**149**
Recognition			
Screening -T1	57	0.041	119
Screening -T2	40	0.029	84
Screening -T3	49	0.035	102
AVERAGE	**49**	**0.035**	**102**

APPENDIX F



Predicted 10-Minute Odour Concentrations (in OU/m³)

Do Nothing Scenario

Map Projection: NAD 1983 UTM Zone 17N

Walker Landfill - Regional Municipality of Niagara, Ontario

Project #: 2402272

True North

Drawn by: PIP	Figure: F.1
Approx. Scale:	1:80,000
Date Revised:	Jun 19, 2026

Map Document: C:\Working Folder\Jobs_AMER\P\2402272\2402272.aprx

APPENDIX G

Appendix G1: Source Summary Tables - Dust, Landfill Gas and Combustion By-Products (Do Nothing Scenario - Year 2047)

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Source ID [1]	Source Type [1]	Source Description	Source Data								Emission Data							
			Stack Volumetric Flow Rate (Am^3/s)	Stack Exit Gas Temp. (°C)	Stack Inner Diameter (m)	Stack Exit Velocity (m/s)	Stack Height Above Grade (m)	Stack Height Above Roof (m)	Source Coordinates X (m)	Source Coordinates Y (m)	Contaminant	CAS Number	Emission Rate (g/s)	Emission Rate (g/m2-s)	Averaging Period (hours)	Emission Estimating Technique [2]	Emissions Data Quality [3]	% of Overall Emissions (%)
Niagara Biosolids Facility																		
BIOFILTR	AREA	Dryer Flue Gas	22.2	36	65.0 m x 8.1 m	0.03	1.52	N/A	648277	4776993	Nitrogen Oxides (NOx)	10102-44-0	8.56E-03	1.63E-05	10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	1.33E-03	2.53E-06	7446-09-5	EF	Above-Average	<1%
SILO_1	POINT	Silo #1 Bin Vent [4]	0.7	20	0.6x0.6	17.5	15	2.4	648324	4776920	TSP	n/a - TSP	2.00E-03		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	1.33E-03		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	2.00E-04		n/a - PM2.5	EF	Average	<1%
SILO_2	POINT	Silo #2 Bin Vent [4]	0.7	20	0.6x0.6	17.5	15	2.4	648324	4776915	TSP	n/a - TSP	2.00E-03		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	1.33E-03		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	2.00E-04		n/a - PM2.5	EF	Average	<1%
HEATING	VOLUME	Natural Gas Fired Comfort Heating	n/a	n/a	n/a	n/a	n/a	n/a	648313	4776920	Nitrogen Oxides (NOx)	10102-44-0	1.51E-02		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	9.04E-05		7446-09-5	EF	Above-Average	<1%
											TSP	n/a - TSP	1.15E-03		n/a - TSP	EF	Above-Average	<1%
											PM10	n/a - PM10	1.15E-03		n/a - PM10	EF	Above-Average	<1%
											PM2.5	n/a - PM2.5	1.15E-03		n/a - PM2.5	EF	Above-Average	<1%
MO_GEN	POINT	55 kW Natural Gas Fired Emergency Generator	0.2	427	0.15	11.32	4	1	648467	4777049	Nitrogen Oxides (NOx)	10102-44-0	1.69E-01		10102-44-0	EF	Above-Average	3%
											Sulphur Dioxide (SO2)	7446-09-5	1.92E-03		7446-09-5	EF	Above-Average	<1%
											TSP	n/a - TSP	2.43E-02		n/a - TSP	EF	Above-Average	4%
											PM10	n/a - PM10	2.43E-02		n/a - PM10	EF	Above-Average	4%
											PM2.5	n/a - PM2.5	2.43E-02		n/a - PM2.5	EF	Above-Average	5%
BOILERS	VOLUME	Two 650,000 MBTU natural gas fired boilers	0.172	175	n/a	n/a	n/a	n/a	648448	4777095	Nitrogen Oxides (NOx)	10102-44-0	1.61E-02		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	9.63E-05		7446-09-5	EF	Above-Average	<1%
											TSP	n/a - TSP	1.22E-03		n/a - TSP	EF	Above-Average	<1%
											PM10	n/a - PM10	1.22E-03		n/a - PM10	EF	Above-Average	<1%
											PM2.5	n/a - PM2.5	1.22E-03		n/a - PM2.5	EF	Above-Average	<1%
DROPOFF	VOLUME	Receiving Leaf & yard Material in Open Windrc	n/a	n/a	n/a	n/a	n/a	n/a	648120	4776951	TSP	n/a - TSP	7.86E-03		n/a - TSP	EF	Average	1%
											PM10	n/a - PM10	3.44E-03		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	5.21E-04		n/a - PM2.5	EF	Average	<1%
MOVE1	VOLUME	Movement of Material into Windrow (Open Wi	n/a	n/a	n/a	n/a	n/a	n/a	648187	4776964	TSP	n/a - TSP	7.86E-03		n/a - TSP	EF	Average	1%
											PM10	n/a - PM10	3.44E-03		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	5.21E-04		n/a - PM2.5	EF	Average	<1%
MOVE2	VOLUME	Movement of Material into Windrow (GORE are	n/a	n/a	n/a	n/a	n/a	n/a	648280	4776647	TSP	n/a - TSP	7.86E-03		n/a - TSP	EF	Average	1%
											PM10	n/a - PM10	3.44E-03		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	5.21E-04		n/a - PM2.5	EF	Average	<1%
SCRTSP	VOLUME	Drop at Screening Area	n/a	n/a	n/a	n/a	n/a	n/a	648178	4776807	TSP	n/a - TSP	7.86E-03		n/a - TSP	EF	Average	1%
											PM10	n/a - PM10	3.44E-03		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	5.21E-04		n/a - PM2.5	EF	Average	<1%
SCREEN1	VOLUME	Screening Emissions	n/a	n/a	n/a	n/a	n/a	n/a	648259	4776746	TSP	n/a - TSP	1.22E-02		n/a - TSP	EF	Average	2%
											PM10	n/a - PM10	1.22E-02		n/a - PM10	EF	Average	2%
											PM2.5	n/a - PM2.5	1.83E-03		n/a - PM2.5	EF	Average	<1%
SCREEN2	VOLUME	Screening Emissions	n/a	n/a	n/a	n/a	n/a	n/a	648281	4776753	TSP	n/a - TSP	1.22E-02		n/a - TSP	EF	Average	2%
											PM10	n/a - PM10	1.22E-02		n/a - PM10	EF	Average	2%
											PM2.5	n/a - PM2.5	1.83E-03		n/a - PM2.5	EF	Average	<1%
SCREEN3	VOLUME	Screening Emissions	n/a	n/a	n/a	n/a	n/a	n/a	648135	4776839	TSP	n/a - TSP	2.29E-02		n/a - TSP	EF	Average	4%
											PM10	n/a - PM10	2.29E-02		n/a - PM10	EF	Average	4%
											PM2.5	n/a - PM2.5	3.44E-03		n/a - PM2.5	EF	Average	<1%
SCREEN4	VOLUME	Screening Emissions	n/a	n/a	n/a	n/a	n/a	n/a	648139	4776949	TSP	n/a - TSP	2.29E-02		n/a - TSP	EF	Average	4%
											PM10	n/a - PM10	2.29E-02		n/a - PM10	EF	Average	4%
											PM2.5	n/a - PM2.5	3.44E-03		n/a - PM2.5	EF	Average	<1%
FSTPL	VOLUME	Drop at Final Stockpile	n/a	n/a	n/a	n/a	n/a	n/a	648140	4776734	TSP	n/a - TSP	7.86E-03		n/a - TSP	EF	Average	1%
											PM10	n/a - PM10	3.44E-03		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	5.21E-04		n/a - PM2.5	EF	Average	<1%
FP	VOLUME	Loading of Material for Shipment Off-Site	n/a	n/a	n/a	n/a	n/a	n/a	648138	4776765	TSP	n/a - TSP	7.86E-03		n/a - TSP	EF	Average	1%
											PM10	n/a - PM10	3.44E-03		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	5.21E-04		n/a - PM2.5	EF	Average	<1%
GRINDR	VOLUME	Fugitive emissions from Grinder [7]	n/a	n/a	n/a	n/a	n/a	n/a	648136	4776795	TSP	n/a - TSP	2.29E-02		n/a - TSP	EF	Average	4%
											PM10	n/a - PM10	2.29E-02		n/a - PM10	EF	Average	4%
											PM2.5	n/a - PM2.5	3.44E-03		n/a - PM2.5	EF	Average	<1%

Appendix G1: Source Summary Tables - Dust, Landfill Gas and Combustion By-Products (Do Nothing Scenario - Year 2047)

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Source ID [1]	Source Type [1]	Source Description	Source Data								Emission Data							
			Stack Volumetric Flow Rate (Am^3/s)	Stack Exit Gas Temp. (°C)	Stack Inner Diameter (m)	Stack Exit Velocity (m/s)	Stack Height Above Grade (m)	Stack Height Above Roof (m)	Source Coordinates X (m)	Source Coordinates Y (m)	Contaminant	CAS Number	Emission Rate (g/s)	Emission Rate (g/m2-s)	Averaging Period (hours)	Emission Estimating Technique [2]	Emissions Data Quality [3]	% of Overall Emissions (%)
GRINDR2_N	VOLUME	Fugitive emissions from Grinder #2 [6]	n/a	n/a	n/a	n/a	n/a	n/a	648119	4776971	TSP	n/a - TSP	2.29E-02		n/a - TSP	EF	Average	4%
											PM10	n/a - PM10	2.29E-02		n/a - PM10	EF	Average	4%
											PM2.5	n/a - PM2.5	3.44E-03		n/a - PM2.5	EF	Average	<1%
CONV_PM	VOLUME	Stacking Conveyor Fugitive Emissions [7]	n/a	n/a	n/a	n/a	n/a	n/a	648281	4776764	TSP	n/a - TSP	8.22E-04		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	5.11E-04		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	1.44E-04		n/a - PM2.5	EF	Average	<1%
CONV_PM2_N	VOLUME	Stacking Conveyor #2 Fugitive Emissions - North Location [6]	n/a	n/a	n/a	n/a	n/a	n/a	648126	4776966	TSP	n/a - TSP	8.22E-04		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	5.11E-04		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	1.44E-04		n/a - PM2.5	EF	Average	<1%
GSTK	POINT	Grinder Engine - 860 kW, Diesel Fired [7]	2.7	575	0.2	86	5.5	1.5	648135	4776792	Nitrogen Oxides (NOx)	10102-44-0	9.45E-01		10102-44-0	EF	Marginal	15%
											Sulphur Dioxide (SO2)	7446-09-5	1.05E-01		7446-09-5	EF	Marginal	3%
											TSP	n/a - TSP	5.55E-02		n/a - TSP	EF	Marginal	9%
											PM10	n/a - PM10	5.55E-02		n/a - PM10	EF	Marginal	10%
											PM2.5	n/a - PM2.5	5.55E-02		n/a - PM2.5	EF	Marginal	12%
GSTK2_N	POINT	Grinder #2 Engine 860 kW, Diesel Fired - North Location [6]	2.7	575	0.2	86	5.5	1.5	648119	4776968	Nitrogen Oxides (NOx)	10102-44-0	9.45E-01		10102-44-0	EF	Marginal	15%
											Sulphur Dioxide (SO2)	7446-09-5	1.05E-01		7446-09-5	EF	Marginal	3%
											TSP	n/a - TSP	5.55E-02		n/a - TSP	EF	Marginal	9%
											PM10	n/a - PM10	5.55E-02		n/a - PM10	EF	Marginal	10%
											PM2.5	n/a - PM2.5	5.55E-02		n/a - PM2.5	EF	Marginal	12%
GENC	POINT	Generator #1 600 kW, Diesel Fired	2.4	553	0.25	48	3.5	0.5	648169	4776734	Nitrogen Oxides (NOx)	10102-44-0	2.43E+00		10102-44-0	EF	Marginal	37%
											Sulphur Dioxide (SO2)	7446-09-5	1.23E-03		7446-09-5	EF	Marginal	<1%
											TSP	n/a - TSP	1.80E-02		n/a - TSP	EF	Marginal	3%
											PM10	n/a - PM10	1.48E-02		n/a - PM10	EF	Marginal	3%
											PM2.5	n/a - PM2.5	1.24E-02		n/a - PM2.5	EF	Marginal	3%
SCREEN1C	POINT	Screen #1 Engine 130 kW, Diesel Fired	0.5	427	0.12	42	4	0.5	648258	4776746	Nitrogen Oxides (NOx)	10102-44-0	2.93E-01		10102-44-0	EF	Marginal	5%
											Sulphur Dioxide (SO2)	7446-09-5	1.94E-02		7446-09-5	EF	Marginal	<1%
											TSP	n/a - TSP	2.08E-02		n/a - TSP	EF	Marginal	3%
											PM10	n/a - PM10	2.08E-02		n/a - PM10	EF	Marginal	4%
											PM2.5	n/a - PM2.5	2.08E-02		n/a - PM2.5	EF	Marginal	5%
SCREEN2C	POINT	Screen #2 Engine 130 kW, Diesel Fired	0.5	427	0.12	42	4	0.5	648281	4776753	Nitrogen Oxides (NOx)	10102-44-0	2.93E-01		10102-44-0	EF	Marginal	5%
											Sulphur Dioxide (SO2)	7446-09-5	1.94E-02		7446-09-5	EF	Marginal	<1%
											TSP	n/a - TSP	2.08E-02		n/a - TSP	EF	Marginal	3%
											PM10	n/a - PM10	2.08E-02		n/a - PM10	EF	Marginal	4%
											PM2.5	n/a - PM2.5	2.08E-02		n/a - PM2.5	EF	Marginal	5%
SCREEN3C	POINT	Screen #3 Engine 130 kW, Diesel Fired	0.5	427	0.12	42	4	0.5	648134	4776839	Nitrogen Oxides (NOx)	10102-44-0	2.93E-01		10102-44-0	EF	Marginal	5%
											Sulphur Dioxide (SO2)	7446-09-5	1.94E-02		7446-09-5	EF	Marginal	<1%
											TSP	n/a - TSP	2.08E-02		n/a - TSP	EF	Marginal	3%
											PM10	n/a - PM10	2.08E-02		n/a - PM10	EF	Marginal	4%
											PM2.5	n/a - PM2.5	2.08E-02		n/a - PM2.5	EF	Marginal	5%
SCREEN4C	POINT	Screen #4 Engine 60 kW, Diesel Fired	0.24	525	0.1	31	4	0.5	648140	4776949	Nitrogen Oxides (NOx)	10102-44-0	1.35E-01		10102-44-0	EF	Marginal	2%
											Sulphur Dioxide (SO2)	7446-09-5	8.94E-03		7446-09-5	EF	Marginal	<1%
											TSP	n/a - TSP	9.59E-03		n/a - TSP	EF	Marginal	2%
											PM10	n/a - PM10	9.59E-03		n/a - PM10	EF	Marginal	2%
											PM2.5	n/a - PM2.5	9.59E-03		n/a - PM2.5	EF	Marginal	2%
CONVEYOR	POINT	Stacking Conveyor Engine 60 kW, Diesel Fired [7]	0.24	525	0.1	31	2	n/a	648281	4776764	Nitrogen Oxides (NOx)	10102-44-0	6.60E-02		10102-44-0	EF	Marginal	1%
											Sulphur Dioxide (SO2)	7446-09-5	4.36E-03		7446-09-5	EF	Marginal	<1%
											TSP	n/a - TSP	4.68E-03		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	4.68E-03		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	4.68E-03		n/a - PM2.5	EF	Marginal	1%
CONVEY2N	POINT	Stacking Conveyor #2 Engine 60 kW, Diesel Fired [6]	0.24	525	0.1	31	2	n/a	648126	4776967	Nitrogen Oxides (NOx)	10102-44-0	6.60E-02		10102-44-0	EF	Marginal	1%
											Sulphur Dioxide (SO2)	7446-09-5	4.36E-03		7446-09-5	EF	Marginal	<1%
											TSP	n/a - TSP	4.68E-03		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	4.68E-03		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	4.68E-03		n/a - PM2.5	EF	Marginal	1%
R_BLDG	VOLUME	Processing Building - Operation of Diesel-Fired Heater	0.049	175	0.14	3.2	1.2	n/a	648214	4776739	Nitrogen Oxides (NOx)	10102-44-0	6.55E-03		10102-44-0	EF	Marginal	<1%
											Sulphur Dioxide (SO2)	7446-09-5	2.33E-02		7446-09-5	EF	Above-Average	<1%
											TSP	n/a - TSP	1.08E-03		n/a - TSP	EF	Above-Average	<1%
											PM10	n/a - PM10	6.55E-04		n/a - PM10	EF	Above-Average	<1%
											PM2.5	n/a - PM2.5	4.26E-04		n/a - PM2.5	EF	Above-Average	<1%

Appendix G1: Source Summary Tables - Dust, Landfill Gas and Combustion By-Products (Do Nothing Scenario - Year 2047)

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Source ID [1]	Source Type [1]	Source Description	Source Data								Emission Data							
			Stack Volumetric Flow Rate (Am^3/s)	Stack Exit Gas Temp. (°C)	Stack Inner Diameter (m)	Stack Exit Velocity (m/s)	Stack Height Above Grade (m)	Stack Height Above Roof (m)	Source Coordinates X (m)	Source Coordinates Y (m)	Contaminant	CAS Number	Emission Rate (g/s)	Emission Rate (g/m2-s)	Averaging Period (hours)	Emission Estimating Technique [2]	Emissions Data Quality [3]	% of Overall Emissions (%)
PR_CF1	LINE_VOLUME	Paved Road at Compost Facility - Inbound and Outbound Delivery	n/a	n/a	n/a	n/a	n/a	n/a	648346	4776573	Nitrogen Oxides (NOx)	10102-44-0	5.31E-04		10102-44-0	ST	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	3.60E-06		7446-09-5	ST	Above-Average	<1%
											Benzene	71-43-2	4.92E-07		71-43-2	ST	Above-Average	<1%
											TSP	n/a - TSP	3.23E-02		n/a - TSP	ST	Above-Average	5%
											PM10	n/a - PM10	4.23E-03		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	1.03E-03		n/a - PM2.5	ST	Above-Average	<1%
UR_CF2	LINE_VOLUME	Unpaved Road at Compost Facility - Inbound and Outbound Delivery	n/a	n/a	n/a	n/a	n/a	n/a	648114	4776735	Nitrogen Oxides (NOx)	10102-44-0	2.67E-04		10102-44-0	ST	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	3.21E-06		7446-09-5	ST	Above-Average	<1%
											Benzene	71-43-2	4.91E-07		71-43-2	ST	Above-Average	<1%
											TSP	n/a - TSP	3.00E-03		n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	5.64E-04		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	6.92E-05		n/a - PM2.5	ST	Above-Average	<1%
EQ_CF	VOLUME	Tailpipe Emission of Onsite Equipment at Compost Facility	n/a	n/a	n/a	n/a	n/a	n/a	648158	4776735	Nitrogen Oxides (NOx)	10102-44-0	4.96E-04		10102-44-0	ST	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	6.47E-06		7446-09-5	ST	Above-Average	<1%
											Benzene	71-43-2	1.00E-06		71-43-2	ST	Above-Average	<1%
											TSP	n/a - TSP	2.81E-05		n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	2.81E-05		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	2.81E-05		n/a - PM2.5	ST	Above-Average	<1%
Walker Environmental Group Inc. –																		
LEAPOND1	AREA	Existing Leachate Pond #1	- -	- -	- -	- -	- -	- -	648441	4777248	Hydrogen sulfide	7783-06-4	6.24E-06	3.59E-09	7783-06-4	ST	Above-Average	<1%
											Benzene	71-43-2	4.67E-06	2.69E-09	71-43-2	ST	Above-Average	<1%
											1,1,2-Trichloroethane	79-00-5	1.23E-06	7.05E-10	79-00-5	ST	Above-Average	<1%
											Vinyl chloride	75-01-4	5.69E-07	3.27E-10	75-01-4	ST	Above-Average	<1%
LEAPOND2	AREA	Existing Leachate Pond #2	- -	- -	- -	- -	- -	- -	648787	4777544	Hydrogen sulfide	7783-06-4	6.96E-06	3.59E-09	7783-06-4	ST	Above-Average	<1%
											Benzene	71-43-2	5.21E-06	2.69E-09	71-43-2	ST	Above-Average	<1%
											1,1,2-Trichloroethane	79-00-5	1.37E-06	7.05E-10	79-00-5	ST	Above-Average	<1%
											Vinyl chloride	75-01-4	6.34E-07	3.27E-10	75-01-4	ST	Above-Average	<1%
LEAPOND3	AREA	Existing Leachate Pond #3	- -	- -	- -	- -	- -	- -	648856	4777523	Hydrogen sulfide	7783-06-4	8.27E-06	3.59E-09	7783-06-4	ST	Above-Average	<1%
											Benzene	71-43-2	6.19E-06	2.69E-09	71-43-2	ST	Above-Average	<1%
											1,1,2-Trichloroethane	79-00-5	1.62E-06	7.05E-10	79-00-5	ST	Above-Average	<1%
											Vinyl chloride	75-01-4	7.53E-07	3.27E-10	75-01-4	ST	Above-Average	<1%
EASTLF_FC	AREA_POLY	Fugitive Emissions from Areas under Final Cover at East Landfill	- -	- -	- -	- -	- -	- -	648369	4776777	Hydrogen sulfide	7783-06-4	8.39E-04	1.41E-09	7783-06-4	ST	Above-Average	7%
											Benzene	71-43-2	4.80E-05	8.08E-11	71-43-2	ST	Above-Average	6%
											1,1,2-Trichloroethane	79-00-5	1.65E-04	2.78E-10	79-00-5	ST	Above-Average	34%
											Vinyl chloride	75-01-4	7.64E-05	1.29E-10	75-01-4	ST	Above-Average	29%
SLF_FC	AREA_POLY	Fugitive Emissions from Areas under Final Cover at South Landfill Phase 1	- -	- -	- -	- -	- -	- -	648547	4775839	Hydrogen sulfide	7783-06-4	5.00E-04	9.84E-10	7783-06-4	ST	Above-Average	4%
											Benzene	71-43-2	1.17E-04	2.30E-10	71-43-2	ST	Above-Average	14%
											1,1,2-Trichloroethane	79-00-5	2.64E-04	5.21E-10	79-00-5	ST	Above-Average	54%
											Vinyl chloride	75-01-4	9.22E-05	1.82E-10	75-01-4	ST	Above-Average	35%
FLARE1	POINT	Landfill Gas Flare	7.6	871	3.0	1.1	12.2	n/a	648601	4775958	Nitrogen Oxides (NOx)	10102-44-0	9.80E-02		10102-44-0	EF	Above-Average	2%
											Sulphur Dioxide (SO2)	7446-09-5	1.05E+00		7446-09-5	MB	Average	27%
											TSP	n/a - TSP	4.34E-02		n/a - TSP	EF	Marginal	7%
											PM10	n/a - PM10	4.34E-02		n/a - PM10	EF	Marginal	8%
											PM2.5	n/a - PM2.5	4.34E-02		n/a - PM2.5	EF	Marginal	10%
											Hydrogen Sulfide	7783-06-4	7.01E-03		7783-06-4	EF	Above-Average	57%
											Vinyl Chloride	75-01-4	5.74E-06		75-01-4	EF	Above-Average	2%
											Benzene	71-43-2	4.05E-05		71-43-2	EF	Above-Average	5%
											1,1,2-Trichloroethane	79-00-5	3.29E-06		79-00-5	EF	Above-Average	<1%
FLARE2	POINT	Landfill Gas Flare	0.0	871	4.0	0.0	15.2	n/a	648607	4775953	Nitrogen Oxides (NOx)	10102-44-0	0.00E+00		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	0.00E+00		7446-09-5	MB	Average	<1%
											TSP	n/a - TSP	0.00E+00		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	0.00E+00		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	0.00E+00		n/a - PM2.5	EF	Marginal	<1%
											Hydrogen Sulfide	7783-06-4	0.00E+00		7783-06-4	EF	Above-Average	<1%
											Vinyl Chloride	75-01-4	0.00E+00		75-01-4	EF	Above-Average	<1%
											Benzene	71-43-2	0.00E+00		71-43-2	EF	Above-Average	<1%
											1,1,2-Trichloroethane	79-00-5	0.00E+00		79-00-5	EF	Above-Average	<1%

Appendix G1: Source Summary Tables - Dust, Landfill Gas and Combustion By-Products (Do Nothing Scenario - Year 2047)

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Source ID [1]	Source Type [1]	Source Description	Source Data								Emission Data							
			Stack Volumetric Flow Rate (Am^3/s)	Stack Exit Gas Temp. (°C)	Stack Inner Diameter (m)	Stack Exit Velocity (m/s)	Stack Height Above Grade (m)	Stack Height Above Roof (m)	Source Coordinates X (m)	Source Coordinates Y (m)	Contaminant	CAS Number	Emission Rate (g/s)	Emission Rate (g/m2-s)	Averaging Period (hours)	Emission Estimating Technique [2]	Emissions Data Quality [3]	% of Overall Emissions (%)
FLARE3	POINT	Landfill Gas Flare	0.0	871	4.0	0.0	15.2	n/a	648613	4775949	Nitrogen Oxides (NOx)	10102-44-0	0.00E+00		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	0.00E+00		7446-09-5	MB	Average	<1%
											TSP	n/a - TSP	0.00E+00		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	0.00E+00		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	0.00E+00		n/a - PM2.5	EF	Marginal	<1%
											Hydrogen Sulfide	7783-06-4	0.00E+00		7783-06-4	EF	Above-Average	<1%
											Vinyl Chloride	75-01-4	0.00E+00		75-01-4	EF	Above-Average	<1%
											Benzene	71-43-2	0.00E+00		71-43-2	EF	Above-Average	<1%
											1,1,2-Trichloroethane	79-00-5	0.00E+00		79-00-5	EF	Above-Average	<1%
PGEN1	POINT	82 bhp Portable Diesel Fired Generator	0.17	510	0.08	33.8	2.5	n/a	648429	4775836	Nitrogen Oxides (NOx)	10102-44-0	8.72E-02		10102-44-0	EF	Above-Average	1%
											Sulphur Dioxide (SO2)	7446-09-5	1.70E-02		7446-09-5	EF	Marginal	<1%
											TSP	n/a - TSP	7.30E-03		n/a - TSP	EF	Above-Average	1%
											PM10	n/a - PM10	7.30E-03		n/a - PM10	EF	Above-Average	1%
											PM2.5	n/a - PM2.5	7.30E-03		n/a - PM2.5	EF	Above-Average	2%
Integrated Gas Recovery Services Ir																		
GEN1	POINT	1,064 kW Landfill Gas Fired Generator	2.7	509	0.25	54.0	6.0	3.0	648553	4775929	Nitrogen Oxides (NOx)	10102-44-0	4.49E-01		10102-44-0	EF	Above-Average	7%
											Sulphur Dioxide (SO2)	7446-09-5	6.84E-02		7446-09-5	MB	Average	2%
											TSP	n/a - TSP	6.82E-02		n/a - TSP	EF	Marginal	11%
											PM10	n/a - PM10	6.82E-02		n/a - PM10	EF	Marginal	12%
											PM2.5	n/a - PM2.5	6.82E-02		n/a - PM2.5	EF	Marginal	15%
											Hydrogen Sulfide	7783-06-4	3.87E-03		7783-06-4	EF	Above-Average	32%
											Vinyl Chloride	75-01-4	3.17E-06		75-01-4	EF	Above-Average	1%
											Benzene	71-43-2	2.23E-05		71-43-2	EF	Above-Average	3%
											1,1,2-Trichloroethane	79-00-5	1.82E-06		79-00-5	EF	Above-Average	<1%
GEN2	POINT	1,064 kW Landfill Gas Fired Generator	0.0	509	0.25	0.0	6.0	3.0	648554	4775922	Nitrogen Oxides (NOx)	10102-44-0	0.00E+00		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	6.84E-02		7446-09-5	MB	Average	2%
											TSP	n/a - TSP	0.00E+00		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	0.00E+00		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	0.00E+00		n/a - PM2.5	EF	Marginal	<1%
											Hydrogen Sulfide	7783-06-4	0.00E+00		7783-06-4	EF	Above-Average	<1%
											Vinyl Chloride	75-01-4	0.00E+00		75-01-4	EF	Above-Average	<1%
											Benzene	71-43-2	0.00E+00		71-43-2	EF	Above-Average	<1%
											1,1,2-Trichloroethane	79-00-5	0.00E+00		79-00-5	EF	Above-Average	<1%
GEN3	POINT	1,064 kW Landfill Gas Fired Generator	0.0	509	0.25	0.0	6.0	3.0	648558	4775914	Nitrogen Oxides (NOx)	10102-44-0	0.00E+00		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	0.00E+00		7446-09-5	MB	Average	<1%
											TSP	n/a - TSP	0.00E+00		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	0.00E+00		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	0.00E+00		n/a - PM2.5	EF	Marginal	<1%
											Hydrogen Sulfide	7783-06-4	0.00E+00		7783-06-4	EF	Above-Average	<1%
											Vinyl Chloride	75-01-4	0.00E+00		75-01-4	EF	Above-Average	<1%
											Benzene	71-43-2	0.00E+00		71-43-2	EF	Above-Average	<1%
											1,1,2-Trichloroethane	79-00-5	0.00E+00		79-00-5	EF	Above-Average	<1%
GEN4	POINT	1,064 kW Landfill Gas Fired Generator	0.0	509	0.25	0.0	6.0	3.0	648547	4775938	Nitrogen Oxides (NOx)	10102-44-0	0.00E+00		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	0.00E+00		7446-09-5	MB	Average	<1%
											TSP	n/a - TSP	0.00E+00		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	0.00E+00		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	0.00E+00		n/a - PM2.5	EF	Marginal	<1%
											Hydrogen Sulfide	7783-06-4	0.00E+00		7783-06-4	EF	Above-Average	<1%
											Vinyl Chloride	75-01-4	0.00E+00		75-01-4	EF	Above-Average	<1%
											Benzene	71-43-2	0.00E+00		71-43-2	EF	Above-Average	<1%
											1,1,2-Trichloroethane	79-00-5	0.00E+00		79-00-5	EF	Above-Average	<1%
SILFLAR2	POINT	Siloxane Flare 2 (new)	0.38	871	1.2	0.33	7.8	n/a	648530	4775914	Nitrogen Oxides (NOx)	10102-44-0	1.02E-02		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	1.48E-02		7446-09-5	MB	Average	<1%
											TSP	n/a - TSP	2.24E-03		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	2.24E-03		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	2.24E-03		n/a - PM2.5	EF	Marginal	<1%

Appendix G1: Source Summary Tables - Dust, Landfill Gas and Combustion By-Products (Do Nothing Scenario - Year 2047)

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Source ID [1]	Source Type [1]	Source Description	Source Data								Emission Data							
			Stack Volumetric Flow Rate (Am^3/s)	Stack Exit Gas Temp. (°C)	Stack Inner Diameter (m)	Stack Exit Velocity (m/s)	Stack Height Above Grade (m)	Stack Height Above Roof (m)	Source Coordinates X (m)	Source Coordinates Y (m)	Contaminant	CAS Number	Emission Rate (g/s)	Emission Rate (g/m2-s)	Averaging Period (hours)	Emission Estimating Technique [2]	Emissions Data Quality [3]	% of Overall Emissions (%)
RNGFLARE	POINT	RNG Elevated Flare [8]	0.5	871	0.4	3.5	15.13	n/a	648541	4775766	Nitrogen Oxides (NOx)	10102-44-0	1.36E-01		10102-44-0	EF	Above-Average	2%
											Sulphur Dioxide (SO2)	7446-09-5	0.00E+00		7446-09-5	MB	Average	<1%
											TSP	n/a - TSP	6.04E-02		n/a - TSP	EF	Marginal	10%
											PM10	n/a - PM10	6.04E-02		n/a - PM10	EF	Marginal	11%
											PM2.5	n/a - PM2.5	6.04E-02		n/a - PM2.5	EF	Marginal	14%
											Hydrogen Sulfide	7783-06-4	0.00E+00		7783-06-4	EF	Above-Average	<1%
											Vinyl Chloride	75-01-4	7.92E-06		75-01-4	EF	Above-Average	3%
											Benzene	71-43-2	5.58E-05		71-43-2	EF	Above-Average	7%
											1,1,2-Trichloroethane	79-00-5	4.54E-06		79-00-5	EF	Above-Average	<1%
RNGTAIL	POINT	RNG Elevated Flare - Tail Gas [8]	0.7	871	0.4	5.1	15.1	n/a	648541	4775766	Sulphur Dioxide (SO2)	7446-09-5	2.01E+00		7446-09-5	MB	Average	52%
TO	POINT	Thermal Oxidizer	4.5	787	1.1	4.7	13.72	n/a	648494	4775921	Nitrogen Oxides (NOx)	10102-44-0	3.57E-02		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	3.54E-01		7446-09-5	MB	Average	9%
											TSP	n/a - TSP	1.04E-02		n/a - TSP	EF	Marginal	2%
											PM10	n/a - PM10	1.04E-02		n/a - PM10	EF	Marginal	2%
											PM2.5	n/a - PM2.5	1.04E-02		n/a - PM2.5	EF	Marginal	2%
											Hydrogen Sulfide	7783-06-4	2.01E-05		7783-06-4	EF	Above-Average	<1%
											Vinyl Chloride	75-01-4	7.63E-05		75-01-4	EF	Above-Average	29%
											Benzene	71-43-2	5.38E-04		71-43-2	EF	Above-Average	64%
											1,1,2-Trichloroethane	79-00-5	4.38E-05		79-00-5	EF	Above-Average	9%
Total																		
Total	- -	Total From all Sources	- -	- -	- -	- -	- -	- -	- -	- -	Nitrogen Oxides (NOx)	10102-44-0	6.50E+00	6.49E+00	0.5, 1, 24	- -	- -	100%
											Sulphur Dioxide (SO2)	7446-09-5	3.89E+00	3.89E+00	1, 8760	- -	- -	100%
											TSP	n/a - TSP	6.34E-01	6.00E-01	24	- -	- -	100%
											PM10	n/a - PM10	5.72E-01	5.67E-01	24	- -	- -	100%
											PM2.5	n/a - PM2.5	4.46E-01	4.45E-01	24	- -	- -	100%
											Hydrogen Sulfide	7783-06-4	1.23E-02	1.09E-02	10 min, 24	- -	- -	100%
											Vinyl Chloride	75-01-4	2.64E-04	9.31E-05	24	- -	- -	100%
											Benzene	71-43-2	8.39E-04	6.58E-04	24	- -	- -	100%
											1,1,2-Trichloroethane	79-00-5	4.87E-04	5.34E-05	24	- -	- -	100%

Notes:

[1] Source ID, Source Type: should provide information on the modelling source type (e.g., Point, Area or Volume Source); the process source or sources within the modelling source (e.g., Process Line #1); and the stack or stacks within each process source.

[2] Emission Estimating Technique Short-Forms are V-ST (Validated Source Test), "ST" (Source Test), EF (Emission Factor), MB (Mass Balance), and EC (Engineering Calculation).

[3] Data Quality Categories: Highest; Above-Average; Average; and Marginal.

[4] These volume sources represent sources of fugitive dust emissions. The emissions from these sources are not ducted through any sort of stack or vent, therefore, no stack parameters are provided for these sources in the source summary table.

[5] ASPH_DC stack height above roof is the stack height above the adjacent dust collector structure.

Appendix G2: H2S and VOC Flux Chamber Sampling Data
Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Results	Units	South Landfill - Interim Cover									South Landfill - Final Cover					
		SOUTH LANDFILL INTERMITTENT COVER AREA #1	SOUTH LANDFILL INTERMITTENT COVER AREA #2	SOUTH LANDFILL INTERMITTENT COVER AREA #3	SOUTH LANDFILL INTERMITTENT COVER AREA #4	SOUTH LANDFILL INTERMITTENT COVER AREA #5	SOUTH LANDFILL INTERMITTENT COVER AREA #6	SOUTH LANDFILL INTERMITTENT COVER AREA #7	SOUTH LANDFILL INTERMITTENT COVER AREA #8	SOUTH LANDFILL INTERMITTENT COVER AREA #9	SOUTH LANDFILL FINAL COVER AREA #1	SOUTH LANDFILL FINAL COVER AREA #2	SOUTH LANDFILL FINAL COVER AREA #3	SOUTH LANDFILL FINAL COVER AREA #4	SOUTH LANDFILL FINAL COVER AREA #5	SOUTH LANDFILL FINAL COVER AREA #6
Hydrogen sulfide	µg/m³	8.8	5.6	5.6	5.6	5.6	5.6	5.8	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
Acetone	µg/m³	14.7	30.6	67.9	11.9	33	8.1	8.6	12.8	21.8	35.4	6.9	57.5	59.4	16.2	16.6
Allyl chloride	µg/m³	0.63	0.63	0.63	0.63	0.63	0.63	0.66	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
Benzene	µg/m³	0.32	0.32	32.9	0.32	1.15	0.32	0.32	0.32	1.85	0.32	0.83	0.32	0.32	0.32	0.32
Benzyl chloride	µg/m³	1	1	1	1	1	1	1.1	1	1	1	1	1	1	1	1
Bromodichloromethane	µg/m³	1.3	1.3	1.3	1.3	1.3	1.3	1.4	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Bromoform	µg/m³	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
Bromomethane	µg/m³	0.78	0.78	0.78	0.78	0.78	0.78	0.82	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
1,3-Butadiene	µg/m³	0.44	0.44	2.85	0.44	0.44	0.44	0.46	0.44	0.77	0.44	0.44	0.44	0.44	0.44	0.44
Carbon disulfide	µg/m³	1.6	1.7	2.3	1.6	1.6	1.6	1.6	1.6	1.6	13.5	1.6	1.6	2.2	1.6	2.9
Carbon tetrachloride	µg/m³	1.26	1.26	1.26	1.26	1.26	1.26	1.32	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26
Chlorobenzene	µg/m³	0.92	0.92	0.92	0.92	0.92	0.92	0.97	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Chloroethane	µg/m³	0.53	3.67	34.3	0.53	1.61	0.53	0.55	0.53	4.8	0.53	0.53	0.53	0.53	0.53	0.53
Chloroform	µg/m³	0.98	0.98	1.46	0.98	0.98	0.98	1.02	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Chloromethane	µg/m³	0.56	2.06	4.38	0.41	1.47	0.41	0.43	0.41	3.49	0.41	0.43	0.56	0.41	0.91	0.7
Cyclohexane	µg/m³	0.69	1.82	86	0.69	1.96	0.69	0.72	0.69	16.6	0.69	0.69	0.89	0.69	0.69	0.69
Dibromochloromethane	µg/m³	1.7	1.7	1.7	1.7	1.7	1.7	1.8	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
1,2-Dibromoethane	µg/m³	1.5	1.5	1.5	1.5	1.5	1.5	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,2-Dichlorobenzene	µg/m³	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
1,3-Dichlorobenzene	µg/m³	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
1,4-Dichlorobenzene	µg/m³	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Dichlorodifluoromethane	µg/m³	1.5	5	18.5	1	2.5	1	1	1	1.9	1	1	1.3	1	1.6	1.5
1,1-Dichloroethane	µg/m³	0.81	0.81	0.81	0.81	0.81	0.81	0.85	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
1,2-Dichloroethane	µg/m³	0.81	0.81	15.2	0.81	0.81	0.81	0.85	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
1,1-Dichloroethylene	µg/m³	0.79	0.79	2.62	0.79	0.79	0.79	0.83	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
cis-1,2-Dichloroethylene	µg/m³	0.79	0.79	204	0.79	7.41	0.79	0.83	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
trans-1,2-Dichloroethylene	µg/m³	0.79	0.79	15.6	0.79	0.79	0.79	0.83	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Dichloromethane	µg/m³	0.69	0.69	9.38	0.69	1.01	0.69	0.73	0.69	0.73	0.69	0.69	0.69	0.69	0.69	0.69
1,2-Dichloropropane	µg/m³	0.9	0.9	2.1	0.9	0.9	0.9	1	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
1,3-Dichloropropylene (cis+trans)	µg/m³	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
cis-1,3-Dichloropropylene	µg/m³	0.9	0.9	0.9	0.9	0.9	0.9	1	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
trans-1,3-Dichloropropylene	µg/m³	0.9	0.9	0.9	0.9	0.9	0.9	1	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
1,2-Dichlorotetrafluoroethane (Freon 114)	µg/m³	1.4	1.4	1.4	1.4	1.4	1.4	1.5	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
1,4-Dioxane	µg/m³	0.72	0.72	0.72	0.72	0.72	0.72	0.76	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
Ethyl acetate	µg/m³	0.76	0.76	12.8	0.83	0.9	0.9	1.01	0.97	0.97	0.9	0.83	0.86	1.3	0.83	1.01
Ethylbenzene	µg/m³	0.43	0.48	70.8	0.43	3.82	0.43	0.43	0.43	2.21	0.43	0.43	0.43	0.43	0.43	0.43
4-Ethyltoluene	µg/m³	1	1	4	1	1	1	1	1	1	1	1	1	1	1	1
n-Heptane	µg/m³	0.82	0.82	240	0.82	8.24	0.82	0.86	0.82	41.4	0.82	0.82	0.82	0.82	0.82	0.82
Hexachlorobutadiene	µg/m³	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
n-Hexane	µg/m³	0.88	0.7	152	0.7	4.69	0.7	0.74	0.7	34	0.7	0.7	0.85	0.7	0.7	0.7
2-Hexanone	µg/m³	4.1	4.1	4.92	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
Isopropanol	µg/m³	12.3	12.3	37.1	12.3	12.3	12.3	12.3	12.3	17	12.3	12.3	12.3	12.3	12.3	12.3
Isopropylbenzene (cumene)	µg/m³	1	1	2.6	2.1	1	1.2	1	2	1	1	1	1	1	1	1
Methyl ethyl ketone (MEK)	µg/m³	1.47	3.21	86.7	1.27	5.99	0.91	0.86	2.06	2.09	3.57	1.3	3.27	2.09	1.74	2.48
Methyl isobutyl ketone (MIBK)	µg/m³	0.82	0.82	9.83	0.82	0.82	0.82	0.86	0.82	1.56	0.82	0.82	0.82	0.82	0.82	0.82
Methyl-tert-butyl ether (MTBE)	µg/m³	0.72	0.72	2.13	0.72	0.72	0.72	0.76	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
Naphthalene	µg/m³	0.94	0.52	0.52	0.52	0.73	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52
Propylene	µg/m³	4.3	37.5	286	0.45	8.4	0.34	0.5	0.55	88.4	1.17	0.52	3.82	0.5	0.81	0.67
Styrene	µg/m³	0.85	0.85	5.88	0.85	0.85	0.85	0.89	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
1,1,2,2-Tetrachloroethane	µg/m³	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Tetrachloroethylene	µg/m³	1.4	1.4	34.6	1.4	1.8	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Tetrahydrofuran	µg/m³	0.59	0.59	23.1	0.59	0.74	0.59	0.62	0.59	0.59	0.65	0.59	0.59	0.59	0.59	0.59
Toluene	µg/m³	1.77	1.77	357	5.46	17.2	4.07	1.09	2.86	5.88	0.87	0.38	2.41	0.6	0.72	0.45
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	µg/m³	1.5	1.5	1.5	1.5	1.5	1.5	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,2,4-Trichlorobenzene	µg/m³	1.5	1.5	1.5	1.5	1.5	1.5	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,1,1-Trichloroethane	µg/m³	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
1,1,2-Trichloroethane	µg/m³	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Trichloroethylene	µg/m³	1.1	1.1	26.8	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Trichlorofluoromethane	µg/m³	1.1	1.1	64	1.1	2.5	1.1	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
1,2,4-Trimethylbenzene	µg/m³	1	1	7.6	1	4.2	1	1	1	1	1	1	1	1	1	1
1,3,5-Trimethylbenzene	µg/m³	1	1	3.7	1	1	1	1	1	1	1	1	1	1	1	1
2,2,4-Trimethylpentane	µg/m³	0.9	1.7	68.2	0.9	1.8	0.9	1	0.9	17.1	0.9	0.9	0.9	0.9	0.9	0.9
Vinyl acetate	µg/m³	17.6	17.6	29.9	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6
Vinyl bromide	µg/m³	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Vinyl chloride	µg/m³	0.51	0.66	120	0.51	3.3	0.51	0.54	0.51	1.46	0.51	0.51	0.51	0.51	0.51	0.51
m+p-Xylene (mixture)	µg/m³	1	1.13	214	0.87	11.6	0.87	1.04	0.87	5.56	0.87	0.87	0.87	0.87	0.87	0.87
o-Xylene	µg/m³	0.43	0.43	61.6	0.43	3.47	0.43	0.43	0.43	1.48	0.43	0.43	0.43	0.43	0.43	0.43
Xylenes, total	µg/m³	1.3	1.6	276	1.3	15.1	1.3	1.5	1.3	7	1.3	1.3	1.3	1.3	1.3	1.3
BTEX, total	µg/m³	2.8	3.8	737	5.5	37.2	4.1	2.6	2.9	17	2.4	2.4	2.4	2.4	2.4	2.4

Notes:
[1] Sampling was conducted on Sep 2-5, 2025 and Sep 29, 2025.
[2] Samples with data below the dection threshold were assumed as the lowest dectection threshold for conservative assessment.

Appendix G2: H2S and VOC Flux Chamber Sampling Data

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Results	Units	East Landfill - Final Cover			South Landfill - Working Face						Waste Soil Stockpile			Leachate Pond		
		EAST LANDFILLL FIANL COVER AREA #7	EAST LANDFILLL FIANL COVER AREA #8	EAST LANDFILLL FIANL COVER AREA #9	SOUTH LANDFILL WORKING FACE #1	SOUTH LANDFILL WORKING FACE #2	SOUTH LANDFILL WORKING FACE #3	SOUTH LANDFILL WORKING FACE #4	SOUTH LANDFILL WORKING FACE #5	SOUTH LANDFILL WORKING FACE #6	SOUTH LANDFILL WASTE SOIL STOCKPILE #1	SOUTH LANDFILL WASTE SOIL STOCKPILE #2	SOUTH LANDFILL WASTE SOIL STOCKPILE #3	SCFLP#1	SCFLP#2	SCFLP#3
Hydrogen sulfide	µg/m³	5.6	5.6	5.6	5.6	5.6	5.6	5.7	5.6	5.6	5.7	5.6	5.6	5.6	5.6	5.6
Acetone	µg/m³	24.9	17.6	17.3	406	1040	205	125	143	1770	14.7	6.6	14.2	1240	603	748
Allyl chloride	µg/m³	0.63	0.63	0.63	3.04	15.6	15.8	15.6	15.7	196	0.63	0.63	0.63	0.63	0.63	0.63
Benzene	µg/m³	0.32	0.32	0.32	3.8	7.99	8.05	7.99	8.02	99.7	0.35	0.42	0.83	4.63	3.61	4.34
Benzyl chloride	µg/m³	1	1	1	1	25.3	26.1	25.9	26	324	1	1	1	1	1	1
Bromodichloromethane	µg/m³	1.3	1.3	1.3	1.3	33.5	33.8	33.5	33.6	419	1.3	1.3	1.3	4.2	2.7	3.1
Bromoform	µg/m³	2.1	2.1	2.1	2.1	51.7	52.2	51.7	51.9	646	2.1	2.1	2.1	2.1	2.1	2.1
Bromomethane	µg/m³	0.78	0.78	0.78	0.78	19.4	19.6	19.4	19.5	243	0.78	0.78	0.78	0.82	0.78	0.78
1,3-Butadiene	µg/m³	0.44	0.44	0.44	0.44	11.1	11.2	11.1	11.1	138	0.44	0.44	0.44	65.9	60.2	76.5
Carbon disulfide	µg/m³	1.7	2.6	1.6	3.4	38.9	39.2	38.9	39.2	486	1.6	1.6	1.6	3.3	3.3	3.7
Carbon tetrachloride	µg/m³	1.26	1.26	1.26	1.26	31.4	31.8	31.4	31.6	393	1.26	1.26	1.26	1.26	1.26	1.26
Chlorobenzene	µg/m³	0.92	0.92	0.92	0.92	23	23.2	23	23.1	288	0.92	0.92	0.92	0.92	0.92	0.92
Chloroethane	µg/m³	0.53	0.53	0.53	0.53	13.2	13.3	13.2	13.2	165	0.53	0.53	0.53	0.58	0.53	1.37
Chloroform	µg/m³	0.98	0.98	0.98	0.98	24.4	24.6	24.4	24.5	305	0.98	0.98	0.98	3.96	3.03	2.54
Chloromethane	µg/m³	0.41	0.41	0.41	1.3	10.3	10.4	10.3	10.4	129	0.47	0.83	0.66	1.42	1.05	5.97
Cyclohexane	µg/m³	0.69	0.69	0.69	3.51	17.2	17.4	17.2	17.3	215	0.69	0.69	0.69	0.69	0.69	0.69
Dibromochloromethane	µg/m³	1.7	1.7	1.7	1.7	42.6	43	42.6	42.8	532	1.7	1.7	1.7	4.2	3.2	4.3
1,2-Dibromoethane	µg/m³	1.5	1.5	1.5	1.5	38.4	38.8	38.4	38.6	480	1.5	1.5	1.5	1.5	1.5	1.5
1,2-Dichlorobenzene	µg/m³	1.2	1.2	1.2	1.2	30.1	30.4	30.1	30.2	376	1.2	1.2	1.2	1.2	1.2	1.2
1,3-Dichlorobenzene	µg/m³	1.2	1.2	1.2	1.2	30.1	30.4	30.1	30.2	376	1.2	1.2	1.2	1.2	1.2	1.2
1,4-Dichlorobenzene	µg/m³	1.2	1.2	1.2	1.2	30.1	30.4	30.1	30.2	376	1.2	1.2	1.2	1.2	2.3	1.2
Dichlorodifluoromethane	µg/m³	1	1	1	3	24.7	25	24.7	24.8	309	1	2.2	1.7	1	1	1
1,1-Dichloroethane	µg/m³	0.81	0.81	0.81	0.81	20.2	20.4	20.2	20.3	253	0.81	0.81	0.81	0.81	0.81	0.81
1,2-Dichloroethane	µg/m³	0.81	0.81	0.81	3.08	20.2	20.4	20.2	20.3	253	0.81	0.81	0.81	0.81	0.81	0.81
1,1-Dichloroethylene	µg/m³	0.79	0.79	0.79	0.79	19.8	20	19.8	19.9	248	0.79	0.79	0.79	0.79	0.79	0.79
cis-1,2-Dichloroethylene	µg/m³	0.79	0.79	0.79	0.79	19.8	20	19.8	19.9	248	0.79	0.79	0.79	0.79	0.79	0.79
trans-1,2-Dichloroethylene	µg/m³	0.79	0.79	0.79	0.79	19.8	20	19.8	19.9	248	0.79	0.79	0.79	0.79	0.79	0.79
Dichloromethane	µg/m³	0.69	0.69	0.69	2.43	24.2	17.5	17.4	17.4	217	0.69	0.69	0.69	0.9	0.73	0.69
1,2-Dichloropropane	µg/m³	0.9	0.9	0.9	0.9	23.1	23.3	23.1	23.2	289	0.9	0.9	0.9	0.9	0.9	0.9
1,3-Dichloropropylene (cis+trans)	µg/m³	1.8	1.8	1.8	1.8	45.4	45.8	45.4	45.6	567	1.8	1.8	1.8	1.8	1.8	1.8
cis-1,3-Dichloropropylene	µg/m³	0.9	0.9	0.9	0.9	22.7	22.9	22.7	22.8	284	0.9	0.9	0.9	0.9	0.9	0.9
trans-1,3-Dichloropropylene	µg/m³	0.9	0.9	0.9	0.9	22.7	22.9	22.7	22.8	284	0.9	0.9	0.9	0.9	0.9	0.9
1,2-Dichlorotetrafluoroethane (Freon 114)	µg/m³	1.4	1.4	1.4	1.4	35	35.3	35	35.1	437	1.4	1.4	1.4	1.4	1.4	1.4
1,4-Dioxane	µg/m³	0.72	0.72	0.72	1.4	18	18.2	18	18.1	225	0.72	0.72	0.72	0.72	8.14	0.79
Ethyl acetate	µg/m³	0.72	0.72	0.72	117	34.3	18.2	18	18.1	225	0.72	0.72	0.72	8.22	6.85	10.4
Ethylbenzene	µg/m³	0.43	0.43	0.43	13.8	15.9	11.6	10.8	13.4	135	0.43	0.43	0.52	2.82	2.43	3.21
4-Ethyltoluene	µg/m³	1	1	1	5.6	24.6	24.8	24.6	24.7	307	1	1	1	1	1	1
n-Heptane	µg/m³	0.82	0.82	0.82	34.8	20.5	20.7	20.5	20.6	256	0.82	0.82	0.82	9.02	5.74	7.54
Hexachlorobutadiene	µg/m³	2.1	2.1	2.1	2.1	53.3	53.8	53.3	53.5	666	2.1	2.1	2.1	2.1	2.1	2.1
n-Hexane	µg/m³	0.7	0.7	0.7	18.7	17.6	17.8	17.6	17.7	220	0.7	0.7	0.7	7.16	5.18	6.31
2-Hexanone	µg/m³	4.1	4.1	4.1	21.7	102	103	102	103	1280	4.1	4.1	4.1	6.96	4.1	6.56
Isopropanol	µg/m³	12.3	12.3	12.3	84.3	61.4	61.9	61.4	61.7	767	12.3	12.3	12.3	32.9	33.7	23.6
Isopropylbenzene (cumene)	µg/m³	1	1	1	2.2	24.6	24.8	24.6	24.7	307	1	1	1	1	1.9	1
Methyl ethyl ketone (MEK)	µg/m³	2.48	2.09	1.18	1370	964	419	428	351	8400	1.68	1.18	3.21	271	183	295
Methyl isobutyl ketone (MIBK)	µg/m³	0.82	0.82	0.82	11.6	20.5	20.7	20.5	20.6	256	0.82	0.82	0.82	3.11	2.87	2.7
Methyl-tert-butyl ether (MTBE)	µg/m³	0.72	0.72	0.72	0.72	18	18.2	18	18.1	225	0.72	0.72	0.72	0.97	0.76	0.79
Naphthalene	µg/m³	0.52	0.52	0.52	3.77	13.1	13.2	13.1	13.2	164	0.52	0.63	1.68	1.15	4.19	1.05
Propylene	µg/m³	0.41	0.34	0.45	10.1	86.7	12.2	22.5	8.64	108	0.74	1.26	0.98	6.47	6.95	9.07
Styrene	µg/m³	0.85	0.85	0.85	13.9	27.3	25	21.3	21.4	266	0.85	0.85	0.94	3.41	2.17	3.88
1,1,2,2-Tetrachloroethane	µg/m³	1.4	1.4	1.4	1.4	34.3	34.7	34.3	34.5	429	1.4	1.4	1.4	1.4	1.4	1.4
Tetrachloroethylene	µg/m³	1.4	1.4	1.4	4.1	33.9	4480	33.9	40.7	424	1.4	1.4	2.4	1.4	1.4	1.4
Tetrahydrofuran	µg/m³	0.59	0.59	0.59	18	14.7	14.9	14.7	14.8	184	0.59	0.59	0.59	298	439	360
Toluene	µg/m³	0.38	0.83	0.38	41.1	43	24.7	11	16	118	0.9	4.3	6.18	505	320	475
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	µg/m³	1.5	1.5	1.5	1.5	38.3	38.7	38.3	38.5	479	1.5	1.5	1.5	1.5	1.5	1.5
1,2,4-Trichlorobenzene	µg/m³	1.5	1.5	1.5	1.5	37.1	37.5	37.1	37.2	464	1.5	1.5	1.5	1.5	1.5	1.5
1,1,1-Trichloroethane	µg/m³	1.1	1.1	1.1	1.1	27.3	27.6	27.3	27.4	341	1.1	1.1	1.1	1.1	1.1	1.1
1,1,2-Trichloroethane	µg/m³	1.1	1.1	1.1	1.1	27.3	27.6	27.3	27.4	341	1.1	1.1	1.1	1.1	1.1	1.1
Trichloroethylene	µg/m³	1.1	1.1	1.1	1.1	26.9	27.1	26.9	27	336	1.1	1.1	1.1	1.1	1.1	1.1
Trichlorofluoromethane	µg/m³	1.1	1.1	1.1	7.4	28.1	28.4	28.1	28.2	351	1.1	1.1	1.1	1.1	1.1	1.1
1,2,4-Trimethylbenzene	µg/m³	1	1	1	22.8	31.3	24.8	24.6	24.7	307	1	1	1	2.1	4.7	2.3
1,3,5-Trimethylbenzene	µg/m³	1	1	1	6.9	24.6	24.8	24.6	24.7	307	1	1	1	1	3.1	1
2,2,4-Trimethylpentane	µg/m³	0.9	0.9	0.9	10.6	23.4	23.6	23.4	23.4	292	0.9	0.9	0.9	14.5	10.3	13.5
Vinyl acetate	µg/m³	17.6	17.6	17.6	299	141	86.6	44	44.4	549	1.8	1.8	1.8	10.9	10.2	10.9
Vinyl bromide	µg/m³	0.9	0.9	0.9	0.9	21.9	22.1	21.9	22	273	0.9	0.9	0.9	0.9	0.9	0.9
Vinyl chloride	µg/m³	0.51	0.51	0.51	0.51	12.8	12.9	12.8	12.8	160	0.51	0.51	0.51	0.51	0.51	0.51
m+p-Xylene (mixture)	µg/m³	0.87	0.87	0.87	39.1	34.5	30.6	21.7	38	271	0.87	0.87	1.26	8.42	15.4	9.81
o-Xylene	µg/m³	0.43	0.43	0.43	14.2	15.1	12.7	10.8	11.8	135	0.43	0.43	0.43	2.91	12.9	3.6
Xylenes, total	µg/m³	1.3	1.3	1.3	53.3	49.6	43.4	32.6	49.8	407	1.3	1.3	1.3	11.3	28.3	13.4
BTEX, total	µg/m³	2.4	2.4	2.4	112	108	79.6	60.8	79.3	760	2.4	4.7	8.8	524	355	496

Notes:

[1] Sampling was conducted on Sep 2-5, 2025 and Sep 29, 2025.

[2] Samples with data below the dection threshold were assumed as the lowest dectection threshold for conservative assessment.

Appendix G3: H2S and VOC Flux Chamber Data - Emission Flux Rate Calculation

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Contaminant	Average Emisison Flux Rate (g/m2/s) [1] [2]						
	East Landfill - Interim Cover	East Landfill - Final Cover	South Landfill - Working Face	South Landfill - Interim Cover	South Landfill - Final Cover	Waste Soil Stockpile	Leachate Pond
Hydrogen sulfide	3.83E-09	3.59E-09	3.60E-09	3.83E-09	2.50E-09	3.61E-09	3.59E-09
Benzene	2.69E-09	2.05E-10	1.45E-08	2.69E-09	5.83E-10	3.42E-10	2.69E-09
1,1,2-Trichloroethane	7.05E-10	7.05E-10	4.83E-08	7.05E-10	1.32E-09	7.05E-10	7.05E-10
Vinyl chloride	9.12E-09	3.27E-10	2.26E-08	9.12E-09	4.61E-10	3.27E-10	3.27E-10

Note:

[1] Sampling was conducted on Sep 2-5, 2025 and Sep 29, 2025.

[2] Samples with data below the dection threshold were assumed as the lowest dectection threshold for conservative assessment.

[3] Sampling data for interim cover of South Landfill was adopted for interim cover of East Landfill.

Sample Calculation forEast Landfill - Interim Cover (Hydrogen sulfide)

Flow Rate = 5 L/min

Flux chamber area = 0.13 m^2

Average Hydrogen sulfide concentration = 5.6 µg/m^3

Emission flux rate =

$$\frac{5.6\ \mu g}{1\ m^3} \times \frac{1\ g}{1000000\ \mu g} \times \frac{5\ L}{1\ min} \times \frac{1\ m^3}{1000\ L} \times \frac{1\ min}{60\ s} \times \frac{}{0.13\ m^2} = 3.59E\text{-}09\ g/s$$

Appendix G4: Landfill Gas Sampling Data

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Results	CAS Number	Molecular Weight	CANISTER 1	CANISTER 2	Units	Maximum (%)	AVG (%)
Matrix Gases and CH4							
%v/v Dry Basis (Correct)							
O2 %			1.79%	1.07%	%	1.79%	1.43%
N2 %			99.16%	99.12%	%	99.16%	99.14%
CO2%			34.40%	36.40%	%	36.40%	35.40%
CH4 %			48.20%	50.90%	%	50.90%	49.55%

Non Methane Compounds	CAS Number	Molecular Weight	CANISTER 1	CANISTER 2	Units	Maximum (mg/m^3)	AVG (mg/m^3)	AVG (ppm)
Carbon disulfide	75-15-0	76.13	1.97	1.99	mg/m³	1.99	1.98	0.64
Carbonyl sulfide	463-58-1	60.07	4.35	5.18	mg/m³	5.18	4.77	1.94
Dimethyl disulfide	624-92-0	94.19	2.44	2.47	mg/m³	2.47	2.46	0.64
Dimethyl sulfide	75-18-3	62.13	13.60	14.20	mg/m³	14.20	13.90	5.47
Hydrogen sulfide	7783-06-4	34.08	914.00	1140.00	mg/m³	1140.00	1027.00	736.80
Methyl mercaptan	74-93-1	48.10	9.88	9.58	mg/m³	9.88	9.73	4.95
Sulfur, total reduced (as H2S), N	-	34.08	931.00	1160.00	mg/m³	1160.00	1045.50	750.07
Acetone	67-64-1	58.08	26.10	33.00	mg/m³	33.00	29.55	12.44
Allyl chloride	107-05-1	76.52	0.28	0.27	mg/m³	0.28	0.28	0.09
Benzene	71-43-2	78.11	5.02	6.84	mg/m³	6.84	5.93	1.86
Benzyl chloride	100-44-7	126.58	0.46	0.45	mg/m³	0.46	0.46	0.09
Bromodichloromethane	75-27-4	163.82	0.60	0.59	mg/m³	0.60	0.59	0.09
Bromoform	75-25-2	252.73	0.92	0.91	mg/m³	0.92	0.91	0.09
Bromomethane	74-83-9	94.94	0.35	0.34	mg/m³	0.35	0.34	0.09
Butadiene, 1,3-	106-99-0	54.09	0.27	0.31	mg/m³	0.31	0.29	0.13
Carbon tetrachloride	56-23-5	153.81	0.56	0.55	mg/m³	0.56	0.56	0.09
Chlorobenzene	108-90-7	112.56	0.41	0.40	mg/m³	0.41	0.41	0.09
Chloroethane	75-00-3	64.51	0.30	0.34	mg/m³	0.34	0.32	0.12
Chloroform	67-66-3	119.38	0.44	0.43	mg/m³	0.44	0.43	0.09
Chloromethane	74-87-3	50.49	0.18	0.18	mg/m³	0.18	0.18	0.09
Cyclohexane	110-82-7	84.16	2.73	3.42	mg/m³	3.42	3.08	0.89
Dibromochloromethane	124-48-1	208.28	0.76	0.75	mg/m³	0.76	0.75	0.09
Dibromoethane, 1,2-	106-93-4	187.86	0.69	0.67	mg/m³	0.69	0.68	0.09
Dichlorobenzene, 1,2-	95-50-1	147.00	0.54	0.53	mg/m³	0.54	0.53	0.09
Dichlorobenzene, 1,3-	541-73-1	147.00	0.54	0.53	mg/m³	0.54	0.53	0.09
Dichlorobenzene, 1,4-	106-46-7	147.00	0.54	1.48	mg/m³	1.48	1.01	0.17
Dichlorodifluoromethane	75-71-8	120.91	0.98	1.17	mg/m³	1.17	1.08	0.22
Dichloroethane, 1,1-	75-34-3	98.96	0.36	0.36	mg/m³	0.36	0.36	0.09
Dichloroethane, 1,2-	107-06-2	98.96	0.81	1.06	mg/m³	1.06	0.93	0.23
Dichloroethylene, 1,1-	75-35-4	96.94	0.35	0.35	mg/m³	0.35	0.35	0.09
Dichloroethylene, cis-1,2-	156-59-2	96.94	1.32	1.65	mg/m³	1.65	1.49	0.37
Dichloroethylene, trans-1,2-	156-60-5	96.94	0.48	1.33	mg/m³	1.33	0.91	0.23
Dichloromethane	75-09-2	84.93	0.51	0.63	mg/m³	0.63	0.57	0.16
Dichloropropane, 1,2-	78-87-5	112.99	0.41	0.47	mg/m³	0.47	0.44	0.10
Dichloropropylene, cis+trans-1,3	542-75-6	110.97	0.81	1.02	mg/m³	1.02	0.92	0.20
Dichloropropylene, cis-1,3-	10061-01-5	110.97	0.41	0.40	mg/m³	0.41	0.40	0.09
Dichloropropylene, trans-1,3-	10061-02-6	110.97	0.41	0.63	mg/m³	0.63	0.52	0.11
Dichlorotetrafluoroethane, 1,2-	76-14-2	170.92	0.62	0.61	mg/m³	0.62	0.62	0.09
Dioxane, 1,4-	123-91-1	88.11	0.32	0.32	mg/m³	0.32	0.32	0.09
Ethyl acetate	141-78-6	88.11	10.60	16.20	mg/m³	16.20	13.40	3.72
Ethylbenzene	100-41-4	106.17	7.56	26.30	mg/m³	26.30	16.93	3.90
Ethyltoluene, 4-	622-96-8	120.19	0.44	2.75	mg/m³	2.75	1.59	0.32
Heptane, n-	142-82-5	100.20	8.53	12.10	mg/m³	12.10	10.32	2.52
Hexachlorobutadiene	87-68-3	260.74	0.95	0.93	mg/m³	0.95	0.94	0.09
Hexane, n-	110-54-3	86.18	4.12	4.97	mg/m³	4.97	4.55	1.29
Hexanone, 2-	591-78-6	100.16	1.83	11.00	mg/m³	11.00	6.42	1.57
Isopropanol	67-63-0	60.10	21.10	29.70	mg/m³	29.70	25.40	10.33
Isopropylbenzene	98-82-8	120.19	0.46	2.70	mg/m³	2.70	1.58	0.32

Appendix G4: Landfill Gas Sampling Data

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Results	CAS Number	Molecular Weight	CANISTER 1	CANISTER 2	Units	Maximum (%)	AVG (%)
Matrix Gases and CH4							
%v/v Dry Basis (Correct)							
O2 %			1.79%	1.07%	%	1.79%	1.43%
N2 %			99.16%	99.12%	%	99.16%	99.14%
CO2%			34.40%	36.40%	%	36.40%	35.40%
CH4 %			48.20%	50.90%	%	50.90%	49.55%

Non Methane Compounds	CAS Number	Molecular Weight	CANISTER 1	CANISTER 2	Units	Maximum (mg/m^3)	AVG (mg/m^3)	AVG (ppm)
Methyl ethyl ketone [MEK]	78-93-3	72.11	35.10	52.80	mg/m³	52.80	43.95	14.90
Methyl isobutyl ketone [MIBK]	108-10-1	100.16	1.35	3.71	mg/m³	3.71	2.53	0.62
Methyl-tert-butyl ether [MTBE]	1634-04-4	88.15	0.32	0.32	mg/m³	0.32	0.32	0.09
Naphthalene	91-20-3	128.17	0.23	1.83	mg/m³	1.83	1.03	0.20
Propylene	115-07-1	42.08	30.50	37.90	mg/m³	37.90	34.20	19.87
Styrene	100-42-5	104.15	0.38	3.13	mg/m³	3.13	1.76	0.41
Tetrachloroethane, 1,1,2,2-	79-34-5	167.85	0.61	0.60	mg/m³	0.61	0.61	0.09
Tetrachloroethylene	127-18-4	165.83	0.88	2.27	mg/m³	2.27	1.57	0.23
Tetrahydrofuran	109-99-9	72.11	9.11	11.80	mg/m³	11.80	10.46	3.54
Toluene	108-88-3	92.14	34.90	64.80	mg/m³	64.80	49.85	13.23
Trichloro-1,2,2-trifluoroethane,	76-13-1	187.37	0.68	0.67	mg/m³	0.68	0.68	0.09
Trichlorobenzene, 1,2,4-	120-82-1	181.44	0.66	0.65	mg/m³	0.66	0.66	0.09
Trichloroethane, 1,1,1-	71-55-6	133.40	0.49	0.48	mg/m³	0.49	0.48	0.09
Trichloroethane, 1,1,2-	79-00-5	133.40	0.49	0.48	mg/m³	0.49	0.48	0.09
Trichloroethylene	79-01-6	131.38	0.84	1.31	mg/m³	1.31	1.08	0.20
Trichlorofluoromethane	75-69-4	137.36	0.67	0.84	mg/m³	0.84	0.76	0.13
Trimethylbenzene, 1,2,4-	95-63-6	120.19	0.44	7.77	mg/m³	7.77	4.10	0.83
Trimethylbenzene, 1,3,5-	108-67-8	120.19	0.44	3.19	mg/m³	3.19	1.81	0.37
Trimethylpentane, 2,2,4-	540-84-1	114.23	2.36	2.91	mg/m³	2.91	2.64	0.56
Vinyl acetate	108-05-4	86.09	0.79	0.77	mg/m³	0.79	0.78	0.22
Vinyl bromide	593-60-2	106.95	0.39	0.38	mg/m³	0.39	0.39	0.09
Vinyl chloride	75-01-4	62.50	0.77	0.92	mg/m³	0.92	0.84	0.33
Xylene, m+p-	108-38-3 / 106-42-3	106.16	9.64	53.00	mg/m³	53.00	31.32	7.21
Xylene, o-	95-47-6	106.17	3.51	20.10	mg/m³	20.10	11.81	2.72
Xylenes, total	1330-20-7	106.17	13.10	73.10	mg/m³	73.10	43.10	9.93
BTEX, total	-	-	60.60	171.00	mg/m³	171.00	115.80	28.90

Results	CAS Number	Molecular Weight	CANISTER 1	CANISTER 2	Units	Maximum (%)	AVG (%)
4-Bromofluorobenzene	-	-	8.98%	8.44%	%	8.98%	8.71%

Notes:

[1] Testing based on stream analysis conducted on Jan 27, 2026.

[2] Conversion (25°C, 1 atm): Concentration (ppm) = 24.45 × concentration (mg/m3) ÷ molecular weight.

Appendix G5: Combustion Source Emission Rate Calculations (All Contaminants except SO2)

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Source Characteristics												Emission Rate Calculations								
												Emission Factor								Emission Rate
Source ID	Description	Horse Power [9]	Engine Power	Total LFG Gas Volume [9]	Total LFG Gas Volume [9]	Total Methane Gas Volume [1][6]	Total Methane Gas Volume	Flow Rate (standard) [9]	Flow Rate (actual)	Load Factor	Contaminant	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	
		(hp)	(kW)	(dscm/hr)	(dscm/s)	(dscm/hr)	(dscm/s)	(m³/s)	(m³/s)			(kg/10⁹dscm methane)	(g/m³ landfill gas)	(lb/hp-hr)	(lb/hp-hr)	(lb/MMBTU)	(g/kW-hr)	(g/hp-hr)	(lb/10⁶ scf)	(g/s)
Gen1	1,064 kW Landfill Gas Fired Generator	1,468	- -	644	0.18	319	0.09	1.01	2.73	1.0	Nitrogen Oxides (NOx)	- -	- -	- -	- -	- -	- -	1.10E+00	- -	0.449
											TSP	7.70E+02	- -	- -	- -	- -	- -	- -	- -	0.068
											PM10	7.70E+02	- -	- -	- -	- -	- -	- -	- -	0.068
											PM2.5	7.70E+02	- -	- -	- -	- -	- -	- -	- -	0.068
Gen2	1,064 kW Landfill Gas Fired Generator		- -	0	0.00	0	0.00	0.00	0.00	1.0	Nitrogen Oxides (NOx)	- -	- -	- -	- -	- -	- -	1.10E+00	- -	0.000
											TSP	7.70E+02	- -	- -	- -	- -	- -	- -	- -	0.000
											PM10	7.70E+02	- -	- -	- -	- -	- -	- -	- -	0.000
											PM2.5	7.70E+02	- -	- -	- -	- -	- -	- -	- -	0.000
Gen3	1,064 kW Landfill Gas Fired Generator		- -	0	0.00	0	0.00	0.00	0.00	1.0	Nitrogen Oxides (NOx)	- -	- -	- -	- -	- -	- -	1.10E+00	- -	0.000
											TSP	7.70E+02	- -	- -	- -	- -	- -	- -	- -	0.000
											PM10	7.70E+02	- -	- -	- -	- -	- -	- -	- -	0.000
											PM2.5	7.70E+02	- -	- -	- -	- -	- -	- -	- -	0.000
Gen4	1,064 kW Landfill Gas Fired Generator		- -	0	0.00	0	0.00	0.00	0.00	1.0	Nitrogen Oxides (NOx)	- -	- -	- -	- -	- -	- -	1.10E+00	- -	0.000
											TSP	7.70E+02	- -	- -	- -	- -	- -	- -	- -	0.000
											PM10	7.70E+02	- -	- -	- -	- -	- -	- -	- -	0.000
											PM2.5	7.70E+02	- -	- -	- -	- -	- -	- -	- -	0.000
PGen1	82 bhp Portable Diesel Fired Generator Cummins Model #4BT3.3-G2	66	49	- -	- -	- -	- -	- -	0.17	1.0	Nitrogen Oxides (NOx)	-	- -	- -	- -	- -	- -	4.78E+00	- -	0.087
											TSP	-	- -	- -	- -	- -	- -	4.00E-01	- -	0.007
											PM10	-	- -	- -	- -	- -	- -	4.00E-01	- -	0.007
											PM2.5	-	- -	- -	- -	- -	- -	4.00E-01	- -	0.007
Screen1C	Screen #1 Engine 130 kW, Diesel Fired	174	130	- -	- -	- -	- -	-	0.48	0.43	Nitrogen Oxides (NOx)	- -	- -	0.031	- -	- -	- -	- -	- -	0.293
											TSP	- -	- -	2.20E-03	- -	- -	- -	- -	- -	0.021
											PM10	- -	- -	2.20E-03	- -	- -	- -	- -	- -	0.021
											PM2.5	- -	- -	2.20E-03	- -	- -	- -	- -	- -	0.021

Appendix G5: Combustion Source Emission Rate Calculations (All Contaminants except SO2)

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Source Characteristics											Emission Rate Calculations								
Source ID	Description	Horse Power [9]	Engine Power	Total LFG Gas Volume [9]	Total LFG Gas Volume [9]	Total Methane Gas Volume [10]	Total Methane Gas Volume	Flow Rate (standard) [9]	Flow Rate (actual)	Load Factor	Contaminant	Emission Factor								Emission Rate
												[1] (kg/10^{9}dscm methane)	[2] (g/m^3 landfill gas)	[3] (lb/hp-hr)	[4] (lb/hp-hr)	[5] (lb/MMBTU)	[6] (g/kW-hr)	[7] (g/hp-hr)	[8] (lb/10^6 scf)	
		(hp)	(kW)	(dscm/hr)	(dscm/s)	(dscm/hr)	(dscm/s)	(m^3/s)	(m^3/s)											(g/s)
Screen2C	Screen #2 Engine 130 kW, Diesel Fired	174	130	--	--	--	--	-	0.48	0.43	Nitrogen Oxides (NOx)	--	--	0.031	--	--	--	--	--	0.293
											TSP	--	--	2.20E-03	--	--	--	--	--	0.021
											PM10	--	--	2.20E-03	--	--	--	--	--	0.021
											PM2.5	--	--	2.20E-03	--	--	--	--	--	0.021
Screen3C	Screen #3 Engine 130 kW, Diesel Fired	174	130	--	--	--	--	-	0.48	0.43	Nitrogen Oxides (NOx)	--	--	0.031	--	--	--	--	--	0.293
											TSP	--	--	2.20E-03	--	--	--	--	--	0.021
											PM10	--	--	2.20E-03	--	--	--	--	--	0.021
											PM2.5	--	--	2.20E-03	--	--	--	--	--	0.021
Screen4C	Screen #4 Engine 60 kW, Diesel Fired	80	60	--	--	--	--	-	0.48	0.43	Nitrogen Oxides (NOx)	--	--	0.031	--	--	--	--	--	0.135
											TSP	--	--	2.20E-03	--	--	--	--	--	0.010
											PM10	--	--	2.20E-03	--	--	--	--	--	0.010
											PM2.5	--	--	2.20E-03	--	--	--	--	--	0.010
CONVEYOR	Stacking Conveyor Engine 60 kW, Diesel Fired	80	60	--	--	--	--	-	0.24	0.21	Nitrogen Oxides (NOx)	--	--	0.031	--	--	--	--	--	0.066
											TSP	--	--	2.20E-03	--	--	--	--	--	0.005
											PM10	--	--	2.20E-03	--	--	--	--	--	0.005
											PM2.5	--	--	2.20E-03	--	--	--	--	--	0.005
CONVEY2N	Stacking Conveyor #2 Engine 60 kW, Diesel Fired	80	60	--	--	--	--	-	0.24	0.21	Nitrogen Oxides (NOx)	--	--	0.031	--	--	--	--	--	0.066
											TSP	--	--	2.20E-03	--	--	--	--	--	0.005
											PM10	--	--	2.20E-03	--	--	--	--	--	0.005
											PM2.5	--	--	2.20E-03	--	--	--	--	--	0.005
GSTK	Grinder Engine 860 kW, Diesel Fired	1,153	860	--	--	--	--	-	2.70	0.43	Nitrogen Oxides (NOx)	--	--	--	--	--	9.2	--	--	0.945
											TSP	--	--	--	--	--	0.54	--	--	0.055
											PM10	--	--	--	--	--	0.54	--	--	0.055
											PM2.5	--	--	--	--	--	0.54	--	--	0.055
GSTK2_N	Grinder #2 Engine 860 kW, Diesel Fired	1,153	860	--	--	--	--	-	2.70	0.43	Nitrogen Oxides (NOx)	--	--	--	--	--	9.2	--	--	0.945
											TSP	--	--	--	--	--	0.54	--	--	0.055
											PM10	--	--	--	--	--	0.54	--	--	0.055
											PM2.5	--	--	--	--	--	0.54	--	--	0.055
GENC	Generator #1 600 kW, Diesel Fired	805	600	--	--	--	--	-	2.36	1.0	Nitrogen Oxides (NOx)	--	--	--	0.024	--	--	--	--	2.433
											TSP	--	--	--	--	0.0697	--	--	--	0.018
											PM10	--	--	--	--	0.0573	--	--	--	0.015
											PM2.5	--	--	--	--	0.0479	--	--	--	0.012
MO_GEN	55 kW Natural Gas Fired Emergency Generator	74	55	--	--	--	--	-	0.20	1.0	Nitrogen Oxides (NOx)	--	--	--	--	--	--	8.23	--	0.169
											TSP	--	--	--	--	--	--	--	7.6	0.024
											PM10	--	--	--	--	--	--	--	7.6	0.024
											PM2.5	--	--	--	--	--	--	--	7.6	0.024
--	Total	--	--	--	--	--	--	--	--	--	Nitrogen Oxides (NOx)	-	--	-	-	-	--	-	-	**6.188**
											TSP	--	--	--	--		--			**0.311**
											PM10	--	--	--	--		--			**0.308**
											PM2.5	--	--	--	--	-	--	-	-	**0.305**

Notes:

[1] Emission Factors taken from US EPA AP-42 Chapter 2.4, Table 2.4-4. TSP is assumed to same as PM_{10} and $PM_{2.5}$.
[2] Emission Factor calculated based on concentration of sulphur compounds in raw landfill gas (see Appendix F2).
[3] Emission Factors taken from US EPA AP-42 Chapter 3.3, Table 3.3-1. PM is assumed to same for TSP, PM_{10} and $PM_{2.5}$.
[4] Emission Factors taken from US EPA AP-42 Chapter 3.4, Table 3.4-1.
[5] Emission Factors taken from US EPA AP-42 Chapter 3.4, Table 3.4-2.
[6] Emission Factors taken from "Nonroad Compression-Ignition Engines: Exhaust Emission Standards" (US EPA, 2016).
[7] Emission Factors supplied by the Manufacturer.
[8] Emission Factors taken from US EPA AP-42 Chapter 1.4, Table 1.4-1 and Table 1.4-2. PM is assumed to same for TSP, PM_{10} and $PM_{2.5}$.
[9] Operating parameters from all generators obtained from manufacturer's specifications.
[10] Methane content of landfill gas, based on 2026 source testing = 50%
[11] Velocity is calculated based on the stack diameter and actual flow rate.

Appendix G6: Combustion Source Emission Rate Calculations (SO2)

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Source Characteristics											Emission Rate Calculations								
Source ID	Description	Horse Power [9] (hp)	Engine Power (kW)	Total LFG Gas Volume [9] (dscm/hr)	Total LFG Gas Volume [9] (dscm/s)	Total Methane Gas Volume [10] (dscm/hr)	Total Methane Gas Volume (dscm/s)	Flow Rate (standard) [9] (m^3/s)	Flow Rate (actual) (m^3/s)	Load Factor	Contaminant	Emission Factor								Emission Rate (g/s)
												[1] ($kg/10^6 dscm$ methane)	[2] (g/m^3 landfill gas)	[3] (lb/hp-hr)	[4] (lb/hp-hr)	[5] (lb/MMBTU)	[6] (g/kW-hr)	[7] (g/hp-hr)	[8] ($lb/10^6$ scf)	
Gen1	1,064 kW Landfill Gas Fired Generator	1,468	--	584.47	0.16	289.60	0.08	0.92	2.48	1.0	Sulphur Dioxide (SO2)	--	4.22E-01	--	--	--	--	--	--	0.068
Gen2	1,064 kW Landfill Gas Fired Generator	1,468	--	584.47	0.16	289.60	0.08	0.92	2.48	1.0	Sulphur Dioxide (SO2)	--	4.22E-01	--	--	--	--	--	--	0.068
Gen3	1,064 kW Landfill Gas Fired Generator	0	--	0.00	0.00	0.00	0.00	0.00	0.00	1.0	Sulphur Dioxide (SO2)	--	4.22E-01	--	--	--	--	--	--	0.000
Gen4	1,064 kW Landfill Gas Fired Generator	0	--	0.00	0.00	0.00	0.00	0.00	0.00	1.0	Sulphur Dioxide (SO2)	--	4.22E-01	--	--	--	--	--	--	0.000
PGen1	82 bhp	66	49	--	--	--	--	--	0.17	1.0	Sulphur Dioxide (SO2)	-	--	2.05E-03	--	--	--	--	--	0.017
Screen1C	Screen #1 Engine 130 kW, Diesel Fired	174	130	--	--	--	--	-	0.48	0.4	Sulphur Dioxide (SO2)	--	--	2.05E-03	--	--	--	--	--	0.019
Screen2C	Screen #2 Engine 130 kW, Diesel Fired	174	130	--	--	--	--	-	0.48	0.4	Sulphur Dioxide (SO2)	--	--	2.05E-03	--	--	--	--	--	0.019
Screen3C	Screen #3 Engine 130 kW, Diesel Fired	174	130	--	--	--	--	-	0.48	0.4	Sulphur Dioxide (SO2)	--	--	2.05E-03	--	--	--	--	--	0.019
Screen4C	Screen #4 Engine 60 kW, Diesel Fired	80	60	--	--	--	--	-	0.48	0.4	Sulphur Dioxide (SO2)	--	--	2.05E-03	--	--	--	--	--	0.009
CONVEYOR	Stacking Conveyor Engine 60 kW, Diesel Fired	80	60	--	--	--	--	-	0.24	0.2	Sulphur Dioxide (SO2)	--	--	2.05E-03	--	--	--	--	--	0.004
CONVEY2N	Stacking Conveyor #2 Engine 60 kW, Diesel Fired	80	60	--	--	--	--	-	0.24	0.2	Sulphur Dioxide (SO2)	--	--	2.05E-03	--	--	--	--	--	0.004
GSTK	Grinder Engine 860 kW, Diesel Fired	1,153	860	--	--	--	--	-	2.70	0.4	Sulphur Dioxide (SO2)	--	--	--	--	--	--	0.76	--	0.105
GSTK2_N	Grinder #2 Engine 860 kW, Diesel Fired	1,153	860	--	--	--	--	-	2.70	0.4	Sulphur Dioxide (SO2)	--	--	--	--	--	--	0.76	--	0.105
GENC	Generator #1 600 kW, Diesel Fired	805	600	--	--	--	--	-	2.36	1.0	Sulphur Dioxide (SO2)	--	--	--	1.21E-05	--	--	--	--	0.001
MO_GEN	55 kW Natural Gas Fired Emergency Generator	74	55	--	--	--	--	-	0.20	1.0	Sulphur Dioxide (SO2)	--	--	--	--	--	--	--	0.6	0.002
--	Total	--	--	--	--	--	--	--	--	--	Sulphur Dioxide (SO2)	-	--	-	-	-	--	-	-	**0.443**

Notes:

[1] Emission Factors taken from US EPA AP-42 Chapter 2.4, Table 2.4-4. TSP is assumed to same as PM_{10} and $PM_{2.5}$.
[2] Emission Factor calculated based on concentration of sulphur compounds in raw landfill gas (see Appendix F2).
[3] Emission Factors taken from US EPA AP-42 Chapter 3.3, Table 3.3-1. PM is assumed to same for TSP, PM_{10} and $PM_{2.5}$.
[4] Emission Factors taken from US EPA AP-42 Chapter 3.4, Table 3.4-1.
[5] Emission Factors taken from US EPA AP-42 Chapter 3.4, Table 3.4-2.
[6] Emission Factors taken from "Nonroad Compression-Ignition Engines: Exhaust Emission Standards" (US EPA, 2016).
[7] Emission Factors supplied by the Manufacturer.
[8] Emission Factors taken from US EPA AP-42 Chapter 1.4, Table 1.4-1 and Table 1.4-2. PM is assumed to same for TSP, PM_{10} and $PM_{2.5}$.
[9] Operating parameters from all generators obtained from manufacturer's specifications.
[10] Methane content of landfill gas, based on 2026 source testing = 50%

Appendix G7: Landfill Gas Flow and Emission Rate Calculations (All Contaminants except SO2)

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Volume of Methane and LFG Generated in Year 2047

Landfill	Volume of Methane Generated from ECCC Methane Tool (m3/yr)	Volume of LFG Generated (m3/yr) [1]
East Landfill	4,924,162	9,848,324
South Landfill Phase 1	16,184,391	32,368,782
Total	**21,108,553**	**42,217,106**

Note:
[1] Methane accounts for 50% of LFG, as a default in the ECCC Methane Tool.

Total Volume of LFG Collected in Year 2047

Landfill	Source ID	Cover	Gas Collection Efficiency (%)	Area	Volume of LFG Generated for the Entire Landfill from ECCC Methane Tool (m3/yr)	Volume of LFG Generated (m3/yr)	Volume of LFG Collected (m3/yr)
East Landfill	EASTLF_FC	Final Cover	85%	593,594	9,848,324	9,848,324	8,371,075
South Landfill Phase 1	SLF_FC	Final Cover	85%	507,646	32,368,782	32,368,782	27,513,465
				Total	**-**	**42,217,106**	**35,884,540**

Flow Rate of Each of the Equipment

LFG-Fired Equipment	Volume of LFG Provided by Walker			Scaled Volume of LFG	
	(cfm)	(m3/yr)	Ratio	(m3/yr)	(m3/s)
FLARE1	2,900	43,161,670	28%	10,224,520	0.32
FLARE2	0	0	0%	0	0.00
FLARE3	0	0	0%	0	0.00
Silflar2	150	2,232,500	1%	528,854	0.02
GEN1	1,600	23,813,335	16%	5,641,115	0.18
GEN2	0	0	0%	0	0.00
GEN3	0	0	0%	0	0.00
GEN4	0	0	0%	0	0.00
RNGFLARE	4,000	59,533,338	39%	14,102,786	0.45
TO	1,528	22,741,735	15%	5,387,264	0.17
Total	**10,178**	**151,482,579**	**100%**	**35,884,540**	**1.14**

Notes:
[1] LFG volume provided by WEG for a conservative operating scenario, assuming all equipment operates simultaneously. LFG volume of SILFLAR2 and TO are based on the maximum capacity due to the lack of information.
[2] LFG volume is scaled based on the collected LFG volume as predicted in ECCC Tool.
[3] Due to the low gas flow, it was assumed only one flare (FLARE1) out of 4 and one gnerator (GEN1) out of 4 will be in operation.

Modelling Parameters - Scaled Flow Rate for Gas Quantity

Source ID	Maximum Design Gas Flow Rate (m^3/s)	Maximum Design Exhaust Flow Rate (m^3/s)	Actual Gas Flow Rate (m^3/s)	Actual Exhaust Flow Rate (m^3/s)
FLARE1	1.18	27.8	0.32	7.6
FLARE2	2.37	55.8	0.00	0.0
FLARE3	2.37	55.8	0.00	0.0
RNGFLARE	2.36	2.4	0.45	0.5
Silflar2	0.07	1.57	0.02	0.4
TO	0.72	18.95	0.17	4.5
GEN1	0.21	3.21	0.18	2.7
GEN2	0.21	3.21	0.00	0.0
GEN3	0.21	3.21	0.00	0.0
GEN4	0.21	3.21	0.00	0.0

NMOC Emission Rate of Each Flare and Generator

Compound	CAS Number	Molecular Weight (g/mol)	Conc. In Raw LFG (from tesitng results in 2026)		Flare 1 Emission Rate (g/s)	Flare 2 Emission Rate (g/s)	Flare 3 Emission Rate (g/s)	RNG_FLARE Emission Rate (g/s)	Gen 1 Emission Rate (g/s)	Gen 2 Emission Rate (g/s)	Gen 3 Emission Rate (g/s)	Gen 4 Emission Rate (g/s)
			(ppm)	(g/m^3)								
Maximum LFG Volumetric Flow (m^3/s)	**- -**	**- -**	**- -**		**0.32**	**0.00**	**0.00**	**0.45**	**0.18**	**0.00**	**0.00**	**0.00**
Destruction Efficiency [1]	**- -**	**- -**	**- -**		**98.0%**	**98.0%**	**98.0%**	**98.0%**	**98.0%**	**98.0%**	**98.0%**	**98.0%**
Hydrogen Sulfide	7783-06-4	34.08	736.80	1.08E+00	7.01E-03	0.00E+00	0.00E+00	0.00E+00	3.87E-03	0.00E+00	0.00E+00	0.00E+00
Vinyl Chloride	75-01-4	62.50	0.33	8.86E-04	5.74E-06	0.00E+00	0.00E+00	7.92E-06	3.17E-06	0.00E+00	0.00E+00	0.00E+00
Benzene	71-43-2	78.11	1.86	6.24E-03	4.05E-05	0.00E+00	0.00E+00	5.58E-05	2.23E-05	0.00E+00	0.00E+00	0.00E+00
1,1,2-Trichloroethane	79-00-5	133.40	0.09	5.08E-04	3.29E-06	0.00E+00	0.00E+00	4.54E-06	1.82E-06	0.00E+00	0.00E+00	0.00E+00

Sample Calculation

Calculation of Hydrogen Sulphide Emission Rate (Flare1) = Maximum LFG Flow (m^3/s) * Concentration in Raw LFG (g/m^3) * (1 - Detruction Efficiency)
= 0.32 m^3/s * 1.08E+00 g/m^3 * (1 - 0.98)
= 7.01E-03 g/s

Appendix G8: Landfill Gas Flare Combustion Emission Rate Calculations (All Contaminants except SO2)

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

				Emission Rate Calculations			
Source ID	Description	Maximum LFG Volumetric Flow [1] (m^3/s)	Maximum Methane Volumetric Flow [2] [3] [4] [5] (m^3/s)	Contaminant [6]	Emission Factor [7] ($kg/10^6$dscm methane)	Emission Factor [8] (g/m^3 landfill gas)	Emission Rate (g/s)
FLARE1	Landfill Gas Flare	0.32	0.16	Nitrogen Oxides (NOx)	610	- -	9.80E-02
				Particulate Matter (PM)	270	- -	4.34E-02
FLARE2	Landfill Gas Flare	0.00	0.00	Nitrogen Oxides (NOx)	610	- -	0.00E+00
				Particulate Matter (PM)	270	- -	0.00E+00
FLARE3	Landfill Gas Flare	0.00	0.00	Nitrogen Oxides (NOx)	610	- -	0.00E+00
				Particulate Matter (PM)	270	- -	0.00E+00
RNGFlare	RNG Off-spec Gas Flare	0.45	0.22	Nitrogen Oxides (NOx)	610	- -	1.36E-01
				Particulate Matter (PM)	270	- -	6.04E-02
SILFLAR2	Siloxane Flare 2 (new)	0.02	0.01	Nitrogen Oxides (NOx)	610	- -	5.07E-03
				Particulate Matter (PM)	270	- -	2.24E-03
SILFLAR2	Siloxane Flare 2 - Natural gas scenario	0.02	0.02	Nitrogen Oxides (NOx)	610	- -	1.02E-02
TO	Thermal Oxidizer	0.17	0.03	Nitrogen Oxides (NOx)	610	- -	2.08E-02
				Particulate Matter (PM)	270	- -	9.22E-03

Notes:

[1] Dry standard (actual)

[2] Methane content of landfill gas, based on 2026 source testing = 50%

[3] Methane content of landfill gas, based on design methane concentration for the elevated flare = 50%

[4] Emissions for the siloxane flare natural gas scenario were calculated based on a methan concentration of 100%

[5] Methane Content in gas stream to Thermal Oxidizer, based on client provided data = 20%

[6] Emissions from the siloxane flare natural gas scenario only considered emissions of nitrogen oxides.

[7] Emission Factor from AP-42 Chapter 2.4 (Final version, November 1998)

[8] Emission Factor calculated based on concentration of sulphur compounds in raw landfill gas (see Appendix G10)

Sample Calculation

Calculation of Nitrogen Oxides Emission Rate (FLARE1) = Maximum LFG Flow (m^3/s) * Emission Factor for NOx (kg/10^6 dscm) * (1000 g/100000 dscm)

= 0.16 m^3/s * 610 kg/10^6 dscm * 1000/1000000

= 9.80E-02 g/s

Appendix G9: Landfill Gas Flow Calculations (SO2)

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Volume of Methane and LFG Generated in Year 2047

Landfill	Volume of Methane Generated from ECCC Methane Tool (m3/yr)	Volume of LFG Generated (m3/yr) [1]
East Landfill	4,924,162	9,848,324
South Landfill Phase 1	16,184,391	32,368,782
Total	**21,108,553**	**42,217,106**

Note:
[1] Methane accounts for 50% of LFG, as a default in the ECCC Methane Tool.

Total Volume of LFG Collected in Year 2047

Landfill	Source ID	Cover	Gas Collection Efficiency (%)	Area	Volume of LFG Generated for the Entire Landfill from ECCC Methane Tool (m3/yr)	Volume of LFG Generated (m3/yr)	Volume of LFG Collected (m3/yr)
East Landfill	EASTLF_FC	Final Cover	85%	593,594	9,848,324	9,848,324	8,371,075
South Landfill Phase 1	SLF_FC	Final Cover	85%	507,646	32,368,782	32,368,782	27,513,465
				Total	**-**	**42,217,106**	**35,884,540**

Flow Rate of Each of the Equipment

LFG-Fired Equipment	Volume of LFG Provided by Walker			Scaled Volume of LFG	
	(cfm)	(m3/yr)	Ratio	(m3/yr)	(m3/s)
FLARE1	2,500	37,208,336		15,999,758	0.51
FLARE2	0	0		0	0.00
FLARE3	0	0		0	0.00
Silflar2	130	1,934,833		831,987	0.03
GEN1	800	11,906,668		5,119,922	0.16
GEN2	800	11,906,668		5,119,922	0.16
GEN3	0	0		0	0.00
GEN4	0	0		0	0.00
RNGFLARE	300	4,465,000		1,919,971	0.06
RNGTAIL	3,200	47,626,671		20,479,690	0.65
TO	1,528	22,741,735		9,779,052	0.31
Total	**9,258**	**137,789,911**	**0%**	**59,250,303**	**1.88**

2025 LFG Collected from ECCC Methane Tool = 83,451,516 m3/yr

Appendix G10: Calculation of SO2 Emission Factor (SO2)

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Concentration of Sulphur in Landfill Gas (from 2026 Source Testing)

Sulphurs	MW (g/mol)	Concentration (ppm)	Number of Sulphurs per Compound	Concentration of Sulphur Compounds as S (ppm)
Carbonyl Sulphide	60.07	1.94	1	1.94
Carbon Disulphide	76.14	0.64	2	1.27
Dimethyl Sulphide	62.13	5.47	1	5.47
Hydrogen Sulphide	34.08	736.80	1	736.80
Methyl Mercaptan	48.11	4.95	1	4.95
		Total	**7**	**750.43**

Concentration of Sulphur in Landfill Gas (Scaled based on Actual H2S concentrations of Each Equipment)

Equipment	H2S Concentration (ppm)	Compounds as S (ppm)	Concentration µg/m³	Concentration g/m³	$Concentration_{SO2}$ = g/m³
FLARE1	735.00	748.59	1,033,582	1.03	2.07
FLARE2	735.00	748.59	1,033,582	1.03	2.07
FLARE3	735.00	748.59	1,033,582	1.03	2.07
RNGFLARE	1100.00	1120.34	1,546,857	1.55	3.09
RNGTAIL	1100.00	1120.34	1,546,857	1.55	3.09
GEN1	150.00	152.77	210,935	0.21	0.42
GEN2	150.00	152.77	210,935	0.21	0.42
GEN3	150.00	152.77	210,935	0.21	0.42
GEN4	150.00	152.77	210,935	0.21	0.42
Silflar2	200.00	203.70	281,247	0.28	0.56
TO	0.00	0.00	0	0.00	0.00

Sample Calculation for FLARE1

Conversion of Concentration from ppm to µg/m³

$Concentration_{µg/m³} = Concentration_{ppm} * [(MW * 1.0 atm)/(8.205 x10\text{-}5 m^3\text{-atm/gmol-K})*(273+ToK)$
MW_S = Molecular weight of Sulphur (32.06 g/gmol)
T = Temperature of landfill gas (assumed 10°C)

Concentration = **1,036,113** µg/m³ of total sulphur in landfill gas
= 1.036 g/m³ of total sulphur in landfill gas

Assuming 100% of the sulphur in the landfill gas is converted to sulphur dioxide (SO_2) during combustion

$Concentration_{SO2} = ConcentrationS * (MWSO2 / MWS)$

MW_S = Molecular weight of Sulphur (32.06 g/gmol)
MW_{SO2} = Molecular weight of Sulphur Dioxide (64.07 g/gmol)

$Concentration_{SO2}$ = 2.071 g/m³ of total sulphur dioxide in combusted landfill gas

Appendix G11: Landfill Gas Combustion Emission Rate Calculations (SO2)

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

				Emission Rate Calculations			
Source ID	Description	Maximum LFG Volumetric Flow [1] (m^3/s)	Maximum Methane Volumetric Flow [2] [3] [4] [5] (m^3/s)	Contaminant [6]	Emission Factor [7] ($kg/10^6$dscm methane)	Emission Factor [8] (g/m^3 landfill gas)	Emission Rate (g/s)
FLARE1	Landfill Gas Flare	0.51	0.25	Sulphur Dioxide (SO2)	- -	2.07E+00	1.05E+00
FLARE2	Landfill Gas Flare	0.00	0.00	Sulphur Dioxide (SO2)	- -	2.07E+00	0.00E+00
FLARE3	Landfill Gas Flare	0.00	0.00	Sulphur Dioxide (SO2)	- -	2.07E+00	0.00E+00
RNGFlare	RNG Off-spec Gas Flare	0.06	0.03	Sulphur Dioxide (SO2)	- -	3.09E+00	1.88E-01
RNGTAIL	RNG Off-spec Gas Flare	0.65	0.32	Sulphur Dioxide (SO2)	- -	3.09E+00	2.01E+00
SILFLAR2	Siloxane Flare 2 (new)	0.03	0.01	Sulphur Dioxide (SO2)	- -	5.62E-01	1.48E-02
TO	Thermal Oxidizer	0.31	0.06	Sulphur Dioxide (SO2)	- -	0.00E+00	0.00E+00

Notes:

[1] Dry standard (actual)

[2] Methane content of landfill gas, based on 2026 source testing = 50%

[3] Methane content of landfill gas, based on design methane concentration for the elevated flare = 50%

[4] Emissions for the siloxane flare natural gas scenario were calculated based on a methan concentration of 100%

[5] Methane Content in gas stream to Thermal Oxidizer, based on client provided data = 20%

[6] Emissions from the siloxane flare natural gas scenario only considered emissions of nitrogen oxides.

[7] Emission Factor from AP-42 Chapter 2.4 (Final version, November 1998)

[8] Emission Factor calculated based on concentration of sulphur compounds in raw landfill gas (see Appendix F2)

Sample Calculation

Calculation of Sulphur Oxides Emission Rate (FLARE1) = Maximum LFG Flow (m^3/s) * Emission Factor for SO2 (g/m3)

= 0.51 m^3/s * 2.07 g/m3

= 1.05E+00 g/s

Appendix G12: Elevated Flare Pseudo Parameter Calculation - RNGFLARE

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Based on MECP Technical Bulletin - Modelling Open Flares under O. Reg. 419/05 dated February 2017

Table 1: Scenario Summary

Parameter	Value
Date of Flare Event	--
Source ID	RNG_FLARE

Table 2: Properties of Gas

Parameter	Value	Unit
Density	1.2	kg/m³ @ 311 K and 101.3 kPa
Molecular Weight	30.0	g/mol
Lower Heating Value	16.0	MJ/m³ @ 311K and 101.3 kPa
Mole Fraction in Feed	1	-

Table 3: Composition of Gas Streams to be Flared

Parameter	Stream 1 - Landfill Gas	Propane Pilot Flow	Total Stream to Flare	Unit
Stream MW	30.0	16.04	30.0	kg/kgmol
Volumetric Rate to Flare	219.2	0.62	220	m^3/hr

Table 4: Properties of Flare Gas

Parameter	Value	Unit
Stream MW	30.0	kg/kgmol
Site Atmospheric Pressure	101.3	kPa
Universal Gas Constant (R)	8.3145	(kPa-m³)/(K-kgmol)
Gas Temperature (T_{gas})	37.78	°C
	310.78	K
Volumetric Rate to Flare	219.8	m³/hr
Total Heat Release Rate	1.0	MJ/s

Table 5: Flare Parameters

Total Maximum to Flare		
Parameter	**Value**	**Unit**
Complete Combustion Total Heat Release Rate (Q_T)	1.0	MJ/s
	1.04E+06	J/s
Flame Radiation Loss (f)	55	%
	0.55	fraction
Flare Stack Tip Height (H_S)	15.13	m
Volumetric Rate to Flare (20°C, 101.15 kPa)	220	m³/hr
	0.061	m³/s
Flare Stack Tip Diameter (D_{nozzle})	0.41	m
Density of Flared Gas (ρ_{gas})	1.177	kg/m³
Density of Air at Ambient Temperature (ρ_{air})	1.183	kg/m³
Gravitational Constant (g)	9.807	m/s²
Air Specific Heat at Ambient Air Temperature ($C_{p,air}$)	1004	J/(kg-K)
Modelled Ambient Air Temperature (T_{amb})	25	°C
	298	K
Assumed Stack Gas Exit Temperature (T_{stack})	871	°C

Appendix G12: Elevated Flare Pseudo Parameter Calculation - RNGFLARE

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Table 6: Summary of Calculated Parameters

Total Maximum to Flare		
Parameter	**Value**	**Unit**
Net Heat Release (Q_n)	4.658E+05	J/s
Effective Stack Height (H_{eff})	16.30	m
Actual Gas Exit Velocity (V_{nozzle})	0.471	m/s
Momentum Flux (F_m)	0.00910	m^4/s^2
Buoyancy Flux (F_b)	4.1	m^4/s^3
Effective Exit Velocity (V_{eff}) [1]	1.500000	m/s
Effective Diameter (D_{eff})	1.30	m

[1] Effective exit velocity has a minimum value of 1.5 m/s as per the MECP Technical Bulletin "Modelling Open Flares under O. Reg. 419/05", February 2017.

Sample Calculations:

1) Calculation of net heat release rate (Q_n)

$$Q_n = Q_T \times (1 - f)$$

$$= 1035053\ J/s * (1 - 0.55)$$

$$= 4.66E+05\ J/s$$

2) Calculation of Effective Stack Height (H_{eff})

$$H_{eff} = H_S + 4.56 \times 10^{-3} * (Q_n/4.1868)^{0.478}$$

$$= 15.1257m + 0.00456 * (465774\ J/s / 4.1868)^{0.478}$$

$$= 16.3\ m$$

3) Calculation of Actual Gas Exit Velocity (including lift gas) at flare nozzle before combustion (V_{nozzle})

$$V_{nozzle} = \frac{\text{Volumetric Flow Rate to Flare } (m^3/s)}{\pi D^2/4}$$

$$V_{nozzle} = \frac{0.06\ m^3/s}{\pi * (0.4064m)^2 / 4)}$$

$$V_{nozzle} = 0.471\ m/s$$

4) Calculation of Momentum Flux (F_M)

$$F_M = \frac{\rho_{gas}}{\rho_{air} * 4} * D_{nozzle}^2 * V_{nozzle}^2$$

$$= \frac{1.177\ kg/m^3}{1.183\ kg/m^3 * 4} * (0.4064m)^2 * (0.5m)^2$$

$$= 9.10E-03\ m^4/s^2$$

5) Calculation of Buoyancy Flux (F_b)

$$F_b = g * \frac{Q_n}{(\pi * \rho_{air} * T_{amb} * C_{p,air})}$$

$$= 9.807\ m/s^2 * \frac{465774\ J/s}{(\pi * 1.183 kg/m^3 * 298\ K * 1004\ J/(kg\text{-}K))}$$

$$= 4.11\ m^4/s^3$$

6) Calculation of Effective Exit Velocity (V_{eff})

$$V_{eff} = g * \frac{Fm}{Fb} * \frac{Tstack - Tamb}{Tamb}$$

$$= 9.807\ m/s^2 * \frac{0.0091\ m^4/s^2}{4.1\ m^4/s^3} * \frac{871\ °C - 298\ K}{298\ K}$$

$$= 0.042\ m/s$$

Minimum effective exit velociy is 1.5 m/s; if calculated value is less than minimum, 1.5 m/s is used.

7) Calculation of Effective Diameter (D_{eff})

$$D_{eff} = 2 * \left(\frac{Fb * Tstack}{g * Veff * (Tstack - Tamb)}\right)^{0.5}$$

$$= 2 * \left(\frac{4.1\ m^4/s^3 * 871\ °C}{9.807\ m/s^2 * 1.5\ m/s * (871\ °C - 298\ K)}\right)^{0.5}$$

$$= 1.3\ m$$

Appendix G13: Elevated Flare Pseudo Parameter Calculation - RNGTAIL

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Based on MECP Technical Bulletin - Modelling Open Flares under O. Reg. 419/05 dated February 2017

Table 1: Scenario Summary

Parameter	Value
Date of Flare Event	--
Source ID	RNGTAIL

Table 2: Properties of Gas

Parameter	Value	Unit
Density	1.2	kg/m³ @ 311 K and 101.3 kPa
Molecular Weight	16.6	g/mol
Lower Heating Value	31.4	MJ/m³ @ 311K and 101.3 kPa
Mole Fraction in Feed	1	-

Table 3: Composition of Gas Streams to be Flared

Parameter	Stream 1 - Landfill Gas	Propane Pilot Flow	Total Stream to Flare	Unit
Stream MW	16.6	16.04	16.6	kg/kgmol
Volumetric Rate to Flare	2337.9	0.62	2338	m^3/hr

Table 4: Properties of Flare Gas

Parameter	Value	Unit
Stream MW	16.6	kg/kgmol
Site Atmospheric Pressure	101.3	kPa
Universal Gas Constant (R)	8.3145	(kPa-m³)/(K-kgmol)
Gas Temperature (T_{gas})	37.78	°C
	310.78	K
Volumetric Rate to Flare	2338.5	m³/hr
Total Heat Release Rate	21.6	MJ/s

Table 5: Flare Parameters

Total Maximum to Flare		
Parameter	**Value**	**Unit**
Complete Combustion Total Heat Release Rate (Q_T)	21.6	MJ/s
	2.16E+07	J/s
Flame Radiation Loss (f)	55	%
	0.55	fraction
Flare Stack Tip Height (H_S)	15.13	m
Volumetric Rate to Flare (20°C, 101.15 kPa)	2338	m³/hr
	0.650	m³/s
Flare Stack Tip Diameter (D_{nozzle})	0.41	m
Density of Flared Gas (ρ_{gas})	1.177	kg/m³
Density of Air at Ambient Temperature (ρ_{air})	1.183	kg/m³
Gravitational Constant (g)	9.807	m/s²
Air Specific Heat at Ambient Air Temperature ($C_{p,air}$)	1004	J/(kg-K)
Modelled Ambient Air Temperature (T_{amb})	25	°C
	298	K
Assumed Stack Gas Exit Temperature (T_{stack})	871	°C

Appendix G13: Elevated Flare Pseudo Parameter Calculation - RNGTAIL

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Table 6: Summary of Calculated Parameters

Total Maximum to Flare		
Parameter	**Value**	**Unit**
Net Heat Release (Q_n)	9.715E+06	J/s
Effective Stack Height (H_{eff})	20.16	m
Actual Gas Exit Velocity (V_{nozzle})	5.008	m/s
Momentum Flux (F_m)	1.02989	m^4/s^2
Buoyancy Flux (F_b)	85.7	m^4/s^3
Effective Exit Velocity (V_{eff}) [1]	1.500000	m/s
Effective Diameter (D_{eff})	5.95	m

[1] Effective exit velocity has a minimum value of 1.5 m/s as per the MECP Technical Bulletin "Modelling Open Flares under O. Reg. 419/05", February 2017.

Sample Calculations:

1) Calculation of net heat release rate (Q_n)

$$Q_n = Q_T \times (1 - f)$$

$$= 21588770\ J/s * (1 - 0.55)$$

$$= 9.71E+06\ J/s$$

2) Calculation of Effective Stack Height (H_{eff})

$$H_{eff} = H_S + 4.56 \times 10^{-3} * (Q_n/4.1868)^{0.478}$$

$$= 15.1257m + 0.00456 * (9714946\ J/s / 4.1868)\text{^}0.478$$

$$= 20.2\ m$$

3) Calculation of Actual Gas Exit Velocity (including lift gas) at flare nozzle before combustion (V_{nozzle})

$$V_{nozzle} = \frac{\text{Volumetric Flow Rate to Flare } (m^3/s)}{\pi D^2/4}$$

$$V_{nozzle} = \frac{0.65\ m^3/s}{\pi * (0.4064m)^2 / 4)}$$

$$V_{nozzle} = 5.008\ m/s$$

4) Calculation of Momentum Flux (F_M)

$$F_M = \frac{\rho_{gas}}{\rho_{air} * 4} * D_{nozzle}^2 * V_{nozzle}^2$$

$$= \frac{1.177\ kg/m^3}{1.183\ kg/m^3 * 4} * (0.4064m)^2 * (5m)^2$$

$$= 1.03E+00\ m^4/s^2$$

5) Calculation of Buoyancy Flux (F_b)

$$F_b = g * \frac{Q_n}{(\pi * \rho_{air} * T_{amb} * C_{p,air})}$$

$$= 9.807\ m/s^2 * \frac{9714946\ J/s}{(\pi * 1.183 kg/m^3 * 298\ K * 1004\ J/(kg\text{-}K))}$$

$$= 85.68\ m^4/s^3$$

6) Calculation of Effective Exit Velocity (V_{eff})

$$V_{eff} = g * \frac{Fm}{Fb} * \frac{Tstack - Tamb}{Tamb}$$

$$= 9.807\ m/s^2 * \frac{1.0299\ m^4/s^2}{85.7\ m^4/s^3} * \frac{871\ °C - 298\ K}{298\ K}$$

$$= 0.227\ m/s$$

Minimum effective exit velociy is 1.5 m/s; if calculated value is less than minimum, 1.5 m/s is used.

7) Calculation of Effective Diameter (D_{eff})

$$D_{eff} = 2 * \left(\frac{Fb * Tstack}{g * Veff * (Tstack - Tamb)}\right)^{0.5}$$

$$= 2 * \left(\frac{85.7\ m^4/s^3 * 871\ °C}{9.807\ m/s^2 * 1.5\ m/s * (871\ °C - 298\ K)}\right)^{0.5}$$

$$= 6.0\ m$$

Appendix G14: Siloxane Flare Actual Flow Rate Calculation

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LFG Flow Rate	0.02	m^3/sec
CH_4 Flow Rate	0.01	m^3/sec, assuming 50% of gas to be CH_4
CO_2 Flow Rate	0.01	m^3/sec, assuming 50% of gas to be CO_2
No. of Moles CH_4 in Gas	0.34	, under 1atm and 298K
Moles in Exhaust Gas	10.52	(based on stoiciometry)
Moles to Volume of Gas	3.61	total no. of moles of CH_4
	0.09	m^3 of exhaust gas from CH_4 combustion (standard)
	0.10	m^3 of exhaust gas from CH_4 + CO_2 (standard)
Convert to Actual Conditions	1144	actual exhaust temperature (K)
	0.37	total exhaust flow at actual conditions (m^3/s)

Notes:

Actual flow rate considering both siloxane and fuel gas combustion

Appendix G15: Thermal Oxidizer Emission Rate Calculations

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Walker South Landfill Phase 2 Environmental Assessment

Vertical up-fired Thermal Oxidizer with one main burner and auxiliary pilot burner
Secondry air train for oxidation of waste streams

Design Basis (May August 2021)

Exhaust Flow	0.2	m^3/s
Methane Content	5%	%

Design Temp	787 - 982	°C
VOC destruction Efficiency	98%	%

Compound	CAS Number	Molecular Weight (g/mol)	Average Conc. In Raw LFG (Max of tesitng results in 2005, 2016 and 2026) (ppm)	Manufacturer Guarenteed Outlet Concentration (ppm) [1]	Average Conc. In gas to Thermal Oxidizer (g/m^3) [2]	Scaled relative to total NMOC in Landgem [3]	Scaled relative to outlet NMOC (ppm) [3]	Average Conc. In gas from Thermal Oxidizer (g/m^3) [4]	Therm_Ox Emission Rate (g/s)
Maximum LFG Volumetric Flow (m^3/s)	- -	- -	- -		- -	- -	- -	- -	**0.17**
Destruction Efficiency	- -	- -	- -		- -	- -	- -	- -	**98%**
NMOC Concentration (ppm)						**595.00**	**300.00**	- -	- -
VOC									
Hydrogen Sulfide	7783-06-4	34.1	736.80	4.00	0.0059	--	--	--	2.01E-05
Vinyl Chloride	75-01-4	62.5	0.33	--	0.0009	0.06%	0.17	4.46E-04	7.63E-05
Benzene	71-43-2	78.1	1.86	--	0.0062	0.31%	0.94	3.15E-03	5.38E-04
1,1,2-Trichloroethane	79-00-5	133.4	0.09	--	0.0005	0.01%	0.04	2.56E-04	4.38E-05

Sample Calculation for Thermal Oxidizer

Calculation of Hydrogen Sulphide Emission Rate = Maximum LFG Flow (m^3/s) * Concentration in Raw LFG (g/m^3) * (1 - Detruction Efficiency)
= 0.17 m^3/s * 0.0059 g/m^3 * (1 - 0.98)
= 2.0E-05 g/s

Notes:
[1] H2S emissions were calculated using the manufacturer guarenteed outlet concentration.
[2] Concentration for each contaminant calculated using raw LFG concentration ratios
[3] Average concentration for Thermal Oxidizer based on manufacturer outlet concentration of NMOC scaled by Landgem NMOC concentration for contaminants of intrest.
[4] Conversion Formula: Concentration (ppm) = 24.45 x concentration (mg/m3) ÷ molecular weight

NOx Emissions from Natural Gas Burner in Thermal Oxidizer

Burner Firing Rate 1.2 MMBTU/hr
1.18E-03 10^6 scf/hr , assuming a heating value of 1020 $MMBTU/10^6$ scf

Contaminants	Emission Factor (lb/10^6scf) [1]	Emission Rate from Natural Gas Combustion (g/s)	Emissions from Waste Stream Combustion (g/s) [2]	Total Emissions (g/s) [3]
Nitrogen Oxides	100	1.48E-02	2.08E-02	3.57E-02
Particulate Matter	7.6	1.13E-03	9.22E-03	1.04E-02

Sample Calculation

Nitrogen Oxides Emission Rate from Natural Gas Combustion = (1.18E-03 10^6 scf/h) x (100 lb / 10^6 scf) x (453.6 g / lb) / (3600 s / h)
= 1.48E-02 g/s

Notes:
[1] Emission Factors taken from US EPA AP-42 Chapter 1.4, Table 1.4-1 and Table 1.4-2. PM is assumed to same for TSP, PM_{10} and $PM_{2.5}$.
[2] Refer to Appendix Appendix G8 for waste stream analysis
[3] Combustion emissions calculated by sumation of Natural gas combustion and waste stream combustion rates.

Appendix G16: On-Site Mobile Equipment Emissions - Fugitive Dust

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UNPAVED ROAD SECTIONS - AP-42 Section 13.2.2
PAVED ROAD SECTIONS - AP-42 Section 13.2.1

Paved Roads: $E = k\,(sL)^{0.91}\,(W)^{1.02}$
Unpaved Roads - Industrial: $E = 281.9\,k\,(s / 12)^{a}\,(W / 3)^{b}$
Unpaved Roads - Public: $E = 281.9\,k\,(s / 12)^{a}\,(S / 30)^{d} / (M / 0.5)^{c} - C$

E particulate emission factor (g/VKT)
k particle size multiplier (see below)
sL road surface silt loading (g/m^2)
W average weight of the vehicles traveling the road (US short tons)
s surface material silt content (%)
C emission factor for 1980's vehicle fleet exhaust, brake wear and tire wear
M surface material moisture content (%)
S mean vehicle speed (mph)
a,b,c,d constants (see below)

Route ID [1]	Route Description	Traffic Passes [2] Hourly (#/h)	Daily (#/d)	Annual (#/a)	Segment Length [2] (m)	Road Surface [3]	Roadway Type [4]	Mean Vehicle Speed (km/h)	(mph)	Average Vehicle Weight [5] (tons)	Surface Material Moisture Content [6] (%)	Surface Silt Content [7] (%)	Road Surface Silt Loading [8] (g/m^2)	Base AP-42 Emission Factor TSP (g/VKT)	PM_{10} (g/VKT)	$PM_{2.5}$ (g/VKT)	Base Emission Rate TSP (g/s)	PM_{10} (g/s)	$PM_{2.5}$ (g/s)	Additional Control Efficiency Applied (%)	Final Controlled Emission Rate TSP (g/s)	Data Quality Rating	PM_{10} (g/s)	Data Quality Rating	$PM_{2.5}$ (g/s)	Data Quality Rating
PR_CF1	Paved Road at Compost Facility - Inbound and Outbound Delivery	1	1	1	861	Paved	Industrial	-	-	26.3	-	-	1.0	1.35E+02	1.74E+01	4.22E+00	3.22E-02	4.17E-03	1.01E-03		3.22E-02		4.17E-03		1.01E-03	
UR_CF2	Unpaved Road at Compost Facility - Inbound and Outbound Delivery	1	1	1	49	Unpaved	Industrial	25	16	26.3	-	8.35%	-	4.41E+03	8.11E+02	8.11E+01	5.96E-02	1.09E-02	1.09E-03	95%	2.98E-03		5.47E-04		5.47E-05	

Notes:
[1] Route ID numbers provided on site plan.
[2] Length of a specific road segment. A separate segment should be used whenever one or more parameters change.
[3] Paved surfaces include asphalt, concrete, and recycled asphalt (if it forms a relatively consistent surface).
[4] Publicly accessible and dominated by light vehicles, or industrial, and dominated by heavy vehicles.
[5] The average vehicle weight reflects the average of the empty and loaded vehicle weight, for travel in both directions.
[6] Required only for publicly accessible unpaved roads.
[7] Required only for unpaved roads (public and industrial).
[8] Required only for industrial paved roads.

Comments
Silica content is based onsite sampling data.
Constants for TSP (PM44) extrapolated from published factors for PM30, PM10 and PM2.5. Data quality downgraded by one step.

Constants for Mobile Emission Equations

Roadway Type	k	a	b	c	d	Quality
Paved Roads:	0.15	-	-	-	-	-
	0.62	-	-	-	-	-
	3.23	-	-	-	-	-
	4.79	-	-	-	-	-
Unpaved Roads - Industrial:	0.15	0.9	0.45	-	-	C
	1.5	0.9	0.45	-	-	B
	4.9	0.7	0.45	-	-	B
	7.32	0.6	0.45	-	-	C
Unpaved Roads - Public:	0.18	1	-	0.2	0.5	C
	1.8	1	-	0.2	0.5	B
	6	1	-	0.3	0.3	B
	8.96	1	-	0.49	0.2	C

Sample calculation for uncontrolled TSP emission factor for Source PR_CF1: Paved Road at Compost Facility - Inbound and Outbound Delivery

EF = (4.79) x (1 g/m²)^0.91 x (26.3 tons)^1.02 = 135 g TSP / vehicle kilometer travelled (vkt)

Sample calculation for TSP emission rate for Source PR_CF1: Paved Road at Compost Facility - Inbound and Outbound Delivery

$$\frac{1\ \text{vehicles}}{1\ \text{h}} \times \frac{1\ \text{km}}{1000\ \text{m}} \times \frac{135\ g_{TSP}}{1\ \text{vehicle km}} \times \frac{1\ \text{h}}{3600\ \text{s}} \times \frac{100\%\ g_{TSP\ uncontrolled}}{1\ g_{TSP}} = 3.22\text{E-}02\ g_{TSP}/\text{s}$$

Appendix G17: Averaged Emission Rates for On-road Vehicles Based on Speed and Vehicle Class (Year 2047)

Walker South Landfill Phase 2 Environmental Assessment

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Km to Mile Conversion Factor	1.609 km per mile
Hour to Seconds	3600 s/hr

Vehicle Type		Contaminant Emission Rate by Vehicle Speed (km/hr)																											
		TSP				PM10				PM2.5				Benzene				Nitrogen Dioxide				Nitrogen Oxides				Sulphur Dioxide			
		0	20	25	50	0	20	25	50	0	20	25	50	0	20	25	50	0	20	25	50	0	20	25	50	0	20	25	50
		g/s	g/vkt	g/vkt	g/vkt	g/s	g/vkt	g/vkt	g/vkt	g/s	g/vkt	g/vkt	g/vkt	g/s	g/vkt	g/vkt	g/vkt	g/s	g/vkt	g/vkt	g/vkt	g/s	g/vkt	g/vkt	g/vkt	g/s	g/vkt	g/vkt	g/vkt
small	PassengerCar	3.36E-06	6.55E-02	6.10E-02	2.92E-02	3.36E-06	6.55E-02	6.10E-02	2.92E-02	2.97E-06	9.04E-03	8.37E-03	4.24E-03	5.39E-07	3.57E-04	3.22E-04	2.16E-04	5.30E-07	5.06E-04	4.68E-04	4.23E-04	3.40E-06	3.25E-03	3.00E-03	2.71E-03	2.31E-06	8.93E-04	7.90E-04	5.45E-04
small	PassengerTruck	1.71E-06	7.22E-02	6.76E-02	3.08E-02	1.71E-06	7.22E-02	6.76E-02	3.08E-02	1.52E-06	9.78E-03	9.15E-03	4.45E-03	6.06E-07	4.07E-04	3.70E-04	2.42E-04	8.25E-06	1.66E-03	1.42E-03	9.23E-04	4.44E-05	9.41E-03	8.15E-03	5.46E-03	3.01E-06	1.16E-03	1.03E-03	7.18E-04
small	LightCommercialTruck	2.81E-06	7.41E-02	6.93E-02	3.29E-02	2.81E-06	7.41E-02	6.93E-02	3.29E-02	2.49E-06	1.06E-02	9.86E-03	5.02E-03	1.09E-06	7.45E-04	6.90E-04	3.70E-04	2.13E-05	3.86E-03	3.19E-03	1.83E-03	1.14E-04	2.15E-02	1.80E-02	1.05E-02	3.40E-06	1.33E-03	1.18E-03	8.06E-04
medium	SingleUnitShortHaulTruck	5.91E-06	1.99E-01	1.57E-01	7.25E-02	5.91E-06	1.99E-01	1.57E-01	7.25E-02	5.31E-06	2.89E-02	2.34E-02	1.19E-02	1.72E-06	1.34E-03	1.16E-03	5.66E-04	4.59E-04	1.15E-01	9.57E-02	5.32E-02	2.45E-03	6.15E-01	5.11E-01	2.84E-01	5.18E-06	2.56E-03	2.31E-03	1.75E-03
medium	SingleUnitLongHaulTruck	5.91E-06	2.03E-01	1.60E-01	7.43E-02	5.91E-06	2.03E-01	1.60E-01	7.43E-02	5.31E-06	2.95E-02	2.37E-02	1.21E-02	1.72E-06	1.32E-03	1.14E-03	5.60E-04	4.59E-04	1.15E-01	9.47E-02	5.24E-02	2.45E-03	6.11E-01	5.06E-01	2.80E-01	5.18E-06	2.53E-03	2.28E-03	1.71E-03
large	CombinationShortHaulTruck	2.17E-05	4.92E-01	3.71E-01	1.61E-01	2.17E-05	4.92E-01	3.71E-01	1.61E-01	1.99E-05	7.30E-02	5.76E-02	2.86E-02	1.55E-08	6.01E-06	4.89E-06	2.36E-06	2.38E-03	5.40E-01	4.61E-01	2.79E-01	1.26E-02	2.87E+00	2.45E+00	1.48E+00	5.72E-06	3.86E-03	3.72E-03	3.11E-03
large	CombinationLongHaulTruck	1.37E-05	5.65E-01	4.18E-01	1.80E-01	1.37E-05	5.65E-01	4.18E-01	1.80E-01	1.26E-05	7.87E-02	6.01E-02	2.79E-02	5.22E-08	2.01E-05	1.64E-05	7.93E-06	2.67E-03	6.27E-01	5.32E-01	3.23E-01	1.42E-02	3.33E+00	2.82E+00	1.72E+00	5.89E-06	4.10E-03	3.94E-03	3.25E-03
	Small	**2.63E-06**	**7.06E-02**	**6.60E-02**	**3.10E-02**	**2.63E-06**	**7.06E-02**	**6.60E-02**	**3.10E-02**	**2.33E-06**	**9.80E-03**	**9.13E-03**	**4.57E-03**	**7.43E-07**	**5.03E-04**	**4.61E-04**	**2.76E-04**	**1.00E-05**	**2.01E-03**	**1.69E-03**	**1.06E-03**	**5.41E-05**	**1.14E-02**	**9.71E-03**	**6.22E-03**	**2.91E-06**	**1.13E-03**	**1.00E-03**	**6.90E-04**
	Medium	**5.91E-06**	**2.01E-01**	**1.59E-01**	**7.34E-02**	**5.91E-06**	**2.01E-01**	**1.59E-01**	**7.34E-02**	**5.31E-06**	**2.92E-02**	**2.35E-02**	**1.20E-02**	**1.72E-06**	**1.33E-03**	**1.15E-03**	**5.63E-04**	**4.59E-04**	**1.15E-01**	**9.52E-02**	**5.28E-02**	**2.45E-03**	**6.13E-01**	**5.08E-01**	**2.82E-01**	**5.18E-06**	**2.55E-03**	**2.29E-03**	**1.73E-03**
	Large	**1.77E-05**	**5.29E-01**	**3.94E-01**	**1.70E-01**	**1.77E-05**	**5.29E-01**	**3.94E-01**	**1.70E-01**	**1.63E-05**	**7.59E-02**	**5.88E-02**	**2.83E-02**	**3.39E-08**	**1.31E-05**	**1.06E-05**	**5.14E-06**	**2.52E-03**	**5.83E-01**	**4.96E-01**	**3.01E-01**	**1.34E-02**	**3.10E+00**	**2.63E+00**	**1.60E+00**	**5.81E-06**	**3.98E-03**	**3.83E-03**	**3.18E-03**

Appendix G18: Summary of Emission Rates for On-road and Non-road Vehicles Based on Speed and Vehicle Class (Year 2047)

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Vehicle Type				Contaminant Emission Rate																				
MOVES Identifier			Speed	TSP			PM10			PM2.5			Benzene			Nitrogen Dioxide			Nitrogen Oxides			Sulphur Dioxide		
On-road / Non-road	Vehicle Type	HP ID	(km/hr)	g/VKT	g/hr	g/s	g/VKT	g/hr	g/s	g/VKT	g/hr	g/s	g/VKT	g/hr	g/s	g/VKT	g/hr	g/s	g/VKT	g/hr	g/s	g/VKT	g/hr	g/s
On-road	Large	-	0	-	-	1.77E-05	-	-	1.77E-05	-	-	1.63E-05	-	-	3.39E-08	-	-	2.52E-03	-	-	1.34E-02	-	-	5.81E-06
On-road	Large	-	20	5.29E-01	-	-	5.29E-01	-	-	7.59E-02	-	-	1.31E-05	-	-	5.83E-01	-	-	3.10E+00	-	-	3.98E-03	-	-
On-road	Large	-	25	3.94E-01	-	-	3.94E-01	-	-	5.88E-02	-	-	1.06E-05	-	-	4.96E-01	-	-	2.63E+00	-	-	3.83E-03	-	-
On-road	Large	-	50	1.70E-01	-	-	1.70E-01	-	-	2.83E-02	-	-	5.14E-06	-	-	3.01E-01	-	-	1.60E+00	-	-	3.18E-03	-	-
On-road	Small	-	25	6.60E-02	-	-	6.60E-02	-	-	9.13E-03	-	-	4.61E-04	-	-	1.69E-03	-	-	9.71E-03	-	-	1.00E-03	-	-
Non-road	Tractors/Loaders/Backhoes	300	-	-	2.85E-01	7.91E-05	-	2.85E-01	7.91E-05	-	2.85E-01	7.91E-05	-	1.10E-02	3.06E-06	-	-	-	-	4.93E+00	1.37E-03	-	6.93E-02	1.93E-05
Non-road	Skid Steer Loaders	100	-	-	4.52E-01	1.25E-04	-	4.52E-01	1.25E-04	-	4.52E-01	1.25E-04	-	2.17E-02	6.04E-06	-	-	-	-	1.67E+01	4.63E-03	-	3.27E-02	9.09E-06
Non-road	Excavators	600	-	-	1.50E+00	4.16E-04	-	1.50E+00	4.16E-04	-	1.50E+00	4.16E-04	-	5.27E-02	1.46E-05	-	-	-	-	2.70E+01	7.49E-03	-	3.42E-01	9.51E-05
Non-road	Graders	750	-	-	2.71E+00	7.52E-04	-	2.71E+00	7.52E-04	-	2.71E+00	7.52E-04	-	9.62E-02	2.67E-05	-	-	-	-	4.92E+01	1.37E-02	-	6.25E-01	1.74E-04
Non-road	Off-highway Trucks	300	-	-	9.11E-01	2.53E-04	-	9.11E-01	2.53E-04	-	9.11E-01	2.53E-04	-	3.14E-02	8.73E-06	-	-	-	-	1.60E+01	4.46E-03	-	2.04E-01	5.66E-05
Non-road	Off-highway Trucks	600	-	-	1.55E+00	4.30E-04	-	1.55E+00	4.30E-04	-	1.55E+00	4.30E-04	-	5.40E-02	1.50E-05	-	-	-	-	2.76E+01	7.66E-03	-	3.50E-01	9.73E-05
Non-road	Off-highway Trucks	1000	-	-	1.20E+01	3.32E-03	-	1.20E+01	3.32E-03	-	1.20E+01	3.32E-03	-	9.72E-01	2.70E-04	-	-	-	-	1.13E+03	3.14E-01	-	7.24E-01	2.01E-04
Non-road	Crawler Tractor/Dozers	600	-	-	1.53E+00	4.26E-04	-	1.53E+00	4.26E-04	-	1.53E+00	4.26E-04	-	5.46E-02	1.52E-05	-	-	-	-	2.79E+01	7.76E-03	-	3.55E-01	9.85E-05

Appendix G19: Traffic Count and Total Emission per Roadway

Walker South Landfill Phase 2 Environmental Assessment

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Peak Hourly Traffic Count per Roadway

			Haul Trucks						Onsite Equipment													
			Trucks on Paved Roads (delivering raw materials, finished products, composts)	Trucks on Unpaved Roads (delivering raw materials, finished products)	Trucks (Transport of Refuse)	Trucks (Transport of Refuse - Idling)	Trucks (Transport of Waste Soil)	Site Pick-up Truck/Car	Compactor	Tipper	Water Truck	Fuel Truck	Sweeper Truck	Loader	Skid Steer	Excavator	Pick-up Trucks (on Unpaved Road)	Grader	Bulldozer	End-Dump Tractor Trailer / Tractor Trailer on Paved Roads	End-Dump Tractor Trailer / Tractor Trailer on Unpaved Roads	Tandem Delivery Truck (on Unpaved Road)
MOVES Identifier	On-road / Non-road		On-road	On-road	On-road	On-road	On-road	On-road	Non-road	Non-road	Non-road	Non-road	Non-road	Non-road	Non-road	Non-road	On-road	Non-road	Non-road	On-road	On-road	On-road
	Vehicle Type		Large	Large	Large	Large	Large	Small	Crawler Tractor/Dozers	Off-Highway Trucks	Off-Highway Trucks	Off-Highway Trucks	Off-Highway Trucks	Tractors/Loaders/Backhoes	Skid Steer Loaders	Excavators	Small	Graders	Crawler Tractor/Dozers	Large	Large	Large
	Speed (km/hr)		50	25	20	0	25	25	-	-	-	-	-	-	-	-	25	-	-	50	25	25
	Engine (hp)		-	-	-	-	-	-	523	400	400	825	200	272	80	303	-	600	347	-	-	-
Route	**Source ID**	**Segment Length (m)**																				
Paved Road at Compost Facility - Inbound and Outbound Delivery	PR_CF1	860.9	0	8	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Unpaved Road at Compost Facility - Inbound and Outbound Delivery	UR_CF2	48.6	0	8	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Tailpipe Emission of Onsite Equipment at Compost Facility	EQ_CF	-	0	0	0	0	0	0	0	0	1	0	0	5	0	0	0	0	0	0	0	0

Note:

[1] Load factors are extracted from "Median Life, Annual Activity, and Load Factor Values for Nonroad Engine Emissions Modeling", EPA-420-R-10-016, NR-005d, July 2010.

Tailpipe Emission Factor by Equipment Type

			Tailpipe Emission Factor by Equipment Type																			
			Haul Trucks						Onsite Equipment													
			Trucks on Paved Roads (delivering raw materials, finished products, composts)	Trucks on Unpaved Roads (delivering raw materials, finished products)	Trucks (Transport of Refuse)	Trucks (Transport of Refuse - Idling)	Trucks (Transport of Waste Soil)	Site Pick-up Truck/Car	Compactor	Tipper	Water Truck	Fuel Truck	Sweeper Truck	Loader	Skid Steer	Excavator	Pick-up Trucks (on Unpaved Road)	Grader	Bulldozer	End-Dump Tractor Trailer / Tractor Trailer on Paved Roads	End-Dump Tractor Trailer / Tractor Trailer on Unpaved Roads	Tandem Delivery Truck (on Unpaved Road)
MOVES Identifier	On-road / Non-road		On-road	On-road	On-road	On-road	On-road	On-road	Non-road	Non-road	Non-road	Non-road	Non-road	Non-road	Non-road	Non-road	On-road	Non-road	Non-road	On-road	On-road	On-road
	Vehicle Type		Large	Large	Large	Large	Large	Small	Crawler Tractor/Dozers	Off-Highway Trucks	Off-Highway Trucks	Off-Highway Trucks	Off-Highway Trucks	Tractors/Loaders/Backhoes	Skid Steer Loaders	Excavators	Small	Graders	Crawler Tractor/Dozers	Large	Large	Large
	Speed (km/hr)		50	25	20	0	25	25	-	-	-	-	-	-	-	-	25	-	-	50	25	25
	Engine (hp)		-	-	-	-	-	-	523	400	400	825	200	272	80	303	-	600	347	-	-	-
	Load Factor		-	-	-	-	-	-	0.59	0.59	0.59	0.59	0.59	0.21	0.21	0.59	-	0.59	0.59	-	-	-
Contaminant	**CAS Number**	**Pollutantid**	g/VKT	g/VKT	g/VKT	g/s	g/VKT	g/VKT	g/hr	g/hr	g/hr	g/hr	g/hr	g/hr	g/hr	g/hr	g/VKT	g/hr	g/hr	g/VKT	g/VKT	g/VKT
TSP	PM	100	1.70E-01	3.94E-01	5.29E-01	1.77E-05	3.94E-01	6.60E-02	1.53E+00	1.55E+00	1.55E+00	1.20E+01	9.11E-01	2.85E-01	4.52E-01	1.50E+00	6.60E-02	2.71E+00	1.53E+00	1.70E-01	3.94E-01	3.94E-01
PM10	PM10	100	1.70E-01	3.94E-01	5.29E-01	1.77E-05	3.94E-01	6.60E-02	1.53E+00	1.55E+00	1.55E+00	1.20E+01	9.11E-01	2.85E-01	4.52E-01	1.50E+00	6.60E-02	2.71E+00	1.53E+00	1.70E-01	3.94E-01	3.94E-01
PM2.5	PM25	110	2.83E-02	5.88E-02	7.59E-02	1.63E-05	5.88E-02	9.13E-03	1.53E+00	1.55E+00	1.55E+00	1.20E+01	9.11E-01	2.85E-01	4.52E-01	1.50E+00	9.13E-03	2.71E+00	1.53E+00	2.83E-02	5.88E-02	5.88E-02
Benzene	71-43-2	20	5.14E-06	1.06E-05	1.31E-05	3.39E-08	1.06E-05	4.61E-04	5.46E-02	5.40E-02	5.40E-02	9.72E-01	3.14E-02	1.10E-02	2.17E-02	5.27E-02	4.61E-04	9.62E-02	5.46E-02	5.14E-06	1.06E-05	1.06E-05
Nitrogen Dioxide	NO2	33	3.01E-01	4.96E-01	5.83E-01	2.52E-03	4.96E-01	1.69E-03	-	-	-	-	-	-	-	-	1.69E-03	-	-	3.01E-01	4.96E-01	4.96E-01
Nitrogen Oxides	10102-44-0	3	1.60E+00	2.63E+00	3.10E+00	1.34E-02	2.63E+00	9.71E-03	2.79E+01	2.76E+01	2.76E+01	1.13E+03	1.60E+01	4.93E+00	1.67E+01	2.70E+01	9.71E-03	4.92E+01	2.79E+01	1.60E+00	2.63E+00	2.63E+00
Sulphur Dioxide	7446-09-5	31	3.18E-03	3.83E-03	3.98E-03	5.81E-06	3.83E-03	1.00E-03	3.55E-01	3.50E-01	3.50E-01	7.24E-01	2.04E-01	6.93E-02	3.27E-02	3.42E-01	1.00E-03	6.25E-01	3.55E-01	3.18E-03	3.83E-03	3.83E-03

Emission Rate per Roadway

Source ID	Vehicle Passes per Hour	Number of Volume Sources	Tailpipe Emission Rate per Roadway (g/hr)						Tailpipe + Fugitive Emission Rate per Vehicle per Roadway (g/s)							Emission Rate per Vehicle per Roadway per Volume Source (g/s)						
			TSP	PM10	PM2.5	Benzene	Nitrogen Dioxide	Nitrogen Oxides	Sulphur Dioxide	TSP	PM10	PM2.5	Benzene	Nitrogen Dioxide	Nitrogen Oxides	Sulphur Dioxide	TSP	PM10	PM2.5	Benzene	Nitrogen Dioxide	Nitrogen Oxides (NOx)	Sulphur Dioxide (SO2)
			g/hr	g/hr	g/hr	g/hr	g/hr	g/hr	g/hr	g/s	g/s	g/s	g/s	g/s	g/s	g/s	g/s	g/s	g/s	g/s	g/s	g/s	g/s
PR_CF1	18	54	3.63E+00	3.63E+00	1.32E+00	3.19E-02	3.42E+00	3.44E+01	2.33E-01	3.23E-02	4.23E-03	1.03E-03	4.92E-07	5.27E-05	5.31E-04	3.60E-06	5.98E-04	7.83E-05	1.91E-05	9.12E-09	9.77E-07	9.84E-06	6.66E-08
UR_CF2	18	3	1.07E+00	1.07E+00	9.36E-01	3.18E-02	1.93E-01	1.73E+01	2.08E-01	3.00E-03	5.64E-04	6.92E-05	4.91E-07	2.98E-06	2.67E-04	3.21E-06	9.98E-04	1.88E-04	2.31E-05	1.64E-07	9.93E-07	8.90E-05	1.07E-06
EQ_CF	12	1	1.21E+00	1.21E+00	1.21E+00	4.34E-02	0.00E+00	2.14E+01	2.79E-01	2.81E-05	2.81E-05	2.81E-05	1.00E-06	0.00E+00	4.96E-04	6.47E-06	2.81E-05	2.81E-05	2.81E-05	1.00E-06	0.00E+00	4.96E-04	6.47E-06

Appendix G20: Hourly Profile of Roadway Traffic Passess

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Hourly Traffic Passess per Roadway

Operation Hours (starting from)		Source ID	Description	Number of Passess per Hour																							
from	to			0000 - 0100	0100 - 0200	0200 - 0300	0300 - 0400	0400 - 0500	0500 - 0600	0600 - 0700	0700 - 0800	0800 - 0900	0900 - 1000	1000 - 1100	1100 - 1200	1200 - 1300	1300 - 1400	1400 - 1500	1500 - 1600	1600 - 1700	1700 - 1800	1800 - 1900	1900 - 2000	2000 - 2100	2100 - 2200	2200 - 2300	2300 - 2400
7	17	PR_CF1	Paved Road at Compost Facility - Inbound and Outbound Delivery	0	0	0	0	0	0	0	18	18	18	18	18	18	18	18	18	18	0	0	0	0	0	0	0
7	17	UR_CF2	Unpaved Road at Compost Facility - Inbound and Outbound Delivery	0	0	0	0	0	0	0	18	18	18	18	18	18	18	18	18	18	0	0	0	0	0	0	0
7	17	EQ_CF	Tailpipe Emission of Onsite Equipment at Compost Facility	0	0	0	0	0	0	0	12	12	12	12	12	12	12	12	12	12	0	0	0	0	0	0	0

Appendix G21: Bulk Material Handling Emissions

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Material handling emissions: $E = 0.0016\ k\ (U / 2.2)^{1.3} / (M / 2)^{1.4}$

E emission factor
k particle size multiplier (0.8, 0.35 and 0.053 for TSP, PM_{10} and $PM_{2.5}$) [3]
U mean wind speed, meters per second (m/s)
M material moisture content (%)

AGGREGATE HANDLING AND STORAGE PILES - AP-42 Section 13.2.4

Average recorded hourly wind speed (m/s): 3.9
(used for sample calculations & factor validation)

Source ID [1]	Description	Processing Rate Hourly (Mg/h)	Processing Rate Daily (Mg/d)	Site Data: Site Specific Data? (y/n)	Site Data: Silt Content (%)	Site Data: Moisture Content (%)	Site Data: Source Conditions Valid [1]	Base AP-42 Emission Factor: TSP [2] (kg/Mg)	Base AP-42 Emission Factor: PM_{10} (kg/Mg)	Base AP-42 Emission Factor: $PM_{2.5}$ (kg/Mg)	Base Emission Rate: TSP (g/s)	Base Emission Rate: PM_{10} (g/s)	Base Emission Rate: $PM_{2.5}$ (g/s)	Additional Control Efficiency Applied (%)	Final Controlled Emission Rate at 3.9 m/s: TSP (g/s)	TSP Data Quality Rating	Final Controlled Emission Rate at 3.9 m/s: PM_{10} (g/s)	PM_{10} Data Quality Rating	Final Controlled Emission Rate at 3.9 m/s: $PM_{2.5}$ (g/s)	$PM_{2.5}$ Data Quality Rating
Niagara Biosolids Facility and Compost Facility																				
DROPOFF	Receiving Leaf & yard Material in Open Windrow Area	100	1000	n	9%	10%	moisture too high	2.8E-04	1.2E-04	1.9E-05	7.9E-03	3.4E-03	5.2E-04		7.9E-03	C	3.4E-03	C	5.2E-04	C
MOVE1	Movement of Material into Windrow (Open Windrow area)	100	1000	n	9%	10%	moisture too high	2.8E-04	1.2E-04	1.9E-05	7.9E-03	3.4E-03	5.2E-04		7.9E-03	C	3.4E-03	C	5.2E-04	C
MOVE2	Movement of Material into Windrow (GORE area)	100	1000	n	9%	10%	moisture too high	2.8E-04	1.2E-04	1.9E-05	7.9E-03	3.4E-03	5.2E-04		7.9E-03	C	3.4E-03	C	5.2E-04	C
SCRTSP	Drop at Screening Area	100	1000	n	9%	10%	moisture too high	2.8E-04	1.2E-04	1.9E-05	7.9E-03	3.4E-03	5.2E-04		7.9E-03	C	3.4E-03	C	5.2E-04	C
FSTPL	Drop at Final Stockpile	100	1000	n	9%	10%	moisture too high	2.8E-04	1.2E-04	1.9E-05	7.9E-03	3.4E-03	5.2E-04		7.9E-03	C	3.4E-03	C	5.2E-04	C
FP	Loading of Material for Shipment Off-Site	100	1000	n	9%	10%	moisture too high	2.8E-04	1.2E-04	1.9E-05	7.9E-03	3.4E-03	5.2E-04		7.9E-03	C	3.4E-03	C	5.2E-04	C

Notes:
[1] Relates to AP-42 Section 13.2.4-4
[2] k-factor for TSP (PM44) scaled up logarithmically to 0.8 from published k-factor of 0.74 which refers to PM30.

Comments
Maximum shipping rate is 1000 tonnes per hour (e-mail dated November 28, 2014)
Shipping occurs 24 hours per day.
Silica content of the Particulate Matter is based on mineral identification samples taken from the si 1.6%
Landfill soil sources assumed to not have significant silica content, as this type of material is soil, rather than rock/mineral.

Sample calculation for uncontrolled TSP emission factor for Source DROPOFF: Receiving Leaf & yard Material in Open Windrow Area, at a sample wind speed of 3.9 m/s

EF = 0.0016 x (0.74) x ((3.9 m/s) / 2.2)^1.3 / ((10%) / 2)^1.4 = 2.8E-04 kg TSP / Mg handled

Sample calculation for TSP emission rate for Source DROPOFF: Receiving Leaf & yard Material in Open Windrow Area, at a sample wind speed of 3.9 m/s

$$\frac{100\ Mg_{handled}}{1\ h} \times \frac{2.8E\text{-}04\ kg_{TSP}}{1\ Mg_{handled}} \times \frac{1\ h}{3600\ s} \times \frac{1000\ g_{TSP}}{1\ kg_{TSP}} \times \frac{100\%\ g_{TSP\ uncontrolled}}{1\ g_{TSP}} = 7.9E\text{-}03\ g_{TSP} / s$$

Appendix G22: Processing Emissions

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Walker South Landfill Phase 2 Environmental Assessment

Soource ID	Source Description / Process Decription	AP-42 Process Description [1] [2]	Process Code	AP-42 Chapter	Processing Rate			Base AP-42 Emission Factor			Base Emission Rate			Additional Control Efficiency Applied (%) [4]	Final Controlled Emission Rate					
					Hourly (Mg/h)	Daily (Mg/d)	Annual (Mg/a)	TSP [3] (kg/Mg)	PM_{10} (kg/Mg)	$PM_{2.5}$ (kg/Mg)	TSP (g/s)	PM_{10} (g/s)	$PM_{2.5}$ (g/s)		TSP (g/s)	Data Quality Rating	PM_{10} (g/s)	Data Quality Rating	$PM_{2.5}$ (g/s)	Data Quality Rating
Niagara Biosolids Facility and Compost Facility																			
SILO_1	Silo #1 Bin Vent	Pneumatic cement unloading to elevated storage silo	24	11.12-1	20	480		3.60E-01	2.40E-01	3.60E-02	2.00E+00	1.33E+00	2.00E-01	99.9%	2.00E-03	E	1.33E-03	E	2.00E-04	E
SILO_2	Silo #2 Bin Vent	Pneumatic cement unloading to elevated storage silo	24	11.12-1	20	480		3.60E-01	2.40E-01	3.60E-02	2.00E+00	1.33E+00	2.00E-01	99.9%	2.00E-03	E	1.33E-03	E	2.00E-04	E
SCREEN1	Screening Emissions	Fines screening (controlled)	12	11.19.2-1	40	960		1.10E-03	1.10E-03	1.65E-04	1.22E-02	1.22E-02	1.83E-03		1.22E-02	E	1.22E-02	E	1.83E-03	E
SCREEN2	Screening Emissions	Fines screening (controlled)	12	11.19.2-1	40	960		1.10E-03	1.10E-03	1.65E-04	1.22E-02	1.22E-02	1.83E-03		1.22E-02	E	1.22E-02	E	1.83E-03	E
SCREEN3	Screening Emissions	Fines screening (controlled)	12	11.19.2-1	75	1800		1.10E-03	1.10E-03	1.65E-04	2.29E-02	2.29E-02	3.44E-03		2.29E-02	E	2.29E-02	E	3.44E-03	E
SCREEN4	Screening Emissions	Fines screening (controlled)	12	11.19.2-1	75	1800		1.10E-03	1.10E-03	1.65E-04	2.29E-02	2.29E-02	3.44E-03		2.29E-02	E	2.29E-02	E	3.44E-03	E
GRINDR	Fugitive emissions from Grinder	Fines screening (controlled)	12	11.19.2-1	75	1800		1.10E-03	1.10E-03	1.65E-04	2.29E-02	2.29E-02	3.44E-03		2.29E-02	E	2.29E-02	E	3.44E-03	E
GRINDR2_N	Fugitive emissions from Grinder #2	Fines screening (controlled)	12	11.19.2-1	75	1800		1.10E-03	1.10E-03	1.65E-04	2.29E-02	2.29E-02	3.44E-03		2.29E-02	E	2.29E-02	E	3.44E-03	E
CONV_PM	Stacking Conveyor Fugitive Emissions	Conveyor transfer point (controlled)	14	11.19.2-1	80	1920		3.70E-05	2.30E-05	6.50E-06	8.22E-04	5.11E-04	1.44E-04		8.22E-04	E	5.11E-04	D	1.44E-04	E
CONV_PM2_N	Stacking Conveyor #2 Fugitive Emissions	Conveyor transfer point (controlled)	14	11.19.2-1	80	1920		3.70E-05	2.30E-05	6.50E-06	8.22E-04	5.11E-04	1.44E-04		8.22E-04	E	5.11E-04	D	1.44E-04	E

Notes:

[1] AP-42 process listed as "controlled" reflects between 70-90% control due to high moisture / water sprays, as described in AP-42 Section 11.19.2.

[2] The "controlled" AP-42 emission factors were used, rather than the "uncontrolled" factors.

[3] AP-42 Emission Factor is based on PM44.

[4] Baghouse is installed at the silos, with a 99.9% of control efficiency.

Comments
Percentage of total material handled by each process was outlined by Keith Porter (Walker Brothers Quarry) during a meeting on June 27, 2005.
The percentages are as follows: Primary crushing 100%, secondary crushing 70%, and tertiary crushing 45%.
Future percentages were assumed to be the same as existing conditions.
Classifier - amount of material that is processed through this piece of equipment was provided by Walker via email.
The maximum processing rate for the classifier is 75 Mg/hour.
Quarry Handling/Drop Point number and location as indicated by Keith Porter during June 27/05 meeting at RWDI office.
Mass of material drilled per hour based on 33 holes drilled in 1.25 days, to a depth of 12.5 meters (41 feet), and a stone density of 2,500 kg/m3.
Material handling for cone crusher and Screen #2 = 200 tonnes per hour, as per call with Keith Porter and Shawn Jordan on November 16, 2006.
Emissions have been corrected to PM44, as AP-42 presents PM100.

Sample calculation for TSP emissions from Source SILO_1: Silo #1 Bin Vent

$$\frac{20\ Mg_{processed}}{1\ h} \times \frac{3.6E\text{-}01\ kg_{TSP}}{1\ Mg_{processed}} \times \frac{1\ h}{3600\ s} \times \frac{1000}{1} \times \frac{0.1\%\ g_{TSP\ uncontrolled}}{1\ g_{TSP}} = 2.00E\text{-}03\ g_{TSP}/s$$

Appendix G23: Biosolids and Compost Facility Calculations - SO2 Emissions for Boiler (BIOFILTR)

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Walker South Landfill Phase 2 Environmental Assessment

Maximum Production Rate (Biosolids Throughput)	2800	kg DS / hr
Biofilter Flowrate	22.2	m³/s

CAS No.	Chemical Name	Concentration in Biosolids [1] (g/kg DS/hr)	Source Concentration (µg/m³)	Control Efficiency of Acid Scrubber	Control Efficiency of Biofilter	Maximum Production			Notes
						Emission Rate (g/hr)	Emission Rate (g/s)	Emission Rate (g/m2-s)	
7446-09-5	Sulfur Dioxide	-	1,200	95%	-	-	1.33E-03	2.53E-06	[1]

Notes:

[1] Area of the biofilter is 65m x 8.1m = 526.5 m2.

[2] Based on information provided by Sandwell Consulting Engineers for original application.

Sample calculation for Sulfur Dioxide emission rate for Source: BIOFILTR

$$\frac{1200.00\ \mu g}{1\ m^3} \times \frac{22.2\ m^3}{1\ h} \times \frac{5\%\ \text{Loss}}{} \times \frac{1\ g}{1{,}000{,}000\ \mu g} \times \frac{}{526.5\ m2} = 2.53E\text{-}06\ g/m^2\text{-}s$$

Appendix G24: Biosolids and Compost Facility Calculations - Boiler (BIOFILTR)

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Parameter	Value	Units
Fuel Type	Natural Gas	
Fuel Heating Value	1020	(Btu/scf)
Fuel Density		(lb/gal)
Firing Configuration	Wall-fired	
Boiler Efficiency	80%	(%)
Excess Air	0.3	(%)

Exhaust Information	Value	Units
Exhaust Temperature (°C)	175	(°C)
Calculated Exit Temperature	448	(K)

Fuel Sulphur Information	Value	Units
Natural Gas Sulphur Content	2000	(grains/10^6scf)
Fuel Oil Sulphur Content	0	(%)

Rating (enter one set of units)	Value	Units
Boiler Heat Input (Btu/h)	12,660,000	(Btu/h)
Calculated Heat Input	12.66	(MMBtu/hr)
Boiler Size Cut-off	<100	(MMBtu/hr)

Pollution Controls	Value	Units
NSPS	n/a	
Low-NOx Burners	no	
Flue-gas Recirculation	no	

Fuel & Air Parameters	Value	Units	Sample Calculation / Comment
Fuel Consumption	12412	(scf/h)	= (12.66 MMBTU/h) x (1000000 BTU/MMBTU) / (1020 BTU/scf)
	351508	(L/h)	
Fuel Molar Flow Rate (NG Only)	14871	(mol'h)	= (12412 scf/h) x (28.32 L/scf) x (101.3 kPa) / (8.314 L·kPa/mol·K) / (288 K)
Fuel Mass Flow Rate	238	(kg/h)	= (14871 mol/h) x (16.03 g/mol) / (1000 g/kg)
Stoichiometric Ratio (NG only)	13.376	ratio	= 1 CO2 + 2 H2O + 0.6 O2 + 2 x 3.76 x (1 + 0.3) N2 per mol CH4
Theoretical Moist Air (Oil Only)	not applicable		
Combustion Air	184043	(mol/h)	= (14871 mol fuel / h) x (2 mol O2 / mol fuel) x (1 + (30% XS Air)) x (4.76 mol air / mol O2)
	5300	(kg/h)	= (184043 mol air / h) x (28.8 g air / mol air) / (1000 g / kg)
	4124	(m³/h) @ 0°C	= (184043 mol/h) x (8.314 L·kPa/mol·K) x (288 K) / (101.3 kPa) / (1000 L/m³)
	2427	(scfm) @ 0°C	= (4124 m³/h) x (35.31 ft³/m³) / (60 min/h)

Exhaust Parameters	Value	Units	Sample Calculation
Exhaust Gas Molar Flow (NG only)	198914	(mol/h)	= (14871 mol/h) x (13.376 mol exhaust / mol fuel)
Theoretical Flue Gas (Oil Only)	not applicable	(m^3_{air} / L_{fuel})	
Exhaust Gas Mass Flow Rate	5538	(kg/h)	= (14871 mol fuel / h) x (373 g exhaust / mol fuel)
Exhaust Gas Flow	7314	(Am³/h)	= (198914 mol/h) x (8.314 L·kPa/mol·K) x (448 K) / (101.3 kPa) / (1000 L/m³)
	2.03	(Am³/s)	= (7314 m³ / h) / (3600 s / h)
	4702	(m³/h) @ 0°C	= (7314 m³ / h) x (288K) / (448 K)
	2767	(scfm) @ 0°C	= (4702 m³ / h) x (35.31 ft³ / m³) / (60 min / h)

Emission Calculations for the Biosolids Natural Gas Fired Dryer Exhausting through Biofilter

Based on Manufacturer's specifications

Emissions Guarantee from Manufacturer: 45 ppm NOx at 3% O_2

Exhaust Gas Molar Flow Rate (based on calculations in boiler spreadsheet) : 14,871 mol/hr

Molecular Weight of Nitrogen Oxides (based on MW of Nitrogen Dioxide) : 46.05 g/mol

Sample Calculation

NOx Emissions (g/s) = Exhaust Gas Molar Flow Rate x NOx Emission Rate x NOx Molecular Weight x conversion factors
NOx Emissions (g/s) = (14871 mol / hr) * (45 / 1,000,000) * (46.05 g/mol) * (1 hr / 3,600 s)
NOx Emissions (g/s) = 8.56E-03 g/s
NOx Emissions (g/m²-s) = ######### , with an area of 65m x 8.1m = 526.5 m2

Appendix G25: Biosolids and Compost Facility Calculations - Boiler (BOILERS)

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Parameter	Value	Units
Fuel Type	Natural Gas	
Fuel Heating Value	1020	(Btu/scf)
Fuel Density		(lb/gal)
Firing Configuration	Wall-fired	
Boiler Efficiency	80%	(%)
Excess Air	0.3	(%)

Exhaust Information	Value	Units
Exhaust Temperature (°C)	125	(°C)
Calculated Exit Temperature	398	(K)

Fuel Sulphur Information	Value	Units
Natural Gas Sulphur Content	2000	(grains/10^6scf)
Fuel Oil Sulphur Content	0	(%)

Rating (enter one set of units)	Value	Units
Boiler Heat Input (Btu/h)	650,000	(Btu/h)
Calculated Heat Input	0.65	(MMBtu/hr)
Boiler Size Cut-off	<100	(MMBtu/hr)

Pollution Controls	Value	Units
NSPS	n/a	
Low-NOx Burners	no	
Flue-gas Recirculation	no	

Fuel & Air Parameters	Value	Units	Sample Calculation / Comment
Fuel Consumption	637	(scf/h)	= (0.65 MMBTU/h) x (1000000 BTU/MMBTU) / (1020 BTU/scf)
	18040	(L/h)	
Fuel Molar Flow Rate (NG Only)	763	(mol'h)	= (637 scf/h) x (28.32 L/scf) x (101.3 kPa) / (8.314 L·kPa/mol·K) / (288 K)
Fuel Mass Flow Rate	12	(kg/h)	= (763 mol/h) x (16.03 g/mol) / (1000 g/kg)
Stoichiometric Ratio (NG only)	13.376	ratio	= 1 CO2 + 2 H2O + 0.6 O2 + 2 x 3.76 x (1 + 0.3) N2 per mol CH4
Theoretical Moist Air (Oil Only)	not applicable		
Combustion Air	9443	(mol/h)	= (763 mol fuel / h) x (2 mol O2 / mol fuel) x (1 + (30% XS Air)) x (4.76 mol air / mol O2)
	272	(kg/h)	= (9443 mol air / h) x (28.8 g air / mol air) / (1000 g / kg)
	212	(m^3/h) @ 0°C	= (9443 mol/h) x (8.314 L·kPa/mol·K) x (288 K) / (101.3 kPa) / (1000 L/m^3)
	125	(scfm) @ 0°C	= (212 m^3/h) x (35.31 ft^3/m^3) / (60 min/h)

Exhaust Parameters	Value	Units	Sample Calculation
Exhaust Gas Molar Flow (NG only)	10206	(mol/h)	= (763 mol/h) x (13.376 mol exhaust / mol fuel)
Theoretical Flue Gas (Oil Only)	not applicable	(m^3_{air} / L_{fuel})	
Exhaust Gas Mass Flow Rate	279	(kg/h)	= (763 mol fuel / h) x (373 g exhaust / mol fuel)
Exhaust Gas Flow	333	(Am^3/h)	= (10206 mol/h) x (8.314 L·kPa/mol·K) x (398 K) / (101.3 kPa) / (1000 L/m^3)
	0.09	(Am^3/s)	= (333 m^3 / h) / (3600 s / h)
	241	(m^3/h) @ 0°C	= (333 m^3 / h) x (288K) / (398 K)
	142	(scfm) @ 0°C	= (241 m^3 / h) x (35.31 ft^3 / m^3) / (60 min / h)

Criteria Contaminants	Emission Factor Value	Emission Factor Units	Emission Rate Value	Emission Rate Units	Data Quality	Sample Calculation
Sulphur Dioxide	0.6	(lb/10^6scf)	4.82E-05	(g/s)	A	= (637 scf/h) x (0.6 lb / 10^6 scf) x (453.6 g / lb) / (3600 s / h)
Oxides of Nitrogen	100	(lb/10^6scf)	8.03E-03	(g/s)	B	= (637 scf/h) x (100 lb / 10^6 scf) x (453.6 g / lb) / (3600 s / h)
Filterable Particulate	7.6	(lb/10^6scf)	6.10E-04	(g/s)	D	= (637 scf/h) x (7.6 lb / 10^6 scf) x (453.6 g / lb) / (3600 s / h)
Condensible Particulate	--		--			
Total Particulate	7.6	(lb/10^6scf)	6.10E-04	(g/s)	D	= (637 scf/h) x (7.6 lb / 10^6 scf) x (453.6 g / lb) / (3600 s / h)

Note: Total Particulate = Filterable + Condensible, if applicable. Lowest data quality rating of either filterable or condensible applied.

Appendix G26: Biosolids and Compost Facility Calculations - Boiler (HEATING)

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Parameter	Value	Units
Fuel Type	Natural Gas	
Fuel Heating Value	1020	(Btu/scf)
Fuel Density		(lb/gal)
Firing Configuration	Wall-fired	
Boiler Efficiency	0.8	(%)
Excess Air	0.3	(%)

Exhaust Information	Value	Units
Exhaust Temperature (°C)	175	(°C)
Calculated Exit Temperature	448	(K)

Fuel Sulphur Information	Value	Units
Natural Gas Sulphur Content	2000	(grains/10^6scf)
Fuel Oil Sulphur Content	0	(%)

Rating (enter one set of units)	Value	Units
Boiler Heat Input (Btu/h)	1,215,000	(Btu/h)
Calculated Heat Input	1.22	(MMBtu/hr)
Boiler Size Cut-off	<100	(MMBtu/hr)

Pollution Controls	Value	Units
NSPS	n/a	
Low-NOx Burners	no	
Flue-gas Recirculation	no	

Fuel & Air Parameters	Value	Units	Sample Calculation / Comment
Fuel Consumption	1196	(scf/h)	= (1.22 MMBTU/h) x (1000000 BTU/MMBTU) / (1020 BTU/scf)
	33871	(L/h)	
Fuel Molar Flow Rate (NG Only)	1433	(mol'h)	= (1196 scf/h) x (28.32 L/scf) x (101.3 kPa) / (8.314 L·kPa/mol·K) / (288 K)
Fuel Mass Flow Rate	23	(kg/h)	= (1433 mol/h) x (16.03 g/mol) / (1000 g/kg)
Stoichiometric Ratio (NG only)	13.376	ratio	= 1 CO2 + 2 H2O + 0.6 O2 + 2 x 3.76 x (1 + 0.3) N2 per mol CH4
Theoretical Moist Air (Oil Only)	not applicable		
Combustion Air	17735	(mol/h)	= (1433 mol fuel / h) x (2 mol O2 / mol fuel) x (1 + (30% XS Air)) x (4.76 mol air / mol O2)
	511	(kg/h)	= (17735 mol air / h) x (28.8 g air / mol air) / (1000 g / kg)
	397	(m^3/h) @ 0°C	= (17735 mol/h) x (8.314 L·kPa/mol·K) x (288 K) / (101.3 kPa) / (1000 L/m^3)
	234	(scfm) @ 0°C	= (397 m^3/h) x (35.31 ft^3/m^3) / (60 min/h)

Exhaust Parameters	Value	Units	Sample Calculation
Exhaust Gas Molar Flow (NG only)	19168	(mol/h)	= (1433 mol/h) x (13.376 mol exhaust / mol fuel)
Theoretical Flue Gas (Oil Only)	not applicable	(m^3_{air} / L_{fuel})	
Exhaust Gas Mass Flow Rate	535	(kg/h)	= (1433 mol fuel / h) x (373 g exhaust / mol fuel)
Exhaust Gas Flow	705	(Am³/h)	= (19168 mol/h) x (8.314 L·kPa/mol·K) x (448 K) / (101.3 kPa) / (1000 L/m^3)
	0.20	(Am³/s)	= (705 m^3 / h) / (3600 s / h)
	453	(m^3/h) @ 0°C	= (705 m^3 / h) x (288K) / (448 K)
	267	(scfm) @ 0°C	= (453 m^3 / h) x (35.31 ft^3 / m^3) / (60 min / h)

Criteria Contaminants	Emission Factor Value	Emission Factor Units	Emission Rate Value	Emission Rate Units	Data Quality	Sample Calculation
Sulphur Dioxide	0.6	(lb/10^6scf)	9.04E-05	(g/s)	A	= (1196 scf/h) x (0.6 lb / 10^6 scf) x (453.6 g / lb) / (3600 s / h)
Oxides of Nitrogen	100	(lb/10^6scf)	1.51E-02	(g/s)	B	= (1196 scf/h) x (100 lb / 10^6 scf) x (453.6 g / lb) / (3600 s / h)
Filterable Particulate	7.6	(lb/10^6scf)	1.15E-03	(g/s)	D	= (1196 scf/h) x (7.6 lb / 10^6 scf) x (453.6 g / lb) / (3600 s / h)
Condensible Particulate	--		--			
Total Particulate	7.6	(lb/10^6scf)	1.15E-03	(g/s)	D	= (1196 scf/h) x (7.6 lb / 10^6 scf) x (453.6 g / lb) / (3600 s / h)

Note: Total Particulate = Filterable + Condensible, if applicable. Lowest data quality rating of either filterable or condensible applied.

Appendix G27: Biosolids and Compost Facility Calculations - Boiler (R_BLDG)

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Parameter	Value	Units
Fuel Type	No. 2 Fuel Oil	
Fuel Heating Value	137000	(Btu/gal)
Fuel Density		(lb/gal)
Firing Configuration	Normal firing	
Boiler Efficiency	0.8	(%)
Excess Air	0.15	(%)

Exhaust Information	Value	Units
Exhaust Temperature (°C)	175	(°C)
Calculated Exit Temperature	448	(K)

Fuel Sulphur Information	Value	Units
Natural Gas Sulphur Content	2000	(grains/10^6scf)
Fuel Oil Sulphur Content	0.5	(%)

Rating (enter one set of units)	Value	Units
Boiler Heat Input (Btu/h)	350,000	(Btu/h)
Calculated Heat Input	0.35	(MMBtu/hr)
Boiler Size Cut-off	<100	(MMBtu/hr)

Pollution Controls	Value	Units
NSPS	n/a	
Low-NOx Burners	no	
Flue-gas Recirculation	no	

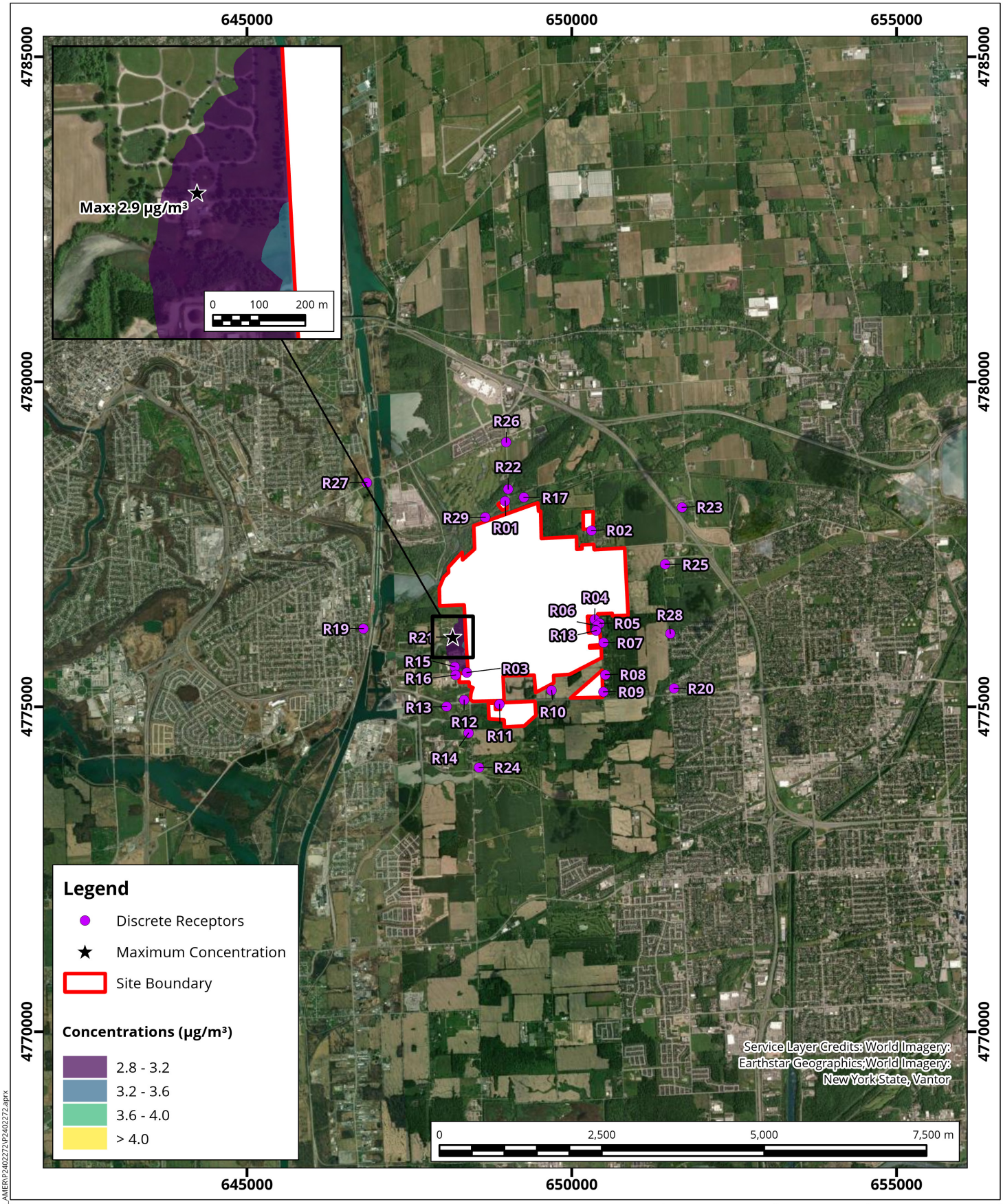
Fuel & Air Parameters	Value	Units	Sample Calculation / Comment
Fuel Consumption	2.6	(gal/h)	= (0.35 MMBTU/h) x (1000000 BTU/MMBTU) / (137000 BTU/gal)
	10	(L/h)	
Fuel Molar Flow Rate (NG Only)	not applicable		not applicable
Fuel Mass Flow Rate	0	(kg/h)	= (2.6 gal/h) x (lb/gal) / (2.205 lb/kg)
Stoichiometric Ratio (NG only)	not applicable		not applicable
Theoretical Moist Air (Oil Only)	345	(kg air / MMBT	based on 7.5 lb theoretical dry air per 10,000 BTU of fuel oil
Combustion Air	4810	(mol/h)	= (139 kg air / h) x (1000 g / kg) / (28.8 g air / mol air)
	139	(kg/h)	= 0.35 MMBTU/h x 345 kg/MMBTU x (115% XS Air)
	108	(m^3/h) @ 0°C	= (4810 mol/h) x (8.314 L·kPa/mol·K) x (288 K) / (101.3 kPa) / (1000 L/m^3)
	64	(scfm) @ 0°C	= (108 m^3/h) x (35.31 ft^3/m^3) / (60 min/h)

Exhaust Parameters	Value	Units	Sample Calculation
Exhaust Gas Molar Flow (NG only)	not applicable	(mol/h)	not applicable
Theoretical Flue Gas (Oil Only)	10.4	(m^3_{air} / L_{fuel})	at standard temperature & pressure
Exhaust Gas Mass Flow Rate	139	(kg/h)	0 kg fuel / h + 139 kg air / h
Exhaust Gas Flow	171	(Am^3/h)	= (104 m^3 air / h) x (448 K) / (288K)
	0.05	(Am^3/s)	= (171 m^3 / h) / (3600 s / h)
	104	(m^3/h) @ 0°C	= (10.4 m^3 air / L fuel) x (10 L fuel / h)
	61	(scfm) @ 0°C	= (104 m^3 / h) x (35.31 ft^3 / m^3) / (60 min / h)

Criteria Contaminants	Emission Factor Value	Emission Factor Units	Emission Rate Value	Emission Rate Units	Data Quality	Sample Calculation
Sulphur Dioxide	71	(lb/10^3gal)	2.33E-02	(g/s)	A	= (2.6 gal / h) x (71 lb / 10^3 gal) x (453.6 g / lb) / (3600 s / h)
Oxides of Nitrogen	20	(lb/10^3gal)	6.55E-03	(g/s)	A	= (2.6 gal / h) x (20 lb / 10^3 gal) x (453.6 g / lb) / (3600 s / h)
Filterable Particulate	2	(lb/10^3gal)	6.55E-04	(g/s)	A	= (2.6 gal / h) x (2 lb / 10^3 gal) x (453.6 g / lb) / (3600 s / h)
Condensible Particulate	1.3	(lb/10^3gal)	4.26E-04	(g/s)	D	= (2.6 gal / h) x (1.3 lb / 10^3 gal) x (453.6 g / lb) / (3600 s / h)
Total Particulate	3.3	(lb/10^3gal)	1.08E-03	(g/s)	D	= (2.6 gal / h) x (3.3 lb / 10^3 gal) x (453.6 g / lb) / (3600 s / h)

Note: Total Particulate = Filterable + Condensible, if applicable. Lowest data quality rating of either filterable or condensible applied.

APPENDIX H



Predicted 10-Minute Hydrogen Sulphide Concentrations (in µg/m³)

Do Nothing Scenario

Map Projection: NAD 1983 UTM Zone 17N

Walker Landfill - Regional Municipality of Niagara, Ontario

True North

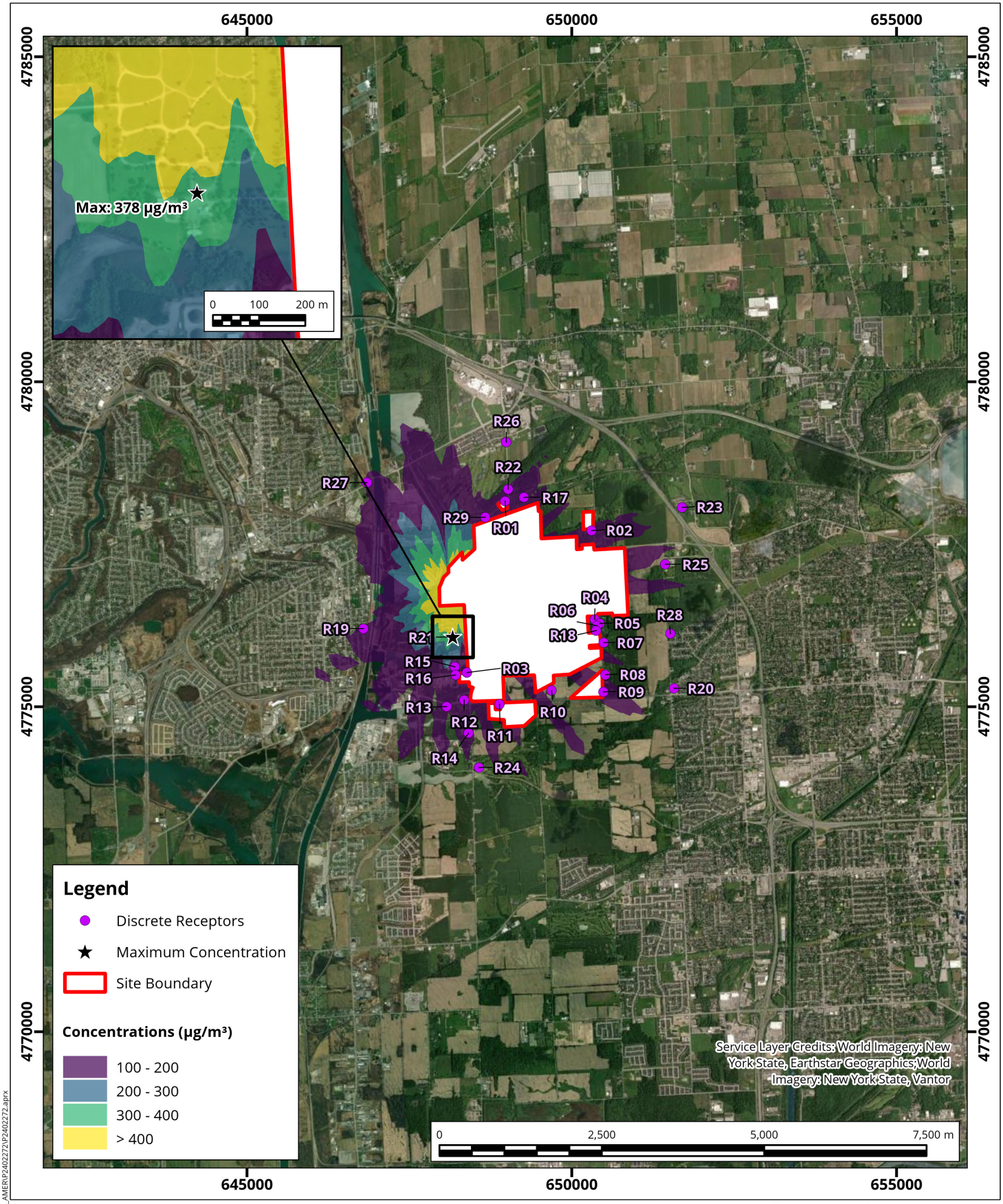
AAQC: 13 µg/m³

Background Concentration: 2.4 µg/m³

Project #: 2402272

Drawn by: PIP	Figure: H.1
Approx. Scale:	1:80,000
Date Revised:	Jun 23, 2026

Map Document: C:\WorkingFolder\Jobs_AMER\P2402272\P2402272.aprx



Predicted 1-Hour Nitrogen Oxides Concentrations (in µg/m³)

Do Nothing Scenario

Map Projection: NAD 1983 UTM Zone 17N

Walker Landfill - Regional Municipality of Niagara, Ontario

True North

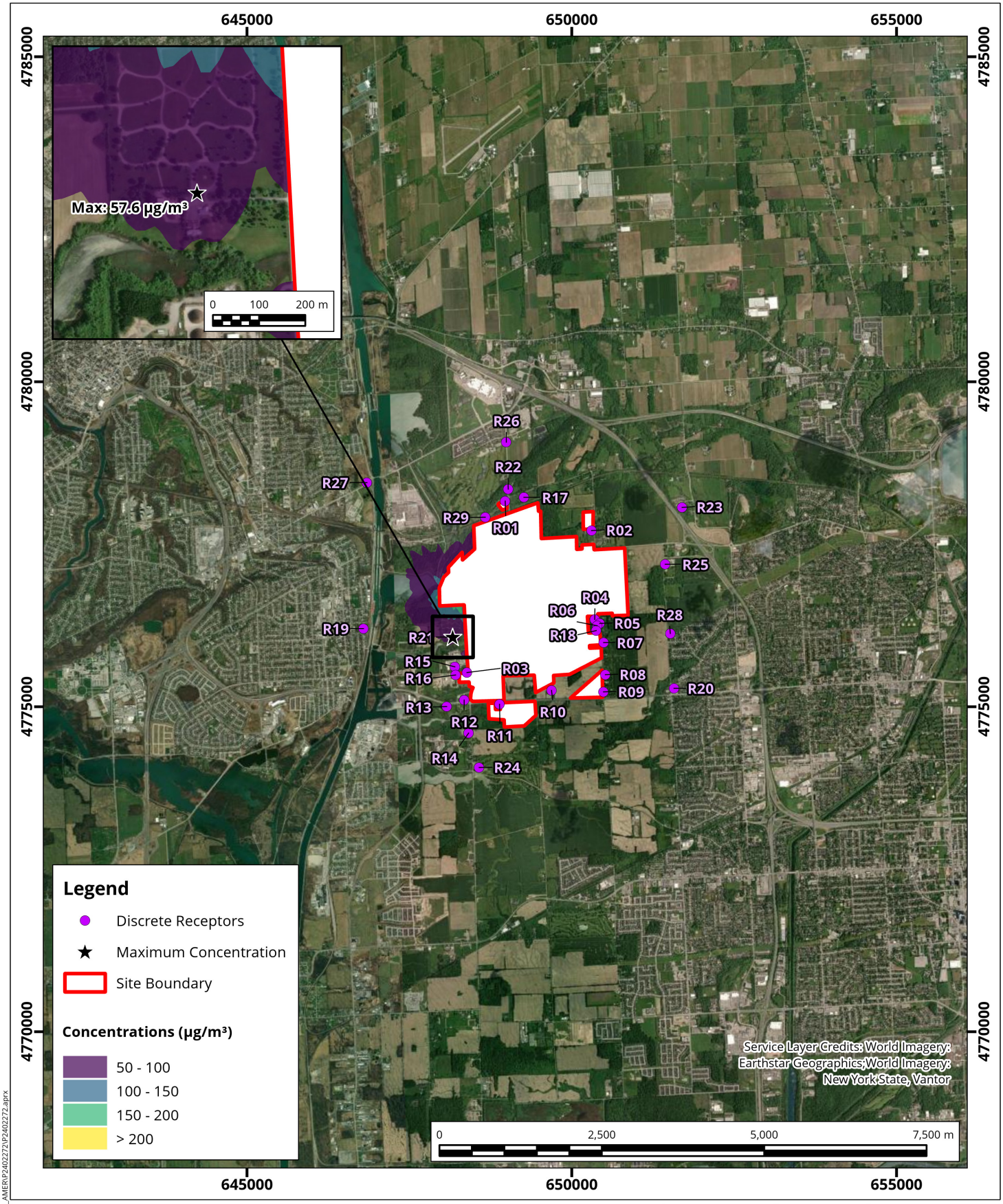
AAQC: 400 µg/m³

Background Concentration: 23.4 µg/m³

Project #: 2402272

Drawn by: PIP	Figure: H.2
Approx. Scale:	1:80,000
Date Revised:	Jun 23, 2026

Map Document: C:\WorkingFolder\Jobs_AMER\P2402272\P2402272.aprx



Predicted 24-Hour Nitrogen Oxides Concentrations (in µg/m³)

Do Nothing Scenario

Map Projection: NAD 1983 UTM Zone 17N

Walker Landfill - Regional Municipality of Niagara, Ontario

True North

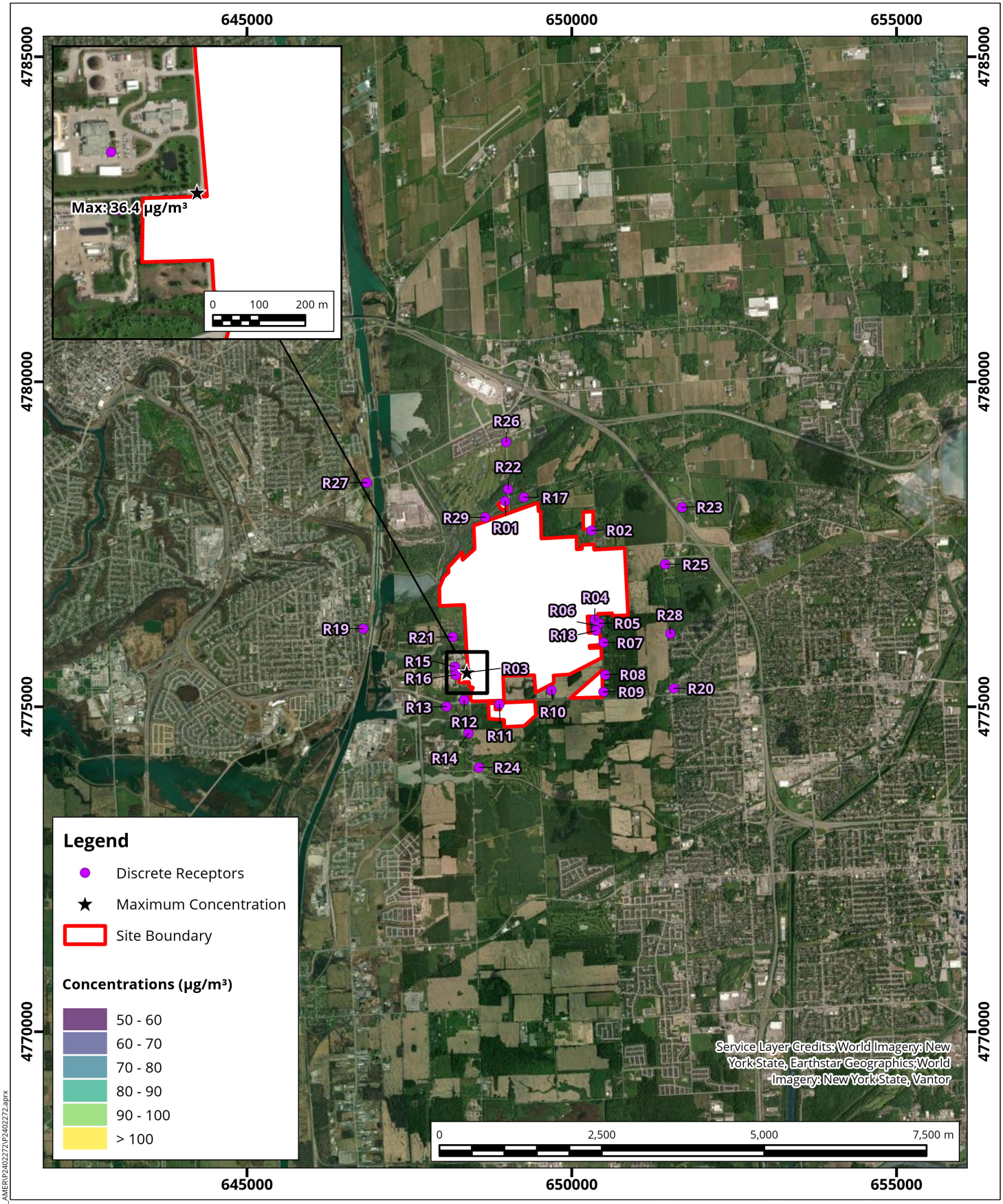
AAQC: 200 µg/m³

Background Concentration: 21.6 µg/m³

Project #: 2402272

Drawn by: PIP	Figure: H.3
Approx. Scale:	1:80,000
Date Revised:	Jun 23, 2026

Map Document: C:\WorkingFolder\Jobs_AMER\P2402272\P2402272.aprx



Predicted 1-Hour Sulphur Dioxide Concentrations (in µg/m³)

Do Nothing Scenario

Map Projection: NAD 1983 UTM Zone 17N

Walker Landfill - Regional Municipality of Niagara, Ontario

True North

AAQC: 100 µg/m³

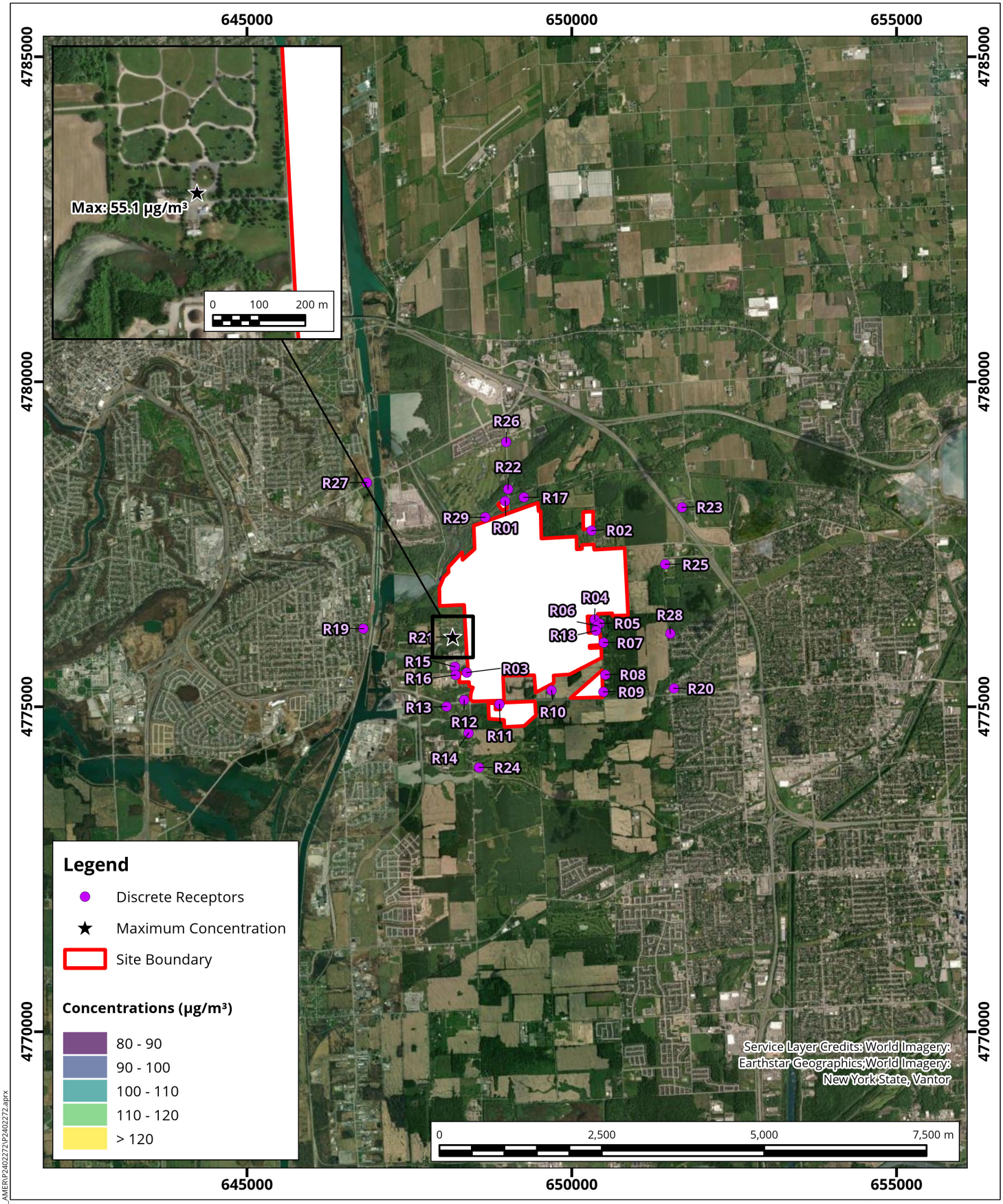
Background Concentration: 1.1 µg/m³

Project #: 2402272

Drawn by: PIP	Figure: H.4
Approx. Scale:	1:80,000
Date Revised:	Jun 24, 2026

Map Document: C:\WorkingFolder\Jobs_AMER\P2402272\P2402272.aprx

APPENDIX I



Predicted 24-Hour TSP Concentrations (in µg/m³)

Do Nothing Scenario

Map Projection: NAD 1983 UTM Zone 17N

Walker Landfill - Regional Municipality of Niagara, Ontario

True North

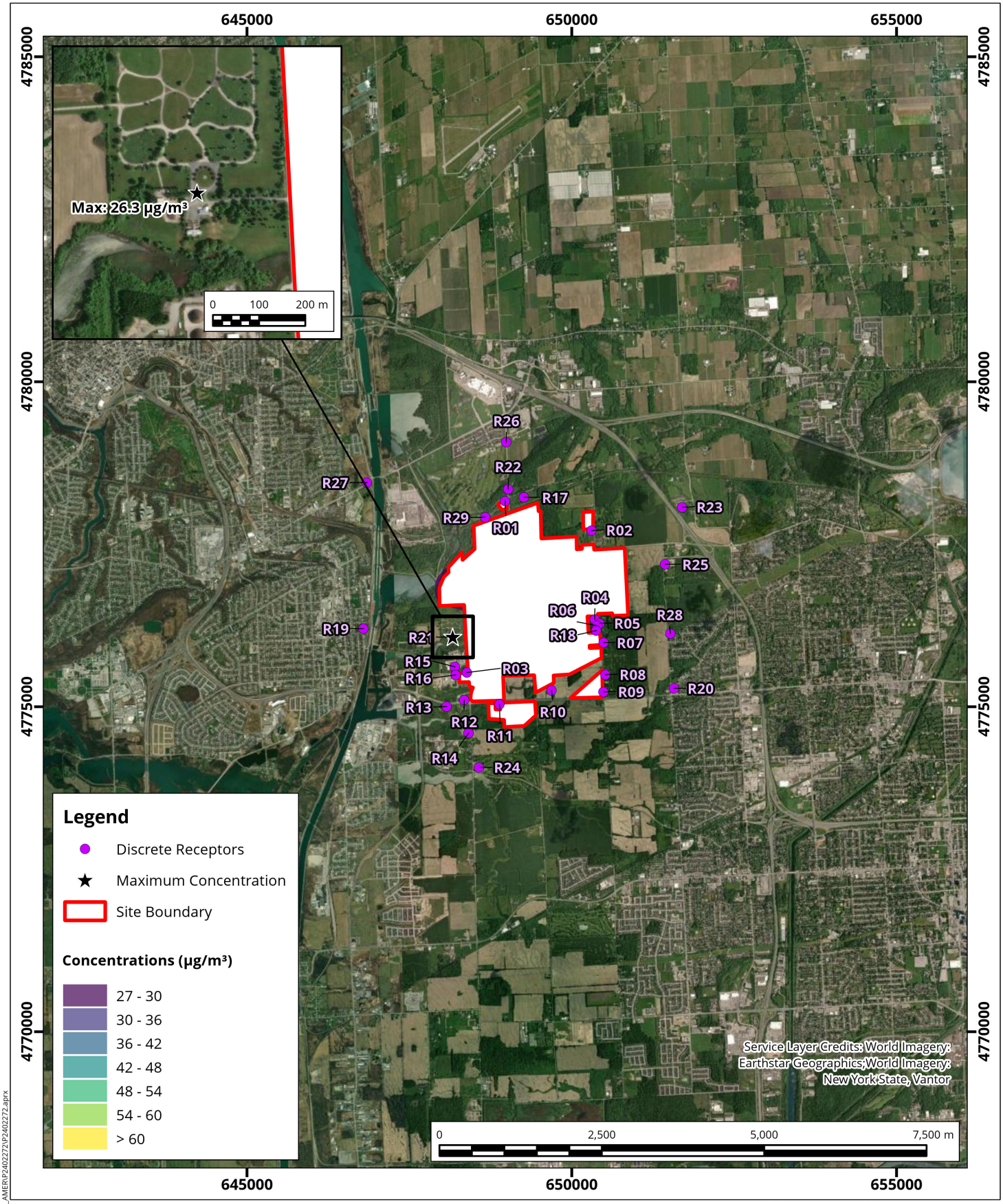
AAQC: 120 µg/m³

Background Concentration: 51 µg/m³

Project #: 2402272

Drawn by: PIP	Figure: I.1
Approx. Scale:	1:80,000
Date Revised:	Jun 23, 2026

Map Document: C:\WorkingFolder\Jobs_AMER\P2402272\P2402272.aprx



Predicted Annual TSP Concentrations (in µg/m³)

Do Nothing Scenario

Map Projection: NAD 1983 UTM Zone 17N

Walker Landfill - Regional Municipality of Niagara, Ontario

True North

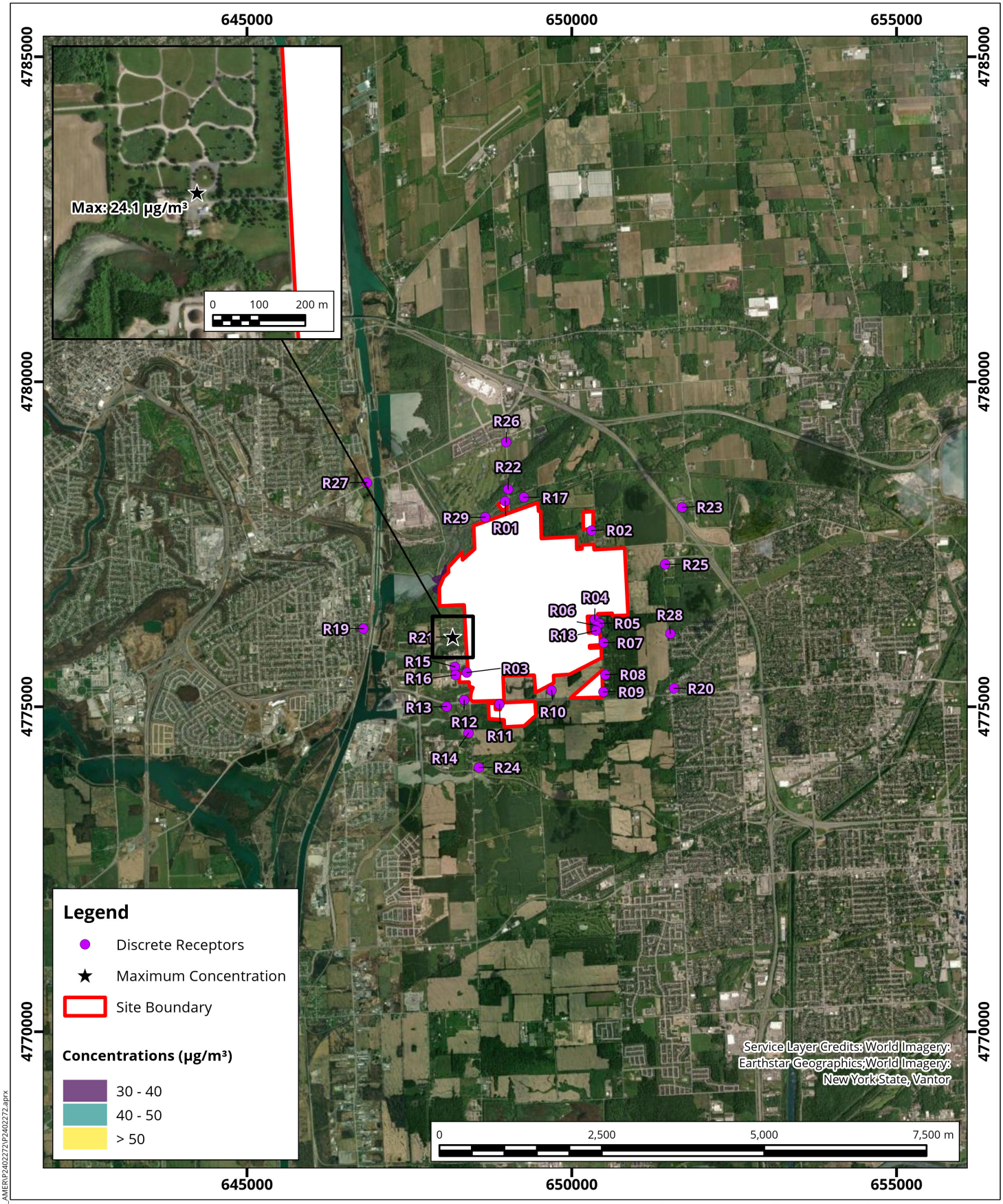
AAQC: 60 µg/m³

Background Concentration: 26 µg/m³

Project #: 2402272

Drawn by: PIP	Figure: I.2
Approx. Scale:	1:80,000
Date Revised:	Jun 23, 2026

Map Document: C:\WorkingFolder\Jobs_AMER\P2402272\P2402272.aprx



Predicted 24-Hour PM_{10} Concentrations (in µg/m³)

Do Nothing Scenario

Map Projection: NAD 1983 UTM Zone 17N

Walker Landfill - Regional Municipality of Niagara, Ontario

True North

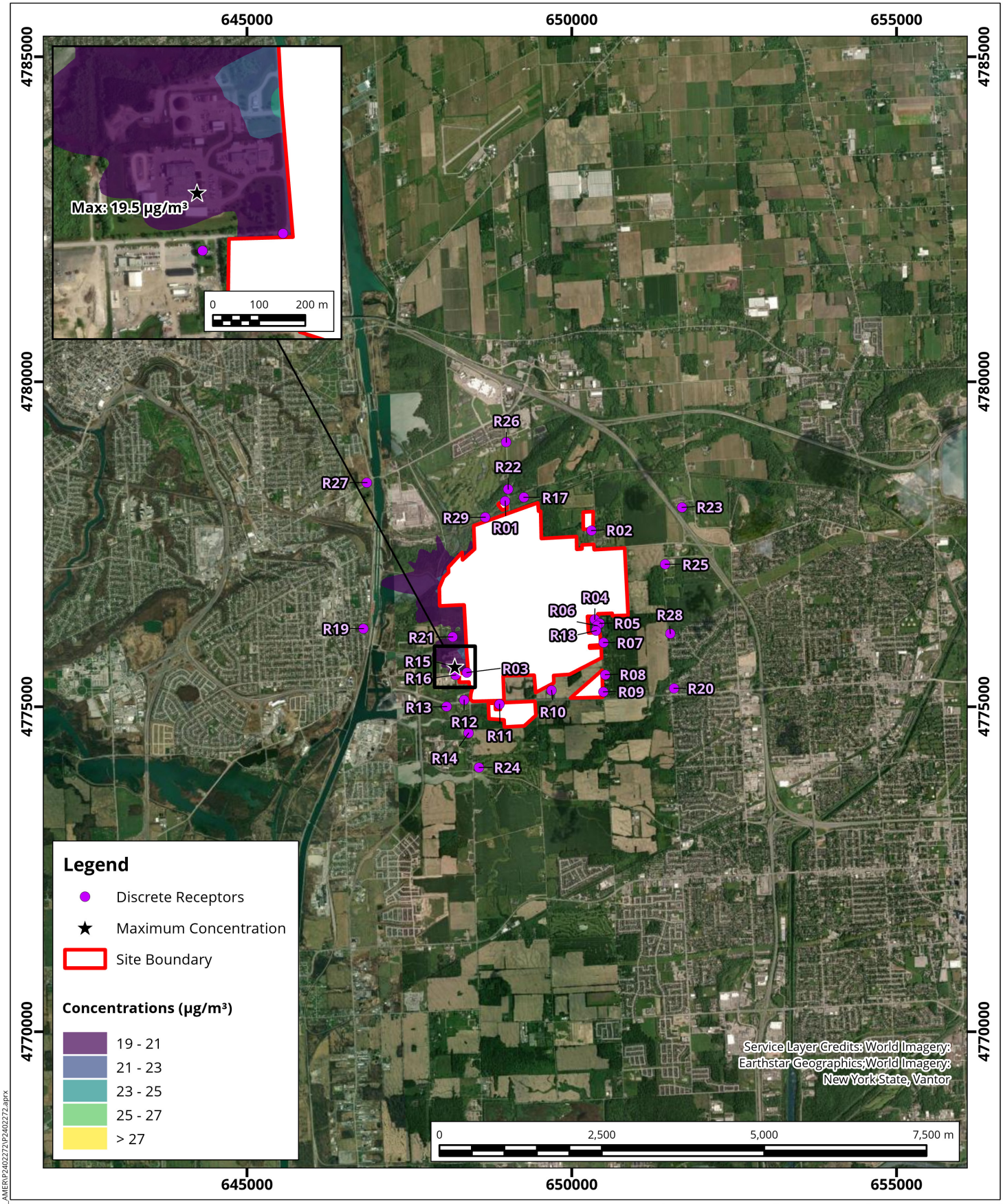
AAQC: 50 µg/m³

Background Concentration: 21.9 µg/m³

Project #: 2402272

Drawn by: PIP	Figure: I.3
Approx. Scale:	1:80,000
Date Revised:	Jun 23, 2026

Map Document: C:\WorkingFolder\Jobs_AMER\P2402272\P2402272.aprx



Map Document: C:\WorkingFolder\Jobs_AMER\P2402272\P2402272.aprx

Predicted 24-Hour $PM_{2.5}$ Concentrations (in µg/m³)

Do Nothing Scenario

Map Projection: NAD 1983 UTM Zone 17N

Walker Landfill - Regional Municipality of Niagara, Ontario

True North

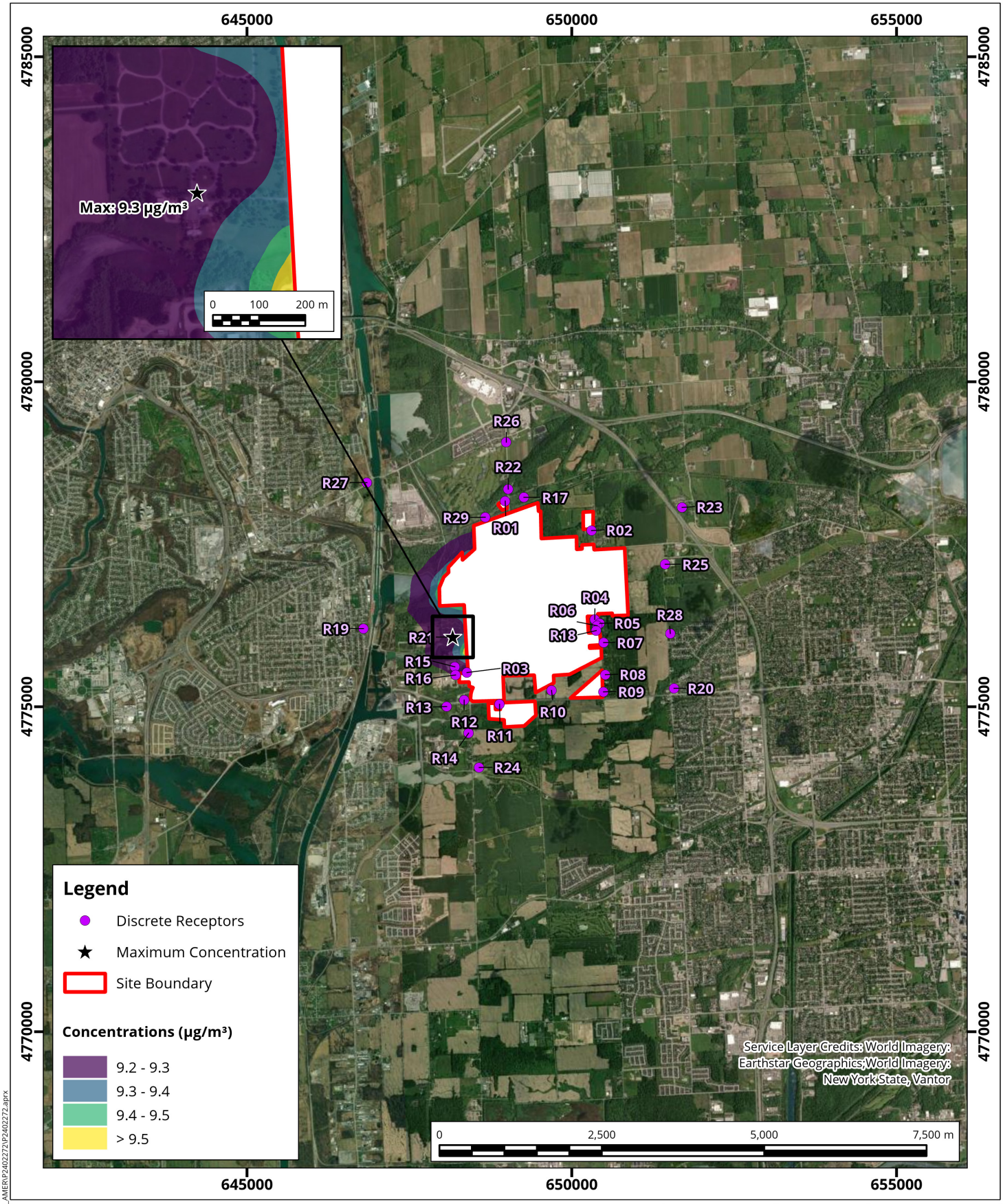
AAQC / CAAQS 2020: 27 µg/m³

CAAQS 2030: 23 µg/m³

Background Concentration: 17.8 µg/m³

Project #: 2402272

Drawn by: PIP	Figure: I.4
Approx. Scale:	1:80,000
Date Revised:	Jun 23, 2026



Predicted Annual $PM_{2.5}$ Concentrations (in µg/m³)

Do Nothing Scenario

Map Projection: NAD 1983 UTM Zone 17N

Walker Landfill - Regional Municipality of Niagara, Ontario

True North

AAQC / CAAQS 2020: 8.8 µg/m³
CAAQS 2030: 8 µg/m³
Background Concentration: 9.1 µg/m³
Project #: 2402272

Drawn by: PIP	Figure: I.5
Approx. Scale:	1:80,000
Date Revised:	Jun 23, 2026

Map Document: C:\WorkingFolder\Jobs_AMER\P2402272\P2402272.aprx

APPENDIX J

Appendix J1: Source Summary Table - Odour (Scenario 1 (End of Stage 1) - Year 2033)

RWDI #2402272

Walker South Landfill Phase 2 Environmental Assessment

Source ID	Source Type	Source Description	Source Data								Emission Data							
			Stack Volumetric Flow Rate (Am³/s)	Stack Exit Gas Temp. (°C)	Stack Inner Diameter (m)	Stack Exit Velocity (m/s)	Stack Height Above Grade	Stack Height Above Roof	Source Coordinates		Contaminant	CAS Number	Emission Rate		Averaging Period (hours)	Emission Estimating Technique [1]	Emissions Data Quality [2]	Percentage of Overall Emissions (%)
									X (m)	Y (m)			(OU/s)	(OU/m2/s)				
Walker Environmental Group Inc. – Landfill																		
LEAPOND1	AREA	Leachate Aeration Pond 1	n/a	n/a	n/a	n/a	n/a	n/a	648441.16	4777248.47	Odour	n/a	294	1.69E-01	10 minute	V-ST	Above-Average	<1%
LEAPOND2	AREA	Leachate Aeration Pond 2	n/a	n/a	n/a	n/a	n/a	n/a	648787.21	4777544.02	Odour	n/a	328	1.69E-01	10 minute	V-ST	Above-Average	<1%
LEAPOND3	AREA	Leachate Aeration Pond 3	n/a	n/a	n/a	n/a	n/a	n/a	648855.81	4777522.57	Odour	n/a	389	1.69E-01	10 minute	V-ST	Above-Average	<1%
LEAPOND4	AREA	Proposed Leachate Aeration Pond 4	n/a	n/a	n/a	n/a	n/a	n/a	648775.66	4777486.69	Odour	n/a	532	1.69E-01	10 minute	V-ST	Above-Average	<1%
LEAPOND5	AREA	Proposed Leachate Aeration Pond 5	n/a	n/a	n/a	n/a	n/a	n/a	648853.01	4777466.29	Odour	n/a	532	1.69E-01	10 minute	V-ST	Above-Average	<1%
SOIL	AREA_POLY	Contaminated Soil Pile	n/a	n/a	n/a	n/a	n/a	n/a	648631.78	4776729.99	Odour	n/a	1864	4.94E-02	10 minute	V-ST	Above-Average	2%
EASTLF_AF	AREA	Fugitive Emissions from Active Face at East Landfill	n/a	n/a	n/a	n/a	n/a	n/a	648914.65	4777197.33	Odour	n/a	116	2.32E-01	10 minute	V-ST	Above-Average	<1%
EASTLF_IC	AREA_POLY	Fugitive Emissions from Areas under Interim Cover at East Landfill	n/a	n/a	n/a	n/a	n/a	n/a	648644.74	4777113.01	Odour	n/a	4811	8.43E-02	10 minute	V-ST	Above-Average	6%
EASTLF_FC	AREA_POLY	Fugitive Emissions from Areas under Final Cover at East Landfill	n/a	n/a	n/a	n/a	n/a	n/a	648368.73	4776777.27	Odour	n/a	14310	2.67E-02	10 minute	V-ST	Above-Average	19%
SLF_IC	AREA_POLY	Fugitive Emissions from Areas under Interim Cover at South Landfill Phase 1	n/a	n/a	n/a	n/a	n/a	n/a	649308.11	4776432.70	Odour	n/a	10435	8.43E-02	10 minute	V-ST	Above-Average	14%
SLF_FC	AREA_POLY	Fugitive Emissions from Areas under Final Cover at South Landfill Phase 1	n/a	n/a	n/a	n/a	n/a	n/a	648547.48	4775839.48	Odour	n/a	21671	5.65E-02	10 minute	V-ST	Above-Average	28%
S1_AF	AREA	Fugitive Emissions from Active Face at South Landfill Phase 2 - Stage 1	n/a	n/a	n/a	n/a	n/a	n/a	649879.60	4776580.97	Odour	n/a	463	2.32E-01	10 minute	V-ST	Above-Average	<1%
S1_IC	AREA_POLY	Fugitive Emissions from Areas under Interim Cover at South Landfill Phase 2 - Stage 1	n/a	n/a	n/a	n/a	n/a	n/a	649568.26	4776303.35	Odour	n/a	15801	8.43E-02	10 minute	V-ST	Above-Average	21%
S1_FC	AREA_POLY	Fugitive Emissions from Areas under Final Cover at South Landfill Phase 2 - Stage 1	n/a	n/a	n/a	n/a	n/a	n/a	649435.73	4775998.41	Odour	n/a	2624	5.84E-02	10 minute	V-ST	Above-Average	3%
Sources at N-Viro Facility																		
BIOFILTR	AREA	Biofilter Exhaust (including emissions from Natural Gas Dryer Flue Gas)	n/a	n/a	n/a	n/a	n/a	N/A	648277.09	4776992.66	Odour	n/a	221	4.20E-01	10 minute	V-ST	Above-Average	<1%
Sources at WEG Compost Facility																		
COMPPOND	AREA	Compost Pond	n/a	n/a	n/a	n/a	n/a	n/a	648028.62	4776705.82	Odour	n/a	36	1.10E-02	10 minute	V-ST	Above-Average	<1%
GRINDER	VOLUME	Fugitive emissions from Grinder [7]	n/a	n/a	n/a	n/a	n/a	n/a	648169.14	4776734.05	Odour	n/a	8	-	10 minute	V-ST	Above-Average	<1%
R_BLDG	VOLUME	Receiving Building - During Operation of Grinder with Doors Open	n/a	n/a	n/a	n/a	n/a	n/a	648213.65	4776739.37	Odour	n/a	100	-	10 minute	V-ST	Above-Average	<1%
WK1_1	AREA	Windrow of Compost Material in Week 1 of Treatment	n/a	n/a	n/a	n/a	n/a	n/a	648168.53	4776701.38	Odour	n/a	51	1.01E-01	10 minute	V-ST	Above-Average	<1%
WK1_2	AREA	Windrow of Compost Material in Week 1 of Treatment	n/a	n/a	n/a	n/a	n/a	n/a	648169.54	4776691.31	Odour	n/a	51	1.01E-01	10 minute	V-ST	Above-Average	<1%
WK2_1	AREA	Windrow of Compost Material in Week 2	n/a	n/a	n/a	n/a	n/a	n/a	648170.30	4776681.48	Odour	n/a	37	7.35E-02	10 minute	V-ST	Above-Average	<1%
WK2_2	AREA	Windrow of Compost Material in Week 2	n/a	n/a	n/a	n/a	n/a	n/a	648171.05	4776671.91	Odour	n/a	37	7.35E-02	10 minute	V-ST	Above-Average	<1%
WK3_1	AREA	Windrow of Compost Material in Week 3	n/a	n/a	n/a	n/a	n/a	n/a	648172.06	4776661.84	Odour	n/a	23	4.56E-02	10 minute	V-ST	Above-Average	<1%
WK3_2	AREA	Windrow of Compost Material in Week 3	n/a	n/a	n/a	n/a	n/a	n/a	648172.82	4776652.26	Odour	n/a	23	4.56E-02	10 minute	V-ST	Above-Average	<1%
WK4_1	AREA	Windrow of Compost Material in Week 4	n/a	n/a	n/a	n/a	n/a	n/a	648173.82	4776641.43	Odour	n/a	14	2.70E-02	10 minute	V-ST	Above-Average	<1%
WK4_2	AREA	Windrow of Compost Material in Week 4	n/a	n/a	n/a	n/a	n/a	n/a	648174.83	4776631.61	Odour	n/a	14	2.70E-02	10 minute	V-ST	Above-Average	<1%
WK5_1	AREA	Windrow of Compost Material in Week 5	n/a	n/a	n/a	n/a	n/a	n/a	648227.98	4776706.67	Odour	n/a	9	1.89E-02	10 minute	V-ST	Above-Average	<1%
WK5_2	AREA	Windrow of Compost Material in Week 5	n/a	n/a	n/a	n/a	n/a	n/a	648229.24	4776697.10	Odour	n/a	9	1.89E-02	10 minute	V-ST	Above-Average	<1%
WK6_1	AREA	Windrow of Compost Material in Week 6	n/a	n/a	n/a	n/a	n/a	n/a	648229.74	4776688.54	Odour	n/a	8	1.59E-02	10 minute	V-ST	Above-Average	<1%
WK6_2	AREA	Windrow of Compost Material in Week 6	n/a	n/a	n/a	n/a	n/a	n/a	648231.00	4776677.45	Odour	n/a	8	1.59E-02	10 minute	V-ST	Above-Average	<1%
WK1_3	AREA	Windrow of Compost Material in Week 1	n/a	n/a	n/a	n/a	n/a	n/a	648231.50	4776667.63	Odour	n/a	51	1.01E-01	10 minute	V-ST	Above-Average	<1%
WK2_3	AREA	Windrow of Compost Material in Week 2	n/a	n/a	n/a	n/a	n/a	n/a	648232.76	4776657.30	Odour	n/a	37	7.35E-02	10 minute	V-ST	Above-Average	<1%
WK3_3	AREA	Windrow of Compost Material in Week 3	n/a	n/a	n/a	n/a	n/a	n/a	648233.77	4776647.48	Odour	n/a	23	4.56E-02	10 minute	V-ST	Above-Average	<1%
WK4_3	AREA	Windrow of Compost Material in Week 4	n/a	n/a	n/a	n/a	n/a	n/a	648234.53	4776637.40	Odour	n/a	14	2.70E-02	10 minute	V-ST	Above-Average	<1%
SCREEN	AREA	Screening Operations	n/a	n/a	n/a	n/a	n/a	n/a	648172.19	4776789.55	Odour	n/a	49	6.38E-02	10 minute	V-ST	Above-Average	<1%
BIOF1	AREA	Processing and Screening Building Biofilter 1	n/a	n/a	n/a	n/a	n/a	n/a	648176.20	4776749.75	Odour	n/a	7	6.10E-02	10 minute	V-ST	Above-Average	<1%
BIOF2	AREA	Processing and Screening Building Biofilter 2	n/a	n/a	n/a	n/a	n/a	n/a	648179.34	4776719.11	Odour	n/a	7	6.10E-02	10 minute	V-ST	Above-Average	<1%
BASE1	AREA	Incoming Leaf & Yard Material (Open Windrow Pad)	n/a	n/a	n/a	n/a	n/a	n/a	648128.82	4776798.87	Odour	n/a	28	2.58E-02	10 minute	V-ST	Above-Average	<1%
BASE2	AREA	Incoming Leaf & Yard Material (Open Windrow Pad)	n/a	n/a	n/a	n/a	n/a	n/a	648125.68	4776843.47	Odour	n/a	28	2.58E-02	10 minute	V-ST	Above-Average	<1%
BASE3	AREA	Incoming Leaf & Yard Material (Open Windrow Pad)	n/a	n/a	n/a	n/a	n/a	n/a	648122.00	4776887.03	Odour	n/a	28	2.58E-02	10 minute	V-ST	Above-Average	<1%
BASE4	AREA	Incoming Leaf & Yard Material (Open Windrow Pad)	n/a	n/a	n/a	n/a	n/a	n/a	648117.28	4776930.58	Odour	n/a	26	2.58E-02	10 minute	V-ST	Above-Average	<1%
WK2O	AREA	Open Windrow - Week 2 Material	n/a	n/a	n/a	n/a	n/a	n/a	648156.64	4776934.26	Odour	n/a	118	1.09E-01	10 minute	V-ST	Above-Average	<1%
WK2O2	AREA	Open Windrow - Week 2 Material	n/a	n/a	n/a	n/a	n/a	n/a	648149.81	4776915.36	Odour	n/a	153	1.09E-01	10 minute	V-ST	Above-Average	<1%
WK2O3	AREA	Open Windrow - Week 2 Material	n/a	n/a	n/a	n/a	n/a	n/a	648151.91	4776899.10	Odour	n/a	174	1.09E-01	10 minute	V-ST	Above-Average	<1%
WK2O4	AREA	Open Windrow - Week 2 Material	n/a	n/a	n/a	n/a	n/a	n/a	648155.06	4776881.78	Odour	n/a	196	1.09E-01	10 minute	V-ST	Above-Average	<1%
W6B1	AREA	Open Windrow - Week 6 Material (Before Turning)	n/a	n/a	n/a	n/a	n/a		648157.16	4776867.09	Odour	n/a	60	3.15E-02	10 minute	V-ST	Above-Average	<1%
W6BT2	AREA	Open Windrow - Week 6 Material (Before Turning)	n/a	n/a	n/a	n/a	n/a	n/a	648159.26	4776850.30	Odour	n/a	63	3.15E-02	10 minute	V-ST	Above-Average	<1%
W6BT3	AREA	Open Windrow - Week 6 Material (Before Turning)	n/a	n/a	n/a	n/a	n/a	n/a	648175.09	4776835.43	Odour	n/a	63	3.15E-02	10 minute	V-ST	Above-Average	<1%
W6BT4	AREA	Open Windrow - Week 6 Material (Before Turning)	n/a	n/a	n/a	n/a	n/a	n/a	648216.46	4776807.27	Odour	n/a	38	3.15E-02	10 minute	V-ST	Above-Average	<1%
W6AT1	AREA	Open Windrow - Week 6 Material (After Turning)	n/a	n/a	n/a	n/a	n/a	n/a	648255.29	4776810.41	Odour	n/a	74	6.16E-02	10 minute	V-ST	Above-Average	<1%
W6AT2	AREA	Open Windrow - Week 6 Material (After Turning)	n/a	n/a	n/a	n/a	n/a	n/a	648226.95	4776792.57	Odour	n/a	86	6.16E-02	10 minute	V-ST	Above-Average	<1%
W6AT3	AREA	Open Windrow - Week 6 Material (After Turning)	n/a	n/a	n/a	n/a	n/a	n/a	648227.48	4776777.88	Odour	n/a	86	6.16E-02	10 minute	V-ST	Above-Average	<1%
W6AT4	AREA	Open Windrow - Week 6 Material (After Turning)	n/a	n/a	n/a	n/a	n/a	n/a	648228.00	4776762.66	Odour	n/a	86	6.16E-02	10 minute	V-ST	Above-Average	<1%
FINAL	AREA	Final Product Storage	n/a	n/a	n/a	n/a	n/a	n/a	648133.35	4776720.14	Odour	n/a	2	4.99E-03	10 minute	V-ST	Above-Average	<1%
NEW_WK1	AREA	Windrow of Compost Material in Week 1	n/a	n/a	n/a	n/a	n/a	n/a	648136.48	4776629.44	Odour	n/a	51	1.01E-01	10 minute	V-ST	Above-Average	<1%
NEW_WK2	AREA	Windrow of Compost Material in Week 2	n/a	n/a	n/a	n/a	n/a	n/a	648147.15	4776630.35	Odour	n/a	37	7.35E-02	10 minute	V-ST	Above-Average	<1%
NEW_WK3	AREA	Windrow of Compost Material in Week 3	n/a	n/a	n/a	n/a	n/a	n/a	648159.68	4776617.28	Odour	n/a	23	4.56E-02	10 minute	V-ST	Above-Average	<1%
NEW_WK4	AREA	Windrow of Compost Material in Week 4	n/a	n/a	n/a	n/a	n/a	n/a	648169.44	4776618.75	Odour	n/a	14	2.70E-02	10 minute	V-ST	Above-Average	<1%
										Total	**Odour**	**n/a**	**76,438**	-	-	-	-	**100%**

Notes:

[1] Emission Estimating Technique Short-Forms are V-ST (Validated Source Test), "ST" (Source Test), EF (Emission Factor), MB (Mass Balance), and EC (Engineering Calculation).

[2] Data Quality Categories: Highest; Above-Average; Average; and Marginal.

Appendix J2: Source Summary Table - Odour (Scenario 2 (End of Stage 3) - Year 2041)

RWDI #2402272

Walker South Landfill Phase 2 Environmental Assessment

Source ID	Source Type	Source Description	Source Data								Emission Data							
			Stack Volumetric Flow Rate (Am³/s)	Stack Exit Gas Temp. (°C)	Stack Inner Diameter (m)	Stack Exit Velocity (m/s)	Stack Height Above Grade	Stack Height Above Roof	Source Coordinates		Contaminant	CAS Number	Emission Rate		Averaging Period (hours)	Emission Estimating Technique [1]	Emissions Data Quality [2]	Percentage of Overall Emissions (%)
									X (m)	Y (m)			(OU/s)	(OU/m2/s)				
Walker Environmental Group Inc. – Landfill																		
LEAPOND1	AREA	Leachate Aeration Pond 1	n/a	n/a	n/a	n/a	n/a	n/a	648441.16	4777248.47	Odour	n/a	294	1.69E-01	10 minute	V-ST	Above-Average	<1%
LEAPOND2	AREA	Leachate Aeration Pond 2	n/a	n/a	n/a	n/a	n/a	n/a	648787.21	4777544.02	Odour	n/a	328	1.69E-01	10 minute	V-ST	Above-Average	<1%
LEAPOND3	AREA	Leachate Aeration Pond 3	n/a	n/a	n/a	n/a	n/a	n/a	648855.81	4777522.57	Odour	n/a	389	1.69E-01	10 minute	V-ST	Above-Average	<1%
LEAPOND4	AREA	Proposed Leachate Aeration Pond 4	n/a	n/a	n/a	n/a	n/a	n/a	648775.66	4777486.69	Odour	n/a	532	1.69E-01	10 minute	V-ST	Above-Average	<1%
LEAPOND5	AREA	Proposed Leachate Aeration Pond 5	n/a	n/a	n/a	n/a	n/a	n/a	648853.01	4777466.29	Odour	n/a	532	1.69E-01	10 minute	V-ST	Above-Average	<1%
SOIL	AREA_POLY	Contaminated Soil Pile	n/a	n/a	n/a	n/a	n/a	n/a	648631.78	4776729.99	Odour	n/a	1864	4.94E-02	10 minute	V-ST	Above-Average	3%
EASTLF_FC	AREA_POLY	Fugitive Emissions from Areas under Final Cover at East Landfill	n/a	n/a	n/a	n/a	n/a	n/a	648368.73	4776777.27	Odour	n/a	12667	2.13E-02	10 minute	V-ST	Above-Average	19%
SLF_FC	AREA_POLY	Fugitive Emissions from Areas under Final Cover at South Landfill Phase 1	n/a	n/a	n/a	n/a	n/a	n/a	648547.48	4775839.48	Odour	n/a	16971	3.34E-02	10 minute	V-ST	Above-Average	25%
S1_FC	AREA_POLY	Fugitive Emissions from Areas under Final Cover at South Landfill Phase 2 - Stage 1	n/a	n/a	n/a	n/a	n/a	n/a	649435.73	4775998.41	Odour	n/a	10510	4.52E-02	10 minute	V-ST	Above-Average	16%
S2_FC	AREA_POLY	Fugitive Emissions from Areas under Final Cover at South Landfill Phase 2 - Stage 2	n/a	n/a	n/a	n/a	n/a	n/a	650029.30	4776748.58	Odour	n/a	9019	6.03E-02	10 minute	V-ST	Above-Average	13%
S3_AF	AREA	Fugitive Emissions from Active Face at South Landfill Phase 2 - Stage 3	n/a	n/a	n/a	n/a	n/a	n/a	650184.11	4777186.70	Odour	n/a	463	2.32E-01	10 minute	V-ST	Above-Average	<1%
S3_IC	AREA_POLY	Fugitive Emissions from Areas under Interim Cover at South Landfill Phase 2 - Stage 3	n/a	n/a	n/a	n/a	n/a	n/a	649945.06	4777029.35	Odour	n/a	9159	8.43E-02	10 minute	V-ST	Above-Average	14%
S3_FC	AREA_POLY	Fugitive Emissions from Areas under Final Cover at South Landfill Phase 2 - Stage 3	n/a	n/a	n/a	n/a	n/a	n/a	649736.69	4776845.22	Odour	n/a	1947	5.84E-02	10 minute	V-ST	Above-Average	3%
Sources at N-Viro Facility																		
BIOFILTR	AREA	Biofilter Exhaust (including emissions from Natural Gas Dryer Flue Gas)	n/a	n/a	n/a	n/a	n/a	N/A	648277.09	4776992.66	Odour	n/a	221	4.20E-01	10 minute	V-ST	Above-Average	<1%
Sources at WEG Compost Facility																		
COMPPOND	AREA	Compost Pond	n/a	n/a	n/a	n/a	n/a	n/a	648028.62	4776705.82	Odour	n/a	36	1.10E-02	10 minute	V-ST	Above-Average	<1%
GRINDER	VOLUME	Fugitive emissions from Grinder [7]	n/a	n/a	n/a	n/a	n/a	n/a	648169.14	4776734.05	Odour	n/a	8	-	10 minute	V-ST	Above-Average	<1%
R_BLDG	VOLUME	Receiving Building - During Operation of Grinder with Doors Open	n/a	n/a	n/a	n/a	n/a	n/a	648213.65	4776739.37	Odour	n/a	100	-	10 minute	V-ST	Above-Average	<1%
WK1_1	AREA	Windrow of Compost Material in Week 1 of Treatment	n/a	n/a	n/a	n/a	n/a	n/a	648168.53	4776701.38	Odour	n/a	51	1.01E-01	10 minute	V-ST	Above-Average	<1%
WK1_2	AREA	Windrow of Compost Material in Week 1 of Treatment	n/a	n/a	n/a	n/a	n/a	n/a	648169.54	4776691.31	Odour	n/a	51	1.01E-01	10 minute	V-ST	Above-Average	<1%
WK2_1	AREA	Windrow of Compost Material in Week 2	n/a	n/a	n/a	n/a	n/a	n/a	648170.30	4776681.48	Odour	n/a	37	7.35E-02	10 minute	V-ST	Above-Average	<1%
WK2_2	AREA	Windrow of Compost Material in Week 2	n/a	n/a	n/a	n/a	n/a	n/a	648171.05	4776671.91	Odour	n/a	37	7.35E-02	10 minute	V-ST	Above-Average	<1%
WK3_1	AREA	Windrow of Compost Material in Week 3	n/a	n/a	n/a	n/a	n/a	n/a	648172.06	4776661.84	Odour	n/a	23	4.56E-02	10 minute	V-ST	Above-Average	<1%
WK3_2	AREA	Windrow of Compost Material in Week 3	n/a	n/a	n/a	n/a	n/a	n/a	648172.82	4776652.26	Odour	n/a	23	4.56E-02	10 minute	V-ST	Above-Average	<1%
WK4_1	AREA	Windrow of Compost Material in Week 4	n/a	n/a	n/a	n/a	n/a	n/a	648173.82	4776641.43	Odour	n/a	14	2.70E-02	10 minute	V-ST	Above-Average	<1%
WK4_2	AREA	Windrow of Compost Material in Week 4	n/a	n/a	n/a	n/a	n/a	n/a	648174.83	4776631.61	Odour	n/a	14	2.70E-02	10 minute	V-ST	Above-Average	<1%
WK5_1	AREA	Windrow of Compost Material in Week 5	n/a	n/a	n/a	n/a	n/a	n/a	648227.98	4776706.67	Odour	n/a	9	1.89E-02	10 minute	V-ST	Above-Average	<1%
WK5_2	AREA	Windrow of Compost Material in Week 5	n/a	n/a	n/a	n/a	n/a	n/a	648229.24	4776697.10	Odour	n/a	9	1.89E-02	10 minute	V-ST	Above-Average	<1%
WK6_1	AREA	Windrow of Compost Material in Week 6	n/a	n/a	n/a	n/a	n/a	n/a	648229.74	4776688.54	Odour	n/a	8	1.59E-02	10 minute	V-ST	Above-Average	<1%
WK6_2	AREA	Windrow of Compost Material in Week 6	n/a	n/a	n/a	n/a	n/a	n/a	648231.00	4776677.45	Odour	n/a	8	1.59E-02	10 minute	V-ST	Above-Average	<1%
WK1_3	AREA	Windrow of Compost Material in Week 1	n/a	n/a	n/a	n/a	n/a	n/a	648231.50	4776667.63	Odour	n/a	51	1.01E-01	10 minute	V-ST	Above-Average	<1%
WK2_3	AREA	Windrow of Compost Material in Week 2	n/a	n/a	n/a	n/a	n/a	n/a	648232.76	4776657.30	Odour	n/a	37	7.35E-02	10 minute	V-ST	Above-Average	<1%
WK3_3	AREA	Windrow of Compost Material in Week 3	n/a	n/a	n/a	n/a	n/a	n/a	648233.77	4776647.48	Odour	n/a	23	4.56E-02	10 minute	V-ST	Above-Average	<1%
WK4_3	AREA	Windrow of Compost Material in Week 4	n/a	n/a	n/a	n/a	n/a	n/a	648234.53	4776637.40	Odour	n/a	14	2.70E-02	10 minute	V-ST	Above-Average	<1%
SCREEN	AREA	Screening Operations	n/a	n/a	n/a	n/a	n/a	n/a	648172.19	4776789.55	Odour	n/a	49	6.38E-02	10 minute	V-ST	Above-Average	<1%
BIOF1	AREA	Processing and Screening Building Biofilter 1	n/a	n/a	n/a	n/a	n/a	n/a	648176.20	4776749.75	Odour	n/a	7	6.10E-02	10 minute	V-ST	Above-Average	<1%
BIOF2	AREA	Processing and Screening Building Biofilter 2	n/a	n/a	n/a	n/a	n/a	n/a	648179.34	4776719.11	Odour	n/a	7	6.10E-02	10 minute	V-ST	Above-Average	<1%
BASE1	AREA	Incoming Leaf & Yard Material (Open Windrow Pad)	n/a	n/a	n/a	n/a	n/a	n/a	648128.82	4776798.87	Odour	n/a	28	2.58E-02	10 minute	V-ST	Above-Average	<1%
BASE2	AREA	Incoming Leaf & Yard Material (Open Windrow Pad)	n/a	n/a	n/a	n/a	n/a	n/a	648125.68	4776843.47	Odour	n/a	28	2.58E-02	10 minute	V-ST	Above-Average	<1%
BASE3	AREA	Incoming Leaf & Yard Material (Open Windrow Pad)	n/a	n/a	n/a	n/a	n/a	n/a	648122.00	4776887.03	Odour	n/a	28	2.58E-02	10 minute	V-ST	Above-Average	<1%
BASE4	AREA	Incoming Leaf & Yard Material (Open Windrow Pad)	n/a	n/a	n/a	n/a	n/a	n/a	648117.28	4776930.58	Odour	n/a	26	2.58E-02	10 minute	V-ST	Above-Average	<1%
WK2O	AREA	Open Windrow - Week 2 Material	n/a	n/a	n/a	n/a	n/a	n/a	648156.64	4776934.26	Odour	n/a	118	1.09E-01	10 minute	V-ST	Above-Average	<1%
WK2O2	AREA	Open Windrow - Week 2 Material	n/a	n/a	n/a	n/a	n/a	n/a	648149.81	4776915.36	Odour	n/a	153	1.09E-01	10 minute	V-ST	Above-Average	<1%
WK2O3	AREA	Open Windrow - Week 2 Material	n/a	n/a	n/a	n/a	n/a	n/a	648151.91	4776899.10	Odour	n/a	174	1.09E-01	10 minute	V-ST	Above-Average	<1%
WK2O4	AREA	Open Windrow - Week 2 Material	n/a	n/a	n/a	n/a	n/a	n/a	648155.06	4776881.78	Odour	n/a	196	1.09E-01	10 minute	V-ST	Above-Average	<1%
W6B1	AREA	Open Windrow - Week 6 Material (Before Turning)	n/a	n/a	n/a	n/a	n/a	n/a	648157.16	4776867.09	Odour	n/a	60	3.15E-02	10 minute	V-ST	Above-Average	<1%
W6BT2	AREA	Open Windrow - Week 6 Material (Before Turning)	n/a	n/a	n/a	n/a	n/a	n/a	648159.26	4776850.30	Odour	n/a	63	3.15E-02	10 minute	V-ST	Above-Average	<1%
W6BT3	AREA	Open Windrow - Week 6 Material (Before Turning)	n/a	n/a	n/a	n/a	n/a	n/a	648175.09	4776835.43	Odour	n/a	63	3.15E-02	10 minute	V-ST	Above-Average	<1%
W6BT4	AREA	Open Windrow - Week 6 Material (Before Turning)	n/a	n/a	n/a	n/a	n/a	n/a	648216.46	4776807.27	Odour	n/a	38	3.15E-02	10 minute	V-ST	Above-Average	<1%
W6AT1	AREA	Open Windrow - Week 6 Material (After Turning)	n/a	n/a	n/a	n/a	n/a	n/a	648255.29	4776810.41	Odour	n/a	74	6.16E-02	10 minute	V-ST	Above-Average	<1%
W6AT2	AREA	Open Windrow - Week 6 Material (After Turning)	n/a	n/a	n/a	n/a	n/a	n/a	648226.95	4776792.57	Odour	n/a	86	6.16E-02	10 minute	V-ST	Above-Average	<1%
W6AT3	AREA	Open Windrow - Week 6 Material (After Turning)	n/a	n/a	n/a	n/a	n/a	n/a	648227.48	4776777.88	Odour	n/a	86	6.16E-02	10 minute	V-ST	Above-Average	<1%
W6AT4	AREA	Open Windrow - Week 6 Material (After Turning)	n/a	n/a	n/a	n/a	n/a	n/a	648228.00	4776762.66	Odour	n/a	86	6.16E-02	10 minute	V-ST	Above-Average	<1%
FINAL	AREA	Final Product Storage	n/a	n/a	n/a	n/a	n/a	n/a	648133.35	4776720.14	Odour	n/a	2	4.99E-03	10 minute	V-ST	Above-Average	<1%
NEW_WK1	AREA	Windrow of Compost Material in Week 1	n/a	n/a	n/a	n/a	n/a	n/a	648136.48	4776629.44	Odour	n/a	51	1.01E-01	10 minute	V-ST	Above-Average	<1%
NEW_WK2	AREA	Windrow of Compost Material in Week 2	n/a	n/a	n/a	n/a	n/a	n/a	648147.15	4776630.35	Odour	n/a	37	7.35E-02	10 minute	V-ST	Above-Average	<1%
NEW_WK3	AREA	Windrow of Compost Material in Week 3	n/a	n/a	n/a	n/a	n/a	n/a	648159.68	4776617.28	Odour	n/a	23	4.56E-02	10 minute	V-ST	Above-Average	<1%
NEW_WK4	AREA	Windrow of Compost Material in Week 4	n/a	n/a	n/a	n/a	n/a	n/a	648169.44	4776618.75	Odour	n/a	14	2.70E-02	10 minute	V-ST	Above-Average	<1%
										Total	**Odour**	**n/a**	**66,943**	**-**	**-**	**-**	**-**	**100%**

Notes:

[1] Emission Estimating Technique Short-Forms are V-ST (Validated Source Test), "ST" (Source Test), EF (Emission Factor), MB (Mass Balance), and EC (Engineering Calculation).

[2] Data Quality Categories: Highest; Above-Average; Average; and Marginal.

Appendix J3: Source Summary Table - Odour (Scenario 3 (End of Stage 4) - Year 2045)

RWDI #2402272

Walker South Landfill Phase 2 Environmental Assessment

Source ID	Source Type	Source Description	Source Data								Emission Data							
			Stack Volumetric Flow Rate (Am³/s)	Stack Exit Gas Temp. (°C)	Stack Inner Diameter (m)	Stack Exit Velocity (m/s)	Stack Height Above Grade	Stack Height Above Roof	Source Coordinates		Contaminant	CAS Number	Emission Rate		Averaging Period (hours)	Emission Estimating Technique [1]	Emissions Data Quality [2]	Percentage of Overall Emissions (%)
									X (m)	Y (m)			(OU/s)	(OU/m2/s)				
Walker Environmental Group Inc. – Landfill																		
LEAPOND1	AREA	Leachate Aeration Pond 1	n/a	n/a	n/a	n/a	n/a	n/a	648441.16	4777248.47	Odour	n/a	294	1.69E-01	10 minute	V-ST	Above-Average	<1%
LEAPOND2	AREA	Leachate Aeration Pond 2	n/a	n/a	n/a	n/a	n/a	n/a	648787.21	4777544.02	Odour	n/a	328	1.69E-01	10 minute	V-ST	Above-Average	<1%
LEAPOND3	AREA	Leachate Aeration Pond 3	n/a	n/a	n/a	n/a	n/a	n/a	648855.81	4777522.57	Odour	n/a	389	1.69E-01	10 minute	V-ST	Above-Average	<1%
LEAPOND4	AREA	Proposed Leachate Aeration Pond 4	n/a	n/a	n/a	n/a	n/a	n/a	648775.66	4777486.69	Odour	n/a	532	1.69E-01	10 minute	V-ST	Above-Average	<1%
LEAPOND5	AREA	Proposed Leachate Aeration Pond 5	n/a	n/a	n/a	n/a	n/a	n/a	648853.01	4777466.29	Odour	n/a	532	1.69E-01	10 minute	V-ST	Above-Average	<1%
SOIL	AREA_POLY	Contaminated Soil Pile	n/a	n/a	n/a	n/a	n/a	n/a	648631.78	4776729.99	Odour	n/a	1864	4.94E-02	10 minute	V-ST	Above-Average	3%
EASTLF_FC	AREA_POLY	Fugitive Emissions from Areas under Final Cover at East Landfill	n/a	n/a	n/a	n/a	n/a	n/a	648368.73	4776777.27	Odour	n/a	10396	1.75E-02	10 minute	V-ST	Above-Average	17%
SLF_FC	AREA_POLY	Fugitive Emissions from Areas under Final Cover at South Landfill Phase 1	n/a	n/a	n/a	n/a	n/a	n/a	648547.48	4775839.48	Odour	n/a	13206	2.60E-02	10 minute	V-ST	Above-Average	22%
S1_FC	AREA_POLY	Fugitive Emissions from Areas under Final Cover at South Landfill Phase 2 - Stage 1	n/a	n/a	n/a	n/a	n/a	n/a	649435.73	4775998.41	Odour	n/a	7973	3.43E-02	10 minute	V-ST	Above-Average	13%
S2_FC	AREA_POLY	Fugitive Emissions from Areas under Final Cover at South Landfill Phase 2 - Stage 2	n/a	n/a	n/a	n/a	n/a	n/a	650029.30	4776748.58	Odour	n/a	6770	4.52E-02	10 minute	V-ST	Above-Average	11%
S3_FC	AREA_POLY	Fugitive Emissions from Areas under Final Cover at South Landfill Phase 2 - Stage 3	n/a	n/a	n/a	n/a	n/a	n/a	649736.69	4776845.22	Odour	n/a	8557	6.03E-02	10 minute	V-ST	Above-Average	14%
S4_AF	AREA	Fugitive Emissions from Active Face at South Landfill Phase 2 - Stage 4	n/a	n/a	n/a	n/a	n/a	n/a	649707.01	4777141.53	Odour	n/a	463	2.32E-01	10 minute	V-ST	Above-Average	<1%
S4_IC	AREA_POLY	Fugitive Emissions from Areas under Interim Cover at South Landfill Phase 2 - Stage 4	n/a	n/a	n/a	n/a	n/a	n/a	649577.43	4776994.92	Odour	n/a	5938	8.43E-02	10 minute	V-ST	Above-Average	10%
S4_FC	AREA_POLY	Fugitive Emissions from Areas under Final Cover at South Landfill Phase 2 - Stage 4	n/a	n/a	n/a	n/a	n/a	n/a	649381.19	4776812.12	Odour	n/a	1864	5.84E-02	10 minute	V-ST	Above-Average	3%
Sources at N-Viro Facility																		
BIOFILTR	AREA	Biofilter Exhaust (including emissions from Natural Gas Dryer Flue Gas)	n/a	n/a	n/a	n/a	n/a	N/A	648277.09	4776992.66	Odour	n/a	221	4.20E-01	10 minute	V-ST	Above-Average	<1%
Sources at WEG Compost Facility																		
COMPPOND	AREA	Compost Pond	n/a	n/a	n/a	n/a	n/a	n/a	648028.62	4776705.82	Odour	n/a	36	1.10E-02	10 minute	V-ST	Above-Average	<1%
GRINDER	VOLUME	Fugitive emissions from Grinder [7]	n/a	n/a	n/a	n/a	n/a	n/a	648169.14	4776734.05	Odour	n/a	8	-	10 minute	V-ST	Above-Average	<1%
R_BLDG	VOLUME	Receiving Building - During Operation of Grinder with Doors Open	n/a	n/a	n/a	n/a	n/a	n/a	648213.65	4776739.37	Odour	n/a	100	-	10 minute	V-ST	Above-Average	<1%
WK1_1	AREA	Windrow of Compost Material in Week 1 of Treatment	n/a	n/a	n/a	n/a	n/a	n/a	648168.53	4776701.38	Odour	n/a	51	1.01E-01	10 minute	V-ST	Above-Average	<1%
WK1_2	AREA	Windrow of Compost Material in Week 1 of Treatment	n/a	n/a	n/a	n/a	n/a	n/a	648169.54	4776691.31	Odour	n/a	51	1.01E-01	10 minute	V-ST	Above-Average	<1%
WK2_1	AREA	Windrow of Compost Material in Week 2	n/a	n/a	n/a	n/a	n/a	n/a	648170.30	4776681.48	Odour	n/a	37	7.35E-02	10 minute	V-ST	Above-Average	<1%
WK2_2	AREA	Windrow of Compost Material in Week 2	n/a	n/a	n/a	n/a	n/a	n/a	648171.05	4776671.91	Odour	n/a	37	7.35E-02	10 minute	V-ST	Above-Average	<1%
WK3_1	AREA	Windrow of Compost Material in Week 3	n/a	n/a	n/a	n/a	n/a	n/a	648172.06	4776661.84	Odour	n/a	23	4.56E-02	10 minute	V-ST	Above-Average	<1%
WK3_2	AREA	Windrow of Compost Material in Week 3	n/a	n/a	n/a	n/a	n/a	n/a	648172.82	4776652.26	Odour	n/a	23	4.56E-02	10 minute	V-ST	Above-Average	<1%
WK4_1	AREA	Windrow of Compost Material in Week 4	n/a	n/a	n/a	n/a	n/a	n/a	648173.82	4776641.43	Odour	n/a	14	2.70E-02	10 minute	V-ST	Above-Average	<1%
WK4_2	AREA	Windrow of Compost Material in Week 4	n/a	n/a	n/a	n/a	n/a	n/a	648174.83	4776631.61	Odour	n/a	14	2.70E-02	10 minute	V-ST	Above-Average	<1%
WK5_1	AREA	Windrow of Compost Material in Week 5	n/a	n/a	n/a	n/a	n/a	n/a	648227.98	4776706.67	Odour	n/a	9	1.89E-02	10 minute	V-ST	Above-Average	<1%
WK5_2	AREA	Windrow of Compost Material in Week 5	n/a	n/a	n/a	n/a	n/a	n/a	648229.24	4776697.10	Odour	n/a	9	1.89E-02	10 minute	V-ST	Above-Average	<1%
WK6_1	AREA	Windrow of Compost Material in Week 6	n/a	n/a	n/a	n/a	n/a	n/a	648229.74	4776688.54	Odour	n/a	8	1.59E-02	10 minute	V-ST	Above-Average	<1%
WK6_2	AREA	Windrow of Compost Material in Week 6	n/a	n/a	n/a	n/a	n/a	n/a	648231.00	4776677.45	Odour	n/a	8	1.59E-02	10 minute	V-ST	Above-Average	<1%
WK1_3	AREA	Windrow of Compost Material in Week 1	n/a	n/a	n/a	n/a	n/a	n/a	648231.50	4776667.63	Odour	n/a	51	1.01E-01	10 minute	V-ST	Above-Average	<1%
WK2_3	AREA	Windrow of Compost Material in Week 2	n/a	n/a	n/a	n/a	n/a	n/a	648232.76	4776657.30	Odour	n/a	37	7.35E-02	10 minute	V-ST	Above-Average	<1%
WK3_3	AREA	Windrow of Compost Material in Week 3	n/a	n/a	n/a	n/a	n/a	n/a	648233.77	4776647.48	Odour	n/a	23	4.56E-02	10 minute	V-ST	Above-Average	<1%
WK4_3	AREA	Windrow of Compost Material in Week 4	n/a	n/a	n/a	n/a	n/a	n/a	648234.53	4776637.40	Odour	n/a	14	2.70E-02	10 minute	V-ST	Above-Average	<1%
SCREEN	AREA	Screening Operations	n/a	n/a	n/a	n/a	n/a	n/a	648172.19	4776789.55	Odour	n/a	49	6.38E-02	10 minute	V-ST	Above-Average	<1%
BIOF1	AREA	Processing and Screening Building Biofilter 1	n/a	n/a	n/a	n/a	n/a	n/a	648176.20	4776749.75	Odour	n/a	7	6.10E-02	10 minute	V-ST	Above-Average	<1%
BIOF2	AREA	Processing and Screening Building Biofilter 2	n/a	n/a	n/a	n/a	n/a	n/a	648179.34	4776719.11	Odour	n/a	7	6.10E-02	10 minute	V-ST	Above-Average	<1%
BASE1	AREA	Incoming Leaf & Yard Material (Open Windrow Pad)	n/a	n/a	n/a	n/a	n/a	n/a	648128.82	4776798.87	Odour	n/a	28	2.58E-02	10 minute	V-ST	Above-Average	<1%
BASE2	AREA	Incoming Leaf & Yard Material (Open Windrow Pad)	n/a	n/a	n/a	n/a	n/a	n/a	648125.68	4776843.47	Odour	n/a	28	2.58E-02	10 minute	V-ST	Above-Average	<1%
BASE3	AREA	Incoming Leaf & Yard Material (Open Windrow Pad)	n/a	n/a	n/a	n/a	n/a	n/a	648122.00	4776887.03	Odour	n/a	28	2.58E-02	10 minute	V-ST	Above-Average	<1%
BASE4	AREA	Incoming Leaf & Yard Material (Open Windrow Pad)	n/a	n/a	n/a	n/a	n/a	n/a	648117.28	4776930.58	Odour	n/a	26	2.58E-02	10 minute	V-ST	Above-Average	<1%
WK2O	AREA	Open Windrow - Week 2 Material	n/a	n/a	n/a	n/a	n/a	n/a	648156.64	4776934.26	Odour	n/a	118	1.09E-01	10 minute	V-ST	Above-Average	<1%
WK2O2	AREA	Open Windrow - Week 2 Material	n/a	n/a	n/a	n/a	n/a	n/a	648149.81	4776915.36	Odour	n/a	153	1.09E-01	10 minute	V-ST	Above-Average	<1%
WK2O3	AREA	Open Windrow - Week 2 Material	n/a	n/a	n/a	n/a	n/a	n/a	648151.91	4776899.10	Odour	n/a	174	1.09E-01	10 minute	V-ST	Above-Average	<1%
WK2O4	AREA	Open Windrow - Week 2 Material	n/a	n/a	n/a	n/a	n/a	n/a	648155.06	4776881.78	Odour	n/a	196	1.09E-01	10 minute	V-ST	Above-Average	<1%
W6B1	AREA	Open Windrow - Week 6 Material (Before Turning)	n/a	n/a	n/a	n/a	n/a	n/a	648157.16	4776867.09	Odour	n/a	60	3.15E-02	10 minute	V-ST	Above-Average	<1%
W6BT2	AREA	Open Windrow - Week 6 Material (Before Turning)	n/a	n/a	n/a	n/a	n/a	n/a	648159.26	4776850.30	Odour	n/a	63	3.15E-02	10 minute	V-ST	Above-Average	<1%
W6BT3	AREA	Open Windrow - Week 6 Material (Before Turning)	n/a	n/a	n/a	n/a	n/a	n/a	648175.09	4776835.43	Odour	n/a	63	3.15E-02	10 minute	V-ST	Above-Average	<1%
W6BT4	AREA	Open Windrow - Week 6 Material (Before Turning)	n/a	n/a	n/a	n/a	n/a	n/a	648216.46	4776807.27	Odour	n/a	38	3.15E-02	10 minute	V-ST	Above-Average	<1%
W6AT1	AREA	Open Windrow - Week 6 Material (After Turning)	n/a	n/a	n/a	n/a	n/a	n/a	648255.29	4776810.41	Odour	n/a	74	6.16E-02	10 minute	V-ST	Above-Average	<1%
W6AT2	AREA	Open Windrow - Week 6 Material (After Turning)	n/a	n/a	n/a	n/a	n/a	n/a	648226.95	4776792.57	Odour	n/a	86	6.16E-02	10 minute	V-ST	Above-Average	<1%
W6AT3	AREA	Open Windrow - Week 6 Material (After Turning)	n/a	n/a	n/a	n/a	n/a	n/a	648227.48	4776777.88	Odour	n/a	86	6.16E-02	10 minute	V-ST	Above-Average	<1%
W6AT4	AREA	Open Windrow - Week 6 Material (After Turning)	n/a	n/a	n/a	n/a	n/a	n/a	648228.00	4776762.66	Odour	n/a	86	6.16E-02	10 minute	V-ST	Above-Average	<1%
FINAL	AREA	Final Product Storage	n/a	n/a	n/a	n/a	n/a	n/a	648133.35	4776720.14	Odour	n/a	2	4.99E-03	10 minute	V-ST	Above-Average	<1%
NEW_WK1	AREA	Windrow of Compost Material in Week 1	n/a	n/a	n/a	n/a	n/a	n/a	648136.48	4776629.44	Odour	n/a	51	1.01E-01	10 minute	V-ST	Above-Average	<1%
NEW_WK2	AREA	Windrow of Compost Material in Week 2	n/a	n/a	n/a	n/a	n/a	n/a	648147.15	4776630.35	Odour	n/a	37	7.35E-02	10 minute	V-ST	Above-Average	<1%
NEW_WK3	AREA	Windrow of Compost Material in Week 3	n/a	n/a	n/a	n/a	n/a	n/a	648159.68	4776617.28	Odour	n/a	23	4.56E-02	10 minute	V-ST	Above-Average	<1%
NEW_WK4	AREA	Windrow of Compost Material in Week 4	n/a	n/a	n/a	n/a	n/a	n/a	648169.44	4776618.75	Odour	n/a	14	2.70E-02	10 minute	V-ST	Above-Average	<1%
										Total	**Odour**	**n/a**	**61,374**	-	-	-	-	**100%**

Notes:

[1] Emission Estimating Technique Short-Forms are V-ST (Validated Source Test), "ST" (Source Test), EF (Emission Factor), MB (Mass Balance), and EC (Engineering Calculation).

[2] Data Quality Categories: Highest; Above-Average; Average; and Marginal.

Appendix J4: Odour Flux Chamber Sampling Data

RWDI #2402272

Walker South Landfill Phase 2 Environmental Assessment

Odour sampling was completed at the Walker's Facility located in Thorold Ontario on September 2nd 2025 to September 5th and September 29th 2025.

Flux Chamber Flow Rate = 5 (L/min)

Source	Sample Location	Sample ID	Lab No.	Analysis Date	Analysis Time	Flux Chamber Area	ODTV-Detection		ORTV-Recognition	
							Lab Results	Flux Rate	Lab Results	Flux Rate
					Unit	(m^2)	(ou/m^3)	($ou/(s*m2)$)	(ou/m^3)	($ou/(s*m2)$)
South Landfill Phase 1 Interim Cover	ICA #1	WSL - ICA #1	-	2025-09-02	11:05 - 11:15	0.13	88	0.056	42	0.027
	ICA #2	WSL - ICA #2	-	2025-09-02	11:13 - 11:23	0.13	159	0.102	59	0.038
	ICA #3	WSL - ICA #3	-	2025-09-02	12:14 - 12:24	0.13	578	0.371	226	0.145
	ICA #4	WSL - ICA #4	-	2025-09-02	13:11 - 13:21	0.13	74	0.047	41	0.026
	ICA #5	WSL - ICA #5	-	2025-09-02	13:10 - 13:20	0.13	81	0.052	41	0.026
	ICA #6	WSL - ICA #6	-	2025-09-02	14:37 - 14:47	0.13	53	0.034	29	0.019
	ICA #7	WSL - ICA #7	-	2025-09-02	14:35 - 14:45	0.13	49	0.031	31	0.020
	ICA #8	WSL - ICA #8	-	2025-09-02	15:51 - 16:01	0.13	53	0.034	29	0.019
	ICA #9	WSL - ICA #9	-	2025-09-02	15:52 - 16:02	0.13	48	0.031	27	0.017
	Blank	Blank	-	2025-09-02	-	-	37	-	20	-
South Landfill Phase 1 Final Cover	FCA #1	WSL-FCA #1	-	2025-09-03	10:58 - 11:08	0.13	104	0.067	52	0.033
	FCA #2	WSL-FCA #2	-	2025-09-03	10:58 - 11:08	0.13	74	0.047	41	0.026
	FCA #3	WSL-FCA #3	-	2025-09-03	12:22 - 12:32	0.13	97	0.062	48	0.031
	FCA #4	WSL-FCA #4	-	2025-09-03	12:22 - 12:33	0.13	88	0.056	45	0.029
	FCA #5	WSL-FCA #5	-	2025-09-03	13:45 - 13:55	0.13	88	0.056	53	0.034
	FCA #6	WSL-FCA #6	-	2025-09-03	13:45 - 13:55	0.13	96	0.062	53	0.034
East Landfill Final Cover	FCA #7	ELF-FCA #7	-	2025-09-03	15:25 - 15:35	0.13	74	0.047	31	0.020
	FCA #8	ELF-FCA #8	-	2025-09-03	15:20 - 15:30	0.13	53	0.034	34	0.022
	FCA #9	ELF-FCA #9	-	2025-09-03	16:42 - 16:52	0.13	62	0.040	37	0.024
	Blank	Blank	-	2025-09-03	-	-	41	-	24	-
South Landfill Phase 1 Active Face	WF #1	WSL-WF #1	-	2025-09-04	10:50 - 11:00	0.13	268	0.172	136	0.087
	WF #2	WSL-WF #2	-	2025-09-04	10:50 - 11:00	0.13	413	0.265	174	0.112
	WF #3	WSL-WF #3	-	2025-09-04	11:50 - 12:00	0.13	411	0.263	190	0.122
	WF #4	WSL-WF #4	-	2025-09-04	11:50 - 12:00	0.13	319	0.204	176	0.113
	WF #5	WSL-WF #5	-	2025-09-04	12:36 - 12:46	0.13	268	0.172	147	0.094
	WF #6	WSL-WF #6	-	2025-09-04	12:50 - 1:00	0.13	490	0.314	226	0.145
	Blank	Blank	-	2025-09-04	-	0.13	75	0.048	34	0.022
Waste Soil Stockpile	WSS#1A	WSL - WSS#1A	-	2025-09-05	9:15 - 9:25	0.13	69	0.044	29	0.019
	WSS#1B	WSL - WSS#1B	-	2025-09-05	9:34 - 9:44	0.13	68	0.044	45	0.029
	WSS#2A	WSL - WSS#2A	-	2025-09-05	9:08 - 9:18	0.13	105	0.067	58	0.037
	WSS#2B	WSL - SSF#2B	-	2025-09-05	9:27 - 9:37	0.13	89	0.057	48	0.031
	WSS#3A	WSL - WSS#3A	-	2025-09-05	10:17 - 10:27	0.13	68	0.044	41	0.026
	WSS#3B	WSL - WSS#3B	-	2025-09-05	10:37 - 10:47	0.13	63	0.040	40	0.026
	Blank	Blank	-	2025-09-05	-	-	58	-	31	-
Leachate Pond	SLFLP#1	SLFLP#1	-	2025-09-29	10:44 - 10:54	0.13	219	0.140	114	0.073
	SLFLP#2	SLFLP#2	-	2025-09-29	10:55 - 11:05	0.13	262	0.168	153	0.098
	SLFLP#3	SLFLP#3	-	2025-09-29	11:10 - 11:20	0.13	310	0.199	152	0.097

Notes:

ODTV- Odour Detection Threshold Values
ORTV- Odour Recognition Threshold Values

Table 1: Summary of Average Odour Detection Results

Source	Average Flux Rate ($ou/m^2 s$)	Note
East Landfill Final Cover	4.04E-02	-
South Landfill Phase 1 Final Cover	5.84E-02	-
South Landfill Phase 2 Final Cover	5.84E-02	[1]
East Landfill Interim Cover	8.43E-02	[2]
South Landfill Phase 1 Interim Cover	8.43E-02	-
South Landfill Phase 2 Interim Cover	8.43E-02	[3]
East Landfill Active Face	2.32E-01	[2]
South Landfill Phase 1 Active Face	2.32E-01	-
South Landfill Phase 2 Active Face	2.32E-01	[3]
Waste Soil Stockpile	4.94E-02	-
Leachate Pond	1.69E-01	-

Notes:

[1] Final cover emissions from the study site were assumed to be the higher of the two values between the East Landfill and South Landfill Phase 1.

[2] Interim cover and active working face emissions from the East Landfill were assumed to be same as South Landfill Phase 1.

[3] Interim cover and active working face emissions from the South Landfill Phase 2 were assumed to be same as South Landfill Phase 1.

Appendix J5: Landfill Odour Emission Rate Calculations

RWDI #2402272

Walker South Landfill Phase 2 Environmental Assessment

Table 1: Odour Source Testing Emission Rates

Source	Emission Rate (OU/m^2/s) [1]
East Landfill Final Cover	4.04E-02
South Landfill Phase 1 Final Cover	5.84E-02
South Landfill Phase 2 Final Cover	5.84E-02
East Landfill Interim Cover	8.43E-02
South Landfill Phase 1 Interim Cover	8.43E-02
South Landfill Phase 2 Interim Cover	8.43E-02
East Landfill Active Face	2.32E-01
South Landfill Phase 1 Active Face	2.32E-01
South Landfill Phase 2 Active Face	2.32E-01
Waste Soil Stockpile	4.94E-02
Leachate Pond	1.69E-01

Note:

[1] Based on odour sampling conducted at the Walker's Facility in Thorold Ontario on September 2nd 2025 to September 5th and September 29th 2025.

Table 2: Scaling of Emission Rate

Location	Methane Emission Rate (Tonnes/yr) [1]						Scaling Factor to Emission Flux Rate Obtained in Year 2025 Sampling [2]					
	2025	2033	2037	2041	2045	2047	2025	2033	2037	2041	2045	2047
East Landfill	8,200	5,416	5,322	4,333	3,556	3,230	1.000	0.660	0.649	0.528	0.434	0.394
South Landfill Phase 1	26,921	26,022	20,013	15,400	11,984	10,617	1.000	0.967	0.743	0.572	0.445	0.394
South Landfill Phase 2 - Stage 1	-	7,740	7,980	5,990	4,544	3,973	-	1.000	1.031	0.774	0.587	0.513
South Landfill Phase 2 - Stage 2	-	-	7,740	7,980	5,990	5,210	-	-	1.000	1.031	0.774	0.673
South Landfill Phase 2 - Stage 3	-	-	-	7,740	7,980	6,906	-	-	-	1.000	1.031	0.892
South Landfill Phase 2 - Stage 4	-	-	-	-	7,740	9,245	-	-	-	-	1.000	1.194

Note:

[1] Methane generation rates were obtained from the Landfill Methane Modelling Tool developed by Environment and Climate Change Canada (ECCC).

[2] Emission flux rates from sampling conducted in Year 2025 was adopted for Year 2025 as well as the first modelled year of each stage of South Landfill Phase 2. For future years, the emission flux rates were scaled based on the raito of methane generation rate in the future year to that in the first modelled year.

Table 3: Summary of Odour Emission Rates (OU/m^2/s)

Location	Type	Sampling Data	Source ID	2025	2033	2037	2041	2045	2047
East Landfill	Active Face	East Landfill Active Face	EASTLF_AF	0	2.32E-01	0	0	0	0
East Landfill	Interim Cover	East Landfill Interim Cover	EASTLF_IC	0	8.43E-02	0	0	0	0
East Landfill	Final Cover	East Landfill Final Cover	EASTLF_FC	4.04E-02	2.67E-02	2.62E-02	2.13E-02	1.75E-02	1.59E-02
South Landfill Phase 1	Active Face	South Landfill Phase 1 Active Face	SLF_AF	2.32E-01	0	0	0	0	0
South Landfill Phase 1	Interim Cover	South Landfill Phase 1 Interim Cover	SLF_IC	8.43E-02	8.43E-02	0	0	0	0
South Landfill Phase 1	Final Cover	South Landfill Phase 1 Final Cover	SLF_FC	5.84E-02	5.65E-02	4.34E-02	3.34E-02	2.60E-02	2.30E-02
South Landfill Phase 2 - Stage 1	Active Face	South Landfill Phase 2 Active Face	S1_AF	0	2.32E-01	0	0	0	0
South Landfill Phase 2 - Stage 1	Interim Cover	South Landfill Phase 2 Interim Cover	S1_IC	0	8.43E-02	0	0	0	0
South Landfill Phase 2 - Stage 1	Final Cover	South Landfill Phase 2 Final Cover	S1_FC	0	5.84E-02	6.03E-02	4.52E-02	3.43E-02	3.00E-02
South Landfill Phase 2 - Stage 2	Active Face	South Landfill Phase 2 Active Face	S2_AF	0	0	2.32E-01	0	0	0
South Landfill Phase 2 - Stage 2	Interim Cover	South Landfill Phase 2 Interim Cover	S2_IC	0	0	8.43E-02	0	0	0
South Landfill Phase 2 - Stage 2	Final Cover	South Landfill Phase 2 Final Cover	S2_FC	0	0	5.84E-02	6.03E-02	4.52E-02	3.93E-02
South Landfill Phase 2 - Stage 3	Active Face	South Landfill Phase 2 Active Face	S3_AF	0	0	0	2.32E-01	0	0
South Landfill Phase 2 - Stage 3	Interim Cover	South Landfill Phase 2 Interim Cover	S3_IC	0	0	0	8.43E-02	0	0
South Landfill Phase 2 - Stage 3	Final Cover	South Landfill Phase 2 Final Cover	S3_FC	0	0	0	5.84E-02	6.03E-02	5.21E-02
South Landfill Phase 2 - Stage 4	Active Face	South Landfill Phase 2 Active Face	S4_AF	0	0	0	0	2.32E-01	0
South Landfill Phase 2 - Stage 4	Interim Cover	South Landfill Phase 2 Interim Cover	S4_IC	0	0	0	0	8.43E-02	8.43E-02
South Landfill Phase 2 - Stage 4	Final Cover	South Landfill Phase 2 Final Cover	S4_FC	0	0	0	0	5.84E-02	6.98E-02
Campus	Waste Soil Stockpile	Waste Soil Stockpile	Soil	4.94E-02	4.94E-02	4.94E-02	4.94E-02	4.94E-02	4.94E-02
Campus	Leachate Pond	Leachate Pond	LEAPOND1	1.69E-01	1.69E-01	1.69E-01	1.69E-01	1.69E-01	1.69E-01
Campus	Leachate Pond	Leachate Pond	LEAPOND2	1.69E-01	1.69E-01	1.69E-01	1.69E-01	1.69E-01	1.69E-01
Campus	Leachate Pond	Leachate Pond	LEAPOND3	1.69E-01	1.69E-01	1.69E-01	1.69E-01	1.69E-01	1.69E-01
Campus	Leachate Pond	Leachate Pond	LEAPOND4	0	1.69E-01	1.69E-01	1.69E-01	1.69E-01	1.69E-01
Campus	Leachate Pond	Leachate Pond	LEAPOND5	0	1.69E-01	1.69E-01	1.69E-01	1.69E-01	1.69E-01

Appendix J5: Landfill Odour Emission Rate Calculations

RWDI #2402272

Walker South Landfill Phase 2 Environmental Assessment

Table 1: Odour Source Testing Emission Rates

Source	Emission Rate (OU/m^2/s) [1]
East Landfill Final Cover	4.04E-02
South Landfill Phase 1 Final Cover	5.84E-02
South Landfill Phase 2 Final Cover	5.84E-02
East Landfill Interim Cover	8.43E-02
South Landfill Phase 1 Interim Cover	8.43E-02
South Landfill Phase 2 Interim Cover	8.43E-02
East Landfill Active Face	2.32E-01
South Landfill Phase 1 Active Face	2.32E-01
South Landfill Phase 2 Active Face	2.32E-01
Waste Soil Stockpile	4.94E-02
Leachate Pond	1.69E-01

Note:

[1] Based on odour sampling conducted at the Walker's Facility in Thorold Ontario on September 2nd 2025 to September 5th and September 29th 2025.

Table 2: Scaling of Emission Rate

Location	Methane Emission Rate (Tonnes/yr) [1]						Scaling Factor to Emission Flux Rate Obtained in Year 2025 Sampling [2]					
	Existing Conditions (2025)	Scenario 1 (2033)	2037	Scenario 2 (2041)	Scenario 3 (2045)	Do Nothing (2047)	Existing Conditions (2025)	Scenario 1 (2033)	2037	Scenario 2 (2041)	Scenario 3 (2045)	Do Nothing (2047)
East Landfill	8,200	5,416	5,322	4,333	3,556	3,230	1.541	1.018	1.000	0.814	0.668	0.607
South Landfill Phase 1	26,921	26,022	20,013	15,400	11,984	10,617	1.345	1.300	1.000	0.769	0.599	0.531
South Landfill Phase 2 - Stage 1	-	7,740	7,980	5,990	4,544	3,973	-	0.970	1.000	0.751	0.569	0.498
South Landfill Phase 2 - Stage 2	-	-	7,740	7,980	5,990	5,210	-	-	1.000	1.031	0.774	0.673
South Landfill Phase 2 - Stage 3	-	-	-	7,740	7,980	6,906	-	-	-	1.121	1.156	1.000
South Landfill Phase 2 - Stage 4	-	-	-	-	7,740	9,245	-	-	-	-	0.837	1.000

Note:

[1] Methane generation rates were obtained from the Landfill Methane Modelling Tool developed by Environment and Climate Change Canada (ECCC).

[2] Emission flux rates from sampling conducted in Year 2025 was adopted for Year 2025 as well as the first modelled year of each stage of South Landfill Phase 2. For future years, the emission flux rates were scaled based on the raito of methane generation rate in the future year to that in the first modelled year.

Table 3: Summary of Odour Emission Rates (OU/m^2/s)

Location	Type	Sampling Data	Source ID	Existing Conditions (2025)	Scenario 1 (2033)	2037	Scenario 2 (2041)	Scenario 3 (2045)	Do Nothing (2047)
East Landfill	Active Face	East Landfill Active Face	EASTLF_AF	0	2.32E-01	0	0	0	0
East Landfill	Interim Cover	East Landfill Interim Cover	EASTLF_IC	0	8.43E-02	0	0	0	0
East Landfill	Final Cover	East Landfill Final Cover	EASTLF_FC	4.04E-02	2.67E-02	2.62E-02	2.13E-02	1.75E-02	1.59E-02
South Landfill Phase 1	Active Face	South Landfill Phase 1 Active Face	SLF_AF	2.32E-01	0	0	0	0	0
South Landfill Phase 1	Interim Cover	South Landfill Phase 1 Interim Cover	SLF_IC	8.43E-02	8.43E-02	0	0	0	0
South Landfill Phase 1	Final Cover	South Landfill Phase 1 Final Cover	SLF_FC	5.84E-02	5.65E-02	4.34E-02	3.34E-02	2.60E-02	2.30E-02
South Landfill Phase 2 - Stage 1	Active Face	South Landfill Phase 2 Active Face	S1_AF	0	2.32E-01	0	0	0	0
South Landfill Phase 2 - Stage 1	Interim Cover	South Landfill Phase 2 Interim Cover	S1_IC	0	8.43E-02	0	0	0	0
South Landfill Phase 2 - Stage 1	Final Cover	South Landfill Phase 2 Final Cover	S1_FC	0	5.84E-02	6.03E-02	4.52E-02	3.43E-02	3.00E-02
South Landfill Phase 2 - Stage 2	Active Face	South Landfill Phase 2 Active Face	S2_AF	0	0	2.32E-01	0	0	0
South Landfill Phase 2 - Stage 2	Interim Cover	South Landfill Phase 2 Interim Cover	S2_IC	0	0	8.43E-02	0	0	0
South Landfill Phase 2 - Stage 2	Final Cover	South Landfill Phase 2 Final Cover	S2_FC	0	0	5.84E-02	6.03E-02	4.52E-02	3.93E-02
South Landfill Phase 2 - Stage 3	Active Face	South Landfill Phase 2 Active Face	S3_AF	0	0	0	2.32E-01	0	0
South Landfill Phase 2 - Stage 3	Interim Cover	South Landfill Phase 2 Interim Cover	S3_IC	0	0	0	8.43E-02	0	0
South Landfill Phase 2 - Stage 3	Final Cover	South Landfill Phase 2 Final Cover	S3_FC	0	0	0	5.84E-02	6.03E-02	5.21E-02
South Landfill Phase 2 - Stage 4	Active Face	South Landfill Phase 2 Active Face	S4_AF	0	0	0	0	2.32E-01	0
South Landfill Phase 2 - Stage 4	Interim Cover	South Landfill Phase 2 Interim Cover	S4_IC	0	0	0	0	8.43E-02	8.43E-02
South Landfill Phase 2 - Stage 4	Final Cover	South Landfill Phase 2 Final Cover	S4_FC	0	0	0	0	5.84E-02	6.98E-02
Campus	Waste Soil Stockpile	Waste Soil Stockpile	Soil	4.94E-02	4.94E-02	4.94E-02	4.94E-02	4.94E-02	4.94E-02
Campus	Leachate Pond	Leachate Pond	LEAPOND1	1.69E-01	1.69E-01	1.69E-01	1.69E-01	1.69E-01	1.69E-01
Campus	Leachate Pond	Leachate Pond	LEAPOND2	1.69E-01	1.69E-01	1.69E-01	1.69E-01	1.69E-01	1.69E-01
Campus	Leachate Pond	Leachate Pond	LEAPOND3	1.69E-01	1.69E-01	1.69E-01	1.69E-01	1.69E-01	1.69E-01
Campus	Leachate Pond	Leachate Pond	LEAPOND4	0	1.69E-01	1.69E-01	1.69E-01	1.69E-01	1.69E-01
Campus	Leachate Pond	Leachate Pond	LEAPOND5	0	1.69E-01	1.69E-01	1.69E-01	1.69E-01	1.69E-01

Appendix J6: Compost Material Windrow Odour Flux Rate Calculations

RWDI #2402272

Walker South Landfill Phase 2 Environmental Assessment

Source		Odour Concentration (OU)	Odour Control Efficiency (Based on comparison to Baseline Data) (%)	Odour Control Efficiencies Used in Modelling Assessment (%)	Odour Flux Rate ($OU/m^2/s$)
Baseline	Maximum	4,452	-		
	Average	2,942	-	-	0.128
	Minimum	1,164	-		
Week 1	Maximum	3,246	26%		
	Average	2,289	21%	21%	0.101
	Minimum	1,234	-7%		
Week 2	Maximum	2,662	40%		
	Average	1,679	43%	43%	0.074
	Minimum	644	44%		
Week 3	Maximum	2,077	55%		
	Average	1,068	64%	64%	0.046
	Minimum	54	95%		
Week 4	Maximum	1,220	73%		
	Average	630	79%	79%	0.027
	Minimum	257	78%		
Week 5	Maximum	717	84%		
	Average	426	85%	85%	0.019
	Minimum	127	89%		
Week 6	Maximum	534	87%		
	Average	356	88%	88%	0.016
	Minimum	66	94%		
Week 7	Maximum	368	91%		
	Average	268	90%	90%	0.012
	Minimum	111	90%		
Week 8	Maximum	202	95%		
	Average	180	93%	93%	0.009
	Minimum	156	85%		
Week 10	Maximum	119	97%		
	Average	98	96%	96%	0.005
	Minimum	84	92%		

Notes:

Source of Data Peel Curing Facility

Control Efficiency Data based on Pilot Study Completed with Region of Peel and GORE™

Week 2 not tested, therefore reduction = avg of wk 1 and wk 3 reductions

Week 7 not tested, therefore reduction = avg of wk 6 and wk 8 reductions

Surface Area Per Windrow = 500 m^2

Appendix J7: Open Windrow Odour Flux Rate Calculations

RWDI #2402272

Walker South Landfill Phase 2 Environmental Assessment

Calculations of Open Windrow Odour Emission Rates

Flux Chamber Measurements

Client: Walker Brothers
Job No.: 0925058A
Sample Date :25-Nov-08

Chamber Data
Area = 0.4 m²
Sweep Rate = 17.2 L/min
Purge Start Time 8:54 AM
Purge End Time 9:29 AM
Pile Temp -2 °C
Chamber Temp 3 °C
Chamber Pressure 0.00 inches of Water

PILE AREA
Tank Raduis 30.5 m
Area = 2918.6 m²
Sample ID: Lawn / Yard
Taken 24-Nov-08

Max Tank Diameter
Max
200' tank diameter
60.96m

Lawn / Yard

ODOUR RESULTS			
Lab ID	**Lab Results**	**Flux Rate**	**Emission Rate**
Detection	**(ou)**	**(ou/s/m²)**	**(ou/s)**
LY1-T1	37	0.027	77
LY1-T2	37	0.027	77
LY2-T1	34	0.024	71
AVERAGE	**36**	**0.026**	**75**
Recognition			
LY1-T1	20	0.014	42
LY1-T2	21	0.015	44
LY2-T1	23	0.016	48
AVERAGE	**21**	**0.015**	**45**

Flux Chamber Measurements

Client: Walker Brothers
Job No.: 0925058A
Sample Date :25-Nov-08

Chamber Data
Area = 0.4 m²
Sweep Rate = 17.2 L/min
Purge Start Time 10:00 AM
Purge End Time 10:35 AM
Pile Temp -27 °C
Chamber Temp 4 °C
Chamber Pressure 0.02 inches of Water

PILE AREA
Tank Raduis 30.5 m
Area = 2918.6 m²
Sample ID: 6 Week Old Before Turning
Taken 24-Nov-08

Max Tank Diameter
Max
200' tank diameter
60.96m

6 Week Old Before Turning

ODOUR RESULTS			
Lab ID	**Lab Results**	**Flux Rate**	**Emission Rate**
Detection	**(ou)**	**(ou/s/m²)**	**(ou/s)**
W6-BT-T1	38	0.027	79
W6-BT-T2	41	0.029	86
W6-BT-T3	53	0.038	111
AVERAGE	**44**	**0.032**	**92**
Recognition			
W6-BT-T1	27	0.019	56
W6-BT-T2	32	0.023	67
W6-BT-T3	38	0.027	79
AVERAGE	**32**	**0.023**	**68**

Appendix J7: Open Windrow Odour Flux Rate Calculations

RWDI #2402272

Walker South Landfill Phase 2 Environmental Assessment

Calculations of Open Windrow Odour Emission Rates

Flux Chamber Measurements

Client: Walker Brothers
Job No.: 0925058A
Sample Date :25-Nov-08

Chamber Data
Area = 0.4 m²
Sweep Rate = 17.2 L/min
Purge Start Time 11:48 AM
Purge End Time 12:23 PM
Pile Temp 33 °C
Chamber Temp 11.0 °C
Chamber Pressure 0.02 inches of Water

PILE AREA
Tank Raduis 30.5 m
Area = 2918.6 m²
Sample ID: 6 Week Old After Turning
Taken 24-Nov-08

Max Tank Diameter
200' tank diameter
60.96m

6 Week Old After Turning

ODOUR RESULTS			
Lab ID	Lab Results	Flux Rate	Emission Rate
Detection	(ou)	(ou/s/m²)	(ou/s)
W6-AT-T1	53	0.038	111
W6-AT-T2	116	0.083	243
W6-AT-T3	89	0.064	186
AVERAGE	**86**	**0.062**	**180**
Recognition			
W6-AT-T1	38	0.027	79
W6-AT-T2	82	0.059	172
W6-AT-T3	59	0.042	123
AVERAGE	**60**	**0.043**	**125**

Flux Chamber Measurements

Client: Walker Brothers
Job No.: 0925058A
Sample Date :25-Nov-08

Chamber Data
Area = 0.4 m²
Sweep Rate = 17.2 L/min
Purge Start Time 11:50 AM
Purge End Time 12:25 PM
Pile Temp 4 °C
Chamber Temp 4.0 °C
Chamber Pressure 0.00 inches of Water

PILE AREA
Tank Raduis 30.5 m
Area = 2918.6 m²
Sample ID: 2 Week Old After Turning
Taken 24-Nov-08

Max Tank Diameter
200' tank diameter
60.96m

2 Week Old After Turning

ODOUR RESULTS			
Lab ID	Lab Results	Flux Rate	Emission Rate
Detection	(ou)	(ou/s/m²)	(ou/s)
W2-AT-T1	164	0.118	343
W2-AT-T2	195	0.140	408
W2-AT-T3	97	0.070	203
AVERAGE	**152**	**0.109**	**318**
Recognition			
W2-AT-T1	116	0.083	243
W2-AT-T2	138	0.099	289
W2-AT-T3	62	0.044	130
AVERAGE	**105**	**0.075**	**220**

Summary of Open Windrow Odour Emission Rates

Source	Average Odour Source Concentration (OU)	Average Odour Flux Rate (OU/m²/s)
Incoming Lawn & Yard Waste	36	0.026
2 Week Old After Turning Windrow	152	0.109
6 Week Old Before Turning	44	0.032
6 Week Old After Turning	86	0.062

Appendix J8: Screener Odour Flux Rate Calculations

RWDI #2402272

Walker South Landfill Phase 2 Environmental Assessment

Client: Walker Brothers
Job No.: 0925058A
Sample Date :25-Nov-08

Chamber Data
Area = 0.4 m²
Sweep Rate = 17.2 L/min
Purge Start Time 10:16 AM
Purge End Time 10:50 AM
Pile Temp 35 °C
Chamber Temp 5.0 °C
Chamber Pressure 0.01 inches of Water

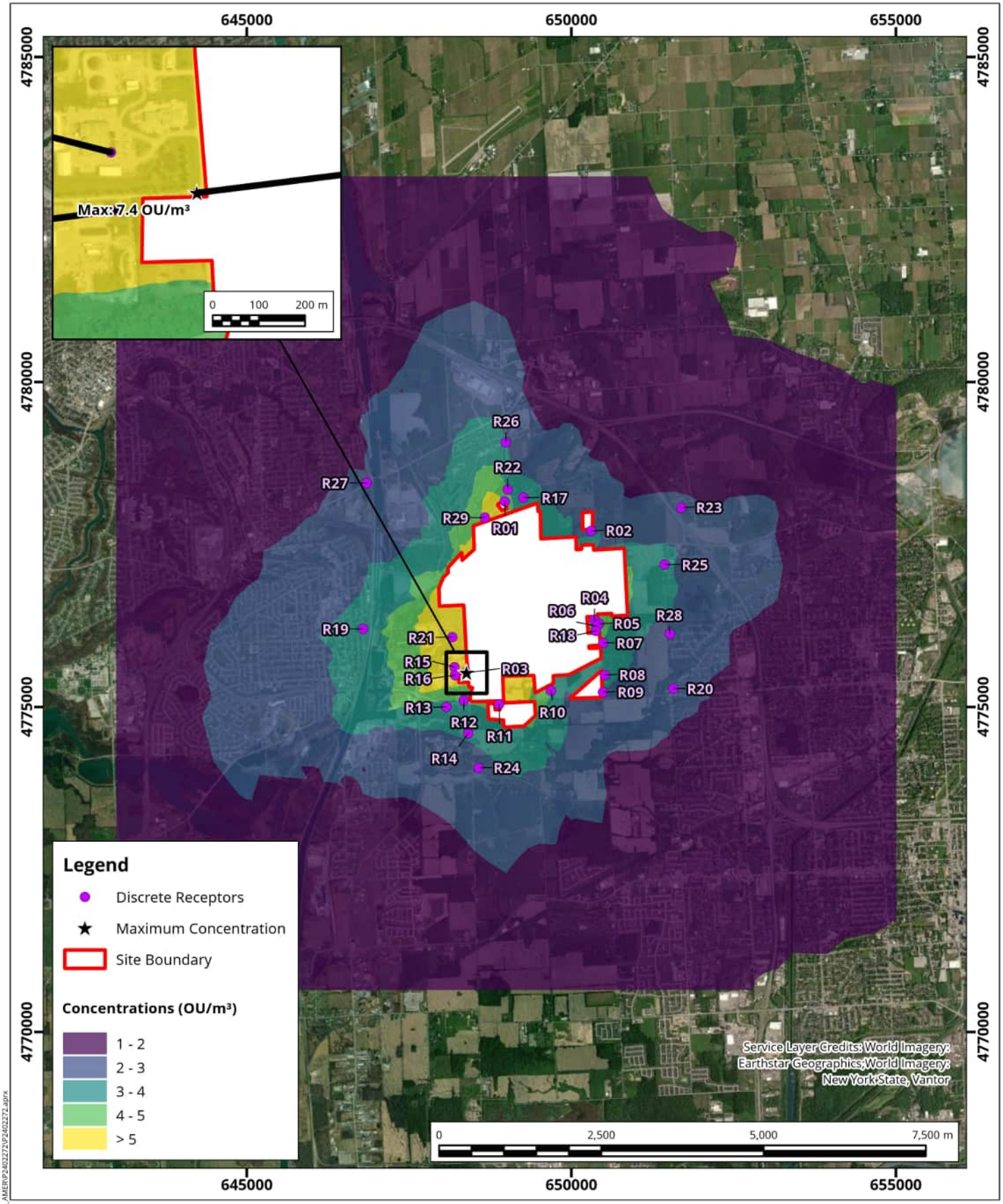
PILE AREA
Tank Raduis 30.5 m
Area = 2918.6 m²
Sample ID: Screening Material
Taken 24-Nov-08

Max Tank Diameter
200' tank diameter
60.96m

Screening Material

ODOUR RESULTS			
Lab ID Detection	**Lab Results (ou)**	**Flux Rate (ou/s/m^2)**	**Emission Rate (ou/s)**
Screening -T1	89	0.064	186
Screening -T2	57	0.041	119
Screening -T3	68	0.049	142
AVERAGE	**71**	**0.051**	**149**
Recognition			
Screening -T1	57	0.041	119
Screening -T2	40	0.029	84
Screening -T3	49	0.035	102
AVERAGE	**49**	**0.035**	**102**

APPENDIX K



Predicted 10-Minute Odour Concentrations (in OU/m³)

Preferred Method - Scenario 1

Map Projection: NAD 1983 UTM Zone 17N

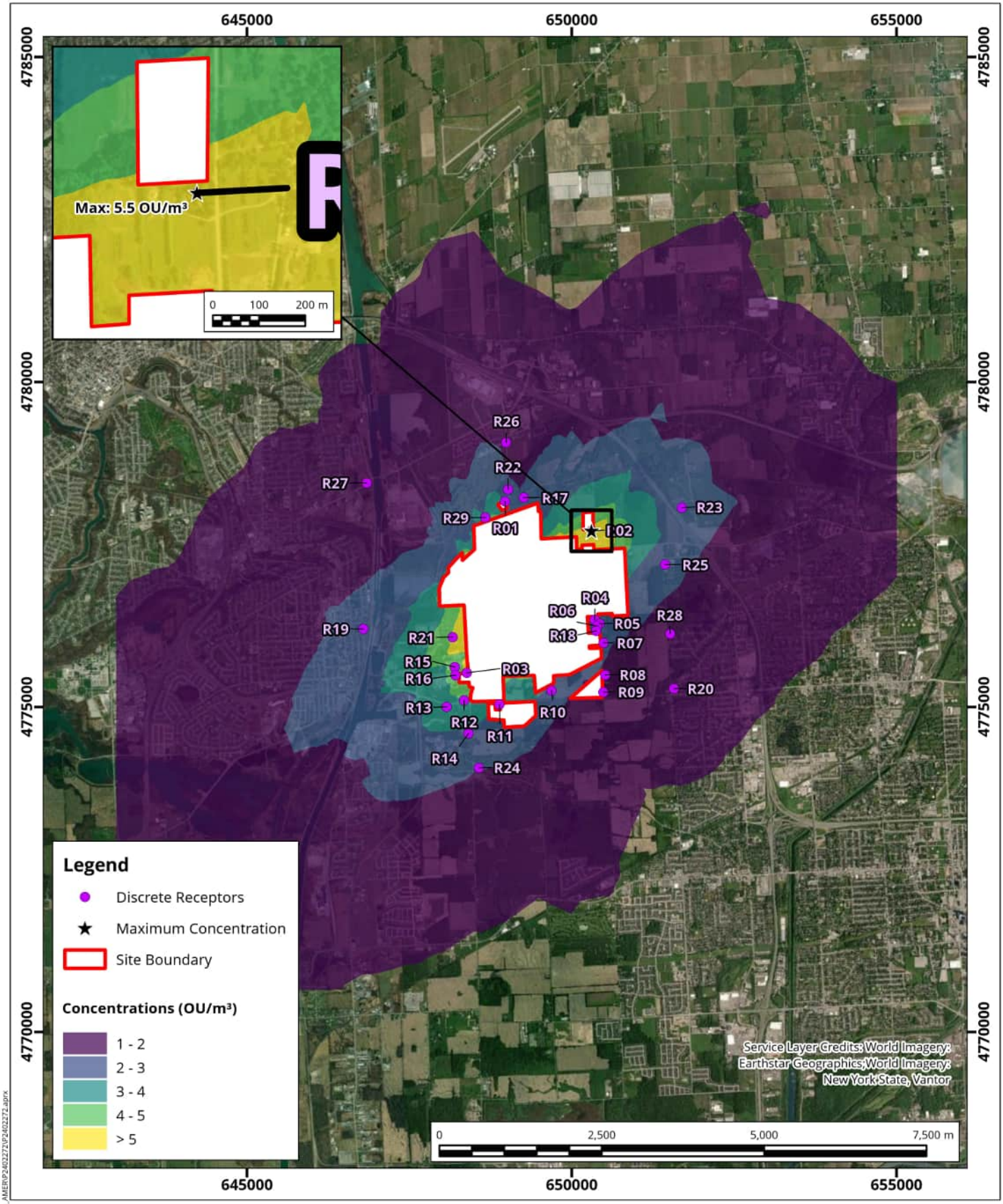
Walker Landfill - Regional Municipality of Niagara, Ontario

True North

Project #: 2402272

Drawn by: PIP	Figure: K.1
Approx. Scale:	1:80,000
Date Revised:	Jun 19, 2026

Map Document: C:\WorkingFolder\Jobs AMER\P\2402272\P2402272.aprx



Predicted 10-Minute Odour Concentrations (in OU/m³)

Preferred Method - Scenario 2

Map Projection: NAD 1983 UTM Zone 17N

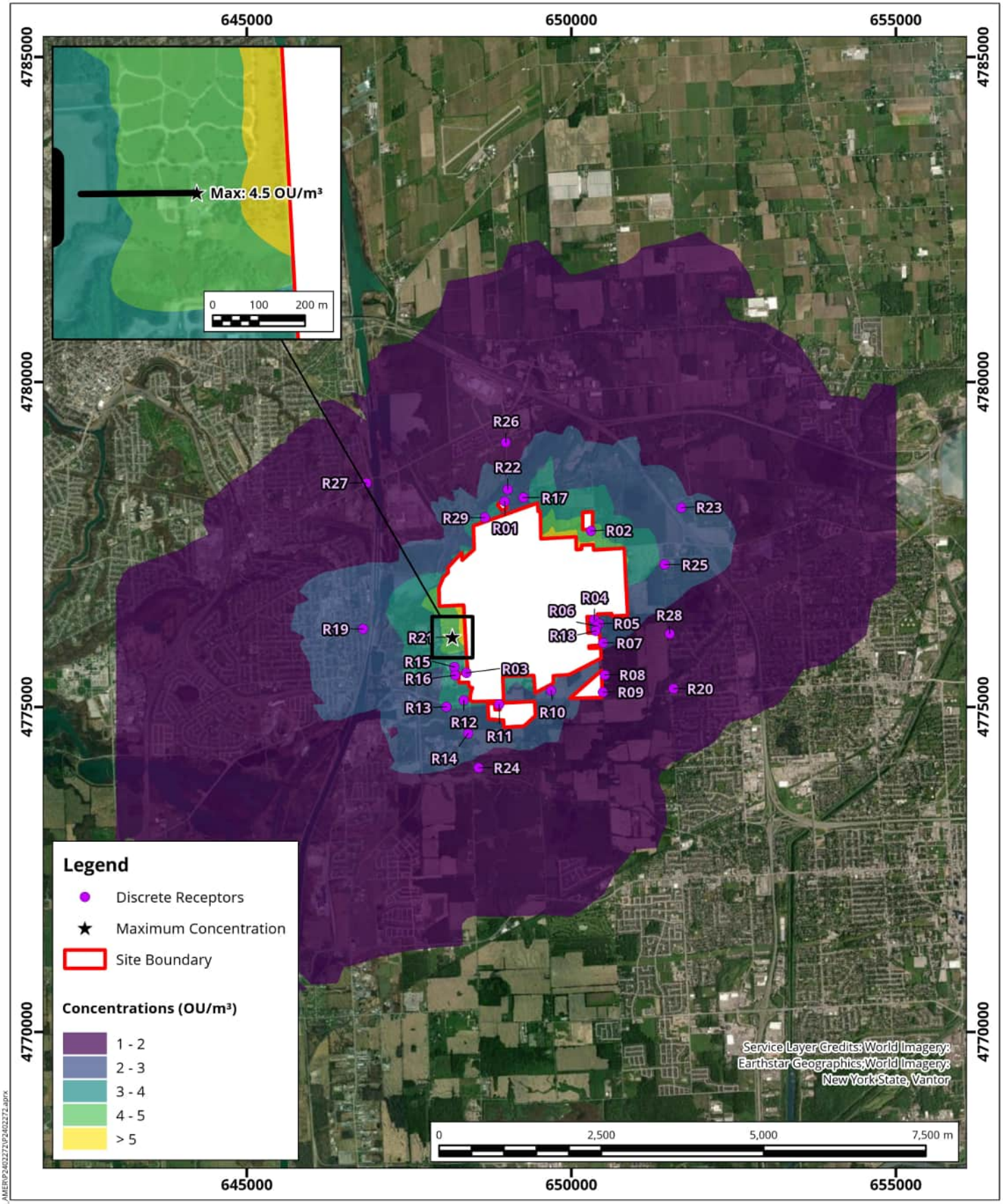
Walker Landfill - Regional Municipality of Niagara, Ontario

Project #: 2402272

True North

Drawn by: PIP	Figure: K.2
Approx. Scale:	1:80,000
Date Revised:	Jun 19, 2026

Map Document: C:\Working Folder\Jobs AMER\P2402272\P2402272.aprx



Predicted 10-Minute Odour Concentrations (in OU/m³)

Preferred Method - Scenario 3

Map Projection: NAD 1983 UTM Zone 17N

Walker Landfill - Regional Municipality of Niagara, Ontario

True North

Project #: 2402272

Drawn by: PIP	Figure: K.3
Approx. Scale:	1:80,000
Date Revised:	Jun 19, 2026

Map Document: C:\Working Folder\Jobs_AMER\P\2402272\2402272.aprx

APPENDIX L

Appendix L1: Source Summary Tables - Dust, Landfill Gas and Combustion By-Products (Scenario 1 (End of Stage 1) - Year 2033)

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Source ID [1]	Source Type [1]	Source Description	Source Data								Emission Data							
			Stack Volumetric Flow Rate (Am^3/s)	Stack Exit Gas Temp. (°C)	Stack Inner Diameter (m)	Stack Exit Velocity (m/s)	Stack Height Above Grade (m)	Stack Height Above Roof (m)	Source Coordinates X (m)	Source Coordinates Y (m)	Contaminant	CAS Number	Emission Rate (g/s)	Emission Rate (g/m2-s)	Averaging Period (hours)	Emission Estimating Technique [2]	Emissions Data Quality [3]	% of Overall Emissions (%)
Walker Aggregates Inc. - Quarry and Asphalt Plant																		
ASPH_DC	POINT	Asphalt Plant Stack (Dust collector blower)	23.5	120	1.22	20.1	20	6 [1]	648930	4777386	TSP	n/a - TSP	2.0E+00		n/a - TSP	EC	Above-Average	23%
											PM10	n/a - PM10	4.8E-01		n/a - PM10	EC	Above-Average	14%
											PM2.5	n/a - PM2.5	4.0E-01		n/a - PM2.5	EC	Above-Average	21%
											Nitrogen Oxides (NOx)	10102-44-0	1.2E+00		10102-44-0	EC	Marginal	10%
											Sulphur Dioxide (SO2)	7446-09-5	2.2E-01		7446-09-5	EC	Marginal	2%
											Benzene	71-43-2	1.4E-02		71-43-2	EC	Marginal	80%
											Benzene (Annual)		2.5E-03		71-43-2	EC	Marginal	97%
ASPH_HTR	POINT	Asphalt Cement Tank Heater	0.25	125	0.17 (6" x 6")	10.8	5	1	648954	4777361	Nitrogen Oxides (NOx)	10102-44-0	2.6E-02		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	1.6E-04		7446-09-5	EF	Above-Average	<1%
											TSP	n/a - TSP	2.0E-03		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	2.0E-03		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	2.0E-03		n/a - PM2.5	EF	Marginal	<1%
ASPH_LD1	VOLUME	HMA Load Out to Trucks at Mixer	n/a	n/a	n/a	n/a	n/a	n/a	648941	4777393	TSP	n/a - TSP	2.4E-02		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	2.4E-02		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	2.4E-02		n/a - PM2.5	EF	Average	1%
											Benzene	71-43-2	1.2E-04		71-43-2	EF	Average	<1%
											Benzene (Annual)		2.2E-05		71-43-2	EF	Average	<1%
ASPH_LD2	VOLUME	HMA Load Out to Trucks at Silo	n/a	n/a	n/a	n/a	n/a	n/a	648966	4777394	TSP	n/a - TSP	1.6E-02		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	1.6E-02		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	1.6E-02		n/a - PM2.5	EF	Average	<1%
											Benzene	71-43-2	8.0E-05		71-43-2	EF	Average	<1%
											Benzene (Annual)		1.5E-05		71-43-2	EF	Average	<1%
ASPH_SL1	VOLUME	Filling HMA Silo	n/a	n/a	n/a	n/a	n/a	n/a	648966	4777394	TSP	n/a - TSP	1.6E-02		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	1.6E-02		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	1.6E-02		n/a - PM2.5	EF	Average	<1%
											Benzene	71-43-2	1.4E-04		71-43-2	EF	Average	<1%
											Benzene (Annual)		2.7E-05		71-43-2	EF	Average	1%
ASPH_TK1	POINT	Asphalt Cement Storage Tank (1 of 2)	n/a	177	0.001	0.001	7.6	n/a	648957	4777384	TSP	n/a - TSP	2.5E-02		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	2.5E-02		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	2.5E-02		n/a - PM2.5	EF	Average	1%
											Benzene	71-43-2	3.3E-05		71-43-2	EF	Average	<1%
											Benzene (Annual)		5.0E-06		71-43-2	EF	Average	<1%
ASPH_TK2	POINT	Asphalt Cement Storage Tank (2 of 2)	n/a	177	0.001	0.001	7.6	n/a	648955	4777379	TSP	n/a - TSP	2.5E-02		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	2.5E-02		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	2.5E-02		n/a - PM2.5	EF	Average	1%
											Benzene	71-43-2	3.3E-05		71-43-2	EF	Average	<1%
											Benzene (Annual)		5.0E-06		71-43-2	EF	Average	<1%
RAPPILE	VOLUME	Loading RAP to RAP stockpile	n/a	n/a	n/a	n/a	n/a	n/a	649016	4777376	TSP	n/a - TSP	4.6E-02		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	2.0E-02		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	3.1E-03		n/a - PM2.5	EF	Marginal	<1%
RAPDUMP	VOLUME	Loading RAP to Plant	n/a	n/a	n/a	n/a	n/a	n/a	648884	4777409	TSP	n/a - TSP	4.6E-02		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	2.0E-02		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	3.1E-03		n/a - PM2.5	EF	Marginal	<1%
AH_DROP	VOLUME	Drop off of raw aggregate material at asphalt plant	n/a	n/a	n/a	n/a	n/a	n/a	648888	4777427	TSP	n/a - TSP	7.0E-03		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	4.9E-03		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	7.3E-04		n/a - PM2.5	EF	Marginal	<1%
ASPH_TRK	LINE_VOLUME	Movement of Loaded HMA Trucks	n/a	n/a	n/a	n/a	n/a	n/a	648941	4777393	Benzene	71-43-2	2.8E-05		71-43-2	EF	Marginal	<1%
											Benzene (Annual)		5.2E-06		71-43-2	EF	Marginal	<1%
PR_AP1	LINE_VOLUME	Paved Road at Asphalt Plant - to/from Asphalt Plant Entrance	n/a	n/a	n/a	n/a	n/a	n/a	648658	4777363	Nitrogen Oxides (NOx)	10102-44-0	8.21E-04		10102-44-0	ST	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	5.21E-06		7446-09-5	ST	Above-Average	<1%
											Benzene	71-43-2	8.29E-07		71-43-2	ST	Above-Average	<1%
											TSP	n/a - TSP	5.07E-02		n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	6.63E-03		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	1.62E-03		n/a - PM2.5	ST	Above-Average	<1%

Appendix L1: Source Summary Tables - Dust, Landfill Gas and Combustion By-Products (Scenario 1 (End of Stage 1) - Year 2033)

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Source ID [1]	Source Type [1]	Source Description	Source Data								Emission Data							
			Stack Volumetric Flow Rate (Am^3/s)	Stack Exit Gas Temp. (°C)	Stack Inner Diameter (m)	Stack Exit Velocity (m/s)	Stack Height Above Grade (m)	Stack Height Above Roof (m)	Source Coordinates X (m)	Source Coordinates Y (m)	Contaminant	CAS Number	Emission Rate (g/s)	Emission Rate (g/m2-s)	Averaging Period (hours)	Emission Estimating Technique [2]	Emissions Data Quality [3]	% of Overall Emissions (%)
UR_AP2	LINE_VOLUME	Unpaved Road at Asphalt Plant - between Entrance and Asphalt Plant	n/a	n/a	n/a	n/a	n/a	n/a	648941	4777393	Nitrogen Oxides (NOx)	10102-44-0	6.45E-04		10102-44-0	ST	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	5.04E-06		7446-09-5	ST	Above-Average	<1%
											Benzene	71-43-2	7.93E-07		71-43-2	ST	Above-Average	<1%
											TSP	n/a - TSP	7.10E-02		n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	1.77E-02		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	1.80E-03		n/a - PM2.5	ST	Above-Average	<1%
EQ_AP	VOLUME	Tailpipe Emission of Onsite Equipment at Asphalt Plant	n/a	n/a	n/a	n/a	n/a	n/a	649021	4777384	Nitrogen Oxides (NOx)	10102-44-0	1.40E-03		10102-44-0	ST	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	1.54E-05		7446-09-5	ST	Above-Average	<1%
											Benzene	71-43-2	3.68E-06		71-43-2	ST	Above-Average	<1%
											TSP	n/a - TSP	9.22E-05		n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	9.22E-05		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	9.22E-05		n/a - PM2.5	ST	Above-Average	<1%
QBLAST	VOLUME	Blasting at Quarry Face	n/a	n/a	n/a	n/a	n/a	n/a	650168	4777173	TSP	n/a - TSP	3.9E-01		n/a - TSP	EF	Marginal	4%
											PM10	n/a - PM10	2.0E-01		n/a - PM10	EF	Marginal	6%
											PM2.5	n/a - PM2.5	1.2E-02		n/a - PM2.5	EF	Marginal	<1%
QPDROP3	VOLUME	Quarry Drop Point at Granular A Pile	n/a	n/a	n/a	n/a	n/a	n/a	648694	4777444	TSP	n/a - TSP	3.4E-03		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	2.1E-03		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	5.9E-04		n/a - PM2.5	EF	Marginal	<1%
QPDROP4	VOLUME	Quarry Drop Point at Surge Pile	n/a	n/a	n/a	n/a	n/a	n/a	648531	4777329	TSP	n/a - TSP	3.4E-03		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	2.1E-03		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	5.9E-04		n/a - PM2.5	EF	Marginal	<1%
QPDROP5	VOLUME	Quarry Drop Point at Sand/Concrete Stone Pile	n/a	n/a	n/a	n/a	n/a	n/a	648721	4777304	TSP	n/a - TSP	3.4E-03		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	2.1E-03		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	5.9E-04		n/a - PM2.5	EF	Marginal	<1%
QPDUMP	VOLUME	Quarry truck Unloading at Processing Plant	n/a	n/a	n/a	n/a	n/a	n/a	648549	4777234	TSP	n/a - TSP	7.3E-04		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	5.3E-04		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	8.0E-05		n/a - PM2.5	EF	Marginal	<1%
QPLOAD	VOLUME	Quarry Handling: Truck Loading at Quarry Active Face	n/a	n/a	n/a	n/a	n/a	n/a	650149	4777159	TSP	n/a - TSP	2.4E-03		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	1.8E-03		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	2.7E-04		n/a - PM2.5	EF	Marginal	<1%
QPPIKUP1	VOLUME	Quarry Granular A Loading at Processing Plant	n/a	n/a	n/a	n/a	n/a	n/a	648696	4777454	TSP	n/a - TSP	4.2E-01		n/a - TSP	EF	Marginal	5%
											PM10	n/a - PM10	1.8E-01		n/a - PM10	EF	Marginal	5%
											PM2.5	n/a - PM2.5	2.8E-02		n/a - PM2.5	EF	Marginal	1%
QPPIKUP2	VOLUME	Quarry Granular B Loading at Processing Plant	n/a	n/a	n/a	n/a	n/a	n/a	648618	4777466	TSP	n/a - TSP	9.1E-02		n/a - TSP	EF	Marginal	1%
											PM10	n/a - PM10	4.0E-02		n/a - PM10	EF	Marginal	1%
											PM2.5	n/a - PM2.5	6.0E-03		n/a - PM2.5	EF	Marginal	<1%
QPPIKUP3	VOLUME	Quarry Granular M Loading at Processing Plant	n/a	n/a	n/a	n/a	n/a	n/a	648706	4777484	TSP	n/a - TSP	2.1E-02		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	9.2E-03		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	1.4E-03		n/a - PM2.5	EF	Marginal	<1%
QPPIKUP4	VOLUME	Quarry Screenings Loading at Processing Plant	n/a	n/a	n/a	n/a	n/a	n/a	648674	4777324	TSP	n/a - TSP	7.0E-03		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	3.1E-03		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	4.6E-04		n/a - PM2.5	EF	Marginal	<1%
QPPIKUP5	VOLUME	Quarry Clear Stone Loading at Processing Plant	n/a	n/a	n/a	n/a	n/a	n/a	648806	4777377	TSP	n/a - TSP	1.4E-01		n/a - TSP	EF	Marginal	2%
											PM10	n/a - PM10	6.1E-02		n/a - PM10	EF	Marginal	2%
											PM2.5	n/a - PM2.5	9.3E-03		n/a - PM2.5	EF	Marginal	<1%
QPPIKUP6	VOLUME	Quarry Manufactured Sand Loading at Processing Plant	n/a	n/a	n/a	n/a	n/a	n/a	648733	4777313	TSP	n/a - TSP	2.1E-02		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	9.2E-03		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	1.4E-03		n/a - PM2.5	EF	Marginal	<1%
QP1CRUSH	VOLUME	Quarry Primary Crusher (Processing Plant)	n/a	n/a	n/a	n/a	n/a	n/a	648542	4777242	TSP	n/a - TSP	2.3E-02		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	1.8E-02		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	3.3E-03		n/a - PM2.5	EF	Marginal	<1%
QP2CRUSH	VOLUME	Quarry Secondary Crusher (Processing Plant)	n/a	n/a	n/a	n/a	n/a	n/a	648470	4777316	TSP	n/a - TSP	1.6E-02		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	1.3E-02		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	2.3E-03		n/a - PM2.5	EF	Marginal	<1%
QPCLASS	VOLUME	Classifier (Processing Plant)	n/a	n/a	n/a	n/a	n/a	n/a	648678	4777299	TSP	n/a - TSP	7.0E-02		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	3.3E-02		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	1.3E-02		n/a - PM2.5	EF	Marginal	<1%
QPSCALP	VOLUME	Quarry Scalping Screen (Processing Plant)	n/a	n/a	n/a	n/a	n/a	n/a	648490	4777293	TSP	n/a - TSP	3.7E-02		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	2.5E-02		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	1.7E-03		n/a - PM2.5	EF	Marginal	<1%

Appendix L1: Source Summary Tables - Dust, Landfill Gas and Combustion By-Products (Scenario 1 (End of Stage 1) - Year 2033)

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Source ID [1]	Source Type [1]	Source Description	Source Data								Emission Data							
			Stack Volumetric Flow Rate (Am^3/s)	Stack Exit Gas Temp. (°C)	Stack Inner Diameter (m)	Stack Exit Velocity (m/s)	Stack Height Above Grade (m)	Stack Height Above Roof (m)	Source Coordinates X (m)	Source Coordinates Y (m)	Contaminant	CAS Number	Emission Rate (g/s)	Emission Rate (g/m2-s)	Averaging Period (hours)	Emission Estimating Technique [2]	Emissions Data Quality [3]	% of Overall Emissions (%)
QPSIZING	VOLUME	Quarry Sizing Screen (Processing Plant)	n/a	n/a	n/a	n/a	n/a	n/a	648512	4777320	TSP	n/a - TSP	2.6E-02		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	1.7E-02		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	1.2E-03		n/a - PM2.5	EF	Marginal	<1%
QDRILL	VOLUME	Quarry Drilling at active face (drilling holes for blasting charges)	n/a	n/a	n/a	n/a	n/a	n/a	650181	4777181	TSP	n/a - TSP	1.6E-05		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	1.1E-05		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	1.7E-06		n/a - PM2.5	EF	Marginal	<1%
QPCCRUSH	VOLUME	Quarry Cone Crusher (Processing Plant)	n/a	n/a	n/a	n/a	n/a	n/a	648512	4777332	TSP	n/a - TSP	5.7E-03		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	4.5E-03		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	8.3E-04		n/a - PM2.5	EF	Marginal	<1%
QPSIZNG2	VOLUME	Quarry Screen After Cone Crusher (Processing Plant)	n/a	n/a	n/a	n/a	n/a	n/a	648500	4777324	TSP	n/a - TSP	9.3E-03		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	6.2E-03		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	4.2E-04		n/a - PM2.5	EF	Marginal	<1%
SEQGen	VOLUME	Energy Supply to Water Pump for Water Trucks	n/a	n/a	n/a	n/a	n/a	n/a	649500	4776181	Nitrogen Oxides (NOx)	10102-44-0	1.15E-01		10102-44-0	EF	Marginal	<1%
											Sulphur Dioxide (SO2)	7446-09-5	1.56E-02		7446-09-5	EF	Marginal	<1%
											TSP	n/a - TSP	5.00E-03		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	5.00E-03		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	5.00E-03		n/a - PM2.5	EF	Marginal	<1%
WE_APRAP	AREA	Wind Erosion from Recycled Asphalt Pavement (RAP) Stockpile	n/a	n/a	n/a	n/a	n/a	n/a	649025	4777338	TSP	n/a - TSP	0.00E+00	0.00E+00	n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	0.00E+00	0.00E+00	n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	0.00E+00	0.00E+00	n/a - PM2.5	ST	Above-Average	<1%
WE_QPFP1	AREA_POLY	Wind Erosion from Quarry Finished Product Stockpile (Granular A)	n/a	n/a	n/a	n/a	n/a	n/a	648650	4777387	TSP	n/a - TSP	0.00E+00	0.00E+00	n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	0.00E+00	0.00E+00	n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	0.00E+00	0.00E+00	n/a - PM2.5	ST	Above-Average	<1%
WE_QPFP2	AREA	Wind Erosion from Quarry Finished Product Stockpile (Granular B)	n/a	n/a	n/a	n/a	n/a	n/a	648589	4777430	TSP	n/a - TSP	0.00E+00	0.00E+00	n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	0.00E+00	0.00E+00	n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	0.00E+00	0.00E+00	n/a - PM2.5	ST	Above-Average	<1%
WE_QPFP3	AREA	Wind Erosion from Quarry Finished Product Stockpile (Granular M)	n/a	n/a	n/a	n/a	n/a	n/a	648658	4777507	TSP	n/a - TSP	0.00E+00	0.00E+00	n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	0.00E+00	0.00E+00	n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	0.00E+00	0.00E+00	n/a - PM2.5	ST	Above-Average	<1%
WE_QPFP4	AREA	Wind Erosion from Quarry Finished Product Stockpile (Screenings)	n/a	n/a	n/a	n/a	n/a	n/a	648663	4777306	TSP	n/a - TSP	0.00E+00	0.00E+00	n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	0.00E+00	0.00E+00	n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	0.00E+00	0.00E+00	n/a - PM2.5	ST	Above-Average	<1%
WE_QPFP5	AREA	Wind Erosion from Quarry Finished Product Stockpile (Clear Stone)	n/a	n/a	n/a	n/a	n/a	n/a	648794	4777363	TSP	n/a - TSP	0.00E+00	0.00E+00	n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	0.00E+00	0.00E+00	n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	0.00E+00	0.00E+00	n/a - PM2.5	ST	Above-Average	<1%
WE_QPFP6	AREA	Wind Erosion from Quarry Finished Product Stockpile (Sand)	n/a	n/a	n/a	n/a	n/a	n/a	648694	4777291	TSP	n/a - TSP	0.00E+00	0.00E+00	n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	0.00E+00	0.00E+00	n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	0.00E+00	0.00E+00	n/a - PM2.5	ST	Above-Average	<1%
PR_QP1	LINE_VOLUME	Paved Road at Quarry Plant - Export of Finished Products	n/a	n/a	n/a	n/a	n/a	n/a	648658	4777363	Nitrogen Oxides (NOx)	10102-44-0	6.12E-04		10102-44-0	ST	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	4.47E-06		7446-09-5	ST	Above-Average	<1%
											Benzene	71-43-2	6.83E-07		71-43-2	ST	Above-Average	<1%
											TSP	n/a - TSP	5.07E-02		n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	6.60E-03		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	1.61E-03		n/a - PM2.5	ST	Above-Average	<1%
UR_QP2	LINE_VOLUME	Unpaved Road at Quarry Plant - Export of Finished Products	n/a	n/a	n/a	n/a	n/a	n/a	648653	4777498	Nitrogen Oxides (NOx)	10102-44-0	4.89E-04		10102-44-0	ST	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	4.26E-06		7446-09-5	ST	Above-Average	<1%
											Benzene	71-43-2	6.66E-07		71-43-2	ST	Above-Average	<1%
											TSP	n/a - TSP	4.26E-02		n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	1.06E-02		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	1.08E-03		n/a - PM2.5	ST	Above-Average	<1%
UR_QP3	LINE_VOLUME	Unpaved Road at Quarry Plant - between Quarry Face and Quarry Plant	n/a	n/a	n/a	n/a	n/a	n/a	648549	4777234	Nitrogen Oxides (NOx)	10102-44-0	8.21E-04		10102-44-0	ST	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	4.11E-06		7446-09-5	ST	Above-Average	<1%
											Benzene	71-43-2	6.64E-07		71-43-2	ST	Above-Average	<1%
											TSP	n/a - TSP	1.85E-01		n/a - TSP	ST	Above-Average	2%
											PM10	n/a - PM10	4.61E-02		n/a - PM10	ST	Above-Average	1%
											PM2.5	n/a - PM2.5	4.63E-03		n/a - PM2.5	ST	Above-Average	<1%
UR_QP4	LINE_VOLUME	Unpaved Road at Quarry Plant - between Quarry Face and Quarry Plant	n/a	n/a	n/a	n/a	n/a	n/a	649457	4777018	Nitrogen Oxides (NOx)	10102-44-0	6.56E-04		10102-44-0	ST	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	3.95E-06		7446-09-5	ST	Above-Average	<1%
											Benzene	71-43-2	6.30E-07		71-43-2	ST	Above-Average	<1%
											TSP	n/a - TSP	2.26E-01		n/a - TSP	ST	Above-Average	3%
											PM10	n/a - PM10	7.46E-02		n/a - PM10	ST	Above-Average	2%
											PM2.5	n/a - PM2.5	7.48E-03		n/a - PM2.5	ST	Above-Average	<1%

Appendix L1: Source Summary Tables - Dust, Landfill Gas and Combustion By-Products (Scenario 1 (End of Stage 1) - Year 2033)

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Source ID [1]	Source Type [1]	Source Description	Source Data								Emission Data							
			Stack Volumetric Flow Rate (Am^3/s)	Stack Exit Gas Temp. (°C)	Stack Inner Diameter (m)	Stack Exit Velocity (m/s)	Stack Height Above Grade (m)	Stack Height Above Roof (m)	Source Coordinates X (m)	Source Coordinates Y (m)	Contaminant	CAS Number	Emission Rate (g/s)	Emission Rate (g/m2-s)	Averaging Period (hours)	Emission Estimating Technique [2]	Emissions Data Quality [3]	% of Overall Emissions (%)
EQ_QP	VOLUME	Tailpipe Emission of Onsite Equipment at Quarry Plant	n/a	n/a	n/a	n/a	n/a	n/a	648698	4777484	Nitrogen Oxides (NOx)	10102-44-0	1.40E-03		10102-44-0	ST	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	1.54E-05		7446-09-5	ST	Above-Average	<1%
											Benzene	71-43-2	3.68E-06		71-43-2	ST	Above-Average	<1%
											TSP	n/a - TSP	9.22E-05		n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	9.22E-05		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	9.22E-05		n/a - PM2.5	ST	Above-Average	<1%
EQ_QF	VOLUME	Tailpipe Emission of Onsite Equipment at Quarry Working Face	n/a	n/a	n/a	n/a	n/a	n/a	650140	4777156	Nitrogen Oxides (NOx)	10102-44-0	1.40E-03		10102-44-0	ST	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	1.54E-05		7446-09-5	ST	Above-Average	<1%
											Benzene	71-43-2	3.68E-06		71-43-2	ST	Above-Average	<1%
											TSP	n/a - TSP	9.22E-05		n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	9.22E-05		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	9.22E-05		n/a - PM2.5	ST	Above-Average	<1%
Niagara Biosolids Facility																		
BIOFILTR	AREA	Dryer Flue Gas	22.2	36	65.0 m x 8.1 m	0.03	1.52	N/A	648277	4776993	Nitrogen Oxides (NOx)	10102-44-0	8.56E-03	1.63E-05	10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	1.33E-03	2.53E-06	7446-09-5	EF	Above-Average	<1%
SILO_1	POINT	Silo #1 Bin Vent [4]	0.7	20	0.6x0.6	17.5	15	2.4	648324	4776920	TSP	n/a - TSP	2.00E-03		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	1.33E-03		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	2.00E-04		n/a - PM2.5	EF	Average	<1%
SILO_2	POINT	Silo #2 Bin Vent [4]	0.7	20	0.6x0.6	17.5	15	2.4	648324	4776915	TSP	n/a - TSP	2.00E-03		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	1.33E-03		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	2.00E-04		n/a - PM2.5	EF	Average	<1%
HEATING	VOLUME	Natural Gas Fired Comfort Heating	n/a	n/a	n/a	n/a	n/a	n/a	648313	4776920	Nitrogen Oxides (NOx)	10102-44-0	1.51E-02		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	9.04E-05		7446-09-5	EF	Above-Average	<1%
											TSP	n/a - TSP	1.15E-03		n/a - TSP	EF	Above-Average	<1%
											PM10	n/a - PM10	1.15E-03		n/a - PM10	EF	Above-Average	<1%
											PM2.5	n/a - PM2.5	1.15E-03		n/a - PM2.5	EF	Above-Average	<1%
MO_GEN	POINT	55 kW Natural Gas Fired Emergency Generator	0.2	427	0.15	11.32	4	1	648467	4777049	Nitrogen Oxides (NOx)	10102-44-0	1.69E-01		10102-44-0	EF	Above-Average	1%
											Sulphur Dioxide (SO2)	7446-09-5	1.92E-03		7446-09-5	EF	Above-Average	<1%
											TSP	n/a - TSP	2.43E-02		n/a - TSP	EF	Above-Average	<1%
											PM10	n/a - PM10	2.43E-02		n/a - PM10	EF	Above-Average	<1%
											PM2.5	n/a - PM2.5	2.43E-02		n/a - PM2.5	EF	Above-Average	1%
BOILERS	VOLUME	Two 650,000 MBTU natural gas fired boilers	0.172	175	n/a	n/a	n/a	n/a	648448	4777095	Nitrogen Oxides (NOx)	10102-44-0	1.61E-02		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	9.63E-05		7446-09-5	EF	Above-Average	<1%
											TSP	n/a - TSP	1.22E-03		n/a - TSP	EF	Above-Average	<1%
											PM10	n/a - PM10	1.22E-03		n/a - PM10	EF	Above-Average	<1%
											PM2.5	n/a - PM2.5	1.22E-03		n/a - PM2.5	EF	Above-Average	<1%
DROPOFF	VOLUME	Receiving Leaf & yard Material in Open Windrc	n/a	n/a	n/a	n/a	n/a	n/a	648120	4776951	TSP	n/a - TSP	7.86E-03		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	3.44E-03		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	5.21E-04		n/a - PM2.5	EF	Average	<1%
MOVE1	VOLUME	Movement of Material into Windrow (Open Wi	n/a	n/a	n/a	n/a	n/a	n/a	648187	4776964	TSP	n/a - TSP	7.86E-03		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	3.44E-03		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	5.21E-04		n/a - PM2.5	EF	Average	<1%
MOVE2	VOLUME	Movement of Material into Windrow (GORE are	n/a	n/a	n/a	n/a	n/a	n/a	648280	4776647	TSP	n/a - TSP	7.86E-03		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	3.44E-03		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	5.21E-04		n/a - PM2.5	EF	Average	<1%
SCRTSP	VOLUME	Drop at Screening Area	n/a	n/a	n/a	n/a	n/a	n/a	648178	4776807	TSP	n/a - TSP	7.86E-03		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	3.44E-03		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	5.21E-04		n/a - PM2.5	EF	Average	<1%
SCREEN1	VOLUME	Screening Emissions	n/a	n/a	n/a	n/a	n/a	n/a	648259	4776746	TSP	n/a - TSP	1.22E-02		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	1.22E-02		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	1.83E-03		n/a - PM2.5	EF	Average	<1%
SCREEN2	VOLUME	Screening Emissions	n/a	n/a	n/a	n/a	n/a	n/a	648281	4776753	TSP	n/a - TSP	1.22E-02		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	1.22E-02		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	1.83E-03		n/a - PM2.5	EF	Average	<1%
SCREEN3	VOLUME	Screening Emissions	n/a	n/a	n/a	n/a	n/a	n/a	648135	4776839	TSP	n/a - TSP	2.29E-02		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	2.29E-02		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	3.44E-03		n/a - PM2.5	EF	Average	<1%
SCREEN4	VOLUME	Screening Emissions	n/a	n/a	n/a	n/a	n/a	n/a	648139	4776949	TSP	n/a - TSP	2.29E-02		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	2.29E-02		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	3.44E-03		n/a - PM2.5	EF	Average	<1%

Appendix L1: Source Summary Tables - Dust, Landfill Gas and Combustion By-Products (Scenario 1 (End of Stage 1) - Year 2033)

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Source ID [1]	Source Type [1]	Source Description	Source Data								Emission Data							
			Stack Volumetric Flow Rate (Am^3/s)	Stack Exit Gas Temp. (°C)	Stack Inner Diameter (m)	Stack Exit Velocity (m/s)	Stack Height Above Grade (m)	Stack Height Above Roof (m)	Source Coordinates X (m)	Source Coordinates Y (m)	Contaminant	CAS Number	Emission Rate (g/s)	Emission Rate (g/m2-s)	Averaging Period (hours)	Emission Estimating Technique [2]	Emissions Data Quality [3]	% of Overall Emissions (%)
FSTPL	VOLUME	Drop at Final Stockpile	n/a	n/a	n/a	n/a	n/a	n/a	648140	4776734	TSP	n/a - TSP	7.86E-03		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	3.44E-03		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	5.21E-04		n/a - PM2.5	EF	Average	<1%
FP	VOLUME	Loading of Material for Shipment Off-Site	n/a	n/a	n/a	n/a	n/a	n/a	648138	4776765	TSP	n/a - TSP	7.86E-03		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	3.44E-03		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	5.21E-04		n/a - PM2.5	EF	Average	<1%
GRINDR	VOLUME	Fugitive emissions from Grinder [7]	n/a	n/a	n/a	n/a	n/a	n/a	648136	4776795	TSP	n/a - TSP	2.29E-02		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	2.29E-02		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	3.44E-03		n/a - PM2.5	EF	Average	<1%
GRINDR2_N	VOLUME	Fugitive emissions from Grinder #2 [6]	n/a	n/a	n/a	n/a	n/a	n/a	648119	4776971	TSP	n/a - TSP	2.29E-02		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	2.29E-02		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	3.44E-03		n/a - PM2.5	EF	Average	<1%
CONV_PM	VOLUME	Stacking Conveyor Fugitive Emissions [7]	n/a	n/a	n/a	n/a	n/a	n/a	648281	4776764	TSP	n/a - TSP	8.22E-04		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	5.11E-04		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	1.44E-04		n/a - PM2.5	EF	Average	<1%
CONV_PM2_N	VOLUME	Stacking Conveyor #2 Fugitive Emissions - North Location [6]	n/a	n/a	n/a	n/a	n/a	n/a	648126	4776966	TSP	n/a - TSP	8.22E-04		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	5.11E-04		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	1.44E-04		n/a - PM2.5	EF	Average	<1%
GSTK	POINT	Grinder Engine - 860 kW, Diesel Fired [7]	2.7	575	0.2	86	5.5	1.5	648135	4776792	Nitrogen Oxides (NOx)	10102-44-0	9.45E-01		10102-44-0	EF	Marginal	8%
											Sulphur Dioxide (SO2)	7446-09-5	1.05E-01		7446-09-5	EF	Marginal	1%
											TSP	n/a - TSP	5.55E-02		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	5.55E-02		n/a - PM10	EF	Marginal	2%
											PM2.5	n/a - PM2.5	5.55E-02		n/a - PM2.5	EF	Marginal	3%
GSTK2_N	POINT	Grinder #2 Engine 860 kW, Diesel Fired - North Location [6]	2.7	575	0.2	86	5.5	1.5	648119	4776968	Nitrogen Oxides (NOx)	10102-44-0	9.45E-01		10102-44-0	EF	Marginal	8%
											Sulphur Dioxide (SO2)	7446-09-5	1.05E-01		7446-09-5	EF	Marginal	1%
											TSP	n/a - TSP	5.55E-02		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	5.55E-02		n/a - PM10	EF	Marginal	2%
											PM2.5	n/a - PM2.5	5.55E-02		n/a - PM2.5	EF	Marginal	3%
GENC	POINT	Generator #1 600 kW, Diesel Fired	2.4	553	0.25	48	3.5	0.5	648169	4776734	Nitrogen Oxides (NOx)	10102-44-0	2.43E+00		10102-44-0	EF	Marginal	20%
											Sulphur Dioxide (SO2)	7446-09-5	1.23E-03		7446-09-5	EF	Marginal	<1%
											TSP	n/a - TSP	1.80E-02		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	1.48E-02		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	1.24E-02		n/a - PM2.5	EF	Marginal	<1%
SCREEN1C	POINT	Screen #1 Engine 130 kW, Diesel Fired	0.5	427	0.12	42	4	0.5	648258	4776746	Nitrogen Oxides (NOx)	10102-44-0	2.93E-01		10102-44-0	EF	Marginal	2%
											Sulphur Dioxide (SO2)	7446-09-5	1.94E-02		7446-09-5	EF	Marginal	<1%
											TSP	n/a - TSP	2.08E-02		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	2.08E-02		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	2.08E-02		n/a - PM2.5	EF	Marginal	1%
SCREEN2C	POINT	Screen #2 Engine 130 kW, Diesel Fired	0.5	427	0.12	42	4	0.5	648281	4776753	Nitrogen Oxides (NOx)	10102-44-0	2.93E-01		10102-44-0	EF	Marginal	2%
											Sulphur Dioxide (SO2)	7446-09-5	1.94E-02		7446-09-5	EF	Marginal	<1%
											TSP	n/a - TSP	2.08E-02		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	2.08E-02		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	2.08E-02		n/a - PM2.5	EF	Marginal	1%
SCREEN3C	POINT	Screen #3 Engine 130 kW, Diesel Fired	0.5	427	0.12	42	4	0.5	648134	4776839	Nitrogen Oxides (NOx)	10102-44-0	2.93E-01		10102-44-0	EF	Marginal	2%
											Sulphur Dioxide (SO2)	7446-09-5	1.94E-02		7446-09-5	EF	Marginal	<1%
											TSP	n/a - TSP	2.08E-02		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	2.08E-02		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	2.08E-02		n/a - PM2.5	EF	Marginal	1%
SCREEN4C	POINT	Screen #4 Engine 60 kW, Diesel Fired	0.24	525	0.1	31	4	0.5	648140	4776949	Nitrogen Oxides (NOx)	10102-44-0	1.35E-01		10102-44-0	EF	Marginal	1%
											Sulphur Dioxide (SO2)	7446-09-5	8.94E-03		7446-09-5	EF	Marginal	<1%
											TSP	n/a - TSP	9.59E-03		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	9.59E-03		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	9.59E-03		n/a - PM2.5	EF	Marginal	<1%
CONVEYOR	POINT	Stacking Conveyor Engine 60 kW, Diesel Fired [7]	0.24	525	0.1	31	2	n/a	648281	4776764	Nitrogen Oxides (NOx)	10102-44-0	6.60E-02		10102-44-0	EF	Marginal	<1%
											Sulphur Dioxide (SO2)	7446-09-5	4.36E-03		7446-09-5	EF	Marginal	<1%
											TSP	n/a - TSP	4.68E-03		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	4.68E-03		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	4.68E-03		n/a - PM2.5	EF	Marginal	<1%

Appendix L1: Source Summary Tables - Dust, Landfill Gas and Combustion By-Products (Scenario 1 (End of Stage 1) - Year 2033)

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Source ID [1]	Source Type [1]	Source Description	Source Data								Emission Data							
			Stack Volumetric Flow Rate (Am^3/s)	Stack Exit Gas Temp. (°C)	Stack Inner Diameter (m)	Stack Exit Velocity (m/s)	Stack Height Above Grade (m)	Stack Height Above Roof (m)	Source Coordinates X (m)	Source Coordinates Y (m)	Contaminant	CAS Number	Emission Rate (g/s)	Emission Rate (g/m2-s)	Averaging Period (hours)	Emission Estimating Technique [2]	Emissions Data Quality [3]	% of Overall Emissions (%)
CONVEY2N	POINT	Stacking Conveyor #2 Engine 60 kW, Diesel Fired [6]	0.24	525	0.1	31	2	n/a	648126	4776967	Nitrogen Oxides (NOx)	10102-44-0	6.60E-02		10102-44-0	EF	Marginal	<1%
											Sulphur Dioxide (SO2)	7446-09-5	4.36E-03		7446-09-5	EF	Marginal	<1%
											TSP	n/a - TSP	4.68E-03		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	4.68E-03		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	4.68E-03		n/a - PM2.5	EF	Marginal	<1%
R_BLDG	VOLUME	Processing Building - Operation of Diesel-Fired Heater	0.049	175	0.14	3.2	1.2	n/a	648214	4776739	Nitrogen Oxides (NOx)	10102-44-0	6.55E-03		10102-44-0	EF	Marginal	<1%
											Sulphur Dioxide (SO2)	7446-09-5	2.33E-02		7446-09-5	EF	Above-Average	<1%
											TSP	n/a - TSP	1.08E-03		n/a - TSP	EF	Above-Average	<1%
											PM10	n/a - PM10	6.55E-04		n/a - PM10	EF	Above-Average	<1%
											PM2.5	n/a - PM2.5	4.26E-04		n/a - PM2.5	EF	Above-Average	<1%
PR_CF1	LINE_VOLUME	Paved Road at Compost Facility - Inbound and Outbound Delivery	n/a	n/a	n/a	n/a	n/a	n/a	648346	4776573	Nitrogen Oxides (NOx)	10102-44-0	7.32E-04		10102-44-0	ST	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	3.66E-06		7446-09-5	ST	Above-Average	<1%
											Benzene	71-43-2	5.91E-07		71-43-2	ST	Above-Average	<1%
											TSP	n/a - TSP	3.23E-02		n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	4.23E-03		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	1.04E-03		n/a - PM2.5	ST	Above-Average	<1%
UR_CF2	LINE_VOLUME	Unpaved Road at Compost Facility - Inbound and Outbound Delivery	n/a	n/a	n/a	n/a	n/a	n/a	648114	4776735	Nitrogen Oxides (NOx)	10102-44-0	2.78E-04		10102-44-0	ST	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	3.21E-06		7446-09-5	ST	Above-Average	<1%
											Benzene	71-43-2	4.97E-07		71-43-2	ST	Above-Average	<1%
											TSP	n/a - TSP	3.00E-03		n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	5.65E-04		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	6.97E-05		n/a - PM2.5	ST	Above-Average	<1%
EQ_CF	VOLUME	Tailpipe Emission of Onsite Equipment at Compost Facility	n/a	n/a	n/a	n/a	n/a	n/a	648158	4776735	Nitrogen Oxides (NOx)	10102-44-0	8.23E-04		10102-44-0	ST	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	6.52E-06		7446-09-5	ST	Above-Average	<1%
											Benzene	71-43-2	3.18E-06		71-43-2	ST	Above-Average	<1%
											TSP	n/a - TSP	6.91E-05		n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	6.91E-05		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	6.91E-05		n/a - PM2.5	ST	Above-Average	<1%
Walker Environmental Group Inc. –																		
LEAPOND1	AREA	Existing Leachate Pond #1	--	--	--	--	--	--	648441	4777248	Hydrogen sulfide	7783-06-4	6.24E-06	3.59E-09	7783-06-4	ST	Above-Average	<1%
											Benzene	71-43-2	4.67E-06	2.69E-09	71-43-2	ST	Above-Average	<1%
											1,1,2-Trichloroethane	79-00-5	1.23E-06	7.05E-10	79-00-5	ST	Above-Average	<1%
											Vinyl chloride	75-01-4	5.69E-07	3.27E-10	75-01-4	ST	Above-Average	<1%
LEAPOND2	AREA	Existing Leachate Pond #2	--	--	--	--	--	--	648787	4777544	Hydrogen sulfide	7783-06-4	6.96E-06	3.59E-09	7783-06-4	ST	Above-Average	<1%
											Benzene	71-43-2	5.21E-06	2.69E-09	71-43-2	ST	Above-Average	<1%
											1,1,2-Trichloroethane	79-00-5	1.37E-06	7.05E-10	79-00-5	ST	Above-Average	<1%
											Vinyl chloride	75-01-4	6.34E-07	3.27E-10	75-01-4	ST	Above-Average	<1%
LEAPOND3	AREA	Existing Leachate Pond #3	--	--	--	--	--	--	648856	4777523	Hydrogen sulfide	7783-06-4	8.27E-06	3.59E-09	7783-06-4	ST	Above-Average	<1%
											Benzene	71-43-2	6.19E-06	2.69E-09	71-43-2	ST	Above-Average	<1%
											1,1,2-Trichloroethane	79-00-5	1.62E-06	7.05E-10	79-00-5	ST	Above-Average	<1%
											Vinyl chloride	75-01-4	7.53E-07	3.27E-10	75-01-4	ST	Above-Average	<1%
LEAPOND4	AREA	Proposed Leachate Pond #4	--	--	--	--	--	--	648776	4777487	Hydrogen sulfide	7783-06-4	1.13E-05	3.59E-09	7783-06-4	ST	Above-Average	<1%
											Benzene	71-43-2	8.47E-06	2.69E-09	71-43-2	ST	Above-Average	<1%
											1,1,2-Trichloroethane	79-00-5	2.22E-06	7.05E-10	79-00-5	ST	Above-Average	<1%
											Vinyl chloride	75-01-4	1.03E-06	3.27E-10	75-01-4	ST	Above-Average	<1%
LEAPOND5	AREA	Proposed Leachate Pond #5	--	--	--	--	--	--	648853	4777466	Hydrogen sulfide	7783-06-4	1.13E-05	3.59E-09	7783-06-4	ST	Above-Average	<1%
											Benzene	71-43-2	8.47E-06	2.69E-09	71-43-2	ST	Above-Average	<1%
											1,1,2-Trichloroethane	79-00-5	2.22E-06	7.05E-10	79-00-5	ST	Above-Average	<1%
											Vinyl chloride	75-01-4	1.03E-06	3.27E-10	75-01-4	ST	Above-Average	<1%
SOIL	AREA_POLY	Fugitive Emissions from Wast Soil Stockpile	--	--	--	--	--	--	648632	4776730	Hydrogen sulfide	7783-06-4	1.36E-04	3.61E-09	7783-06-4	ST	Above-Average	<1%
											Benzene	71-43-2	1.29E-05	3.42E-10	71-43-2	ST	Above-Average	<1%
											1,1,2-Trichloroethane	79-00-5	2.66E-05	7.05E-10	79-00-5	ST	Above-Average	3%
											Vinyl chloride	75-01-4	1.23E-05	3.27E-10	75-01-4	ST	Above-Average	<1%
SDrop_Soil	VOLUME	Soil Drop off at Waste Soil Pile	n/a	n/a	n/a	n/a	n/a	n/a	648849	4776943	TSP	n/a - TSP	3.0E-03		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	1.3E-03		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	2.0E-04		n/a - PM2.5	EF	Marginal	<1%
SPick_Soil	VOLUME	Soil Pick up from Waste Soil Pile	n/a	n/a	n/a	n/a	n/a	n/a	648854	4776948	TSP	n/a - TSP	2.0E-02		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	8.9E-03		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	1.3E-03		n/a - PM2.5	EF	Marginal	<1%
SDrop_ELFWF	VOLUME	Soil Drop off at Working Face of East Landfill	n/a	n/a	n/a	n/a	n/a	n/a	648928	4777207	TSP	n/a - TSP	5.4E-03		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	2.4E-03		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	3.6E-04		n/a - PM2.5	EF	Marginal	<1%

Appendix L1: Source Summary Tables - Dust, Landfill Gas and Combustion By-Products (Scenario 1 (End of Stage 1) - Year 2033)

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Source ID [1]	Source Type [1]	Source Description	Source Data								Emission Data							
			Stack Volumetric Flow Rate (Am^3/s)	Stack Exit Gas Temp. (°C)	Stack Inner Diameter (m)	Stack Exit Velocity (m/s)	Stack Height Above Grade (m)	Stack Height Above Roof (m)	Source Coordinates X (m)	Source Coordinates Y (m)	Contaminant	CAS Number	Emission Rate (g/s)	Emission Rate (g/m2-s)	Averaging Period (hours)	Emission Estimating Technique [2]	Emissions Data Quality [3]	% of Overall Emissions (%)
SDrop_S1WF	VOLUME	Soil Drop off at Working Face of South Landfill Phase 2 - Stage 1	n/a	n/a	n/a	n/a	n/a	n/a	649888	4776600	TSP	n/a - TSP	1.5E-02		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	6.5E-03		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	9.9E-04		n/a - PM2.5	EF	Marginal	<1%
DROP_S2CON	VOLUME	Clay Drop off at Cell Construction Area of South Landfill Phase 2 - Stage 2	n/a	n/a	n/a	n/a	n/a	n/a	649879	4776756	TSP	n/a - TSP	3.0E-03		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	1.3E-03		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	2.0E-04		n/a - PM2.5	EF	Marginal	<1%
DROP_SLFCAP	VOLUME	Clay Drop off at Final Capping Area of South Landfill Phase 1	n/a	n/a	n/a	n/a	n/a	n/a	649243	4776509	TSP	n/a - TSP	1.5E-03		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	6.4E-04		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	9.7E-05		n/a - PM2.5	EF	Marginal	<1%
DROP_S1CAP	VOLUME	Clay Drop off at Final Capping Construction Area of South Landfill Phase 2 - Stage 1	n/a	n/a	n/a	n/a	n/a	n/a	649662	4776094	TSP	n/a - TSP	1.5E-03		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	6.4E-04		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	9.7E-05		n/a - PM2.5	EF	Marginal	<1%
DOZER_Soil	VOLUME	Bulldozer at Waste Soil Pile - Fugitive dust	n/a	n/a	n/a	n/a	n/a	n/a	648844	4776949	TSP	n/a - TSP	9.8E-01		n/a - TSP	EF		11%
											PM10	n/a - PM10	3.0E-01		n/a - PM10	EF		9%
											PM2.5	n/a - PM2.5	1.0E-01		n/a - PM2.5	EF		5%
DOZER_S1WF	VOLUME	Bulldozer at Working Face of South Landfill Phase 2 - Stage 1 - Fugitive dust	n/a	n/a	n/a	n/a	n/a	n/a	649888	4776604	TSP	n/a - TSP	9.8E-01		n/a - TSP	EF		11%
											PM10	n/a - PM10	3.0E-01		n/a - PM10	EF		9%
											PM2.5	n/a - PM2.5	1.0E-01		n/a - PM2.5	EF		5%
DOZER_S1CAP	VOLUME	Bulldozer at Final Capping Construction Area of South Landfill Phase 2 - Stage 1 - Fugitive dust	n/a	n/a	n/a	n/a	n/a	n/a	649658	4776096	TSP	n/a - TSP	9.8E-01		n/a - TSP	EF	Above-Average	11%
											PM10	n/a - PM10	3.0E-01		n/a - PM10	EF	Above-Average	9%
											PM2.5	n/a - PM2.5	1.0E-01		n/a - PM2.5	EF	Above-Average	5%
EQ_Soil	VOLUME	Tailpipe Emission of Onsite Equipment at Soil Pile	n/a	n/a	n/a	n/a	n/a	n/a	648844	4776949	Nitrogen Oxides (NOx)	10102-44-0	2.5E-03		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	2.9E-05		7446-09-5	EF	Above-Average	<1%
											Benzene	71-43-2	5.0E-06		71-43-2	EF	Above-Average	<1%
											TSP	n/a - TSP	1.4E-04		n/a - TSP	EF	Above-Average	<1%
											PM10	n/a - PM10	1.4E-04		n/a - PM10	EF	Above-Average	<1%
											PM2.5	n/a - PM2.5	1.4E-04		n/a - PM2.5	EF	Above-Average	<1%
EQ_ELFWF	VOLUME	Tailpipe Emission of Onsite Equipment at Working Face of East Landfill	n/a	n/a	n/a	n/a	n/a	n/a	648930	4777211	Nitrogen Oxides (NOx)	10102-44-0	6.4E-03		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	2.1E-05		7446-09-5	EF	Above-Average	<1%
											Benzene	71-43-2	7.6E-06		71-43-2	EF	Above-Average	<1%
											TSP	n/a - TSP	1.45E-04		n/a - TSP	EF	Above-Average	<1%
											PM10	n/a - PM10	1.45E-04		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	1.45E-04		n/a - PM2.5	ST	Above-Average	<1%
EQ_S1WF	VOLUME	Tailpipe Emission of Onsite Equipment at Working Face of South Landfill Phase 2 - Stage 1	n/a	n/a	n/a	n/a	n/a	n/a	649890	4776604	Nitrogen Oxides (NOx)	10102-44-0	6.2E-03		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	2.1E-05		7446-09-5	EF	Above-Average	<1%
											Benzene	71-43-2	7.5E-06		71-43-2	EF	Above-Average	<1%
											TSP	n/a - TSP	1.45E-04		n/a - TSP	EF	Above-Average	<1%
											PM10	n/a - PM10	1.45E-04		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	1.45E-04		n/a - PM2.5	ST	Above-Average	<1%
EQ_S1CAP	VOLUME	Tailpipe Emission of Onsite Equipment at Final Capping Construction Area of South Landfill Phase 2 - Stage 1	n/a	n/a	n/a	n/a	n/a	n/a	649659	4776098	Nitrogen Oxides (NOx)	10102-44-0	2.5E-03		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	2.9E-05		7446-09-5	EF	Above-Average	<1%
											Benzene	71-43-2	5.0E-06		71-43-2	EF	Above-Average	<1%
											TSP	n/a - TSP	1.4E-04		n/a - TSP	EF	Above-Average	<1%
											PM10	n/a - PM10	1.4E-04		n/a - PM10	EF	Above-Average	<1%
											PM2.5	n/a - PM2.5	1.4E-04		n/a - PM2.5	EF	Above-Average	<1%
TIP_ELF	POINT	173 hp Diesel-Fired Landfill Tipper at East Landfill - Combustion	1.25	349	0.25	25.5	2	n/a	648920	4777213	Nitrogen Oxides (NOx)	10102-44-0	6.76E-01		10102-44-0	EF	Above-Average	5%
											Sulphur Dioxide (SO2)	7446-09-5	4.47E-02		7446-09-5	EF	Marginal	<1%
											TSP	n/a - TSP	4.80E-02		n/a - TSP	EF	Above-Average	<1%
											PM10	n/a - PM10	4.80E-02		n/a - PM10	EF	Above-Average	1%
											PM2.5	n/a - PM2.5	4.80E-02		n/a - PM2.5	EF	Above-Average	3%
TIP2_ELF	POINT	173 hp Diesel-Fired Landfill Tipper #2 at East Landfill - Combustion	1.25	349	0.25	25.5	2	n/a	648935	4777212	Nitrogen Oxides (NOx)	10102-44-0	6.76E-01		10102-44-0	EF	Above-Average	5%
											Sulphur Dioxide (SO2)	7446-09-5	4.47E-02		7446-09-5	EF	Marginal	<1%
											TSP	n/a - TSP	4.80E-02		n/a - TSP	EF	Above-Average	<1%
											PM10	n/a - PM10	4.80E-02		n/a - PM10	EF	Above-Average	1%
											PM2.5	n/a - PM2.5	4.80E-02		n/a - PM2.5	EF	Above-Average	3%
TIP_S1	POINT	173 hp Diesel-Fired Landfill Tipper at South Landfill Phase 2 Stage 1 - Combustion	1.25	349	0.25	25.5	2	n/a	649879	4776606	Nitrogen Oxides (NOx)	10102-44-0	6.76E-01		10102-44-0	EF	Above-Average	5%
											Sulphur Dioxide (SO2)	7446-09-5	4.47E-02		7446-09-5	EF	Marginal	<1%
											TSP	n/a - TSP	4.80E-02		n/a - TSP	EF	Above-Average	<1%
											PM10	n/a - PM10	4.80E-02		n/a - PM10	EF	Above-Average	1%
											PM2.5	n/a - PM2.5	4.80E-02		n/a - PM2.5	EF	Above-Average	3%

Appendix L1: Source Summary Tables - Dust, Landfill Gas and Combustion By-Products (Scenario 1 (End of Stage 1) - Year 2033)

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Source ID [1]	Source Type [1]	Source Description	Source Data								Emission Data							
			Stack Volumetric Flow Rate (Am^3/s)	Stack Exit Gas Temp. (°C)	Stack Inner Diameter (m)	Stack Exit Velocity (m/s)	Stack Height Above Grade (m)	Stack Height Above Roof (m)	Source Coordinates X (m)	Source Coordinates Y (m)	Contaminant	CAS Number	Emission Rate (g/s)	Emission Rate (g/m2-s)	Averaging Period (hours)	Emission Estimating Technique [2]	Emissions Data Quality [3]	% of Overall Emissions (%)
TIP2_S1	POINT	173 hp Diesel-Fired Landfill Tipper #2 at South Landfill Phase 2 Stage 1 - Combustion	1.25	349	0.25	25.5	2	n/a	649895	4776605	Nitrogen Oxides (NOx)	10102-44-0	6.76E-01		10102-44-0	EF	Above-Average	5%
											Sulphur Dioxide (SO2)	7446-09-5	4.47E-02		7446-09-5	EF	Marginal	<1%
											TSP	n/a - TSP	4.80E-02		n/a - TSP	EF	Above-Average	<1%
											PM10	n/a - PM10	4.80E-02		n/a - PM10	EF	Above-Average	1%
											PM2.5	n/a - PM2.5	4.80E-02		n/a - PM2.5	EF	Above-Average	3%
EASTLF_IC	AREA_POLY	Fugitive Emissions from Areas under Interim Cover at East Landfill	--	--	--	--	--	--	648645	4777113	Hydrogen sulfide	7783-06-4	1.45E-04	2.53E-09	7783-06-4	ST	Above-Average	<1%
											Benzene	71-43-2	1.02E-04	1.78E-09	71-43-2	ST	Above-Average	<1%
											1,1,2-Trichloroethane	79-00-5	2.66E-05	4.66E-10	79-00-5	ST	Above-Average	3%
											Vinyl chloride	75-01-4	3.44E-04	6.02E-09	75-01-4	ST	Above-Average	10%
EASTLF_FC	AREA_POLY	Fugitive Emissions from Areas under Final Cover at East Landfill	--	--	--	--	--	--	648369	4776777	Hydrogen sulfide	7783-06-4	1.27E-04	2.37E-09	7783-06-4	ST	Above-Average	<1%
											Benzene	71-43-2	7.27E-06	1.35E-10	71-43-2	ST	Above-Average	<1%
											1,1,2-Trichloroethane	79-00-5	2.50E-05	4.66E-10	79-00-5	ST	Above-Average	3%
											Vinyl chloride	75-01-4	1.16E-05	2.16E-10	75-01-4	ST	Above-Average	<1%
SLF_IC	AREA_POLY	Fugitive Emissions from Areas under Interim Cover at South Landfill Phase 1	--	--	--	--	--	--	649308	4776433	Hydrogen sulfide	7783-06-4	4.59E-04	3.70E-09	7783-06-4	ST	Above-Average	1%
											Benzene	71-43-2	3.22E-04	2.60E-09	71-43-2	ST	Above-Average	2%
											1,1,2-Trichloroethane	79-00-5	8.44E-05	6.82E-10	79-00-5	ST	Above-Average	8%
											Vinyl chloride	75-01-4	1.09E-03	8.81E-09	75-01-4	ST	Above-Average	30%
SLF_FC	AREA_POLY	Fugitive Emissions from Areas under Final Cover at South Landfill Phase 1	--	--	--	--	--	--	648547	4775839	Hydrogen sulfide	7783-06-4	9.26E-04	2.41E-09	7783-06-4	ST	Above-Average	3%
											Benzene	71-43-2	2.16E-04	5.63E-10	71-43-2	ST	Above-Average	1%
											1,1,2-Trichloroethane	79-00-5	4.90E-04	1.28E-09	79-00-5	ST	Above-Average	49%
											Vinyl chloride	75-01-4	1.71E-04	4.45E-10	75-01-4	ST	Above-Average	5%
S1_IC	AREA_POLY	Fugitive Emissions from Areas under Interim Cover at South Landfill Phase 2 - Stage 1	--	--	--	--	--	--	649568	4776303	Hydrogen sulfide	7783-06-4	7.19E-04	3.83E-09	7783-06-4	ST	Above-Average	2%
											Benzene	71-43-2	5.05E-04	2.69E-09	71-43-2	ST	Above-Average	3%
											1,1,2-Trichloroethane	79-00-5	1.32E-04	7.05E-10	79-00-5	ST	Above-Average	13%
											Vinyl chloride	75-01-4	1.71E-03	9.12E-09	75-01-4	ST	Above-Average	47%
S1_FC	AREA_POLY	Fugitive Emissions from Areas under Final Cover at South Landfill Phase 2 - Stage 1	--	--	--	--	--	--	649436	4775998	Hydrogen sulfide	7783-06-4	1.61E-04	3.59E-09	7783-06-4	ST	Above-Average	<1%
											Benzene	71-43-2	2.62E-05	5.83E-10	71-43-2	ST	Above-Average	<1%
											1,1,2-Trichloroethane	79-00-5	5.93E-05	1.32E-09	79-00-5	ST	Above-Average	6%
											Vinyl chloride	75-01-4	2.07E-05	4.61E-10	75-01-4	ST	Above-Average	<1%
WE_ELFIC	AREA_POLY	Wind Erosion from Areas under Interim Cover at East Landfill	--	--	--	--	--	--	648645	4777113	TSP	n/a - TSP	0.00E+00	0.00E+00	n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	0.00E+00	0.00E+00	n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	0.00E+00	0.00E+00	n/a - PM2.5	ST	Above-Average	<1%
WE_SLFIC	AREA_POLY	Wind Erosion from Areas under Interim Cover at South Landfill	--	--	--	--	--	--	649308	4776433	TSP	n/a - TSP	0.00E+00	0.00E+00	n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	0.00E+00	0.00E+00	n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	0.00E+00	0.00E+00	n/a - PM2.5	ST	Above-Average	<1%
WE_SLFCAP	AREA	Wind Erosion from Final Capping Construction Area at South Landfill	--	--	--	--	--	--	649179	4776524	TSP	n/a - TSP	0.00E+00	0.00E+00	n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	0.00E+00	0.00E+00	n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	0.00E+00	0.00E+00	n/a - PM2.5	ST	Above-Average	<1%
WE_S1IC	AREA_POLY	Wind Erosion from Areas under Interim Cover at South Landfill	--	--	--	--	--	--	649568	4776303	TSP	n/a - TSP	0.00E+00	0.00E+00	n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	0.00E+00	0.00E+00	n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	0.00E+00	0.00E+00	n/a - PM2.5	ST	Above-Average	<1%
WE_S1CAP	AREA	Wind Erosion from Final Capping Construction Area at South Landfill Phase 2 - Stage 1	--	--	--	--	--	--	649643	4776032	TSP	n/a - TSP	0.00E+00	0.00E+00	n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	0.00E+00	0.00E+00	n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	0.00E+00	0.00E+00	n/a - PM2.5	ST	Above-Average	<1%
WE_S2CON	AREA	Wind Erosion from Cell Construction Area at South Landfill Phase 2 - Stage 2	--	--	--	--	--	--	649815	4776742	TSP	n/a - TSP	0.00E+00	0.00E+00	n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	0.00E+00	0.00E+00	n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	0.00E+00	0.00E+00	n/a - PM2.5	ST	Above-Average	<1%
WE_SOIL	AREA_POLY	Wind Erosion from Waste Soil Stockpile	--	--	--	--	--	--	648632	4776730	TSP	n/a - TSP	0.00E+00	0.00E+00	n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	0.00E+00	0.00E+00	n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	0.00E+00	0.00E+00	n/a - PM2.5	ST	Above-Average	<1%
IDLE_WEIGH	VOLUME	Trucks Idling at the Weigh Scale	n/a	n/a	n/a	n/a	n/a	n/a	648928	4776513	Nitrogen Oxides (NOx)	10102-44-0	6.2E-03		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	3.3E-06		7446-09-5	EF	Above-Average	<1%
											Benzene	71-43-2	1.4E-06		71-43-2	EF	Above-Average	<1%
											TSP	n/a - TSP	1.32E-04		n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	1.32E-04		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	1.21E-04		n/a - PM2.5	ST	Above-Average	<1%
IDLE_ELFWF	VOLUME	Trucks Idling at the Working Face of East Landfill	n/a	n/a	n/a	n/a	n/a	n/a	648916	4777200	Nitrogen Oxides (NOx)	10102-44-0	6.2E-03		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	3.3E-06		7446-09-5	EF	Above-Average	<1%
											Benzene	71-43-2	1.4E-06		71-43-2	EF	Above-Average	<1%
											TSP	n/a - TSP	1.32E-04		n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	1.32E-04		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	1.21E-04		n/a - PM2.5	ST	Above-Average	<1%
IDLE_S1WF	VOLUME	Trucks Idling at the Working Face of South Landfill Phase 2 - Stage 1	n/a	n/a	n/a	n/a	n/a	n/a	649876	4776593	Nitrogen Oxides (NOx)	10102-44-0	6.2E-03		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	3.3E-06		7446-09-5	EF	Above-Average	<1%
											Benzene	71-43-2	1.4E-06		71-43-2	EF	Above-Average	<1%

Appendix L1: Source Summary Tables - Dust, Landfill Gas and Combustion By-Products (Scenario 1 (End of Stage 1) - Year 2033)

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Source ID [1]	Source Type [1]	Source Description	Source Data								Emission Data							
			Stack Volumetric Flow Rate (Am^3/s)	Stack Exit Gas Temp. (°C)	Stack Inner Diameter (m)	Stack Exit Velocity (m/s)	Stack Height Above Grade (m)	Stack Height Above Roof (m)	Source Coordinates X (m)	Source Coordinates Y (m)	Contaminant	CAS Number	Emission Rate (g/s)	Emission Rate (g/m2-s)	Averaging Period (hours)	Emission Estimating Technique [2]	Emissions Data Quality [3]	% of Overall Emissions (%)
											TSP	n/a - TSP	1.32E-04		n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	1.32E-04		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	1.21E-04		n/a - PM2.5	ST	Above-Average	<1%
UR_SOCL	LINE_VOLUME	Unpaved Road - Transport of Soil and Clay between Soil Pile and Working Face and Construction Areas	n/a	n/a	n/a	n/a	n/a	n/a	648812	4776883	Nitrogen Oxides (NOx)	10102-44-0	1.7E-04		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	5.4E-07		7446-09-5	EF	Above-Average	<1%
											Benzene	71-43-2	9.0E-08		71-43-2	EF	Above-Average	<1%
											TSP	n/a - TSP	1.27E-02		n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	2.13E-03		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	2.17E-04		n/a - PM2.5	ST	Above-Average	<1%
UR_ELFWF	LINE_VOLUME	Unpaved Road at East Landfill - Transport of Soil between Waste Soil Pile and Working Face	n/a	n/a	n/a	n/a	n/a	n/a	649121	4777049	Nitrogen Oxides (NOx)	10102-44-0	2.3E-04		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	9.3E-07		7446-09-5	EF	Above-Average	<1%
											Benzene	71-43-2	1.6E-07		71-43-2	EF	Above-Average	<1%
											TSP	n/a - TSP	1.88E-02		n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	3.47E-03		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	3.53E-04		n/a - PM2.5	ST	Above-Average	<1%
UR_SLFCAP	LINE_VOLUME	Unpaved Road at South Landfill Phase 1 - Transport of Clay between Soil Pile and Final Capping Construction Area	n/a	n/a	n/a	n/a	n/a	n/a	648898	4776440	Nitrogen Oxides (NOx)	10102-44-0	1.4E-03		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	7.9E-06		7446-09-5	EF	Above-Average	<1%
											Benzene	71-43-2	1.3E-06		71-43-2	EF	Above-Average	<1%
											TSP	n/a - TSP	1.26E-01		n/a - TSP	ST	Above-Average	1%
											PM10	n/a - PM10	2.33E-02		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	2.37E-03		n/a - PM2.5	ST	Above-Average	<1%
PR_W1	LINE_VOLUME	Paved Road - Transport of Waste between Entrance and Weigh Scale	n/a	n/a	n/a	n/a	n/a	n/a	649341	4776584	Nitrogen Oxides (NOx)	10102-44-0	6.09E-04		10102-44-0	ST	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	8.47E-07		7446-09-5	ST	Above-Average	<1%
											Benzene	71-43-2	1.82E-07		71-43-2	ST	Above-Average	<1%
											TSP	n/a - TSP	4.86E-02		n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	6.36E-03		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	1.54E-03		n/a - PM2.5	ST	Above-Average	<1%
UR_W2	LINE_VOLUME	Unpaved Road at - Transport of Waste between Weigh Scale and Working Face	n/a	n/a	n/a	n/a	n/a	n/a	648928	4776513	Nitrogen Oxides (NOx)	10102-44-0	7.70E-05		10102-44-0	ST	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	3.75E-07		7446-09-5	ST	Above-Average	<1%
											Benzene	71-43-2	6.23E-08		71-43-2	ST	Above-Average	<1%
											TSP	n/a - TSP	5.41E-03		n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	1.00E-03		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	1.02E-04		n/a - PM2.5	ST	Above-Average	<1%
UR_W3	LINE_VOLUME	Unpaved Road - Transport of Clay and Waste between Weigh Scale and Working Face	n/a	n/a	n/a	n/a	n/a	n/a	648901	4776446	Nitrogen Oxides (NOx)	10102-44-0	3.01E-04		10102-44-0	ST	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	5.64E-07		7446-09-5	ST	Above-Average	<1%
											Benzene	71-43-2	1.11E-07		71-43-2	ST	Above-Average	<1%
											TSP	n/a - TSP	2.93E-02		n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	5.42E-03		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	5.49E-04		n/a - PM2.5	ST	Above-Average	<1%
UR_W4	LINE_VOLUME	Unpaved Road - Transport of Soil, Clay and Waste between Weigh Scale and Working Face	n/a	n/a	n/a	n/a	n/a	n/a	649089	4776955	Nitrogen Oxides (NOx)	10102-44-0	2.98E-04		10102-44-0	ST	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	4.60E-07		7446-09-5	ST	Above-Average	<1%
											Benzene	71-43-2	9.28E-08		71-43-2	ST	Above-Average	<1%
											TSP	n/a - TSP	3.09E-02		n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	5.70E-03		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	5.76E-04		n/a - PM2.5	ST	Above-Average	<1%
UR_W5	LINE_VOLUME	Unpaved Road - Transport of Soil, Clay and Waste between Weigh Scale and Working Face	n/a	n/a	n/a	n/a	n/a	n/a	649121	4777049	Nitrogen Oxides (NOx)	10102-44-0	1.45E-04		10102-44-0	ST	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	3.84E-07		7446-09-5	ST	Above-Average	<1%
											Benzene	71-43-2	6.87E-08		71-43-2	ST	Above-Average	<1%
											TSP	n/a - TSP	1.36E-02		n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	2.52E-03		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	2.55E-04		n/a - PM2.5	ST	Above-Average	<1%
UR_W6	LINE_VOLUME	Unpaved Road - Transport of Rock, Soil, Clay and Waste between Weigh Scale and Working Face	n/a	n/a	n/a	n/a	n/a	n/a	649300	4777070	Nitrogen Oxides (NOx)	10102-44-0	5.22E-05		10102-44-0	ST	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	2.84E-07		7446-09-5	ST	Above-Average	<1%
											Benzene	71-43-2	4.62E-08		71-43-2	ST	Above-Average	<1%
											TSP	n/a - TSP	3.80E-03		n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	7.02E-04		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	7.18E-05		n/a - PM2.5	ST	Above-Average	<1%
UR_W7	LINE_VOLUME	Unpaved Road - Transport of Rock, Soil, Clay and Waste between Weigh Scale and Working Face	n/a	n/a	n/a	n/a	n/a	n/a	649352	4777069	Nitrogen Oxides (NOx)	10102-44-0	9.81E-05		10102-44-0	ST	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	3.32E-07		7446-09-5	ST	Above-Average	<1%
											Benzene	71-43-2	5.71E-08		71-43-2	ST	Above-Average	<1%
											TSP	n/a - TSP	2.95E-02		n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	9.75E-03		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	9.78E-04		n/a - PM2.5	ST	Above-Average	<1%
UR_W8	LINE_VOLUME	Unpaved Road - Transport of Soil, Clay and Waste between Weigh Scale and Working	n/a	n/a	n/a	n/a	n/a	n/a	649457	4777018	Nitrogen Oxides (NOx)	10102-44-0	1.29E-04		10102-44-0	ST	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	3.77E-07		7446-09-5	ST	Above-Average	<1%

Appendix L1: Source Summary Tables - Dust, Landfill Gas and Combustion By-Products (Scenario 1 (End of Stage 1) - Year 2033)

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Source ID [1]	Source Type [1]	Source Description	Source Data								Emission Data							
			Stack Volumetric Flow Rate (Am^3/s)	Stack Exit Gas Temp. (°C)	Stack Inner Diameter (m)	Stack Exit Velocity (m/s)	Stack Height Above Grade (m)	Stack Height Above Roof (m)	Source Coordinates X (m)	Source Coordinates Y (m)	Contaminant	CAS Number	Emission Rate (g/s)	Emission Rate (g/m2-s)	Averaging Period (hours)	Emission Estimating Technique [2]	Emissions Data Quality [3]	% of Overall Emissions (%)
		Face									Benzene	71-43-2	6.63E-08		71-43-2	ST	Above-Average	<1%
											TSP	n/a - TSP	1.17E-02		n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	2.17E-03		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	2.20E-04		n/a - PM2.5	ST	Above-Average	<1%
UR_W9	LINE_VOLUME	Unpaved Road - Transport of Soil and Waste between Weigh Scale and Working Face	n/a	n/a	n/a	n/a	n/a	n/a	649515	4776876	Nitrogen Oxides (NOx)	10102-44-0	4.23E-04		10102-44-0	ST	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	6.61E-07		7446-09-5	ST	Above-Average	<1%
											Benzene	71-43-2	1.33E-07		71-43-2	ST	Above-Average	<1%
											TSP	n/a - TSP	4.37E-02		n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	8.07E-03		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	8.16E-04		n/a - PM2.5	ST	Above-Average	<1%
UR_S2CON	LINE_VOLUME	Unpaved Road - Transport of Clay between Soil Pile and Cell Construction Area	n/a	n/a	n/a	n/a	n/a	n/a	649515	4776876	Nitrogen Oxides (NOx)	10102-44-0	5.22E-04		10102-44-0	ST	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	4.29E-06		7446-09-5	ST	Above-Average	<1%
											Benzene	71-43-2	6.73E-07		71-43-2	ST	Above-Average	<1%
											TSP	n/a - TSP	2.79E-02		n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	5.16E-03		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	5.36E-04		n/a - PM2.5	ST	Above-Average	<1%
UR_S1CAP	LINE_VOLUME	Unpaved Road - Transport of Clay between Soil Pile and Final Capping Construction Area	n/a	n/a	n/a	n/a	n/a	n/a	649350	4777069	Nitrogen Oxides (NOx)	10102-44-0	1.13E-03		10102-44-0	ST	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	7.72E-06		7446-09-5	ST	Above-Average	<1%
											Benzene	71-43-2	1.22E-06		71-43-2	ST	Above-Average	<1%
											TSP	n/a - TSP	9.01E-02		n/a - TSP	ST	Above-Average	1%
											PM10	n/a - PM10	1.66E-02		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	1.70E-03		n/a - PM2.5	ST	Above-Average	<1%
FLARE1	POINT	Landfill Gas Flare	6.7	871	3.0	0.9	12.2	n/a	648601	4775958	Nitrogen Oxides (NOx)	10102-44-0	8.60E-02		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	9.20E-01		7446-09-5	MB	Average	10%
											TSP	n/a - TSP	3.81E-02		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	3.81E-02		n/a - PM10	EF	Marginal	1%
											PM2.5	n/a - PM2.5	3.81E-02		n/a - PM2.5	EF	Marginal	2%
											Hydrogen Sulfide	7783-06-4	6.15E-03		7783-06-4	EF	Above-Average	20%
											Vinyl Chloride	75-01-4	5.04E-06		75-01-4	EF	Above-Average	<1%
											Benzene	71-43-2	3.55E-05		71-43-2	EF	Above-Average	<1%
											1,1,2-Trichloroethane	79-00-5	2.89E-06		79-00-5	EF	Above-Average	<1%
FLARE2	POINT	Landfill Gas Flare	6.7	871	4.0	0.5	15.2	n/a	648607	4775953	Nitrogen Oxides (NOx)	10102-44-0	8.60E-02		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	9.20E-01		7446-09-5	MB	Average	10%
											TSP	n/a - TSP	3.81E-02		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	3.81E-02		n/a - PM10	EF	Marginal	1%
											PM2.5	n/a - PM2.5	3.81E-02		n/a - PM2.5	EF	Marginal	2%
											Hydrogen Sulfide	7783-06-4	6.15E-03		7783-06-4	EF	Above-Average	20%
											Vinyl Chloride	75-01-4	5.04E-06		75-01-4	EF	Above-Average	<1%
											Benzene	71-43-2	3.55E-05		71-43-2	EF	Above-Average	<1%
											1,1,2-Trichloroethane	79-00-5	2.89E-06		79-00-5	EF	Above-Average	<1%
FLARE3	POINT	Landfill Gas Flare	6.7	871	4.0	0.5	15.2	n/a	648613	4775949	Nitrogen Oxides (NOx)	10102-44-0	8.60E-02		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	9.20E-01		7446-09-5	MB	Average	10%
											TSP	n/a - TSP	3.81E-02		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	3.81E-02		n/a - PM10	EF	Marginal	1%
											PM2.5	n/a - PM2.5	3.81E-02		n/a - PM2.5	EF	Marginal	2%
											Hydrogen Sulfide	7783-06-4	6.15E-03		7783-06-4	EF	Above-Average	20%
											Vinyl Chloride	75-01-4	5.04E-06		75-01-4	EF	Above-Average	<1%
											Benzene	71-43-2	3.55E-05		71-43-2	EF	Above-Average	<1%
											1,1,2-Trichloroethane	79-00-5	2.89E-06		79-00-5	EF	Above-Average	<1%
PGEN1	POINT	82 bhp Portable Diesel Fired Generator Cummins Model #4BT3.3-G2	0.17	510	0.08	33.8	2.5	n/a	648429	4775836	Nitrogen Oxides (NOx)	10102-44-0	8.72E-02		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	1.70E-02		7446-09-5	EF	Marginal	<1%
											TSP	n/a - TSP	7.30E-03		n/a - TSP	EF	Above-Average	<1%
											PM10	n/a - PM10	7.30E-03		n/a - PM10	EF	Above-Average	<1%
											PM2.5	n/a - PM2.5	7.30E-03		n/a - PM2.5	EF	Above-Average	<1%

Appendix L1: Source Summary Tables - Dust, Landfill Gas and Combustion By-Products (Scenario 1 (End of Stage 1) - Year 2033)

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Source ID [1]	Source Type [1]	Source Description	Source Data								Emission Data							
			Stack Volumetric Flow Rate (Am^3/s)	Stack Exit Gas Temp. (°C)	Stack Inner Diameter (m)	Stack Exit Velocity (m/s)	Stack Height Above Grade (m)	Stack Height Above Roof (m)	Source Coordinates X (m)	Source Coordinates Y (m)	Contaminant	CAS Number	Emission Rate (g/s)	Emission Rate (g/m2-s)	Averaging Period (hours)	Emission Estimating Technique [2]	Emissions Data Quality [3]	% of Overall Emissions (%)
Integrated Gas Recovery Services Inc. – Landfill Gas Utilization Plant																		
GEN1	POINT	1,064 kW Landfill Gas Fired Generator GE Jenbacher Model #J 320 GS-L/L	1.8	509	0.25	35.5	6.0	3.0	648553	4775929	Nitrogen Oxides (NOx)	10102-44-0	4.49E-01		10102-44-0	EF	Above-Average	4%
											Sulphur Dioxide (SO2)	7446-09-5	9.01E-02		7446-09-5	MB	Average	<1%
											TSP	n/a - TSP	4.49E-02		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	4.49E-02		n/a - PM10	EF	Marginal	1%
											PM2.5	n/a - PM2.5	4.49E-02		n/a - PM2.5	EF	Marginal	2%
											Hydrogen Sulfide	7783-06-4	2.55E-03		7783-06-4	EF	Above-Average	8%
											Vinyl Chloride	75-01-4	2.09E-06		75-01-4	EF	Above-Average	<1%
											Benzene	71-43-2	1.47E-05		71-43-2	EF	Above-Average	<1%
											1,1,2-Trichloroethane	79-00-5	1.20E-06		79-00-5	EF	Above-Average	<1%
GEN2	POINT	1,064 kW Landfill Gas Fired Generator GE Jenbacher Model #J 320 GS-L/L	1.8	509	0.25	35.5	6.0	3.0	648554	4775922	Nitrogen Oxides (NOx)	10102-44-0	4.49E-01		10102-44-0	EF	Above-Average	4%
											Sulphur Dioxide (SO2)	7446-09-5	9.01E-02		7446-09-5	MB	Average	<1%
											TSP	n/a - TSP	4.49E-02		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	4.49E-02		n/a - PM10	EF	Marginal	1%
											PM2.5	n/a - PM2.5	4.49E-02		n/a - PM2.5	EF	Marginal	2%
											Hydrogen Sulfide	7783-06-4	2.55E-03		7783-06-4	EF	Above-Average	8%
											Vinyl Chloride	75-01-4	2.09E-06		75-01-4	EF	Above-Average	<1%
											Benzene	71-43-2	1.47E-05		71-43-2	EF	Above-Average	<1%
											1,1,2-Trichloroethane	79-00-5	1.20E-06		79-00-5	EF	Above-Average	<1%
GEN3	POINT	1,064 kW Landfill Gas Fired Generator GE Jenbacher Model #J 320 GS-L/L	1.8	509	0.25	35.5	6.0	3.0	648558	4775914	Nitrogen Oxides (NOx)	10102-44-0	4.49E-01		10102-44-0	EF	Above-Average	4%
											Sulphur Dioxide (SO2)	7446-09-5	9.01E-02		7446-09-5	MB	Average	<1%
											TSP	n/a - TSP	4.49E-02		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	4.49E-02		n/a - PM10	EF	Marginal	1%
											PM2.5	n/a - PM2.5	4.49E-02		n/a - PM2.5	EF	Marginal	2%
											Hydrogen Sulfide	7783-06-4	2.55E-03		7783-06-4	EF	Above-Average	8%
											Vinyl Chloride	75-01-4	2.09E-06		75-01-4	EF	Above-Average	<1%
											Benzene	71-43-2	1.47E-05		71-43-2	EF	Above-Average	<1%
											1,1,2-Trichloroethane	79-00-5	1.20E-06		79-00-5	EF	Above-Average	<1%
GEN4	POINT	1,064 kW Landfill Gas Fired Generator GE Jenbacher Model #J 320 GS-L/L	1.8	509	0.25	35.5	6.0	3.0	648547	4775938	Nitrogen Oxides (NOx)	10102-44-0	4.49E-01		10102-44-0	EF	Above-Average	4%
											Sulphur Dioxide (SO2)	7446-09-5	9.01E-02		7446-09-5	MB	Average	<1%
											TSP	n/a - TSP	4.49E-02		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	4.49E-02		n/a - PM10	EF	Marginal	1%
											PM2.5	n/a - PM2.5	4.49E-02		n/a - PM2.5	EF	Marginal	2%
											Hydrogen Sulfide	7783-06-4	2.55E-03		7783-06-4	EF	Above-Average	8%
											Vinyl Chloride	75-01-4	2.09E-06		75-01-4	EF	Above-Average	<1%
											Benzene	71-43-2	1.47E-05		71-43-2	EF	Above-Average	<1%
											1,1,2-Trichloroethane	79-00-5	1.20E-06		79-00-5	EF	Above-Average	<1%
SILFLAR2	POINT	Siloxane Flare 2 (new)	0.99	871	1.2	0.88	7.8	n/a	648530	4775914	Nitrogen Oxides (NOx)	10102-44-0	2.69E-02		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	3.90E-02		7446-09-5	MB	Average	<1%
											TSP	n/a - TSP	5.91E-03		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	5.91E-03		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	5.91E-03		n/a - PM2.5	EF	Marginal	<1%
RNGFLARE	POINT	RNG Elevated Flare [8]	1.2	871	0.4	9.2	15.13	n/a	648541	4775766	Nitrogen Oxides (NOx)	10102-44-0	3.59E-01		10102-44-0	EF	Above-Average	3%
											Sulphur Dioxide (SO2)	7446-09-5	4.96E-01		7446-09-5	MB	Average	5%
											TSP	n/a - TSP	1.59E-01		n/a - TSP	EF	Marginal	2%
											PM10	n/a - PM10	1.59E-01		n/a - PM10	EF	Marginal	5%
											PM2.5	n/a - PM2.5	1.59E-01		n/a - PM2.5	EF	Marginal	8%
											Hydrogen Sulfide	7783-06-4	0.00E+00		7783-06-4	EF	Above-Average	<1%
											Vinyl Chloride	75-01-4	2.09E-05		75-01-4	EF	Above-Average	<1%
											Benzene	71-43-2	1.47E-04		71-43-2	EF	Above-Average	<1%
											1,1,2-Trichloroethane	79-00-5	1.20E-05		79-00-5	EF	Above-Average	1%
RNGTAIL	POINT	RNG Elevated Flare - Tail Gas [8]	1.5	871	0.4	11.8	15.13	n/a	648541	4775766	Sulphur Dioxide (SO2)	7446-09-5	4.67E+00		7446-09-5	MB	Average	51%
TO	POINT	Thermal Oxidizer	11.8	787	1.1	12.3	13.72	n/a	648494	4775921	Nitrogen Oxides (NOx)	10102-44-0	6.97E-02		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	0.00E+00		7446-09-5	MB	Average	<1%
											TSP	n/a - TSP	2.54E-02		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	2.54E-02		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	2.54E-02		n/a - PM2.5	EF	Marginal	1%
											Hydrogen Sulfide	7783-06-4	5.28E-05		7783-06-4	EF	Above-Average	<1%
											Vinyl Chloride	75-01-4	2.01E-04		75-01-4	EF	Above-Average	6%
											Benzene	71-43-2	1.42E-03		71-43-2	EF	Above-Average	8%
											1,1,2-Trichloroethane	79-00-5	1.15E-04		79-00-5	EF	Above-Average	12%

Appendix L1: Source Summary Tables - Dust, Landfill Gas and Combustion By-Products (Scenario 1 (End of Stage 1) - Year 2033)

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Source ID [1]	Source Type [1]	Source Description	Source Data								Emission Data							
			Stack Volumetric Flow Rate (Am^3/s)	Stack Exit Gas Temp. (^oC)	Stack Inner Diameter (m)	Stack Exit Velocity (m/s)	Stack Height Above Grade (m)	Stack Height Above Roof (m)	Source Coordinates X (m)	Source Coordinates Y (m)	Contaminant	CAS Number	Emission Rate (g/s)	Emission Rate (g/m2-s)	Averaging Period (hours)	Emission Estimating Technique [2]	Emissions Data Quality [3]	% of Overall Emissions (%)
Total																		
Total	- -	Total From all Sources	- -	- -	- -	- -	- -	- -	- -	- -	Nitrogen Oxides (NOx)	10102-44-0	1.24E+01	1.24E+01	1, 24	- -	- -	100%
											Sulphur Dioxide (SO2)	7446-09-5	9.07E+00	9.07E+00	1, 8760	- -	- -	100%
											TSP	n/a - TSP	8.78E+00	7.66E+00	24, 8760	- -	- -	100%
											PM10	n/a - PM10	3.51E+00	3.26E+00	24	- -	- -	100%
											PM2.5	n/a - PM2.5	1.89E+00	1.86E+00	24, 8760	- -	- -	100%
											Hydrogen Sulfide	7783-06-4	3.14E-02	2.87E-02	10 min, 24	- -	- -	100%
											Vinyl Chloride	75-01-4	3.61E-03	2.45E-04	24, 8760	- -	- -	100%
											Benzene	71-43-2	1.71E-02	1.58E-02	24	- -	- -	100%
											Benzene (Annual)	71-43-2	2.60E-03	2.60E-03	8760	- -	- -	100%
											1,1,2-Trichloroethane	79-00-5	9.93E-04	1.41E-04	24	- -	- -	100%

Notes:

[1] Source ID, Source Type: should provide information on the modelling source type (e.g., Point, Area or Volume Source); the process source or sources within the modelling source (e.g., Process Line #1); and the stack or stacks within each process source.

[2] Emission Estimating Technique Short-Forms are V-ST (Validated Source Test), "ST" (Source Test), EF (Emission Factor), MB (Mass Balance), and EC (Engineering Calculation).

[3] Data Quality Categories: Highest; Above-Average; Average; and Marginal.

[4] These volume sources represent sources of fugitive dust emissions. The emissions from these sources are not ducted through any sort of stack or vent, therefore, no stack parameters are provided for these sources in the source summary table.

[5] ASPH_DC stack height above roof is the stack height above the adjacent dust collector structure.

Appendix L2: H2S and VOC Flux Chamber Sampling Data
Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Results	Units	South Landfill - Interim Cover									South Landfill - Final Cover					
		SOUTH LANDFILL INTERMITTENT COVER AREA #1	SOUTH LANDFILL INTERMITTENT COVER AREA #2	SOUTH LANDFILL INTERMITTENT COVER AREA #3	SOUTH LANDFILL INTERMITTENT COVER AREA #4	SOUTH LANDFILL INTERMITTENT COVER AREA #5	SOUTH LANDFILL INTERMITTENT COVER AREA #6	SOUTH LANDFILL INTERMITTENT COVER AREA #7	SOUTH LANDFILL INTERMITTENT COVER AREA #8	SOUTH LANDFILL INTERMITTENT COVER AREA #9	SOUTH LANDFILL FINAL COVER AREA #1	SOUTH LANDFILL FINAL COVER AREA #2	SOUTH LANDFILL FINAL COVER AREA #3	SOUTH LANDFILL FINAL COVER AREA #4	SOUTH LANDFILL FINAL COVER AREA #5	SOUTH LANDFILL FINAL COVER AREA #6
Hydrogen sulfide	µg/m³	8.8	5.6	5.6	5.6	5.6	5.6	5.8	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
Acetone	µg/m³	14.7	30.6	67.9	11.9	33	8.1	8.6	12.8	21.8	35.4	6.9	57.5	59.4	16.2	16.6
Allyl chloride	µg/m³	0.63	0.63	0.63	0.63	0.63	0.63	0.66	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
Benzene	µg/m³	0.32	0.32	32.9	0.32	1.15	0.32	0.32	0.32	1.85	0.32	0.83	0.32	0.32	0.32	0.32
Benzyl chloride	µg/m³	1	1	1	1	1	1	1.1	1	1	1	1	1	1	1	1
Bromodichloromethane	µg/m³	1.3	1.3	1.3	1.3	1.3	1.3	1.4	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Bromoform	µg/m³	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
Bromomethane	µg/m³	0.78	0.78	0.78	0.78	0.78	0.78	0.82	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
1,3-Butadiene	µg/m³	0.44	0.44	2.85	0.44	0.44	0.44	0.46	0.44	0.77	0.44	0.44	0.44	0.44	0.44	0.44
Carbon disulfide	µg/m³	1.6	1.7	2.3	1.6	1.6	1.6	1.6	1.6	1.6	13.5	1.6	1.6	2.2	1.6	2.9
Carbon tetrachloride	µg/m³	1.26	1.26	1.26	1.26	1.26	1.26	1.32	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26
Chlorobenzene	µg/m³	0.92	0.92	0.92	0.92	0.92	0.92	0.97	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Chloroethane	µg/m³	0.53	3.67	34.3	0.53	1.61	0.53	0.55	0.53	4.8	0.53	0.53	0.53	0.53	0.53	0.53
Chloroform	µg/m³	0.98	0.98	1.46	0.98	0.98	0.98	1.02	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Chloromethane	µg/m³	0.56	2.06	4.38	0.41	1.47	0.41	0.43	0.41	3.49	0.41	0.43	0.56	0.41	0.91	0.7
Cyclohexane	µg/m³	0.69	1.82	86	0.69	1.96	0.69	0.72	0.69	16.6	0.69	0.69	0.89	0.69	0.69	0.69
Dibromochloromethane	µg/m³	1.7	1.7	1.7	1.7	1.7	1.7	1.8	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
1,2-Dibromoethane	µg/m³	1.5	1.5	1.5	1.5	1.5	1.5	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,2-Dichlorobenzene	µg/m³	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
1,3-Dichlorobenzene	µg/m³	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
1,4-Dichlorobenzene	µg/m³	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Dichlorodifluoromethane	µg/m³	1.5	5	18.5	1	2.5	1	1	1	1.9	1	1	1.3	1	1.6	1.5
1,1-Dichloroethane	µg/m³	0.81	0.81	0.81	0.81	0.81	0.81	0.85	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
1,2-Dichloroethane	µg/m³	0.81	0.81	15.2	0.81	0.81	0.81	0.85	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
1,1-Dichloroethylene	µg/m³	0.79	0.79	2.62	0.79	0.79	0.79	0.83	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
cis-1,2-Dichloroethylene	µg/m³	0.79	0.79	204	0.79	7.41	0.79	0.83	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
trans-1,2-Dichloroethylene	µg/m³	0.79	0.79	15.6	0.79	0.79	0.79	0.83	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Dichloromethane	µg/m³	0.69	0.69	9.38	0.69	1.01	0.69	0.73	0.69	0.73	0.69	0.69	0.69	0.69	0.69	0.69
1,2-Dichloropropane	µg/m³	0.9	0.9	2.1	0.9	0.9	0.9	1	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
1,3-Dichloropropylene (cis+trans)	µg/m³	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
cis-1,3-Dichloropropylene	µg/m³	0.9	0.9	0.9	0.9	0.9	0.9	1	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
trans-1,3-Dichloropropylene	µg/m³	0.9	0.9	0.9	0.9	0.9	0.9	1	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
1,2-Dichlorotetrafluoroethane (Freon 114)	µg/m³	1.4	1.4	1.4	1.4	1.4	1.4	1.5	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
1,4-Dioxane	µg/m³	0.72	0.72	0.72	0.72	0.72	0.72	0.76	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
Ethyl acetate	µg/m³	0.76	0.76	12.8	0.83	0.9	0.9	1.01	0.97	0.97	0.9	0.83	0.86	1.3	0.83	1.01
Ethylbenzene	µg/m³	0.43	0.48	70.8	0.43	3.82	0.43	0.43	0.43	2.21	0.43	0.43	0.43	0.43	0.43	0.43
4-Ethyltoluene	µg/m³	1	1	4	1	1	1	1	1	1	1	1	1	1	1	1
n-Heptane	µg/m³	0.82	0.82	240	0.82	8.24	0.82	0.86	0.82	41.4	0.82	0.82	0.82	0.82	0.82	0.82
Hexachlorobutadiene	µg/m³	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
n-Hexane	µg/m³	0.88	0.7	152	0.7	4.69	0.7	0.74	0.7	34	0.7	0.7	0.85	0.7	0.7	0.7
2-Hexanone	µg/m³	4.1	4.1	4.92	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
Isopropanol	µg/m³	12.3	12.3	37.1	12.3	12.3	12.3	12.3	12.3	17	12.3	12.3	12.3	12.3	12.3	12.3
Isopropylbenzene (cumene)	µg/m³	1	1	2.6	2.1	1	1.2	1	2	1	1	1	1	1	1	1
Methyl ethyl ketone (MEK)	µg/m³	1.47	3.21	86.7	1.27	5.99	0.91	0.86	2.06	2.09	3.57	1.3	3.27	2.09	1.74	2.48
Methyl isobutyl ketone (MIBK)	µg/m³	0.82	0.82	9.83	0.82	0.82	0.82	0.86	0.82	1.56	0.82	0.82	0.82	0.82	0.82	0.82
Methyl-tert-butyl ether (MTBE)	µg/m³	0.72	0.72	2.13	0.72	0.72	0.72	0.76	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
Naphthalene	µg/m³	0.94	0.52	0.52	0.52	0.73	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52
Propylene	µg/m³	4.3	37.5	286	0.45	8.4	0.34	0.5	0.55	88.4	1.17	0.52	3.82	0.5	0.81	0.67
Styrene	µg/m³	0.85	0.85	5.88	0.85	0.85	0.85	0.89	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
1,1,2,2-Tetrachloroethane	µg/m³	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Tetrachloroethylene	µg/m³	1.4	1.4	34.6	1.4	1.8	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Tetrahydrofuran	µg/m³	0.59	0.59	23.1	0.59	0.74	0.59	0.62	0.59	0.59	0.65	0.59	0.59	0.59	0.59	0.59
Toluene	µg/m³	1.77	1.77	357	5.46	17.2	4.07	1.09	2.86	5.88	0.87	0.38	2.41	0.6	0.72	0.45
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	µg/m³	1.5	1.5	1.5	1.5	1.5	1.5	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,2,4-Trichlorobenzene	µg/m³	1.5	1.5	1.5	1.5	1.5	1.5	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,1,1-Trichloroethane	µg/m³	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
1,1,2-Trichloroethane	µg/m³	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Trichloroethylene	µg/m³	1.1	1.1	26.8	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Trichlorofluoromethane	µg/m³	1.1	1.1	64	1.1	2.5	1.1	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
1,2,4-Trimethylbenzene	µg/m³	1	1	7.6	1	4.2	1	1	1	1	1	1	1	1	1	1
1,3,5-Trimethylbenzene	µg/m³	1	1	3.7	1	1	1	1	1	1	1	1	1	1	1	1
2,2,4-Trimethylpentane	µg/m³	0.9	1.7	68.2	0.9	1.8	0.9	1	0.9	17.1	0.9	0.9	0.9	0.9	0.9	0.9
Vinyl acetate	µg/m³	17.6	17.6	29.9	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6
Vinyl bromide	µg/m³	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Vinyl chloride	µg/m³	0.51	0.66	120	0.51	3.3	0.51	0.54	0.51	1.46	0.51	0.51	0.51	0.51	0.51	0.51
m+p-Xylene (mixture)	µg/m³	1	1.13	214	0.87	11.6	0.87	1.04	0.87	5.56	0.87	0.87	0.87	0.87	0.87	0.87
o-Xylene	µg/m³	0.43	0.43	61.6	0.43	3.47	0.43	0.43	0.43	1.48	0.43	0.43	0.43	0.43	0.43	0.43
Xylenes, total	µg/m³	1.3	1.6	276	1.3	15.1	1.3	1.5	1.3	7	1.3	1.3	1.3	1.3	1.3	1.3
BTEX, total	µg/m³	2.8	3.8	737	5.5	37.2	4.1	2.6	2.9	17	2.4	2.4	2.4	2.4	2.4	2.4

Notes:
[1] Sampling was conducted on Sep 2-5, 2025 and Sep 29, 2025.
[2] Samples with data below the dection threshold were assumed as the lowest dectection threshold for conservative assessment.

Appendix L2: H2S and VOC Flux Chamber Sampling Data
Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Results	Units	East Landfill - Final Cover			South Landfill - Working Face						Waste Soil Stockpile			Leachate Pond		
		EAST LANDFILLL FIANL COVER AREA #7	EAST LANDFILLL FIANL COVER AREA #8	EAST LANDFILLL FIANL COVER AREA #9	SOUTH LANDFILL WORKING FACE #1	SOUTH LANDFILL WORKING FACE #2	SOUTH LANDFILL WORKING FACE #3	SOUTH LANDFILL WORKING FACE #4	SOUTH LANDFILL WORKING FACE #5	SOUTH LANDFILL WORKING FACE #6	SOUTH LANDFILL WASTE SOIL STOCKPILE #1	SOUTH LANDFILL WASTE SOIL STOCKPILE #2	SOUTH LANDFILL WASTE SOIL STOCKPILE #3	SCFLP#1	SCFLP#2	SCFLP#3
Hydrogen sulfide	µg/m³	5.6	5.6	5.6	5.6	5.6	5.6	5.7	5.6	5.6	5.7	5.6	5.6	5.6	5.6	5.6
Acetone	µg/m³	24.9	17.6	17.3	406	1040	205	125	143	1770	14.7	6.6	14.2	1240	603	748
Allyl chloride	µg/m³	0.63	0.63	0.63	3.04	15.6	15.8	15.6	15.7	196	0.63	0.63	0.63	0.63	0.63	0.63
Benzene	µg/m³	0.32	0.32	0.32	3.8	7.99	8.05	7.99	8.02	99.7	0.35	0.42	0.83	4.63	3.61	4.34
Benzyl chloride	µg/m³	1	1	1	1	25.3	26.1	25.9	26	324	1	1	1	1	1	1
Bromodichloromethane	µg/m³	1.3	1.3	1.3	1.3	33.5	33.8	33.5	33.6	419	1.3	1.3	1.3	4.2	2.7	3.1
Bromoform	µg/m³	2.1	2.1	2.1	2.1	51.7	52.2	51.7	51.9	646	2.1	2.1	2.1	2.1	2.1	2.1
Bromomethane	µg/m³	0.78	0.78	0.78	0.78	19.4	19.6	19.4	19.5	243	0.78	0.78	0.78	0.82	0.78	0.78
1,3-Butadiene	µg/m³	0.44	0.44	0.44	0.44	11.1	11.2	11.1	11.1	138	0.44	0.44	0.44	65.9	60.2	76.5
Carbon disulfide	µg/m³	1.7	2.6	1.6	3.4	38.9	39.2	38.9	39.2	486	1.6	1.6	1.6	3.3	3.3	3.7
Carbon tetrachloride	µg/m³	1.26	1.26	1.26	1.26	31.4	31.8	31.4	31.6	393	1.26	1.26	1.26	1.26	1.26	1.26
Chlorobenzene	µg/m³	0.92	0.92	0.92	0.92	23	23.2	23	23.1	288	0.92	0.92	0.92	0.92	0.92	0.92
Chloroethane	µg/m³	0.53	0.53	0.53	0.53	13.2	13.3	13.2	13.2	165	0.53	0.53	0.53	0.58	0.53	1.37
Chloroform	µg/m³	0.98	0.98	0.98	0.98	24.4	24.6	24.4	24.5	305	0.98	0.98	0.98	3.96	3.03	2.54
Chloromethane	µg/m³	0.41	0.41	0.41	1.3	10.3	10.4	10.3	10.4	129	0.47	0.83	0.66	1.42	1.05	5.97
Cyclohexane	µg/m³	0.69	0.69	0.69	3.51	17.2	17.4	17.2	17.3	215	0.69	0.69	0.69	0.69	0.69	0.69
Dibromochloromethane	µg/m³	1.7	1.7	1.7	1.7	42.6	43	42.6	42.8	532	1.7	1.7	1.7	4.2	3.2	4.3
1,2-Dibromoethane	µg/m³	1.5	1.5	1.5	1.5	38.4	38.8	38.4	38.6	480	1.5	1.5	1.5	1.5	1.5	1.5
1,2-Dichlorobenzene	µg/m³	1.2	1.2	1.2	1.2	30.1	30.4	30.1	30.2	376	1.2	1.2	1.2	1.2	1.2	1.2
1,3-Dichlorobenzene	µg/m³	1.2	1.2	1.2	1.2	30.1	30.4	30.1	30.2	376	1.2	1.2	1.2	1.2	1.2	1.2
1,4-Dichlorobenzene	µg/m³	1.2	1.2	1.2	1.2	30.1	30.4	30.1	30.2	376	1.2	1.2	1.2	1.2	2.3	1.2
Dichlorodifluoromethane	µg/m³	1	1	1	3	24.7	25	24.7	24.8	309	1	2.2	1.7	1	1	1
1,1-Dichloroethane	µg/m³	0.81	0.81	0.81	0.81	20.2	20.4	20.2	20.3	253	0.81	0.81	0.81	0.81	0.81	0.81
1,2-Dichloroethane	µg/m³	0.81	0.81	0.81	3.08	20.2	20.4	20.2	20.3	253	0.81	0.81	0.81	0.81	0.81	0.81
1,1-Dichloroethylene	µg/m³	0.79	0.79	0.79	0.79	19.8	20	19.8	19.9	248	0.79	0.79	0.79	0.79	0.79	0.79
cis-1,2-Dichloroethylene	µg/m³	0.79	0.79	0.79	0.79	19.8	20	19.8	19.9	248	0.79	0.79	0.79	0.79	0.79	0.79
trans-1,2-Dichloroethylene	µg/m³	0.79	0.79	0.79	0.79	19.8	20	19.8	19.9	248	0.79	0.79	0.79	0.79	0.79	0.79
Dichloromethane	µg/m³	0.69	0.69	0.69	2.43	24.2	17.5	17.4	17.4	217	0.69	0.69	0.69	0.9	0.73	0.69
1,2-Dichloropropane	µg/m³	0.9	0.9	0.9	0.9	23.1	23.3	23.1	23.2	289	0.9	0.9	0.9	0.9	0.9	0.9
1,3-Dichloropropylene (cis+trans)	µg/m³	1.8	1.8	1.8	1.8	45.4	45.8	45.4	45.6	567	1.8	1.8	1.8	1.8	1.8	1.8
cis-1,3-Dichloropropylene	µg/m³	0.9	0.9	0.9	0.9	22.7	22.9	22.7	22.8	284	0.9	0.9	0.9	0.9	0.9	0.9
trans-1,3-Dichloropropylene	µg/m³	0.9	0.9	0.9	0.9	22.7	22.9	22.7	22.8	284	0.9	0.9	0.9	0.9	0.9	0.9
1,2-Dichlorotetrafluoroethane (Freon 114)	µg/m³	1.4	1.4	1.4	1.4	35	35.3	35	35.1	437	1.4	1.4	1.4	1.4	1.4	1.4
1,4-Dioxane	µg/m³	0.72	0.72	0.72	1.4	18	18.2	18	18.1	225	0.72	0.72	0.72	0.72	8.14	0.79
Ethyl acetate	µg/m³	0.72	0.72	0.72	117	34.3	18.2	18	18.1	225	0.72	0.72	0.72	8.22	6.85	10.4
Ethylbenzene	µg/m³	0.43	0.43	0.43	13.8	15.9	11.6	10.8	13.4	135	0.43	0.43	0.52	2.82	2.43	3.21
4-Ethyltoluene	µg/m³	1	1	1	5.6	24.6	24.8	24.6	24.7	307	1	1	1	1	1	1
n-Heptane	µg/m³	0.82	0.82	0.82	34.8	20.5	20.7	20.5	20.6	256	0.82	0.82	0.82	9.02	5.74	7.54
Hexachlorobutadiene	µg/m³	2.1	2.1	2.1	2.1	53.3	53.8	53.3	53.5	666	2.1	2.1	2.1	2.1	2.1	2.1
n-Hexane	µg/m³	0.7	0.7	0.7	18.7	17.6	17.8	17.6	17.7	220	0.7	0.7	0.7	7.16	5.18	6.31
2-Hexanone	µg/m³	4.1	4.1	4.1	21.7	102	103	102	103	1280	4.1	4.1	4.1	6.96	4.1	6.56
Isopropanol	µg/m³	12.3	12.3	12.3	84.3	61.4	61.9	61.4	61.7	767	12.3	12.3	12.3	32.9	33.7	23.6
Isopropylbenzene (cumene)	µg/m³	1	1	1	2.2	24.6	24.8	24.6	24.7	307	1	1	1	1	1.9	1
Methyl ethyl ketone (MEK)	µg/m³	2.48	2.09	1.18	1370	964	419	428	351	8400	1.68	1.18	3.21	271	183	295
Methyl isobutyl ketone (MIBK)	µg/m³	0.82	0.82	0.82	11.6	20.5	20.7	20.5	20.6	256	0.82	0.82	0.82	3.11	2.87	2.7
Methyl-tert-butyl ether (MTBE)	µg/m³	0.72	0.72	0.72	0.72	18	18.2	18	18.1	225	0.72	0.72	0.72	0.97	0.76	0.79
Naphthalene	µg/m³	0.52	0.52	0.52	3.77	13.1	13.2	13.1	13.2	164	0.52	0.63	1.68	1.15	4.19	1.05
Propylene	µg/m³	0.41	0.34	0.45	10.1	86.7	12.2	22.5	8.64	108	0.74	1.26	0.98	6.47	6.95	9.07
Styrene	µg/m³	0.85	0.85	0.85	13.9	27.3	25	21.3	21.4	266	0.85	0.85	0.94	3.41	2.17	3.88
1,1,2,2-Tetrachloroethane	µg/m³	1.4	1.4	1.4	1.4	34.3	34.7	34.3	34.5	429	1.4	1.4	1.4	1.4	1.4	1.4
Tetrachloroethylene	µg/m³	1.4	1.4	1.4	4.1	33.9	4480	33.9	40.7	424	1.4	1.4	2.4	1.4	1.4	1.4
Tetrahydrofuran	µg/m³	0.59	0.59	0.59	18	14.7	14.9	14.7	14.8	184	0.59	0.59	0.59	298	439	360
Toluene	µg/m³	0.38	0.83	0.38	41.1	43	24.7	11	16	118	0.9	4.3	6.18	505	320	475
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	µg/m³	1.5	1.5	1.5	1.5	38.3	38.7	38.3	38.5	479	1.5	1.5	1.5	1.5	1.5	1.5
1,2,4-Trichlorobenzene	µg/m³	1.5	1.5	1.5	1.5	37.1	37.5	37.1	37.2	464	1.5	1.5	1.5	1.5	1.5	1.5
1,1,1-Trichloroethane	µg/m³	1.1	1.1	1.1	1.1	27.3	27.6	27.3	27.4	341	1.1	1.1	1.1	1.1	1.1	1.1
1,1,2-Trichloroethane	µg/m³	1.1	1.1	1.1	1.1	27.3	27.6	27.3	27.4	341	1.1	1.1	1.1	1.1	1.1	1.1
Trichloroethylene	µg/m³	1.1	1.1	1.1	1.1	26.9	27.1	26.9	27	336	1.1	1.1	1.1	1.1	1.1	1.1
Trichlorofluoromethane	µg/m³	1.1	1.1	1.1	7.4	28.1	28.4	28.1	28.2	351	1.1	1.1	1.1	1.1	1.1	1.1
1,2,4-Trimethylbenzene	µg/m³	1	1	1	22.8	31.3	24.8	24.6	24.7	307	1	1	1	2.1	4.7	2.3
1,3,5-Trimethylbenzene	µg/m³	1	1	1	6.9	24.6	24.8	24.6	24.7	307	1	1	1	1	3.1	1
2,2,4-Trimethylpentane	µg/m³	0.9	0.9	0.9	10.6	23.4	23.6	23.4	23.4	292	0.9	0.9	0.9	14.5	10.3	13.5
Vinyl acetate	µg/m³	17.6	17.6	17.6	299	141	86.6	44	44.4	549	1.8	1.8	1.8	10.9	10.2	10.9
Vinyl bromide	µg/m³	0.9	0.9	0.9	0.9	21.9	22.1	21.9	22	273	0.9	0.9	0.9	0.9	0.9	0.9
Vinyl chloride	µg/m³	0.51	0.51	0.51	0.51	12.8	12.9	12.8	12.8	160	0.51	0.51	0.51	0.51	0.51	0.51
m+p-Xylene (mixture)	µg/m³	0.87	0.87	0.87	39.1	34.5	30.6	21.7	38	271	0.87	0.87	1.26	8.42	15.4	9.81
o-Xylene	µg/m³	0.43	0.43	0.43	14.2	15.1	12.7	10.8	11.8	135	0.43	0.43	0.43	2.91	12.9	3.6
Xylenes, total	µg/m³	1.3	1.3	1.3	53.3	49.6	43.4	32.6	49.8	407	1.3	1.3	1.3	11.3	28.3	13.4
BTEX, total	µg/m³	2.4	2.4	2.4	112	108	79.6	60.8	79.3	760	2.4	4.7	8.8	524	355	496

Notes:
[1] Sampling was conducted on Sep 2-5, 2025 and Sep 29, 2025.
[2] Samples with data below the dection threshold were assumed as the lowest dectection threshold for conservative assessment.

Appendix L3: H2S and VOC Flux Chamber Data - Emission Flux Rate Calculation

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Walker South Landfill Phase 2 Environmental Assessment

Contaminant	Average Emisison Flux Rate (g/m2/s) [1] [2]									
	East Landfill - Interim Cover [3]	East Landfill - Final Cover	South Landfill - Working Face	South Landfill - Interim Cover	South Landfill - Final Cover	Study Landfill - Working Face [4]	Study Landfill - Interim Cover [4]	Study Landfill - Final Cover [5]	Waste Soil Stockpile	Leachate Pond
Hydrogen sulfide	3.83E-09	3.59E-09	3.60E-09	3.83E-09	2.50E-09	3.60E-09	3.83E-09	3.59E-09	3.61E-09	3.59E-09
Benzene	2.69E-09	2.05E-10	1.45E-08	2.69E-09	5.83E-10	1.45E-08	2.69E-09	5.83E-10	3.42E-10	2.69E-09
1,1,2-Trichloroethane	7.05E-10	7.05E-10	4.83E-08	7.05E-10	1.32E-09	4.83E-08	7.05E-10	1.32E-09	7.05E-10	7.05E-10
Vinyl chloride	9.12E-09	3.27E-10	2.26E-08	9.12E-09	4.61E-10	2.26E-08	9.12E-09	4.61E-10	3.27E-10	3.27E-10

Notes:

[1] Sampling was conducted on Sep 2-5, 2025 and Sep 29, 2025.

[2] Samples with data below the dection threshold were assumed as the lowest dectection threshold for conservative assessment.

[3] Sampling data for interim cover of South Landfill was adopted for interim cover of East Landfill.

[4] Sampling data for working face/interim cover of South Landfill was adopted for working face/interim cover of Study Landfill.

[5] The higher of the final cover data among East Landfill and South Landfill was adopted for final cover of Study Landfill for conservative assessment.

Sample Calculation for East Landfill - Interim Cover (Hydrogen sulfide)

Flow Rate = 5 L/min

Flux chamber area = 0.13 m^2

Average Hydrogen sulfide concentration = 5.6 µg/m^3

Emission flux rate =

$$\frac{5.6\ \mu g}{1\ m^3} \times \frac{1\ g}{1000000\ \mu g} \times \frac{5\ L}{1\ min} \times \frac{1\ m^3}{1000\ L} \times \frac{1\ min}{60\ s} \times \frac{}{0.13\ m^2} = 3.59E\text{-}09\ g/s$$

Appendix L4: Landfill Gas Sampling Data

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Results	CAS Number	Molecular Weight	CANISTER 1	CANISTER 2	Units	Maximum (%)	AVG (%)
Matrix Gases and CH4							
%v/v Dry Basis (Correct)							
O2 %			1.79%	1.07%	%	1.79%	1.43%
N2 %			99.16%	99.12%	%	99.16%	99.14%
CO2%			34.40%	36.40%	%	36.40%	35.40%
CH4 %			48.20%	50.90%	%	50.90%	49.55%

Non Methane Compounds	CAS Number	Molecular Weight	CANISTER 1	CANISTER 2	Units	Maximum (mg/m^3)	AVG (mg/m^3)	AVG (ppm)
Carbon disulfide	75-15-0	76.13	1.97	1.99	mg/m³	1.99	1.98	0.64
Carbonyl sulfide	463-58-1	60.07	4.35	5.18	mg/m³	5.18	4.77	1.94
Dimethyl disulfide	624-92-0	94.19	2.44	2.47	mg/m³	2.47	2.46	0.64
Dimethyl sulfide	75-18-3	62.13	13.60	14.20	mg/m³	14.20	13.90	5.47
Hydrogen sulfide	7783-06-4	34.08	914.00	1140.00	mg/m³	1140.00	1027.00	736.80
Methyl mercaptan	74-93-1	48.10	9.88	9.58	mg/m³	9.88	9.73	4.95
Sulfur, total reduced (as H2S), N	-	34.08	931.00	1160.00	mg/m³	1160.00	1045.50	750.07
Acetone	67-64-1	58.08	26.10	33.00	mg/m³	33.00	29.55	12.44
Allyl chloride	107-05-1	76.52	0.28	0.27	mg/m³	0.28	0.28	0.09
Benzene	71-43-2	78.11	5.02	6.84	mg/m³	6.84	5.93	1.86
Benzyl chloride	100-44-7	126.58	0.46	0.45	mg/m³	0.46	0.46	0.09
Bromodichloromethane	75-27-4	163.82	0.60	0.59	mg/m³	0.60	0.59	0.09
Bromoform	75-25-2	252.73	0.92	0.91	mg/m³	0.92	0.91	0.09
Bromomethane	74-83-9	94.94	0.35	0.34	mg/m³	0.35	0.34	0.09
Butadiene, 1,3-	106-99-0	54.09	0.27	0.31	mg/m³	0.31	0.29	0.13
Carbon tetrachloride	56-23-5	153.81	0.56	0.55	mg/m³	0.56	0.56	0.09
Chlorobenzene	108-90-7	112.56	0.41	0.40	mg/m³	0.41	0.41	0.09
Chloroethane	75-00-3	64.51	0.30	0.34	mg/m³	0.34	0.32	0.12
Chloroform	67-66-3	119.38	0.44	0.43	mg/m³	0.44	0.43	0.09
Chloromethane	74-87-3	50.49	0.18	0.18	mg/m³	0.18	0.18	0.09
Cyclohexane	110-82-7	84.16	2.73	3.42	mg/m³	3.42	3.08	0.89
Dibromochloromethane	124-48-1	208.28	0.76	0.75	mg/m³	0.76	0.75	0.09
Dibromoethane, 1,2-	106-93-4	187.86	0.69	0.67	mg/m³	0.69	0.68	0.09
Dichlorobenzene, 1,2-	95-50-1	147.00	0.54	0.53	mg/m³	0.54	0.53	0.09
Dichlorobenzene, 1,3-	541-73-1	147.00	0.54	0.53	mg/m³	0.54	0.53	0.09
Dichlorobenzene, 1,4-	106-46-7	147.00	0.54	1.48	mg/m³	1.48	1.01	0.17
Dichlorodifluoromethane	75-71-8	120.91	0.98	1.17	mg/m³	1.17	1.08	0.22
Dichloroethane, 1,1-	75-34-3	98.96	0.36	0.36	mg/m³	0.36	0.36	0.09
Dichloroethane, 1,2-	107-06-2	98.96	0.81	1.06	mg/m³	1.06	0.93	0.23
Dichloroethylene, 1,1-	75-35-4	96.94	0.35	0.35	mg/m³	0.35	0.35	0.09
Dichloroethylene, cis-1,2-	156-59-2	96.94	1.32	1.65	mg/m³	1.65	1.49	0.37
Dichloroethylene, trans-1,2-	156-60-5	96.94	0.48	1.33	mg/m³	1.33	0.91	0.23
Dichloromethane	75-09-2	84.93	0.51	0.63	mg/m³	0.63	0.57	0.16
Dichloropropane, 1,2-	78-87-5	112.99	0.41	0.47	mg/m³	0.47	0.44	0.10
Dichloropropylene, cis+trans-1,3	542-75-6	110.97	0.81	1.02	mg/m³	1.02	0.92	0.20
Dichloropropylene, cis-1,3-	10061-01-5	110.97	0.41	0.40	mg/m³	0.41	0.40	0.09
Dichloropropylene, trans-1,3-	10061-02-6	110.97	0.41	0.63	mg/m³	0.63	0.52	0.11
Dichlorotetrafluoroethane, 1,2-	76-14-2	170.92	0.62	0.61	mg/m³	0.62	0.62	0.09
Dioxane, 1,4-	123-91-1	88.11	0.32	0.32	mg/m³	0.32	0.32	0.09
Ethyl acetate	141-78-6	88.11	10.60	16.20	mg/m³	16.20	13.40	3.72
Ethylbenzene	100-41-4	106.17	7.56	26.30	mg/m³	26.30	16.93	3.90
Ethyltoluene, 4-	622-96-8	120.19	0.44	2.75	mg/m³	2.75	1.59	0.32
Heptane, n-	142-82-5	100.20	8.53	12.10	mg/m³	12.10	10.32	2.52
Hexachlorobutadiene	87-68-3	260.74	0.95	0.93	mg/m³	0.95	0.94	0.09
Hexane, n-	110-54-3	86.18	4.12	4.97	mg/m³	4.97	4.55	1.29
Hexanone, 2-	591-78-6	100.16	1.83	11.00	mg/m³	11.00	6.42	1.57
Isopropanol	67-63-0	60.10	21.10	29.70	mg/m³	29.70	25.40	10.33
Isopropylbenzene	98-82-8	120.19	0.46	2.70	mg/m³	2.70	1.58	0.32

Appendix L4: Landfill Gas Sampling Data

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Results	CAS Number	Molecular Weight	CANISTER 1	CANISTER 2	Units	Maximum (%)	AVG (%)
Matrix Gases and CH4							
%v/v Dry Basis (Correct)							
O2 %			1.79%	1.07%	%	1.79%	1.43%
N2 %			99.16%	99.12%	%	99.16%	99.14%
CO2%			34.40%	36.40%	%	36.40%	35.40%
CH4 %			48.20%	50.90%	%	50.90%	49.55%

Non Methane Compounds	CAS Number	Molecular Weight	CANISTER 1	CANISTER 2	Units	Maximum (mg/m^3)	AVG (mg/m^3)	AVG (ppm)
Methyl ethyl ketone [MEK]	78-93-3	72.11	35.10	52.80	mg/m³	52.80	43.95	14.90
Methyl isobutyl ketone [MIBK]	108-10-1	100.16	1.35	3.71	mg/m³	3.71	2.53	0.62
Methyl-tert-butyl ether [MTBE]	1634-04-4	88.15	0.32	0.32	mg/m³	0.32	0.32	0.09
Naphthalene	91-20-3	128.17	0.23	1.83	mg/m³	1.83	1.03	0.20
Propylene	115-07-1	42.08	30.50	37.90	mg/m³	37.90	34.20	19.87
Styrene	100-42-5	104.15	0.38	3.13	mg/m³	3.13	1.76	0.41
Tetrachloroethane, 1,1,2,2-	79-34-5	167.85	0.61	0.60	mg/m³	0.61	0.61	0.09
Tetrachloroethylene	127-18-4	165.83	0.88	2.27	mg/m³	2.27	1.57	0.23
Tetrahydrofuran	109-99-9	72.11	9.11	11.80	mg/m³	11.80	10.46	3.54
Toluene	108-88-3	92.14	34.90	64.80	mg/m³	64.80	49.85	13.23
Trichloro-1,2,2-trifluoroethane,	76-13-1	187.37	0.68	0.67	mg/m³	0.68	0.68	0.09
Trichlorobenzene, 1,2,4-	120-82-1	181.44	0.66	0.65	mg/m³	0.66	0.66	0.09
Trichloroethane, 1,1,1-	71-55-6	133.40	0.49	0.48	mg/m³	0.49	0.48	0.09
Trichloroethane, 1,1,2-	79-00-5	133.40	0.49	0.48	mg/m³	0.49	0.48	0.09
Trichloroethylene	79-01-6	131.38	0.84	1.31	mg/m³	1.31	1.08	0.20
Trichlorofluoromethane	75-69-4	137.36	0.67	0.84	mg/m³	0.84	0.76	0.13
Trimethylbenzene, 1,2,4-	95-63-6	120.19	0.44	7.77	mg/m³	7.77	4.10	0.83
Trimethylbenzene, 1,3,5-	108-67-8	120.19	0.44	3.19	mg/m³	3.19	1.81	0.37
Trimethylpentane, 2,2,4-	540-84-1	114.23	2.36	2.91	mg/m³	2.91	2.64	0.56
Vinyl acetate	108-05-4	86.09	0.79	0.77	mg/m³	0.79	0.78	0.22
Vinyl bromide	593-60-2	106.95	0.39	0.38	mg/m³	0.39	0.39	0.09
Vinyl chloride	75-01-4	62.50	0.77	0.92	mg/m³	0.92	0.84	0.33
Xylene, m+p-	108-38-3 / 106-42-3	106.16	9.64	53.00	mg/m³	53.00	31.32	7.21
Xylene, o-	95-47-6	106.17	3.51	20.10	mg/m³	20.10	11.81	2.72
Xylenes, total	1330-20-7	106.17	13.10	73.10	mg/m³	73.10	43.10	9.93
BTEX, total	-	-	60.60	171.00	mg/m³	171.00	115.80	28.90

Results	CAS Number	Molecular Weight	CANISTER 1	CANISTER 2	Units	Maximum (%)	AVG (%)
4-Bromofluorobenzene	-	-	8.98%	8.44%	%	8.98%	8.71%

Notes:

[1] Testing based on stream analysis conducted on Jan 27, 2026.

[2] Conversion (25°C, 1 atm): Concentration (ppm) = 24.45 × concentration (mg/m3) ÷ molecular weight.

Appendix L5: Combustion Source Emission Rate Calculations (All Contaminants except SO2)

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Source Characteristics										Load Factor	Emission Rate Calculations									
Source ID	Description	Horse Power [N] (hp)	Engine Power (kW)	Total LFG Gas Volume [A] (dscm/hr)	Total LFG Gas Volume [A] (dscm/s)	Total Methane Gas Volume [B] (dscm/hr)	Total Methane Gas Volume [B] (dscm/s)	Flow Rate (standard) [A] (m^3/s)	Flow Rate (actual) (m^3/s)		Contaminant	Emission Factor [1] ($kg/10^6$dscm methane)	[2] (g/m^3 landfill gas)	[3] (lb/hp-hr)	[4] (lb/hp-hr)	[5] (lb/MMBTU)	[6] (g/kW-hr)	[7] (g/hp-hr)	[8] ($lb/10^6$ scf)	Emission Rate (g/s)
SEQGen	Energy Supply to Water Pump for Water Trucks	60	45	- -	- -	- -	- -	n/a	n/a	1	Nitrogen Oxides (NOx)	- -	- -	- -	- -	- -	9.2	- -	- -	0.115
										1	TSP	- -	- -	- -	- -	- -	0.4	- -	- -	0.005
										1	PM10	- -	- -	- -	- -	- -	0.4	- -	- -	0.005
										1	PM2.5	- -	- -	- -	- -	- -	0.4	- -	- -	0.005
TIP_ELF	173 hp Diesel-Fired Landfill Tipper at East Landfill - Combustion	173	- -	- -	- -	- -	- -	-	1.25	1	Nitrogen Oxides (NOx)	- -	- -	0.031	- -	- -	- -	- -	- -	0.676
										1	TSP	- -	- -	2.20E-03	- -	- -	- -	- -	- -	0.048
										1	PM10	- -	- -	2.20E-03	- -	- -	- -	- -	- -	0.048
										1	PM2.5	- -	- -	2.20E-03	- -	- -	- -	- -	- -	0.048
TIP2_ELF	173 hp Diesel-Fired Landfill Tipper #2 at East Landfill - Combustion	173	- -	- -	- -	- -	- -	-	1.25	1	Nitrogen Oxides (NOx)	- -	- -	0.031	- -	- -	- -	- -	- -	0.676
										1	TSP	- -	- -	2.20E-03	- -	- -	- -	- -	- -	0.048
										1	PM10	- -	- -	2.20E-03	- -	- -	- -	- -	- -	0.048
										1	PM2.5	- -	- -	2.20E-03	- -	- -	- -	- -	- -	0.048
TIP_S1	173 hp Diesel-Fired Landfill Tipper at South Landfill Phase 2 Stage 1 - Combustion	173	- -	- -	- -	- -	- -	-	1.25	1	Nitrogen Oxides (NOx)	- -	- -	0.031	- -	- -	- -	- -	- -	0.676
										1	TSP	- -	- -	2.20E-03	- -	- -	- -	- -	- -	0.048
										1	PM10	- -	- -	2.20E-03	- -	- -	- -	- -	- -	0.048
										1	PM2.5	- -	- -	2.20E-03	- -	- -	- -	- -	- -	0.048
TIP2_S1	173 hp Diesel-Fired Landfill Tipper #2 at South Landfill Phase 2 Stage 1 - Combustion	173	- -	- -	- -	- -	- -	-	1.25	1	Nitrogen Oxides (NOx)	- -	- -	0.031	- -	- -	- -	- -	- -	0.676
										1	TSP	- -	- -	2.20E-03	- -	- -	- -	- -	- -	0.048
										1	PM10	- -	- -	2.20E-03	- -	- -	- -	- -	- -	0.048
										1	PM2.5	- -	- -	2.20E-03	- -	- -	- -	- -	- -	0.048
Gen1	1,064 kW Landfill Gas Fired Generator GE Jenbacher Model #J 320 GS-L/L	1,468	- -	424	0.1	210	0.06	0.66	1.80	1.00	Nitrogen Oxides (NOx)	- -	- -	- -	- -	- -	- -	1.10E+00	- -	0.449
										1.00	TSP	7.70E+02	- -	- -	- -	- -	- -	- -	- -	0.045
										1.00	PM10	7.70E+02	- -	- -	- -	- -	- -	- -	- -	0.045
										1.00	PM2.5	7.70E+02	- -	- -	- -	- -	- -	- -	- -	0.045
Gen2	1,064 kW Landfill Gas Fired Generator GE Jenbacher Model #J 320 GS-L/L	1,468	- -	424	0.1	210	0.06	0.66	1.80	1.00	Nitrogen Oxides (NOx)	- -	- -	- -	- -	- -	- -	1.10E+00	- -	0.449
										1.00	TSP	7.70E+02	- -	- -	- -	- -	- -	- -	- -	0.045
										1.00	PM10	7.70E+02	- -	- -	- -	- -	- -	- -	- -	0.045
										1.00	PM2.5	7.70E+02	- -	- -	- -	- -	- -	- -	- -	0.045
Gen3	1,064 kW Landfill Gas Fired Generator GE Jenbacher Model #J 320 GS-L/L	1,468	- -	424	0.1	210	0.06	0.66	1.80	1.00	Nitrogen Oxides (NOx)	- -	- -	- -	- -	- -	- -	1.10E+00	- -	0.449
										1.00	TSP	7.70E+02	- -	- -	- -	- -	- -	- -	- -	0.045
										1.00	PM10	7.70E+02	- -	- -	- -	- -	- -	- -	- -	0.045
										1.00	PM2.5	7.70E+02	- -	- -	- -	- -	- -	- -	- -	0.045
Gen4	1,064 kW Landfill Gas Fired Generator GE Jenbacher Model #J 320 GS-L/L	1,468	- -	424	0.1	210	0.06	0.66	1.80	1.00	Nitrogen Oxides (NOx)	- -	- -	- -	- -	- -	- -	1.10E+00	- -	0.449
										1.00	TSP	7.70E+02	- -	- -	- -	- -	- -	- -	- -	0.045
										1.00	PM10	7.70E+02	- -	- -	- -	- -	- -	- -	- -	0.045
										1.00	PM2.5	7.70E+02	- -	- -	- -	- -	- -	- -	- -	0.045
PGen1	82 bhp Portable Diesel Fired Generator Cummins Model #4BT3.3-G2	66	49	- -	- -	- -	- -	- -	0.17	1.00	Nitrogen Oxides (NOx)	-	- -	- -	- -	- -	- -	4.78E+00	- -	0.087
										1.00	TSP	-	- -	- -	- -	- -	- -	4.00E-01	- -	0.007
										1.00	PM10	-	- -	- -	- -	- -	- -	4.00E-01	- -	0.007
										1.00	PM2.5	-	- -	- -	- -	- -	- -	4.00E-01	- -	0.007
Screen1C	Screen #1 Engine 130 kW, Diesel Fired	174	130	- -	- -	- -	- -	-	0.48	0.43	Nitrogen Oxides (NOx)	- -	- -	0.031	- -	- -	- -	- -	- -	0.293
										0.43	TSP	- -	- -	2.20E-03	- -	- -	- -	- -	- -	0.021
										0.43	PM10	- -	- -	2.20E-03	- -	- -	- -	- -	- -	0.021
										0.43	PM2.5	- -	- -	2.20E-03	- -	- -	- -	- -	- -	0.021

Appendix L5: Combustion Source Emission Rate Calculations (All Contaminants except SO2)

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Source Characteristics										Load Factor	Emission Rate Calculations									
Source ID	Description	Horse Power [9] (hp)	Engine Power (kW)	Total LFG Gas Volume [7] (dscm/hr)	Total LFG Gas Volume [7] (dscm/s)	Total Methane Gas Volume [8] (dscm/hr)	Total Methane Gas Volume [8] (dscm/s)	Flow Rate (standard) [7] (m^3/s)	Flow Rate (actual) (m^3/s)		Contaminant	Emission Factor								Emission Rate (g/s)
												[1] ($kg/10^6 dscm$ methane)	[2] (g/m^3 landfill gas)	[3] (lb/hp-hr)	[4] (lb/hp-hr)	[5] (lb/MMBTU)	[6] (g/kW-hr)	[7] (g/hp-hr)	[8] ($lb/10^6$ scf)	
Screen2C	Screen #2 Engine 130 kW, Diesel Fired	174	130	- -	- -	- -	- -	-	0.48	0.43	Nitrogen Oxides (NOx)	- -	- -	0.031	- -	- -	- -	- -	- -	0.293
										0.43	TSP	- -	- -	2.20E-03	- -	- -	- -	- -	- -	0.021
										0.43	PM10	- -	- -	2.20E-03	- -	- -	- -	- -	- -	0.021
										0.43	PM2.5	- -	- -	2.20E-03	- -	- -	- -	- -	- -	0.021
Screen3C	Screen #3 Engine 130 kW, Diesel Fired	174	130	- -	- -	- -	- -	-	0.48	0.43	Nitrogen Oxides (NOx)	- -	- -	0.031	- -	- -	- -	- -	- -	0.293
										0.43	TSP	- -	- -	2.20E-03	- -	- -	- -	- -	- -	0.021
										0.43	PM10	- -	- -	2.20E-03	- -	- -	- -	- -	- -	0.021
										0.43	PM2.5	- -	- -	2.20E-03	- -	- -	- -	- -	- -	0.021
Screen4C	Screen #4 Engine 60 kW, Diesel Fired	80	60	- -	- -	- -	- -	-	0.48	0.43	Nitrogen Oxides (NOx)	- -	- -	0.031	- -	- -	- -	- -	- -	0.135
										0.43	TSP	- -	- -	2.20E-03	- -	- -	- -	- -	- -	0.010
										0.43	PM10	- -	- -	2.20E-03	- -	- -	- -	- -	- -	0.010
										0.43	PM2.5	- -	- -	2.20E-03	- -	- -	- -	- -	- -	0.010
CONVEYOR	Stacking Conveyor Engine 60 kW, Diesel Fired	80	60	- -	- -	- -	- -	-	0.24	0.21	Nitrogen Oxides (NOx)	- -	- -	0.031	- -	- -	- -	- -	- -	0.066
										0.21	TSP	- -	- -	2.20E-03	- -	- -	- -	- -	- -	0.005
										0.21	PM10	- -	- -	2.20E-03	- -	- -	- -	- -	- -	0.005
										0.21	PM2.5	- -	- -	2.20E-03	- -	- -	- -	- -	- -	0.005
CONVEY2N	Stacking Conveyor #2 Engine 60 kW, Diesel Fired	80	60	- -	- -	- -	- -	-	0.24	0.21	Nitrogen Oxides (NOx)	- -	- -	0.031	- -	- -	- -	- -	- -	0.066
										0.21	TSP	- -	- -	2.20E-03	- -	- -	- -	- -	- -	0.005
										0.21	PM10	- -	- -	2.20E-03	- -	- -	- -	- -	- -	0.005
										0.21	PM2.5	- -	- -	2.20E-03	- -	- -	- -	- -	- -	0.005
GSTK	Grinder Engine 860 kW, Diesel Fired	1,153	860	- -	- -	- -	- -	-	2.70	0.43	Nitrogen Oxides (NOx)	- -	- -	- -	- -	- -	9.2	- -	- -	0.945
										0.43	TSP	- -	- -	- -	- -	- -	0.54	- -	- -	0.055
										0.43	PM10	- -	- -	- -	- -	- -	0.54	- -	- -	0.055
										0.43	PM2.5	- -	- -	- -	- -	- -	0.54	- -	- -	0.055
GSTK2_N	Grinder #2 Engine 860 kW, Diesel Fired	1,153	860	- -	- -	- -	- -	-	2.70	0.43	Nitrogen Oxides (NOx)	- -	- -	- -	- -	- -	9.2	- -	- -	0.945
										0.43	TSP	- -	- -	- -	- -	- -	0.54	- -	- -	0.055
										0.43	PM10	- -	- -	- -	- -	- -	0.54	- -	- -	0.055
										0.43	PM2.5	- -	- -	- -	- -	- -	0.54	- -	- -	0.055
GENC	Generator #1 600 kW, Diesel Fired	805	600	- -	- -	- -	- -	-	2.36	1.00	Nitrogen Oxides (NOx)	- -	- -	- -	0.024	- -	- -	- -	- -	2.433
										1.00	TSP	- -	- -	- -	- -	0.0697	- -	- -	- -	0.018
										1.00	PM10	- -	- -	- -	- -	0.0573	- -	- -	- -	0.015
										1.00	PM2.5	- -	- -	- -	- -	0.0479	- -	- -	- -	0.012
MO_GEN	55 kW Natural Gas Fired Emergency Generator	74	55	- -	- -	- -	- -	-	0.20	1.00	Nitrogen Oxides (NOx)	- -	- -	- -	- -	- -	- -	8.23	- -	0.169
										1.00	TSP	- -	- -	- -	- -	- -	- -	- -	7.6	0.024
										1.00	PM10	- -	- -	- -	- -	- -	- -	- -	7.6	0.024
										1.00	PM2.5	- -	- -	- -	- -	- -	- -	- -	7.6	0.024
- -	Total	- -	- -	- -	- -	- -	- -	- -	- -	- -	Nitrogen Oxides (NOx)	-	- -	-	-	-	- -	-	-	**10.352**
											TSP	- -	- -	- -	- -	- -	- -			**0.619**
											PM10	- -	- -	- -	- -	- -	- -			**0.616**
											PM2.5	- -	- -	- -	- -	- -	- -	-	-	**0.614**

Notes:

[1] Emission Factors taken from US EPA AP-42 Chapter 2.4, Table 2.4-4. TSP is assumed to same as PM_{10} and $PM_{2.5}$.

[2] Emission Factor calculated based on concentration of sulphur compounds in raw landfill gas (see Appendix F2).

[3] Emission Factors taken from US EPA AP-42 Chapter 3.3, Table 3.3-1. PM is assumed to same for TSP, PM_{10} and $PM_{2.5}$.

[4] Emission Factors taken from US EPA AP-42 Chapter 3.4, Table 3.4-1.

[5] Emission Factors taken from US EPA AP-42 Chapter 3.4, Table 3.4-2.

[6] Emission Factors taken from "Nonroad Compression-Ignition Engines: Exhaust Emission Standards" (US EPA, 2016).

[7] Emission Factors supplied by the Manufacturer.

[8] Emission Factors taken from US EPA AP-42 Chapter 1.4, Table 1.4-1 and Table 1.4-2. PM is assumed to same for TSP, PM_{10} and $PM_{2.5}$.

[9] Operating parameters from all generators obtained from manufacturer's specifications.

[10] Methane content of landfill gas, based on 2026 source testing = 50%

Appendix L6: Combustion Source Emission Rate Calculations (SO2)

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Source Characteristics										Load Factor	Emission Rate Calculations									
Source ID	Description	Horse Power [6] (hp)	Engine Power (kW)	Total LFG Gas Volume [7] (dscm/hr)	Total LFG Gas Volume [7] (dscm/s)	Total Methane Gas Volume [8] (dscm/hr)	Total Methane Gas Volume [8] (dscm/s)	Flow Rate (standard) [7] (m^3/s)	Flow Rate (actual) (m^3/s)		Contaminant	Emission Factor								Emission Rate (g/s)
												[1] ($kg/10^6$dscm methane)	[2] (g/m^3 landfill gas)	[3] (lb/hp-hr)	[4] (lb/hp-hr)	[5] (lb/MMBTU)	[6] (g/kW-hr)	[7] (g/hp-hr)	[8] ($lb/10^6$ scf)	
SEQGen	Energy Supply to Water Pump for Water Trucks	60	45	- -	- -	- -	- -	n/a	n/a	1	Sulphur Dioxide (SO2)	- -	- -	2.05E-03	- -	- -	- -	- -	- -	0.016
TIP_ELF	173 hp Diesel-Fired Landfill Tipper at East Landfill - Combustion	173	- -	- -	- -	- -	- -	-	1.25	1	Sulphur Dioxide (SO2)	- -	- -	2.05E-03	- -	- -	- -	- -	- -	0.045
TIP2_ELF	173 hp Diesel-Fired Landfill Tipper #2 at East Landfill - Combustion	173	- -	- -	- -	- -	- -	-	1.25	1	Sulphur Dioxide (SO2)	- -	- -	2.05E-03	- -	- -	- -	- -	- -	0.045
TIP_S1	173 hp Diesel-Fired Landfill Tipper at South Landfill Phase 2 Stage 1 - Combustion	173	- -	- -	- -	- -	- -	-	1.25	1	Sulphur Dioxide (SO2)	- -	- -	2.05E-03	- -	- -	- -	- -	- -	0.045
TIP2_S1	173 hp Diesel-Fired Landfill Tipper #2 at South Landfill Phase 2 Stage 1 - Combustion	173	- -	- -	- -	- -	- -	-	1.25	1	Sulphur Dioxide (SO2)	- -	- -	2.05E-03	- -	- -	- -	- -	- -	0.045
Gen1	1,064 kW Landfill Gas Fired Generator	1,468	- -	769.53	0.21	381.30	0.11	1.21	3.27	1.00	Sulphur Dioxide (SO2)	- -	4.22E-01	- -	- -	- -	- -	- -	- -	0.090
Gen2	1,064 kW Landfill Gas Fired Generator	1,468	- -	769.53	0.21	381.30	0.11	1.21	3.27	1.00	Sulphur Dioxide (SO2)	- -	4.22E-01	- -	- -	- -	- -	- -	- -	0.090
Gen3	1,064 kW Landfill Gas Fired Generator	1,468	- -	769.53	0.21	381.30	0.11	1.21	3.27	1.00	Sulphur Dioxide (SO2)	- -	4.22E-01	- -	- -	- -	- -	- -	- -	0.090
Gen4	1,064 kW Landfill Gas Fired Generator	1,468	- -	769.53	0.21	381.30	0.11	1.21	3.27	1.00	Sulphur Dioxide (SO2)	- -	4.22E-01	- -	- -	- -	- -	- -	- -	0.090
PGen1	82 bhp Portable Diesel Fired Generator Cummins Model #4BT3.3-G2	66	49	- -	- -	- -	- -	- -	0.17	1.00	Sulphur Dioxide (SO2)	-	- -	2.05E-03	- -	- -	- -	- -	- -	0.017
Screen1C	Screen #1 Engine 130 kW, Diesel Fired	174	130	- -	- -	- -	- -	-	0.48	0.43	Sulphur Dioxide (SO2)	- -	- -	2.05E-03	- -	- -	- -	- -	- -	0.019
Screen2C	Screen #2 Engine 130 kW, Diesel Fired	174	130	- -	- -	- -	- -	-	0.48	0.43	Sulphur Dioxide (SO2)	- -	- -	2.05E-03	- -	- -	- -	- -	- -	0.019
Screen3C	Screen #3 Engine 130 kW, Diesel Fired	174	130	- -	- -	- -	- -	-	0.48	0.43	Sulphur Dioxide (SO2)	- -	- -	2.05E-03	- -	- -	- -	- -	- -	0.019
Screen4C	Screen #4 Engine 60 kW, Diesel Fired	80	60	- -	- -	- -	- -	-	0.48	0.43	Sulphur Dioxide (SO2)	- -	- -	2.05E-03	- -	- -	- -	- -	- -	0.009
CONVEYOR	Stacking Conveyor Engine 60 kW, Diesel Fired	80	60	- -	- -	- -	- -	-	0.24	0.21	Sulphur Dioxide (SO2)	- -	- -	2.05E-03	- -	- -	- -	- -	- -	0.004
CONVEY2N	Stacking Conveyor #2 Engine 60 kW, Diesel Fired	80	60	- -	- -	- -	- -	-	0.24	0.21	Sulphur Dioxide (SO2)	- -	- -	2.05E-03	- -	- -	- -	- -	- -	0.004
GSTK	Grinder Engine 860 kW, Diesel Fired	1,153	860	- -	- -	- -	- -	-	2.70	0.43	Sulphur Dioxide (SO2)	- -	- -	- -	- -	- -	- -	0.76	- -	0.105
GSTK2_N	Grinder #2 Engine 860 kW, Diesel Fired	1,153	860	- -	- -	- -	- -	-	2.70	0.43	Sulphur Dioxide (SO2)	- -	- -	- -	- -	- -	- -	0.76	- -	0.105
GENC	Generator #1 600 kW, Diesel Fired	805	600	- -	- -	- -	- -	-	2.36	1.00	Sulphur Dioxide (SO2)	- -	- -	- -	1.21E-05	- -	- -	- -	- -	0.001
MO_GEN	55 kW Natural Gas Fired Emergency Generator	74	55	- -	- -	- -	- -	-	0.20	1.00	Sulphur Dioxide (SO2)	- -	- -	- -	- -	- -	- -	- -	0.6	0.002

Notes:

[1] Emission Factors taken from US EPA AP-42 Chapter 2.4, Table 2.4-4. TSP is assumed to same as PM_{10} and $PM_{2.5}$.

[2] Emission Factor calculated based on concentration of sulphur compounds in raw landfill gas (see Appendix F2).

[3] Emission Factors taken from US EPA AP-42 Chapter 3.3, Table 3.3-1. PM is assumed to same for TSP, PM_{10} and $PM_{2.5}$.

[4] Emission Factors taken from "Nonroad Compression-Ignition Engines: Exhaust Emission Standards" (US EPA, 2016).

[5] Emission Factors supplied by the Manufacturer.

[6] Emission Factors taken from US EPA AP-42 Chapter 1.4, Table 1.4-1 and Table 1.4-2. PM is assumed to same for TSP, PM_{10} and $PM_{2.5}$.

[7] Operating parameters from all generators obtained from manufacturer's specifications.

[8] Methane content of landfill gas, based on 2026 source testing = 50%

Appendix L7: Landfill Gas Flow and Emission Rate Calculations (All Contaminants except SO2)

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Volume of Methane and LFG Generated in Year 2033

Landfill	Volume of Methane Generated from ECCC Methane Tool (m3/yr)	Volume of LFG Generated (m3/yr) [1]
East Landfill	8,256,649	16,513,298
South Landfill Phase 1	39,668,444	79,336,888
South Landfill Phase 2 - Stage 1	11,798,641	23,597,282
Total	**59,723,734**	**119,447,468**

Note:
[1] Methane accounts for 50% of LFG, as a default in the ECCC Methane Tool.

Total Volume of LFG Collected in Year 2033

Landfill	Source ID	Cover	Gas Collection Efficiency (%)	Area	Volume of LFG Generated for the Entire Landfill from ECCC Methane Tool (m3/yr)	Volume of LFG Generated (m3/yr)	Volume of LFG Collected (m3/yr)
East Landfill	EASTLF_IC	Interim Cover	70%	57,103	16,513,298	8,514,071	5,959,850
East Landfill	EASTLF_FC	Final Cover	85%	53,650	16,513,298	7,999,227	6,799,343
South Landfill Phase 1	SLF_IC	Interim Cover	70%	123,843	79,336,888	19,360,859	13,552,601
South Landfill Phase 1	SLF_FC	Final Cover	85%	383,641	79,336,888	59,976,029	50,979,625
South Landfill Phase 2 - Stage 1	S1_IC	Interim Cover	70%	187,524	23,597,282	19,038,556	13,326,989
South Landfill Phase 2 - Stage 1	S1_FC	Final Cover	85%	44,902	23,597,282	4,558,726	3,874,917
				Total	**-**	**119,447,468**	**94,493,325**

Flow Rate of Each of the Equipment

LFG-Fired Equipment	Volume of LFG Provided by Walker			Scaled Volume of LFG	
	(cfm)	(m3/yr)	Ratio	(m3/yr)	(m3/s)
FLARE1	967	14,387,223	9%	8,974,607	0.28
FLARE2	967	14,387,223	9%	8,974,607	0.28
FLARE3	967	14,387,223	9%	8,974,607	0.28
Silflar2	150	2,232,500	1%	1,392,611	0.04
GEN1	400	5,953,334	4%	3,713,630	0.12
GEN2	400	5,953,334	4%	3,713,630	0.12
GEN3	400	5,953,334	4%	3,713,630	0.12
GEN4	400	5,953,334	4%	3,713,630	0.12
RNGFLARE	4,000	59,533,338	39%	37,136,304	1.18
TO	1,528	22,741,735	15%	14,186,068	0.45
Total	**10,178**	**151,482,579**	**100%**	**94,493,325**	**3.00**

Notes:
[1] LFG volume provided by WEG for a conservative operating scenario, assuming all equipment operates simultaneously. LFG volume of SILFLAR2 and TO are based on the maximum capacity due to the lack of information.
[2] LFG volume is scaled based on the collected LFG volume as predicted in ECCC Tool.

Modelling Parameters - Scaled Flow Rate for Gas Quantity

Source ID	Maximum Design Gas Flow Rate (m^3/s)	Maximum Design Exhaust Flow Rate (m^3/s)	Actual Gas Flow Rate (m^3/s)	Actual Exhaust Flow Rate (m^3/s)
FLARE1	1.18	27.8	0.28	6.7
FLARE2	2.37	55.8	0.28	6.7
FLARE3	2.37	55.8	0.28	6.7
RNGFLARE	2.36	2.4	1.18	1.2
Silflar2	0.07	1.57	0.04	1.0
TO	0.72	18.95	0.45	11.8
GEN1	0.21	3.21	0.12	1.8
GEN2	0.21	3.21	0.12	1.8
GEN3	0.21	3.21	0.12	1.8
GEN4	0.21	3.21	0.12	1.8

NMOC Emission Rate of Each Flare and Generator

Compound	CAS Number	Molecular Weight (g/mol)	Conc. In Raw LFG (from tesitng results in 2026)		Flare 1 Emission Rate (g/s)	Flare 2 Emission Rate (g/s)	Flare 3 Emission Rate (g/s)	RNG_FLARE Emission Rate (g/s)	Gen 1 Emission Rate (g/s)	Gen 2 Emission Rate (g/s)	Gen 3 Emission Rate (g/s)	Gen 4 Emission Rate (g/s)
			(ppm)	(g/m^3)								
Maximum LFG Volumetric Flow (m^3/s)	**- -**	**- -**	**- -**		**0.28**	**0.28**	**0.28**	**1.18**	**0.12**	**0.12**	**0.12**	**0.12**
Destruction Efficiency	**- -**	**- -**	**- -**		**98.0%**	**98.0%**	**98.0%**	**98.0%**	**98.0%**	**98.0%**	**98.0%**	**98.0%**
Hydrogen Sulfide	7783-06-4	34.08	736.80	1.08E+00	6.15E-03	6.15E-03	6.15E-03	0.00E+00	2.55E-03	2.55E-03	2.55E-03	2.55E-03
Vinyl Chloride	75-01-4	62.50	0.33	8.86E-04	5.04E-06	5.04E-06	5.04E-06	2.09E-05	2.09E-06	2.09E-06	2.09E-06	2.09E-06
Benzene	71-43-2	78.11	1.86	6.24E-03	3.55E-05	3.55E-05	3.55E-05	1.47E-04	1.47E-05	1.47E-05	1.47E-05	1.47E-05
1,1,2-Trichloroethane	79-00-5	133.40	0.09	5.08E-04	2.89E-06	2.89E-06	2.89E-06	1.20E-05	1.20E-06	1.20E-06	1.20E-06	1.20E-06

Sample Calculation

Calculation of Hydrogen Sulphide Emission Rate (Flare1) = Maximum LFG Flow (m^3/s) * Concentration in Raw LFG (g/m^3) * (1 - Detruction Efficiency)
= 0.28 m^3/s * 6.15E-03 g/m^3 * (1 - 0.98)
= 6.15E-03 g/s

Appendix L8: Landfill Gas Flare Combustion Emission Rate Calculations (All Contaminants except SO2)

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

				Emission Rate Calculations			
Source ID	**Description**	**Maximum LFG Volumetric Flow [1] (m^3/s)**	**Maximum Methane Volumetric Flow [2] [3] [4] [5] (m^3/s)**	**Contaminant [6]**	**Emission Factor [7] ($kg/10^6$dscm methane)**	**Emission Factor [8] (g/m^3 landfill gas)**	**Emission Rate (g/s)**
FLARE1	Landfill Gas Flare	0.28	0.14	Nitrogen Oxides (NOx)	610	- -	8.60E-02
				Particulate Matter (PM)	270	- -	3.81E-02
FLARE2	Landfill Gas Flare	0.28	0.14	Nitrogen Oxides (NOx)	610	- -	8.60E-02
				Particulate Matter (PM)	270	- -	3.81E-02
FLARE3	Landfill Gas Flare	0.28	0.14	Nitrogen Oxides (NOx)	610	- -	8.60E-02
				Particulate Matter (PM)	270	- -	3.81E-02
RNGFlare	RNG Off-spec Gas Flare	1.18	0.59	Nitrogen Oxides (NOx)	610	- -	3.59E-01
				Particulate Matter (PM)	270	- -	1.59E-01
SilFlar2	Siloxane Flare 2 (new)	0.04	0.02	Nitrogen Oxides (NOx)	610	- -	1.33E-02
				Particulate Matter (PM)	270	- -	5.91E-03
SilFlar2	Siloxane Flare 2 - Natural gas scenario	0.04	0.04	Nitrogen Oxides (NOx)	610	- -	2.69E-02
TO	Thermal Oxidizer	0.45	0.09	Nitrogen Oxides (NOx)	610	- -	5.49E-02
				Particulate Matter (PM)	270	- -	2.43E-02

Notes:

[1] Dry standard (actual)

[2] Methane content of landfill gas, based on 2026 source testing = 50%

[3] Methane content of landfill gas, based on design methane concentration for the elevated flare = 50%

[4] Emissions for the siloxane flare natural gas scenario were calculated based on a methan concentration of 100%

[5] Methane Content in gas stream to Thermal Oxidizer, based on client provided data = 20%

[6] Emissions from the siloxane flare natural gas scenario only considered emissions of nitrogen oxides.

[7] Emission Factor from AP-42 Chapter 2.4 (Final version, November 1998)

[8] Emission Factor calculated based on concentration of sulphur compounds in raw landfill gas (see Appendix F2)

Sample Calculation

Calculation of Nitrogen Oxides Emission Rate (FLARE1) = Maximum LFG Flow (m^3/s) * Emission Factor for NOx (kg/10^6 dscm) * (1000 g/100000 dscm)

= 0.14 m^3/s * 610 kg/10^6 dscm * 1000/1000000

= 8.60E-02 g/s

Appendix L9: Landfill Gas Flow Calculations (SO2)

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Volume of Methane and LFG Generated in Year 2033

Landfill	Volume of Methane Generated from ECCC Methane Tool (m3/yr)	Volume of LFG Generated (m3/yr) [1]
East Landfill	8,256,649	16,513,298
South Landfill Phase 1	39,668,444	79,336,888
South Landfill Phase 2 - Stage 1	11,798,641	23,597,282
Total	**59,723,734**	**119,447,468**

Note:
[1] Methane accounts for 50% of LFG, as a default in the ECCC Methane Tool.

Total Volume of LFG Collected in Year 2033

Landfill	Source ID	Cover	Gas Collection Efficiency (%)	Area	Volume of LFG Generated for the Entire Landfill from ECCC Methane Tool (m3/yr)	Volume of LFG Generated (m3/yr)	Volume of LFG Collected (m3/yr)
East Landfill	EASTLF_IC	Interim Cover	70%	57,103	16,513,298	8,514,071	5,959,850
East Landfill	EASTLF_FC	Final Cover	85%	53,650	16,513,298	7,999,227	6,799,343
South Landfill Phase 1	SLF_IC	Interim Cover	70%	123,843	79,336,888	19,360,859	13,552,601
South Landfill Phase 1	SLF_FC	Final Cover	85%	383,641	79,336,888	59,976,029	50,979,625
South Landfill Phase 2 - Stage 1	S1_IC	Interim Cover	70%	187,524	23,597,282	19,038,556	13,326,989
South Landfill Phase 2 - Stage 1	S1_FC	Final Cover	85%	44,902	23,597,282	4,558,726	3,874,917
				Total	**-**	**119,447,468**	**94,493,325**

Flow Rate of Each of the Equipment

LFG-Fired Equipment	Current Volume of LFG Collected (2025) Provided by Walker		
	(cfm)	(m^3/yr)	(m3/s)
FLARE1	833	12,402,779	0.45
FLARE2	833	12,402,779	0.45
FLARE3	833	12,402,779	0.45
Silflar2	130	1,934,833	0.07
GEN1	400	5,953,334	0.21
GEN2	400	5,953,334	0.21
GEN3	400	5,953,334	0.21
GEN4	400	5,953,334	0.21
RNGFLARE	300	4,465,000	0.16
RNGTAIL	3,200	47,626,671	1.51
TO	1,528	22,741,735	0.82
Total	**9,258**	**137,789,911**	**4.75**

2025 LFG Collected from ECCC Methane Tool = 83,451,516 m^3/yr

Modelling Parameters - Scaled Flow Rate for Gas Quantity

Source ID	Maximum Design Gas Flow Rate (m^3/s)	Maximum Design Exhaust Flow Rate (m^3/s)	Actual Gas Flow Rate (m^3/s)	Actual Exhaust Flow Rate (m^3/s)
FLARE1	1.18	27.8	0.45	10.5
FLARE2	2.37	55.8	0.45	10.5
FLARE3	2.37	55.8	0.45	10.5
RNGFLARE	2.36	2.4	0.16	0.2
RNGTAIL	2.36	2.4	1.51	1.5
Silflar2	0.07	1.57	0.07	1.6
TO	0.72	18.95	0.82	21.5
GEN1	0.21	3.21	0.21	3.3
GEN2	0.21	3.21	0.21	3.3
GEN3	0.21	3.21	0.21	3.3
GEN4	0.21	3.21	0.21	3.3

Appendix L10: Calculation of SO_2 Emission Factor (SO_2)

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Concentration of Sulphur in Landfill Gas (from source testing)

Sulphurs	MW (g/mol)	Concentration (ppm)	Number of Sulphurs per Compound	Concentration of Sulphur Compounds as S (ppm)
Carbonyl Sulphide	60.07	1.94	1	1.94
Carbon Disulphide	76.14	0.64	2	1.27
Dimethyl Sulphide	62.13	5.47	1	5.47
Hydrogen Sulphide	34.08	736.80	1	736.80
Methyl Mercaptan	48.11	4.95	1	4.95
		Total	**7**	**750.43**

Concentration of Sulphur in Landfill Gas (Scaled based on Actual H2S concentrations of Each Equipment)

Equipment	H2S Concentration (ppm)	Compounds as S (ppm)	Concentration		$Concentration_{SO2}$ =
			µg/m³	g/m³	g/m³
FLARE1	735.00	748.59	1,033,582	1.03	2.07
FLARE2	735.00	748.59	1,033,582	1.03	2.07
FLARE3	735.00	748.59	1,033,582	1.03	2.07
RNGFLARE	1100.00	1120.34	1,546,857	1.55	3.09
RNGTAIL	1100.00	1120.34	1,546,857	1.55	3.09
GEN1	150.00	152.77	210,935	0.21	0.42
GEN2	150.00	152.77	210,935	0.21	0.42
GEN3	150.00	152.77	210,935	0.21	0.42
GEN4	150.00	152.77	210,935	0.21	0.42
Silflar2	200.00	203.70	281,247	0.28	0.56
TO	0.00	0.00	0	0.00	0.00

Sample Calculation for FLARE1

Conversion of Concentration from ppm to µg/m³

$Concentration_{µg/m³} = Concentration_{ppm} * [(MW * 1.0 atm)/(8.205 x10\text{-}5 m^3\text{-atm/gmol-K})*(273+ToK)$
MW_S = Molecular weight of Sulphur (32.06 g/gmol)
T = Temperature of landfill gas (assumed 10°C)

Concentration = **1,033,582** µg/m³ of total sulphur in landfill gas
= 1.034 g/m³ of total sulphur in landfill gas

Assuming 100% of the sulphur in the landfill gas is converted to sulphur dioxide (SO_2) during combustion

$Concentration_{SO2}$ = ConcentrationS * (MWSO2 / MWS)

MW_S = Molecular weight of Sulphur (32.06 g/gmol)
MW_{SO2} = Molecular weight of Sulphur Dioxide (64.07 g/gmol)

$Concentration_{SO2}$ = 2.066 g/m³ of total sulphur dioxide in combusted landfill gas

Appendix L11: Landfill Gas Flare Combustion Emission Rate Calculations (SO_2)

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

				Emission Rate Calculations			
Source ID	Description	Maximum LFG Volumetric Flow [1] (m^3/s)	Maximum Methane Volumetric Flow [2] [3] [4] [5] (m^3/s)	Contaminant [6]	Emission Factor [7] (kg/10^6dscm methane)	Emission Factor [8] (g/m^3 landfill gas)	Emission Rate (g/s)
FLARE1	Landfill Gas Flare	0.45	0.22	Sulphur Dioxide (SO2)	- -	2.07E+00	9.20E-01
FLARE2	Landfill Gas Flare	0.45	0.22	Sulphur Dioxide (SO2)	- -	2.07E+00	9.20E-01
FLARE3	Landfill Gas Flare	0.45	0.22	Sulphur Dioxide (SO2)	- -	2.07E+00	9.20E-01
RNGFlare	RNG Off-spec Gas Flare	0.16	0.08	Sulphur Dioxide (SO2)	- -	3.09E+00	4.96E-01
RNGTAIL	RNG Off-spec Gas Flare	1.51	0.76	Sulphur Dioxide (SO2)	- -	3.09E+00	4.67E+00
SILFLAR2	Siloxane Flare 2 (new)	0.07	0.03	Sulphur Dioxide (SO2)	- -	5.62E-01	3.90E-02
TO	Thermal Oxidizer	0.82	0.16	Sulphur Dioxide (SO2)	- -	0.00E+00	0.00E+00

Notes:

[1] Dry standard (actual)

[2] Methane content of landfill gas, based on 2026 source testing = 50%

[3] Methane content of landfill gas, based on design methane concentration for the elevated flare = 50%

[4] Emissions for the siloxane flare natural gas scenario were calculated based on a methan concentration of 100%

[5] Methane Content in gas stream to Thermal Oxidizer, based on client provided data = 20%

[6] Emissions from the siloxane flare natural gas scenario only considered emissions of nitrogen oxides.

[7] Emission Factor from AP-42 Chapter 2.4 (Final version, November 1998)

[8] Emission Factor calculated based on concentration of sulphur compounds in raw landfill gas (see Appendix F2)

Sample Calculation

Calculation of Sulphur Oxides Emission Rate (FLARE1) = Maximum LFG Flow (m^3/s) * Emission Factor for SO2 (g/m^3)

= 0.45 m^3/s * 2.07 g/m^3

= 9.20E-01 g/s

Appendix L12: Elevated Flare Pseudo Parameter Calculation - RNGFLARE

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Based on MECP Technical Bulletin - Modelling Open Flares under O. Reg. 419/05 dated February 2017

Table 1: Scenario Summary

Parameter	Value
Date of Flare Event	--
Source ID	RNG_FLARE

Table 2: Properties of Gas

Parameter	Value	Unit
Density	1.2	kg/m³ @ 311 K and 101.3 kPa
Molecular Weight	30.0	g/mol
Lower Heating Value	16.0	MJ/m³ @ 311K and 101.3 kPa
Mole Fraction in Feed	1	-

Table 3: Composition of Gas Streams to be Flared

Parameter	Stream 1 - Landfill Gas	Propane Pilot Flow	Total Stream to Flare	Unit
Stream MW	30.0	16.04	30.0	kg/kgmol
Volumetric Rate to Flare	509.7	0.62	510	m^3/hr

Table 4: Properties of Flare Gas

Parameter	Value	Unit
Stream MW	30.0	kg/kgmol
Site Atmospheric Pressure	101.3	kPa
Universal Gas Constant (R)	8.3145	(kPa-m³)/(K-kgmol)
Gas Temperature (T_{gas})	37.78	°C
	310.78	K
Volumetric Rate to Flare	510.3	m³/hr
Total Heat Release Rate	2.4	MJ/s

Table 5: Flare Parameters

Total Maximum to Flare		
Parameter	**Value**	**Unit**
Complete Combustion Total Heat Release Rate (Q_T)	2.4	MJ/s
	2.40E+06	J/s
Flame Radiation Loss (f)	55	%
	0.55	fraction
Flare Stack Tip Height (H_s)	15.13	m
Volumetric Rate to Flare (20°C, 101.15 kPa)	510	m³/hr
	0.142	m³/s
Flare Stack Tip Diameter (D_{nozzle})	0.41	m
Density of Flared Gas (ρ_{gas})	1.177	kg/m³
Density of Air at Ambient Temperature (ρ_{air})	1.183	kg/m³
Gravitational Constant (g)	9.807	m/s²
Air Specific Heat at Ambient Air Temperature ($C_{p,air}$)	1004	J/(kg-K)
Modelled Ambient Air Temperature (T_{amb})	25	°C
	298	K
Assumed Stack Gas Exit Temperature (T_{stack})	871	°C

Appendix L12: Elevated Flare Pseudo Parameter Calculation - RNGFLARE

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Table 6: Summary of Calculated Parameters

Total Maximum to Flare		
Parameter	**Value**	**Unit**
Net Heat Release (Q_n)	1.081E+06	J/s
Effective Stack Height (H_{eff})	16.89	m
Actual Gas Exit Velocity (V_{nozzle})	1.093	m/s
Momentum Flux (F_m)	0.04905	m^4/s^2
Buoyancy Flux (F_b)	9.5	m^4/s^3
Effective Exit Velocity (V_{eff}) [1]	1.500000	m/s
Effective Diameter (D_{eff})	1.99	m

[1] Effective exit velocity has a minimum value of 1.5 m/s as per the MECP Technical Bulletin "Modelling Open Flares under O. Reg. 419/05", February 2017.

Sample Calculations:

1) Calculation of net heat release rate (Q_n)

$$Q_n = Q_T \times (1 - f)$$

$$= 2403186\ J/s * (1 - 0.55)$$

$$= 1.08E+06\ J/s$$

2) Calculation of Effective Stack Height (H_{eff})

$$H_{eff} = H_S + 4.56 \times 10^{-3} * (Q_n/4.1868)^{0.478}$$

$$= 15.1257m + 0.00456 * (1081434\ J/s / 4.1868)^{0.478}$$

$$= 16.9\ m$$

3) Calculation of Actual Gas Exit Velocity (including lift gas) at flare nozzle before combustion (V_{nozzle})

$$V_{nozzle} = \frac{\text{Volumetric Flow Rate to Flare } (m^3/s)}{\pi D^2/4}$$

$$V_{nozzle} = \frac{0.14\ m^3/s}{\pi * (0.4064m)^2 / 4)}$$

$$V_{nozzle} = 1.093\ m/s$$

4) Calculation of Momentum Flux (F_M)

$$F_M = \frac{\rho_{gas}}{\rho_{air} * 4} * D_{nozzle}^2 * V_{nozzle}^2$$

$$= \frac{1.177\ kg/m^3}{1.183\ kg/m^3 * 4} * (0.4064m)^2 * (1.1m)^2$$

$$= 4.90E-02\ m^4/s^2$$

5) Calculation of Buoyancy Flux (F_b)

$$F_b = g * \frac{Q_n}{(\pi * \rho_{air} * T_{amb} * C_{p,air})}$$

$$= 9.807\ m/s^2 * \frac{1081434\ J/s}{(\pi * 1.183 kg/m^3 * 298\ K * 1004\ J/(kg\text{-}K))}$$

$$= 9.54\ m^4/s^3$$

6) Calculation of Effective Exit Velocity (V_{eff})

$$V_{eff} = g * \frac{Fm}{Fb} * \frac{Tstack - Tamb}{Tamb}$$

$$= 9.807\ m/s^2 * \frac{0.049\ m^4/s^2}{9.5\ m^4/s^3} * \frac{871\ ^oC - 298\ K}{298\ K}$$

$$= 0.097\ m/s$$

Minimum effective exit velociy is 1.5 m/s; if calculated value is less than minimum, 1.5 m/s is used.

7) Calculation of Effective Diameter (D_{eff})

$$D_{eff} = 2 * \left(\frac{Fb * Tstack}{g * Veff * (Tstack - Tamb)}\right)^{\wedge 0.5}$$

$$= 2 * \left(\frac{9.5\ m^4/s^3 * 871\ ^oC}{9.807\ m/s^2 * 1.5\ m/s * (871\ ^oC - 298\ K)}\right)^{\wedge 0.5}$$

$$= 2.0\ m$$

Appendix L13: Elevated Flare Pseudo Parameter Calculation - RNGTAIL

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Based on MECP Technical Bulletin - Modelling Open Flares under O. Reg. 419/05 dated February 2017

Table 1: Scenario Summary

Parameter	Value
Date of Flare Event	--
Source ID	RNGTAIL

Table 2: Properties of Gas

Parameter	Value	Unit
Density	1.2	kg/m³ @ 311 K and 101.3 kPa
Molecular Weight	16.6	g/mol
Lower Heating Value	31.4	MJ/m³ @ 311K and 101.3 kPa
Mole Fraction in Feed	1	-

Table 3: Composition of Gas Streams to be Flared

Parameter	Stream 1 - Landfill Gas	Propane Pilot Flow	Total Stream to Flare	Unit
Stream MW	16.6	16.04	16.6	kg/kgmol
Volumetric Rate to Flare	5436.8	0.62	5437	m^3/hr

Table 4: Properties of Flare Gas

Parameter	Value	Unit
Stream MW	16.6	kg/kgmol
Site Atmospheric Pressure	101.3	kPa
Universal Gas Constant (R)	8.3145	(kPa-m³)/(K-kgmol)
Gas Temperature (T_{gas})	37.78	°C
	310.78	K
Volumetric Rate to Flare	5437.5	m³/hr
Total Heat Release Rate	50.2	MJ/s

Table 5: Flare Parameters

Total Maximum to Flare		
Parameter	**Value**	**Unit**
Complete Combustion Total Heat Release Rate (Q_T)	50.2	MJ/s
	5.02E+07	J/s
Flame Radiation Loss (f)	55	%
	0.55	fraction
Flare Stack Tip Height (H_s)	15.13	m
Volumetric Rate to Flare (20°C, 101.15 kPa)	5437	m³/hr
	1.510	m³/s
Flare Stack Tip Diameter (D_{nozzle})	0.41	m
Density of Flared Gas (ρ_{gas})	1.177	kg/m³
Density of Air at Ambient Temperature (ρ_{air})	1.183	kg/m³
Gravitational Constant (g)	9.807	m/s²
Air Specific Heat at Ambient Air Temperature ($C_{p,air}$)	1004	J/(kg-K)
Modelled Ambient Air Temperature (T_{amb})	25	°C
	298	K
Assumed Stack Gas Exit Temperature (T_{stack})	871	°C

Appendix L13: Elevated Flare Pseudo Parameter Calculation - RNGTAIL

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Table 6: Summary of Calculated Parameters

Total Maximum to Flare		
Parameter	**Value**	**Unit**
Net Heat Release (Q_n)	2.259E+07	J/s
Effective Stack Height (H_{eff})	22.66	m
Actual Gas Exit Velocity (V_{nozzle})	11.644	m/s
Momentum Flux (F_m)	5.56817	m^4/s^2
Buoyancy Flux (F_b)	199.2	m^4/s^3
Effective Exit Velocity (V_{eff}) [1]	1.500000	m/s
Effective Diameter (D_{eff})	9.07	m

[1] Effective exit velocity has a minimum value of 1.5 m/s as per the MECP Technical Bulletin "Modelling Open Flares under O. Reg. 419/05", February 2017.

Sample Calculations:

1) Calculation of net heat release rate (Q_n)

$$Q_n = Q_T \times (1 - f)$$

$$= 50198275 \text{ J/s} * (1 - 0.55)$$

$$= 2.26E+07 \text{ J/s}$$

2) Calculation of Effective Stack Height (H_{eff})

$$H_{eff} = H_S + 4.56 \times 10^{-3} * (Q_n/4.1868)^{0.478}$$

$$= 15.1257\text{m} + 0.00456 * (22589224 \text{ J/s} / 4.1868)\text{^0.478}$$

$$= 22.7 \text{ m}$$

3) Calculation of Actual Gas Exit Velocity (including lift gas) at flare nozzle before combustion (V_{nozzle})

$$V_{nozzle} = \frac{\text{Volumetric Flow Rate to Flare } (m^3/s)}{\pi D^2/4}$$

$$V_{nozzle} = \frac{1.51 \text{ } m^3/s}{\pi * (0.4064m)^2 / 4)}$$

$$V_{nozzle} = 11.644 \text{ m/s}$$

4) Calculation of Momentum Flux (F_M)

$$F_M = \frac{\rho_{gas}}{\rho_{air} * 4} * D_{nozzle}^2 * V_{nozzle}^2$$

$$= \frac{1.177 \text{ kg/m}^3}{1.183 \text{ kg/m}^3 * 4} * (0.4064m)^2 * (11.6m)^2$$

$$= 5.57E+00 \text{ } m^4/s^2$$

5) Calculation of Buoyancy Flux (F_b)

$$F_b = g * \frac{Q_n}{(\pi * \rho_{air} * T_{amb} * C_{p,air})}$$

$$= 9.807 \text{ m/s}^2 * \frac{22589224 \text{ J/s}}{(\pi * 1.183\text{kg/m}^3 * 298 \text{ K} * 1004 \text{ J/(kg-K)})}$$

$$= 199.23 \text{ } m^4/s^3$$

6) Calculation of Effective Exit Velocity (V_{eff})

$$V_{eff} = g * \frac{Fm}{Fb} * \frac{Tstack - Tamb}{Tamb}$$

$$= 9.807 \text{ m/s}^2 * \frac{5.5682 \text{ } m^4/s^2}{199.2 \text{ } m^4/s^3} * \frac{871 \text{ °C} - 298 \text{ K}}{298 \text{ K}}$$

$$= 0.527 \text{ m/s}$$

Minimum effective exit velociy is 1.5 m/s; if calculated value is less than minimum, 1.5 m/s is used.

7) Calculation of Effective Diameter (D_{eff})

$$D_{eff} = 2 * \left(\frac{Fb * Tstack}{g * Veff * (Tstack - Tamb)}\right)^{0.5}$$

$$= 2 * \left(\frac{199.2 \text{ } m^4/s^3 * 871 \text{ °C}}{9.807 \text{ m/s}^2 * 1.5 \text{ m/s} * (871 \text{ °C} - 298 \text{ K})}\right)^{0.5}$$

$$= 9.1 \text{ m}$$

Appendix L14: Siloxane Flare Actual Flow Rate Calculation

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

LFG Flow Rate	0.04	m^3/sec
CH_4 Flow Rate	0.02	m^3/sec, assuming 50% of gas to be CH_4
CO_2 Flow Rate	0.02	m^3/sec, assuming 50% of gas to be CO_2
No. of Moles CH_4 in Gas	0.90	, under 1atm and 298K
Moles in Exhaust Gas	10.52	(based on stoiciometry)
Moles to Volume of Gas	9.50	total no. of moles of CH_4
	0.23	m^3 of exhaust gas from CH_4 combustion (standard)
	0.25	m^3 of exhaust gas from CH_4 + CO_2 (standard)
Convert to Actual Conditions	1144	actual exhaust temperature (K)
	0.98	total exhaust flow at actual conditions (m^3/s)

Note:

Actual flow rate considering both siloxane and fuel gas combustion

Appendix L15: Thermal Oxidizer Emission Rate Calculations

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Vertical up-fired Thermal Oxidizer with one main burner and auxiliary pilot burner
Secondry air train for oxidation of waste streams

Design Basis (May August 2021)

Exhaust Flow	0.4	m^3/s
Methane Content	5%	%

Design Temp	787 - 982	°C
VOC destruction Efficiency	98%	%

Compound	CAS Number	Molecular Weight (g/mol)	Average Conc. In Raw LFG (from testing results in 2026) (ppm)	Manufacturer Guarenteed Outlet Concentration (ppm) [1]	Average Conc. In gas to Thermal Oxidizer (g/m^3) [2]	Scaled relative to total NMOC in Landgem [3]	Scaled relative to outlet NMOC (ppm) [3]	Average Conc. In gas from Thermal Oxidizer (g/m^3) [4]	Therm_Ox Emission Rate (g/s)
Maximum LFG Volumetric Flow (m^3/s)	--	--	--		--	--	--	--	**0.45**
Destruction Efficiency	--	--	--		--	--	--	--	**98%**
NMOC Concentration (ppm)						**595.00**	**300.00**	--	--
VOC									
Hydrogen Sulfide	7783-06-4	34.1	736.80	4.00	0.0059	--	--	--	5.28E-05
Vinyl Chloride	75-01-4	62.5	0.33	--	0.0009	0.06%	0.17	4.46E-04	2.01E-04
Benzene	71-43-2	78.1	1.86	--	0.0062	0.31%	0.94	3.15E-03	1.42E-03
1,1,2-Trichloroethane	79-00-5	133.4	0.09	--	0.0005	0.01%	0.04	2.56E-04	1.15E-04

Sample Calculation for Thermal Oxidizer

Calculation of Hydrogen Sulphide Emission Rate = Maximum LFG Flow (m^3/s) * Concentration in Raw LFG (g/m^3) * (1 - Detruction Efficiency)
= 0.45 m^3/s * 0.0059 g/m^3 * (1 - 0.98)
= 5.3E-05 g/s

Notes:
[1] H2S emissions were calculated using the manufacturer guarenteed outlet concentration.
[2] Concentration for each contaminant calculated using raw LFG concentration ratios
[3] Average concentration for Thermal Oxidizer based on manufacturer outlet concentration of NMOC scaled by Landgem NMOC concentration for contaminants of intrest.
[4] Conversion Formula: Concentration (ppm) = 24.45 x concentration (mg/m3) ÷ molecular weight

NOx Emissions from Natural Gas Burner in Thermal Oxidizer

Burner Firing Rate 1.2 MMBTU/hr
1.18E-03 10^6 scf/hr , assuming a heating value of 1020 MMBTU/10^6 scf

Contaminants	Emission Factor (lb/10^6scf) [1]	Emission Rate from Natural Gas Combustion (g/s)	Emissions from Waste Stream Combustion (g/s) [2]	Total Emissions (g/s) [3]
Nitrogen Oxides	100	1.48E-02	5.49E-02	6.97E-02
Particulate Matter	7.6	1.13E-03	2.43E-02	2.54E-02

Sample Calculation

Nitrogen Oxides Emission Rate from Natural Gas Combustion = (1.18E-03 10^6 scf/h) x (100 lb / 10^6 scf) x (453.6 g / lb) / (3600 s / h)
= 1.48E-02 g/s

Notes:
[1] Emission Factors taken from US EPA AP-42 Chapter 1.4, Table 1.4-1 and Table 1.4-2. PM is assumed to same for TSP, PM_{10} and $PM_{2.5}$.
[2] Refer to Appendix F1 for waste stream analysis
[3] Combustion emissions calculated by sumation of Natural gas combustion and waste stream combustion rates.

Appendix L16: On-Site Mobile Equipment Emissions - Fugitive Dust

Walker South Landfill Phase 2 Environmental Assessment

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UNPAVED ROAD SECTIONS - AP-42 Section 13.2.2
PAVED ROAD SECTIONS - AP-42 Section 13.2.1

Paved Roads: $E = k\,(sL)^{0.91}\,(W)^{1.02}$
Unpaved Roads - Industrial: $E = 281.9\,k\,(s / 12)^{a}\,(W / 3)^{b}$
Unpaved Roads - Public: $E = 281.9\,k\,(s / 12)^{a}\,(S / 30)^{d} / (M / 0.5)^{c} - C$

E particulate emission factor (g/VKT)
k particle size multiplier (see below)
sL road surface silt loading (g/m^2)
W average weight of the vehicles traveling the road (US short tons)
s surface material silt content (%)
C emission factor for 1980's vehicle fleet exhaust, brake wear and tire wear
M surface material moisture content (%)
S mean vehicle speed (mph)
a,b,c,d constants (see below)

Route ID [1]	Route Description	Traffic Passes [2] Hourly (#/h)	Daily (#/d)	Annual (#/a)	Segment Length [2] (m)	Road Surface [3]	Roadway Type [4]	Mean Vehicle Speed (km/h)	(mph)	Average Vehicle Weight [5] (tons)	Surface Material Moisture Content [6] (%)	Surface Silt Content [7] (%)	Road Surface Silt Loading [8] (g/m^2)	Base AP-42 Emission Factor TSP (g/VKT)	PM_{10} (g/VKT)	$PM_{2.5}$ (g/VKT)	Base Emission Rate TSP (g/s)	PM_{10} (g/s)	$PM_{2.5}$ (g/s)	Additional Control Efficiency Applied (%)	Final Controlled Emission Rate TSP (g/s)	Data Quality Rating	PM_{10} (g/s)	Data Quality Rating	$PM_{2.5}$ (g/s)	Data Quality Rating
PR_QP1	Paved Road at Quarry Plant - Export of Finished Products	1	1	1	848	Paved	Industrial	-	-	41.7	-	-	1.0	2.15E+02	2.78E+01	6.73E+00	5.07E-02	6.56E-03	1.59E-03		5.07E-02		6.56E-03		1.59E-03	
UR_QP2	Unpaved Road at Quarry Plant - Export of Finished Products	1	1	1	308	Unpaved	Industrial	25	16	41.7	-	23.03%	-	9.97E+03	2.48E+03	2.48E+02	8.52E-01	2.12E-01	2.12E-02	95%	4.26E-02		1.06E-02		1.06E-03	
UR_QP3	Unpaved Road at Quarry Plant - between Quarry Face and Quarry Plant	1	1	1	978	Unpaved	Industrial	25	16	83.0	-	23.03%	-	1.36E+04	3.39E+03	3.39E+02	3.69E+00	9.20E-01	9.20E-02	95%	1.85E-01		4.60E-02		4.60E-03	
UR_QP4	Unpaved Road at Quarry Plant - between Quarry Face and Quarry Plant	1	1	1	679	Unpaved	Industrial	25	16	83.0	-	59.00%	-	2.39E+04	7.90E+03	7.90E+02	4.51E+00	1.49E+00	1.49E-01	95%	2.26E-01		7.45E-02		7.45E-03	
PR_AP1	Paved Road at Asphalt Plant - to/from Asphalt Plant Entrance	1	1	1	848	Paved	Industrial	50	31	41.7	-	-	1.0	2.15E+02	2.78E+01	6.73E+00	5.07E-02	6.56E-03	1.59E-03		5.07E-02		6.56E-03		1.59E-03	
UR_AP2	Unpaved Road at Asphalt Plant - between Entrance and Asphalt Plant	1	1	1	513	Unpaved	Industrial	25	16	41.7	-	23.03%	-	9.97E+03	2.48E+03	2.48E+02	1.42E+00	3.54E-01	3.54E-02	95%	7.10E-02		1.77E-02		1.77E-03	
PR_CF1	Paved Road at Compost Facility - Inbound and Outbound Delivery	1	1	1	860	Paved	Industrial	-	-	26.3	-	-	1.0	1.35E+02	1.74E+01	4.22E+00	3.22E-02	4.17E-03	1.01E-03		3.22E-02		4.17E-03		1.01E-03	
UR_CF2	Unpaved Road at Compost Facility - Inbound and Outbound Delivery	1	1	1	49	Unpaved	Industrial	25	16	26.3	-	8.35%	-	4.41E+03	8.11E+02	8.11E+01	5.96E-02	1.09E-02	1.09E-03	95%	2.98E-03		5.47E-04		5.47E-05	
UR_SOCL	Unpaved Road - Transport of Soil and Clay between Soil Pile and Working Face and Construction Areas	1	1	1	219	Unpaved	Industrial	25	16	36.6	-	5.97%	-	4.19E+03	6.96E+02	6.96E+01	2.54E-01	4.22E-02	4.22E-03	95%	1.27E-02		2.11E-03		2.11E-04	
UR_ELFWF	Unpaved Road at East Landfill - Transport of Soil between Waste Soil Pile and Working Face	1	1	1	254	Unpaved	Industrial	25	16	39.8	-	8.35%	-	5.31E+03	9.76E+02	9.76E+01	3.75E-01	6.89E-02	6.89E-03	95%	1.88E-02		3.45E-03		3.45E-04	
UR_SLFCAP	Unpaved Road at South Landfill Phase 1 - Transport of Clay between Soil Pile and Final Capping Construction Area	1	1	1	1674	Unpaved	Industrial	25	16	41.7	-	8.35%	-	5.43E+03	9.97E+02	9.97E+01	2.52E+00	4.64E-01	4.64E-02	95%	1.26E-01		2.32E-02		2.32E-03	
PR_W1	Paved Road - Transport of Waste between Entrance and Weigh Scale	1	1	1	826	Paved	Industrial	-	-	41.0	-	-	1.0	2.12E+02	2.74E+01	6.62E+00	4.86E-02	6.29E-03	1.52E-03		4.86E-02		6.29E-03		1.52E-03	
UR_W2	Unpaved Road at - Transport of Waste between Weigh Scale and Working Face	1	1	1	72	Unpaved	Industrial	20	12	41.0	-	8.35%	-	5.38E+03	9.90E+02	9.90E+01	1.08E-01	1.98E-02	1.98E-03	95%	5.40E-03		9.92E-04		9.92E-05	
UR_W3	Unpaved Road - Transport of Clay and Waste between Weigh Scale and Working Face	1	1	1	392	Unpaved	Industrial	20	12	41.0	-	8.35%	-	5.39E+03	9.90E+02	9.90E+01	5.86E-01	1.08E-01	1.08E-02	95%	2.93E-02		5.39E-03		5.39E-04	
UR_W4	Unpaved Road - Transport of Soil, Clay and Waste between Weigh Scale and Working Face	1	1	1	417	Unpaved	Industrial	20	12	40.0	-	8.35%	-	5.33E+03	9.79E+02	9.79E+01	6.16E-01	1.13E-01	1.13E-02	95%	3.08E-02		5.66E-03		5.66E-04	
UR_W5	Unpaved Road - Transport of Soil, Clay and Waste between Weigh Scale and Working Face	1	1	1	184	Unpaved	Industrial	20	12	40.1	-	8.35%	-	5.33E+03	9.80E+02	9.80E+01	2.72E-01	5.00E-02	5.00E-03	95%	1.36E-02		2.50E-03		2.50E-04	
UR_W6	Unpaved Road - Transport of Rock, Soil, Clay and Waste between Weigh Scale and Working Face	1	1	1	48	Unpaved	Industrial	20	12	46.1	-	8.35%	-	5.68E+03	1.04E+03	1.04E+02	7.59E-02	1.39E-02	1.39E-03	95%	3.79E-03		6.97E-04		6.97E-05	
UR_W7	Unpaved Road - Transport of Rock, Soil, Clay and Waste between Weigh Scale and Working Face	1	1	1	116	Unpaved	Industrial	20	12	46.3	-	59.00%	-	1.84E+04	6.07E+03	6.07E+02	5.90E-01	1.95E-01	1.95E-02	95%	2.95E-02		9.74E-03		9.74E-04	
UR_W8	Unpaved Road - Transport of Soil, Clay and Waste between Weigh Scale and Working Face	1	1	1	159	Unpaved	Industrial	20	12	40.0	-	8.35%	-	5.32E+03	9.79E+02	9.79E+01	2.35E-01	4.31E-02	4.31E-03	95%	1.17E-02		2.16E-03		2.16E-04	
UR_W9	Unpaved Road - Transport of Soil and Waste between Weigh Scale and Working Face	1	1	1	591	Unpaved	Industrial	20	12	39.9	-	8.35%	-	5.32E+03	9.78E+02	9.78E+01	8.73E-01	1.60E-01	1.60E-02	95%	4.36E-02		8.02E-03		8.02E-04	
UR_S2CON	Unpaved Road - Transport of Clay between Soil Pile and Cell Construction Area	1	1	1	370	Unpaved	Industrial	25	16	41.7	-	8.35%	-	5.43E+03	9.97E+02	9.97E+01	5.57E-01	1.02E-01	1.02E-02	95%	2.78E-02		5.12E-03		5.12E-04	
UR_S1CAP	Unpaved Road - Transport of Clay between Soil Pile and Final Capping Construction Area	1	1	1	1194	Unpaved	Industrial	25	16	41.7	-	8.35%	-	5.43E+03	9.97E+02	9.97E+01	1.80E+00	3.31E-01	3.31E-02	95%	9.00E-02		1.65E-02		1.65E-03	

Notes:

[1] Route ID numbers provided on site plan.
[2] Length of a specific road segment. A separate segment should be used whenever one or more parameters change.
[3] Paved surfaces include asphalt, concrete, and recycled asphalt (if it forms a relatively consistent surface).
[4] Publicly accessible and dominated by light vehicles, or industrial, and dominated by heavy vehicles.
[5] The average vehicle weight reflects the average of the empty and loaded vehicle weight, for travel in both directions.
[6] Required only for publicly accessible unpaved roads.
[7] Required only for unpaved roads (public and industrial).
[8] Required only for industrial paved roads.

Comments

Silica content is based onsite sampling data.
Constants for TSP (PM44) extrapolated from published factors for PM30, PM10 and PM2.5. Data quality downgraded by one step.

Appendix L16: On-Site Mobile Equipment Emissions - Fugitive Dust

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Constants for Mobile Emission Equations

Roadway Type	k	a	b	c	d	Quality
Paved Roads:	0.15	-	-	-	-	-
	0.62	-	-	-	-	-
	3.23	-	-	-	-	-
	4.79	-	-	-	-	-
Unpaved Roads - Industrial:	0.15	0.9	0.45	-	-	C
	1.5	0.9	0.45	-	-	B
	4.9	0.7	0.45	-	-	B
	7.32	0.6	0.45	-	-	C
Unpaved Roads - Public:	0.18	1	-	0.2	0.5	C
	1.8	1	-	0.2	0.5	B
	6	1	-	0.3	0.3	B
	8.96	1	-	0.49	0.2	C

Sample calculation for uncontrolled TSP emission factor for Source PR_CF1: Paved Road at Compost Facility - Inbound and Outbound Delivery

EF = (4.79) x (1 g/m²)^0.91 x (41.7 tons)^1.02 = 215 g TSP / vehicle kilometer travelled (vkt)

Sample calculation for TSP emission rate for Source PR_CF1: Paved Road at Compost Facility - Inbound and Outbound Delivery

$$\frac{1 \text{ vehicles}}{1 \text{ h}} \times \frac{1 \text{ km}}{1000 \text{ m}} \times \frac{215 \text{ } g_{TSP}}{1 \text{ vehicle km}} \times \frac{1 \text{ h}}{3600 \text{ s}} \times \frac{100\% \text{ } g_{TSP\ uncontrolled}}{1 \text{ } g_{TSP}} = 5.14E\text{-}02 \text{ } g_{TSP} / \text{s}$$

Appendix L17: Averaged Emission Rates for On-road Vehicles Based on Speed and Vehicle Class (Year 2033)

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Km to Mile Conversion Factor	1.609 km per mile
Hour to Seconds	3600 s/hr

Vehicle Type		Contaminant Emission Rate by Vehicle Speed (km/hr)																											
		TSP				PM10				PM2.5				Benzene				Nitrogen Dioxide				Nitrogen Oxides				Sulphur Dioxide			
		0	20	25	50	0	20	25	50	0	20	25	50	0	20	25	50	0	20	25	50	0	20	25	50	0	20	25	50
		g/s	g/vkt	g/vkt	g/vkt	g/s	g/vkt	g/vkt	g/vkt	g/s	g/vkt	g/vkt	g/vkt	g/s	g/vkt	g/vkt	g/vkt	g/s	g/vkt	g/vkt	g/vkt	g/s	g/vkt	g/vkt	g/vkt	g/s	g/vkt	g/vkt	g/vkt
small	PassengerCar	7.69E-06	6.65E-02	6.17E-02	2.97E-02	7.69E-06	6.65E-02	6.17E-02	2.97E-02	6.80E-06	9.86E-03	9.02E-03	4.69E-03	8.55E-07	5.66E-04	5.11E-04	3.43E-04	2.75E-06	2.68E-03	2.47E-03	2.23E-03	1.77E-05	1.72E-02	1.59E-02	1.43E-02	3.03E-06	1.17E-03	1.04E-03	7.17E-04
small	PassengerTruck	6.81E-06	7.37E-02	6.89E-02	3.17E-02	6.81E-06	7.37E-02	6.89E-02	3.17E-02	6.17E-06	1.11E-02	1.02E-02	5.19E-03	1.10E-06	7.28E-04	6.66E-04	4.11E-04	2.00E-05	5.85E-03	5.35E-03	3.97E-03	1.34E-04	4.14E-02	3.80E-02	2.82E-02	3.94E-06	1.53E-03	1.35E-03	9.41E-04
small	LightCommercialTruck	1.15E-05	7.69E-02	7.17E-02	3.46E-02	1.15E-05	7.69E-02	7.17E-02	3.46E-02	1.04E-05	1.29E-02	1.18E-02	6.30E-03	2.51E-06	1.77E-03	1.66E-03	8.18E-04	5.15E-05	1.23E-02	1.12E-02	7.57E-03	3.30E-04	8.48E-02	7.80E-02	5.33E-02	4.45E-06	1.74E-03	1.55E-03	1.06E-03
medium	SingleUnitShortHaulTruck	2.81E-04	2.80E-01	2.26E-01	1.19E-01	2.81E-04	2.80E-01	2.26E-01	1.19E-01	2.59E-04	9.37E-02	7.92E-02	5.16E-02	7.71E-06	4.57E-03	3.88E-03	2.00E-03	4.99E-04	2.00E-01	1.75E-01	1.07E-01	3.57E-03	1.70E+00	1.51E+00	9.92E-01	6.05E-06	3.12E-03	2.83E-03	2.17E-03
medium	SingleUnitLongHaulTruck	2.81E-04	2.84E-01	2.29E-01	1.20E-01	2.81E-04	2.84E-01	2.29E-01	1.20E-01	2.59E-04	9.35E-02	7.90E-02	5.08E-02	7.71E-06	4.53E-03	3.85E-03	1.97E-03	4.99E-04	1.98E-01	1.73E-01	1.05E-01	3.57E-03	1.68E+00	1.49E+00	9.71E-01	6.05E-06	3.07E-03	2.78E-03	2.11E-03
large	CombinationShortHaulTruck	3.16E-04	6.10E-01	4.80E-01	2.44E-01	3.16E-04	6.10E-01	4.80E-01	2.44E-01	2.91E-04	1.72E-01	1.52E-01	1.03E-01	3.28E-06	1.40E-03	1.11E-03	5.99E-04	1.96E-03	7.74E-01	6.71E-01	4.13E-01	1.17E-02	5.01E+00	4.39E+00	2.80E+00	6.51E-06	4.47E-03	4.30E-03	3.57E-03
large	CombinationLongHaulTruck	2.11E-04	6.47E-01	4.96E-01	2.42E-01	2.11E-04	6.47E-01	4.96E-01	2.42E-01	1.94E-04	1.52E-01	1.32E-01	8.55E-02	2.24E-06	9.55E-04	7.62E-04	4.07E-04	2.29E-03	9.07E-01	7.84E-01	4.80E-01	1.30E-02	5.37E+00	4.67E+00	2.92E+00	6.60E-06	4.66E-03	4.49E-03	3.70E-03
	Small	**8.66E-06**	**7.23E-02**	**6.74E-02**	**3.20E-02**	**8.66E-06**	**7.23E-02**	**6.74E-02**	**3.20E-02**	**7.79E-06**	**1.13E-02**	**1.04E-02**	**5.39E-03**	**1.49E-06**	**1.02E-03**	**9.45E-04**	**5.24E-04**	**2.47E-05**	**6.93E-03**	**6.35E-03**	**4.59E-03**	**1.61E-04**	**4.78E-02**	**4.40E-02**	**3.19E-02**	**3.81E-06**	**1.48E-03**	**1.31E-03**	**9.05E-04**
	Medium	**2.81E-04**	**2.82E-01**	**2.28E-01**	**1.20E-01**	**2.81E-04**	**2.82E-01**	**2.28E-01**	**1.20E-01**	**2.59E-04**	**9.36E-02**	**7.91E-02**	**5.12E-02**	**7.71E-06**	**4.55E-03**	**3.86E-03**	**1.98E-03**	**4.99E-04**	**1.99E-01**	**1.74E-01**	**1.06E-01**	**3.57E-03**	**1.69E+00**	**1.50E+00**	**9.81E-01**	**6.05E-06**	**3.10E-03**	**2.81E-03**	**2.14E-03**
	Large	**2.64E-04**	**6.28E-01**	**4.88E-01**	**2.43E-01**	**2.64E-04**	**6.28E-01**	**4.88E-01**	**2.43E-01**	**2.42E-04**	**1.62E-01**	**1.42E-01**	**9.43E-02**	**2.76E-06**	**1.18E-03**	**9.36E-04**	**5.03E-04**	**2.12E-03**	**8.41E-01**	**7.28E-01**	**4.47E-01**	**1.24E-02**	**5.19E+00**	**4.53E+00**	**2.86E+00**	**6.55E-06**	**4.57E-03**	**4.40E-03**	**3.63E-03**

Appendix L18: Summary of Emission Rates for On-road and Non-road Vehicles Based on Speed and Vehicle Class (Year 2033)

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Vehicle Type				Contaminant Emission Rate																				
MOVES Identifier			Speed	TSP			PM10			PM2.5			Benzene			Nitrogen Dioxide			Nitrogen Oxides			Sulphur Dioxide		
On-road / Non-road	Vehicle Type	HP ID	(km/hr)	g/VKT	g/hr	g/s	g/VKT	g/hr	g/s	g/VKT	g/hr	g/s	g/VKT	g/hr	g/s	g/VKT	g/hr	g/s	g/VKT	g/hr	g/s	g/VKT	g/hr	g/s
On-road	Large	-	0	-	-	2.64E-04	-	-	2.64E-04	-	-	2.42E-04	-	-	2.76E-06	-	-	2.12E-03	-	-	1.24E-02	-	-	6.55E-06
On-road	Large	-	20	6.28E-01	-	-	6.28E-01	-	-	1.62E-01	-	-	1.18E-03	-	-	8.41E-01	-	-	5.19E+00	-	-	4.57E-03	-	-
On-road	Large	-	25	4.88E-01	-	-	4.88E-01	-	-	1.42E-01	-	-	9.36E-04	-	-	7.28E-01	-	-	4.53E+00	-	-	4.40E-03	-	-
On-road	Large	-	50	2.43E-01	-	-	2.43E-01	-	-	9.43E-02	-	-	5.03E-04	-	-	4.47E-01	-	-	2.86E+00	-	-	3.63E-03	-	-
On-road	Small	-	25	6.74E-02	-	-	6.74E-02	-	-	1.04E-02	-	-	9.45E-04	-	-	6.35E-03	-	-	4.40E-02	-	-	1.31E-03	-	-
Non-road	Tractors/Loaders/Backhoes	300	-	-	1.97E+00	5.47E-04	-	1.97E+00	5.47E-04	-	1.97E+00	5.47E-04	-	1.00E-01	2.79E-05	-	-	-	-	1.84E+01	5.10E-03	-	7.16E-02	1.99E-05
Non-road	Skid Steer Loaders	100	-	-	3.36E+00	9.34E-04	-	3.36E+00	9.34E-04	-	3.36E+00	9.34E-04	-	1.29E-01	3.59E-05	-	-	-	-	2.95E+01	8.20E-03	-	3.43E-02	9.54E-06
Non-road	Excavators	600	-	-	1.65E+00	4.60E-04	-	1.65E+00	4.60E-04	-	1.65E+00	4.60E-04	-	5.95E-02	1.65E-05	-	-	-	-	2.86E+01	7.95E-03	-	3.43E-01	9.52E-05
Non-road	Graders	750	-	-	3.14E+00	8.71E-04	-	3.14E+00	8.71E-04	-	3.14E+00	8.71E-04	-	1.14E-01	3.15E-05	-	-	-	-	5.54E+01	1.54E-02	-	6.26E-01	1.74E-04
Non-road	Off-highway Trucks	300	-	-	9.12E-01	2.53E-04	-	9.12E-01	2.53E-04	-	9.12E-01	2.53E-04	-	3.14E-02	8.73E-06	-	-	-	-	1.61E+01	4.46E-03	-	2.04E-01	5.66E-05
Non-road	Off-highway Trucks	600	-	-	1.55E+00	4.30E-04	-	1.55E+00	4.30E-04	-	1.55E+00	4.30E-04	-	5.40E-02	1.50E-05	-	-	-	-	2.76E+01	7.66E-03	-	3.50E-01	9.73E-05
Non-road	Off-highway Trucks	1000	-	-	1.20E+01	3.33E-03	-	1.20E+01	3.33E-03	-	1.20E+01	3.33E-03	-	9.72E-01	2.70E-04	-	-	-	-	1.13E+03	3.14E-01	-	7.24E-01	2.01E-04
Non-road	Crawler Tractor/Dozers	600	-	-	1.85E+00	5.14E-04	-	1.85E+00	5.14E-04	-	1.85E+00	5.14E-04	-	6.72E-02	1.87E-05	-	-	-	-	3.24E+01	8.99E-03	-	3.55E-01	9.87E-05

Appendix L19: Traffic Count and Total Emission per Roadway

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Peak Hourly Traffic Count per Roadway

MOVES Identifier			Haul Trucks						Onsite Equipment													
			Trucks on Paved Roads (delivering raw materials, finished products, composts)	Trucks on Unpaved Roads (delivering raw materials, finished products)	Trucks (Transport of Refuse)	Trucks (Transport of Refuse - Idling)	Trucks (Transport of Waste Soil)	Site Pick-up Truck/Car	Compactor	Tipper	Water Truck	Fuel Truck	Sweeper Truck	Loader	Skid Steer	Excavator	Pick-up Trucks (on Unpaved Road)	Grader	Bulldozer	End-Dump Tractor Trailer / Tractor Trailer on Paved Roads	End-Dump Tractor Trailer / Tractor Trailer on Unpaved Roads	Tandem Delivery Truck (on Unpaved Road)
	On-road / Non-road		On-road	On-road	On-road	On-road	On-road	On-road	Non-road	Non-road	Non-road	Non-road	Non-road	Non-road	Non-road	Non-road	On-road	Non-road	Non-road	On-road	On-road	On-road
	Vehicle Type		Large	Large	Large	Large	Large	Small	Crawler Tractor/Dozers	Off-Highway Trucks	Off-Highway Trucks	Off-Highway Trucks	Off-Highway Trucks	Tractors/Loaders/Backhoes	Skid Steer Loaders	Excavators	Small	Graders	Crawler Tractor/Dozers	Large	Large	Large
	Speed (km/hr)		50	25	20	0	25	25	-	-	-	-	-	-	-	-	25	-	-	50	25	25
	Engine (hp)		-	-	-	-	-	-	523	400	400	825	200	272	80	303	-	600	347	-	-	-
Route	**Source ID**	**Segment Length (m)**																				
Paved Road at Quarry Plant - Export of Finished Products	PR_QP1	848.2	6	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Unpaved Road at Quarry Plant - Export of Finished Products	UR_QP2	307.6	0	6	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Unpaved Road at Quarry Plant - between Quarry Face and Quarry Plant	UR_QP3	977.8	0	7	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Unpaved Road at Quarry Plant - between Quarry Face and Quarry Plant	UR_QP4	679.3	0	7	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Tailpipe Emission of Onsite Equipment at Quarry Plant	EQ_QP	-	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0
Tailpipe Emission of Onsite Equipment at Quarry Working Face	EQ_QF	-	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0
Paved Road at Asphalt Plant - to/from Asphalt Plant Entrance	PR_AP1	848.2	0	5	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Unpaved Road at Asphalt Plant - between Entrance and Asphalt Plant	UR_AP2	512.6	0	5	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Tailpipe Emission of Onsite Equipment at Asphalt Plant	EQ_AP	-	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0
Paved Road at Compost Facility - Inbound and Outbound Delivery	PR_CF1	860.1	0	8	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Unpaved Road at Compost Facility - Inbound and Outbound Delivery	UR_CF2	48.6	0	8	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Tailpipe Emission of Onsite Equipment at Compost Facility	EQ_CF	-	0	0	0	0	0	0	0	0	1	0	0	5	0	0	0	0	0	0	0	0
Tailpipe Emission of Onsite Equipment at Soil Pile	EQ_SOIL	-	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0
Trucks Idling at the Weigh Scale	IDLE_WEIGH	-	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trucks Idling at the Working Face of East Landfill	IDLE_ELFWF	-	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trucks Idling at the Working Face of South Landfill Phase 2 - Stage 1	IDLE_S1WF	-	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tailpipe Emission of Onsite Equipment at Working Face of East Landfill	EQ_ELFWF	-	0	0	0	0	0	0	5	2	1	1	1	1	1	3	4	0	0	0	0	0
Tailpipe Emission of Onsite Equipment at Working Face of South Landfill Phase 2 - Stage 1	EQ_S1WF	-	0	0	0	0	0	0	5	2	1	1	1	1	1	3	4	0	1	0	0	0
Tailpipe Emission of Onsite Equipment at Final Capping Construction Area of South Landfill Phase 2 - Stage 1	EQ_S1CAP	-	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0
Unpaved Road - Transport of Soil and Clay between Soil Pile and Working Face and Construction Areas	UR_SOCL	218.6	0	0	0	0	58	0	0	0	1	0	0	0	0	0	0	0	0	0	12	0
Unpaved Road at East Landfill - Transport of Soil between Waste Soil Pile and Working Face	UR_ELFWF	254.2	0	0	22	0	14	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Unpaved Road at South Landfill Phase 1 - Transport of Clay between Soil Pile and Final Capping Construction Area	UR_SLFCAP	1673.8	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	3	0
Paved Road - Transport of Waste between Entrance and Weigh Scale	PR_W1	826.4	0	0	80	0	6	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Unpaved Road at - Transport of Waste between Weigh Scale and Working Face	UR_W2	72.2	0	0	80	0	6	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Unpaved Road - Transport of Clay and Waste between Weigh Scale and Working Face	UR_W3	391.8	0	0	80	0	6	0	0	0	1	0	0	0	0	0	0	0	0	0	3	0
Unpaved Road - Transport of Soil, Clay and Waste between Weigh	UR_W4	416.7	0	0	80	0	52	0	0	0	1	0	0	0	0	0	0	0	0	0	9	0
Unpaved Road - Transport of Soil, Clay and Waste between Weigh Scale and Working Face	UR_W5	183.8	0	0	58	0	38	0	0	0	1	0	0	0	0	0	0	0	0	0	9	0
Unpaved Road - Transport of Rock, Soil, Clay and Waste between Weigh Scale and Working Face	UR_W6	48.1	0	7	58	0	38	0	0	0	1	0	0	0	0	0	0	0	0	0	9	0
Unpaved Road - Transport of Rock, Soil, Clay and Waste between Weigh Scale and Working Face	UR_W7	115.5	0	7	58	0	38	0	0	0	1	0	0	0	0	0	0	0	0	0	6	0
Unpaved Road - Transport of Soil, Clay and Waste between Weigh Scale and Working Face	UR_W8	158.6	0	0	58	0	38	0	0	0	1	0	0	0	0	0	0	0	0	0	6	0
Unpaved Road - Transport of Soil and Waste between Weigh Scale and Working Face	UR_W9	590.7	0	0	58	0	38	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Unpaved Road - Transport of Clay between Soil Pile and Cell Construction Area	UR_S2CON	369.5	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	6	0
Unpaved Road - Transport of Clay between Soil Pile and Final Capping Construction Area	UR_S1CAP	1193.9	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	3	0

Note:
[1] Load factors are extracted from "Median Life, Annual Activity, and Load Factor Values for Nonroad Engine Emissions Modeling", EPA-420-R-10-016, NR-005d, July 2010.

Tailpipe Emission Factor by Equipment Type

MOVES Identifier			Tailpipe Emission Factor by Equipment Type																			
			Haul Trucks						Onsite Equipment													
			Trucks on Paved Roads (delivering raw materials, finished products, composts)	Trucks on Unpaved Roads (delivering raw materials, finished products)	Trucks (Transport of Refuse)	Trucks (Transport of Refuse - Idling)	Trucks (Transport of Waste Soil)	Site Pick-up Truck/Car	Compactor	Tipper	Water Truck	Fuel Truck	Sweeper Truck	Loader	Skid Steer	Excavator	Pick-up Trucks (on Unpaved Road)	Grader	Bulldozer	End-Dump Tractor Trailer / Tractor Trailer on Paved Roads	End-Dump Tractor Trailer / Tractor Trailer on Unpaved Roads	Tandem Delivery Truck (on Unpaved Road)
	On-road / Non-road		On-road	On-road	On-road	On-road	On-road	On-road	Non-road	Non-road	Non-road	Non-road	Non-road	Non-road	Non-road	Non-road	On-road	Non-road	Non-road	On-road	On-road	On-road
	Vehicle Type		Large	Large	Large	Large	Large	Small	Crawler Tractor/Dozers	Off-Highway Trucks	Off-Highway Trucks	Off-Highway Trucks	Off-Highway Trucks	Tractors/Loaders/Backhoes	Skid Steer Loaders	Excavators	Small	Graders	Crawler Tractor/Dozers	Large	Large	Large
	Speed (km/hr)		50	25	20	0	25	25	-	-	-	-	-	-	-	-	25	-	-	50	25	25
	Engine (hp)		-	-	-	-	-	-	523	400	400	825	200	272	80	303	-	600	347	-	-	-
	Load Factor		-	-	-	-	-	-	0.59	0.59	0.59	0.59	0.59	0.21	0.21	0.59	-	0.59	0.59	-	-	-
Contaminant	**CAS Number**	**Pollutantid**	**g/VKT**	**g/VKT**	**g/VKT**	**g/s**	**g/VKT**	**g/VKT**	**g/hr**	**g/hr**	**g/hr**	**g/hr**	**g/hr**	**g/hr**	**g/hr**	**g/hr**	**g/VKT**	**g/hr**	**g/hr**	**g/VKT**	**g/VKT**	**g/VKT**
TSP	PM	100	2.43E-01	4.88E-01	6.28E-01	2.64E-04	4.88E-01	6.74E-02	1.85E+00	1.55E+00	1.55E+00	1.20E+01	9.12E-01	1.97E+00	3.36E+00	1.65E+00	6.74E-02	3.14E+00	1.85E+00	2.43E-01	4.88E-01	4.88E-01
PM10	PM10	100	2.43E-01	4.88E-01	6.28E-01	2.64E-04	4.88E-01	6.74E-02	1.85E+00	1.55E+00	1.55E+00	1.20E+01	9.12E-01	1.97E+00	3.36E+00	1.65E+00	6.74E-02	3.14E+00	1.85E+00	2.43E-01	4.88E-01	4.88E-01
PM2.5	PM25	110	9.43E-02	1.42E-01	1.62E-01	2.42E-04	1.42E-01	1.04E-02	1.85E+00	1.55E+00	1.55E+00	1.20E+01	9.12E-01	1.97E+00	3.36E+00	1.65E+00	1.04E-02	3.14E+00	1.85E+00	9.43E-02	1.42E-01	1.42E-01
Benzene	71-43-2	20	5.03E-04	9.36E-04	1.18E-03	2.76E-06	9.36E-04	9.45E-04	6.72E-02	5.40E-02	5.40E-02	9.72E-01	3.14E-02	1.00E-01	1.29E-01	5.95E-02	9.45E-04	1.14E-01	6.72E-02	5.03E-04	9.36E-04	9.36E-04
Nitrogen Dioxide	NO2	33	4.47E-01	7.28E-01	8.41E-01	2.12E-03	7.28E-01	6.35E-03	-	-	-	-	-	-	-	-	6.35E-03	-	-	4.47E-01	7.28E-01	7.28E-01
Nitrogen Oxides	10102-44-0	3	2.86E+00	4.53E+00	5.19E+00	1.24E-02	4.53E+00	4.40E-02	3.24E+01	2.76E+01	2.76E+01	1.13E+03	1.61E+01	1.84E+01	2.95E+01	2.86E+01	4.40E-02	5.54E+01	3.24E+01	2.86E+00	4.53E+00	4.53E+00
Sulphur Dioxide	7446-09-5	31	3.63E-03	4.40E-03	4.57E-03	6.55E-06	4.40E-03	1.31E-03	3.55E-01	3.50E-01	3.50E-01	7.24E-01	2.04E-01	7.16E-02	3.43E-02	3.43E-01	1.31E-03	6.26E-01	3.55E-01	3.63E-03	4.40E-03	4.40E-03

Appendix L19: Traffic Count and Total Emission per Roadway

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Emission Rate per Roadway

Source ID	Vehicle Passes per Hour	Number of Volume Sources	Tailpipe Emission Rate per Roadway (g/hr)							Tailpipe + Fugitive Emission Rate per Vehicle per Roadway (g/s)							Emission Rate per Vehicle per Roadway per Volume Source (g/s)						
			TSP	PM10	PM2.5	Benzene	Nitrogen Dioxide	Nitrogen Oxides	Sulphur Dioxide	TSP	PM10	PM2.5	Benzene	Nitrogen Dioxide	Nitrogen Oxides	Sulphur Dioxide	TSP	PM10	PM2.5	Benzene	Nitrogen Dioxide	Nitrogen Oxides (NOx)	Sulphur Dioxide (SO2)
			g/hr	g/hr	g/hr	g/hr	g/hr	g/hr	g/hr	g/s	g/s	g/s	g/s	g/s	g/s	g/s	g/s	g/s	g/s	g/s	g/s	g/s	g/s
PR_QP1	14	42	2.15E+00	2.15E+00	1.39E+00	3.44E-02	2.27E+00	3.08E+01	2.25E-01	5.07E-02	6.60E-03	1.61E-03	6.83E-07	4.51E-05	6.12E-04	4.47E-06	1.21E-03	1.57E-04	3.84E-05	1.63E-08	1.07E-06	1.46E-05	1.06E-07
UR_QP2	14	15	1.82E+00	1.82E+00	1.18E+00	3.36E-02	1.34E+00	2.46E+01	2.15E-01	4.26E-02	1.06E-02	1.08E-03	6.66E-07	2.66E-05	4.89E-04	4.26E-06	2.84E-03	7.10E-04	7.23E-05	4.44E-08	1.78E-06	3.26E-05	2.84E-07
UR_QP3	16	49	4.26E+00	4.26E+00	1.89E+00	3.83E-02	4.98E+00	4.73E+01	2.37E-01	1.85E-01	4.61E-02	4.63E-03	6.64E-07	8.65E-05	8.21E-04	4.11E-06	3.77E-03	9.40E-04	9.45E-05	1.36E-08	1.76E-06	1.67E-05	8.39E-08
UR_QP4	16	38	3.24E+00	3.24E+00	1.59E+00	3.63E-02	3.46E+00	3.78E+01	2.28E-01	2.26E-01	7.46E-02	7.48E-03	6.30E-07	6.01E-05	6.56E-04	3.95E-06	5.94E-03	1.96E-03	1.97E-04	1.66E-08	1.58E-06	1.73E-05	1.04E-07
EQ_QP	4	1	1.33E+00	1.33E+00	1.33E+00	5.29E-02	0.00E+00	2.01E+01	2.22E-01	9.22E-05	9.22E-05	9.22E-05	3.68E-06	0.00E+00	1.40E-03	1.54E-05	9.22E-05	9.22E-05	9.22E-05	3.68E-06	0.00E+00	1.40E-03	1.54E-05
EQ_QF	4	1	1.33E+00	1.33E+00	1.33E+00	5.29E-02	0.00E+00	2.01E+01	2.22E-01	9.22E-05	9.22E-05	9.22E-05	3.68E-06	0.00E+00	1.40E-03	1.54E-05	9.22E-05	9.22E-05	9.22E-05	3.68E-06	0.00E+00	1.40E-03	1.54E-05
PR_AP1	12	42	2.98E+00	2.98E+00	1.52E+00	3.58E-02	3.09E+00	3.55E+01	2.25E-01	5.07E-02	6.63E-03	1.62E-03	8.29E-07	7.14E-05	8.21E-04	5.21E-06	1.21E-03	1.58E-04	3.86E-05	1.97E-08	1.70E-06	1.96E-05	1.24E-07
UR_AP2	12	26	2.17E+00	2.17E+00	1.28E+00	3.42E-02	1.86E+00	2.79E+01	2.18E-01	7.10E-02	1.77E-02	1.80E-03	7.93E-07	4.32E-05	6.45E-04	5.04E-06	2.73E-03	6.82E-04	6.92E-05	3.05E-08	1.66E-06	2.48E-05	1.94E-07
EQ_AP	4	1	1.33E+00	1.33E+00	1.33E+00	5.29E-02	0.00E+00	2.01E+01	2.22E-01	9.22E-05	9.22E-05	9.22E-05	3.68E-06	0.00E+00	1.40E-03	1.54E-05	9.22E-05	9.22E-05	9.22E-05	3.68E-06	0.00E+00	1.40E-03	1.54E-05
PR_CF1	18	54	4.27E+00	4.27E+00	1.89E+00	3.83E-02	5.01E+00	4.74E+01	2.37E-01	3.23E-02	4.23E-03	1.04E-03	5.91E-07	7.73E-05	7.32E-04	3.66E-06	5.97E-04	7.84E-05	1.92E-05	1.09E-08	1.43E-06	1.36E-05	6.77E-08
UR_CF2	18	3	1.10E+00	1.10E+00	9.69E-01	3.22E-02	2.83E-01	1.80E+01	2.08E-01	3.00E-03	5.65E-04	6.97E-05	4.97E-07	4.37E-06	2.78E-04	3.21E-06	9.99E-04	1.88E-04	2.32E-05	1.66E-07	1.46E-06	9.28E-05	1.07E-06
EQ_CF	12	1	2.98E+00	2.98E+00	2.98E+00	1.37E-01	0.00E+00	3.56E+01	2.82E-01	6.91E-05	6.91E-05	6.91E-05	3.18E-06	0.00E+00	8.23E-04	6.52E-06	6.91E-05	6.91E-05	6.91E-05	3.18E-06	0.00E+00	8.23E-04	6.52E-06
EQ_SOIL	4	1	2.01E+00	2.01E+00	2.01E+00	7.15E-02	0.00E+00	3.54E+01	4.16E-01	1.39E-04	1.39E-04	1.39E-04	4.96E-06	0.00E+00	2.46E-03	2.89E-05	1.39E-04	1.39E-04	1.39E-04	4.96E-06	0.00E+00	2.46E-03	2.89E-05
IDLE_WEIGH	4	1	1.90E+00	1.90E+00	1.75E+00	1.99E-02	1.53E+01	8.89E+01	4.72E-02	1.32E-04	1.32E-04	1.21E-04	1.38E-06	1.06E-03	6.18E-03	3.28E-06	1.32E-04	1.32E-04	1.21E-04	1.38E-06	1.06E-03	6.18E-03	3.28E-06
IDLE_ELFWF	4	1	1.90E+00	1.90E+00	1.75E+00	1.99E-02	1.53E+01	8.89E+01	4.72E-02	1.32E-04	1.32E-04	1.21E-04	1.38E-06	1.06E-03	6.18E-03	3.28E-06	1.32E-04	1.32E-04	1.21E-04	1.38E-06	1.06E-03	6.18E-03	3.28E-06
IDLE_S1WF	4	1	1.90E+00	1.90E+00	1.75E+00	1.99E-02	1.53E+01	8.89E+01	4.72E-02	1.32E-04	1.32E-04	1.21E-04	1.38E-06	1.06E-03	6.18E-03	3.28E-06	1.32E-04	1.32E-04	1.21E-04	1.38E-06	1.06E-03	6.18E-03	3.28E-06
EQ_ELFWF	38	1	1.99E+01	1.99E+01	1.99E+01	1.04E+00	0.00E+00	8.81E+02	2.84E+00	1.45E-04	1.45E-04	1.45E-04	7.60E-06	0.00E+00	6.44E-03	2.08E-05	1.45E-04	1.45E-04	1.45E-04	7.60E-06	0.00E+00	6.44E-03	2.08E-05
EQ_S1WF	40	1	2.09E+01	2.09E+01	2.09E+01	1.08E+00	0.00E+00	9.00E+02	3.05E+00	1.45E-04	1.45E-04	1.45E-04	7.49E-06	0.00E+00	6.25E-03	2.12E-05	1.45E-04	1.45E-04	1.45E-04	7.49E-06	0.00E+00	6.25E-03	2.12E-05
EQ_S1CAP	4	1	2.01E+00	2.01E+00	2.01E+00	7.15E-02	0.00E+00	3.54E+01	4.16E-01	1.39E-04	1.39E-04	1.39E-04	4.96E-06	0.00E+00	2.46E-03	2.89E-05	1.39E-04	1.39E-04	1.39E-04	4.96E-06	0.00E+00	2.46E-03	2.89E-05
UR_SOCL	142	18	8.38E+00	8.38E+00	3.09E+00	4.62E-02	1.11E+01	8.56E+01	2.74E-01	1.27E-02	2.13E-03	2.17E-04	9.03E-08	2.18E-05	1.67E-04	5.36E-07	7.07E-04	1.18E-04	1.21E-05	5.02E-09	1.21E-06	9.30E-06	2.98E-08
UR_ELFWF	74	14	6.17E+00	6.17E+00	2.32E+00	4.18E-02	7.29E+00	6.14E+01	2.48E-01	1.88E-02	3.47E-03	3.53E-04	1.57E-07	2.74E-05	2.30E-04	9.30E-07	1.34E-03	2.48E-04	2.52E-05	1.12E-08	1.95E-06	1.65E-05	6.64E-08
UR_SLFCAP	8	124	3.37E+00	3.37E+00	1.63E+00	3.65E-02	3.65E+00	3.90E+01	2.29E-01	1.26E-01	2.33E-02	2.37E-03	1.27E-06	1.27E-04	1.35E-03	7.94E-06	1.02E-03	1.88E-04	1.92E-05	1.02E-08	1.02E-06	1.09E-05	6.40E-08
PR_W1	174	61	4.49E+01	4.49E+01	1.23E+01	1.14E-01	5.92E+01	3.82E+02	5.30E-01	4.86E-02	6.36E-03	1.54E-03	1.82E-07	9.45E-05	6.09E-04	8.47E-07	7.97E-04	1.04E-04	2.53E-05	2.99E-09	1.55E-06	9.99E-06	1.39E-08
UR_W2	174	5	4.76E+00	4.76E+00	1.91E+00	3.90E-02	5.17E+00	4.82E+01	2.35E-01	5.41E-03	1.00E-03	1.02E-04	6.23E-08	8.26E-06	7.70E-05	3.75E-07	1.08E-03	2.00E-04	2.05E-05	1.25E-08	1.65E-06	1.54E-05	7.50E-08
UR_W3	180	33	2.23E+01	2.23E+01	6.48E+00	7.20E-02	2.89E+01	1.95E+02	3.65E-01	2.93E-02	5.42E-03	5.49E-04	1.11E-07	4.46E-05	3.01E-04	5.64E-07	8.89E-04	1.64E-04	1.66E-05	3.37E-09	1.35E-06	9.11E-06	1.71E-08
UR_W4	284	35	3.43E+01	3.43E+01	9.92E+00	9.48E-02	4.65E+01	3.04E+02	4.71E-01	3.09E-02	5.70E-03	5.76E-04	9.28E-08	4.55E-05	2.98E-04	4.60E-07	8.82E-04	1.63E-04	1.65E-05	2.65E-09	1.30E-06	8.51E-06	1.32E-08
UR_W5	212	10	1.18E+01	1.18E+01	3.87E+00	5.25E-02	1.52E+01	1.11E+02	2.93E-01	1.36E-02	2.52E-03	2.55E-04	6.87E-08	2.00E-05	1.45E-04	3.84E-07	1.36E-03	2.52E-04	2.55E-05	6.87E-09	2.00E-06	1.45E-05	3.84E-08
UR_W6	226	3	3.94E+00	3.94E+00	1.73E+00	3.76E-02	4.24E+00	4.25E+01	2.31E-01	3.80E-03	7.02E-04	7.18E-05	4.62E-08	5.21E-06	5.22E-05	2.84E-07	1.27E-03	2.34E-04	2.39E-05	1.54E-08	1.74E-06	1.74E-05	9.45E-08
UR_W7	220	6	8.00E+00	8.00E+00	2.83E+00	4.52E-02	9.92E+00	7.77E+01	2.63E-01	2.95E-02	9.75E-03	9.78E-04	5.71E-08	1.25E-05	9.81E-05	3.32E-07	4.92E-03	1.63E-03	1.63E-04	9.52E-09	2.09E-06	1.64E-05	5.54E-08
UR_W8	206	9	1.01E+01	1.01E+01	3.39E+00	4.92E-02	1.28E+01	9.56E+01	2.79E-01	1.17E-02	2.17E-03	2.20E-04	6.63E-08	1.73E-05	1.29E-04	3.77E-07	1.30E-03	2.41E-04	2.45E-05	7.37E-09	1.92E-06	1.43E-05	4.18E-08
UR_W9	194	33	3.34E+01	3.34E+01	9.64E+00	9.32E-02	4.51E+01	2.96E+02	4.62E-01	4.37E-02	8.07E-03	8.16E-04	1.33E-07	6.46E-05	4.23E-04	6.61E-07	1.32E-03	2.44E-04	2.47E-05	4.04E-09	1.96E-06	1.28E-05	2.00E-08
UR_S2CON	14	21	2.00E+00	2.00E+00	1.23E+00	3.39E-02	1.61E+00	2.63E+01	2.16E-01	2.79E-02	5.16E-03	5.36E-04	6.73E-07	3.20E-05	5.22E-04	4.29E-06	1.33E-03	2.46E-04	2.55E-05	3.20E-08	1.52E-06	2.49E-05	2.04E-07
UR_S1CAP	8	66	2.66E+00	2.66E+00	1.42E+00	3.52E-02	2.61E+00	3.25E+01	2.22E-01	9.01E-02	1.66E-02	1.70E-03	1.22E-06	9.05E-05	1.13E-03	7.72E-06	1.36E-03	2.52E-04	2.58E-05	1.85E-08	1.37E-06	1.71E-05	1.17E-07

Appendix L20: Hourly Profile of Roadway Traffic Passess

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Hourly Traffic Passess per Roadway

Operation Hours (starting from)		Source ID	Description	Number of Passess per Hour																							
from	to			0000 - 0100	0100 - 0200	0200 - 0300	0300 - 0400	0400 - 0500	0500 - 0600	0600 - 0700	0700 - 0800	0800 - 0900	0900 - 1000	1000 - 1100	1100 - 1200	1200 - 1300	1300 - 1400	1400 - 1500	1500 - 1600	1600 - 1700	1700 - 1800	1800 - 1900	1900 - 2000	2000 - 2100	2100 - 2200	2200 - 2300	2300 - 2400
5	19	PR_QP1	Paved Road at Quarry Plant - Export of Finished Products	0	0	0	0	0	14	14	14	14	14	14	14	14	14	14	14	14	14	14	0	0	0	0	0
5	19	UR_QP2	Unpaved Road at Quarry Plant - Export of Finished Products	0	0	0	0	0	14	14	14	14	14	14	14	14	14	14	14	14	14	14	0	0	0	0	0
5	19	UR_QP3	Unpaved Road at Quarry Plant - between Quarry Face and Quarry Plant	0	0	0	0	0	16	16	16	16	16	16	16	16	16	16	16	16	16	16	0	0	0	0	0
5	19	UR_QP4	Unpaved Road at Quarry Plant - between Quarry Face and Quarry Plant	0	0	0	0	0	16	16	16	16	16	16	16	16	16	16	16	16	16	16	0	0	0	0	0
5	19	EQ_QP	Tailpipe Emission of Onsite Equipment at Quarry Plant	0	0	0	0	0	4	4	4	4	4	4	4	4	4	4	4	4	4	4	0	0	0	0	0
5	19	EQ_QF	Tailpipe Emission of Onsite Equipment at Quarry Working Face	0	0	0	0	0	4	4	4	4	4	4	4	4	4	4	4	4	4	4	0	0	0	0	0
5	19	PR_AP1	Paved Road at Asphalt Plant - to/from Asphalt Plant Entrance	0	0	0	0	0	12	12	12	12	12	12	12	12	12	12	12	12	12	12	0	0	0	0	0
5	19	UR_AP2	Unpaved Road at Asphalt Plant - between Entrance and Asphalt Plant	0	0	0	0	0	12	12	12	12	12	12	12	12	12	12	12	12	12	12	0	0	0	0	0
5	19	EQ_AP	Tailpipe Emission of Onsite Equipment at Asphalt Plant	0	0	0	0	0	4	4	4	4	4	4	4	4	4	4	4	4	4	4	0	0	0	0	0
7	17	PR_CF1	Paved Road at Compost Facility - Inbound and Outbound Delivery	0	0	0	0	0	0	0	18	18	18	18	18	18	18	18	18	18	0	0	0	0	0	0	0
7	17	UR_CF2	Unpaved Road at Compost Facility - Inbound and Outbound Delivery	0	0	0	0	0	0	0	18	18	18	18	18	18	18	18	18	18	0	0	0	0	0	0	0
7	17	EQ_CF	Tailpipe Emission of Onsite Equipment at Compost Facility	0	0	0	0	0	0	0	12	12	12	12	12	12	12	12	12	12	0	0	0	0	0	0	0
5	19	EQ_SOIL	Tailpipe Emission of Onsite Equipment at Soil Pile	0	0	0	0	0	4	4	4	4	4	4	4	4	4	4	4	4	4	4	0	0	0	0	0
7	17	IDLE_WEIGH	Trucks Idling at the Weigh Scale	0	0	0	0	0	0	0	4	4	4	4	4	4	4	4	4	4	0	0	0	0	0	0	0
7	17	IDLE_ELFWF	Trucks Idling at the Working Face of East Landfill	0	0	0	0	0	0	0	4	4	4	4	4	4	4	4	4	4	0	0	0	0	0	0	0
7	17	IDLE_S1WF	Trucks Idling at the Working Face of South Landfill Phase 2 - Stage 1	0	0	0	0	0	0	0	4	4	4	4	4	4	4	4	4	4	0	0	0	0	0	0	0
6	18	EQ_ELFWF	Tailpipe Emission of Onsite Equipment at Working Face of East Landfill	0	0	0	0	0	0	2	38	38	38	38	38	38	38	38	38	38	2	0	0	0	0	0	0
6	18	EQ_S1WF	Tailpipe Emission of Onsite Equipment at Working Face of South Landfill Phase 2 - Stage 1	0	0	0	0	0	0	2	38	38	38	38	38	38	38	38	38	38	2	0	0	0	0	0	0
7	17	EQ_S1CAP	Tailpipe Emission of Onsite Equipment at Final Capping Construction Area of South Landfill Phase 2 - Stage 1	0	0	0	0	0	0	0	4	4	4	4	4	4	4	4	4	4	0	0	0	0	0	0	0
7	18	UR_SOCL	Unpaved Road - Transport of Soil and Clay between Soil Pile and Working Face and Construction Areas	0	0	0	0	0	0	0	38	38	38	38	38	38	38	38	38	38	104	0	0	0	0	0	0
7	18	UR_ELFWF	Unpaved Road at East Landfill - Transport of Soil between Waste Soil Pile and Working Face	0	0	0	0	0	0	0	46	36	38	32	34	34	34	44	28	16	28	0	0	0	0	0	0
7	17	UR_SLFCAP	Unpaved Road at South Landfill Phase 1 - Transport of Clay between Soil Pile and Final Capping Construction A	0	0	0	0	0	0	0	8	8	8	8	8	8	8	8	8	8	0	0	0	0	0	0	0
7	17	PR_W1	Paved Road - Transport of Waste between Entrance and Weigh Scale	0	0	0	0	0	0	0	174	140	146	124	134	134	134	168	108	62	0	0	0	0	0	0	0
7	17	UR_W2	Unpaved Road at - Transport of Waste between Weigh Scale and Working Face	0	0	0	0	0	0	0	174	140	146	124	134	134	134	168	108	62	0	0	0	0	0	0	0
7	17	UR_W3	Unpaved Road - Transport of Clay and Waste between Weigh Scale and Working Face	0	0	0	0	0	0	0	180	146	152	130	140	140	140	174	114	68	0	0	0	0	0	0	0
7	18	UR_W4	Unpaved Road - Transport of Soil, Clay and Waste between Weigh Scale and Working Face	0	0	0	0	0	0	0	180	146	152	130	140	140	140	174	114	68	104	0	0	0	0	0	0
7	18	UR_W5	Unpaved Road - Transport of Soil, Clay and Waste between Weigh Scale and Working Face	0	0	0	0	0	0	0	136	112	116	100	108	108	108	132	88	54	76	0	0	0	0	0	0
5	19	UR_W6	Unpaved Road - Transport of Rock, Soil, Clay and Waste between Weigh Scale and Working Face	0	0	0	0	0	14	14	150	126	130	114	122	122	122	146	102	68	90	14	0	0	0	0	0
5	19	UR_W7	Unpaved Road - Transport of Rock, Soil, Clay and Waste between Weigh Scale and Working Face	0	0	0	0	0	14	14	144	120	124	108	116	116	116	140	96	62	90	14	0	0	0	0	0
7	18	UR_W8	Unpaved Road - Transport of Soil, Clay and Waste between Weigh Scale and Working Face	0	0	0	0	0	0	0	130	106	110	94	102	102	102	126	82	48	76	0	0	0	0	0	0
7	18	UR_W9	Unpaved Road - Transport of Soil and Waste between Weigh Scale and Working Face	0	0	0	0	0	0	0	118	94	98	82	90	90	90	114	70	36	76	0	0	0	0	0	0
7	17	UR_S2CON	Unpaved Road - Transport of Clay between Soil Pile and Cell Construction Area	0	0	0	0	0	0	0	14	14	14	14	14	14	14	14	14	14	0	0	0	0	0	0	0
7	17	UR_S1CAP	Unpaved Road - Transport of Clay between Soil Pile and Final Capping Construction Area	0	0	0	0	0	0	0	8	8	8	8	8	8	8	8	8	8	0	0	0	0	0	0	0

Appendix L21: Wind Erosion Emissions

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

INDUSTRIAL WIND EROSION - AP-42 Section 13.2.5

Meteorological Station Anemometer height, z (m):	10	
Maximum recorded hourly wind speed (m/s):	16.03	
Fastest Mile Wind Speed (m/s):	18.4	**[1]**
Shear Velocity u* (m/s):	0.909	**[2]**

Prandtl-von Kármán Equation: $u^* = u_z\, k / \ln(z / z_o)$, k = 0.4

Emission factor: $E = K \Sigma P_i$ (i from 1 to N)

Erosion potential function: $P = 58 (u^* - u_t^*)^2 + 25 (u^* - u_t^*)$

$P = 0$ for $u^* \le u_t^*$

u* shear / friction velocity (m/s)
u_z wind speed at height z (m/s)
k von Kármán's contstant
K particle size multiplier (1, 0.6, 0.5 and 0.075 for TSP, PM_{15}, PM_{10} and $PM_{2.5}$, respectively)
z_o surface roughness length (m)
z anemometer height (m)

ID [3]	Pile	z_o (m)	u*	u_t^* [3] (m/s)	Number of Disturbances [4] Hourly (#/h)	Daily (#/d)	Annual (#/a)	Area Disturbed [5] (m^2)	Maximum Erosion Potential	Base AP-42 Emission Factor TSP (g/m^2)	PM_{10} (g/m^2)	$PM_{2.5}$ (g/m^2)	Base Emission Rate TSP (g/s)	PM_{10} (g/s)	$PM_{2.5}$ (g/s)	Additional Control Efficiency Applied (%)	Final Controlled Emission Rate at 16.03 m/s TSP (g/s)	Data Quality Rating	PM_{10} (g/s)	Data Quality Rating	$PM_{2.5}$ (g/s)	Data Quality Rating
WE_APRAP	Wind Erosion from Recycled Asphalt Pavement (RAP) Stockpile	0.003	0.909	1.02	1	1	1	5350	0.000	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0%	0.0E+00	E	0.0E+00	E	0.0E+00	E
WE_QPFP1	Wind Erosion from Quarry Finished Product Stockpile (Granular A)	0.003	0.909	1.02	1	1	1	6844	0.000	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0%	0.0E+00	E	0.0E+00	E	0.0E+00	E
WE_QPFP2	Wind Erosion from Quarry Finished Product Stockpile (Granular B)	0.003	0.909	1.02	1	1	1	5100	0.000	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0%	0.0E+00	E	0.0E+00	E	0.0E+00	E
WE_QPFP3	Wind Erosion from Quarry Finished Product Stockpile (Granular M)	0.003	0.909	1.02	1	1	1	2520	0.000	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0%	0.0E+00	E	0.0E+00	E	0.0E+00	E
WE_QPFP4	Wind Erosion from Quarry Finished Product Stockpile (Screenings)	0.003	0.909	1.02	1	1	1	576	0.000	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0%	0.0E+00	E	0.0E+00	E	0.0E+00	E
WE_QPFP5	Wind Erosion from Quarry Finished Product Stockpile (Clear Stone)	0.003	0.909	1.02	1	1	1	2820	0.000	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0%	0.0E+00	E	0.0E+00	E	0.0E+00	E
WE_QPFP6	Wind Erosion from Quarry Finished Product Stockpile (Sand)	0.003	0.909	1.02	1	1	1	2432	0.000	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0%	0.0E+00	E	0.0E+00	E	0.0E+00	E
WE_ELFIC	Wind Erosion from Areas under Interim Cover at East Landfill	0.003	0.909	1.02	1	1	1	57,103	0.000	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0%	0.0E+00	E	0.0E+00	E	0.0E+00	E
WE_SLFIC	Wind Erosion from Areas under Interim Cover at South Landfill	0.003	0.909	1.02	1	1	1	123,843	0.000	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0%	0.0E+00	E	0.0E+00	E	0.0E+00	E
WE_S1IC	Wind Erosion from Areas under Interim Cover at South Landfill	0.003	0.909	1.02	1	1	1	187,524	0.000	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0%	0.0E+00	E	0.0E+00	E	0.0E+00	E
WE_S2CON	Wind Erosion from Cell Construction Area at South Landfill Phase 2 - Stage 2	0.003	0.909	1.02	1	1	1	4,000	0.000	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0%	0.0E+00	E	0.0E+00	E	0.0E+00	E
WE_S1CAP	Wind Erosion from Final Capping Construction Area at South Landfill Phase 2 -	0.003	0.909	1.02	1	1	1	4,000	0.000	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0%	0.0E+00	E	0.0E+00	E	0.0E+00	E
WE_SOIL	Wind Erosion from Waste Soil Stockpile	0.003	0.909	1.02	1	1	1	37,767	0.000	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0%	0.0E+00	E	0.0E+00	E	0.0E+00	E

Notes:

[1] Speed-up factor to convert hourly mean wind speeds to fastest mile wind gust taken from Durst curve for in North America (1.15).
(Krayer, William R>, Marshall, Richard D. 1992: Gust Factors Applied to Hurrican Winds. Bulletin of the American Meteorological Society, Vol. 73, No. 5, May 1992)

[2] Used for sample calculations & factor validation

[3] Typical threshold friction veolocities can be taken from Table 13.2.5-2 of AP-42, or other suitable sources.

[4] Reflects the estimated maximum number of disturbances for each pile within the specified time period.

[5] Estimated from type of operations (e.g., loader operations, scraper activity, etc.)

Sample Calculations

Shear Velocity: = (18.4345 m/s) x 0.4 / LN ((10 m) / (0.003 m)) = 0 m/s

Maximum Erosion Potential: 0.909 m/s < 1.02 m/s therefore no erosion potential

TSP Emission Factor: no erosion poetntial

Base Emission Rate: no erosion poetntial

Appendix L22: Bulk Material Handling Emissions

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

AGGREGATE HANDLING AND STORAGE PILES - AP-42 Section 13.2.4

Average recorded hourly wind speed (m/s): 3.9
(used for sample calculations & factor validation)

Material handling emissions: $E = 0.0016\ k\ (U / 2.2)^{1.3} / (M / 2)^{1.4}$

- **E** emission factor
- **k** particle size multiplier (0.8, 0.35 and 0.053 for TSP, PM_{10} and $PM_{2.5}$) [3]
- **U** mean wind speed, meters per second (m/s)
- **M** material moisture content (%)

Source ID [1]	Description	Processing Rate		Site Data				Base AP-42 Emission Factor			Base Emission Rate			Additional Control Efficiency Applied	Final Controlled Emission Rate at 3.9 m/s					
		Hourly	Daily	Site Specific Data?	Silt Content	Moisture Content	Source Conditions Valid [2]	TSP	PM_{10}	$PM_{2.5}$	TSP	PM_{10}	$PM_{2.5}$		TSP	Data Quality Rating	PM_{10}	Data Quality Rating	$PM_{2.5}$	Data Quality Rating
		(Mg/h)	(Mg/d)	(y/n)	(%)	(%)		(kg/Mg)	(kg/Mg)	(kg/Mg)	(g/s)	(g/s)	(g/s)	(%)	(g/s)		(g/s)		(g/s)	
Walker Environmental Group Inc. – Landfill																				
SDrop_Soil	Soil Drop off at Waste Soil Pile	203	2034	y	56.5%	32.8%	silt too high	5.37E-05	2.35E-05	3.56E-06	3.03E-03	1.33E-03	2.01E-04		3.03E-03	B	1.33E-03	B	2.01E-04	B
SPick_Soil	Soil Pick up from Waste Soil Pile	1364	1364	y	56.5%	32.8%	silt too high	5.37E-05	2.35E-05	3.56E-06	2.03E-02	8.89E-03	1.35E-03		2.03E-02	B	8.89E-03	B	1.35E-03	B
SDrop_ELFWF	Soil Drop off at Working Face of East Landfill	364	364	y	56.5%	32.8%	silt too high	5.37E-05	2.35E-05	3.56E-06	5.42E-03	2.37E-03	3.59E-04		5.42E-03	B	2.37E-03	B	3.59E-04	B
SDrop_S1WF	Soil Drop off at Working Face of South Landfill Phase 2 - Stage 1	1000	1000	y	56.5%	32.8%	silt too high	5.37E-05	2.35E-05	3.56E-06	1.49E-02	6.52E-03	9.88E-04		1.49E-02	B	6.52E-03	B	9.88E-04	B
DROP_SLFCAP	Clay Drop off at Final Capping Area of South Landfill Phase 1	98	981	y	56.5%	32.8%	silt too high	5.37E-05	2.35E-05	3.56E-06	1.46E-03	6.39E-04	9.68E-05		1.46E-03	B	6.39E-04	B	9.68E-05	B
DROP_S2CON	Clay Drop off at Cell Construction Area of South Landfill Phase 2 - Stage 2	203	2034	y	56.5%	32.8%	silt too high	5.37E-05	2.35E-05	3.56E-06	3.03E-03	1.32E-03	2.00E-04		3.03E-03	B	1.32E-03	B	2.00E-04	B
DROP_S1CAP	Clay Drop off at Final Capping Construction Area of South Landfill Phase 2 - Stage 1	98	981	y	56.5%	32.8%	silt too high	5.37E-05	2.35E-05	3.56E-06	1.46E-03	6.39E-04	9.68E-05		1.46E-03	B	6.39E-04	B	9.68E-05	B
Walker Aggregates Inc. - Quarry and Asphalt Plant																				
QPPIKUP1	Granular A Loading at Processing Plant (Finished Product)	600	8400	n	1.6%	2.1%	valid	2.52E-03	1.10E-03	1.67E-04	4.19E-01	1.83E-01	2.78E-02		4.19E-01	B	1.83E-01	B	2.78E-02	B
QPPIKUP2	Granular B Loading at Processing Plant (Finished Product)	130	1820	n	1.6%	2.1%	valid	2.52E-03	1.10E-03	1.67E-04	9.09E-02	3.98E-02	6.02E-03		9.09E-02	B	3.98E-02	B	6.02E-03	B
QPPIKUP3	Granular M Loading at Processing Plant (Finished Product)	30	420	n	1.6%	2.1%	valid	2.52E-03	1.10E-03	1.67E-04	2.10E-02	9.17E-03	1.39E-03		2.10E-02	B	9.17E-03	B	1.39E-03	B
QPPIKUP4	Screenings Loading at Processing Plant (Finished Product)	10	140	n	1.6%	2.1%	valid	2.52E-03	1.10E-03	1.67E-04	6.99E-03	3.06E-03	4.63E-04		6.99E-03	B	3.06E-03	B	4.63E-04	B
QPPIKUP5	Clear Stone Loading at Processing Plant (Finished Product)	200	2800	n	1.6%	2.1%	valid	2.52E-03	1.10E-03	1.67E-04	1.40E-01	6.12E-02	9.26E-03		1.40E-01	B	6.12E-02	B	9.26E-03	B
QPPIKUP6	Sand Loading at Processing Plant (Finished Product)	30	420	n	1.6%	2.1%	valid	2.52E-03	1.10E-03	1.67E-04	2.10E-02	9.17E-03	1.39E-03		2.10E-02	B	9.17E-03	B	1.39E-03	B
RAPPILE	Loading RAP to RAP stockpile	67	931	n	1.6%	2.1%	valid	2.52E-03	1.10E-03	1.67E-04	4.65E-02	2.03E-02	3.08E-03		4.65E-02	B	2.03E-02	B	3.08E-03	B
RAPDUMP	Loading RAP to Plant	67	931	n	1.6%	2.1%	valid	2.52E-03	1.10E-03	1.67E-04	4.65E-02	2.03E-02	3.08E-03		4.65E-02	B	2.03E-02	B	3.08E-03	B
Niagara Biosolids Facility and Compost Facility																				
DROPOFF	Receiving Leaf & yard Material in Open Windrow Area	100	1000	n	9%	10%	moisture too high	2.83E-04	1.24E-04	1.88E-05	7.86E-03	3.44E-03	5.21E-04		7.86E-03	C	3.44E-03	C	5.21E-04	C
MOVE1	Movement of Material into Windrow (Open Windrow area)	100	1000	n	9%	10%	moisture too high	2.83E-04	1.24E-04	1.88E-05	7.86E-03	3.44E-03	5.21E-04		7.86E-03	C	3.44E-03	C	5.21E-04	C
MOVE2	Movement of Material into Windrow (GORE area)	100	1000	n	9%	10%	moisture too high	2.83E-04	1.24E-04	1.88E-05	7.86E-03	3.44E-03	5.21E-04		7.86E-03	C	3.44E-03	C	5.21E-04	C
SCRTSP	Drop at Screening Area	100	1000	n	9%	10%	moisture too high	2.83E-04	1.24E-04	1.88E-05	7.86E-03	3.44E-03	5.21E-04		7.86E-03	C	3.44E-03	C	5.21E-04	C
FSTPL	Drop at Final Stockpile	100	1000	n	9%	10%	moisture too high	2.83E-04	1.24E-04	1.88E-05	7.86E-03	3.44E-03	5.21E-04		7.86E-03	C	3.44E-03	C	5.21E-04	C
FP	Loading of Material for Shipment Off-Site	100	1000	n	9%	10%	moisture too high	2.83E-04	1.24E-04	1.88E-05	7.86E-03	3.44E-03	5.21E-04		7.86E-03	C	3.44E-03	C	5.21E-04	C

Notes:

[1] Relates to AP-42 Section 13.2.4-4

[2] k-factor for TSP (PM44) scaled up logarithmically to 0.8 from published k-factor of 0.74 which refers to PM30.

Comments

Maximum shipping rate of finished stone products is 1000 tonnes per hour (e-mail dated November 28, 2014)
Shipping of finished stone products typically occurs during 5am to 7pm.
Material handling for daily cover application of South Landfill Phase 2 (SLF2) is 1,000 Mg/day (provided by WEG on March 19, 2026).
Material handling for daily cover application of East Landfill is scaled from that of SLF2, based on the annual waste receipt.
Annual waste receipt for East Landfill and SLF2 are 400,000 tonnes/yr and 1,100,000 tonnes/yr respectively.
Daily cover application at both East Landfill and South Landfill Phase 2 spans 1 hour from 4:30pm to 5:30pm (for modelling purpose it was modelled during 5pm to 6pm).
Material handling for clay for cell and final capping construction are estimated based on the total amount (provided by WEG on March 19, 2026) and the length of construction period.
Material handling for Compost Facility sources is based on processing capacity of equipment in building (100 tonnes per hour)
Silt content and moisture conent for quarry and asphalt plants and Compost Facility are extracted from their own ESDM report.
Silt content and moisture conent for soil and clay pickup/drop-off at landfill are based on on-site sampling data.

Sample calculation for uncontrolled TSP emission factor for Source SDrop_Soil: Soil Drop off at Waste Soil Pile, at a sample wind speed of 3.9 m/s

EF = 0.0016 x (0.8) x ((3.9 m/s) / 2.2)^1.3 / ((32.8%) / 2)^1.4 = 5.37E-05 kg TSP / Mg handled

Sample calculation for TSP emission rate for Source DROP_S1CAP: Clay Drop off at Final Capping Construction Area of South Landfill Phase 2 - Stage 1, at a sample wind speed of 5 m/s

$$\frac{203\ Mg_{handled}}{1\ h} \times \frac{5.37E\text{-}05\ kg_{TSP}}{1\ Mg_{handled}} \times \frac{1\ h}{3600\ s} \times \frac{1000\ g_{TSP}}{1\ kg_{TSP}} \times \frac{1\ g_{TSP\ uncontrolled}}{1\ g_{TSP}} = 3.03E\text{-}03\ g_{TSP} / s$$

Appendix L23: Bulldozing Emission Rate Calculations

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Western Surface Coal Mining AP -42 Section 11.9 (11.9-2, 11.9-4)

Total Parti PM10 PM2.5

ID	Process Name / Description	AP-42 Process Description	Process Code	AP-42 Chapter	Activity Rate			Units	Additional Parameters				Base AP-42 Emission Factor				Base Emission Rate			Additional Control Efficiency Applied [5] (%)	Final Controlled Emission Rate					
					Hourly (units/h)	Daily (units/d)	Annual (units/a)		Material Moisture Content [1] (%)	Material Silt Content [2] (%)	Drop Height [3] (m)	Mean Vehicle Speed [4] (km/h)	TSP	PM_{10}	$PM_{2.5}$	Units	TSP (g/s)	PM_{10} (g/s)	$PM_{2.5}$ (g/s)		TSP (g/s)	Data Quality Rating	PM_{10} (g/s)	Data Quality Rating	$PM_{2.5}$ (g/s)	Data Quality Rating
DOZER_Soil	Bulldozer at Waste Soil Pile - Fugitive dust	Bulldozing - overburden	4	Table 11.9-2	1	-	-	hours of operation	32.8	56.5	-	-	3.52E+00	1.08E+00	3.70E-01	kg/hr	9.78E-01	3.00E-01	1.03E-01		9.78E-01	B	3.00E-01	D	1.03E-01	D
DOZER_S1WF	Bulldozer at Working Face of South Landfill Phase 2 - Stage 1 - Fugitive du	Bulldozing - overburden	4	Table 11.9-2	1	-	-	hours of operation	32.8	56.5	-	-	3.52E+00	1.08E+00	3.70E-01	kg/hr	9.78E-01	3.00E-01	1.03E-01		9.78E-01	B	3.00E-01	D	1.03E-01	D
DOZER_S1CAP	Bulldozer at Final Capping Construction Area of South Landfill Phase 2 - St	Bulldozing - overburden	4	Table 11.9-2	1	-	-	hours of operation	32.8	56.5	-	-	3.52E+00	1.08E+00	3.70E-01	kg/hr	9.78E-01	3.00E-01	1.03E-01		9.78E-01	B	3.00E-01	D	1.03E-01	D

Notes:

[1] Applies to truck loading, bulldozing and dragline operations only

[2] Applies to bulldozing operations only

[3] Applies to dragline operations only

[4] Applies to grading operations only

[5] Enter the control efficiency for each source - if no controls are applied, leave blank

Sample calculations for TSP emission factor for DOZER_Soil: Bulldozer at Waste Soil Pile - Fugitive dust

TSP Emission Factor = 2.6 x 56.5^1.2 / 32.8^1.3 = 3.52E+00 kg/hr

Sample calculations for TSP emission rate for DOZER_Soil: Bulldozer at Waste Soil Pile - Fugitive dust

$$\frac{3.52E+00\ kg_{TSP}}{1\ hour} \left| \frac{1\ h}{3600\ s} \right| \frac{1000\ g_{TSP}}{1\ kg_{TSP}} = 9.78E-01\ g_{TSP}/s$$

Appendix L24: Blasting Operations Emission

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

WESTERN SURFACE COAL MINING - AP-42 Section 11.9
EXPLOSIVES DETONATION - AP-42 Section 13.3

Blasting operation particulate emissions: $E = 0.00022\ k * A^{1.5}$

E emission factor
k particle size multiplier (1, 0.52 and 0.03 for TSP, PM_{10} and $PM_{2.5}$)
A blast surface area (m^2)

Source ID	Source Description	Total Blast Area (m^2)	Explosive Type		Number of Blasts			Base AP-42 Emission Factor			Base Emission Rate			Additional Control Efficiency Applied (%)	Final Controlled Emission Rate					
					Hourly	Daily	Annual	TSP (kg/blast)	PM_{10} (kg/blast)	$PM_{2.5}$ (kg/blast)	TSP (g/s)	PM_{10} (g/s)	$PM_{2.5}$ (g/s)		TSP (g/s)	Data Quality Rating	PM_{10} (g/s)	Data Quality Rating	$PM_{2.5}$ (g/s)	Data Quality Rating
QBLAST	Blasting at Working Face	346	ANFO		1	2	730	1.42E+00	7.36E-01	4.25E-02	3.93E-01	2.05E-01	1.18E-02	0%	3.93E-01	C	2.05E-01	C	1.18E-02	C

Sample calculation for uncontrolled TSP emission factor for Source QBLAST: Blasting at Working Face.

EF = 0.00022 x (1) x (346 m)^1.5 = 1.42E+00 kg TSP / blast

Sample calculation for TSP emission rate for Source QBLAST: Blasting at Working Face.

$$\frac{1\ \text{blast}}{1\ \text{h}} \times \frac{1.4\text{E+00}\ \text{kg}_{TSP}}{1\ \text{blast}} \times \frac{1\ \text{h}}{3600\ \text{s}} \times \frac{1000\ \text{g}_{TSP}}{1\ \text{kg}_{TSP}} \times \frac{1\ \text{g}_{TSP\ uncontrolled}}{1\ \text{g}_{TSP}} = 3.93\text{E-01}\ \text{g}_{TSP}/\text{s}$$

Comments
Height of wall = 44ft (13.4m)
Blast area provided via email on February 3, 2015: the typical blasting area is 3720 square feet.

Appendix L25: Processing Emissions

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Soource ID [1]	Source Description / Process Decription	AP-42 Process Description [1]	Process Code	AP-42 Chapter	Processing Rate			Base AP-42 Emission Factor			Base Emission Rate			Additional Control Efficiency Applied	Final Controlled Emission Rate					
					Hourly (Mg/h)	Daily (Mg/d)	Annual (Mg/a)	TSP [3] (kg/Mg)	PM_{10} (kg/Mg)	$PM_{2.5}$ (kg/Mg)	TSP (g/s)	PM_{10} (g/s)	$PM_{2.5}$ (g/s)	(%) [4][5][6][7][8]	TSP (g/s)	Data Quality Rating	PM_{10} (g/s)	Data Quality Rating	$PM_{2.5}$ (g/s)	Data Quality Rating
Walker Aggregates Inc. - Quarry and Asphalt Plant																				
QP1CRUSH	Primary Crusher - Material Handled as per EA	Primary crushing (controlled)	6	11.19.2-1	800	11,200		3.40E-04	2.70E-04	5.00E-05	7.56E-02	6.00E-02	1.11E-02	70%	2.27E-02	E	1.80E-02	E	3.33E-03	E
QPSCALP	Scalping Screen - Material Handled as per EA	Screening (controlled)	2	11.19.2-1	800	11,200		5.60E-04	3.70E-04	2.50E-05	1.24E-01	8.22E-02	5.56E-03	70%	3.73E-02	E	2.47E-02	C	1.67E-03	E
QP2CRUSH	Secondary Crusher - Material Handled as per EA	Secondary crushing (controlled)	7	11.19.2-1	560	7,840		3.40E-04	2.70E-04	5.00E-05	5.29E-02	4.20E-02	7.78E-03	70%	1.59E-02	E	1.26E-02	E	2.33E-03	E
QPSIZING	Sizing Screen - Material Handled as per EA	Screening (controlled)	2	11.19.2-1	560	7,840		5.60E-04	3.70E-04	2.50E-05	8.71E-02	5.76E-02	3.89E-03	70%	2.61E-02	E	1.73E-02	C	1.17E-03	E
QPCLASS	Classifier	Classifiers (Dry) with Fabric Filter Control (controlled)	19	11.19.2-3	75	1,050		1.12E-02	5.20E-03	2.00E-03	2.33E-01	1.08E-01	4.17E-02	70%	7.00E-02	E	3.25E-02	E	1.25E-02	E
QPCCRUSH	Cone Crusher #3	Tertiary crushing (controlled) [9]	8	11.19.2-1	200	2,800		3.40E-04	2.70E-04	5.00E-05	1.89E-02	1.50E-02	2.78E-03	70%	5.67E-03	E	4.50E-03	C	8.33E-04	E
QPSIZNG2	Screen #2 - After Cone Crusher	Screening (controlled)	2	11.19.2-1	200	2,800		5.60E-04	3.70E-04	2.50E-05	3.11E-02	2.06E-02	1.39E-03	70%	9.33E-03	E	6.17E-03	C	4.17E-04	E
QPDROP3	Quarry Drop Point at Granular A	Conveyor transfer point (controlled)	14	11.19.2-1	328	4,592		3.70E-05	2.30E-05	6.50E-06	3.37E-03	2.10E-03	5.92E-04		3.37E-03	E	2.10E-03	D	5.92E-04	E
QPDROP4	Quarry Drop Point at Surge Pile	Conveyor transfer point (controlled)	14	11.19.2-1	328	4,592		3.70E-05	2.30E-05	6.50E-06	3.37E-03	2.10E-03	5.92E-04		3.37E-03	E	2.10E-03	D	5.92E-04	E
QPDROP5	Quarry Drop Point at sand/concrete stone	Conveyor transfer point (controlled)	14	11.19.2-1	328	4,592		3.70E-05	2.30E-05	6.50E-06	3.37E-03	2.10E-03	5.92E-04		3.37E-03	E	2.10E-03	D	5.92E-04	E
QPLOAD	Quarry Handling: Truck Loading at Quarry Working Face	Truck unloading - fragmented stone	16	11.19.2-1	800	11,200		1.10E-05	8.00E-06	1.20E-06	2.44E-03	1.78E-03	2.67E-04		2.44E-03	E	1.78E-03	E	2.67E-04	E
QPDUMP	Quarry Handling: Truck Unloading at Processing Plant	Truck unloading - fragmented stone	16	11.19.2-1	800	11,200		1.10E-05	8.00E-06	1.20E-06	2.44E-03	1.78E-03	2.67E-04	70%	7.33E-04	E	5.33E-04	E	8.00E-05	E
QDRILL	Quarry - Drilling at active face (drilling holes for blasting charges)	Wet drilling: unfragmented stone	15	11.19.2-1	1	14		5.70E-05	4.00E-05	6.00E-06	1.58E-05	1.11E-05	1.67E-06		1.58E-05	E	1.11E-05	E	1.67E-06	E
AH_DROP	Drop off of raw material at asphalt plant.	Truck unloading - conveyor: crushed stone	17	11.19.2-1	350	4,900		7.20E-05	5.00E-05	7.50E-06	7.00E-03	4.86E-03	7.29E-04		7.00E-03	E	4.86E-03	E	7.29E-04	E
Niagara Biosolids Facility and Compost Facility																				
SILO_1	Silo #1 Bin Vent	Pneumatic cement unloading to elevated storage silo	24	11.12-1	20	240		3.60E-01	2.40E-01	3.60E-02	2.00E+00	1.33E+00	2.00E-01	99.9%	2.00E-03	E	1.33E-03	E	2.00E-04	E
SILO_2	Silo #2 Bin Vent	Pneumatic cement unloading to elevated storage silo	24	11.12-1	20	240		3.60E-01	2.40E-01	3.60E-02	2.00E+00	1.33E+00	2.00E-01	99.9%	2.00E-03	E	1.33E-03	E	2.00E-04	E
SCREEN1	Screening Emissions	Fines screening (controlled)	12	11.19.2-1	40	480		1.10E-03	1.10E-03	1.65E-04	1.22E-02	1.22E-02	1.83E-03		1.22E-02	E	1.22E-02	E	1.83E-03	E
SCREEN2	Screening Emissions	Fines screening (controlled)	12	11.19.2-1	40	480		1.10E-03	1.10E-03	1.65E-04	1.22E-02	1.22E-02	1.83E-03		1.22E-02	E	1.22E-02	E	1.83E-03	E
SCREEN3	Screening Emissions	Fines screening (controlled)	12	11.19.2-1	75	900		1.10E-03	1.10E-03	1.65E-04	2.29E-02	2.29E-02	3.44E-03		2.29E-02	E	2.29E-02	E	3.44E-03	E
SCREEN4	Screening Emissions	Fines screening (controlled)	12	11.19.2-1	75	900		1.10E-03	1.10E-03	1.65E-04	2.29E-02	2.29E-02	3.44E-03		2.29E-02	E	2.29E-02	E	3.44E-03	E
GRINDR	Fugitive emissions from Grinder	Fines screening (controlled)	12	11.19.2-1	75	900		1.10E-03	1.10E-03	1.65E-04	2.29E-02	2.29E-02	3.44E-03		2.29E-02	E	2.29E-02	E	3.44E-03	E
GRINDR2_N	Fugitive emissions from Grinder #2	Fines screening (controlled)	12	11.19.2-1	75	900		1.10E-03	1.10E-03	1.65E-04	2.29E-02	2.29E-02	3.44E-03		2.29E-02	E	2.29E-02	E	3.44E-03	E
CONV_PM	Stacking Conveyor Fugitive Emissions	Conveyor transfer point (controlled)	14	11.19.2-1	80	960		3.70E-05	2.30E-05	6.50E-06	8.22E-04	5.11E-04	1.44E-04		8.22E-04	E	5.11E-04	D	1.44E-04	E
CONV_PM2_N	Stacking Conveyor #2 Fugitive Emissions	Conveyor transfer point (controlled)	14	11.19.2-1	80	960		3.70E-05	2.30E-05	6.50E-06	8.22E-04	5.11E-04	1.44E-04		8.22E-04	E	5.11E-04	D	1.44E-04	E

Notes:

[1] AP-42 process listed as "controlled" reflects between 70-90% control due to high moisture / water sprays, as described in AP-42 Section 11.19.2.
[2] The "controlled" AP-42 emission factors were used, rather than the "uncontrolled" factors.
[3] AP-42 Emission Factor is based on PM44.
[4] All processing activity (crushing, screening, etc) at the Walker Quarry is controlled using water sprays.
[5] The 70% control factor was developed through a previous study by RWDI (see Appendix D).
[6] Control efficiency of 70% applied to all processing sources to account for the fact that processing sources are enclosed within buildings.
[7] The unprocessed stone drop off at the processing plant is also enclosed in a three-sided building, therefore, the 70% control factor was applied.
[8] Baghouse is installed at the silos, with a 99.9% of control efficiency.
[9] There are no emission factors presented for primary or secondary crushing in AP-42, therefore, the tertiary crushing emission factor was applied.

Comments

Percentage of total material handled by each process was outlined by Keith Porter (Walker Brothers Quarry) during a meeting on June 27, 2005.
The percentages are as follows: Primary crushing 100%, secondary crushing 70%, and tertiary crushing 45%.
Future percentages were assumed to be the same as existing conditions.
Classifier - amount of material that is processed through this piece of equipment was provided by Walker via email.
The maximum processing rate for the classifier is 75 Mg/hour.
Quarry Handling/Drop Point number and location as indicated by Keith Porter during June 27/05 meeting at RWDI office.
Mass of material drilled per hour based on 33 holes drilled in 1.25 days, to a depth of 12.5 meters (41 feet), and a stone density of 2,500 kg/m3.
Material handling for cone crusher and Screen #2 = 200 tonnes per hour, as per call with Keith Porter and Shawn Jordan on November 16, 2006.
Emissions have been corrected to PM44, as AP-42 presents PM100.

Sample calculation for TSP emissions from Source SILO_1: Silo #1 Bin Vent

$$\frac{20\ Mg_{processed}}{1\ h} \times \frac{3.6E\text{-}01\ kg_{TSP}}{1\ Mg_{processed}} \times \frac{1\ h}{3600\ s} \times \frac{1000}{1} \times \frac{0.1\%\ g_{TSP\ uncontrolled}}{1\ g_{TSP}} = 2.0E\text{-}03\ g_{TSP}/s$$

Appendix L26: Hot Mix Asphalt Data

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

HOT MIX ASPHALT PLANTS - AP-42 Section 11.1

General Information		
Natural Gas Heating Value	1020	BTU/scf
Atmospheric Pressure	101.325	kPa
Gas Constant	8.314	L kPa / mol k
Aggregate silica content:	1.8	%
Hot Mix Asphalt Production Information		
Operating Hours	14	hours/day
	275	days/year, March - November, inclusive
HMA Production	350	Mg/hour
	4900	Mg/day
	250000	Mg/year, based on Walker estimates
HMA Load Out		Mg/hour
		Mg/day
		Mg/year
AC Usage	17.5	Mg/hour
	245	Mg/day
	12500	Mg/year
RAP Usage	66.5	Mg/hour
	931	Mg/day
	47500	Mg/hour
Stone Usage	133	Mg/hour
	1862	Mg/day
	95000	Mg/hour
Sand Usage	133	Mg/hour
	1862	Mg/day
	95000	Mg/hour
Hot Mix Asphalt Silo Information		
Number of AC Tanks	2	
HMA Silo Capacity	200	tonnes each
Maximum Daily Silo Filling Rate	2000	Mg/day (maximum 5 fills of each silo per 24-hr period, as per Matthew McMahon 180820)
HMA Silo Height	80	feet
	24.4	m
AC Tank Diameter	17	feet
	5.2	m
HMA Temperature	350	°F (e-mail from Matthew McMahon, 171027)

Appendix L27: Asphalt Plant Mixer Emissions

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

HOT MIX ASPHALT PLANTS - AP-42 Section 11.1

Source ID	Source Description	Contaminant	CAS Number	Emission Factor		Data Quality		Source	Emission Rate (g/s)
				(lb/ton HMA)	(kg/Mg HMA)	AP-42	MOE		
ASPH_DC (max hourly)	Natural Gas Batch Mixer with Fabric Filter	Nitrogen Oxides (NOx)	10102-44-0	2.50E-02	1.25E-02	D	Marginal	Table 11.1-5	1.22E+00
		Sulphur Dioxide (SO2)	7446-09-5	4.60E-03	2.30E-03	E	Marginal	Table 11.1-5	2.24E-01
		TSP	n/a - TSP	4.20E-02	2.10E-02	A	Above-Average	Table 11.1-1	2.04E+00
		PM10	n/a - PM10	9.80E-03	4.90E-03	E	Marginal	Table 11.1-2	4.76E-01
		PM2.5	n/a - PM2.5	8.30E-03	4.15E-03	E	Marginal	Table 11.1-2	4.03E-01
		Benzene	71-43-2	2.80E-04	1.40E-04	D	Marginal	Table 11.1-9	1.36E-02
ASPH_DC (max daily)	Natural Gas Batch Mixer with Fabric Filter	Nitrogen Oxides (NOx)	10102-44-0	2.50E-02	1.25E-02	D	Marginal	Table 11.1-5	1.22E+00
		Sulphur Dioxide (SO2)	7446-09-5	4.60E-03	2.30E-03	E	Marginal	Table 11.1-5	2.24E-01
		TSP	n/a - TSP	4.20E-02	2.10E-02	A	Above-Average	Table 11.1-1	2.04E+00
		PM10	n/a - PM10	9.80E-03	4.90E-03	C	Average	Table 11.1-2	4.76E-01
		PM2.5	n/a - PM2.5	8.30E-03	4.15E-03	C	Average	Table 11.1-2	4.03E-01
		Benzene	71-43-2	2.80E-04	1.40E-04	D	Marginal	Table 11.1-9	1.36E-02
ASPH_DC (annual - 275 days)	Natural Gas Batch Mixer with Fabric Filter	Nitrogen Oxides (NOx)	10102-44-0	2.50E-02	1.25E-02	D	Marginal	Table 11.1-5	2.25E-01
		Sulphur Dioxide (SO2)	7446-09-5	4.60E-03	2.30E-03	E	Marginal	Table 11.1-5	4.15E-02
		Particulate Matter	n/a - TSP	4.20E-02	2.10E-02	A	Above-Average	Table 11.1-1	3.79E-01
		PM10	n/a - PM10	9.80E-03	4.90E-03	C	Average	Table 11.1-2	8.84E-02
		PM2.5	n/a - PM2.5	8.30E-03	4.15E-03	C	Average	Table 11.1-2	7.49E-02
		Benzene	71-43-2	2.80E-04	1.40E-04	D	Marginal	Table 11.1-9	2.53E-03

Sample Calculation

TSP Emission Rate (max hourly)

$$\frac{2.10\text{E-}02\ \text{kg TSP}}{1\ \text{Mg HMA}} \times \frac{350\ \text{Mg HMA}}{1\ \text{h}} \times \frac{1000\ \text{g}}{1\ \text{kg}} \times \frac{1\ \text{h}}{3600\ \text{s}} = 2.04\text{E+}00\ \text{g/s}$$

TSP Emission Rate (max daily)

$$\frac{2.10\text{E-}02\ \text{kg TSP}}{1\ \text{Mg HMA}} \times \frac{4900\ \text{Mg HMA}}{1\ \text{day}} \times \frac{1000\ \text{g}}{1\ \text{kg}} \times \frac{1\ \text{day}}{14\ \text{hrs}} \times \frac{1\ \text{hr}}{3600\ \text{s}} = 2.04\text{E+}00\ \text{g/s}$$

TSP Emission Rate (annual)

$$\frac{2.10\text{E-}02\ \text{kg TSP}}{1\ \text{Mg HMA}} \times \frac{250000\ \text{Mg HMA}}{1\ \text{year}} \times \frac{1000\ \text{g}}{1\ \text{kg}} \times \frac{1\ \text{year}}{275\ \text{days}} \times \frac{1\ \text{day}}{14\ \text{hrs}} \times \frac{1\ \text{hr}}{3600\ \text{s}} = 3.79\text{E-}01\ \text{g/s}$$

Appendix L28: Asphalt Plant Asphalt Cement Heater Emissions

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

NATURAL GAS COMBUSTION - AP-42 Section 1.4

Source ID	Source Description	Contaminant	CAS Number	Emission Factor (lb/10^6scf)		Data Quality AP-42	Data Quality MOE	Source	Emission Rate (g/s)
ASPH_HTR	Natural Gas Tank Heater	Nitrogen Oxides (NOx)	10102-44-0	1.00E+02	--	B	Above-Average	Chapter 1.4	2.60E-02
		Sulphur Dioxide (SO2)	7446-09-5	6.00E-01		A	Above-Average	Chapter 1.4	1.56E-04
		TSP	n/a - TSP	7.60E+00	--	D	Marginal	Chapter 1.4	1.97E-03
		PM10	n/a - PM10	7.60E+00	--	D	Marginal	Chapter 1.4	1.97E-03
		PM2.5	n/a - PM2.5	7.60E+00	--	D	Marginal	Chapter 1.4	1.97E-03

Sample Calculation

NOx Emission Rate

$$\frac{1.00E+02\ \text{lb NOx}}{1000000\ \text{scf}} \times \frac{2059\ \text{scf}}{1\ \text{h}} \times \frac{454\ \text{g}}{1\ \text{lb}} \times \frac{1\ \text{h}}{3600\ \text{s}} = 2.60E-02\ \text{g/s}$$

Appendix L29: Asphalt Plant HMA Load Out Emissions

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

HOT MIX ASPHALT PLANTS - AP-42 Section 11.1

From Table 11.1-14	Total PM	EF = 0.000181 + 0.00141(-V)e((0.0251)(T + 460) - 20.43)	8.20E-04	lb/ton HMA
	TOC	EF = 0.0172(-V)e((0.0251)(T + 460) - 20.43)	7.79E-03	lb/ton HMA

Asphalt Loadout Scenarios:

Asphalt can be loaded into trucks in one of two locations: at Mixer (ASPH_LD1) or at Silo (ASPH_LD2). For the peak hourly scenario, both loadouts are assumed to be used at the maximum rate of 350 Mg of HMA per hour. For the peak daily scenario, 2000 Mg of HMA is assumed to be loaded from the Silo (based on a maximum daily silo filling rate of 2000 Mg/day. The remaining 2900 tonnes of HMA are assumed to be loaded at the Mixer. For the annual scenario, the total annual mass of HMA was divided between the Silo and the Mixer based on a ratio of 2000:2900.

Source ID	Source Description	Contaminant	CAS Number	Speciation Profile	Emission Factor		Data Quality		Source	Emission Rate (g/s)
					(lb/ton HMA)	(kg/Mg HMA)	AP-42	MOE		
ASPH_LD1 (max daily)	HMA Load Out at Mixer	TSP	n/a - TSP	n/a	8.20E-04	4.10E-04	C	Average	Table 11.1-14	2.36E-02
		PM10	n/a - PM10	n/a	8.20E-04	4.10E-04	C	Average	Table 11.1-14	2.36E-02
		PM2.5	n/a - PM2.5	n/a	8.20E-04	4.10E-04	C	Average	Table 11.1-14	2.36E-02
		TOC (used only for speciation below)	n/a	n/a	7.79E-03	3.89E-03	C	Average	Table 11.1-14	2.24E-01
		Benzene	71-43-2	0.052%	4.05E-06	2.03E-06	C	Average	Table 11.1-16	1.17E-04
ASPH_LD1 (annual - 275 days)	HMA Load Out at Mixer	TSP	n/a - TSP	n/a	8.20E-04	4.10E-04	C	Average	Table 11.1-14	4.37E-03
		PM10	n/a - PM10	n/a	8.20E-04	4.10E-04	C	Average	Table 11.1-14	4.37E-03
		PM2.5	n/a - PM2.5	n/a	8.20E-04	4.10E-04	C	Average	Table 11.1-14	4.37E-03
		TOC (used only for speciation below)	n/a	n/a	7.79E-03	3.89E-03	C	Average	Table 11.1-14	4.16E-02
		Benzene	71-43-2	0.052%	4.05E-06	2.03E-06	C	Average	Table 11.1-16	2.16E-05
ASPH_LD2 (max daily)	HMA Load Out at Silo	TSP	n/a - TSP	n/a	8.20E-04	4.10E-04	C	Average	Table 11.1-14	1.63E-02
		PM10	n/a - PM10	n/a	8.20E-04	4.10E-04	C	Average	Table 11.1-14	1.63E-02
		PM2.5	n/a - PM2.5	n/a	8.20E-04	4.10E-04	C	Average	Table 11.1-14	1.63E-02
		TOC (used only for speciation below)	n/a	n/a	7.79E-03	3.89E-03	C	Average	Table 11.1-14	1.55E-01
		Benzene	71-43-2	0.052%	4.05E-06	2.03E-06	C	Average	Table 11.1-16	8.04E-05
ASPH_LD2 (annual - 275 days)	HMA Load Out at Silo	TSP	n/a - TSP	n/a	7.98E-06	3.99E-06	C	Average	Table 11.1-14	2.94E-05
		PM10	n/a - PM10	n/a	7.98E-06	3.99E-06	C	Average	Table 11.1-14	2.94E-05
		PM2.5	n/a - PM2.5	n/a	7.98E-06	3.99E-06	C	Average	Table 11.1-14	2.94E-05
		TOC (used only for speciation below)	n/a	n/a	7.79E-03	3.89E-03	C	Average	Table 11.1-14	2.87E-02
		Benzene	71-43-2	0.052%	4.05E-06	2.03E-06	C	Average	Table 11.1-16	1.49E-05

Notes:

[1] Silica refers to cristabolite (14464-46-1), quartz (14808-60-7), and tridymite (15468-32-3) forms. Estimated emissions assume:

Sample Calculation

TSP Emission Rate (daily)

$$\frac{4.10E\text{-}04\ \text{kg TSP}}{1\ \text{Mg HMA}} \times \frac{2{,}900\ \text{Mg HMA}}{1\ \text{day}} \times \frac{1000\ \text{g}}{1\ \text{kg}} \times \frac{1\ \text{day}}{14\ \text{hr}} \times \frac{1\ \text{h}}{3600\ \text{s}} = 2.36E\text{-}02\ \text{g/s}$$

TSP Emission Rate (annual)

$$\frac{4.10E\text{-}04\ \text{kg TSP}}{1\ \text{Mg HMA}} \times \frac{147{,}959\ \text{Mg HMA}}{1\ \text{year}} \times \frac{1000\ \text{g}}{1\ \text{kg}} \times \frac{1\ \text{year}}{275\ \text{days}} \times \frac{1\ \text{day}}{14\ \text{hrs}} \times \frac{1\ \text{hr}}{3600\ \text{s}} = 4.37E\text{-}03\ \text{g/s}$$

Appendix L30: Asphalt Plant Data

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

HOT MIX ASPHALT PLANTS - AP-42 Section 11.1

Asphalt Cement Tanker Truck		
Tank Truck Capacity	35	tonnes/truck (typical tanker capacity)
	0.5	trucks/h
	357	trucks/year
AC Usage	17.5	Mg/hour
(from Appendix D1)	245	Mg/day (based on 24-hour production)
	12500	Mg/year
Asphalt Cement Tank Information		
Asphalt volatility	-0.5	% loss on heating (average value for test method)
AC Density	1	kg/L (BITUMAR MSDS)
Number of AC Tanks	2	
AC Tank Capacity	100	tonnes
	100000	L
	26420	gallons
Turnovers	0.2	total turnovers per hour based on daily AC usage and tank capacity
	0.1	turnovers per hour per tank based on daily AC usage and tank capacity
	2.5	total turnovers per day based on daily AC usage and tank capacity
	1.2	turnovers per day per tank based on daily AC usage and tank capacity
	125	total turnovers per year based on annual AC usage and tank capacity
	62.5	turnovers per year per tank based on annual AC usage and tank capacity
AC Tank Orientation	Vertical	
AC Tank Height	25	feet (top of cone)
	7.6	m(top of cone)
	23	feet, assuming 2' for cone roof
AC Tank Working Height	18	feet, assuming 80% high level switch
AC Tank Diameter	17	feet (outer shell)
	5.2	m (outer shell)
	16	feet, assuming 6" for insulation
AC Tank Fill Rate	0.6	tonnes/min (e-mail from Kevin Kehl, 161101)
	36000	L/h (calculated from fill rate and density)
Bulk Liquid Temperature	350	°F (e-mail from Matthew McMahon, 171027)
	177	°C
	450	K
Minimum Surface Temp.	350	°F (use maximum temperature for all emission modelling)
	177	°C
	450	K
Maximum Surface Temp.	350	°F (use maximum temperature for all emission modelling)
	177	°C
	450	K
Average Surface Temp.	350	°F (use maximum temperature for all emission modelling)
	177	°C
	450	K
AC Molecular Weight	105	g/mol (from AP-42 11.2.1.5)
Asphalt Cement Tank Hot Oil Heater Information		
Tank Heater Rating	2100000	Btu/h
	2059	scf/h on gas

Appendix L31: Asphalt Cement Storage Emissions

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

The EPA TANKS software was used to estimate the emissions from the storage tanks, in accordance with the Owens Corning method, as described in the technical paper:
Trumbore, David C., "*Estimates of Air Emissions from Asphalt Storage Tanks and Truck Loading* ", Asphalt Technology Laboratory. Owens Corning, Summit, IL 60501
The inputs and outputs to the TANKS software is shown on the following pages.

Working Losses:

Working losses are estimated on a "per-fill" basis in TANKS by assuming 1 turnover (fill for fixed roof tanks) per month.
The month with the higest emissions is then used to estimate working losses throughout the year, which is conservative.

Working losses from TANKS =	7.533	lbs/turnover	using actual minimum, average and maximum surface temperature (annual standard)
	9.5017	lbs/turnover	using maximum surface temperature only (URT, DAV, AAV)

Table 1: Emissions from Working Losses

Source ID	Source Description	Contaminant	CAS Number	Speciation Profile	Emission Factor (lb/turnover)	Emission Factor (kg/turnover)	Data Quality AP-42	Data Quality MOE	Source	Emission Rate per Tank (g/s)	Total Emission Rate per Tank - Working + standing losses (g/s)
ASPH_TK1, ASPH_TK2 (max daily)	Working Losses	TOC (used only for speciation below)	n/a - TOC	n/a	9.5E+00	4.31E+00	n/a	Average	TANKS	1.03E-01	1.03E-01
		Benzene	71-43-2	0.032%	3.0E-03	1.38E-03	C	Average	Table 11.1-16	3.28E-05	3.30E-05
		Organic PM (used only for speciation below)	n/a	24.7%	2.3E+00	1.06E+00	n/a	Average	[1]	2.54E-02	2.54E-02
		Particulate Matter	n/a - TSP	100%	2.3E+00	1.06E+00	n/a	Average	[2]	2.54E-02	2.54E-02
		PM10	n/a - PM10	100%	2.3E+00	1.06E+00	n/a	Average	[3]	2.54E-02	2.54E-02
		PM2.5	n/a - PM2.5	100%	2.3E+00	1.06E+00	n/a	Average	[3]	2.54E-02	2.54E-02
ASPH_TK1, ASPH_TK2 (annual - 275 days)	Working Losses	TOC (used only for speciation below)	n/a - TOC	n/a	7.5E+00	3.42E+00	n/a	Average	TANKS	1.54E-02	1.58E-02
		Benzene	71-43-2	0.032%	2.4E-03	1.09E-03	C	Average	Table 11.1-16	4.93E-06	5.05E-06
		Organic PM (used only for speciation below)	n/a	24.7%	1.9E+00	8.44E-01	n/a	Average	[1]	3.81E-03	3.89E-03
		Particulate Matter	n/a - TSP	100%	1.9E+00	8.44E-01	n/a	Average	[2]	3.81E-03	3.89E-03
		PM10	n/a - PM10	100%	1.9E+00	8.44E-01	n/a	Average	[3]	3.81E-03	3.81E-03
		PM2.5	n/a - PM2.5	100%	1.9E+00	8.44E-01	n/a	Average	[3]	3.81E-03	3.81E-03

Notes:
[1] Organic PM is assumed to be 24.7% of the TOC, as per Tank B on Table 4 of "Estimates of Air Emissions from Asphalt Storage Tanks and Truck Loading" by David C. Trumbore, Asphalt Technology Laboratory. Owens Corning.
[2] Organic PM is also the Total PM for this source. There are no silica emissions since all the PM is from organic vapours.
[3] PM10 and PM2.5 are assumed to be the same as TSP, for conservative assessment.

Sample Calculation

Benzene Emission Factor

$$\frac{4.31\text{E+00 kg Benzene}}{1\text{ turnover}} \times \frac{0.032\%\text{ g Benzene}}{1\text{ g TOC}} = 1.38\text{E-03 kg Benzene / Mg HMA}$$

Benzene Emission Rate (daily)

$$\frac{1.38\text{E-03 kg Benzene}}{1\text{ turnover}} \times \frac{1.2\text{ turnovers}}{1\text{ day - tank}} \times \frac{1000\text{ g}}{1\text{ kg}} \times \frac{1\text{ day}}{14\text{ hours}} \times \frac{1\text{ h}}{3600\text{ s}} = 3.28\text{E-05 g/s/tank}$$

Benzene Emission Rate (annual)

$$\frac{1.09\text{E-03 kg Benzene}}{1\text{ turnover}} \times \frac{62.5\text{ turnovers}}{1\text{ year}} \times \frac{1000\text{ g}}{1\text{ kg}} \times \frac{1\text{ year}}{275\text{ days}} \times \frac{1\text{ day}}{14\text{ hours}} \times \frac{1\text{ h}}{3600\text{ s}} = 4.93\text{E-06 g/s/tank}$$

Appendix L31: Asphalt Cement Storage Emissions

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Standing Losses:

The asphalt cement storage tank is set for a maximum temperature of 350 °F. To estimate stasnding losses, an average of 340ºF was used, with an assumed range +/- 10 ºF.
The TANKS model provides total standing losses per month, which vary from month to month only because of the number of days in a month.
From this information the standing losses per day and per year were calculated, using the month with the highest emissions.
Since these tanks are heated, there is little to no variation in standing emissions

Standing losses for month of January from TANKS =	2.105	lb/month
Days in January =	31	
Standing losses per day =	0.0679	lb/day (annual standard only)

Table 2: Emissions from Standing Losses

Source ID	Source Description	ontaminant	CAS Number	Speciation Profile	Emission Factor		Data Quality		Source	Emission Rate per Tank (g/s)
					(lb/day)	(kg/day)	AP-42	MOE		
ASPH_TK1, ASPH_TK2 (annual)	Standing Losses	TOC (used only for speciation below)	n/a	n/a	6.8E-02	3.08E-02	n/a	Average	TANKS	3.57E-04
		Benzene	71-43-2	0.032%	2.2E-05	9.86E-06	C	Average	Table 11.1-16	1.14E-07
		Organic PM (used only for speciation below)	n/a	24.7%	1.7E-02	7.61E-03	n/a	Average	[1]	8.81E-05
		Particulate Matter	n/a - TSP	100%	1.7E-02	7.61E-03	n/a	Average	[2]	8.81E-05

Notes:

[1] Organic PM is assumed to be 24.7% of the TOC, as per Tank B on Table 4 of "Estimates of Air Emissions from Asphalt Storage Tanks and Truck Loading" by David C. Trumbore, Asphalt Technology Laboratory. Owens Corning.
[2] Organic PM is also the Total PM for this source. There are no silica emissions since all the PM is from organic vapours.

Sample Calculation

TOC Emission Rate

$$\frac{2.105\ \text{lb TOC}}{1\ \text{month}} \times \frac{1\ \text{month}}{31\ \text{days}} \times \frac{1\ \text{kg}}{2.204\ \text{lb}} \times \frac{1000\ \text{g}}{1\ \text{kg}} \times \frac{1\ \text{day}}{24\ \text{hours}} \times \frac{1\ \text{h}}{3600\ \text{s}} = 3.6\text{E-}04\ \text{g/s}$$

Appendix L32: Asphalt Plant HMA Silo Filling Emissions

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

HOT MIX ASPHALT PLANTS - AP-42 Section 11.1

From Table 11.1-14	Total PM	EF = 0.000332 + 0.00105(-V)e((0.0251)(T + 460) - 20.43)	0.000807515	lb/ton HMA
	TOC	EF = 0.0504(-V)e((0.0251)(T + 460) - 20.43)	0.022824716	lb/ton HMA

Source ID	Source Description	Contaminant	CAS Number	Speciation Profile	Emission Factor (lb/ton HMA)	Emission Factor (kg/Mg HMA)	Data Quality AP-42	Data Quality MOE	Source	Emission Rate (g/s)
ASPH_SL1 (max daily @ 5 fill per day)	HMA Silo Filling	TSP	n/a - TSP	n/a	8.08E-04	4.04E-04	C	Average	Table 11.1-14	1.60E-02
		PM10	n/a - PM10	n/a	8.08E-04	4.04E-04	C	Average	Table 11.1-14	1.60E-02
		PM2.5	n/a - PM2.5	n/a	8.08E-04	4.04E-04	C	Average	Table 11.1-14	1.60E-02
		TOC (used only for speciation below)	n/a	n/a	2.28E-02	1.14E-02	C	Average	Table 11.1-14	4.53E-01
		Benzene	71-43-2	0.032%	7.30E-06	3.65E-06	C	Average	Table 11.1-16	1.45E-04
ASPH_SL1 (annual @ 5 fill per day for 275 days)	HMA Silo Filling	TSP	n/a - TSP	n/a	8.08E-04	4.04E-04	C	Average	Table 11.1-14	2.97E-03
		PM10	n/a - PM10	n/a	8.08E-04	4.04E-04	C	Average	Table 11.1-14	2.97E-03
		PM2.5	n/a - PM2.5	n/a	8.08E-04	4.04E-04	C	Average	Table 11.1-14	2.97E-03
		TOC (used only for speciation below)	n/a	n/a	2.28E-02	1.14E-02	C	Average	Table 11.1-14	8.40E-02
		Benzene	71-43-2	0.032%	7.30E-06	3.65E-06	C	Average	Table 11.1-16	2.69E-05

Sample Calculation

Benzene Emission Factor

$$\frac{1.14\text{E-}02 \text{ kg TOC}}{1 \text{ Mg HMA}} \times \frac{0.032\% \text{ g Benzene}}{1 \text{ g TOC}} = 3.65\text{E-}06 \text{ kg Benzene / Mg HMA}$$

Benzene Emission Rate (daily)

$$\frac{3.65\text{E-}06 \text{ kg Benzene}}{1 \text{ Mg HMA}} \times \frac{2000 \text{ Mg HMA}}{1 \text{ h}} \times \frac{1000 \text{ g}}{1 \text{ kg}} \times \frac{1 \text{ day}}{14 \text{ hrs}} \times \frac{1 \text{ h}}{3600 \text{ s}} = 1.45\text{E-}04 \text{ g/s}$$

Benzene Emission Rate (annual)

$$\frac{3.65\text{E-}06 \text{ kg Benzene}}{1 \text{ Mg HMA}} \times \frac{102041 \text{ Mg HMA}}{1 \text{ year}} \times \frac{1000 \text{ g}}{1 \text{ kg}} \times \frac{1 \text{ year}}{275 \text{ days}} \times \frac{1 \text{ day}}{14 \text{ hrs}} \times \frac{1 \text{ hr}}{3600 \text{ s}} = 2.69\text{E-}05 \text{ g/s}$$

Appendix L33: Asphalt Plant Yard Truck Emissions

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

HOT MIX ASPHALT PLANTS - AP-42 Section 11.1

Source ID	Source Description	Contaminant	CAS Number	Speciation Profile	Emission Factor		Data Quality		Source	Emission Rate (g/s)
					(lb/ton HMA)	(kg/Mg HMA)	AP-42	MOE		
ASPH_TRK (max daily)	Yard Trucks	TOC (used only for speciation below)	n/a	n/a	1.10E-03	5.50E-04	n/a	n/a	Section 11.1.2.5	3.12E-02
		Benzene	71-43-2	0.052%	5.72E-07	2.86E-07	C	Average	Table 11.1-16	2.78E-05
ASPH_TRK (annual)	Yard Trucks	TOC (used only for speciation below)	n/a	n/a	1.10E-03	5.50E-04	n/a	n/a	Section 11.1.2.5	9.92E-03
		Benzene	71-43-2	0.052%	5.72E-07	2.86E-07	C	Average	Table 11.1-16	5.16E-06

Sample Calculation

Benzene Emission Factor

$$\frac{5.50\text{E-}04 \text{ kg TOC}}{1 \text{ Mg HMA}} \times \frac{0.052\% \text{ g Benzene}}{1 \text{ g TOC}} = 2.86\text{E-}07 \text{ kg Benzene / Mg HMA}$$

Benzene Emission Rate (daily)

$$\frac{2.86\text{E-}07 \text{ kg Benzene}}{1 \text{ Mg HMA}} \times \frac{4900 \text{ Mg HMA}}{1 \text{ day}} \times \frac{1000 \text{ g}}{1 \text{ kg}} \times \frac{1 \text{ day}}{14 \text{ hrs}} \times \frac{1 \text{ hr}}{3600 \text{ s}} = 2.78\text{E-}05 \text{ g/s}$$

Benzene Emission Rate (annual)

$$\frac{2.86\text{E-}07 \text{ kg Benzene}}{1 \text{ Mg HMA}} \times \frac{250000 \text{ Mg HMA}}{1 \text{ year}} \times \frac{1000 \text{ g}}{1 \text{ kg}} \times \frac{1 \text{ year}}{275 \text{ days}} \times \frac{1 \text{ day}}{14 \text{ hrs}} \times \frac{1 \text{ hr}}{3600 \text{ s}} = 5.16\text{E-}06 \text{ g/s}$$

Appendix L34: Biosolids and Compost Facility Calculations - SO2 Emissions for Boiler (BIOFILTR)

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Maximum Production Rate (Biosolids Throughput)	2800	kg DS / hr
Biofilter Flowrate	22.2	m³/s

CAS No.	Chemical Name	Concentration in Biosolids [1] (g/kg DS/hr)	Source Concentration (µg/m³)	Control Efficiency of Acid Scrubber	Control Efficiency of Biofilter	Maximum Production			Notes
						Emission Rate (g/hr)	Emission Rate (g/s)	Emission Rate (g/m2-s)	
7446-09-5	Sulfur Dioxide	-	1,200	95%	-	-	1.33E-03	2.53E-06	[1]

Notes:

[1] Area of the biofilter is 65m x 8.1m = 526.5 m2.

[2] Based on information provided by Sandwell Consulting Engineers for original application.

Sample calculation for Sulfur Dioxide emission rate for Source: BIOFILTR

$$\frac{1200.00\ \mu g}{1\ m^3} \times \frac{22.2\ m^3}{1\ h} \times \frac{5\%\ \text{Loss}}{} \times \frac{1\ g}{1{,}000{,}000\ \mu g} \times \frac{}{526.5\ m2} = 2.53E\text{-}06\ g/m^2\text{-}s$$

Appendix L35: Biosolids and Compost Facility Calculations - Boiler (BIOFILTR)

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Parameter	Value	Units
Fuel Type	Natural Gas	
Fuel Heating Value	1020	(Btu/scf)
Fuel Density		(lb/gal)
Firing Configuration	Wall-fired	
Boiler Efficiency	80%	(%)
Excess Air	0.3	(%)

Exhaust Information	Value	Units
Exhaust Temperature (°C)	175	(°C)
Calculated Exit Temperature	448	(K)

Fuel Sulphur Information	Value	Units
Natural Gas Sulphur Content	2000	(grains/10^6scf)
Fuel Oil Sulphur Content	0	(%)

Rating (enter one set of units)	Value	Units
Boiler Heat Input (Btu/h)	12,660,000	(Btu/h)
Calculated Heat Input	12.66	(MMBtu/hr)
Boiler Size Cut-off	<100	(MMBtu/hr)

Pollution Controls	Value	Units
NSPS	n/a	
Low-NOx Burners	no	
Flue-gas Recirculation	no	

Fuel & Air Parameters	Value	Units	Sample Calculation / Comment
Fuel Consumption	12412	(scf/h)	= (12.66 MMBTU/h) x (1000000 BTU/MMBTU) / (1020 BTU/scf)
	351508	(L/h)	
Fuel Molar Flow Rate (NG Only)	14871	(mol'h)	= (12412 scf/h) x (28.32 L/scf) x (101.3 kPa) / (8.314 L·kPa/mol·K) / (288 K)
Fuel Mass Flow Rate	238	(kg/h)	= (14871 mol/h) x (16.03 g/mol) / (1000 g/kg)
Stoichiometric Ratio (NG only)	13.376	ratio	= 1 CO2 + 2 H2O + 0.6 O2 + 2 x 3.76 x (1 + 0.3) N2 per mol CH4
Theoretical Moist Air (Oil Only)	not applicable		
Combustion Air	184043	(mol/h)	= (14871 mol fuel / h) x (2 mol O2 / mol fuel) x (1 + (30% XS Air)) x (4.76 mol air / mol O2)
	5300	(kg/h)	= (184043 mol air / h) x (28.8 g air / mol air) / (1000 g / kg)
	4124	(m³/h) @ 0°C	= (184043 mol/h) x (8.314 L·kPa/mol·K) x (288 K) / (101.3 kPa) / (1000 L/m³)
	2427	(scfm) @ 0°C	= (4124 m³/h) x (35.31 ft³/m³) / (60 min/h)

Exhaust Parameters	Value	Units	Sample Calculation
Exhaust Gas Molar Flow (NG only)	198914	(mol/h)	= (14871 mol/h) x (13.376 mol exhaust / mol fuel)
Theoretical Flue Gas (Oil Only)	not applicable	(m^3_{air} / L_{fuel})	
Exhaust Gas Mass Flow Rate	5538	(kg/h)	= (14871 mol fuel / h) x (373 g exhaust / mol fuel)
Exhaust Gas Flow	7314	(Am³/h)	= (198914 mol/h) x (8.314 L·kPa/mol·K) x (448 K) / (101.3 kPa) / (1000 L/m³)
	2.03	(Am³/s)	= (7314 m³ / h) / (3600 s / h)
	4702	(m³/h) @ 0°C	= (7314 m³ / h) x (288K) / (448 K)
	2767	(scfm) @ 0°C	= (4702 m³ / h) x (35.31 ft³ / m³) / (60 min / h)

Emission Calculations for the Biosolids Natural Gas Fired Dryer Exhausting through Biofilter

Based on Manufacturer's specifications

Emissions Guarantee from Manufacturer: 45 ppm NOx at 3% O_2

Exhaust Gas Molar Flow Rate (based on calculations in boiler spreadsheet) : 14,871 mol/hr

Molecular Weight of Nitrogen Oxides (based on MW of Nitrogen Dioxide) : 46.05 g/mol

Sample Calculation

NOx Emissions (g/s) = Exhaust Gas Molar Flow Rate x NOx Emission Rate x NOx Molecular Weight x conversion factors
NOx Emissions (g/s) = (14871 mol / hr) * (45 / 1,000,000) * (46.05 g/mol) * (1 hr / 3,600 s)
NOx Emissions (g/s) = 8.56E-03 g/s
NOx Emissions (g/m²-s) = 1.63E-05 g/m²-s , with an area of 65m x 8.1m = 526.5 m2

Appendix L36: Biosolids and Compost Facility Calculations - Boiler (BOILERS)

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Parameter	Value	Units
Fuel Type	Natural Gas	
Fuel Heating Value	1020	(Btu/scf)
Fuel Density		(lb/gal)
Firing Configuration	Wall-fired	
Boiler Efficiency	80%	(%)
Excess Air	0.3	(%)

Exhaust Information	Value	Units
Exhaust Temperature (°C)	125	(°C)
Calculated Exit Temperature	398	(K)

Fuel Sulphur Information	Value	Units
Natural Gas Sulphur Content	2000	(grains/10^6scf)
Fuel Oil Sulphur Content	0	(%)

Rating (enter one set of units)	Value	Units
Boiler Heat Input (Btu/h)	650,000	(Btu/h)
Calculated Heat Input	0.65	(MMBtu/hr)
Boiler Size Cut-off	<100	(MMBtu/hr)

Pollution Controls	Value	Units
NSPS	n/a	
Low-NOx Burners	no	
Flue-gas Recirculation	no	

Fuel & Air Parameters	Value	Units	Sample Calculation / Comment
Fuel Consumption	637	(scf/h)	= (0.65 MMBTU/h) x (1000000 BTU/MMBTU) / (1020 BTU/scf)
	18040	(L/h)	
Fuel Molar Flow Rate (NG Only)	763	(mol'h)	= (637 scf/h) x (28.32 L/scf) x (101.3 kPa) / (8.314 L·kPa/mol·K) / (288 K)
Fuel Mass Flow Rate	12	(kg/h)	= (763 mol/h) x (16.03 g/mol) / (1000 g/kg)
Stoichiometric Ratio (NG only)	13.376	ratio	= 1 CO2 + 2 H2O + 0.6 O2 + 2 x 3.76 x (1 + 0.3) N2 per mol CH4
Theoretical Moist Air (Oil Only)	not applicable		
Combustion Air	9443	(mol/h)	= (763 mol fuel / h) x (2 mol O2 / mol fuel) x (1 + (30% XS Air)) x (4.76 mol air / mol O2)
	272	(kg/h)	= (9443 mol air / h) x (28.8 g air / mol air) / (1000 g / kg)
	212	(m^3/h) @ 0°C	= (9443 mol/h) x (8.314 L·kPa/mol·K) x (288 K) / (101.3 kPa) / (1000 L/m^3)
	125	(scfm) @ 0°C	= (212 m^3/h) x (35.31 ft^3/m^3) / (60 min/h)

Exhaust Parameters	Value	Units	Sample Calculation
Exhaust Gas Molar Flow (NG only)	10206	(mol/h)	= (763 mol/h) x (13.376 mol exhaust / mol fuel)
Theoretical Flue Gas (Oil Only)	not applicable	(m^3_{air} / L_{fuel})	
Exhaust Gas Mass Flow Rate	279	(kg/h)	= (763 mol fuel / h) x (373 g exhaust / mol fuel)
Exhaust Gas Flow	333	(Am^3/h)	= (10206 mol/h) x (8.314 L·kPa/mol·K) x (398 K) / (101.3 kPa) / (1000 L/m^3)
	0.09	(Am^3/s)	= (333 m^3 / h) / (3600 s / h)
	241	(m^3/h) @ 0°C	= (333 m^3 / h) x (288K) / (398 K)
	142	(scfm) @ 0°C	= (241 m^3 / h) x (35.31 ft^3 / m^3) / (60 min / h)

Criteria Contaminants	Emission Factor Value	Emission Factor Units	Emission Rate Value	Emission Rate Units	Data Quality	Sample Calculation
Sulphur Dioxide	0.6	(lb/10^6scf)	4.82E-05	(g/s)	A	= (637 scf/h) x (0.6 lb / 10^6 scf) x (453.6 g / lb) / (3600 s / h)
Oxides of Nitrogen	100	(lb/10^6scf)	8.03E-03	(g/s)	B	= (637 scf/h) x (100 lb / 10^6 scf) x (453.6 g / lb) / (3600 s / h)
Filterable Particulate	7.6	(lb/10^6scf)	6.10E-04	(g/s)	D	= (637 scf/h) x (7.6 lb / 10^6 scf) x (453.6 g / lb) / (3600 s / h)
Condensible Particulate	--		--			
Total Particulate	7.6	(lb/10^6scf)	6.10E-04	(g/s)	D	= (637 scf/h) x (7.6 lb / 10^6 scf) x (453.6 g / lb) / (3600 s / h)

Note: Total Particulate = Filterable + Condensible, if applicable. Lowest data quality rating of either filterable or condensible applied.

Appendix L37: Biosolids and Compost Facility Calculations - Boiler (HEATING)

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Parameter	Value	Units
Fuel Type	Natural Gas	
Fuel Heating Value	1020	(Btu/scf)
Fuel Density		(lb/gal)
Firing Configuration	Wall-fired	
Boiler Efficiency	0.8	(%)
Excess Air	0.3	(%)

Exhaust Information	Value	Units
Exhaust Temperature (°C)	175	(°C)
Calculated Exit Temperature	448	(K)

Fuel Sulphur Information	Value	Units
Natural Gas Sulphur Content	2000	(grains/10^6scf)
Fuel Oil Sulphur Content	0	(%)

Rating (enter one set of units)	Value	Units
Boiler Heat Input (Btu/h)	1,215,000	(Btu/h)
Calculated Heat Input	1.22	(MMBtu/hr)
Boiler Size Cut-off	<100	(MMBtu/hr)

Pollution Controls	Value	Units
NSPS	n/a	
Low-NOx Burners	no	
Flue-gas Recirculation	no	

Fuel & Air Parameters	Value	Units	Sample Calculation / Comment
Fuel Consumption	1196	(scf/h)	= (1.22 MMBTU/h) x (1000000 BTU/MMBTU) / (1020 BTU/scf)
	33871	(L/h)	
Fuel Molar Flow Rate (NG Only)	1433	(mol'h)	= (1196 scf/h) x (28.32 L/scf) x (101.3 kPa) / (8.314 L·kPa/mol·K) / (288 K)
Fuel Mass Flow Rate	23	(kg/h)	= (1433 mol/h) x (16.03 g/mol) / (1000 g/kg)
Stoichiometric Ratio (NG only)	13.376	ratio	= 1 CO2 + 2 H2O + 0.6 O2 + 2 x 3.76 x (1 + 0.3) N2 per mol CH4
Theoretical Moist Air (Oil Only)	not applicable		
Combustion Air	17735	(mol/h)	= (1433 mol fuel / h) x (2 mol O2 / mol fuel) x (1 + (30% XS Air)) x (4.76 mol air / mol O2)
	511	(kg/h)	= (17735 mol air / h) x (28.8 g air / mol air) / (1000 g / kg)
	397	(m^3/h) @ 0°C	= (17735 mol/h) x (8.314 L·kPa/mol·K) x (288 K) / (101.3 kPa) / (1000 L/m^3)
	234	(scfm) @ 0°C	= (397 m^3/h) x (35.31 ft^3/m^3) / (60 min/h)

Exhaust Parameters	Value	Units	Sample Calculation
Exhaust Gas Molar Flow (NG only)	19168	(mol/h)	= (1433 mol/h) x (13.376 mol exhaust / mol fuel)
Theoretical Flue Gas (Oil Only)	not applicable	(m^3_{air} / L_{fuel})	
Exhaust Gas Mass Flow Rate	535	(kg/h)	= (1433 mol fuel / h) x (373 g exhaust / mol fuel)
Exhaust Gas Flow	705	(Am³/h)	= (19168 mol/h) x (8.314 L·kPa/mol·K) x (448 K) / (101.3 kPa) / (1000 L/m^3)
	0.20	(Am³/s)	= (705 m^3 / h) / (3600 s / h)
	453	(m^3/h) @ 0°C	= (705 m^3 / h) x (288K) / (448 K)
	267	(scfm) @ 0°C	= (453 m^3 / h) x (35.31 ft^3 / m^3) / (60 min / h)

Criteria Contaminants	Emission Factor Value	Emission Factor Units	Emission Rate Value	Emission Rate Units	Data Quality	Sample Calculation
Sulphur Dioxide	0.6	(lb/10^6scf)	9.04E-05	(g/s)	A	= (1196 scf/h) x (0.6 lb / 10^6 scf) x (453.6 g / lb) / (3600 s / h)
Oxides of Nitrogen	100	(lb/10^6scf)	1.51E-02	(g/s)	B	= (1196 scf/h) x (100 lb / 10^6 scf) x (453.6 g / lb) / (3600 s / h)
Filterable Particulate	7.6	(lb/10^6scf)	1.15E-03	(g/s)	D	= (1196 scf/h) x (7.6 lb / 10^6 scf) x (453.6 g / lb) / (3600 s / h)
Condensible Particulate	--		--			
Total Particulate	7.6	(lb/10^6scf)	1.15E-03	(g/s)	D	= (1196 scf/h) x (7.6 lb / 10^6 scf) x (453.6 g / lb) / (3600 s / h)

Note: Total Particulate = Filterable + Condensible, if applicable. Lowest data quality rating of either filterable or condensible applied.

Appendix L38: Biosolids and Compost Facility Calculations - Boiler (R_BLDG)

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Parameter	Value	Units
Fuel Type	No. 2 Fuel Oil	
Fuel Heating Value	137000	(Btu/gal)
Fuel Density		(lb/gal)
Firing Configuration	Normal firing	
Boiler Efficiency	0.8	(%)
Excess Air	0.15	(%)

Exhaust Information	Value	Units
Exhaust Temperature (°C)	175	(°C)
Calculated Exit Temperature	448	(K)

Fuel Sulphur Information	Value	Units
Natural Gas Sulphur Content	2000	(grains/10^6scf)
Fuel Oil Sulphur Content	0.5	(%)

Rating (enter one set of units)	Value	Units
Boiler Heat Input (Btu/h)	350,000	(Btu/h)
Calculated Heat Input	0.35	(MMBtu/hr)
Boiler Size Cut-off	<100	(MMBtu/hr)

Pollution Controls	Value	Units
NSPS	n/a	
Low-NOx Burners	no	
Flue-gas Recirculation	no	

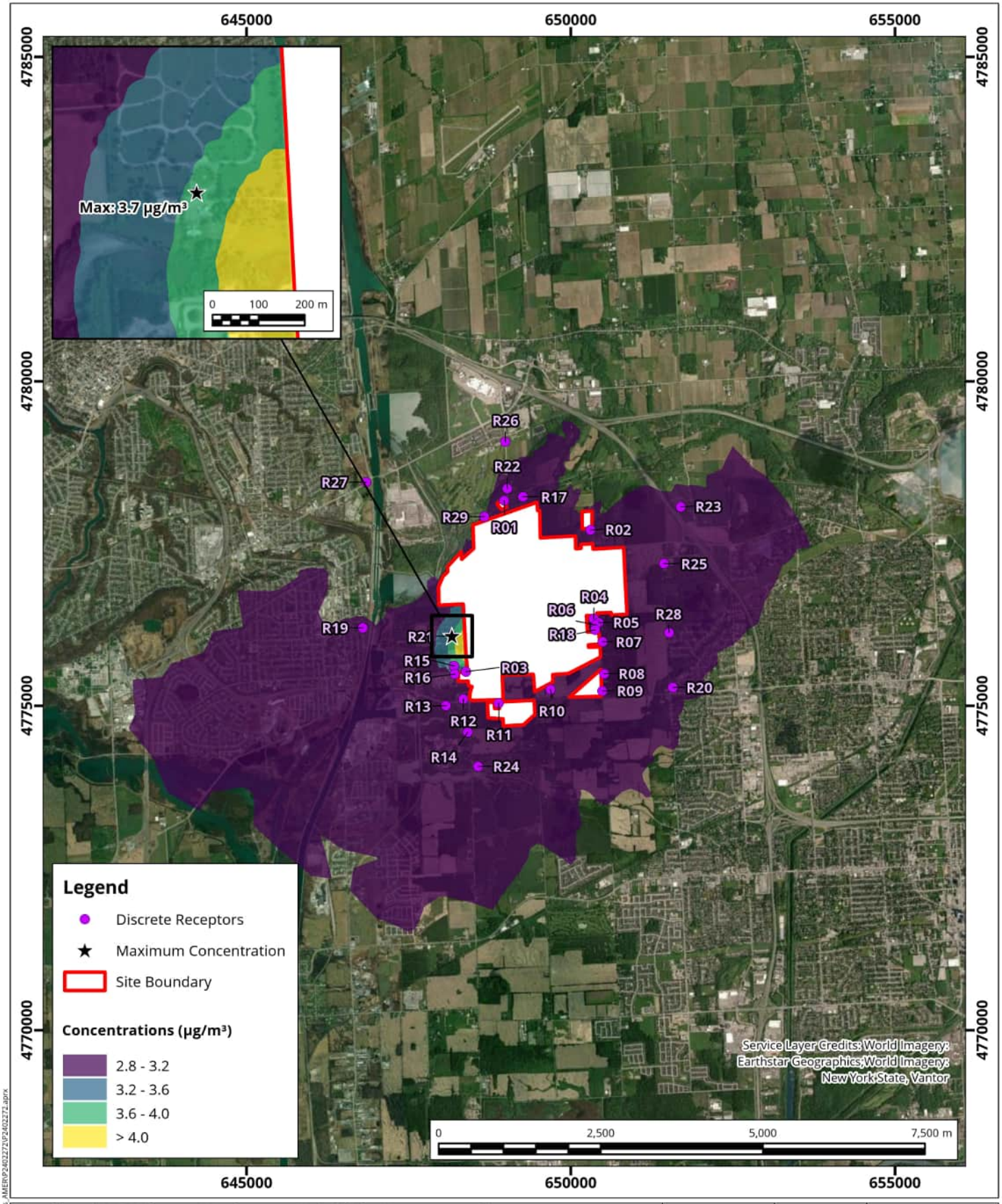
Fuel & Air Parameters	Value	Units	Sample Calculation / Comment
Fuel Consumption	2.6	(gal/h)	= (0.35 MMBTU/h) x (1000000 BTU/MMBTU) / (137000 BTU/gal)
	10	(L/h)	
Fuel Molar Flow Rate (NG Only)	not applicable		not applicable
Fuel Mass Flow Rate	0	(kg/h)	= (2.6 gal/h) x (lb/gal) / (2.205 lb/kg)
Stoichiometric Ratio (NG only)	not applicable		not applicable
Theoretical Moist Air (Oil Only)	345	(kg air / MMBT	based on 7.5 lb theoretical dry air per 10,000 BTU of fuel oil
Combustion Air	4810	(mol/h)	= (139 kg air / h) x (1000 g / kg) / (28.8 g air / mol air)
	139	(kg/h)	= 0.35 MMBTU/h x 345 kg/MMBTU x (115% XS Air)
	108	(m^3/h) @ 0°C	= (4810 mol/h) x (8.314 L·kPa/mol·K) x (288 K) / (101.3 kPa) / (1000 L/m^3)
	64	(scfm) @ 0°C	= (108 m^3/h) x (35.31 ft^3/m^3) / (60 min/h)

Exhaust Parameters	Value	Units	Sample Calculation
Exhaust Gas Molar Flow (NG only)	not applicable	(mol/h)	not applicable
Theoretical Flue Gas (Oil Only)	10.4	(m^3_{air} / L_{fuel})	at standard temperature & pressure
Exhaust Gas Mass Flow Rate	139	(kg/h)	0 kg fuel / h + 139 kg air / h
Exhaust Gas Flow	171	(Am^3/h)	= (104 m^3 air / h) x (448 K) / (288K)
	0.05	(Am^3/s)	= (171 m^3 / h) / (3600 s / h)
	104	(m^3/h) @ 0°C	= (10.4 m^3 air / L fuel) x (10 L fuel / h)
	61	(scfm) @ 0°C	= (104 m^3 / h) x (35.31 ft^3 / m^3) / (60 min / h)

Criteria Contaminants	Emission Factor Value	Emission Factor Units	Emission Rate Value	Emission Rate Units	Data Quality	Sample Calculation
Sulphur Dioxide	71	(lb/10^3gal)	2.33E-02	(g/s)	A	= (2.6 gal / h) x (71 lb / 10^3 gal) x (453.6 g / lb) / (3600 s / h)
Oxides of Nitrogen	20	(lb/10^3gal)	6.55E-03	(g/s)	A	= (2.6 gal / h) x (20 lb / 10^3 gal) x (453.6 g / lb) / (3600 s / h)
Filterable Particulate	2	(lb/10^3gal)	6.55E-04	(g/s)	A	= (2.6 gal / h) x (2 lb / 10^3 gal) x (453.6 g / lb) / (3600 s / h)
Condensible Particulate	1.3	(lb/10^3gal)	4.26E-04	(g/s)	D	= (2.6 gal / h) x (1.3 lb / 10^3 gal) x (453.6 g / lb) / (3600 s / h)
Total Particulate	3.3	(lb/10^3gal)	1.08E-03	(g/s)	D	= (2.6 gal / h) x (3.3 lb / 10^3 gal) x (453.6 g / lb) / (3600 s / h)

Note: Total Particulate = Filterable + Condensible, if applicable. Lowest data quality rating of either filterable or condensible applied.

APPENDIX M



Predicted 10-Minute Hydrogen Sulphide Concentrations (in µg/m³)

Preferred Method - Scenario 1

Map Projection: NAD 1983 UTM Zone 17N

Walker Landfill - Regional Municipality of Niagara, Ontario

True North

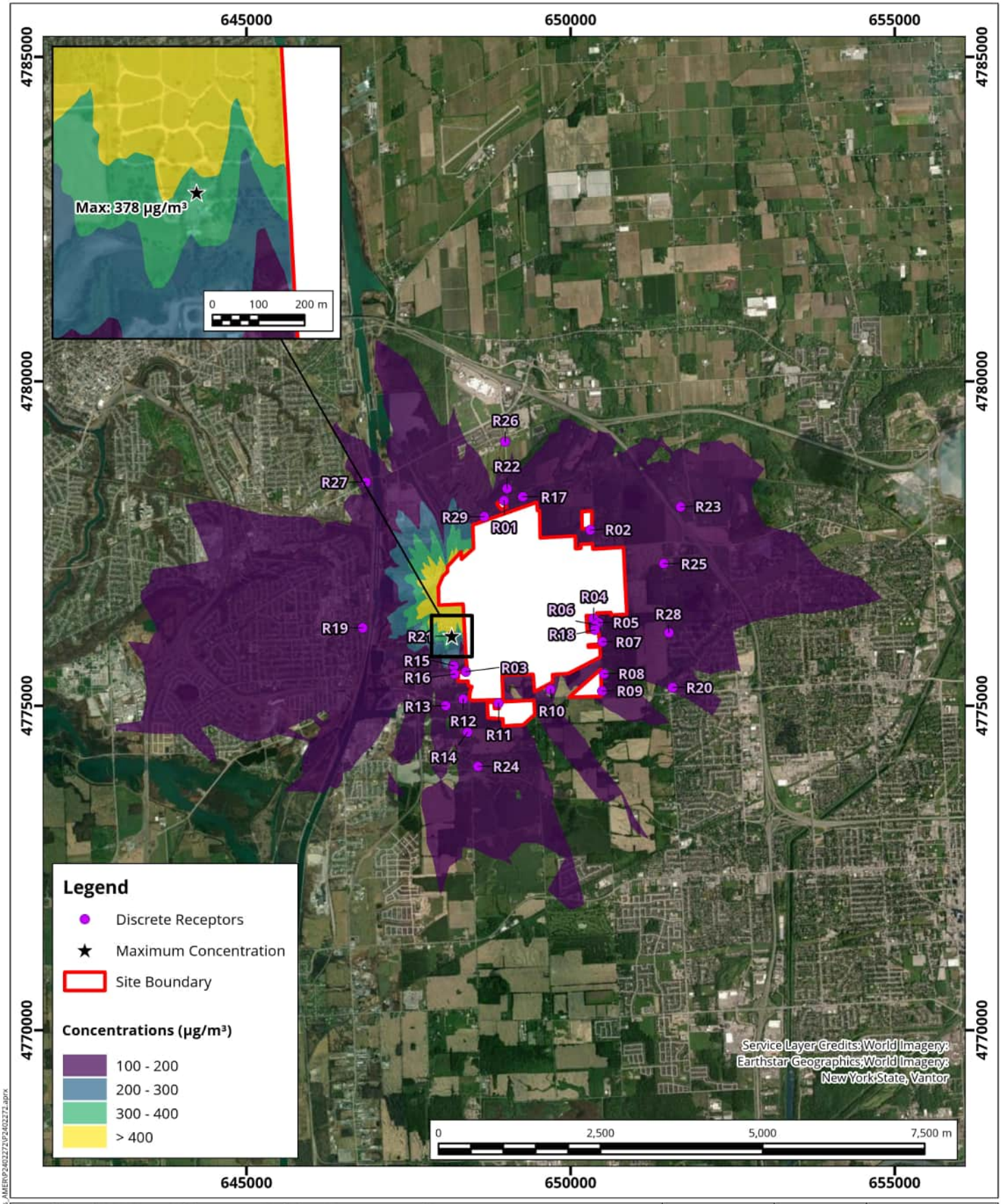
AAQC: 13 µg/m³

Background Concentration: 2.4 µg/m³

Project #: 2402272

Drawn by: PIP	Figure: M.1
Approx. Scale:	1:80,000
Date Revised:	Jun 23, 2026

Map Document: C:\WorkingFolder\Jobs_AMER\P2402272\P2402272.aprx



Predicted 1-Hour Nitrogen Oxides Concentrations (in µg/m³)

Preferred Method - Scenario 1

Map Projection: NAD 1983 UTM Zone 17N

Walker Landfill - Regional Municipality of Niagara, Ontario

True North

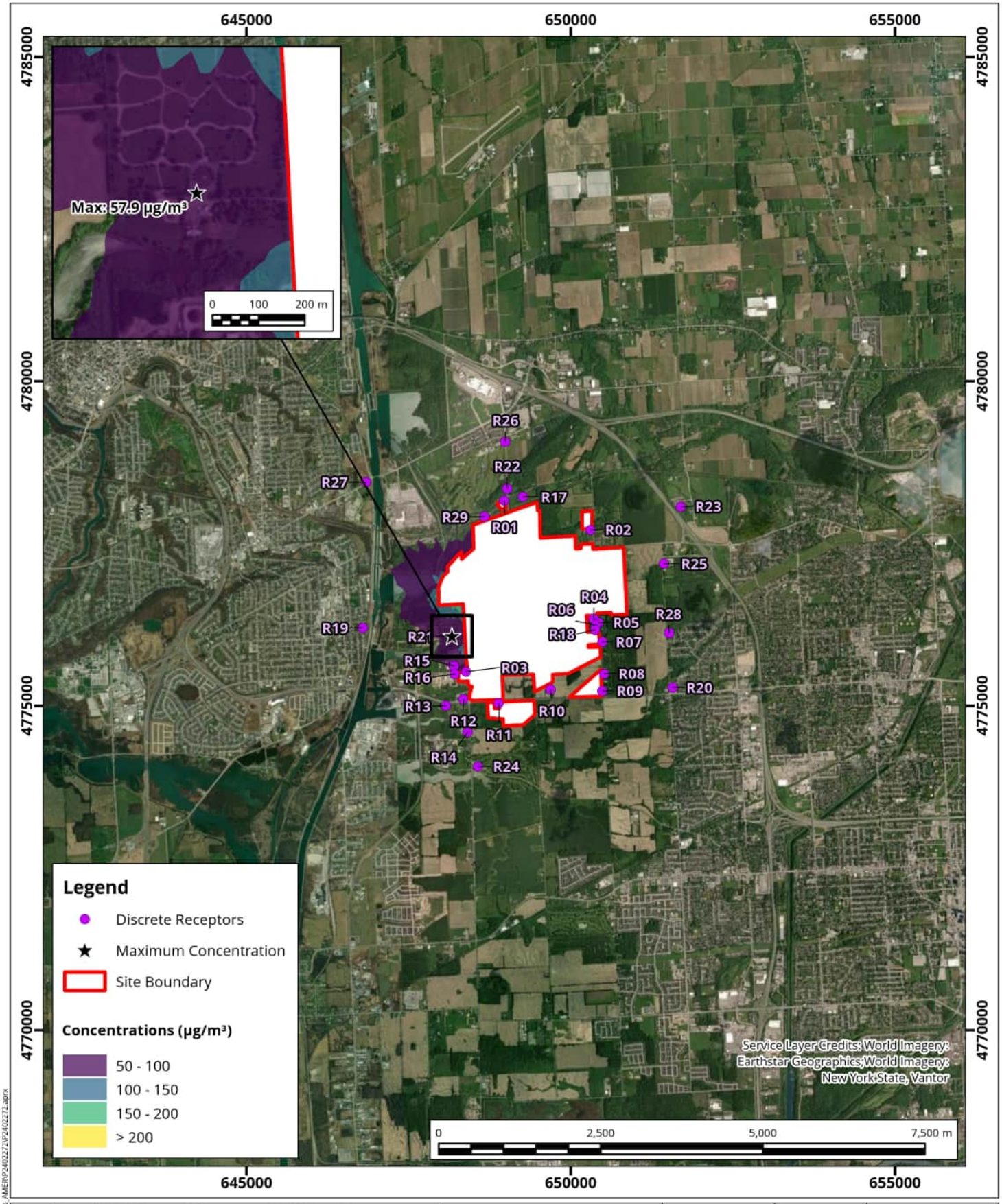
AAQC: 400 µg/m³

Background Concentration: 23.4 µg/m³

Project #: 2402272

Drawn by: PIP	Figure: M.2
Approx. Scale:	1:80,000
Date Revised:	Jun 23, 2026

Map Document: C:\WorkingFolder\Jobs_AMER\P2402272\P2402272.aprx



Predicted 24-Hour Nitrogen Oxides Concentrations (in µg/m³)

Preferred Method - Scenario 1

Map Projection: NAD 1983 UTM Zone 17N

Walker Landfill - Regional Municipality of Niagara, Ontario

True North

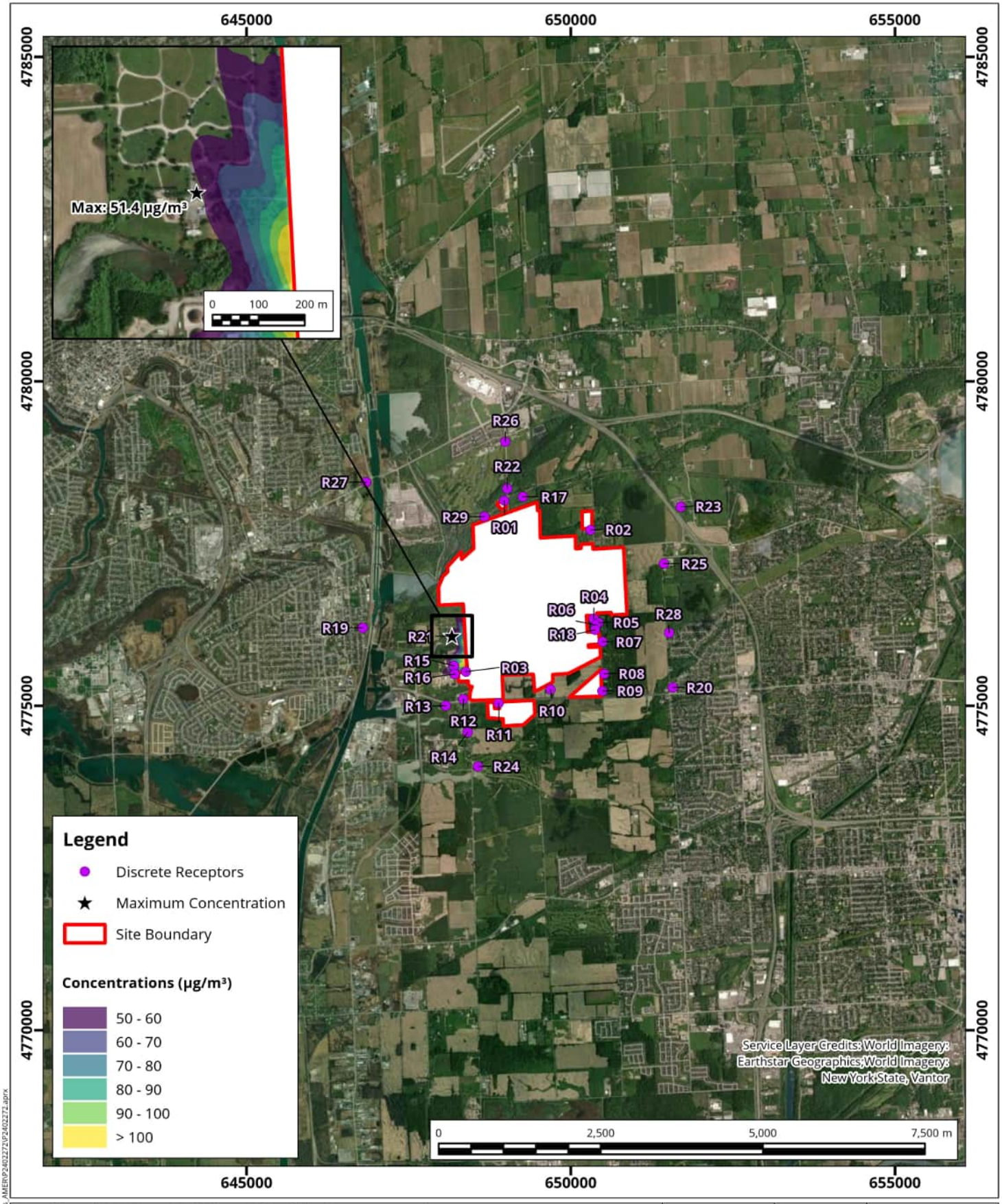
AAQC: 200 µg/m³

Background Concentration: 21.6 µg/m³

Project #: 2402272

Drawn by: PIP	Figure: M.3
Approx. Scale:	1:80,000
Date Revised:	Jun 23, 2026

Map Document: C:\Working Folder\Jobs_AMER\P-24\2272\2402272.aprx



Predicted 1-Hour Sulphur Dioxide Concentrations (in µg/m³)

Preferred Method - Scenario 1

Map Projection: NAD 1983 UTM Zone 17N

Walker Landfill - Regional Municipality of Niagara, Ontario

True North

AAQC: 100 µg/m³

Background Concentration: 1.1 µg/m³

Project #: 2402272

Drawn by: PIP	Figure: M.4
Approx. Scale:	1:80,000
Date Revised:	Jun 23, 2026

Map Document: C:\WorkingFolder\Jobs_AMER\P\2402272\2402272.aprx

APPENDIX N

Appendix N1: Source Summary Tables - Dust, Landfill Gas and Combustion By-Products (Scenario 2 (End of Stage 3) - Year 2041)

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Source ID [1]	Source Type [1]	Source Description	Source Data								Emission Data							
			Stack Volumetric Flow Rate (Am^3/s)	Stack Exit Gas Temp. (°C)	Stack Inner Diameter (m)	Stack Exit Velocity (m/s)	Stack Height Above Grade (m)	Stack Height Above Roof (m)	Source Coordinates X (m)	Source Coordinates Y (m)	Contaminant	CAS Number	Emission Rate (g/s)	Emission Rate (g/m2-s)	Averaging Period (hours)	Emission Estimating Technique [2]	Emissions Data Quality [3]	% of Overall Emissions (%)
Niagara Biosolids Facility																		
BIOFILTR	AREA	Dryer Flue Gas	22.2	36	65.0 m x 8.1 m	0.03	1.52	N/A	648277	4776993	Nitrogen Oxides (NOx)	10102-44-0	8.56E-03	1.63E-05	10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	1.33E-03	2.53E-06	7446-09-5	EF	Above-Average	<1%
SILO_1	POINT	Silo #1 Bin Vent [4]	0.7	20	0.6x0.6	17.5	15	2.4	648324	4776920	TSP	n/a - TSP	2.00E-03		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	1.33E-03		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	2.00E-04		n/a - PM2.5	EF	Average	<1%
SILO_2	POINT	Silo #2 Bin Vent [4]	0.7	20	0.6x0.6	17.5	15	2.4	648324	4776915	TSP	n/a - TSP	2.00E-03		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	1.33E-03		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	2.00E-04		n/a - PM2.5	EF	Average	<1%
HEATING	VOLUME	Natural Gas Fired Comfort Heating	n/a	n/a	n/a	n/a	n/a	n/a	648313	4776920	Nitrogen Oxides (NOx)	10102-44-0	1.51E-02		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	9.04E-05		7446-09-5	EF	Above-Average	<1%
											TSP	n/a - TSP	1.15E-03		n/a - TSP	EF	Above-Average	<1%
											PM10	n/a - PM10	1.15E-03		n/a - PM10	EF	Above-Average	<1%
											PM2.5	n/a - PM2.5	1.15E-03		n/a - PM2.5	EF	Above-Average	<1%
MO_GEN	POINT	55 kW Natural Gas Fired Emergency Generator	0.2	427	0.15	11.32	4	1	648467	4777049	Nitrogen Oxides (NOx)	10102-44-0	1.69E-01		10102-44-0	EF	Above-Average	2%
											Sulphur Dioxide (SO2)	7446-09-5	1.92E-03		7446-09-5	EF	Above-Average	<1%
											TSP	n/a - TSP	2.43E-02		n/a - TSP	EF	Above-Average	<1%
											PM10	n/a - PM10	2.43E-02		n/a - PM10	EF	Above-Average	1%
											PM2.5	n/a - PM2.5	2.43E-02		n/a - PM2.5	EF	Above-Average	2%
BOILERS	VOLUME	Two 650,000 MBTU natural gas fired boilers	0.172	175	n/a	n/a	n/a	n/a	648448	4777095	Nitrogen Oxides (NOx)	10102-44-0	1.61E-02		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	9.63E-05		7446-09-5	EF	Above-Average	<1%
											TSP	n/a - TSP	1.22E-03		n/a - TSP	EF	Above-Average	<1%
											PM10	n/a - PM10	1.22E-03		n/a - PM10	EF	Above-Average	<1%
											PM2.5	n/a - PM2.5	1.22E-03		n/a - PM2.5	EF	Above-Average	<1%
DROPOFF	VOLUME	Receiving Leaf & yard Material in Open Windrc	n/a	n/a	n/a	n/a	n/a	n/a	648120	4776951	TSP	n/a - TSP	7.86E-03		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	3.44E-03		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	5.21E-04		n/a - PM2.5	EF	Average	<1%
MOVE1	VOLUME	Movement of Material into Windrow (Open Wi	n/a	n/a	n/a	n/a	n/a	n/a	648187	4776964	TSP	n/a - TSP	7.86E-03		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	3.44E-03		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	5.21E-04		n/a - PM2.5	EF	Average	<1%
MOVE2	VOLUME	Movement of Material into Windrow (GORE are	n/a	n/a	n/a	n/a	n/a	n/a	648280	4776647	TSP	n/a - TSP	7.86E-03		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	3.44E-03		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	5.21E-04		n/a - PM2.5	EF	Average	<1%
SCRTSP	VOLUME	Drop at Screening Area	n/a	n/a	n/a	n/a	n/a	n/a	648178	4776807	TSP	n/a - TSP	7.86E-03		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	3.44E-03		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	5.21E-04		n/a - PM2.5	EF	Average	<1%
SCREEN1	VOLUME	Screening Emissions	n/a	n/a	n/a	n/a	n/a	n/a	648259	4776746	TSP	n/a - TSP	1.22E-02		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	1.22E-02		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	1.83E-03		n/a - PM2.5	EF	Average	<1%
SCREEN2	VOLUME	Screening Emissions	n/a	n/a	n/a	n/a	n/a	n/a	648281	4776753	TSP	n/a - TSP	1.22E-02		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	1.22E-02		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	1.83E-03		n/a - PM2.5	EF	Average	<1%
SCREEN3	VOLUME	Screening Emissions	n/a	n/a	n/a	n/a	n/a	n/a	648135	4776839	TSP	n/a - TSP	2.29E-02		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	2.29E-02		n/a - PM10	EF	Average	1%
											PM2.5	n/a - PM2.5	3.44E-03		n/a - PM2.5	EF	Average	<1%
SCREEN4	VOLUME	Screening Emissions	n/a	n/a	n/a	n/a	n/a	n/a	648139	4776949	TSP	n/a - TSP	2.29E-02		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	2.29E-02		n/a - PM10	EF	Average	1%
											PM2.5	n/a - PM2.5	3.44E-03		n/a - PM2.5	EF	Average	<1%
FSTPL	VOLUME	Drop at Final Stockpile	n/a	n/a	n/a	n/a	n/a	n/a	648140	4776734	TSP	n/a - TSP	7.86E-03		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	3.44E-03		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	5.21E-04		n/a - PM2.5	EF	Average	<1%
FP	VOLUME	Loading of Material for Shipment Off-Site	n/a	n/a	n/a	n/a	n/a	n/a	648138	4776765	TSP	n/a - TSP	7.86E-03		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	3.44E-03		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	5.21E-04		n/a - PM2.5	EF	Average	<1%
GRINDR	VOLUME	Fugitive emissions from Grinder [7]	n/a	n/a	n/a	n/a	n/a	n/a	648136	4776795	TSP	n/a - TSP	2.29E-02		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	2.29E-02		n/a - PM10	EF	Average	1%
											PM2.5	n/a - PM2.5	3.44E-03		n/a - PM2.5	EF	Average	<1%
GRINDR2_N	VOLUME	Fugitive emissions from Grinder #2 [6]	n/a	n/a	n/a	n/a	n/a	n/a	648119	4776971	TSP	n/a - TSP	2.29E-02		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	2.29E-02		n/a - PM10	EF	Average	1%
											PM2.5	n/a - PM2.5	3.44E-03		n/a - PM2.5	EF	Average	<1%

Appendix N1: Source Summary Tables - Dust, Landfill Gas and Combustion By-Products (Scenario 2 (End of Stage 3) - Year 2041)

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Source ID [1]	Source Type [1]	Source Description	Source Data								Emission Data							
			Stack Volumetric Flow Rate (Am^3/s)	Stack Exit Gas Temp. (°C)	Stack Inner Diameter (m)	Stack Exit Velocity (m/s)	Stack Height Above Grade (m)	Stack Height Above Roof (m)	Source Coordinates X (m)	Source Coordinates Y (m)	Contaminant	CAS Number	Emission Rate (g/s)	Emission Rate (g/m2-s)	Averaging Period (hours)	Emission Estimating Technique [2]	Emissions Data Quality [3]	% of Overall Emissions (%)
CONV_PM	VOLUME	Stacking Conveyor Fugitive Emissions [7]	n/a	n/a	n/a	n/a	n/a	n/a	648281	4776764	TSP	n/a - TSP	8.22E-04		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	5.11E-04		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	1.44E-04		n/a - PM2.5	EF	Average	<1%
CONV_PM2_N	VOLUME	Stacking Conveyor #2 Fugitive Emissions - North Location [6]	n/a	n/a	n/a	n/a	n/a	n/a	648126	4776966	TSP	n/a - TSP	8.22E-04		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	5.11E-04		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	1.44E-04		n/a - PM2.5	EF	Average	<1%
GSTK	POINT	Grinder Engine - 860 kW, Diesel Fired [7]	2.7	575	0.2	86	5.5	1.5	648135	4776792	Nitrogen Oxides (NOx)	10102-44-0	9.45E-01		10102-44-0	EF	Marginal	10%
											Sulphur Dioxide (SO2)	7446-09-5	1.05E-01		7446-09-5	EF	Marginal	1%
											TSP	n/a - TSP	5.55E-02		n/a - TSP	EF	Marginal	1%
											PM10	n/a - PM10	5.55E-02		n/a - PM10	EF	Marginal	3%
											PM2.5	n/a - PM2.5	5.55E-02		n/a - PM2.5	EF	Marginal	5%
GSTK2_N	POINT	Grinder #2 Engine 860 kW, Diesel Fired - North Location [6]	2.7	575	0.2	86	5.5	1.5	648119	4776968	Nitrogen Oxides (NOx)	10102-44-0	9.45E-01		10102-44-0	EF	Marginal	10%
											Sulphur Dioxide (SO2)	7446-09-5	1.05E-01		7446-09-5	EF	Marginal	1%
											TSP	n/a - TSP	5.55E-02		n/a - TSP	EF	Marginal	1%
											PM10	n/a - PM10	5.55E-02		n/a - PM10	EF	Marginal	3%
											PM2.5	n/a - PM2.5	5.55E-02		n/a - PM2.5	EF	Marginal	5%
GENC	POINT	Generator #1 600 kW, Diesel Fired	2.4	553	0.25	48	3.5	0.5	648169	4776734	Nitrogen Oxides (NOx)	10102-44-0	2.43E+00		10102-44-0	EF	Marginal	25%
											Sulphur Dioxide (SO2)	7446-09-5	1.23E-03		7446-09-5	EF	Marginal	<1%
											TSP	n/a - TSP	1.80E-02		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	1.48E-02		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	1.24E-02		n/a - PM2.5	EF	Marginal	1%
SCREEN1C	POINT	Screen #1 Engine 130 kW, Diesel Fired	0.5	427	0.12	42	4	0.5	648258	4776746	Nitrogen Oxides (NOx)	10102-44-0	2.93E-01		10102-44-0	EF	Marginal	3%
											Sulphur Dioxide (SO2)	7446-09-5	1.94E-02		7446-09-5	EF	Marginal	<1%
											TSP	n/a - TSP	2.08E-02		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	2.08E-02		n/a - PM10	EF	Marginal	1%
											PM2.5	n/a - PM2.5	2.08E-02		n/a - PM2.5	EF	Marginal	2%
SCREEN2C	POINT	Screen #2 Engine 130 kW, Diesel Fired	0.5	427	0.12	42	4	0.5	648281	4776753	Nitrogen Oxides (NOx)	10102-44-0	2.93E-01		10102-44-0	EF	Marginal	3%
											Sulphur Dioxide (SO2)	7446-09-5	1.94E-02		7446-09-5	EF	Marginal	<1%
											TSP	n/a - TSP	2.08E-02		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	2.08E-02		n/a - PM10	EF	Marginal	1%
											PM2.5	n/a - PM2.5	2.08E-02		n/a - PM2.5	EF	Marginal	2%
SCREEN3C	POINT	Screen #3 Engine 130 kW, Diesel Fired	0.5	427	0.12	42	4	0.5	648134	4776839	Nitrogen Oxides (NOx)	10102-44-0	2.93E-01		10102-44-0	EF	Marginal	3%
											Sulphur Dioxide (SO2)	7446-09-5	1.94E-02		7446-09-5	EF	Marginal	<1%
											TSP	n/a - TSP	2.08E-02		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	2.08E-02		n/a - PM10	EF	Marginal	1%
											PM2.5	n/a - PM2.5	2.08E-02		n/a - PM2.5	EF	Marginal	2%
SCREEN4C	POINT	Screen #4 Engine 60 kW, Diesel Fired	0.24	525	0.1	31	4	0.5	648140	4776949	Nitrogen Oxides (NOx)	10102-44-0	1.35E-01		10102-44-0	EF	Marginal	1%
											Sulphur Dioxide (SO2)	7446-09-5	8.94E-03		7446-09-5	EF	Marginal	<1%
											TSP	n/a - TSP	9.59E-03		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	9.59E-03		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	9.59E-03		n/a - PM2.5	EF	Marginal	<1%
CONVEYOR	POINT	Stacking Conveyor Engine 60 kW, Diesel Fired [7]	0.24	525	0.1	31	2	n/a	648281	4776764	Nitrogen Oxides (NOx)	10102-44-0	6.60E-02		10102-44-0	EF	Marginal	<1%
											Sulphur Dioxide (SO2)	7446-09-5	4.36E-03		7446-09-5	EF	Marginal	<1%
											TSP	n/a - TSP	4.68E-03		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	4.68E-03		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	4.68E-03		n/a - PM2.5	EF	Marginal	<1%
CONVEY2N	POINT	Stacking Conveyor #2 Engine 60 kW, Diesel Fired [6]	0.24	525	0.1	31	2	n/a	648126	4776967	Nitrogen Oxides (NOx)	10102-44-0	6.60E-02		10102-44-0	EF	Marginal	<1%
											Sulphur Dioxide (SO2)	7446-09-5	4.36E-03		7446-09-5	EF	Marginal	<1%
											TSP	n/a - TSP	4.68E-03		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	4.68E-03		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	4.68E-03		n/a - PM2.5	EF	Marginal	<1%
R_BLDG	VOLUME	Processing Building - Operation of Diesel-Fired Heater	0.049	175	0.14	3.2	1.2	n/a	648214	4776739	Nitrogen Oxides (NOx)	10102-44-0	6.55E-03		10102-44-0	EF	Marginal	<1%
											Sulphur Dioxide (SO2)	7446-09-5	2.33E-02		7446-09-5	EF	Above-Average	<1%
											TSP	n/a - TSP	1.08E-03		n/a - TSP	EF	Above-Average	<1%
											PM10	n/a - PM10	6.55E-04		n/a - PM10	EF	Above-Average	<1%
											PM2.5	n/a - PM2.5	4.26E-04		n/a - PM2.5	EF	Above-Average	<1%
PR_CF1	LINE_VOLUME	Paved Road at Compost Facility - Inbound and Outbound Delivery	n/a	n/a	n/a	n/a	n/a	n/a	648346	4776573	Nitrogen Oxides (NOx)	10102-44-0	5.97E-04		10102-44-0	ST	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	3.62E-06		7446-09-5	ST	Above-Average	<1%
											Benzene	71-43-2	4.93E-07		71-43-2	ST	Above-Average	<1%
											TSP	n/a - TSP	3.23E-02		n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	4.23E-03		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	1.03E-03		n/a - PM2.5	ST	Above-Average	<1%

Appendix N1: Source Summary Tables - Dust, Landfill Gas and Combustion By-Products (Scenario 2 (End of Stage 3) - Year 2041)

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Source ID [1]	Source Type [1]	Source Description	Source Data								Emission Data							
			Stack Volumetric Flow Rate (Am^3/s)	Stack Exit Gas Temp. (°C)	Stack Inner Diameter (m)	Stack Exit Velocity (m/s)	Stack Height Above Grade (m)	Stack Height Above Roof (m)	Source Coordinates X (m)	Source Coordinates Y (m)	Contaminant	CAS Number	Emission Rate (g/s)	Emission Rate (g/m2-s)	Averaging Period (hours)	Emission Estimating Technique [2]	Emissions Data Quality [3]	% of Overall Emissions (%)
UR_CF2	LINE_VOLUME	Unpaved Road at Compost Facility - Inbound and Outbound Delivery	n/a	n/a	n/a	n/a	n/a	n/a	648114	4776735	Nitrogen Oxides (NOx)	10102-44-0	2.71E-04		10102-44-0	ST	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	3.21E-06		7446-09-5	ST	Above-Average	<1%
											Benzene	71-43-2	4.91E-07		71-43-2	ST	Above-Average	<1%
											TSP	n/a - TSP	3.00E-03		n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	5.64E-04		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	6.92E-05		n/a - PM2.5	ST	Above-Average	<1%
EQ_CF	VOLUME	Tailpipe Emission of Onsite Equipment at Compost Facility	n/a	n/a	n/a	n/a	n/a	n/a	648158	4776735	Nitrogen Oxides (NOx)	10102-44-0	5.60E-04		10102-44-0	ST	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	6.48E-06		7446-09-5	ST	Above-Average	<1%
											Benzene	71-43-2	1.50E-06		71-43-2	ST	Above-Average	<1%
											TSP	n/a - TSP	3.66E-05		n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	3.66E-05		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	3.66E-05		n/a - PM2.5	ST	Above-Average	<1%
Walker Environmental Group Inc. – Landfill																		
LEAPOND1	AREA	Existing Leachate Pond #1	--	--	--	--	--	--	648441	4777248	Hydrogen sulfide	7783-06-4	6.24E-06	3.59E-09	7783-06-4	ST	Above-Average	<1%
											Benzene	71-43-2	4.67E-06	2.69E-09	71-43-2	ST	Above-Average	<1%
											1,1,2-Trichloroethane	79-00-5	1.23E-06	7.05E-10	79-00-5	ST	Above-Average	<1%
											Vinyl chloride	75-01-4	5.69E-07	3.27E-10	75-01-4	ST	Above-Average	<1%
LEAPOND2	AREA	Existing Leachate Pond #2	--	--	--	--	--	--	648787	4777544	Hydrogen sulfide	7783-06-4	6.96E-06	3.59E-09	7783-06-4	ST	Above-Average	<1%
											Benzene	71-43-2	5.21E-06	2.69E-09	71-43-2	ST	Above-Average	<1%
											1,1,2-Trichloroethane	79-00-5	1.37E-06	7.05E-10	79-00-5	ST	Above-Average	<1%
											Vinyl chloride	75-01-4	6.34E-07	3.27E-10	75-01-4	ST	Above-Average	<1%
LEAPOND3	AREA	Existing Leachate Pond #3	--	--	--	--	--	--	648856	4777523	Hydrogen sulfide	7783-06-4	8.27E-06	3.59E-09	7783-06-4	ST	Above-Average	<1%
											Benzene	71-43-2	6.19E-06	2.69E-09	71-43-2	ST	Above-Average	<1%
											1,1,2-Trichloroethane	79-00-5	1.62E-06	7.05E-10	79-00-5	ST	Above-Average	<1%
											Vinyl chloride	75-01-4	7.53E-07	3.27E-10	75-01-4	ST	Above-Average	<1%
LEAPOND4	AREA	Proposed Leachate Pond #4	--	--	--	--	--	--	648776	4777487	Hydrogen sulfide	7783-06-4	1.13E-05	3.59E-09	7783-06-4	ST	Above-Average	<1%
											Benzene	71-43-2	8.47E-06	2.69E-09	71-43-2	ST	Above-Average	<1%
											1,1,2-Trichloroethane	79-00-5	2.22E-06	7.05E-10	79-00-5	ST	Above-Average	<1%
											Vinyl chloride	75-01-4	1.03E-06	3.27E-10	75-01-4	ST	Above-Average	<1%
LEAPOND5	AREA	Proposed Leachate Pond #5	--	--	--	--	--	--	648853	4777466	Hydrogen sulfide	7783-06-4	1.13E-05	3.59E-09	7783-06-4	ST	Above-Average	<1%
											Benzene	71-43-2	8.47E-06	2.69E-09	71-43-2	ST	Above-Average	<1%
											1,1,2-Trichloroethane	79-00-5	2.22E-06	7.05E-10	79-00-5	ST	Above-Average	<1%
											Vinyl chloride	75-01-4	1.03E-06	3.27E-10	75-01-4	ST	Above-Average	<1%
SOIL	AREA_POLY	Fugitive Emissions from Wast Soil Stockpile	--	--	--	--	--	--	648632	4776730	Hydrogen sulfide	7783-06-4	1.36E-04	3.61E-09	7783-06-4	ST	Above-Average	<1%
											Benzene	71-43-2	1.29E-05	3.42E-10	71-43-2	ST	Above-Average	<1%
											1,1,2-Trichloroethane	79-00-5	2.66E-05	7.05E-10	79-00-5	ST	Above-Average	2%
											Vinyl chloride	75-01-4	1.23E-05	3.27E-10	75-01-4	ST	Above-Average	<1%
SPick_Soil	VOLUME	Soil Pick up from Waste Soil Pile	n/a	n/a	n/a	n/a	n/a	n/a	648854	4776948	TSP	n/a - TSP	1.5E-02		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	6.5E-03		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	9.9E-04		n/a - PM2.5	EF	Marginal	<1%
SDrop_S3WF	VOLUME	Soil Drop off at Working Face of South Landfill Phase 2 - Stage 3	n/a	n/a	n/a	n/a	n/a	n/a	650210	4777205	TSP	n/a - TSP	1.5E-02		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	6.5E-03		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	9.9E-04		n/a - PM2.5	EF	Marginal	<1%
DROP_S4CON	VOLUME	Clay Drop off at Cell Construction Area of South Landfill Phase 2 - Stage 4	n/a	n/a	n/a	n/a	n/a	n/a	649445	4776872	TSP	n/a - TSP	3.0E-03		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	1.3E-03		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	2.0E-04		n/a - PM2.5	EF	Marginal	<1%
DROP_S3CAP	VOLUME	Clay Drop off at Final Capping Construction Area of South Landfill Phase 2 - Stage 3	n/a	n/a	n/a	n/a	n/a	n/a	649958	4776883	TSP	n/a - TSP	1.5E-03		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	6.4E-04		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	9.7E-05		n/a - PM2.5	EF	Marginal	<1%
DOZER_Soil	VOLUME	Bulldozer at Waste Soil Pile - Fugitive dust	n/a	n/a	n/a	n/a	n/a	n/a	648844	4776949	TSP	n/a - TSP	9.8E-01		n/a - TSP	EF		23%
											PM10	n/a - PM10	3.0E-01		n/a - PM10	EF		15%
											PM2.5	n/a - PM2.5	1.0E-01		n/a - PM2.5	EF		8%
DOZER_S3WF	VOLUME	Bulldozer at Working Face of South Landfill Phase 2 Stage 3 - Fugitive dust	n/a	n/a	n/a	n/a	n/a	n/a	650210	4777208	TSP	n/a - TSP	9.8E-01		n/a - TSP	EF		23%
											PM10	n/a - PM10	3.0E-01		n/a - PM10	EF		15%
											PM2.5	n/a - PM2.5	1.0E-01		n/a - PM2.5	EF		8%
DOZER_S3CAP	VOLUME	Bulldozer at Final Capping Construction Area of South Landfill Phase 2 - Stage 3 - Fugitive dust	n/a	n/a	n/a	n/a	n/a	n/a	649957	4776887	TSP	n/a - TSP	9.8E-01		n/a - TSP	EF	Above-Average	23%
											PM10	n/a - PM10	3.0E-01		n/a - PM10	EF	Above-Average	15%
											PM2.5	n/a - PM2.5	1.0E-01		n/a - PM2.5	EF	Above-Average	8%

Appendix N1: Source Summary Tables - Dust, Landfill Gas and Combustion By-Products (Scenario 2 (End of Stage 3) - Year 2041)

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Source ID [1]	Source Type [1]	Source Description	Source Data								Emission Data							
			Stack Volumetric Flow Rate (Am^3/s)	Stack Exit Gas Temp. (°C)	Stack Inner Diameter (m)	Stack Exit Velocity (m/s)	Stack Height Above Grade (m)	Stack Height Above Roof (m)	Source Coordinates X (m)	Source Coordinates Y (m)	Contaminant	CAS Number	Emission Rate (g/s)	Emission Rate (g/m2-s)	Averaging Period (hours)	Emission Estimating Technique [2]	Emissions Data Quality [3]	% of Overall Emissions (%)
EQ_Soil	VOLUME	Tailpipe Emission of Onsite Equipment at Soil Pile	n/a	n/a	n/a	n/a	n/a	n/a	648844	4776949	Nitrogen Oxides (NOx)	10102-44-0	2.3E-03		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	2.9E-05		7446-09-5	EF	Above-Average	<1%
											Benzene	71-43-2	4.5E-06		71-43-2	EF	Above-Average	<1%
											TSP	n/a - TSP	1.3E-04		n/a - TSP	EF	Above-Average	<1%
											PM10	n/a - PM10	1.3E-04		n/a - PM10	EF	Above-Average	<1%
											PM2.5	n/a - PM2.5	1.3E-04		n/a - PM2.5	EF	Above-Average	<1%
EQ_S3WF	VOLUME	Tailpipe Emission of Onsite Equipment at Working Face of South Landfill Phase 2 - Stage 3	n/a	n/a	n/a	n/a	n/a	n/a	650212	4777209	Nitrogen Oxides (NOx)	10102-44-0	6.1E-03		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	2.1E-05		7446-09-5	EF	Above-Average	<1%
											Benzene	71-43-2	6.9E-06		71-43-2	EF	Above-Average	<1%
											TSP	n/a - TSP	1.31E-04		n/a - TSP	EF	Above-Average	<1%
											PM10	n/a - PM10	1.31E-04		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	1.31E-04		n/a - PM2.5	ST	Above-Average	<1%
EQ_S3CAP	VOLUME	Tailpipe Emission of Onsite Equipment at Final Capping Construction Area of South Landfill Phase 2 - Stage 3	n/a	n/a	n/a	n/a	n/a	n/a	649959	4776888	Nitrogen Oxides (NOx)	10102-44-0	2.3E-03		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	2.9E-05		7446-09-5	EF	Above-Average	<1%
											Benzene	71-43-2	4.5E-06		71-43-2	EF	Above-Average	<1%
											TSP	n/a - TSP	1.3E-04		n/a - TSP	EF	Above-Average	<1%
											PM10	n/a - PM10	1.3E-04		n/a - PM10	EF	Above-Average	<1%
											PM2.5	n/a - PM2.5	1.3E-04		n/a - PM2.5	EF	Above-Average	<1%
TIP_S3	POINT	173 hp Diesel-Fired Landfill Tipper at South Landfill Phase 2 Stage 3 - Combustion	1.25	349	0.25	25.5	2	n/a	650201	4777211	Nitrogen Oxides (NOx)	10102-44-0	6.76E-01		10102-44-0	EF	Above-Average	7%
											Sulphur Dioxide (SO2)	7446-09-5	4.47E-02		7446-09-5	EF	Marginal	<1%
											TSP	n/a - TSP	4.80E-02		n/a - TSP	EF	Above-Average	1%
											PM10	n/a - PM10	4.80E-02		n/a - PM10	EF	Above-Average	2%
											PM2.5	n/a - PM2.5	4.80E-02		n/a - PM2.5	EF	Above-Average	4%
TIP2_S3	POINT	173 hp Diesel-Fired Landfill Tipper #2 at South Landfill Phase 2 Stage 3 - Combustion	1.25	349	0.25	25.5	2	n/a	650217	4777210	Nitrogen Oxides (NOx)	10102-44-0	6.76E-01		10102-44-0	EF	Above-Average	7%
											Sulphur Dioxide (SO2)	7446-09-5	4.47E-02		7446-09-5	EF	Marginal	<1%
											TSP	n/a - TSP	4.80E-02		n/a - TSP	EF	Above-Average	1%
											PM10	n/a - PM10	4.80E-02		n/a - PM10	EF	Above-Average	2%
											PM2.5	n/a - PM2.5	4.80E-02		n/a - PM2.5	EF	Above-Average	4%
EASTLF_FC	AREA_POLY	Fugitive Emissions from Areas under Final Cover at East Landfill	--	--	--	--	--	--	648369	4776777	Hydrogen sulfide	7783-06-4	1.13E-03	1.90E-09	7783-06-4	ST	Above-Average	3%
											Benzene	71-43-2	6.43E-05	1.08E-10	71-43-2	ST	Above-Average	2%
											1,1,2-Trichloroethane	79-00-5	2.21E-04	3.73E-10	79-00-5	ST	Above-Average	16%
											Vinyl chloride	75-01-4	1.03E-04	1.73E-10	75-01-4	ST	Above-Average	6%
SLF_FC	AREA_POLY	Fugitive Emissions from Areas under Final Cover at South Landfill Phase 1	--	--	--	--	--	--	648547	4775839	Hydrogen sulfide	7783-06-4	7.25E-04	1.43E-09	7783-06-4	ST	Above-Average	2%
											Benzene	71-43-2	1.69E-04	3.33E-10	71-43-2	ST	Above-Average	6%
											1,1,2-Trichloroethane	79-00-5	3.83E-04	7.55E-10	79-00-5	ST	Above-Average	28%
											Vinyl chloride	75-01-4	1.34E-04	2.63E-10	75-01-4	ST	Above-Average	8%
S1_FC	AREA_POLY	Fugitive Emissions from Areas under Final Cover at South Landfill Phase 2 - Stage 1	--	--	--	--	--	--	649436	4775998	Hydrogen sulfide	7783-06-4	6.46E-04	2.78E-09	7783-06-4	ST	Above-Average	2%
											Benzene	71-43-2	1.05E-04	4.51E-10	71-43-2	ST	Above-Average	4%
											1,1,2-Trichloroethane	79-00-5	2.37E-04	1.02E-09	79-00-5	ST	Above-Average	17%
											Vinyl chloride	75-01-4	8.28E-05	3.56E-10	75-01-4	ST	Above-Average	5%
S2_FC	AREA_POLY	Fugitive Emissions from Areas under Final Cover at South Landfill Phase 2 - Stage 2	--	--	--	--	--	--	650029	4776749	Hydrogen sulfide	7783-06-4	5.54E-04	3.70E-09	7783-06-4	ST	Above-Average	2%
											Benzene	71-43-2	8.99E-05	6.01E-10	71-43-2	ST	Above-Average	3%
											1,1,2-Trichloroethane	79-00-5	2.04E-04	1.36E-09	79-00-5	ST	Above-Average	15%
											Vinyl chloride	75-01-4	7.11E-05	4.75E-10	75-01-4	ST	Above-Average	4%
S3_IC	AREA_POLY	Fugitive Emissions from Areas under Interim Cover at South Landfill Phase 2 - Stage 3	--	--	--	--	--	--	649945	4777029	Hydrogen sulfide	7783-06-4	4.17E-04	3.83E-09	7783-06-4	ST	Above-Average	1%
											Benzene	71-43-2	2.93E-04	2.69E-09	71-43-2	ST	Above-Average	11%
											1,1,2-Trichloroethane	79-00-5	7.67E-05	7.05E-10	79-00-5	ST	Above-Average	6%
											Vinyl chloride	75-01-4	9.91E-04	9.12E-09	75-01-4	ST	Above-Average	59%
S3_FC	AREA_POLY	Fugitive Emissions from Areas under Final Cover at South Landfill Phase 2 - Stage 3	--	--	--	--	--	--	649737	4776845	Hydrogen sulfide	7783-06-4	1.20E-04	3.59E-09	7783-06-4	ST	Above-Average	<1%
											Benzene	71-43-2	1.94E-05	5.83E-10	71-43-2	ST	Above-Average	<1%
											1,1,2-Trichloroethane	79-00-5	4.40E-05	1.32E-09	79-00-5	ST	Above-Average	3%
											Vinyl chloride	75-01-4	1.53E-05	4.61E-10	75-01-4	ST	Above-Average	<1%
WE_S3IC	AREA_POLY	Wind Erosion from Areas under Interim Cover at South Landfill	--	--	--	--	--	--	649945	4777029	TSP	n/a - TSP	0.00E+00	0.00E+00	n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	0.00E+00	0.00E+00	n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	0.00E+00	0.00E+00	n/a - PM2.5	ST	Above-Average	<1%
WE_S3CAP	AREA	Wind Erosion from Final Capping Construction Area at South Landfill Phase 2 - Stage 3	--	--	--	--	--	--	649979	4776908	TSP	n/a - TSP	0.00E+00	0.00E+00	n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	0.00E+00	0.00E+00	n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	0.00E+00	0.00E+00	n/a - PM2.5	ST	Above-Average	<1%
WE_S4CON	AREA	Wind Erosion from Cell Construction Area at South Landfill Phase 2 - Stage 4	--	--	--	--	--	--	649383	4776852	TSP	n/a - TSP	0.00E+00	0.00E+00	n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	0.00E+00	0.00E+00	n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	0.00E+00	0.00E+00	n/a - PM2.5	ST	Above-Average	<1%
WE_SOIL	AREA_POLY	Wind Erosion from Waste Soil Stockpile	--	--	--	--	--	--	648632	4776730	TSP	n/a - TSP	0.00E+00	0.00E+00	n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	0.00E+00	0.00E+00	n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	0.00E+00	0.00E+00	n/a - PM2.5	ST	Above-Average	<1%

Appendix N1: Source Summary Tables - Dust, Landfill Gas and Combustion By-Products (Scenario 2 (End of Stage 3) - Year 2041)

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Source ID [1]	Source Type [1]	Source Description	Source Data								Emission Data							
			Stack Volumetric Flow Rate (Am^3/s)	Stack Exit Gas Temp. (°C)	Stack Inner Diameter (m)	Stack Exit Velocity (m/s)	Stack Height Above Grade (m)	Stack Height Above Roof (m)	Source Coordinates X (m)	Source Coordinates Y (m)	Contaminant	CAS Number	Emission Rate (g/s)	Emission Rate (g/m2-s)	Averaging Period (hours)	Emission Estimating Technique [2]	Emissions Data Quality [3]	% of Overall Emissions (%)
IDLE_WEIGH	VOLUME	Trucks Idling at the Weigh Scale	n/a	n/a	n/a	n/a	n/a	n/a	648928	4776513	Nitrogen Oxides (NOx)	10102-44-0	6.4E-03		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	3.1E-06		7446-09-5	EF	Above-Average	<1%
											Benzene	71-43-2	2.0E-08		71-43-2	EF	Above-Average	<1%
											TSP	n/a - TSP	1.46E-05		n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	1.46E-05		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	1.34E-05		n/a - PM2.5	ST	Above-Average	<1%
IDLE_S3WF	VOLUME	Trucks Idling at the Working Face of South Landfill Phase 2 - Stage 3	n/a	n/a	n/a	n/a	n/a	n/a	650198	4777198	Nitrogen Oxides (NOx)	10102-44-0	6.4E-03		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	3.1E-06		7446-09-5	EF	Above-Average	<1%
											Benzene	71-43-2	2.0E-08		71-43-2	EF	Above-Average	<1%
											TSP	n/a - TSP	1.46E-05		n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	1.46E-05		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	1.34E-05		n/a - PM2.5	ST	Above-Average	<1%
UR_SOCL	LINE_VOLUME	Unpaved Road - Transport of Soil and Clay between Soil Pile and Working Face and Construction Areas	n/a	n/a	n/a	n/a	n/a	n/a	648902	4776927	Nitrogen Oxides (NOx)	10102-44-0	1.6E-04		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	7.4E-07		7446-09-5	EF	Above-Average	<1%
											Benzene	71-43-2	9.3E-08		71-43-2	EF	Above-Average	<1%
											TSP	n/a - TSP	1.46E-02		n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	2.45E-03		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	2.48E-04		n/a - PM2.5	ST	Above-Average	<1%
PR_W1	LINE_VOLUME	Paved Road - Transport of Waste between Entrance and Weigh Scale	n/a	n/a	n/a	n/a	n/a	n/a	649341	4776584	Nitrogen Oxides (NOx)	10102-44-0	4.67E-04		10102-44-0	ST	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	9.60E-07		7446-09-5	ST	Above-Average	<1%
											Benzene	71-43-2	7.68E-08		71-43-2	ST	Above-Average	<1%
											TSP	n/a - TSP	4.86E-02		n/a - TSP	ST	Above-Average	1%
											PM10	n/a - PM10	6.35E-03		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	1.53E-03		n/a - PM2.5	ST	Above-Average	<1%
UR_W2	LINE_VOLUME	Unpaved Road at - Transport of Waste between Weigh Scale and Working Face	n/a	n/a	n/a	n/a	n/a	n/a	648928	4776513	Nitrogen Oxides (NOx)	10102-44-0	7.58E-05		10102-44-0	ST	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	5.28E-07		7446-09-5	ST	Above-Average	<1%
											Benzene	71-43-2	7.51E-08		71-43-2	ST	Above-Average	<1%
											TSP	n/a - TSP	5.41E-03		n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	1.00E-03		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	1.02E-04		n/a - PM2.5	ST	Above-Average	<1%
UR_W3	LINE_VOLUME	Unpaved Road at - Transport of Waste between Weigh Scale and Working Face	n/a	n/a	n/a	n/a	n/a	n/a	648901	4776446	Nitrogen Oxides (NOx)	10102-44-0	4.05E-04		10102-44-0	ST	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	8.91E-07		7446-09-5	ST	Above-Average	<1%
											Benzene	71-43-2	7.65E-08		71-43-2	ST	Above-Average	<1%
											TSP	n/a - TSP	5.29E-02		n/a - TSP	ST	Above-Average	1%
											PM10	n/a - PM10	9.77E-03		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	9.82E-04		n/a - PM2.5	ST	Above-Average	<1%
UR_W4	LINE_VOLUME	Unpaved Road - Transport of Soil, Clay and Waste between Weigh Scale and Working Face	n/a	n/a	n/a	n/a	n/a	n/a	649121	4777049	Nitrogen Oxides (NOx)	10102-44-0	1.36E-04		10102-44-0	ST	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	4.04E-07		7446-09-5	ST	Above-Average	<1%
											Benzene	71-43-2	4.22E-08		71-43-2	ST	Above-Average	<1%
											TSP	n/a - TSP	1.74E-02		n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	3.22E-03		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	3.24E-04		n/a - PM2.5	ST	Above-Average	<1%
UR_W5	LINE_VOLUME	Unpaved Road - Transport of Soil, Clay and Waste between Weigh Scale and Working Face	n/a	n/a	n/a	n/a	n/a	n/a	649352	4777069	Nitrogen Oxides (NOx)	10102-44-0	7.92E-05		10102-44-0	ST	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	3.45E-07		7446-09-5	ST	Above-Average	<1%
											Benzene	71-43-2	4.32E-08		71-43-2	ST	Above-Average	<1%
											TSP	n/a - TSP	8.65E-03		n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	1.60E-03		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	1.61E-04		n/a - PM2.5	ST	Above-Average	<1%
UR_W6	LINE_VOLUME	Unpaved Road - Transport of Soil and Waste between Weigh Scale and Working Face	n/a	n/a	n/a	n/a	n/a	n/a	649457	4777018	Nitrogen Oxides (NOx)	10102-44-0	4.01E-04		10102-44-0	ST	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	7.31E-07		7446-09-5	ST	Above-Average	<1%
											Benzene	71-43-2	4.71E-08		71-43-2	ST	Above-Average	<1%
											TSP	n/a - TSP	5.66E-02		n/a - TSP	ST	Above-Average	1%
											PM10	n/a - PM10	1.04E-02		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	1.05E-03		n/a - PM2.5	ST	Above-Average	<1%
UR_S4CON	LINE_VOLUME	Unpaved Road - Transport of Clay between Soil Pile and Cell Construction Area	n/a	n/a	n/a	n/a	n/a	n/a	649457	4777018	Nitrogen Oxides (NOx)	10102-44-0	3.93E-04		10102-44-0	ST	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	4.19E-06		7446-09-5	ST	Above-Average	<1%
											Benzene	71-43-2	6.32E-07		71-43-2	ST	Above-Average	<1%
											TSP	n/a - TSP	1.36E-02		n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	2.52E-03		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	2.69E-04		n/a - PM2.5	ST	Above-Average	<1%

Appendix N1: Source Summary Tables - Dust, Landfill Gas and Combustion By-Products (Scenario 2 (End of Stage 3) - Year 2041)

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Source ID [1]	Source Type [1]	Source Description	Source Data								Emission Data							
			Stack Volumetric Flow Rate (Am^3/s)	Stack Exit Gas Temp. (°C)	Stack Inner Diameter (m)	Stack Exit Velocity (m/s)	Stack Height Above Grade (m)	Stack Height Above Roof (m)	Source Coordinates X (m)	Source Coordinates Y (m)	Contaminant	CAS Number	Emission Rate (g/s)	Emission Rate (g/m2-s)	Averaging Period (hours)	Emission Estimating Technique [2]	Emissions Data Quality [3]	% of Overall Emissions (%)
UR_S3CAP	LINE_VOLUME	Unpaved Road - Transport of Clay between Soil Pile and Final Capping Construction Area	n/a	n/a	n/a	n/a	n/a	n/a	649352	4777069	Nitrogen Oxides (NOx)	10102-44-0	8.80E-04		10102-44-0	ST	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	7.56E-06		7446-09-5	ST	Above-Average	<1%
											Benzene	71-43-2	1.11E-06		71-43-2	ST	Above-Average	<1%
											TSP	n/a - TSP	7.00E-02		n/a - TSP	ST	Above-Average	2%
											PM10	n/a - PM10	1.29E-02		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	1.32E-03		n/a - PM2.5	ST	Above-Average	<1%
FLARE1	POINT	Landfill Gas Flare	7.4	871	3.0	1.1	12.2	n/a	648601	4775958	Nitrogen Oxides (NOx)	10102-44-0	9.53E-02		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	1.02E+00		7446-09-5	MB	Average	11%
											TSP	n/a - TSP	4.22E-02		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	4.22E-02		n/a - PM10	EF	Marginal	2%
											PM2.5	n/a - PM2.5	4.22E-02		n/a - PM2.5	EF	Marginal	3%
											Hydrogen Sulfide	7783-06-4	6.82E-03		7783-06-4	EF	Above-Average	19%
											Vinyl Chloride	75-01-4	5.58E-06		75-01-4	EF	Above-Average	<1%
											Benzene	71-43-2	3.94E-05		71-43-2	EF	Above-Average	1%
											1,1,2-Trichloroethane	79-00-5	3.20E-06		79-00-5	EF	Above-Average	<1%
FLARE2	POINT	Landfill Gas Flare	7.4	871	4.0	0.6	15.2	n/a	648607	4775953	Nitrogen Oxides (NOx)	10102-44-0	9.53E-02		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	1.02E+00		7446-09-5	MB	Average	11%
											TSP	n/a - TSP	4.22E-02		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	4.22E-02		n/a - PM10	EF	Marginal	2%
											PM2.5	n/a - PM2.5	4.22E-02		n/a - PM2.5	EF	Marginal	3%
											Hydrogen Sulfide	7783-06-4	6.82E-03		7783-06-4	EF	Above-Average	19%
											Vinyl Chloride	75-01-4	5.58E-06		75-01-4	EF	Above-Average	<1%
											Benzene	71-43-2	3.94E-05		71-43-2	EF	Above-Average	1%
											1,1,2-Trichloroethane	79-00-5	3.20E-06		79-00-5	EF	Above-Average	<1%
FLARE3	POINT	Landfill Gas Flare	7.4	871	4.0	0.6	15.2	n/a	648613	4775949	Nitrogen Oxides (NOx)	10102-44-0	9.53E-02		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	1.02E+00		7446-09-5	MB	Average	11%
											TSP	n/a - TSP	4.22E-02		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	4.22E-02		n/a - PM10	EF	Marginal	2%
											PM2.5	n/a - PM2.5	4.22E-02		n/a - PM2.5	EF	Marginal	3%
											Hydrogen Sulfide	7783-06-4	6.82E-03		7783-06-4	EF	Above-Average	19%
											Vinyl Chloride	75-01-4	5.58E-06		75-01-4	EF	Above-Average	<1%
											Benzene	71-43-2	3.94E-05		71-43-2	EF	Above-Average	1%
											1,1,2-Trichloroethane	79-00-5	3.20E-06		79-00-5	EF	Above-Average	<1%
PGEN1	POINT	82 bhp Portable Diesel Fired Generator Cummins Model #4BT3.3-G2	0.17	510	0.08	33.8	2.5	n/a	648429	4775836	Nitrogen Oxides (NOx)	10102-44-0	8.72E-02		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	1.70E-02		7446-09-5	EF	Marginal	<1%
											TSP	n/a - TSP	7.30E-03		n/a - TSP	EF	Above-Average	<1%
											PM10	n/a - PM10	7.30E-03		n/a - PM10	EF	Above-Average	<1%
											PM2.5	n/a - PM2.5	7.30E-03		n/a - PM2.5	EF	Above-Average	<1%
Integrated Gas Recovery Services Inc. – Landfill Gas Utilization Plant																		
GEN1	POINT	1,064 kW Landfill Gas Fired Generator	2.0	509	0.25	39.4	6.0	3.0	648553	4775929	Nitrogen Oxides (NOx)	10102-44-0	4.49E-01		10102-44-0	EF	Above-Average	5%
											Sulphur Dioxide (SO2)	7446-09-5	9.98E-02		7446-09-5	MB	Average	1%
											TSP	n/a - TSP	4.98E-02		n/a - TSP	EF	Marginal	1%
											PM10	n/a - PM10	4.98E-02		n/a - PM10	EF	Marginal	3%
											PM2.5	n/a - PM2.5	4.98E-02		n/a - PM2.5	EF	Marginal	4%
											Hydrogen Sulfide	7783-06-4	2.82E-03		7783-06-4	EF	Above-Average	8%
											Vinyl Chloride	75-01-4	2.31E-06		75-01-4	EF	Above-Average	<1%
											Benzene	71-43-2	1.63E-05		71-43-2	EF	Above-Average	<1%
											1,1,2-Trichloroethane	79-00-5	1.33E-06		79-00-5	EF	Above-Average	<1%
GEN2	POINT	1,064 kW Landfill Gas Fired Generator	2.0	509	0.25	39.4	6.0	3.0	648554	4775922	Nitrogen Oxides (NOx)	10102-44-0	4.49E-01		10102-44-0	EF	Above-Average	5%
											Sulphur Dioxide (SO2)	7446-09-5	9.98E-02		7446-09-5	MB	Average	1%
											TSP	n/a - TSP	4.98E-02		n/a - TSP	EF	Marginal	1%
											PM10	n/a - PM10	4.98E-02		n/a - PM10	EF	Marginal	3%
											PM2.5	n/a - PM2.5	4.98E-02		n/a - PM2.5	EF	Marginal	4%
											Hydrogen Sulfide	7783-06-4	2.82E-03		7783-06-4	EF	Above-Average	8%
											Vinyl Chloride	75-01-4	2.31E-06		75-01-4	EF	Above-Average	<1%
											Benzene	71-43-2	1.63E-05		71-43-2	EF	Above-Average	<1%
											1,1,2-Trichloroethane	79-00-5	1.33E-06		79-00-5	EF	Above-Average	<1%

Appendix N1: Source Summary Tables - Dust, Landfill Gas and Combustion By-Products (Scenario 2 (End of Stage 3) - Year 2041)

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Source ID [1]	Source Type [1]	Source Description	Source Data								Emission Data							
			Stack Volumetric Flow Rate (Am^3/s)	Stack Exit Gas Temp. (°C)	Stack Inner Diameter (m)	Stack Exit Velocity (m/s)	Stack Height Above Grade (m)	Stack Height Above Roof (m)	Source Coordinates X (m)	Source Coordinates Y (m)	Contaminant	CAS Number	Emission Rate (g/s)	Emission Rate (g/m2-s)	Averaging Period (hours)	Emission Estimating Technique [2]	Emissions Data Quality [3]	% of Overall Emissions (%)
GEN3	POINT	1,064 kW Landfill Gas Fired Generator	2.0	509	0.25	39.4	6.0	3.0	648558	4775914	Nitrogen Oxides (NOx)	10102-44-0	4.49E-01		10102-44-0	EF	Above-Average	5%
											Sulphur Dioxide (SO2)	7446-09-5	9.98E-02		7446-09-5	MB	Average	1%
											TSP	n/a - TSP	4.98E-02		n/a - TSP	EF	Marginal	1%
											PM10	n/a - PM10	4.98E-02		n/a - PM10	EF	Marginal	3%
											PM2.5	n/a - PM2.5	4.98E-02		n/a - PM2.5	EF	Marginal	4%
											Hydrogen Sulfide	7783-06-4	2.82E-03		7783-06-4	EF	Above-Average	8%
											Vinyl Chloride	75-01-4	2.31E-06		75-01-4	EF	Above-Average	<1%
											Benzene	71-43-2	1.63E-05		71-43-2	EF	Above-Average	<1%
											1,1,2-Trichloroethane	79-00-5	1.33E-06		79-00-5	EF	Above-Average	<1%
GEN4	POINT	1,064 kW Landfill Gas Fired Generator	2.0	509	0.25	39.4	6.0	3.0	648547	4775938	Nitrogen Oxides (NOx)	10102-44-0	4.49E-01		10102-44-0	EF	Above-Average	5%
											Sulphur Dioxide (SO2)	7446-09-5	9.98E-02		7446-09-5	MB	Average	1%
											TSP	n/a - TSP	4.98E-02		n/a - TSP	EF	Marginal	1%
											PM10	n/a - PM10	4.98E-02		n/a - PM10	EF	Marginal	3%
											PM2.5	n/a - PM2.5	4.98E-02		n/a - PM2.5	EF	Marginal	4%
											Hydrogen Sulfide	7783-06-4	2.82E-03		7783-06-4	EF	Above-Average	8%
											Vinyl Chloride	75-01-4	2.31E-06		75-01-4	EF	Above-Average	<1%
											Benzene	71-43-2	1.63E-05		71-43-2	EF	Above-Average	<1%
											1,1,2-Trichloroethane	79-00-5	1.33E-06		79-00-5	EF	Above-Average	<1%
SILFLAR2	POINT	Siloxane Flare 2 (new)	1.1	871	1.2	0.97	7.8	n/a	648530	4775914	Nitrogen Oxides (NOx)	10102-44-0	2.98E-02		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	4.33E-02		7446-09-5	MB	Average	<1%
											TSP	n/a - TSP	6.55E-03		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	6.55E-03		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	6.55E-03		n/a - PM2.5	EF	Marginal	<1%
RNGFLARE	POINT	RNG Elevated Flare [8]	1.3	871	0.4	10.2	15.13	n/a	648541	4775766	Nitrogen Oxides (NOx)	10102-44-0	3.98E-01		10102-44-0	EF	Above-Average	4%
											Sulphur Dioxide (SO2)	7446-09-5	5.49E-01		7446-09-5	MB	Average	6%
											TSP	n/a - TSP	1.76E-01		n/a - TSP	EF	Marginal	4%
											PM10	n/a - PM10	1.76E-01		n/a - PM10	EF	Marginal	9%
											PM2.5	n/a - PM2.5	1.76E-01		n/a - PM2.5	EF	Marginal	15%
											Hydrogen Sulfide	7783-06-4	0.00E+00		7783-06-4	EF	Above-Average	<1%
											Vinyl Chloride	75-01-4	2.31E-05		75-01-4	EF	Above-Average	1%
											Benzene	71-43-2	1.63E-04		71-43-2	EF	Above-Average	6%
											1,1,2-Trichloroethane	79-00-5	1.33E-05		79-00-5	EF	Above-Average	<1%
RNGTAIL	POINT	RNG Elevated Flare - Tail Gas [8]	1.5	871	0.4	11.8	15.13	n/a	648541	4775766	Sulphur Dioxide (SO2)	7446-09-5	4.67E+00	4.67E+00	7446-09-5	MB	Average	51%
TO	POINT	Thermal Oxidizer	13.1	787	1.1	13.6	13.72	n/a	648494	4775921	Nitrogen Oxides (NOx)	10102-44-0	7.56E-02		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	0.00E+00		7446-09-5	MB	Average	<1%
											TSP	n/a - TSP	2.80E-02		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	2.80E-02		n/a - PM10	EF	Marginal	1%
											PM2.5	n/a - PM2.5	2.80E-02		n/a - PM2.5	EF	Marginal	2%
											Hydrogen Sulfide	7783-06-4	5.85E-05		7783-06-4	EF	Above-Average	<1%
											Vinyl Chloride	75-01-4	2.23E-04		75-01-4	EF	Above-Average	13%
											Benzene	71-43-2	1.57E-03		71-43-2	EF	Above-Average	58%
											1,1,2-Trichloroethane	79-00-5	1.28E-04		79-00-5	EF	Above-Average	9%
Total																		
Total	- -	Total From all Sources	- -	- -	- -	- -	- -	- -	- -	- -	Nitrogen Oxides (NOx)	10102-44-0	9.73E+00	9.72E+00	1, 24	- -	- -	100%
											Sulphur Dioxide (SO2)	7446-09-5	9.14E+00	9.14E+00	1, 8760	- -	- -	#N/A
											TSP	n/a - TSP	4.34E+00	4.03E+00	24, 8760	- -	- -	100%
											PM10	n/a - PM10	1.99E+00	1.93E+00	24	- -	- -	100%
											PM2.5	n/a - PM2.5	1.21E+00	1.20E+00	24, 8760	- -	- -	100%
											Hydrogen Sulfide	7783-06-4	3.56E-02	3.18E-02	10 min, 24	- -	- -	100%
											Vinyl Chloride	75-01-4	1.68E-03	2.72E-04	24, 8760	- -	- -	100%
											Benzene	71-43-2	2.72E-03	1.93E-03	24, 8760	- -	- -	100%
											1,1,2-Trichloroethane	79-00-5	1.36E-03	1.56E-04	24	- -	- -	100%

Notes:

[1] Source ID, Source Type: should provide information on the modelling source type (e.g., Point, Area or Volume Source); the process source or sources within the modelling source (e.g., Process Line #1); and the stack or stacks within each process source.

[2] Emission Estimating Technique Short-Forms are V-ST (Validated Source Test), "ST" (Source Test), EF (Emission Factor), MB (Mass Balance), and EC (Engineering Calculation).

[3] Data Quality Categories: Highest; Above-Average; Average; and Marginal.

[4] These volume sources represent sources of fugitive dust emissions. The emissions from these sources are not ducted through any sort of stack or vent, therefore, no stack parameters are provided for these sources in the source summary table.

[5] ASPH_DC stack height above roof is the stack height above the adjacent dust collector structure.

Appendix N2: H2S and VOC Flux Chamber Sampling Data

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Results	Units	South Landfill - Interim Cover									South Landfill - Final Cover					
		SOUTH LANDFILL INTERMITTENT COVER AREA #1	SOUTH LANDFILL INTERMITTENT COVER AREA #2	SOUTH LANDFILL INTERMITTENT COVER AREA #3	SOUTH LANDFILL INTERMITTENT COVER AREA #4	SOUTH LANDFILL INTERMITTENT COVER AREA #5	SOUTH LANDFILL INTERMITTENT COVER AREA #6	SOUTH LANDFILL INTERMITTENT COVER AREA #7	SOUTH LANDFILL INTERMITTENT COVER AREA #8	SOUTH LANDFILL INTERMITTENT COVER AREA #9	SOUTH LANDFILL FINAL COVER AREA #1	SOUTH LANDFILL FINAL COVER AREA #2	SOUTH LANDFILL FINAL COVER AREA #3	SOUTH LANDFILL FINAL COVER AREA #4	SOUTH LANDFILL FINAL COVER AREA #5	SOUTH LANDFILL FINAL COVER AREA #6
Hydrogen sulfide	µg/m³	8.8	5.6	5.6	5.6	5.6	5.6	5.8	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
Acetone	µg/m³	14.7	30.6	67.9	11.9	33	8.1	8.6	12.8	21.8	35.4	6.9	57.5	59.4	16.2	16.6
Allyl chloride	µg/m³	0.63	0.63	0.63	0.63	0.63	0.63	0.66	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
Benzene	µg/m³	0.32	0.32	32.9	0.32	1.15	0.32	0.32	0.32	1.85	0.32	0.83	0.32	0.32	0.32	0.32
Benzyl chloride	µg/m³	1	1	1	1	1	1	1.1	1	1	1	1	1	1	1	1
Bromodichloromethane	µg/m³	1.3	1.3	1.3	1.3	1.3	1.3	1.4	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Bromoform	µg/m³	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
Bromomethane	µg/m³	0.78	0.78	0.78	0.78	0.78	0.78	0.82	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
1,3-Butadiene	µg/m³	0.44	0.44	2.85	0.44	0.44	0.44	0.46	0.44	0.77	0.44	0.44	0.44	0.44	0.44	0.44
Carbon disulfide	µg/m³	1.6	1.7	2.3	1.6	1.6	1.6	1.6	1.6	1.6	13.5	1.6	1.6	2.2	1.6	2.9
Carbon tetrachloride	µg/m³	1.26	1.26	1.26	1.26	1.26	1.26	1.32	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26
Chlorobenzene	µg/m³	0.92	0.92	0.92	0.92	0.92	0.92	0.97	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Chloroethane	µg/m³	0.53	3.67	34.3	0.53	1.61	0.53	0.55	0.53	4.8	0.53	0.53	0.53	0.53	0.53	0.53
Chloroform	µg/m³	0.98	0.98	1.46	0.98	0.98	0.98	1.02	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Chloromethane	µg/m³	0.56	2.06	4.38	0.41	1.47	0.41	0.43	0.41	3.49	0.41	0.43	0.56	0.41	0.91	0.7
Cyclohexane	µg/m³	0.69	1.82	86	0.69	1.96	0.69	0.72	0.69	16.6	0.69	0.69	0.89	0.69	0.69	0.69
Dibromochloromethane	µg/m³	1.7	1.7	1.7	1.7	1.7	1.7	1.8	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
1,2-Dibromoethane	µg/m³	1.5	1.5	1.5	1.5	1.5	1.5	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,2-Dichlorobenzene	µg/m³	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
1,3-Dichlorobenzene	µg/m³	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
1,4-Dichlorobenzene	µg/m³	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Dichlorodifluoromethane	µg/m³	1.5	5	18.5	1	2.5	1	1	1	1.9	1	1	1.3	1	1.6	1.5
1,1-Dichloroethane	µg/m³	0.81	0.81	0.81	0.81	0.81	0.81	0.85	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
1,2-Dichloroethane	µg/m³	0.81	0.81	15.2	0.81	0.81	0.81	0.85	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
1,1-Dichloroethylene	µg/m³	0.79	0.79	2.62	0.79	0.79	0.79	0.83	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
cis-1,2-Dichloroethylene	µg/m³	0.79	0.79	204	0.79	7.41	0.79	0.83	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
trans-1,2-Dichloroethylene	µg/m³	0.79	0.79	15.6	0.79	0.79	0.79	0.83	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Dichloromethane	µg/m³	0.69	0.69	9.38	0.69	1.01	0.69	0.73	0.69	0.73	0.69	0.69	0.69	0.69	0.69	0.69
1,2-Dichloropropane	µg/m³	0.9	0.9	2.1	0.9	0.9	0.9	1	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
1,3-Dichloropropylene (cis+trans)	µg/m³	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
cis-1,3-Dichloropropylene	µg/m³	0.9	0.9	0.9	0.9	0.9	0.9	1	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
trans-1,3-Dichloropropylene	µg/m³	0.9	0.9	0.9	0.9	0.9	0.9	1	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
1,2-Dichlorotetrafluoroethane (Freon 114)	µg/m³	1.4	1.4	1.4	1.4	1.4	1.4	1.5	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
1,4-Dioxane	µg/m³	0.72	0.72	0.72	0.72	0.72	0.72	0.76	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
Ethyl acetate	µg/m³	0.76	0.76	12.8	0.83	0.9	0.9	1.01	0.97	0.97	0.9	0.83	0.86	1.3	0.83	1.01
Ethylbenzene	µg/m³	0.43	0.48	70.8	0.43	3.82	0.43	0.43	0.43	2.21	0.43	0.43	0.43	0.43	0.43	0.43
4-Ethyltoluene	µg/m³	1	1	4	1	1	1	1	1	1	1	1	1	1	1	1
n-Heptane	µg/m³	0.82	0.82	240	0.82	8.24	0.82	0.86	0.82	41.4	0.82	0.82	0.82	0.82	0.82	0.82
Hexachlorobutadiene	µg/m³	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
n-Hexane	µg/m³	0.88	0.7	152	0.7	4.69	0.7	0.74	0.7	34	0.7	0.7	0.85	0.7	0.7	0.7
2-Hexanone	µg/m³	4.1	4.1	4.92	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
Isopropanol	µg/m³	12.3	12.3	37.1	12.3	12.3	12.3	12.3	12.3	17	12.3	12.3	12.3	12.3	12.3	12.3
Isopropylbenzene (cumene)	µg/m³	1	1	2.6	2.1	1	1.2	1	2	1	1	1	1	1	1	1
Methyl ethyl ketone (MEK)	µg/m³	1.47	3.21	86.7	1.27	5.99	0.91	0.86	2.06	2.09	3.57	1.3	3.27	2.09	1.74	2.48
Methyl isobutyl ketone (MIBK)	µg/m³	0.82	0.82	9.83	0.82	0.82	0.82	0.86	0.82	1.56	0.82	0.82	0.82	0.82	0.82	0.82
Methyl-tert-butyl ether (MTBE)	µg/m³	0.72	0.72	2.13	0.72	0.72	0.72	0.76	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
Naphthalene	µg/m³	0.94	0.52	0.52	0.52	0.73	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52
Propylene	µg/m³	4.3	37.5	286	0.45	8.4	0.34	0.5	0.55	88.4	1.17	0.52	3.82	0.5	0.81	0.67
Styrene	µg/m³	0.85	0.85	5.88	0.85	0.85	0.85	0.89	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
1,1,2,2-Tetrachloroethane	µg/m³	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Tetrachloroethylene	µg/m³	1.4	1.4	34.6	1.4	1.8	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Tetrahydrofuran	µg/m³	0.59	0.59	23.1	0.59	0.74	0.59	0.62	0.59	0.59	0.65	0.59	0.59	0.59	0.59	0.59
Toluene	µg/m³	1.77	1.77	357	5.46	17.2	4.07	1.09	2.86	5.88	0.87	0.38	2.41	0.6	0.72	0.45
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	µg/m³	1.5	1.5	1.5	1.5	1.5	1.5	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,2,4-Trichlorobenzene	µg/m³	1.5	1.5	1.5	1.5	1.5	1.5	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,1,1-Trichloroethane	µg/m³	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
1,1,2-Trichloroethane	µg/m³	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Trichloroethylene	µg/m³	1.1	1.1	26.8	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Trichlorofluoromethane	µg/m³	1.1	1.1	64	1.1	2.5	1.1	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
1,2,4-Trimethylbenzene	µg/m³	1	1	7.6	1	4.2	1	1	1	1	1	1	1	1	1	1
1,3,5-Trimethylbenzene	µg/m³	1	1	3.7	1	1	1	1	1	1	1	1	1	1	1	1
2,2,4-Trimethylpentane	µg/m³	0.9	1.7	68.2	0.9	1.8	0.9	1	0.9	17.1	0.9	0.9	0.9	0.9	0.9	0.9
Vinyl acetate	µg/m³	17.6	17.6	29.9	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6
Vinyl bromide	µg/m³	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Vinyl chloride	µg/m³	0.51	0.66	120	0.51	3.3	0.51	0.54	0.51	1.46	0.51	0.51	0.51	0.51	0.51	0.51
m+p-Xylene (mixture)	µg/m³	1	1.13	214	0.87	11.6	0.87	1.04	0.87	5.56	0.87	0.87	0.87	0.87	0.87	0.87
o-Xylene	µg/m³	0.43	0.43	61.6	0.43	3.47	0.43	0.43	0.43	1.48	0.43	0.43	0.43	0.43	0.43	0.43
Xylenes, total	µg/m³	1.3	1.6	276	1.3	15.1	1.3	1.5	1.3	7	1.3	1.3	1.3	1.3	1.3	1.3
BTEX, total	µg/m³	2.8	3.8	737	5.5	37.2	4.1	2.6	2.9	17	2.4	2.4	2.4	2.4	2.4	2.4

Notes:

[1] Sampling was conducted on Sep 2-5, 2025 and Sep 29, 2025.

[2] Samples with data below the dection threshold were assumed as the lowest dectection threshold for conservative assessment.

Appendix N2: H2S and VOC Flux Chamber Sampling Data

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Results	Units	East Landfill - Final Cover			South Landfill - Working Face						Waste Soil Stockpile			Leachate Pond		
		EAST LANDFILLL FIANL COVER AREA #7	EAST LANDFILLL FIANL COVER AREA #8	EAST LANDFILLL FIANL COVER AREA #9	SOUTH LANDFILL WORKING FACE #1	SOUTH LANDFILL WORKING FACE #2	SOUTH LANDFILL WORKING FACE #3	SOUTH LANDFILL WORKING FACE #4	SOUTH LANDFILL WORKING FACE #5	SOUTH LANDFILL WORKING FACE #6	SOUTH LANDFILL WASTE SOIL STOCKPILE #1	SOUTH LANDFILL WASTE SOIL STOCKPILE #2	SOUTH LANDFILL WASTE SOIL STOCKPILE #3	SCFLP#1	SCFLP#2	SCFLP#3
Hydrogen sulfide	µg/m³	5.6	5.6	5.6	5.6	5.6	5.6	5.7	5.6	5.6	5.7	5.6	5.6	5.6	5.6	5.6
Acetone	µg/m³	24.9	17.6	17.3	406	1040	205	125	143	1770	14.7	6.6	14.2	1240	603	748
Allyl chloride	µg/m³	0.63	0.63	0.63	3.04	15.6	15.8	15.6	15.7	196	0.63	0.63	0.63	0.63	0.63	0.63
Benzene	µg/m³	0.32	0.32	0.32	3.8	7.99	8.05	7.99	8.02	99.7	0.35	0.42	0.83	4.63	3.61	4.34
Benzyl chloride	µg/m³	1	1	1	1	25.3	26.1	25.9	26	324	1	1	1	1	1	1
Bromodichloromethane	µg/m³	1.3	1.3	1.3	1.3	33.5	33.8	33.5	33.6	419	1.3	1.3	1.3	4.2	2.7	3.1
Bromoform	µg/m³	2.1	2.1	2.1	2.1	51.7	52.2	51.7	51.9	646	2.1	2.1	2.1	2.1	2.1	2.1
Bromomethane	µg/m³	0.78	0.78	0.78	0.78	19.4	19.6	19.4	19.5	243	0.78	0.78	0.78	0.82	0.78	0.78
1,3-Butadiene	µg/m³	0.44	0.44	0.44	0.44	11.1	11.2	11.1	11.1	138	0.44	0.44	0.44	65.9	60.2	76.5
Carbon disulfide	µg/m³	1.7	2.6	1.6	3.4	38.9	39.2	38.9	39.2	486	1.6	1.6	1.6	3.3	3.3	3.7
Carbon tetrachloride	µg/m³	1.26	1.26	1.26	1.26	31.4	31.8	31.4	31.6	393	1.26	1.26	1.26	1.26	1.26	1.26
Chlorobenzene	µg/m³	0.92	0.92	0.92	0.92	23	23.2	23	23.1	288	0.92	0.92	0.92	0.92	0.92	0.92
Chloroethane	µg/m³	0.53	0.53	0.53	0.53	13.2	13.3	13.2	13.2	165	0.53	0.53	0.53	0.58	0.53	1.37
Chloroform	µg/m³	0.98	0.98	0.98	0.98	24.4	24.6	24.4	24.5	305	0.98	0.98	0.98	3.96	3.03	2.54
Chloromethane	µg/m³	0.41	0.41	0.41	1.3	10.3	10.4	10.3	10.4	129	0.47	0.83	0.66	1.42	1.05	5.97
Cyclohexane	µg/m³	0.69	0.69	0.69	3.51	17.2	17.4	17.2	17.3	215	0.69	0.69	0.69	0.69	0.69	0.69
Dibromochloromethane	µg/m³	1.7	1.7	1.7	1.7	42.6	43	42.6	42.8	532	1.7	1.7	1.7	4.2	3.2	4.3
1,2-Dibromoethane	µg/m³	1.5	1.5	1.5	1.5	38.4	38.8	38.4	38.6	480	1.5	1.5	1.5	1.5	1.5	1.5
1,2-Dichlorobenzene	µg/m³	1.2	1.2	1.2	1.2	30.1	30.4	30.1	30.2	376	1.2	1.2	1.2	1.2	1.2	1.2
1,3-Dichlorobenzene	µg/m³	1.2	1.2	1.2	1.2	30.1	30.4	30.1	30.2	376	1.2	1.2	1.2	1.2	1.2	1.2
1,4-Dichlorobenzene	µg/m³	1.2	1.2	1.2	1.2	30.1	30.4	30.1	30.2	376	1.2	1.2	1.2	1.2	2.3	1.2
Dichlorodifluoromethane	µg/m³	1	1	1	3	24.7	25	24.7	24.8	309	1	2.2	1.7	1	1	1
1,1-Dichloroethane	µg/m³	0.81	0.81	0.81	0.81	20.2	20.4	20.2	20.3	253	0.81	0.81	0.81	0.81	0.81	0.81
1,2-Dichloroethane	µg/m³	0.81	0.81	0.81	3.08	20.2	20.4	20.2	20.3	253	0.81	0.81	0.81	0.81	0.81	0.81
1,1-Dichloroethylene	µg/m³	0.79	0.79	0.79	0.79	19.8	20	19.8	19.9	248	0.79	0.79	0.79	0.79	0.79	0.79
cis-1,2-Dichloroethylene	µg/m³	0.79	0.79	0.79	0.79	19.8	20	19.8	19.9	248	0.79	0.79	0.79	0.79	0.79	0.79
trans-1,2-Dichloroethylene	µg/m³	0.79	0.79	0.79	0.79	19.8	20	19.8	19.9	248	0.79	0.79	0.79	0.79	0.79	0.79
Dichloromethane	µg/m³	0.69	0.69	0.69	2.43	24.2	17.5	17.4	17.4	217	0.69	0.69	0.69	0.9	0.73	0.69
1,2-Dichloropropane	µg/m³	0.9	0.9	0.9	0.9	23.1	23.3	23.1	23.2	289	0.9	0.9	0.9	0.9	0.9	0.9
1,3-Dichloropropylene (cis+trans)	µg/m³	1.8	1.8	1.8	1.8	45.4	45.8	45.4	45.6	567	1.8	1.8	1.8	1.8	1.8	1.8
cis-1,3-Dichloropropylene	µg/m³	0.9	0.9	0.9	0.9	22.7	22.9	22.7	22.8	284	0.9	0.9	0.9	0.9	0.9	0.9
trans-1,3-Dichloropropylene	µg/m³	0.9	0.9	0.9	0.9	22.7	22.9	22.7	22.8	284	0.9	0.9	0.9	0.9	0.9	0.9
1,2-Dichlorotetrafluoroethane (Freon 114)	µg/m³	1.4	1.4	1.4	1.4	35	35.3	35	35.1	437	1.4	1.4	1.4	1.4	1.4	1.4
1,4-Dioxane	µg/m³	0.72	0.72	0.72	1.4	18	18.2	18	18.1	225	0.72	0.72	0.72	0.72	8.14	0.79
Ethyl acetate	µg/m³	0.72	0.72	0.72	117	34.3	18.2	18	18.1	225	0.72	0.72	0.72	8.22	6.85	10.4
Ethylbenzene	µg/m³	0.43	0.43	0.43	13.8	15.9	11.6	10.8	13.4	135	0.43	0.43	0.52	2.82	2.43	3.21
4-Ethyltoluene	µg/m³	1	1	1	5.6	24.6	24.8	24.6	24.7	307	1	1	1	1	1	1
n-Heptane	µg/m³	0.82	0.82	0.82	34.8	20.5	20.7	20.5	20.6	256	0.82	0.82	0.82	9.02	5.74	7.54
Hexachlorobutadiene	µg/m³	2.1	2.1	2.1	2.1	53.3	53.8	53.3	53.5	666	2.1	2.1	2.1	2.1	2.1	2.1
n-Hexane	µg/m³	0.7	0.7	0.7	18.7	17.6	17.8	17.6	17.7	220	0.7	0.7	0.7	7.16	5.18	6.31
2-Hexanone	µg/m³	4.1	4.1	4.1	21.7	102	103	102	103	1280	4.1	4.1	4.1	6.96	4.1	6.56
Isopropanol	µg/m³	12.3	12.3	12.3	84.3	61.4	61.9	61.4	61.7	767	12.3	12.3	12.3	32.9	33.7	23.6
Isopropylbenzene (cumene)	µg/m³	1	1	1	2.2	24.6	24.8	24.6	24.7	307	1	1	1	1	1.9	1
Methyl ethyl ketone (MEK)	µg/m³	2.48	2.09	1.18	1370	964	419	428	351	8400	1.68	1.18	3.21	271	183	295
Methyl isobutyl ketone (MIBK)	µg/m³	0.82	0.82	0.82	11.6	20.5	20.7	20.5	20.6	256	0.82	0.82	0.82	3.11	2.87	2.7
Methyl-tert-butyl ether (MTBE)	µg/m³	0.72	0.72	0.72	0.72	18	18.2	18	18.1	225	0.72	0.72	0.72	0.97	0.76	0.79
Naphthalene	µg/m³	0.52	0.52	0.52	3.77	13.1	13.2	13.1	13.2	164	0.52	0.63	1.68	1.15	4.19	1.05
Propylene	µg/m³	0.41	0.34	0.45	10.1	86.7	12.2	22.5	8.64	108	0.74	1.26	0.98	6.47	6.95	9.07
Styrene	µg/m³	0.85	0.85	0.85	13.9	27.3	25	21.3	21.4	266	0.85	0.85	0.94	3.41	2.17	3.88
1,1,2,2-Tetrachloroethane	µg/m³	1.4	1.4	1.4	1.4	34.3	34.7	34.3	34.5	429	1.4	1.4	1.4	1.4	1.4	1.4
Tetrachloroethylene	µg/m³	1.4	1.4	1.4	4.1	33.9	4480	33.9	40.7	424	1.4	1.4	2.4	1.4	1.4	1.4
Tetrahydrofuran	µg/m³	0.59	0.59	0.59	18	14.7	14.9	14.7	14.8	184	0.59	0.59	0.59	298	439	360
Toluene	µg/m³	0.38	0.83	0.38	41.1	43	24.7	11	16	118	0.9	4.3	6.18	505	320	475
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	µg/m³	1.5	1.5	1.5	1.5	38.3	38.7	38.3	38.5	479	1.5	1.5	1.5	1.5	1.5	1.5
1,2,4-Trichlorobenzene	µg/m³	1.5	1.5	1.5	1.5	37.1	37.5	37.1	37.2	464	1.5	1.5	1.5	1.5	1.5	1.5
1,1,1-Trichloroethane	µg/m³	1.1	1.1	1.1	1.1	27.3	27.6	27.3	27.4	341	1.1	1.1	1.1	1.1	1.1	1.1
1,1,2-Trichloroethane	µg/m³	1.1	1.1	1.1	1.1	27.3	27.6	27.3	27.4	341	1.1	1.1	1.1	1.1	1.1	1.1
Trichloroethylene	µg/m³	1.1	1.1	1.1	1.1	26.9	27.1	26.9	27	336	1.1	1.1	1.1	1.1	1.1	1.1
Trichlorofluoromethane	µg/m³	1.1	1.1	1.1	7.4	28.1	28.4	28.1	28.2	351	1.1	1.1	1.1	1.1	1.1	1.1
1,2,4-Trimethylbenzene	µg/m³	1	1	1	22.8	31.3	24.8	24.6	24.7	307	1	1	1	2.1	4.7	2.3
1,3,5-Trimethylbenzene	µg/m³	1	1	1	6.9	24.6	24.8	24.6	24.7	307	1	1	1	1	3.1	1
2,2,4-Trimethylpentane	µg/m³	0.9	0.9	0.9	10.6	23.4	23.6	23.4	23.4	292	0.9	0.9	0.9	14.5	10.3	13.5
Vinyl acetate	µg/m³	17.6	17.6	17.6	299	141	86.6	44	44.4	549	1.8	1.8	1.8	10.9	10.2	10.9
Vinyl bromide	µg/m³	0.9	0.9	0.9	0.9	21.9	22.1	21.9	22	273	0.9	0.9	0.9	0.9	0.9	0.9
Vinyl chloride	µg/m³	0.51	0.51	0.51	0.51	12.8	12.9	12.8	12.8	160	0.51	0.51	0.51	0.51	0.51	0.51
m+p-Xylene (mixture)	µg/m³	0.87	0.87	0.87	39.1	34.5	30.6	21.7	38	271	0.87	0.87	1.26	8.42	15.4	9.81
o-Xylene	µg/m³	0.43	0.43	0.43	14.2	15.1	12.7	10.8	11.8	135	0.43	0.43	0.43	2.91	12.9	3.6
Xylenes, total	µg/m³	1.3	1.3	1.3	53.3	49.6	43.4	32.6	49.8	407	1.3	1.3	1.3	11.3	28.3	13.4
BTEX, total	µg/m³	2.4	2.4	2.4	112	108	79.6	60.8	79.3	760	2.4	4.7	8.8	524	355	496

Notes:

[1] Sampling was conducted on Sep 2-5, 2025 and Sep 29, 2025.

[2] Samples with data below the dection threshold were assumed as the lowest dectection threshold for conservative assessment.

Appendix N3: H2S and VOC Flux Chamber Data - Emission Flux Rate Calculation

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Walker South Landfill Phase 2 Environmental Assessment

Contaminant	Average Emisison Flux Rate (g/m2/s) [1] [2]									
	East Landfill - Interim Cover [3]	East Landfill - Final Cover	South Landfill - Working Face	South Landfill - Interim Cover	South Landfill - Final Cover	Study Landfill - Working Face [3]	Study Landfill - Interim Cover [3]	Study Landfill - Final Cover [4]	Waste Soil Stockpile	Leachate Pond
Hydrogen sulfide	3.83E-09	3.59E-09	3.60E-09	3.83E-09	2.50E-09	3.60E-09	3.83E-09	3.59E-09	3.61E-09	3.59E-09
Benzene	2.69E-09	2.05E-10	1.45E-08	2.69E-09	5.83E-10	1.45E-08	2.69E-09	5.83E-10	3.42E-10	2.69E-09
1,1,2-Trichloroethane	7.05E-10	7.05E-10	4.83E-08	7.05E-10	1.32E-09	4.83E-08	7.05E-10	1.32E-09	7.05E-10	7.05E-10
Vinyl chloride	9.12E-09	3.27E-10	2.26E-08	9.12E-09	4.61E-10	2.26E-08	9.12E-09	4.61E-10	3.27E-10	3.27E-10

Notes:

[1] Sampling was conducted on Sep 2-5, 2025 and Sep 29, 2025.

[2] Samples with data below the dection threshold were assumed as the lowest dectection threshold for conservative assessment.

[3] Sampling data for interim cover of South Landfill was adopted for interim cover of East Landfill.

[4] Sampling data for working face/interim cover of South Landfill was adopted for working face/interim cover of Study Landfill.

[5] The higher of the final cover data among East Landfill and South Landfill was adopted for final cover of Study Landfill for conservative assessment.

Sample Calculation for East Landfill - Interim Cover (Hydrogen sulfide)

Flow Rate = 5 L/min

Flux chamber area = 0.13 m^2

Average Hydrogen sulfide concentration = 5.6 µg/m^3

Emission flux rate =

$$\frac{5.6\ \mu g}{1\ m^3} \times \frac{1\ g}{1000000\ \mu g} \times \frac{5\ L}{1\ min} \times \frac{1\ m^3}{1000\ L} \times \frac{1\ min}{60\ s} \times \frac{}{0.13\ m^2} = 3.59E\text{-}09\ g/s$$

Appendix N4: Landfill Gas Sampling Data

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Results	CAS Number	Molecular Weight	CANISTER 1	CANISTER 2	Units	Maximum (%)	AVG (%)
Matrix Gases and CH4							
%v/v Dry Basis (Correct)							
O2 %			1.79%	1.07%	%	1.79%	1.43%
N2 %			99.16%	99.12%	%	99.16%	99.14%
CO2%			34.40%	36.40%	%	36.40%	35.40%
CH4 %			48.20%	50.90%	%	50.90%	49.55%

Non Methane Compounds	CAS Number	Molecular Weight	CANISTER 1	CANISTER 2	Units	Maximum (mg/m^3)	AVG (mg/m^3)	AVG (ppm)
Carbon disulfide	75-15-0	76.13	1.97	1.99	mg/m^3	1.99	1.98	0.64
Carbonyl sulfide	463-58-1	60.07	4.35	5.18	mg/m^3	5.18	4.77	1.94
Dimethyl disulfide	624-92-0	94.19	2.44	2.47	mg/m^3	2.47	2.46	0.64
Dimethyl sulfide	75-18-3	62.13	13.60	14.20	mg/m^3	14.20	13.90	5.47
Hydrogen sulfide	7783-06-4	34.08	914.00	1140.00	mg/m^3	1140.00	1027.00	736.80
Methyl mercaptan	74-93-1	48.10	9.88	9.58	mg/m^3	9.88	9.73	4.95
Sulfur, total reduced (as H2S), N	-	34.08	931.00	1160.00	mg/m^3	1160.00	1045.50	750.07
Acetone	67-64-1	58.08	26.10	33.00	mg/m^3	33.00	29.55	12.44
Allyl chloride	107-05-1	76.52	0.28	0.27	mg/m^3	0.28	0.28	0.09
Benzene	71-43-2	78.11	5.02	6.84	mg/m^3	6.84	5.93	1.86
Benzyl chloride	100-44-7	126.58	0.46	0.45	mg/m^3	0.46	0.46	0.09
Bromodichloromethane	75-27-4	163.82	0.60	0.59	mg/m^3	0.60	0.59	0.09
Bromoform	75-25-2	252.73	0.92	0.91	mg/m^3	0.92	0.91	0.09
Bromomethane	74-83-9	94.94	0.35	0.34	mg/m^3	0.35	0.34	0.09
Butadiene, 1,3-	106-99-0	54.09	0.27	0.31	mg/m^3	0.31	0.29	0.13
Carbon tetrachloride	56-23-5	153.81	0.56	0.55	mg/m^3	0.56	0.56	0.09
Chlorobenzene	108-90-7	112.56	0.41	0.40	mg/m^3	0.41	0.41	0.09
Chloroethane	75-00-3	64.51	0.30	0.34	mg/m^3	0.34	0.32	0.12
Chloroform	67-66-3	119.38	0.44	0.43	mg/m^3	0.44	0.43	0.09
Chloromethane	74-87-3	50.49	0.18	0.18	mg/m^3	0.18	0.18	0.09
Cyclohexane	110-82-7	84.16	2.73	3.42	mg/m^3	3.42	3.08	0.89
Dibromochloromethane	124-48-1	208.28	0.76	0.75	mg/m^3	0.76	0.75	0.09
Dibromoethane, 1,2-	106-93-4	187.86	0.69	0.67	mg/m^3	0.69	0.68	0.09
Dichlorobenzene, 1,2-	95-50-1	147.00	0.54	0.53	mg/m^3	0.54	0.53	0.09
Dichlorobenzene, 1,3-	541-73-1	147.00	0.54	0.53	mg/m^3	0.54	0.53	0.09
Dichlorobenzene, 1,4-	106-46-7	147.00	0.54	1.48	mg/m^3	1.48	1.01	0.17
Dichlorodifluoromethane	75-71-8	120.91	0.98	1.17	mg/m^3	1.17	1.08	0.22
Dichloroethane, 1,1-	75-34-3	98.96	0.36	0.36	mg/m^3	0.36	0.36	0.09
Dichloroethane, 1,2-	107-06-2	98.96	0.81	1.06	mg/m^3	1.06	0.93	0.23
Dichloroethylene, 1,1-	75-35-4	96.94	0.35	0.35	mg/m^3	0.35	0.35	0.09
Dichloroethylene, cis-1,2-	156-59-2	96.94	1.32	1.65	mg/m^3	1.65	1.49	0.37
Dichloroethylene, trans-1,2-	156-60-5	96.94	0.48	1.33	mg/m^3	1.33	0.91	0.23
Dichloromethane	75-09-2	84.93	0.51	0.63	mg/m^3	0.63	0.57	0.16
Dichloropropane, 1,2-	78-87-5	112.99	0.41	0.47	mg/m^3	0.47	0.44	0.10
Dichloropropylene, cis+trans-1,3	542-75-6	110.97	0.81	1.02	mg/m^3	1.02	0.92	0.20
Dichloropropylene, cis-1,3-	10061-01-5	110.97	0.41	0.40	mg/m^3	0.41	0.40	0.09
Dichloropropylene, trans-1,3-	10061-02-6	110.97	0.41	0.63	mg/m^3	0.63	0.52	0.11
Dichlorotetrafluoroethane, 1,2-	76-14-2	170.92	0.62	0.61	mg/m^3	0.62	0.62	0.09
Dioxane, 1,4-	123-91-1	88.11	0.32	0.32	mg/m^3	0.32	0.32	0.09
Ethyl acetate	141-78-6	88.11	10.60	16.20	mg/m^3	16.20	13.40	3.72
Ethylbenzene	100-41-4	106.17	7.56	26.30	mg/m^3	26.30	16.93	3.90
Ethyltoluene, 4-	622-96-8	120.19	0.44	2.75	mg/m^3	2.75	1.59	0.32
Heptane, n-	142-82-5	100.20	8.53	12.10	mg/m^3	12.10	10.32	2.52
Hexachlorobutadiene	87-68-3	260.74	0.95	0.93	mg/m^3	0.95	0.94	0.09
Hexane, n-	110-54-3	86.18	4.12	4.97	mg/m^3	4.97	4.55	1.29
Hexanone, 2-	591-78-6	100.16	1.83	11.00	mg/m^3	11.00	6.42	1.57
Isopropanol	67-63-0	60.10	21.10	29.70	mg/m^3	29.70	25.40	10.33
Isopropylbenzene	98-82-8	120.19	0.46	2.70	mg/m^3	2.70	1.58	0.32

Appendix N4: Landfill Gas Sampling Data

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Results	CAS Number	Molecular Weight	CANISTER 1	CANISTER 2	Units	Maximum (%)	AVG (%)
Matrix Gases and CH4							
%v/v Dry Basis (Correct)							
O2 %			1.79%	1.07%	%	1.79%	1.43%
N2 %			99.16%	99.12%	%	99.16%	99.14%
CO2%			34.40%	36.40%	%	36.40%	35.40%
CH4 %			48.20%	50.90%	%	50.90%	49.55%

Non Methane Compounds	CAS Number	Molecular Weight	CANISTER 1	CANISTER 2	Units	Maximum (mg/m^3)	AVG (mg/m^3)	AVG (ppm)
Methyl ethyl ketone [MEK]	78-93-3	72.11	35.10	52.80	mg/m^3	52.80	43.95	14.90
Methyl isobutyl ketone [MIBK]	108-10-1	100.16	1.35	3.71	mg/m^3	3.71	2.53	0.62
Methyl-tert-butyl ether [MTBE]	1634-04-4	88.15	0.32	0.32	mg/m^3	0.32	0.32	0.09
Naphthalene	91-20-3	128.17	0.23	1.83	mg/m^3	1.83	1.03	0.20
Propylene	115-07-1	42.08	30.50	37.90	mg/m^3	37.90	34.20	19.87
Styrene	100-42-5	104.15	0.38	3.13	mg/m^3	3.13	1.76	0.41
Tetrachloroethane, 1,1,2,2-	79-34-5	167.85	0.61	0.60	mg/m^3	0.61	0.61	0.09
Tetrachloroethylene	127-18-4	165.83	0.88	2.27	mg/m^3	2.27	1.57	0.23
Tetrahydrofuran	109-99-9	72.11	9.11	11.80	mg/m^3	11.80	10.46	3.54
Toluene	108-88-3	92.14	34.90	64.80	mg/m^3	64.80	49.85	13.23
Trichloro-1,2,2-trifluoroethane,	76-13-1	187.37	0.68	0.67	mg/m^3	0.68	0.68	0.09
Trichlorobenzene, 1,2,4-	120-82-1	181.44	0.66	0.65	mg/m^3	0.66	0.66	0.09
Trichloroethane, 1,1,1-	71-55-6	133.40	0.49	0.48	mg/m^3	0.49	0.48	0.09
Trichloroethane, 1,1,2-	79-00-5	133.40	0.49	0.48	mg/m^3	0.49	0.48	0.09
Trichloroethylene	79-01-6	131.38	0.84	1.31	mg/m^3	1.31	1.08	0.20
Trichlorofluoromethane	75-69-4	137.36	0.67	0.84	mg/m^3	0.84	0.76	0.13
Trimethylbenzene, 1,2,4-	95-63-6	120.19	0.44	7.77	mg/m^3	7.77	4.10	0.83
Trimethylbenzene, 1,3,5-	108-67-8	120.19	0.44	3.19	mg/m^3	3.19	1.81	0.37
Trimethylpentane, 2,2,4-	540-84-1	114.23	2.36	2.91	mg/m^3	2.91	2.64	0.56
Vinyl acetate	108-05-4	86.09	0.79	0.77	mg/m^3	0.79	0.78	0.22
Vinyl bromide	593-60-2	106.95	0.39	0.38	mg/m^3	0.39	0.39	0.09
Vinyl chloride	75-01-4	62.50	0.77	0.92	mg/m^3	0.92	0.84	0.33
Xylene, m+p-	108-38-3 / 106-42-3	106.16	9.64	53.00	mg/m^3	53.00	31.32	7.21
Xylene, o-	95-47-6	106.17	3.51	20.10	mg/m^3	20.10	11.81	2.72
Xylenes, total	1330-20-7	106.17	13.10	73.10	mg/m^3	73.10	43.10	9.93
BTEX, total	-	-	60.60	171.00	mg/m^3	171.00	115.80	28.90

Results	CAS Number	Molecular Weight	CANISTER 1	CANISTER 2	Units	Maximum (%)	AVG (%)
4-Bromofluorobenzene	-	-	8.98%	8.44%	%	8.98%	8.71%

Notes:

[1] Testing based on stream analysis conducted on Jan 27, 2026.

[2] Conversion (25°C, 1 atm): Concentration (ppm) = 24.45 × concentration (mg/m3) ÷ molecular weight.

Appendix N5: Combustion Source Emission Rate Calculations (All Contaminants except SO2)

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Walker South Landfill Phase 2 Environmental Assessment

Source Characteristics											Emission Rate Calculations								
											Emission Factor								Emission Rate
Source ID	Description	Horse Power [9] (hp)	Engine Power (kW)	Total LFG Gas Volume [9] (dscm/hr)	Total LFG Gas Volume [9] (dscm/s)	Total Methane Gas Volume [1%] (dscm/hr)	Total Methane Gas Volume (dscm/s)	Flow Rate (standard) [9] (m^3/s)	Flow Rate (actual) (m^3/s)	Load Factor	Contaminant	[1] (kg/10^9dscm methane)	[2] (g/m^3 landfill gas)	[3] (lb/hp-hr)	[4] (lb/hp-hr)	[5] (lb/MMBTU)	[6] (g/kW-hr)	[7] (g/hp-hr)	[8] (lb/10^6 scf)	(g/s)
TIP_S3	173 hp Diesel-Fired Landfill Tipper at South Landfill Phase 2 Stage 3 - Combustion	173	--	--	--	--	--	-	1.25	1.0	Nitrogen Oxides (NOx)	--	--	0.031	--	--	--	--	--	0.676
											TSP	--	--	2.20E-03	--	--	--	--	--	0.048
											PM10	--	--	2.20E-03	--	--	--	--	--	0.048
											PM2.5	--	--	2.20E-03	--	--	--	--	--	0.048
TIP2_S3	173 hp Diesel-Fired Landfill Tipper #2 at South Landfill Phase 2 Stage 3 - Combustion	173	--	--	--	--	--	-	1.25	1.0	Nitrogen Oxides (NOx)	--	--	0.031	--	--	--	--	--	0.676
											TSP	--	--	2.20E-03	--	--	--	--	--	0.048
											PM10	--	--	2.20E-03	--	--	--	--	--	0.048
											PM2.5	--	--	2.20E-03	--	--	--	--	--	0.048
Gen1	1,064 kW Landfill Gas Fired Generator	1,468	--	470	0.13	233	0.06	0.74	1.99	1.0	Nitrogen Oxides (NOx)	--	--	--	--	--	--	1.10E+00	--	0.449
											TSP	7.70E+02	--	--	--	--	--	--	--	0.050
											PM10	7.70E+02	--	--	--	--	--	--	--	0.050
											PM2.5	7.70E+02	--	--	--	--	--	--	--	0.050
Gen2	1,064 kW Landfill Gas Fired Generator	1,468	--	470	0.13	233	0.06	0.74	1.99	1.0	Nitrogen Oxides (NOx)	--	--	--	--	--	--	1.10E+00	--	0.449
											TSP	7.70E+02	--	--	--	--	--	--	--	0.050
											PM10	7.70E+02	--	--	--	--	--	--	--	0.050
											PM2.5	7.70E+02	--	--	--	--	--	--	--	0.050
Gen3	1,064 kW Landfill Gas Fired Generator	1,468	--	470	0.13	233	0.06	0.74	1.99	1.0	Nitrogen Oxides (NOx)	--	--	--	--	--	--	1.10E+00	--	0.449
											TSP	7.70E+02	--	--	--	--	--	--	--	0.050
											PM10	7.70E+02	--	--	--	--	--	--	--	0.050
											PM2.5	7.70E+02	--	--	--	--	--	--	--	0.050
Gen4	1,064 kW Landfill Gas Fired Generator	1,468	--	470	0.13	233	0.06	0.74	1.99	1.0	Nitrogen Oxides (NOx)	--	--	--	--	--	--	1.10E+00	--	0.449
											TSP	7.70E+02	--	--	--	--	--	--	--	0.050
											PM10	7.70E+02	--	--	--	--	--	--	--	0.050
											PM2.5	7.70E+02	--	--	--	--	--	--	--	0.050
PGen1	82 bhp Portable Diesel Fired Generator Cummins Model #4BT3.3-G2	66	49	--	--	--	--	--	0.17	1.0	Nitrogen Oxides (NOx)	-	--	--	--	--	--	4.78E+00	--	0.087
											TSP	-	--	--	--	--	--	4.00E-01	--	0.007
											PM10	-	--	--	--	--	--	4.00E-01	--	0.007
											PM2.5	-	--	--	--	--	--	4.00E-01	--	0.007
Screen1C	Screen #1 Engine 130 kW, Diesel Fired	174	130	--	--	--	--	-	0.48	0.43	Nitrogen Oxides (NOx)	--	--	0.031	--	--	--	--	--	0.293
											TSP	--	--	2.20E-03	--	--	--	--	--	0.021
											PM10	--	--	2.20E-03	--	--	--	--	--	0.021
											PM2.5	--	--	2.20E-03	--	--	--	--	--	0.021

Appendix N5: Combustion Source Emission Rate Calculations (All Contaminants except SO2)

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Source Characteristics											Emission Rate Calculations								
Source ID	Description	Horse Power [9]	Engine Power		Total LFG Gas Volume [9]	Total LFG Gas Volume [9]	Total Methane Gas Volume [10]	Total Methane Gas Volume	Flow Rate (standard) [9]	Flow Rate (actual)	Load Factor	Contaminant	Emission Factor								Emission Rate
													[1] (kg/10^{9}dscm methane)	[2] (g/m^3 landfill gas)	[3] (lb/hp-hr)	[4] (lb/hp-hr)	[5] (lb/MMBTU)	[6] (g/kW-hr)	[7] (g/hp-hr)	[8] (lb/10^6 scf)	
		(hp)	(kW)		(dscm/hr)	(dscm/s)	(dscm/hr)	(dscm/s)	(m^3/s)	(m^3/s)											(g/s)
Screen2C	Screen #2 Engine 130 kW, Diesel Fired	174	130		- -	- -	- -	- -	-	0.48	0.43	Nitrogen Oxides (NOx)	- -	- -	0.031	- -	- -	- -	- -	- -	0.293
												TSP	- -	- -	2.20E-03	- -	- -	- -	- -	- -	0.021
												PM10	- -	- -	2.20E-03	- -	- -	- -	- -	- -	0.021
												PM2.5	- -	- -	2.20E-03	- -	- -	- -	- -	- -	0.021
Screen3C	Screen #3 Engine 130 kW, Diesel Fired	174	130		- -	- -	- -	- -	-	0.48	0.43	Nitrogen Oxides (NOx)	- -	- -	0.031	- -	- -	- -	- -	- -	0.293
												TSP	- -	- -	2.20E-03	- -	- -	- -	- -	- -	0.021
												PM10	- -	- -	2.20E-03	- -	- -	- -	- -	- -	0.021
												PM2.5	- -	- -	2.20E-03	- -	- -	- -	- -	- -	0.021
Screen4C	Screen #4 Engine 60 kW, Diesel Fired	80	60		- -	- -	- -	- -	-	0.48	0.43	Nitrogen Oxides (NOx)	- -	- -	0.031	- -	- -	- -	- -	- -	0.135
												TSP	- -	- -	2.20E-03	- -	- -	- -	- -	- -	0.010
												PM10	- -	- -	2.20E-03	- -	- -	- -	- -	- -	0.010
												PM2.5	- -	- -	2.20E-03	- -	- -	- -	- -	- -	0.010
CONVEYOR	Stacking Conveyor Engine 60 kW, Diesel Fired	80	60		- -	- -	- -	- -	-	0.24	0.21	Nitrogen Oxides (NOx)	- -	- -	0.031	- -	- -	- -	- -	- -	0.066
												TSP	- -	- -	2.20E-03	- -	- -	- -	- -	- -	0.005
												PM10	- -	- -	2.20E-03	- -	- -	- -	- -	- -	0.005
												PM2.5	- -	- -	2.20E-03	- -	- -	- -	- -	- -	0.005
CONVEY2N	Stacking Conveyor #2 Engine 60 kW, Diesel Fired	80	60		- -	- -	- -	- -	-	0.24	0.21	Nitrogen Oxides (NOx)	- -	- -	0.031	- -	- -	- -	- -	- -	0.066
												TSP	- -	- -	2.20E-03	- -	- -	- -	- -	- -	0.005
												PM10	- -	- -	2.20E-03	- -	- -	- -	- -	- -	0.005
												PM2.5	- -	- -	2.20E-03	- -	- -	- -	- -	- -	0.005
GSTK	Grinder Engine 860 kW, Diesel Fired	1,153	860		- -	- -	- -	- -	-	2.70	0.43	Nitrogen Oxides (NOx)	- -	- -	- -	- -	- -	9.2	- -	- -	0.945
												TSP	- -	- -	- -	- -	- -	0.54	- -	- -	0.055
												PM10	- -	- -	- -	- -	- -	0.54	- -	- -	0.055
												PM2.5	- -	- -	- -	- -	- -	0.54	- -	- -	0.055
GSTK2_N	Grinder #2 Engine 860 kW, Diesel Fired	1,153	860		- -	- -	- -	- -	-	2.70	0.43	Nitrogen Oxides (NOx)	- -	- -	- -	- -	- -	9.2	- -	- -	0.945
												TSP	- -	- -	- -	- -	- -	0.54	- -	- -	0.055
												PM10	- -	- -	- -	- -	- -	0.54	- -	- -	0.055
												PM2.5	- -	- -	- -	- -	- -	0.54	- -	- -	0.055
GENC	Generator #1 600 kW, Diesel Fired	805	600		- -	- -	- -	- -	-	2.36	1.0	Nitrogen Oxides (NOx)	- -	- -	- -	0.024	- -	- -	- -	- -	2.433
												TSP	- -	- -	- -	- -	0.0697	- -	- -	- -	0.018
												PM10	- -	- -	- -	- -	0.0573	- -	- -	- -	0.015
												PM2.5	- -	- -	- -	- -	0.0479	- -	- -	- -	0.012
MO_GEN	55 kW Natural Gas Fired Emergency Generator	74	55		- -	- -	- -	- -	-	0.20	1.0	Nitrogen Oxides (NOx)	- -	- -	- -	- -	- -	- -	8.23	- -	0.169
												TSP	- -	- -	- -	- -	- -	- -	- -	7.6	0.024
												PM10	- -	- -	- -	- -	- -	- -	- -	7.6	0.024
												PM2.5	- -	- -	- -	- -	- -	- -	- -	7.6	0.024
- -	Total	- -	- -		- -	- -	- -	- -	- -	- -	- -	Nitrogen Oxides (NOx)	-	- -	-	-	-	- -	-	-	**8.886**
												TSP	- -	- -	- -	- -		- -			**0.538**
												PM10	- -	- -	- -	- -		- -			**0.535**
												PM2.5	- -	- -	- -	- -	-	- -	-	-	**0.532**

Notes:

[1] Emission Factors taken from US EPA AP-42 Chapter 2.4, Table 2.4-4. TSP is assumed to same as PM_{10} and $PM_{2.5}$.
[2] Emission Factor calculated based on concentration of sulphur compounds in raw landfill gas (see Appendix F2).
[3] Emission Factors taken from US EPA AP-42 Chapter 3.3, Table 3.3-1. PM is assumed to same for TSP, PM_{10} and $PM_{2.5}$.
[4] Emission Factors taken from US EPA AP-42 Chapter 3.4, Table 3.4-1.
[5] Emission Factors taken from US EPA AP-42 Chapter 3.4, Table 3.4-2.
[6] Emission Factors taken from "Nonroad Compression-Ignition Engines: Exhaust Emission Standards" (US EPA, 2016).
[7] Emission Factors supplied by the Manufacturer.
[8] Emission Factors taken from US EPA AP-42 Chapter 1.4, Table 1.4-1 and Table 1.4-2. PM is assumed to same for TSP, PM_{10} and $PM_{2.5}$.
[9] Operating parameters from all generators obtained from manufacturer's specifications.
[10] Methane content of landfill gas, based on 2026 source testing = 50%
[11] Velocity is calculated based on the stack diameter and actual flow rate.

Appendix N6: Combustion Source Emission Rate Calculations (SO2)

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Source Characteristics											Emission Rate Calculations								
											Emission Factor								
Source ID	Description	Horse Power [9]	Engine Power	Total LFG Gas Volume [9]	Total LFG Gas Volume [9]	Total Methane Gas Volume [10]	Total Methane Gas Volume	Flow Rate (standard) [9]	Flow Rate (actual)	Load Factor	Contaminant	[1] ($kg/10^6 dscm$ methane)	[2] (g/m^3 landfill gas)	[3] (lb/hp-hr)	[4] (lb/hp-hr)	[5] (lb/MMBTU)	[6] (g/kW-hr)	[7] (g/hp-hr)	[8] ($lb/10^6$ scf)	Emission Rate
		(hp)	(kW)	(dscm/hr)	(dscm/s)	(dscm/hr)	(dscm/s)	(m^3/s)	(m^3/s)											(g/s)
TIP_S3	173 hp Diesel-Fired Landfill Tipper at South Landfill Phase 2 Stage 3 - Combustion	173	--	--	--	--	--	-	1.25	1.00	Sulphur Dioxide (SO2)	--	--	2.05E-03	--	--	--	--	--	0.045
TIP2_S3	173 hp Diesel-Fired Landfill Tipper #2 at South Landfill Phase 2 Stage 3 - Combustion	173	--	--	--	--	--	-	1.25	1.00	Sulphur Dioxide (SO2)	--	--	2.05E-03	--	--	--	--	--	0.045
Gen1	1,064 kW Landfill Gas Fired Generator	1,468	--	852.57	0.24	422.45	0.12	1.34	3.62	1.00	Sulphur Dioxide (SO2)	--	4.22E-01	--	--	--	--	--	--	0.100
Gen2	1,064 kW Landfill Gas Fired Generator	1,468	--	852.57	0.24	422.45	0.12	1.34	3.62	1.00	Sulphur Dioxide (SO2)	--	4.22E-01	--	--	--	--	--	--	0.100
Gen3	1,064 kW Landfill Gas Fired Generator	1,468	--	852.57	0.24	422.45	0.12	1.34	3.62	1.00	Sulphur Dioxide (SO2)	--	4.22E-01	--	--	--	--	--	--	0.100
Gen4	1,064 kW Landfill Gas Fired Generator	1,468	--	852.57	0.24	422.45	0.12	1.34	3.62	1.00	Sulphur Dioxide (SO2)	--	4.22E-01	--	--	--	--	--	--	0.100
PGen1	82 bhp	66	49	--	--	--	--	--	0.17	1.00	Sulphur Dioxide (SO2)	-	--	2.05E-03	--	--	--	--	--	0.017
Screen1C	Screen #1 Engine 130 kW, Diesel Fired	174	130	--	--	--	--	-	0.48	0.43	Sulphur Dioxide (SO2)	--	--	2.05E-03	--	--	--	--	--	0.019
Screen2C	Screen #2 Engine 130 kW, Diesel Fired	174	130	--	--	--	--	-	0.48	0.43	Sulphur Dioxide (SO2)	--	--	2.05E-03	--	--	--	--	--	0.019
Screen3C	Screen #3 Engine 130 kW, Diesel Fired	174	130	--	--	--	--	-	0.48	0.43	Sulphur Dioxide (SO2)	--	--	2.05E-03	--	--	--	--	--	0.019
Screen4C	Screen #4 Engine 60 kW, Diesel Fired	80	60	--	--	--	--	-	0.48	0.43	Sulphur Dioxide (SO2)	--	--	2.05E-03	--	--	--	--	--	0.009
CONVEYOR	Stacking Conveyor Engine 60 kW, Diesel Fired	80	60	--	--	--	--	-	0.24	0.21	Sulphur Dioxide (SO2)	--	--	2.05E-03	--	--	--	--	--	0.004
CONVEY2N	Stacking Conveyor #2 Engine 60 kW, Diesel Fired	80	60	--	--	--	--	-	0.24	0.21	Sulphur Dioxide (SO2)	--	--	2.05E-03	--	--	--	--	--	0.004
GSTK	Grinder Engine 860 kW, Diesel Fired	1,153	860	--	--	--	--	-	2.70	0.43	Sulphur Dioxide (SO2)	--	--	--	--	--	--	0.76	--	0.105
GSTK2_N	Grinder #2 Engine 860 kW, Diesel Fired	1,153	860	--	--	--	--	-	2.70	0.43	Sulphur Dioxide (SO2)	--	--	--	--	--	--	0.76	--	0.105
GENC	Generator #1 600 kW, Diesel Fired	805	600	--	--	--	--	-	2.36	1.00	Sulphur Dioxide (SO2)	--	--	--	1.21E-05	--	--	--	--	0.001
MO_GEN	55 kW Natural Gas Fired Emergency Generator	74	55	--	--	--	--	-	0.20	1.00	Sulphur Dioxide (SO2)	--	--	--	--	--	--	--	0.6	0.002

Notes:

[1] Emission Factors taken from US EPA AP-42 Chapter 2.4, Table 2.4-4. TSP is assumed to same as PM_{10} and $PM_{2.5}$.
[2] Emission Factor calculated based on concentration of sulphur compounds in raw landfill gas (see Appendix F2).
[3] Emission Factors taken from US EPA AP-42 Chapter 3.3, Table 3.3-1. PM is assumed to same for TSP, PM_{10} and $PM_{2.5}$.
[4] Emission Factors taken from US EPA AP-42 Chapter 3.4, Table 3.4-1.
[5] Emission Factors taken from US EPA AP-42 Chapter 3.4, Table 3.4-2.
[6] Emission Factors taken from "Nonroad Compression-Ignition Engines: Exhaust Emission Standards" (US EPA, 2016).
[7] Emission Factors supplied by the Manufacturer.
[8] Emission Factors taken from US EPA AP-42 Chapter 1.4, Table 1.4-1 and Table 1.4-2. PM is assumed to same for TSP, PM_{10} and $PM_{2.5}$.
[9] Operating parameters from all generators obtained from manufacturer's specifications.
[10] Methane content of landfill gas, based on 2026 source testing = 50%

Appendix N7: Landfill Gas Flow and Emission Rate Calculations (All Contaminants except SO2)

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Volume of Methane and LFG Generated in Year 2041

Landfill	Volume of Methane Generated from ECCC Methane Tool (m3/yr)	Volume of LFG Generated (m3/yr) [1]
East Landfill	6,605,712	13,211,424
South Landfill Phase 1	23,475,332	46,950,664
South Landfill Phase 2 - Stage 1	9,131,856	18,263,712
South Landfill Phase 2 - Stage 2	12,165,101	24,330,202
South Landfill Phase 2 - Stage 3	11,798,641	23,597,282
Total	**63,176,642**	**126,353,284**

Note:

[1] Methane accounts for 50% of LFG, as a default in the ECCC Methane Tool.

Total Volume of LFG Collected in Year 2041

Landfill	Source ID	Cover	Gas Collection Efficiency (%)	Area	Volume of LFG Generated for the Entire Landfill from ECCC Methane Tool (m3/yr)	Volume of LFG Generated (m3/yr)	Volume of LFG Collected (m3/yr)
East Landfill	EASTLF_FC	Final Cover	85%	593,594	13,211,424	13,211,424	11,229,710
South Landfill Phase 1	SLF_FC	Final Cover	85%	507,646	46,950,664	46,950,664	39,908,064
South Landfill Phase 2 - Stage 1	S1_FC	Final Cover	85%	232,375	18,263,712	18,263,712	15,524,155
South Landfill Phase 2 - Stage 2	S2_FC	Final Cover	85%	149,688	24,330,202	24,330,202	20,680,672
South Landfill Phase 2 - Stage 3	S3_IC	Interim Cover	70%	108,706	23,597,282	18,062,678	12,643,874
South Landfill Phase 2 - Stage 3	S3_FC	Final Cover	85%	33,309	23,597,282	5,534,604	4,704,414
				Total	-	**126,353,284**	**104,690,890**

Flow Rate of Each of the Equipment

LFG-Fired Equipment	Volume of LFG Provided by Walker			Scaled Volume of LFG	
	(cfm)	(m3/yr)	Ratio	(m3/yr)	(m3/s)
FLARE1	967	14,387,223	9%	9,943,132	0.32
FLARE2	967	14,387,223	9%	9,943,132	0.32
FLARE3	967	14,387,223	9%	9,943,132	0.32
Silflar2	150	2,232,500	1%	1,542,900	0.05
GEN1	400	5,953,334	4%	4,114,399	0.13
GEN2	400	5,953,334	4%	4,114,399	0.13
GEN3	400	5,953,334	4%	4,114,399	0.13
GEN4	400	5,953,334	4%	4,114,399	0.13
RNGFLARE	4,000	59,533,338	39%	41,143,993	1.30
TO	1,528	22,741,735	15%	15,717,005	0.50
Total	**10,178**	**151,482,579**	**100%**	**104,690,890**	**3.32**

Notes:

[1] LFG volume provided by WEG for a conservative operating scenario, assuming all equipment operates simultaneously. LFG volume of SILFLAR2 and TO are based on the maximum capacity due to the lack of information.

[2] LFG volume is scaled based on the collected LFG volume as predicted in ECCC Tool.

Modelling Parameters - Scaled Flow Rate for Gas Quantity

Source ID	Maximum Design Gas Flow Rate (m³/s)	Maximum Design Exhaust Flow Rate (m³/s)	Actual Gas Flow Rate (m³/s)	Actual Exhaust Flow Rate (m³/s)
FLARE1	1.18	27.8	0.32	7.4
FLARE2	2.37	55.8	0.32	7.4
FLARE3	2.37	55.8	0.32	7.4
RNGFLARE	2.36	2.4	1.30	1.3
Silflar2	0.07	1.57	0.05	1.1
TO	0.72	18.95	0.50	13.1
GEN1	0.21	3.21	0.13	2.0
GEN2	0.21	3.21	0.13	2.0
GEN3	0.21	3.21	0.13	2.0
GEN4	0.21	3.21	0.13	2.0

NMOC Emission Rate of Each Flare and Generator

Compound	CAS Number	Molecular Weight (g/mol)	Conc. In Raw LFG (from tesitng results in 2026)		Flare 1 Emission Rate (g/s)	Flare 2 Emission Rate (g/s)	Flare 3 Emission Rate (g/s)	RNG_FLARE Emission Rate (g/s)	Gen 1 Emission Rate (g/s)	Gen 2 Emission Rate (g/s)	Gen 3 Emission Rate (g/s)	Gen 4 Emission Rate (g/s)
			(ppm)	(g/m³)								
Maximum LFG Volumetric Flow (m³/s)	- -	- -	- -		**0.32**	**0.32**	**0.32**	**1.30**	**0.13**	**0.13**	**0.13**	**0.13**
Destruction Efficiency	- -	- -	- -		**98.0%**	**98.0%**	**98.0%**	**98.0%**	**98.0%**	**98.0%**	**98.0%**	**98.0%**
Hydrogen Sulfide	7783-06-4	34.08	736.80	1.08E+00	6.82E-03	6.82E-03	6.82E-03	0.00E+00	2.82E-03	2.82E-03	2.82E-03	2.82E-03
Vinyl Chloride	75-01-4	62.50	0.33	8.86E-04	5.58E-06	5.58E-06	5.58E-06	2.31E-05	2.31E-06	2.31E-06	2.31E-06	2.31E-06
Benzene	71-43-2	78.11	1.86	6.24E-03	3.94E-05	3.94E-05	3.94E-05	1.63E-04	1.63E-05	1.63E-05	1.63E-05	1.63E-05
1,1,2-Trichloroethane	79-00-5	133.40	0.09	5.08E-04	3.20E-06	3.20E-06	3.20E-06	1.33E-05	1.33E-06	1.33E-06	1.33E-06	1.33E-06

Sample Calculation

Calculation of Hydrogen Sulphide Emission Rate (Flare1) = Maximum LFG Flow (m³/s) * Concentration in Raw LFG (g/m³) * (1 - Detruction Efficiency)

= 0.32 m³/s * 6.82E-03 g/m³ * (1 - 0.98)

= 6.82E-03 g/s

Appendix N8: Landfill Gas Flare Combustion Emission Rate Calculations (All Contaminants except SO2)

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

				Emission Rate Calculations			
Source ID	Description	Maximum LFG Volumetric Flow [1] (m^3/s)	Maximum Methane Volumetric Flow [2] [3] [4] [5] (m^3/s)	Contaminant [6]	Emission Factor [7] ($kg/10^6$dscm methane)	Emission Factor [8] (g/m^3 landfill gas)	Emission Rate (g/s)
FLARE1	Landfill Gas Flare	0.32	0.16	Nitrogen Oxides (NOx)	610	- -	9.53E-02
				Particulate Matter (PM)	270	- -	4.22E-02
FLARE2	Landfill Gas Flare	0.32	0.16	Nitrogen Oxides (NOx)	610	- -	9.53E-02
				Particulate Matter (PM)	270	- -	4.22E-02
FLARE3	Landfill Gas Flare	0.32	0.16	Nitrogen Oxides (NOx)	610	- -	9.53E-02
				Particulate Matter (PM)	270	- -	4.22E-02
RNGFlare	RNG Off-spec Gas Flare	1.30	0.65	Nitrogen Oxides (NOx)	610	- -	3.98E-01
				Particulate Matter (PM)	270	- -	1.76E-01
SILFLAR2	Siloxane Flare 2 (new)	0.05	0.02	Nitrogen Oxides (NOx)	610	- -	1.48E-02
				Particulate Matter (PM)	270	- -	6.55E-03
SILFLAR2	Siloxane Flare 2 - Natural gas scenario	0.05	0.05	Nitrogen Oxides (NOx)	610	- -	2.98E-02
TO	Thermal Oxidizer	0.50	0.10	Nitrogen Oxides (NOx)	610	- -	6.08E-02
				Particulate Matter (PM)	270	- -	2.69E-02

Notes:

[1] Dry standard (actual)

[2] Methane content of landfill gas, based on 2026 source testing = 50%

[3] Methane content of landfill gas, based on design methane concentration for the elevated flare = 50%

[4] Emissions for the siloxane flare natural gas scenario were calculated based on a methan concentration of 100%

[5] Methane Content in gas stream to Thermal Oxidizer, based on client provided data = 20%

[6] Emissions from the siloxane flare natural gas scenario only considered emissions of nitrogen oxides.

[7] Emission Factor from AP-42 Chapter 2.4 (Final version, November 1998)

[8] Emission Factor calculated based on concentration of sulphur compounds in raw landfill gas (see Appendix F2)

Sample Calculation

Calculation of Nitrogen Oxides Emission Rate (FLARE1) = Maximum LFG Flow (m^3/s) * Emission Factor for NOx (kg/10^6 dscm) * (1000 g/100000 dscm)

= 0.16 m^3/s * 610 kg/10^6 dscm * 1000/1000000

= 9.53E-02 g/s

Appendix N9: Landfill Gas Flow Calculations (SO2)

Walker South Landfill Phase 2 Environmental Assessment

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Volume of Methane and LFG Generated in Year 2041

Landfill	Volume of Methane Generated from ECCC Methane Tool (m3/yr)	Volume of LFG Generated (m3/yr) [1]
East Landfill	6,605,712	13,211,424
South Landfill Phase 1	23,475,332	46,950,664
South Landfill Phase 2 - Stage 1	9,131,856	18,263,712
South Landfill Phase 2 - Stage 2	12,165,101	24,330,202
South Landfill Phase 2 - Stage 3	11,798,641	23,597,282
Total	**63,176,642**	**126,353,284**

Note:

[1] Methane accounts for 50% of LFG, as a default in the ECCC Methane Tool.

Total Volume of LFG Collected in Year 2041

Landfill	Source ID	Cover	Gas Collection Efficiency (%)	Area	Volume of LFG Generated for the Entire Landfill from ECCC Methane Tool (m3/yr)	Volume of LFG Generated (m3/yr)	Volume of LFG Collected (m3/yr)
East Landfill	EASTLF_FC	Final Cover	85%	593,594	13,211,424	13,211,424	11,229,710
South Landfill Phase 1	SLF_FC	Final Cover	85%	507,646	46,950,664	46,950,664	39,908,064
South Landfill Phase 2 - Stage 1	S1_FC	Final Cover	85%	232,375	18,263,712	18,263,712	15,524,155
South Landfill Phase 2 - Stage 2	S2_FC	Final Cover	85%	149,688	24,330,202	24,330,202	20,680,672
South Landfill Phase 2 - Stage 3	S3_IC	Interim Cover	70%	108,706	23,597,282	18,062,678	12,643,874
South Landfill Phase 2 - Stage 3	S3_FC	Final Cover	85%	33,309	23,597,282	5,534,604	4,704,414
				Total	-	**126,353,284**	**104,690,890**

Flow Rate of Each of the Equipment

LFG-Fired Equipment	Volume of LFG Provided by Walker		
	(cfm)	(m3/yr)	(m3/s)
FLARE1	833	12,402,779	0.49
FLARE2	833	12,402,779	0.49
FLARE3	833	12,402,779	0.49
Silflar2	130	1,934,833	0.08
GEN1	400	5,953,334	0.24
GEN2	400	5,953,334	0.24
GEN3	400	5,953,334	0.24
GEN4	400	5,953,334	0.24
RNGFLARE	300	4,465,000	0.18
RNGTAIL	3,200	47,626,671	1.51
TO	1,528	22,741,735	0.90
Total	**9,258**	**137,789,911**	**5.10**

2025 LFG Collected from ECCC Methane Tool = 83,451,516 m3/yr

Modelling Parameters - Scaled Flow Rate for Gas Quantity

Source ID	Maximum Design Gas Flow Rate (m^3/s)	Maximum Design Exhaust Flow Rate (m^3/s)	Actual Gas Flow Rate (m^3/s)	Actual Exhaust Flow Rate (m^3/s)
FLARE1	1.18	27.8	0.49	11.6
FLARE2	2.37	55.8	0.49	11.6
FLARE3	2.37	55.8	0.49	11.6
RNGFLARE	2.36	2.4	0.18	0.2
RNGTAIL	2.36	2.4	1.51	1.5
Silflar2	0.07	1.57	0.08	1.7
TO	0.72	18.95	0.90	23.8
GEN1	0.21	3.21	0.24	3.6
GEN2	0.21	3.21	0.24	3.6
GEN3	0.21	3.21	0.24	3.6
GEN4	0.21	3.21	0.24	3.6

Appendix N10 - Calculation of SO2 Emission Factor (SO2)

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Concentration of Sulphur in Landfill Gas (from 2026 Source Testing)

Sulphurs	MW (g/mol)	Concentration (ppm)	Number of Sulphurs per Compound	Concentration of Sulphur Compounds as S (ppm)
Carbonyl Sulphide	60.07	1.94	1	1.94
Carbon Disulphide	76.14	0.64	2	1.27
Dimethyl Sulphide	62.13	5.47	1	5.47
Hydrogen Sulphide	34.08	736.80	1	736.80
Methyl Mercaptan	48.11	4.95	1	4.95
		Total	**7**	**750.43**

Concentration of Sulphur in Landfill Gas (Scaled based on Actual H2S concentrations of Each Equipment)

Equipment	H2S Concentration (ppm)	Compounds as S (ppm)	Concentration µg/m³	Concentration g/m³	$Concentration_{SO2}$ = g/m³
FLARE1	735.00	748.59	1,033,582	1.03	2.07
FLARE2	735.00	748.59	1,033,582	1.03	2.07
FLARE3	735.00	748.59	1,033,582	1.03	2.07
RNGFLARE	1100.00	1120.34	1,546,857	1.55	3.09
RNGTAIL	1100.00	1120.34	1,546,857	1.55	3.09
GEN1	150.00	152.77	210,935	0.21	0.42
GEN2	150.00	152.77	210,935	0.21	0.42
GEN3	150.00	152.77	210,935	0.21	0.42
GEN4	150.00	152.77	210,935	0.21	0.42
Silflar2	200.00	203.70	281,247	0.28	0.56
TO	0.00	0.00	0	0.00	0.00

Sample Calculation for FLARE1

Conversion of Concentration from ppm to µg/m³

$Concentration_{µg/m³} = Concentration_{ppm} * [(MW * 1.0 atm)/(8.205 x10\text{-}5 m^3\text{-atm/gmol-K})*(273+ToK)$
MW_S = Molecular weight of Sulphur (32.06 g/gmol)
T = Temperature of landfill gas (assumed 10°C)

Concentration = **1,033,582** µg/m³ of total sulphur in landfill gas
= 1.034 g/m³ of total sulphur in landfill gas

Assuming 100% of the sulphur in the landfill gas is converted to sulphur dioxide (SO_2) during combustion

$Concentration_{SO2} =$ ConcentrationS * (MWSO2 / MWS)

MW_S = Molecular weight of Sulphur (32.06 g/gmol)
MW_{SO2} = Molecular weight of Sulphur Dioxide (64.07 g/gmol)

$Concentration_{SO2} =$ 2.066 g/m³ of total sulphur dioxide in combusted landfill gas

Appendix N11: Landfill Gas Flare Combustion Emission Rate Calculations (SO2)

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Walker South Landfill Phase 2 Environmental Assessment

				Emission Rate Calculations			
Source ID	**Description**	**Maximum LFG Volumetric Flow [1] (m^3/s)**	**Maximum Methane Volumetric Flow [2] [3] [4] [5] (m^3/s)**	**Contaminant [6]**	**Emission Factor [7] (kg/10^6dscm methane)**	**Emission Factor [8] (g/m^3 landfill gas)**	**Emission Rate (g/s)**
FLARE1	Landfill Gas Flare	0.49	0.24	Sulphur Dioxide (SO2)	- -	2.07E+00	1.02E+00
FLARE2	Landfill Gas Flare	0.49	0.24	Sulphur Dioxide (SO2)	- -	2.07E+00	1.02E+00
FLARE3	Landfill Gas Flare	0.49	0.24	Sulphur Dioxide (SO2)	- -	2.07E+00	1.02E+00
RNGFlare	RNG Off-spec Gas Flare	0.18	0.09	Sulphur Dioxide (SO2)	- -	3.09E+00	5.49E-01
RNGTAIL	RNG Off-spec Gas Flare	1.51	0.76	Sulphur Dioxide (SO2)	- -	3.09E+00	4.67E+00
SILFLAR2	Siloxane Flare 2 (new)	0.08	0.04	Sulphur Dioxide (SO2)	- -	5.62E-01	4.33E-02
TO	Thermal Oxidizer	0.90	0.18	Sulphur Dioxide (SO2)	- -	0.00E+00	0.00E+00

Notes:

[1] Dry standard (actual)

[2] Methane content of landfill gas, based on 2026 source testing = 50%

[3] Methane content of landfill gas, based on design methane concentration for the elevated flare = 50%

[4] Emissions for the siloxane flare natural gas scenario were calculated based on a methan concentration of 100%

[5] Methane Content in gas stream to Thermal Oxidizer, based on client provided data = 20%

[6] Emissions from the siloxane flare natural gas scenario only considered emissions of nitrogen oxides.

[7] Emission Factor from AP-42 Chapter 2.4 (Final version, November 1998)

[8] Emission Factor calculated based on concentration of sulphur compounds in raw landfill gas (see Appendix F2)

Sample Calculation

Calculation of Sulphur Oxides Emission Rate (FLARE1) = Maximum LFG Flow (m^3/s) * Emission Factor for SO2 (g/m^3)

= 0.49 m^3/s * 2.07 g/m^3

= 1.02E+00 g/s

Appendix N12: Elevated Flare Pseudo Parameter Calculation - RNGFLARE

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Based on MECP Technical Bulletin - Modelling Open Flares under O. Reg. 419/05 dated February 2017

Table 1: Scenario Summary

Parameter	Value
Date of Flare Event	--
Source ID	RNG_FLARE

Table 2: Properties of Gas

Parameter	Value	Unit
Density	1.2	kg/m³ @ 311 K and 101.3 kPa
Molecular Weight	30.0	g/mol
Lower Heating Value	16.0	MJ/m³ @ 311K and 101.3 kPa
Mole Fraction in Feed	1	-

Table 3: Composition of Gas Streams to be Flared

Parameter	Stream 1 - Landfill Gas	Propane Pilot Flow	Total Stream to Flare	Unit
Stream MW	30.0	16.04	30.0	kg/kgmol
Volumetric Rate to Flare	639.4	0.62	640	m^3/hr

Table 4: Properties of Flare Gas

Parameter	Value	Unit
Stream MW	30.0	kg/kgmol
Site Atmospheric Pressure	101.3	kPa
Universal Gas Constant (R)	8.3145	(kPa-m³)/(K-kgmol)
Gas Temperature (T_{gas})	37.78	°C
	310.78	K
Volumetric Rate to Flare	640.1	m³/hr
Total Heat Release Rate	3.0	MJ/s

Table 5: Flare Parameters

Total Maximum to Flare		
Parameter	**Value**	**Unit**
Complete Combustion Total Heat Release Rate (Q_T)	3.0	MJ/s
	3.01E+06	J/s
Flame Radiation Loss (f)	55	%
	0.55	fraction
Flare Stack Tip Height (H_s)	15.13	m
Volumetric Rate to Flare (20°C, 101.15 kPa)	640	m³/hr
	0.178	m³/s
Flare Stack Tip Diameter (D_{nozzle})	0.41	m
Density of Flared Gas (ρ_{gas})	1.177	kg/m³
Density of Air at Ambient Temperature (ρ_{air})	1.183	kg/m³
Gravitational Constant (g)	9.807	m/s²
Air Specific Heat at Ambient Air Temperature ($C_{p,air}$)	1004	J/(kg-K)
Modelled Ambient Air Temperature (T_{amb})	25	°C
	298	K
Assumed Stack Gas Exit Temperature (T_{stack})	871	°C

Appendix N12: Elevated Flare Pseudo Parameter Calculation - RNGFLARE

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Table 6: Summary of Calculated Parameters

Total Maximum to Flare		
Parameter	**Value**	**Unit**
Net Heat Release (Q_n)	1.356E+06	J/s
Effective Stack Height (H_{eff})	17.09	m
Actual Gas Exit Velocity (V_{nozzle})	1.371	m/s
Momentum Flux (F_m)	0.07715	m^4/s^2
Buoyancy Flux (F_b)	12.0	m^4/s^3
Effective Exit Velocity (V_{eff}) [1]	1.500000	m/s
Effective Diameter (D_{eff})	2.22	m

[1] Effective exit velocity has a minimum value of 1.5 m/s as per the MECP Technical Bulletin "Modelling Open Flares under O. Reg. 419/05", February 2017.

Sample Calculations:

1) Calculation of net heat release rate (Q_n)

$$Q_n = Q_T \times (1 - f)$$

$$= 3014078\ J/s * (1 - 0.55)$$

$$= 1.36E+06\ J/s$$

2) Calculation of Effective Stack Height (H_{eff})

$$H_{eff} = H_S + 4.56 \times 10^{-3} * (Q_n/4.1868)^{0.478}$$

$$= 15.1257m + 0.00456 * (1356335\ J/s / 4.1868)^{0.478}$$

$$= 17.1\ m$$

3) Calculation of Actual Gas Exit Velocity (including lift gas) at flare nozzle before combustion (V_{nozzle})

$$V_{nozzle} = \frac{\text{Volumetric Flow Rate to Flare } (m^3/s)}{\pi D^2/4}$$

$$V_{nozzle} = \frac{0.18\ m^3/s}{\pi * (0.4064m)^2 / 4}$$

$$V_{nozzle} = 1.371\ m/s$$

4) Calculation of Momentum Flux (F_M)

$$F_M = \frac{\rho_{gas}}{\rho_{air} * 4} * D_{nozzle}^2 * V_{nozzle}^2$$

$$= \frac{1.177\ kg/m^3}{1.183\ kg/m^3 * 4} * (0.4064m)^2 * (1.4m)^2$$

$$= 7.72E-02\ m^4/s^2$$

5) Calculation of Buoyancy Flux (F_b)

$$F_b = g * \frac{Q_n}{(\pi * \rho_{air} * T_{amb} * C_{p,air})}$$

$$= 9.807\ m/s^2 * \frac{1356335\ J/s}{(\pi * 1.183 kg/m^3 * 298\ K * 1004\ J/(kg\text{-}K))}$$

$$= 11.96\ m^4/s^3$$

6) Calculation of Effective Exit Velocity (V_{eff})

$$V_{eff} = g * \frac{Fm}{Fb} * \frac{Tstack - Tamb}{Tamb}$$

$$= 9.807\ m/s^2 * \frac{0.0772\ m^4/s^2}{12\ m^4/s^3} * \frac{871\ °C - 298\ K}{298\ K}$$

$$= 0.122\ m/s$$

Minimum effective exit velociy is 1.5 m/s; if calculated value is less than minimum, 1.5 m/s is used.

7) Calculation of Effective Diameter (D_{eff})

$$D_{eff} = 2 * \left(\frac{Fb * Tstack}{g * Veff * (Tstack - Tamb)}\right)^{\wedge 0.5}$$

$$= 2 * \left(\frac{12\ m^4/s^3 * 871\ °C}{9.807\ m/s^2 * 1.5\ m/s * (871\ °C - 298\ K)}\right)^{\wedge 0.5}$$

$$= 2.2\ m$$

Appendix N13: Elevated Flare Pseudo Parameter Calculation - RNGTAIL

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Based on MECP Technical Bulletin - Modelling Open Flares under O. Reg. 419/05 dated February 2017

Table 1: Scenario Summary

Parameter	Value
Date of Flare Event	--
Source ID	RNGTAIL

Table 2: Properties of Gas

Parameter	Value	Unit
Density	1.2	kg/m³ @ 311 K and 101.3 kPa
Molecular Weight	16.6	g/mol
Lower Heating Value	31.4	MJ/m³ @ 311K and 101.3 kPa
Mole Fraction in Feed	1	-

Table 3: Composition of Gas Streams to be Flared

Parameter	Stream 1 - Landfill Gas	Propane Pilot Flow	Total Stream to Flare	Unit
Stream MW	16.6	16.04	16.6	kg/kgmol
Volumetric Rate to Flare	5436.8	0.62	5437	m^3/hr

Table 4: Properties of Flare Gas

Parameter	Value	Unit
Stream MW	16.6	kg/kgmol
Site Atmospheric Pressure	101.3	kPa
Universal Gas Constant (R)	8.3145	(kPa-m³)/(K-kgmol)
Gas Temperature (T_{gas})	37.78	°C
	310.78	K
Volumetric Rate to Flare	5437.5	m³/hr
Total Heat Release Rate	50.2	MJ/s

Table 5: Flare Parameters

Total Maximum to Flare		
Parameter	**Value**	**Unit**
Complete Combustion Total Heat Release Rate (Q_T)	50.2	MJ/s
	5.02E+07	J/s
Flame Radiation Loss (f)	55	%
	0.55	fraction
Flare Stack Tip Height (H_s)	15.13	m
Volumetric Rate to Flare (20°C, 101.15 kPa)	5437	m³/hr
	1.510	m³/s
Flare Stack Tip Diameter (D_{nozzle})	0.41	m
Density of Flared Gas (ρ_{gas})	1.177	kg/m³
Density of Air at Ambient Temperature (ρ_{air})	1.183	kg/m³
Gravitational Constant (g)	9.807	m/s²
Air Specific Heat at Ambient Air Temperature ($C_{p,\,air}$)	1004	J/(kg-K)
Modelled Ambient Air Temperature (T_{amb})	25	°C
	298	K
Assumed Stack Gas Exit Temperature (T_{stack})	871	°C

Appendix N13: Elevated Flare Pseudo Parameter Calculation - RNGTAIL

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Table 6: Summary of Calculated Parameters

Total Maximum to Flare		
Parameter	**Value**	**Unit**
Net Heat Release (Q_n)	2.259E+07	J/s
Effective Stack Height (H_{eff})	22.66	m
Actual Gas Exit Velocity (V_{nozzle})	11.644	m/s
Momentum Flux (F_m)	5.56817	m^4/s^2
Buoyancy Flux (F_b)	199.2	m^4/s^3
Effective Exit Velocity (V_{eff}) [1]	1.500000	m/s
Effective Diameter (D_{eff})	9.07	m

[1] Effective exit velocity has a minimum value of 1.5 m/s as per the MECP Technical Bulletin "Modelling Open Flares under O. Reg. 419/05", February 2017.

Sample Calculations:

1) Calculation of net heat release rate (Q_n)

$$Q_n = Q_T \times (1 - f)$$

$$= 50198275\ J/s * (1 - 0.55)$$

$$= 2.26E+07\ J/s$$

2) Calculation of Effective Stack Height (H_{eff})

$$H_{eff} = H_S + 4.56 \times 10^{-3} * (Q_n/4.1868)^{0.478}$$

$$= 15.1257m + 0.00456 * (22589224\ J/s / 4.1868)^{\wedge}0.478$$

$$= 22.7\ m$$

3) Calculation of Actual Gas Exit Velocity (including lift gas) at flare nozzle before combustion (V_{nozzle})

$$V_{nozzle} = \frac{\text{Volumetric Flow Rate to Flare } (m^3/s)}{\pi D^2/4}$$

$$V_{nozzle} = \frac{1.51\ m^3/s}{\pi * (0.4064m)^2 / 4)}$$

$$V_{nozzle} = 11.644\ m/s$$

4) Calculation of Momentum Flux (F_M)

$$F_M = \frac{\rho_{gas}}{\rho_{air} * 4} * D_{nozzle}^2 * V_{nozzle}^2$$

$$= \frac{1.177\ kg/m^3}{1.183\ kg/m^3 * 4} * (0.4064m)^2 * (11.6m)^2$$

$$= 5.57E+00\ m^4/s^2$$

5) Calculation of Buoyancy Flux (F_b)

$$F_b = g * \frac{Q_n}{(\pi * \rho_{air} * T_{amb} * C_{p,air})}$$

$$= 9.807\ m/s^2 * \frac{22589224\ J/s}{(\pi * 1.183 kg/m^3 * 298\ K * 1004\ J/(kg\text{-}K))}$$

$$= 199.23\ m^4/s^3$$

6) Calculation of Effective Exit Velocity (V_{eff})

$$V_{eff} = g * \frac{Fm}{Fb} * \frac{Tstack - Tamb}{Tamb}$$

$$= 9.807\ m/s^2 * \frac{5.5682\ m^4/s^2}{199.2\ m^4/s^3} * \frac{871\ °C - 298\ K}{298\ K}$$

$$= 0.527\ m/s$$

Minimum effective exit velociy is 1.5 m/s; if calculated value is less than minimum, 1.5 m/s is used.

7) Calculation of Effective Diameter (D_{eff})

$$D_{eff} = 2 * \left(\frac{Fb * Tstack}{g * Veff * (Tstack - Tamb)}\right)^{\wedge 0.5}$$

$$= 2 * \left(\frac{199.2\ m^4/s^3 * 871\ °C}{9.807\ m/s^2 * 1.5\ m/s * (871\ °C - 298\ K)}\right)^{\wedge 0.5}$$

$$= 9.1\ m$$

Appendix N14: Siloxane Flare Actual Flow Rate Calculation

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

LFG Flow Rate	0.05	m^3/sec
CH_4 Flow Rate	0.02	m^3/sec, assuming 50% of gas to be CH_4
CO_2 Flow Rate	0.02	m^3/sec, assuming 50% of gas to be CO_2
No. of Moles CH_4 in Gas	1.00	, under 1atm and 298K
Moles in Exhaust Gas	10.52	(based on stoiciometry)
Moles to Volume of Gas	10.52	total no. of moles of CH_4
	0.26	m^3 of exhaust gas from CH_4 combustion (standard)
	0.28	m^3 of exhaust gas from CH_4 + CO_2 (standard)
Convert to Actual Conditions	1144	actual exhaust temperature (K)
	1.08	total exhaust flow at actual conditions (m^3/s)

Note:

Actual flow rate considering both siloxane and fuel gas combustion

Appendix N15: Thermal Oxidizer Emission Rate Calculations

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Vertical up-fired Thermal Oxidizer with one main burner and auxiliary pilot burner
Secondry air train for oxidation of waste streams

Design Basis (May August 2021)

Exhaust Flow	0.5	m^3/s
Methane Content	5%	%

Design Temp	787 - 982	°C
VOC destruction Efficiency	98%	%

Compound	CAS Number	Molecular Weight (g/mol)	Average Conc. In Raw LFG (from testing results in 2026) (ppm)	Manufacturer Guarenteed Outlet Concentration (ppm) [1]	Average Conc. In gas to Thermal Oxidizer (g/m^3) [2]	Scaled relative to total NMOC in Landgem [3]	Scaled relative to outlet NMOC (ppm) [3]	Average Conc. In gas from Thermal Oxidizer (g/m^3) [4]	Therm_Ox Emission Rate (g/s)
Maximum LFG Volumetric Flow (m^3/s)	--	--	--		--	--	--	--	**0.50**
Destruction Efficiency	--	--	--		--	--	--	--	**98%**
NMOC Concentration (ppm)						**595.00**	**300.00**	--	--
VOC									
Hydrogen Sulfide	7783-06-4	34.1	736.80	4.00	0.0059	--	--	--	5.85E-05
Vinyl Chloride	75-01-4	62.5	0.33	--	0.0009	0.06%	0.17	4.46E-04	2.23E-04
Benzene	71-43-2	78.1	1.86	--	0.0062	0.31%	0.94	3.15E-03	1.57E-03
1,1,2-Trichloroethane	79-00-5	133.4	0.09	--	0.0005	0.01%	0.04	2.56E-04	1.28E-04

Sample Calculation for Thermal Oxidizer

Calculation of Hydrogen Sulphide Emission Rate = Maximum LFG Flow (m^3/s) * Concentration in Raw LFG (g/m^3) * (1 - Detruction Efficiency)
= 0.5 m^3/s * 0.0059 g/m^3 * (1 - 0.98)
= 5.85E-05 g/s

Notes:
[1] H2S emissions were calculated using the manufacturer guarenteed outlet concentration.
[2] Concentration for each contaminant calculated using raw LFG concentration ratios
[3] Average concentration for Thermal Oxidizer based on manufacturer outlet concentration of NMOC scaled by Landgem NMOC concentration for contaminants of intrest.
[4] Conversion Formula: Concentration (ppm) = 24.45 x concentration (mg/m3) ÷ molecular weight

NOx Emissions from Natural Gas Burner in Thermal Oxidizer

Burner Firing Rate 1.2 MMBTU/hr
1.18E-03 10^6 scf/hr , assuming a heating value of 1020 $MMBTU/10^6$ scf

Contaminants	Emission Factor (lb/10^6scf) [1]	Emission Rate from Natural Gas Combustion (g/s)	Emissions from Waste Stream Combustion (g/s) [2]	Total Emissions (g/s) [3]
Nitrogen Oxides	100	1.48E-02	6.08E-02	7.56E-02
Particulate Matter	7.6	1.13E-03	2.69E-02	2.80E-02

Sample Calculation

Nitrogen Oxides Emission Rate from Natural Gas Combustion = (1.18E-03 10^6 scf/h) x (100 lb / 10^6 scf) x (453.6 g / lb) / (3600 s / h)
= 1.48E-02 g/s

Notes:
[1] Emission Factors taken from US EPA AP-42 Chapter 1.4, Table 1.4-1 and Table 1.4-2. PM is assumed to same for TSP, PM_{10} and $PM_{2.5}$.
[2] Refer to Appendix Appendix N8 for waste stream analysis
[3] Combustion emissions calculated by sumation of natural gas combustion and waste stream combustion rates.

Appendix N16: On-Site Mobile Equipment Emissions - Fugitive Dust

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

UNPAVED ROAD SECTIONS - AP-42 Section 13.2.2
PAVED ROAD SECTIONS - AP-42 Section 13.2.1

Paved Roads: $E = k\,(sL)^{0.91}\,(W)^{1.02}$
Unpaved Roads - Industrial: $E = 281.9\,k\,(s / 12)^{a}\,(W / 3)^{b}$
Unpaved Roads - Public: $E = 281.9\,k\,(s / 12)^{a}\,(S / 30)^{d} / (M / 0.5)^{c} - C$

E particulate emission factor (g/VKT)
k particle size multiplier (see below)
sL road surface silt loading (g/m^2)
W average weight of the vehicles traveling the road (US short tons)
s surface material silt content (%)
C emission factor for 1980's vehicle fleet exhaust, brake wear and tire wear
M surface material moisture content (%)
S mean vehicle speed (mph)
a,b,c,d constants (see below)

Route ID [1]	Route Description	Traffic Passes [2]			Segment Length [2]	Road Surface [3]	Roadway Type [4]	Mean Vehicle Speed		Average Vehicle Weight [5]	Surface Material Moisture Content [6]	Surface Silt Content [7]	Road Surface Silt Loading [8]	Base AP-42 Emission Factor			Base Emission Rate			Additional Control Efficiency Applied	Final Controlled Emission Rate					
		Hourly	Daily	Annual										TSP	PM_{10}	$PM_{2.5}$	TSP	PM_{10}	$PM_{2.5}$		TSP	Data Quality Rating	PM_{10}	Data Quality Rating	$PM_{2.5}$	Data Quality Rating
		(#/h)	(#/d)	(#/a)	(m)			(km/h)	(mph)	(tons)	(%)	(%)	(g/m^2)	(g/VKT)	(g/VKT)	(g/VKT)	(g/s)	(g/s)	(g/s)	(%)	(g/s)		(g/s)		(g/s)	
PR_CF1	Paved Road at Compost Facility - Inbound and Outbound Delivery	1	1	1	861	Paved	Industrial	-	-	26.3	-	-	1.0	1.35E+02	1.74E+01	4.22E+00	3.22E-02	4.17E-03	1.01E-03		3.22E-02		4.17E-03		1.01E-03	
UR_CF2	Unpaved Road at Compost Facility - Inbound and Outbound Delivery	1	1	1	49	Unpaved	Industrial	25	16	26.3	-	8.35%	-	4.41E+03	8.11E+02	8.11E+01	5.96E-02	1.09E-02	1.09E-03	95%	2.98E-03		5.47E-04		5.47E-05	
UR_SOCL	Unpaved Road - Transport of Soil and Clay between Soil Pile and Working Face and Construction Areas	1	1	1	251	Unpaved	Industrial	25	16	36.7	-	5.97%	-	4.19E+03	6.96E+02	6.96E+01	2.92E-01	4.86E-02	4.86E-03	95%	1.46E-02		2.43E-03		2.43E-04	
PR_W1	Paved Road - Transport of Waste between Entrance and Weigh Scale	1	1	1	826	Paved	Industrial	-	-	41.0	-	-	1.0	2.12E+02	2.74E+01	6.62E+00	4.86E-02	6.29E-03	1.52E-03		4.86E-02		6.29E-03		1.52E-03	
UR_W2	Unpaved Road at - Transport of Waste between Weigh Scale and Working Face	1	1	1	72	Unpaved	Industrial	20	12	41.0	-	8.35%	-	5.38E+03	9.90E+02	9.90E+01	1.08E-01	1.98E-02	1.98E-03	95%	5.40E-03		9.92E-04		9.92E-05	
UR_W3	Unpaved Road at - Transport of Waste between Weigh Scale and Working Face	1	1	1	707	Unpaved	Industrial	20	12	41.0	-	8.35%	-	5.38E+03	9.90E+02	9.90E+01	1.06E+00	1.94E-01	1.94E-02	95%	5.29E-02		9.72E-03		9.72E-04	
UR_W4	Unpaved Road - Transport of Soil, Clay and Waste between Weigh Scale and Working Face	1	1	1	235	Unpaved	Industrial	20	12	40.1	-	8.35%	-	5.33E+03	9.80E+02	9.80E+01	3.48E-01	6.40E-02	6.40E-03	95%	1.74E-02		3.20E-03		3.20E-04	
UR_W5	Unpaved Road - Transport of Soil, Clay and Waste between Weigh Scale and Working Face	1	1	1	117	Unpaved	Industrial	20	12	40.0	-	8.35%	-	5.32E+03	9.79E+02	9.79E+01	1.73E-01	3.18E-02	3.18E-03	95%	8.64E-03		1.59E-03		1.59E-04	
UR_W6	Unpaved Road - Transport of Soil and Waste between Weigh Scale and Working Face	1	1	1	766	Unpaved	Industrial	20	12	39.8	-	8.35%	-	5.31E+03	9.76E+02	9.76E+01	1.13E+00	2.08E-01	2.08E-02	95%	5.65E-02		1.04E-02		1.04E-03	
UR_S4CON	Unpaved Road - Transport of Clay between Soil Pile and Cell Construction Area	1	1	1	180	Unpaved	Industrial	25	16	41.7	-	8.35%	-	5.43E+03	9.97E+02	9.97E+01	2.72E-01	4.99E-02	4.99E-03	95%	1.36E-02		2.50E-03		2.50E-04	
UR_S3CAP	Unpaved Road - Transport of Clay between Soil Pile and Final Capping Construction Area	1	1	1	928	Unpaved	Industrial	25	16	41.7	-	8.35%	-	5.43E+03	9.97E+02	9.97E+01	1.40E+00	2.57E-01	2.57E-02	95%	6.99E-02		1.29E-02		1.29E-03	

Notes:

[1] Route ID numbers provided on site plan.
[2] Length of a specific road segment. A separate segment should be used whenever one or more parameters change.
[3] Paved surfaces include asphalt, concrete, and recycled asphalt (if it forms a relatively consistent surface).
[4] Publicly accessible and dominated by light vehicles, or industrial, and dominated by heavy vehicles.
[5] The average vehicle weight reflects the average of the empty and loaded vehicle weight, for travel in both directions.
[6] Required only for publicly accessible unpaved roads.
[7] Required only for unpaved roads (public and industrial).
[8] Required only for industrial paved roads.

Comments

Silica content is based onsite sampling data.
Constants for TSP (PM44) extrapolated from published factors for PM30, PM10 and PM2.5. Data quality downgraded by one step.

Appendix N16: On-Site Mobile Equipment Emissions - Fugitive Dust

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Constants for Mobile Emission Equations

Roadway Type	k	a	b	c	d	Quality
Paved Roads:	0.15	-	-	-	-	-
	0.62	-	-	-	-	-
	3.23	-	-	-	-	-
	4.79	-	-	-	-	-
Unpaved Roads - Industrial:	0.15	0.9	0.45	-	-	C
	1.5	0.9	0.45	-	-	B
	4.9	0.7	0.45	-	-	B
	7.32	0.6	0.45	-	-	C
Unpaved Roads - Public:	0.18	1	-	0.2	0.5	C
	1.8	1	-	0.2	0.5	B
	6	1	-	0.3	0.3	B
	8.96	1	-	0.49	0.2	C

Sample calculation for uncontrolled TSP emission factor for Source PR_CF1: Paved Road at Compost Facility - Inbound and Outbound Delivery

EF = (4.79) x (1 g/m²)^0.91 x (26.3 tons)^1.02 = 135 g TSP / vehicle kilometer travelled (vkt)

Sample calculation for TSP emission rate for Source PR_CF1: Paved Road at Compost Facility - Inbound and Outbound Delivery

$$\frac{1 \text{ vehicles}}{1 \text{ h}} \times \frac{1 \text{ km}}{1000 \text{ m}} \times \frac{135 \text{ } g_{TSP}}{1 \text{ vehicle km}} \times \frac{1 \text{ h}}{3600 \text{ s}} \times \frac{100\% \text{ } g_{TSP\ uncontrolled}}{1 \text{ } g_{TSP}} = 3.22E\text{-}02 \text{ } g_{TSP} / \text{s}$$

Appendix N17: Averaged Emission Rates for On-road Vehicles Based on Speed and Vehicle Class (Year 2041)

Walker South Landfill Phase 2 Environmental Assessment

Km to Mile Conversion Factor	1.609 km per mile
Hour to Seconds	3600 s/hr

Vehicle Type		Contaminant Emission Rate by Vehicle Speed (km/hr)																											
		TSP				PM10				PM2.5				Benzene				Nitrogen Dioxide				Nitrogen Oxides				Sulphur Dioxide			
		0	20	25	50	0	20	25	50	0	20	25	50	0	20	25	50	0	20	25	50	0	20	25	50	0	20	25	50
		g/s	g/vkt	g/vkt	g/vkt	g/s	g/vkt	g/vkt	g/vkt	g/s	g/vkt	g/vkt	g/vkt	g/s	g/vkt	g/vkt	g/vkt	g/s	g/vkt	g/vkt	g/vkt	g/s	g/vkt	g/vkt	g/vkt	g/s	g/vkt	g/vkt	g/vkt
small	PassengerCar	3.90E-06	6.57E-02	6.11E-02	2.93E-02	3.90E-06	6.57E-02	6.11E-02	2.93E-02	3.45E-06	9.17E-03	8.47E-03	4.32E-03	5.89E-07	3.90E-04	3.52E-04	2.36E-04	8.08E-07	7.80E-04	7.21E-04	6.51E-04	5.17E-06	4.99E-03	4.61E-03	4.16E-03	2.48E-06	9.58E-04	8.49E-04	5.86E-04
small	PassengerTruck	2.12E-06	7.24E-02	6.78E-02	3.10E-02	2.12E-06	7.24E-02	6.78E-02	3.10E-02	1.88E-06	9.94E-03	9.28E-03	4.56E-03	6.92E-07	4.65E-04	4.23E-04	2.76E-04	1.14E-05	2.41E-03	2.10E-03	1.43E-03	6.17E-05	1.38E-02	1.22E-02	8.56E-03	3.27E-06	1.26E-03	1.12E-03	7.80E-04
small	LightCommercialTruck	3.34E-06	7.44E-02	6.96E-02	3.32E-02	3.34E-06	7.44E-02	6.96E-02	3.32E-02	2.96E-06	1.08E-02	1.01E-02	5.19E-03	1.32E-06	9.09E-04	8.43E-04	4.46E-04	2.96E-05	5.40E-03	4.49E-03	2.65E-03	1.59E-04	3.02E-02	2.54E-02	1.53E-02	3.74E-06	1.46E-03	1.30E-03	8.86E-04
medium	SingleUnitShortHaulTruck	9.43E-06	2.03E-01	1.60E-01	7.42E-02	9.43E-06	2.03E-01	1.60E-01	7.42E-02	8.54E-06	3.11E-02	2.52E-02	1.29E-02	2.12E-06	1.66E-03	1.43E-03	7.00E-04	5.32E-04	1.58E-01	1.34E-01	7.65E-02	2.84E-03	8.45E-01	7.16E-01	4.08E-01	5.52E-06	2.75E-03	2.48E-03	1.88E-03
medium	SingleUnitLongHaulTruck	9.43E-06	2.07E-01	1.63E-01	7.60E-02	9.43E-06	2.07E-01	1.63E-01	7.60E-02	8.54E-06	3.16E-02	2.55E-02	1.31E-02	2.12E-06	1.64E-03	1.41E-03	6.92E-04	5.32E-04	1.57E-01	1.33E-01	7.53E-02	2.84E-03	8.38E-01	7.08E-01	4.02E-01	5.52E-06	2.71E-03	2.44E-03	1.83E-03
large	CombinationShortHaulTruck	3.55E-05	5.05E-01	3.81E-01	1.67E-01	3.55E-05	5.05E-01	3.81E-01	1.67E-01	3.27E-05	7.99E-02	6.37E-02	3.28E-02	3.58E-08	1.42E-05	1.15E-05	5.46E-06	2.28E-03	6.79E-01	5.84E-01	3.54E-01	1.21E-02	3.61E+00	3.10E+00	1.88E+00	6.09E-06	4.10E-03	3.94E-03	3.28E-03
large	CombinationLongHaulTruck	2.29E-05	5.70E-01	4.22E-01	1.83E-01	2.29E-05	5.70E-01	4.22E-01	1.83E-01	2.10E-05	8.27E-02	6.38E-02	3.09E-02	4.57E-08	1.77E-05	1.44E-05	6.95E-06	2.56E-03	7.53E-01	6.43E-01	3.88E-01	1.36E-02	4.00E+00	3.41E+00	2.06E+00	6.16E-06	4.29E-03	4.13E-03	3.40E-03
	Small	**3.12E-06**	**7.08E-02**	**6.62E-02**	**3.12E-02**	**3.12E-06**	**7.08E-02**	**6.62E-02**	**3.12E-02**	**2.76E-06**	**9.97E-03**	**9.27E-03**	**4.69E-03**	**8.66E-07**	**5.88E-04**	**5.39E-04**	**3.19E-04**	**1.39E-05**	**2.86E-03**	**2.44E-03**	**1.58E-03**	**7.53E-05**	**1.63E-02**	**1.41E-02**	**9.35E-03**	**3.16E-06**	**1.23E-03**	**1.09E-03**	**7.50E-04**
	Medium	**9.43E-06**	**2.05E-01**	**1.62E-01**	**7.51E-02**	**9.43E-06**	**2.05E-01**	**1.62E-01**	**7.51E-02**	**8.54E-06**	**3.13E-02**	**2.53E-02**	**1.30E-02**	**2.12E-06**	**1.65E-03**	**1.42E-03**	**6.96E-04**	**5.32E-04**	**1.58E-01**	**1.33E-01**	**7.59E-02**	**2.84E-03**	**8.41E-01**	**7.12E-01**	**4.05E-01**	**5.52E-06**	**2.73E-03**	**2.46E-03**	**1.85E-03**
	Large	**2.92E-05**	**5.38E-01**	**4.01E-01**	**1.75E-01**	**2.92E-05**	**5.38E-01**	**4.01E-01**	**1.75E-01**	**2.68E-05**	**8.13E-02**	**6.38E-02**	**3.18E-02**	**4.08E-08**	**1.59E-05**	**1.30E-05**	**6.20E-06**	**2.42E-03**	**7.16E-01**	**6.13E-01**	**3.71E-01**	**1.29E-02**	**3.80E+00**	**3.26E+00**	**1.97E+00**	**6.13E-06**	**4.19E-03**	**4.03E-03**	**3.34E-03**

Appendix N18: Summary of Emission Rates for On-road and Non-road Vehicles Based on Speed and Vehicle Class (Year 2041)

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Walker South Landfill Phase 2 Environmental Assessment

Vehicle Type				Contaminant Emission Rate																				
MOVES Identifier			Speed	TSP			PM10			PM2.5			Benzene			Nitrogen Dioxide			Nitrogen Oxides			Sulphur Dioxide		
On-road / Non-road	Vehicle Type	HP ID	(km/hr)	g/VKT	g/hr	g/s	g/VKT	g/hr	g/s	g/VKT	g/hr	g/s	g/VKT	g/hr	g/s	g/VKT	g/hr	g/s	g/VKT	g/hr	g/s	g/VKT	g/hr	g/s
On-road	Large	-	0	-	-	2.92E-05	-	-	2.92E-05	-	-	2.68E-05	-	-	4.08E-08	-	-	2.42E-03	-	-	1.29E-02	-	-	6.13E-06
On-road	Large	-	20	5.38E-01	-	-	5.38E-01	-	-	8.13E-02	-	-	1.59E-05	-	-	7.16E-01	-	-	3.80E+00	-	-	4.19E-03	-	-
On-road	Large	-	25	4.01E-01	-	-	4.01E-01	-	-	6.38E-02	-	-	1.30E-05	-	-	6.13E-01	-	-	3.26E+00	-	-	4.03E-03	-	-
On-road	Large	-	50	1.75E-01	-	-	1.75E-01	-	-	3.18E-02	-	-	6.20E-06	-	-	3.71E-01	-	-	1.97E+00	-	-	3.34E-03	-	-
On-road	Small	-	25	6.62E-02	-	-	6.62E-02	-	-	9.27E-03	-	-	5.39E-04	-	-	2.44E-03	-	-	1.41E-02	-	-	1.09E-03	-	-
Non-road	Tractors/Loaders/Backhoes	300	-	-	6.36E-01	1.77E-04	-	6.36E-01	1.77E-04	-	6.36E-01	1.77E-04	-	3.13E-02	8.70E-06	-	-	-	-	7.54E+00	2.10E-03	-	6.98E-02	1.94E-05
Non-road	Skid Steer Loaders	100	-	-	1.12E+00	3.11E-04	-	1.12E+00	3.11E-04	-	1.12E+00	3.11E-04	-	4.73E-02	1.31E-05	-	-	-	-	1.97E+01	5.48E-03	-	3.31E-02	9.20E-06
Non-road	Excavators	600	-	-	1.49E+00	4.13E-04	-	1.49E+00	4.13E-04	-	1.49E+00	4.13E-04	-	5.27E-02	1.46E-05	-	-	-	-	2.70E+01	7.49E-03	-	3.42E-01	9.51E-05
Non-road	Graders	750	-	-	2.76E+00	7.67E-04	-	2.76E+00	7.67E-04	-	2.76E+00	7.67E-04	-	9.67E-02	2.69E-05	-	-	-	-	4.93E+01	1.37E-02	-	6.25E-01	1.74E-04
Non-road	Off-highway Trucks	300	-	-	9.10E-01	2.53E-04	-	9.10E-01	2.53E-04	-	9.10E-01	2.53E-04	-	3.14E-02	8.73E-06	-	-	-	-	1.60E+01	4.46E-03	-	2.04E-01	5.66E-05
Non-road	Off-highway Trucks	600	-	-	1.55E+00	4.30E-04	-	1.55E+00	4.30E-04	-	1.55E+00	4.30E-04	-	5.40E-02	1.50E-05	-	-	-	-	2.76E+01	7.66E-03	-	3.50E-01	9.73E-05
Non-road	Off-highway Trucks	1000	-	-	1.20E+01	3.33E-03	-	1.20E+01	3.33E-03	-	1.20E+01	3.33E-03	-	9.72E-01	2.70E-04	-	-	-	-	1.13E+03	3.14E-01	-	7.24E-01	2.01E-04
Non-road	Crawler Tractor/Dozers	600	-	-	1.57E+00	4.35E-04	-	1.57E+00	4.35E-04	-	1.57E+00	4.35E-04	-	5.50E-02	1.53E-05	-	-	-	-	2.80E+01	7.79E-03	-	3.55E-01	9.85E-05

Appendix N19: Traffic Count and Total Emission per Roadway

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Peak Hourly Traffic Count per Roadway

MOVES Identifier			Haul Trucks						Onsite Equipment													
			Trucks on Paved Roads (delivering raw materials, finished products, composts)	Trucks on Unpaved Roads (delivering raw materials, finished products)	Trucks (Transport of Refuse)	Trucks (Transport of Refuse - Idling)	Trucks (Transport of Waste Soil)	Site Pick-up Truck/Car	Compactor	Tipper	Water Truck	Fuel Truck	Sweeper Truck	Loader	Skid Steer	Excavator	Pick-up Trucks (on Unpaved Road)	Grader	Bulldozer	End-Dump Tractor Trailer / Tractor Trailer on Paved Roads	End-Dump Tractor Trailer / Tractor Trailer on Unpaved Roads	Tandem Delivery Truck (on Unpaved Road)
	On-road / Non-road		On-road	On-road	On-road	On-road	On-road	On-road	Non-road	Non-road	Non-road	Non-road	Non-road	Non-road	Non-road	Non-road	On-road	Non-road	Non-road	On-road	On-road	On-road
	Vehicle Type		Large	Large	Large	Large	Large	Small	Crawler Tractor/Dozers	Off-Highway Trucks	Off-Highway Trucks	Off-Highway Trucks	Off-Highway Trucks	Tractors/Loaders/Backhoes	Skid Steer Loaders	Excavators	Small	Graders	Crawler Tractor/Dozers	Large	Large	Large
	Speed (km/hr)		50	25	20	0	25	25	-	-	-	-	-	-	-	-	25	-	-	50	25	25
	Engine (hp)		-	-	-	-	-	-	523	400	400	825	200	272	80	303	-	600	347	-	-	-
Route	Source ID	Segment Length (m)																				
Paved Road at Compost Facility - Inbound and Outbound Delivery	PR_CF1	860.9	0	8	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Unpaved Road at Compost Facility - Inbound and Outbound Delivery	UR_CF2	48.6	0	8	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Tailpipe Emission of Onsite Equipment at Compost Facility	EQ_CF	-	0	0	0	0	0	0	0	0	1	0	0	5	0	0	0	0	0	0	0	0
Tailpipe Emission of Onsite Equipment at Soil Pile	EQ_SOIL	-	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0
Trucks Idling at the Weigh Scale	IDLE_WEIGH	-	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trucks Idling at the Working Face of South Landfill Phase 2 - Stage 3	IDLE_S3WF	-	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tailpipe Emission of Onsite Equipment at Working Face of South Landfill Phase 2 - Stage 3	EQ_S3WF	-	0	0	0	0	0	0	5	2	1	1	1	1	1	3	4	0	1	0	0	0
Tailpipe Emission of Onsite Equipment at Final Capping Construction Area of South Landfill Phase 2 - Stage 3	EQ_S3CAP	-	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0
Unpaved Road - Transport of Soil and Clay between Soil Pile and Working Face and Construction Areas	UR_SOCL	251.1	0	0	0	0	38	0	0	0	1	0	0	0	0	0	0	0	0	0	9	0
Paved Road - Transport of Waste between Entrance and Weigh Scale	PR_W1	826.4	0	0	58	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Unpaved Road at - Transport of Waste between Weigh Scale and Working Face	UR_W2	72.2	0	0	58	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Unpaved Road at - Transport of Waste between Weigh Scale and Working Face	UR_W3	706.8	0	0	58	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Unpaved Road - Transport of Soil, Clay and Waste between Weigh Scale and Working Face	UR_W4	235.2	0	0	58	0	38	0	0	0	1	0	0	0	0	0	0	0	0	0	9	0
Unpaved Road - Transport of Soil, Clay and Waste between Weigh Scale and Working Face	UR_W5	116.8	0	0	58	0	38	0	0	0	1	0	0	0	0	0	0	0	0	0	6	0
Unpaved Road - Transport of Soil and Waste between Weigh Scale and Working Face	UR_W6	765.8	0	0	58	0	38	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Unpaved Road - Transport of Clay between Soil Pile and Cell Construction Area	UR_S4CON	180.3	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	6	0
Unpaved Road - Transport of Clay between Soil Pile and Final Capping Construction Area	UR_S3CAP	928.2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	3	0

Note:
[1] Load factors are extracted from "Median Life, Annual Activity, and Load Factor Values for Nonroad Engine Emissions Modeling", EPA-420-R-10-016, NR-005d, July 2010.

Tailpipe Emission Factor by Equipment Type

MOVES Identifier			Tailpipe Emission Factor by Equipment Type																			
			Haul Trucks						Onsite Equipment													
			Trucks on Paved Roads (delivering raw materials, finished products, composts)	Trucks on Unpaved Roads (delivering raw materials, finished products)	Trucks (Transport of Refuse)	Trucks (Transport of Refuse - Idling)	Trucks (Transport of Waste Soil)	Site Pick-up Truck/Car	Compactor	Tipper	Water Truck	Fuel Truck	Sweeper Truck	Loader	Skid Steer	Excavator	Pick-up Trucks (on Unpaved Road)	Grader	Bulldozer	End-Dump Tractor Trailer / Tractor Trailer on Paved Roads	End-Dump Tractor Trailer / Tractor Trailer on Unpaved Roads	Tandem Delivery Truck (on Unpaved Road)
	On-road / Non-road		On-road	On-road	On-road	On-road	On-road	On-road	Non-road	Non-road	Non-road	Non-road	Non-road	Non-road	Non-road	Non-road	On-road	Non-road	Non-road	On-road	On-road	On-road
	Vehicle Type		Large	Large	Large	Large	Large	Small	Crawler Tractor/Dozers	Off-Highway Trucks	Off-Highway Trucks	Off-Highway Trucks	Off-Highway Trucks	Tractors/Loaders/Backhoes	Skid Steer Loaders	Excavators	Small	Graders	Crawler Tractor/Dozers	Large	Large	Large
	Speed (km/hr)		50	25	20	0	25	25	-	-	-	-	-	-	-	-	25	-	-	50	25	25
	Engine (hp)		-	-	-	-	-	-	523	400	400	825	200	272	80	303	-	600	347	-	-	-
	Load Factor		-	-	-	-	-	-	0.59	0.59	0.59	0.59	0.59	0.21	0.21	0.59	-	0.59	0.59	-	-	-
Contaminant	CAS Number	Pollutantid	g/VKT	g/VKT	g/VKT	g/s	g/VKT	g/VKT	g/hr	g/hr	g/hr	g/hr	g/hr	g/hr	g/hr	g/hr	g/VKT	g/hr	g/hr	g/VKT	g/VKT	g/VKT
TSP	PM	100	1.75E-01	4.01E-01	5.38E-01	2.92E-05	4.01E-01	6.62E-02	1.57E+00	1.55E+00	1.55E+00	1.20E+01	9.10E-01	6.36E-01	1.12E+00	1.49E+00	6.62E-02	2.76E+00	1.57E+00	1.75E-01	4.01E-01	4.01E-01
PM10	PM10	100	1.75E-01	4.01E-01	5.38E-01	2.92E-05	4.01E-01	6.62E-02	1.57E+00	1.55E+00	1.55E+00	1.20E+01	9.10E-01	6.36E-01	1.12E+00	1.49E+00	6.62E-02	2.76E+00	1.57E+00	1.75E-01	4.01E-01	4.01E-01
PM2.5	PM25	110	3.18E-02	6.38E-02	8.13E-02	2.68E-05	6.38E-02	9.27E-03	1.57E+00	1.55E+00	1.55E+00	1.20E+01	9.10E-01	6.36E-01	1.12E+00	1.49E+00	9.27E-03	2.76E+00	1.57E+00	3.18E-02	6.38E-02	6.38E-02
Benzene	71-43-2	20	6.20E-06	1.30E-05	1.59E-05	4.08E-08	1.30E-05	5.39E-04	5.50E-02	5.40E-02	5.40E-02	9.72E-01	3.14E-02	3.13E-02	4.73E-02	5.27E-02	5.39E-04	9.67E-02	5.50E-02	6.20E-06	1.30E-05	1.30E-05
Nitrogen Dioxide	NO2	33	3.71E-01	6.13E-01	7.16E-01	2.42E-03	6.13E-01	2.44E-03	-	-	-	-	-	-	-	-	2.44E-03	-	-	3.71E-01	6.13E-01	6.13E-01
Nitrogen Oxides	10102-44-0	3	1.97E+00	3.26E+00	3.80E+00	1.29E-02	3.26E+00	1.41E-02	2.80E+01	2.76E+01	2.76E+01	1.13E+03	1.60E+01	7.54E+00	1.97E+01	2.70E+01	1.41E-02	4.93E+01	2.80E+01	1.97E+00	3.26E+00	3.26E+00
Sulphur Dioxide	7446-09-5	31	3.34E-03	4.03E-03	4.19E-03	6.13E-06	4.03E-03	1.09E-03	3.55E-01	3.50E-01	3.50E-01	7.24E-01	2.04E-01	6.98E-02	3.31E-02	3.42E-01	1.09E-03	6.25E-01	3.55E-01	3.34E-03	4.03E-03	4.03E-03

Emission Rate per Roadway

Source ID	hicle Passes per H	Number of Volume Sources	Tailpipe Emission Rate per Roadway (g/hr)							Tailpipe + Fugitive Emission Rate per Vehicle per Roadway (g/s)							Emission Rate per Vehicle per Roadway per Volume Source (g/s)						
			TSP	PM10	PM2.5	Benzene	Nitrogen Dioxide	Nitrogen Oxides	Sulphur Dioxide	TSP	PM10	PM2.5	Benzene	Nitrogen Dioxide	Nitrogen Oxides	Sulphur Dioxide	TSP	PM10	PM2.5	Benzene	Nitrogen Dioxide	Nitrogen Oxides (NOx)	Sulphur Dioxide (SO2)
			g/hr	g/hr	g/hr	g/hr	g/hr	g/hr	g/hr	g/s	g/s	g/s	g/s	g/s	g/s	g/s	g/s	g/s	g/s	g/s	g/s	g/s	g/s
PR_CF1	18	54	3.68E+00	3.68E+00	1.35E+00	3.19E-02	4.23E+00	3.87E+01	2.34E-01	3.23E-02	4.23E-03	1.03E-03	4.93E-07	6.52E-05	5.97E-04	3.62E-06	5.98E-04	7.83E-05	1.91E-05	9.13E-09	1.21E-06	1.11E-05	6.70E-08
UR_CF2	18	3	1.07E+00	1.07E+00	9.39E-01	3.18E-02	2.39E-01	1.75E+01	2.08E-01	3.00E-03	5.64E-04	6.92E-05	4.91E-07	3.68E-06	2.71E-04	3.21E-06	9.98E-04	1.88E-04	2.31E-05	1.64E-07	1.23E-06	9.02E-05	1.07E-06
EQ_CF	12	1	1.58E+00	1.58E+00	1.58E+00	6.47E-02	0.00E+00	2.42E+01	2.80E-01	3.66E-05	3.66E-05	3.66E-05	1.50E-06	0.00E+00	5.60E-04	6.48E-06	3.66E-05	3.66E-05	3.66E-05	1.50E-06	0.00E+00	5.60E-04	6.48E-06
EQ_SOIL	4	1	1.84E+00	1.84E+00	1.84E+00	6.43E-02	0.00E+00	3.28E+01	4.16E-01	1.28E-04	1.28E-04	1.28E-04	4.47E-06	0.00E+00	2.28E-03	2.89E-05	1.28E-04	1.28E-04	1.28E-04	4.47E-06	0.00E+00	2.28E-03	2.89E-05
IDLE_WEIGH	4	1	2.10E-01	2.10E-01	1.93E-01	2.94E-04	1.74E+01	9.26E+01	4.41E-02	1.46E-05	1.46E-05	1.34E-05	2.04E-08	1.21E-03	6.43E-03	3.06E-06	1.46E-05	1.46E-05	1.34E-05	2.04E-08	1.21E-03	6.43E-03	3.06E-06
IDLE_S3WF	4	1	2.10E-01	2.10E-01	1.93E-01	2.94E-04	1.74E+01	9.26E+01	4.41E-02	1.46E-05	1.46E-05	1.34E-05	2.04E-08	1.21E-03	6.43E-03	3.06E-06	1.46E-05	1.46E-05	1.34E-05	2.04E-08	1.21E-03	6.43E-03	3.06E-06
EQ_S3WF	40	1	1.89E+01	1.89E+01	1.89E+01	9.92E-01	0.00E+00	8.77E+02	3.05E+00	1.31E-04	1.31E-04	1.31E-04	6.89E-06	0.00E+00	6.09E-03	2.12E-05	1.31E-04	1.31E-04	1.31E-04	6.89E-06	0.00E+00	6.09E-03	2.12E-05
EQ_S3CAP	4	1	1.84E+00	1.84E+00	1.84E+00	6.43E-02	0.00E+00	3.28E+01	4.16E-01	1.28E-04	1.28E-04	1.28E-04	4.47E-06	0.00E+00	2.28E-03	2.89E-05	1.28E-04	1.28E-04	1.28E-04	4.47E-06	0.00E+00	2.28E-03	2.89E-05
UR_SOCL	96	14	5.65E+00	5.65E+00	1.67E+00	3.20E-02	7.24E+00	5.47E+01	2.54E-01	1.46E-02	2.45E-03	2.48E-04	9.26E-08	2.09E-05	1.58E-04	7.36E-07	1.05E-03	1.75E-04	1.77E-05	6.61E-09	1.50E-06	1.13E-05	5.25E-08
PR_W1	118	61	2.67E+01	2.67E+01	4.81E+00	3.26E-02	3.43E+01	1.99E+02	4.08E-01	4.86E-02	6.35E-03	1.53E-03	7.68E-08	8.08E-05	4.67E-04	9.60E-07	7.97E-04	1.04E-04	2.51E-05	1.26E-09	1.33E-06	7.66E-06	1.57E-08
UR_W2	118	5	3.17E+00	3.17E+00	1.25E+00	3.19E-02	3.00E+00	3.22E+01	2.24E-01	5.41E-03	1.00E-03	1.02E-04	7.51E-08	7.06E-06	7.58E-05	5.28E-07	1.08E-03	2.00E-04	2.04E-05	1.50E-08	1.41E-06	1.52E-05	1.06E-07
UR_W3	118	59	2.30E+01	2.30E+01	4.25E+00	3.25E-02	2.94E+01	1.72E+02	3.79E-01	5.29E-02	9.77E-03	9.82E-04	7.65E-08	6.91E-05	4.05E-04	8.91E-07	8.97E-04	1.66E-04	1.66E-05	1.30E-09	1.17E-06	6.87E-06	1.51E-08
UR_W4	212	13	1.27E+01	1.27E+01	2.73E+00	3.22E-02	1.66E+01	1.04E+02	3.08E-01	1.74E-02	3.22E-03	3.24E-04	4.22E-08	2.17E-05	1.36E-04	4.04E-07	1.34E-03	2.47E-04	2.49E-05	3.25E-09	1.67E-06	1.05E-05	3.11E-08
UR_W5	206	6	6.62E+00	6.62E+00	1.79E+00	3.20E-02	8.01E+00	5.88E+01	2.56E-01	8.65E-03	1.60E-03	1.61E-04	4.32E-08	1.08E-05	7.92E-05	3.45E-07	1.44E-03	2.66E-04	2.69E-05	7.20E-09	1.80E-06	1.32E-05	5.75E-08
UR_W6	194	43	3.65E+01	3.65E+01	6.38E+00	3.29E-02	4.97E+01	2.80E+02	5.10E-01	5.66E-02	1.04E-02	1.05E-03	4.71E-08	7.11E-05	4.01E-04	7.31E-07	1.32E-03	2.43E-04	2.44E-05	1.10E-09	1.65E-06	9.32E-06	1.70E-08
UR_S4CON	14	10	1.35E+00	1.35E+00	9.83E-01	3.19E-02	6.64E-01	1.98E+01	2.11E-01	1.36E-02	2.52E-03	2.69E-04	6.32E-07	1.32E-05	3.93E-04	4.19E-06	1.36E-03	2.52E-04	2.69E-05	6.32E-08	1.32E-06	3.93E-05	4.19E-07
UR_S3CAP	8	52	2.03E+00	2.03E+00	1.09E+00	3.19E-02	1.71E+00	2.53E+01	2.18E-01	7.00E-02	1.29E-02	1.32E-03	1.11E-06	5.93E-05	8.80E-04	7.56E-06	1.35E-03	2.49E-04	2.55E-05	2.13E-08	1.14E-06	1.69E-05	1.45E-07

Appendix N20: Hourly Profile of Roadway Traffic Passess

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Hourly Traffic Passess per Roadway

Operation Hours (starting from)		Source ID	Description	Number of Passess per Hour																						
from	to			0000 - 0100	0100 - 0200	0200 - 0300	0300 - 0400	0400 - 0500	0500 - 0600	0600 - 0700	0700 - 0800	0800 - 0900	0900 - 1000	1000 - 1100	1100 - 1200	1200 - 1300	1300 - 1400	1400 - 1500	1500 - 1600	1600 - 1700	1700 - 1800	1800 - 1900	1900 - 2000	2000 - 2100	2100 - 2200	2200 - 2300	2300 - 2400
7	17	PR_CF1	Paved Road at Compost Facility - Inbound and Outbound Delivery	0	0	0	0	0	0	0	18	18	18	18	18	18	18	18	18	18	0	0	0	0	0	0	0
7	17	UR_CF2	Unpaved Road at Compost Facility - Inbound and Outbound Delivery	0	0	0	0	0	0	0	18	18	18	18	18	18	18	18	18	18	0	0	0	0	0	0	0
7	17	EQ_CF	Tailpipe Emission of Onsite Equipment at Compost Facility	0	0	0	0	0	0	0	12	12	12	12	12	12	12	12	12	12	0	0	0	0	0	0	0
5	19	EQ_SOIL	Tailpipe Emission of Onsite Equipment at Soil Pile	0	0	0	0	0	4	4	4	4	4	4	4	4	4	4	4	4	4	4	0	0	0	0	0
7	17	IDLE_WEIGH	Trucks Idling at the Weigh Scale	0	0	0	0	0	0	0	4	4	4	4	4	4	4	4	4	4	0	0	0	0	0	0	0
7	17	IDLE_S3WF	Trucks Idling at the Working Face of South Landfill Phase 2 - Stage 3	0	0	0	0	0	0	0	4	4	4	4	4	4	4	4	4	4	0	0	0	0	0	0	0
6	18	EQ_S3WF	Tailpipe Emission of Onsite Equipment at Working Face of South Landfill Phase 2 - Stage 3	0	0	0	0	0	0	2	38	38	38	38	38	38	38	38	38	38	2	0	0	0	0	0	0
7	17	EQ_S3CAP	Tailpipe Emission of Onsite Equipment at Final Capping Construction Area of South Landfill Phase 2 - Stage 3	0	0	0	0	0	0	0	4	4	4	4	4	4	4	4	4	4	0	0	0	0	0	0	0
7	18	UR_SOCL	Unpaved Road - Transport of Soil and Clay between Soil Pile and Working Face and Construction Areas	0	0	0	0	0	0	0	20	20	20	20	20	20	20	20	20	20	76	0	0	0	0	0	0
7	17	PR_W1	Paved Road - Transport of Waste between Entrance and Weigh Scale	0	0	0	0	0	0	0	118	94	98	82	90	90	90	114	70	36	0	0	0	0	0	0	0
7	17	UR_W2	Unpaved Road at - Transport of Waste between Weigh Scale and Working Face	0	0	0	0	0	0	0	118	94	98	82	90	90	90	114	70	36	0	0	0	0	0	0	0
7	17	UR_W3	Unpaved Road at - Transport of Waste between Weigh Scale and Working Face	0	0	0	0	0	0	0	118	94	98	82	90	90	90	114	70	36	0	0	0	0	0	0	0
7	18	UR_W4	Unpaved Road - Transport of Soil, Clay and Waste between Weigh Scale and Working Face	0	0	0	0	0	0	0	136	112	116	100	108	108	108	132	88	54	76	0	0	0	0	0	0
7	18	UR_W5	Unpaved Road - Transport of Soil, Clay and Waste between Weigh Scale and Working Face	0	0	0	0	0	0	0	130	106	110	94	102	102	102	126	82	48	76	0	0	0	0	0	0
7	18	UR_W6	Unpaved Road - Transport of Soil and Waste between Weigh Scale and Working Face	0	0	0	0	0	0	0	118	94	98	82	90	90	90	114	70	36	76	0	0	0	0	0	0
7	17	UR_S4CON	Unpaved Road - Transport of Clay between Soil Pile and Cell Construction Area	0	0	0	0	0	0	0	14	14	14	14	14	14	14	14	14	14	0	0	0	0	0	0	0
7	17	UR_S3CAP	Unpaved Road - Transport of Clay between Soil Pile and Final Capping Construction Area	0	0	0	0	0	0	0	8	8	8	8	8	8	8	8	8	8	0	0	0	0	0	0	0

Appendix N21: Wind Erosion Emissions

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

INDUSTRIAL WIND EROSION - AP-42 Section 13.2.5

Meteorological Station Anemometer height, z (m):	10	
Maximum recorded hourly wind speed (m/s):	16.03	
Fastest Mile Wind Speed (m/s):	18.43	**[1]**
Shear Velocity u* (m/s):	0.909	**[2]**

Prandtl-von Kármán Equation: $u^* = u_z\, k / \ln(z / z_o)$, $k = 0.4$

Emission factor: $E = K \Sigma P_i$ (i from 1 to N)

Erosion potential function: $P = 58 (u^* - u_t^*)^2 + 25 (u^* - u_t^*)$

$P = 0$ for $u^* \le u_t^*$

u^* shear / friction velocity (m/s)
u_z wind speed at height z (m/s)
k von Kármán's contstant
K particle size multiplier (1, 0.6, 0.5 and 0.075 for TSP, PM_{15}, PM_{10} and $PM_{2.5}$, respectively)
z_o surface roughness length (m)
z anemometer height (m)

ID [3]	Pile	z_o	u*	u_t* [3]	Number of Disturbances [4]			Area Disturbed [5]	Maximum Erosion Potential	Base AP-42 Emission Factor			Base Emission Rate			Additional Control Efficiency Applied	Final Controlled Emission Rate at 16.03 m/s					
					Hourly	Daily	Annual			TSP	PM_{10}	$PM_{2.5}$	TSP	PM_{10}	$PM_{2.5}$		TSP	Data Quality Rating	PM_{10}	Data Quality Rating	$PM_{2.5}$	Data Quality Rating
		(m)		(m/s)	(#/h)	(#/d)	(#/a)	(m^2)		(g/m^2)	(g/m^2)	(g/m^2)	(g/s)	(g/s)	(g/s)	(%)	(g/s)		(g/s)		(g/s)	
WE_S3IC	Wind Erosion from Areas under Interim Cover at South Landfill	0.003	0.909	1.02	1	1	1	108706	0.000	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0%	0.0E+00	E	0.0E+00	E	0.0E+00	E
WE_S4CON	Wind Erosion from Cell Construction Area at South Landfill Phase 2 - Stage 4	0.003	0.909	1.02	1	1	1	4000	0.000	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0%	0.0E+00	E	0.0E+00	E	0.0E+00	E
WE_S3CAP	Wind Erosion from Final Capping Construction Area at South Landfill Phase 2 -	0.003	0.909	1.02	1	1	1	4000	0.000	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0%	0.0E+00	E	0.0E+00	E	0.0E+00	E
WE_SOIL	Wind Erosion from Waste Soil Stockpile	0.003	0.909	1.02	1	1	1	37767	0.000	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0%	0.0E+00	E	0.0E+00	E	0.0E+00	E

Notes:

[1] Speed-up factor to convert hourly mean wind speeds to fastest mile wind gust taken from Durst curve for in North America (1.15).
(Krayer, William R>, Marshall, Richard D. 1992: Gust Factors Applied to Hurrican Winds. Bulletin of the American Meteorological Society, Vol. 73, No. 5, May 1992)

[2] Used for sample calculations & factor validation

[3] Typical threshold friction veolocities can be taken from Table 13.2.5-2 of AP-42, or other suitable sources.

[4] Reflects the estimated maximum number of disturbances for each pile within the specified time period.

[5] Estimated from type of operations (e.g., loader operations, scraper activity, etc.)

Sample Calculations

Shear Velocity: = (18.4345 m/s) x 0.4 / LN ((10 m) / (0.003 m)) = 0.909 m/s

Maximum Erosion Potential: 0.909 m/s < 1.02 m/s therefore no erosion potential

TSP Emission Factor: no erosion poetntial

Base Emission Rate: no erosion poetntial

Appendix N22: Bulk Material Handling Emissions

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Material handling emissions: $E = 0.0016\ k\ (U / 2.2)^{1.3} / (M / 2)^{1.4}$

E emission factor
k particle size multiplier (0.8, 0.35 and 0.053 for TSP, PM_{10} and $PM_{2.5}$) [3]
U mean wind speed, meters per second (m/s)
M material moisture content (%)

AGGREGATE HANDLING AND STORAGE PILES - AP-42 Section 13.2.4

Average recorded hourly wind speed (m/s):
(used for sample calculations & factor validation) 3.9

Source ID	Description	Processing Rate		Site Data				Base AP-42 Emission Factor			Base Emission Rate			Additional Control Efficiency Applied	Final Controlled Emission Rate at 3.9 m/s					
		Hourly	Daily	Site Specific Data?	Silt Content	Moisture Content	Source Conditions Valid [1]	TSP [2]	PM_{10}	$PM_{2.5}$	TSP	PM_{10}	$PM_{2.5}$		TSP	Data Quality Rating	PM_{10}	Data Quality Rating	$PM_{2.5}$	Data Quality Rating
		(Mg/h)	(Mg/d)	(y/n)	(%)	(%)		(kg/Mg)	(kg/Mg)	(kg/Mg)	(g/s)	(g/s)	(g/s)	(%)	(g/s)		(g/s)		(g/s)	
Walker Environmental Group Inc. – Landfill																				
SPick_Soil	Soil Pick up from Waste Soil Pile	1000	1000	y	56.5%	32.8%	silt too high	5.4E-05	2.3E-05	3.6E-06	1.5E-02	6.5E-03	9.9E-04		1.5E-02	B	6.5E-03	B	9.9E-04	B
SDrop_S3WF	Soil Drop off at Working Face of South Landfill Phase 2 - Stage 3	1000	1000	y	56.5%	32.8%	silt too high	5.4E-05	2.3E-05	3.6E-06	1.5E-02	6.5E-03	9.9E-04		1.5E-02	B	6.5E-03	B	9.9E-04	B
DROP_S4CON	Clay Drop off at Cell Construction Area of South Landfill Phase 2 - Stage 4	203	2034	y	56.5%	32.8%	silt too high	5.4E-05	2.3E-05	3.6E-06	3.0E-03	1.3E-03	2.0E-04		3.0E-03	B	1.3E-03	B	2.0E-04	B
DROP_S3CAP	Clay Drop off at Final Capping Construction Area of South Landfill Phase 2 - Stage 3	98	981	y	56.5%	32.8%	silt too high	5.4E-05	2.3E-05	3.6E-06	1.5E-03	6.4E-04	9.7E-05		1.5E-03	B	6.4E-04	B	9.7E-05	B
Niagara Biosolids Facility and Compost Facility																				
DROPOFF	Receiving Leaf & yard Material in Open Windrow Area	100	1000	n	9%	10%	moisture too high	2.8E-04	1.2E-04	1.9E-05	7.9E-03	3.4E-03	5.2E-04		7.9E-03	C	3.4E-03	C	5.2E-04	C
MOVE1	Movement of Material into Windrow (Open Windrow area)	100	1000	n	9%	10%	moisture too high	2.8E-04	1.2E-04	1.9E-05	7.9E-03	3.4E-03	5.2E-04		7.9E-03	C	3.4E-03	C	5.2E-04	C
MOVE2	Movement of Material into Windrow (GORE area)	100	1000	n	9%	10%	moisture too high	2.8E-04	1.2E-04	1.9E-05	7.9E-03	3.4E-03	5.2E-04		7.9E-03	C	3.4E-03	C	5.2E-04	C
SCRTSP	Drop at Screening Area	100	1000	n	9%	10%	moisture too high	2.8E-04	1.2E-04	1.9E-05	7.9E-03	3.4E-03	5.2E-04		7.9E-03	C	3.4E-03	C	5.2E-04	C
FSTPL	Drop at Final Stockpile	100	1000	n	9%	10%	moisture too high	2.8E-04	1.2E-04	1.9E-05	7.9E-03	3.4E-03	5.2E-04		7.9E-03	C	3.4E-03	C	5.2E-04	C
FP	Loading of Material for Shipment Off-Site	100	1000	n	9%	10%	moisture too high	2.8E-04	1.2E-04	1.9E-05	7.9E-03	3.4E-03	5.2E-04		7.9E-03	C	3.4E-03	C	5.2E-04	C

Notes:
[1] Relates to AP-42 Section 13.2.4-4
[2] k-factor for TSP (PM44) scaled up logarithmically to 0.8 from published k-factor of 0.74 which refers to PM30.

Comments
Maximum shipping rate is 1000 tonnes per hour (e-mail dated November 28, 2014)
Shipping occurs 24 hours per day.
Silica content of the Particulate Matter is based on mineral identification samples taken from the si 1.6%
Landfill soil sources assumed to not have significant silica content, as this type of material is soil, rather than rock/mineral.

Sample calculation for uncontrolled TSP emission factor for Source SPick_Soil: Soil Pick up from Waste Soil Pile, at a sample wind speed of 3.9 m/s

EF = 0.0016 x (0.74) x ((3.9 m/s) / 2.2)^1.3 / ((32.8%) / 2)^1.4 = 5.4E-05 kg TSP / Mg handled

Sample calculation for TSP emission rate for Source SPick_Soil: Soil Pick up from Waste Soil Pile, at a sample wind speed of 3.9 m/s

$$\frac{1000\ Mg_{handled}}{1\ h} \times \frac{5.4E\text{-}05\ kg_{TSP}}{1\ Mg_{handled}} \times \frac{1\ h}{3600\ s} \times \frac{1000\ g_{TSP}}{1\ kg_{TSP}} \times \frac{100\%\ g_{TSP\ uncontrolled}}{1\ g_{TSP}} = 1.5E\text{-}02\ g_{TSP} / s$$

Appendix N23: Bulldozing Emission Rate Calculations

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Western Surface Coal Mining AP -42 Section 11.9 (11.9-2, 11.9-4)

Total Part. PM10 PM2.5

ID	Process Name / Description	AP-42 Process Description	Process Code	AP-42 Chapter	Activity Rate			Units	Additional Parameters				Base AP-42 Emission Factor				Base Emission Rate			Additional Control Efficiency Applied [5] (%)	Final Controlled Emission Rate					
					Hourly (units/h)	Daily (units/d)	Annual (units/a)		Material Moisture Content [1] (%)	Material Silt Content [2] (%)	Drop Height [3] (m)	Mean Vehicle Speed [4] (km/h)	TSP	PM_{10}	$PM_{2.5}$	Units	TSP (g/s)	PM_{10} (g/s)	$PM_{2.5}$ (g/s)		TSP (g/s)	Data Quality Rating	PM_{10} (g/s)	Data Quality Rating	$PM_{2.5}$ (g/s)	Data Quality Rating
DOZER_Soil	Bulldozer at Waste Soil Pile - Fugitive dust	Bulldozing - overburden	4	Table 11.9-2	1	-	-	hours of operation	32.8	56.5	-	-	3.52E+00	1.08E+00	3.70E-01	kg/hr	9.78E-01	3.00E-01	1.03E-01		9.78E-01	B	3.00E-01	D	1.03E-01	D
DOZER_S3WF	Bulldozer at Working Face of South Landfill Phase 2 Stage 3 - Fugitive dust	Bulldozing - overburden	4	Table 11.9-2	1	-	-	hours of operation	32.8	56.5	-	-	3.52E+00	1.08E+00	3.70E-01	kg/hr	9.78E-01	3.00E-01	1.03E-01		9.78E-01	B	3.00E-01	D	1.03E-01	D
DOZER_S3CAP	Bulldozer at Final Capping Construction Area of South Landfill Phase 2 - Stag	Bulldozing - overburden	4	Table 11.9-2	1	-	-	hours of operation	32.8	56.5	-	-	3.52E+00	1.08E+00	3.70E-01	kg/hr	9.78E-01	3.00E-01	1.03E-01		9.78E-01	B	3.00E-01	D	1.03E-01	D

Notes:

[1] Applies to truck loading, bulldozing and dragline operations only

[2] Applies to bulldozing operations only

[3] Applies to dragline operations only

[4] Applies to grading operations only

[5] Enter the control efficiency for each source - if no controls are applied, leave blank

Sample calculations for TSP emission factor for DOZER_Soil: Bulldozer at Waste Soil Pile - Fugitive dust

TSP Emission Factor = 2.6 x 56.5^1.2 / 32.8^1.3 = 3.52E+00 kg/hr

Sample calculations for TSP emission rate for DOZER_Soil: Bulldozer at Waste Soil Pile - Fugitive dust

$$\frac{3.52E{+}00\ kg_{TSP}}{1\ hour} \left| \frac{1\ h}{3600\ s} \right| \frac{1000\ g_{TSP}}{1\ kg_{TSP}} = 9.78E{-}01\ g_{TSP}/s$$

Appendix N24: Processing Emissions

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Soource ID	Source Description / Process Decription	AP-42 Process Description [1] [2]	Process Code	AP-42 Chapter	Processing Rate			Base AP-42 Emission Factor			Base Emission Rate			Additional Control Efficiency Applied (%) [4]	Final Controlled Emission Rate					
					Hourly (Mg/h)	Daily (Mg/d)	Annual (Mg/a)	TSP [3] (kg/Mg)	PM_{10} (kg/Mg)	$PM_{2.5}$ (kg/Mg)	TSP (g/s)	PM_{10} (g/s)	$PM_{2.5}$ (g/s)		TSP (g/s)	Data Quality Rating	PM_{10} (g/s)	Data Quality Rating	$PM_{2.5}$ (g/s)	Data Quality Rating
Niagara Biosolids Facility and Compost Facility																			
SILO_1	Silo #1 Bin Vent	Pneumatic cement unloading to elevated storage silo	24	11.12-1	20	480		3.60E-01	2.40E-01	3.60E-02	2.00E+00	1.33E+00	2.00E-01	99.9%	2.00E-03	E	1.33E-03	E	2.00E-04	E
SILO_2	Silo #2 Bin Vent	Pneumatic cement unloading to elevated storage silo	24	11.12-1	20	480		3.60E-01	2.40E-01	3.60E-02	2.00E+00	1.33E+00	2.00E-01	99.9%	2.00E-03	E	1.33E-03	E	2.00E-04	E
SCREEN1	Screening Emissions	Fines screening (controlled)	12	11.19.2-1	40	960		1.10E-03	1.10E-03	1.65E-04	1.22E-02	1.22E-02	1.83E-03		1.22E-02	E	1.22E-02	E	1.83E-03	E
SCREEN2	Screening Emissions	Fines screening (controlled)	12	11.19.2-1	40	960		1.10E-03	1.10E-03	1.65E-04	1.22E-02	1.22E-02	1.83E-03		1.22E-02	E	1.22E-02	E	1.83E-03	E
SCREEN3	Screening Emissions	Fines screening (controlled)	12	11.19.2-1	75	1800		1.10E-03	1.10E-03	1.65E-04	2.29E-02	2.29E-02	3.44E-03		2.29E-02	E	2.29E-02	E	3.44E-03	E
SCREEN4	Screening Emissions	Fines screening (controlled)	12	11.19.2-1	75	1800		1.10E-03	1.10E-03	1.65E-04	2.29E-02	2.29E-02	3.44E-03		2.29E-02	E	2.29E-02	E	3.44E-03	E
GRINDR	Fugitive emissions from Grinder	Fines screening (controlled)	12	11.19.2-1	75	1800		1.10E-03	1.10E-03	1.65E-04	2.29E-02	2.29E-02	3.44E-03		2.29E-02	E	2.29E-02	E	3.44E-03	E
GRINDR2_N	Fugitive emissions from Grinder #2	Fines screening (controlled)	12	11.19.2-1	75	1800		1.10E-03	1.10E-03	1.65E-04	2.29E-02	2.29E-02	3.44E-03		2.29E-02	E	2.29E-02	E	3.44E-03	E
CONV_PM	Stacking Conveyor Fugitive Emissions	Conveyor transfer point (controlled)	14	11.19.2-1	80	1920		3.70E-05	2.30E-05	6.50E-06	8.22E-04	5.11E-04	1.44E-04		8.22E-04	E	5.11E-04	D	1.44E-04	E
CONV_PM2_N	Stacking Conveyor #2 Fugitive Emissions	Conveyor transfer point (controlled)	14	11.19.2-1	80	1920		3.70E-05	2.30E-05	6.50E-06	8.22E-04	5.11E-04	1.44E-04		8.22E-04	E	5.11E-04	D	1.44E-04	E

Notes:

[1] AP-42 process listed as "controlled" reflects between 70-90% control due to high moisture / water sprays, as described in AP-42 Section 11.19.2.

[2] The "controlled" AP-42 emission factors were used, rather than the "uncontrolled" factors.

[3] AP-42 Emission Factor is based on PM44.

[4] Baghouse is installed at the silos, with a 99.9% of control efficiency.

Comments
Percentage of total material handled by each process was outlined by Keith Porter (Walker Brothers Quarry) during a meeting on June 27, 2005.
The percentages are as follows: Primary crushing 100%, secondary crushing 70%, and tertiary crushing 45%.
Future percentages were assumed to be the same as existing conditions.
Classifier - amount of material that is processed through this piece of equipment was provided by Walker via email.
The maximum processing rate for the classifier is 75 Mg/hour.
Quarry Handling/Drop Point number and location as indicated by Keith Porter during June 27/05 meeting at RWDI office.
Mass of material drilled per hour based on 33 holes drilled in 1.25 days, to a depth of 12.5 meters (41 feet), and a stone density of 2,500 kg/m3.
Material handling for cone crusher and Screen #2 = 200 tonnes per hour, as per call with Keith Porter and Shawn Jordan on November 16, 2006.
Emissions have been corrected to PM44, as AP-42 presents PM100.

Sample calculation for TSP emissions from Source SILO_1: Silo #1 Bin Vent

$$\frac{20\ Mg_{processed}}{1\ h} \times \frac{3.6E\text{-}01\ kg_{TSP}}{1\ Mg_{processed}} \times \frac{1\ h}{3600\ s} \times \frac{1000}{1} \times \frac{0.1\%\ g_{TSP\ uncontrolled}}{1\ g_{TSP}} = 2.00E\text{-}03\ g_{TSP}/s$$

Appendix N25: Biosolids and Compost Facility Calculations - SO2 Emissions for Boiler (BIOFILTR)

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Maximum Production Rate (Biosolids Throughput)	2800	kg DS / hr
Biofilter Flowrate	22.2	m³/s

CAS No.	Chemical Name	Concentration in Biosolids [1] (g/kg DS/hr)	Source Concentration (µg/m³)	Control Efficiency of Acid Scrubber	Control Efficiency of Biofilter	Maximum Production			Notes
						Emission Rate (g/hr)	Emission Rate (g/s)	Emission Rate (g/m2-s)	
7446-09-5	Sulfur Dioxide	-	1,200	95%	-	-	1.33E-03	2.53E-06	[1]

Notes:

[1] Area of the biofilter is 65m x 8.1m = 526.5 m2.

[2] Based on information provided by Sandwell Consulting Engineers for original application.

Sample calculation for Sulfur Dioxide emission rate for Source: BIOFILTR

$$\frac{1200.00\ \mu g}{1\ m^3} \times \frac{22.2\ m^3}{1\ h} \times \frac{5\%\ \text{Loss}}{} \times \frac{1\ g}{1{,}000{,}000\ \mu g} \times \frac{}{526.5\ m2} = 2.53E\text{-}06\ g/m^2\text{-}s$$

Appendix N26: Biosolids and Compost Facility Calculations - Boiler (BIOFILTR)

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Parameter	Value	Units
Fuel Type	Natural Gas	
Fuel Heating Value	1020	(Btu/scf)
Fuel Density		(lb/gal)
Firing Configuration	Wall-fired	
Boiler Efficiency	80%	(%)
Excess Air	0.3	(%)

Exhaust Information	Value	Units
Exhaust Temperature (°C)	175	(°C)
Calculated Exit Temperature	448	(K)

Fuel Sulphur Information	Value	Units
Natural Gas Sulphur Content	2000	(grains/10^6scf)
Fuel Oil Sulphur Content	0	(%)

Rating (enter one set of units)	Value	Units
Boiler Heat Input (Btu/h)	12,660,000	(Btu/h)
Calculated Heat Input	12.66	(MMBtu/hr)
Boiler Size Cut-off	<100	(MMBtu/hr)

Pollution Controls	Value	Units
NSPS	n/a	
Low-NOx Burners	no	
Flue-gas Recirculation	no	

Fuel & Air Parameters	Value	Units	Sample Calculation / Comment
Fuel Consumption	12412	(scf/h)	= (12.66 MMBTU/h) x (1000000 BTU/MMBTU) / (1020 BTU/scf)
	351508	(L/h)	
Fuel Molar Flow Rate (NG Only)	14871	(mol'h)	= (12412 scf/h) x (28.32 L/scf) x (101.3 kPa) / (8.314 L·kPa/mol·K) / (288 K)
Fuel Mass Flow Rate	238	(kg/h)	= (14871 mol/h) x (16.03 g/mol) / (1000 g/kg)
Stoichiometric Ratio (NG only)	13.376	ratio	= 1 CO2 + 2 H2O + 0.6 O2 + 2 x 3.76 x (1 + 0.3) N2 per mol CH4
Theoretical Moist Air (Oil Only)	not applicable		
Combustion Air	184043	(mol/h)	= (14871 mol fuel / h) x (2 mol O2 / mol fuel) x (1 + (30% XS Air)) x (4.76 mol air / mol O2)
	5300	(kg/h)	= (184043 mol air / h) x (28.8 g air / mol air) / (1000 g / kg)
	4124	(m^3/h) @ 0°C	= (184043 mol/h) x (8.314 L·kPa/mol·K) x (288 K) / (101.3 kPa) / (1000 L/m^3)
	2427	(scfm) @ 0°C	= (4124 m^3/h) x (35.31 ft^3/m^3) / (60 min/h)

Exhaust Parameters	Value	Units	Sample Calculation
Exhaust Gas Molar Flow (NG only)	198914	(mol/h)	= (14871 mol/h) x (13.376 mol exhaust / mol fuel)
Theoretical Flue Gas (Oil Only)	not applicable	(m^3_{air} / L_{fuel})	
Exhaust Gas Mass Flow Rate	5538	(kg/h)	= (14871 mol fuel / h) x (373 g exhaust / mol fuel)
Exhaust Gas Flow	7314	(Am³/h)	= (198914 mol/h) x (8.314 L·kPa/mol·K) x (448 K) / (101.3 kPa) / (1000 L/m^3)
	2.03	(Am³/s)	= (7314 m^3 / h) / (3600 s / h)
	4702	(m^3/h) @ 0°C	= (7314 m^3 / h) x (288K) / (448 K)
	2767	(scfm) @ 0°C	= (4702 m^3 / h) x (35.31 ft^3 / m^3) / (60 min / h)

Emission Calculations for the Biosolids Natural Gas Fired Dryer Exhausting through Biofilter

Based on Manufacturer's specifications

Emissions Guarantee from Manufacturer: 45 ppm NOx at 3% O_2

Exhaust Gas Molar Flow Rate (based on calculations in boiler spreadsheet) : 14,871 mol/hr

Molecular Weight of Nitrogen Oxides (based on MW of Nitrogen Dioxide) : 46.05 g/mol

Sample Calculation

NOx Emissions (g/s) = Exhaust Gas Molar Flow Rate x NOx Emission Rate x NOx Molecular Weight x conversion factors
NOx Emissions (g/s) = (14871 mol / hr) * (45 / 1,000,000) * (46.05 g/mol) * (1 hr / 3,600 s)
NOx Emissions (g/s) = 8.56E-03 g/s
NOx Emissions (g/m^2-s) = ######### , with an area of 65m x 8.1m = 526.5 m2

Appendix N27: Biosolids and Compost Facility Calculations - Boiler (BOILERS)

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Parameter	Value	Units
Fuel Type	Natural Gas	
Fuel Heating Value	1020	(Btu/scf)
Fuel Density		(lb/gal)
Firing Configuration	Wall-fired	
Boiler Efficiency	80%	(%)
Excess Air	0.3	(%)

Exhaust Information	Value	Units
Exhaust Temperature (°C)	125	(°C)
Calculated Exit Temperature	398	(K)

Fuel Sulphur Information	Value	Units
Natural Gas Sulphur Content	2000	(grains/10^6scf)
Fuel Oil Sulphur Content	0	(%)

Rating (enter one set of units)	Value	Units
Boiler Heat Input (Btu/h)	650,000	(Btu/h)
Calculated Heat Input	0.65	(MMBtu/hr)
Boiler Size Cut-off	<100	(MMBtu/hr)

Pollution Controls	Value	Units
NSPS	n/a	
Low-NOx Burners	no	
Flue-gas Recirculation	no	

Fuel & Air Parameters	Value	Units	Sample Calculation / Comment
Fuel Consumption	637	(scf/h)	= (0.65 MMBTU/h) x (1000000 BTU/MMBTU) / (1020 BTU/scf)
	18040	(L/h)	
Fuel Molar Flow Rate (NG Only)	763	(mol'h)	= (637 scf/h) x (28.32 L/scf) x (101.3 kPa) / (8.314 L·kPa/mol·K) / (288 K)
Fuel Mass Flow Rate	12	(kg/h)	= (763 mol/h) x (16.03 g/mol) / (1000 g/kg)
Stoichiometric Ratio (NG only)	13.376	ratio	= 1 CO2 + 2 H2O + 0.6 O2 + 2 x 3.76 x (1 + 0.3) N2 per mol CH4
Theoretical Moist Air (Oil Only)	not applicable		
Combustion Air	9443	(mol/h)	= (763 mol fuel / h) x (2 mol O2 / mol fuel) x (1 + (30% XS Air)) x (4.76 mol air / mol O2)
	272	(kg/h)	= (9443 mol air / h) x (28.8 g air / mol air) / (1000 g / kg)
	212	(m^3/h) @ 0°C	= (9443 mol/h) x (8.314 L·kPa/mol·K) x (288 K) / (101.3 kPa) / (1000 L/m^3)
	125	(scfm) @ 0°C	= (212 m^3/h) x (35.31 ft^3/m^3) / (60 min/h)

Exhaust Parameters	Value	Units	Sample Calculation
Exhaust Gas Molar Flow (NG only)	10206	(mol/h)	= (763 mol/h) x (13.376 mol exhaust / mol fuel)
Theoretical Flue Gas (Oil Only)	not applicable	(m^3_{air} / L_{fuel})	
Exhaust Gas Mass Flow Rate	279	(kg/h)	= (763 mol fuel / h) x (373 g exhaust / mol fuel)
Exhaust Gas Flow	333	(Am^3/h)	= (10206 mol/h) x (8.314 L·kPa/mol·K) x (398 K) / (101.3 kPa) / (1000 L/m^3)
	0.09	(Am^3/s)	= (333 m^3 / h) / (3600 s / h)
	241	(m^3/h) @ 0°C	= (333 m^3 / h) x (288K) / (398 K)
	142	(scfm) @ 0°C	= (241 m^3 / h) x (35.31 ft^3 / m^3) / (60 min / h)

Criteria Contaminants	Emission Factor Value	Emission Factor Units	Emission Rate Value	Emission Rate Units	Data Quality	Sample Calculation
Sulphur Dioxide	0.6	(lb/10^6scf)	4.82E-05	(g/s)	A	= (637 scf/h) x (0.6 lb / 10^6 scf) x (453.6 g / lb) / (3600 s / h)
Oxides of Nitrogen	100	(lb/10^6scf)	8.03E-03	(g/s)	B	= (637 scf/h) x (100 lb / 10^6 scf) x (453.6 g / lb) / (3600 s / h)
Filterable Particulate	7.6	(lb/10^6scf)	6.10E-04	(g/s)	D	= (637 scf/h) x (7.6 lb / 10^6 scf) x (453.6 g / lb) / (3600 s / h)
Condensible Particulate	--		--			
Total Particulate	7.6	(lb/10^6scf)	6.10E-04	(g/s)	D	= (637 scf/h) x (7.6 lb / 10^6 scf) x (453.6 g / lb) / (3600 s / h)

Note: Total Particulate = Filterable + Condensible, if applicable. Lowest data quality rating of either filterable or condensible applied.

Appendix N28: Biosolids and Compost Facility Calculations - Boiler (HEATING)

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Parameter	Value	Units
Fuel Type	Natural Gas	
Fuel Heating Value	1020	(Btu/scf)
Fuel Density		(lb/gal)
Firing Configuration	Wall-fired	
Boiler Efficiency	0.8	(%)
Excess Air	0.3	(%)

Exhaust Information	Value	Units
Exhaust Temperature (°C)	175	(°C)
Calculated Exit Temperature	448	(K)

Fuel Sulphur Information	Value	Units
Natural Gas Sulphur Content	2000	(grains/10^6scf)
Fuel Oil Sulphur Content	0	(%)

Rating (enter one set of units)	Value	Units
Boiler Heat Input (Btu/h)	1,215,000	(Btu/h)
Calculated Heat Input	1.22	(MMBtu/hr)
Boiler Size Cut-off	<100	(MMBtu/hr)

Pollution Controls	Value	Units
NSPS	n/a	
Low-NOx Burners	no	
Flue-gas Recirculation	no	

Fuel & Air Parameters	Value	Units	Sample Calculation / Comment
Fuel Consumption	1196	(scf/h)	= (1.22 MMBTU/h) x (1000000 BTU/MMBTU) / (1020 BTU/scf)
	33871	(L/h)	
Fuel Molar Flow Rate (NG Only)	1433	(mol'h)	= (1196 scf/h) x (28.32 L/scf) x (101.3 kPa) / (8.314 L·kPa/mol·K) / (288 K)
Fuel Mass Flow Rate	23	(kg/h)	= (1433 mol/h) x (16.03 g/mol) / (1000 g/kg)
Stoichiometric Ratio (NG only)	13.376	ratio	= 1 CO2 + 2 H2O + 0.6 O2 + 2 x 3.76 x (1 + 0.3) N2 per mol CH4
Theoretical Moist Air (Oil Only)	not applicable		
Combustion Air	17735	(mol/h)	= (1433 mol fuel / h) x (2 mol O2 / mol fuel) x (1 + (30% XS Air)) x (4.76 mol air / mol O2)
	511	(kg/h)	= (17735 mol air / h) x (28.8 g air / mol air) / (1000 g / kg)
	397	(m^3/h) @ 0°C	= (17735 mol/h) x (8.314 L·kPa/mol·K) x (288 K) / (101.3 kPa) / (1000 L/m^3)
	234	(scfm) @ 0°C	= (397 m^3/h) x (35.31 ft^3/m^3) / (60 min/h)

Exhaust Parameters	Value	Units	Sample Calculation
Exhaust Gas Molar Flow (NG only)	19168	(mol/h)	= (1433 mol/h) x (13.376 mol exhaust / mol fuel)
Theoretical Flue Gas (Oil Only)	not applicable	(m^3_{air} / L_{fuel})	
Exhaust Gas Mass Flow Rate	535	(kg/h)	= (1433 mol fuel / h) x (373 g exhaust / mol fuel)
Exhaust Gas Flow	705	(Am³/h)	= (19168 mol/h) x (8.314 L·kPa/mol·K) x (448 K) / (101.3 kPa) / (1000 L/m^3)
	0.20	(Am³/s)	= (705 m^3 / h) / (3600 s / h)
	453	(m^3/h) @ 0°C	= (705 m^3 / h) x (288K) / (448 K)
	267	(scfm) @ 0°C	= (453 m^3 / h) x (35.31 ft^3 / m^3) / (60 min / h)

Criteria Contaminants	Emission Factor Value	Emission Factor Units	Emission Rate Value	Emission Rate Units	Data Quality	Sample Calculation
Sulphur Dioxide	0.6	(lb/10^6scf)	9.04E-05	(g/s)	A	= (1196 scf/h) x (0.6 lb / 10^6 scf) x (453.6 g / lb) / (3600 s / h)
Oxides of Nitrogen	100	(lb/10^6scf)	1.51E-02	(g/s)	B	= (1196 scf/h) x (100 lb / 10^6 scf) x (453.6 g / lb) / (3600 s / h)
Filterable Particulate	7.6	(lb/10^6scf)	1.15E-03	(g/s)	D	= (1196 scf/h) x (7.6 lb / 10^6 scf) x (453.6 g / lb) / (3600 s / h)
Condensible Particulate	--		--			
Total Particulate	7.6	(lb/10^6scf)	1.15E-03	(g/s)	D	= (1196 scf/h) x (7.6 lb / 10^6 scf) x (453.6 g / lb) / (3600 s / h)

Note: Total Particulate = Filterable + Condensible, if applicable. Lowest data quality rating of either filterable or condensible applied.

Appendix N29: Biosolids and Compost Facility Calculations - Boiler (R_BLDG)

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Parameter	Value	Units
Fuel Type	No. 2 Fuel Oil	
Fuel Heating Value	137000	(Btu/gal)
Fuel Density		(lb/gal)
Firing Configuration	Normal firing	
Boiler Efficiency	0.8	(%)
Excess Air	0.15	(%)

Exhaust Information	Value	Units
Exhaust Temperature (°C)	175	(°C)
Calculated Exit Temperature	448	(K)

Fuel Sulphur Information	Value	Units
Natural Gas Sulphur Content	2000	(grains/10^6scf)
Fuel Oil Sulphur Content	0.5	(%)

Rating (enter one set of units)	Value	Units
Boiler Heat Input (Btu/h)	350,000	(Btu/h)
Calculated Heat Input	0.35	(MMBtu/hr)
Boiler Size Cut-off	<100	(MMBtu/hr)

Pollution Controls	Value	Units
NSPS	n/a	
Low-NOx Burners	no	
Flue-gas Recirculation	no	

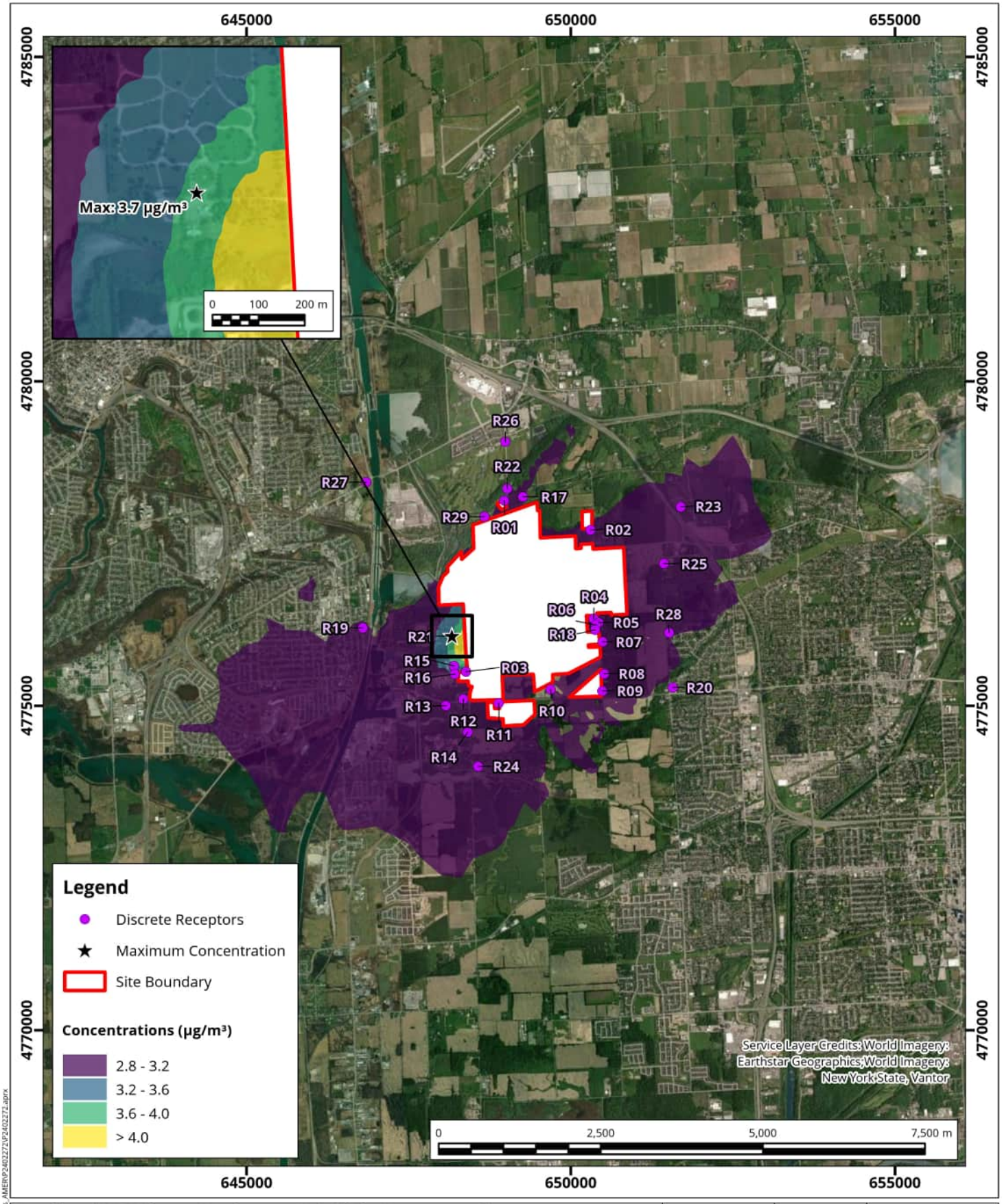
Fuel & Air Parameters	Value	Units	Sample Calculation / Comment
Fuel Consumption	2.6	(gal/h)	= (0.35 MMBTU/h) x (1000000 BTU/MMBTU) / (137000 BTU/gal)
	10	(L/h)	
Fuel Molar Flow Rate (NG Only)	not applicable		not applicable
Fuel Mass Flow Rate	0	(kg/h)	= (2.6 gal/h) x (lb/gal) / (2.205 lb/kg)
Stoichiometric Ratio (NG only)	not applicable		not applicable
Theoretical Moist Air (Oil Only)	345	(kg air / MMBT	based on 7.5 lb theoretical dry air per 10,000 BTU of fuel oil
Combustion Air	4810	(mol/h)	= (139 kg air / h) x (1000 g / kg) / (28.8 g air / mol air)
	139	(kg/h)	= 0.35 MMBTU/h x 345 kg/MMBTU x (115% XS Air)
	108	(m^3/h) @ 0°C	= (4810 mol/h) x (8.314 L·kPa/mol·K) x (288 K) / (101.3 kPa) / (1000 L/m^3)
	64	(scfm) @ 0°C	= (108 m^3/h) x (35.31 ft^3/m^3) / (60 min/h)

Exhaust Parameters	Value	Units	Sample Calculation
Exhaust Gas Molar Flow (NG only)	not applicable	(mol/h)	not applicable
Theoretical Flue Gas (Oil Only)	10.4	(m^3_{air} / L_{fuel})	at standard temperature & pressure
Exhaust Gas Mass Flow Rate	139	(kg/h)	0 kg fuel / h + 139 kg air / h
Exhaust Gas Flow	171	(Am^3/h)	= (104 m^3 air / h) x (448 K) / (288K)
	0.05	(Am^3/s)	= (171 m^3 / h) / (3600 s / h)
	104	(m^3/h) @ 0°C	= (10.4 m^3 air / L fuel) x (10 L fuel / h)
	61	(scfm) @ 0°C	= (104 m^3 / h) x (35.31 ft^3 / m^3) / (60 min / h)

Criteria Contaminants	Emission Factor Value	Emission Factor Units	Emission Rate Value	Emission Rate Units	Data Quality	Sample Calculation
Sulphur Dioxide	71	(lb/10^3gal)	2.33E-02	(g/s)	A	= (2.6 gal / h) x (71 lb / 10^3 gal) x (453.6 g / lb) / (3600 s / h)
Oxides of Nitrogen	20	(lb/10^3gal)	6.55E-03	(g/s)	A	= (2.6 gal / h) x (20 lb / 10^3 gal) x (453.6 g / lb) / (3600 s / h)
Filterable Particulate	2	(lb/10^3gal)	6.55E-04	(g/s)	A	= (2.6 gal / h) x (2 lb / 10^3 gal) x (453.6 g / lb) / (3600 s / h)
Condensible Particulate	1.3	(lb/10^3gal)	4.26E-04	(g/s)	D	= (2.6 gal / h) x (1.3 lb / 10^3 gal) x (453.6 g / lb) / (3600 s / h)
Total Particulate	3.3	(lb/10^3gal)	1.08E-03	(g/s)	D	= (2.6 gal / h) x (3.3 lb / 10^3 gal) x (453.6 g / lb) / (3600 s / h)

Note: Total Particulate = Filterable + Condensible, if applicable. Lowest data quality rating of either filterable or condensible applied.

APPENDIX O



Predicted 10-Minute Hydrogen Sulphide Concentrations (in µg/m³)

Preferred Method - Scenario 2

Map Projection: NAD 1983 UTM Zone 17N

Walker Landfill - Regional Municipality of Niagara, Ontario

True North

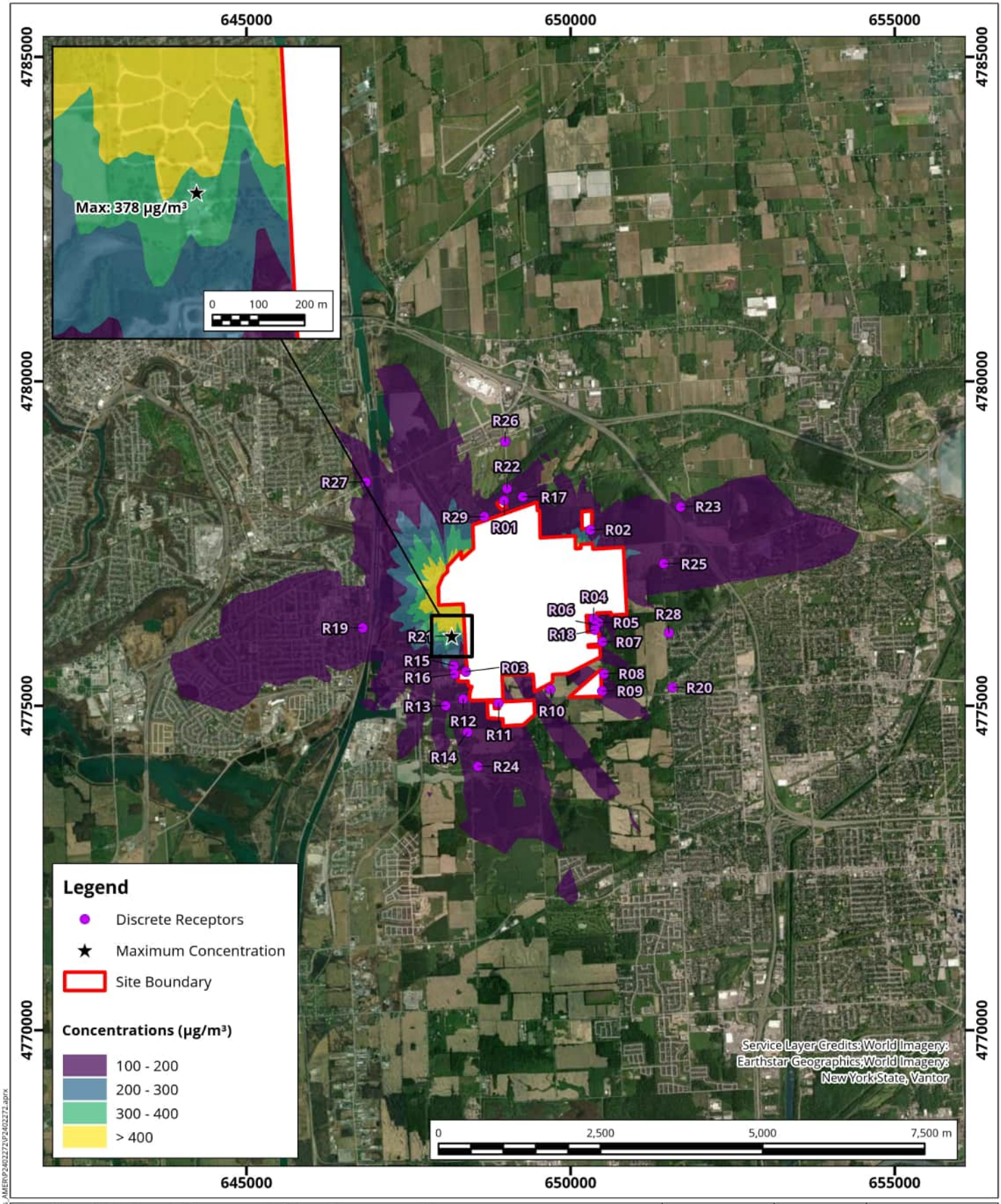
AAQC: 13 µg/m³

Background Concentration: 2.4 µg/m³

Project #: 2402272

Drawn by: PIP	Figure: O.1
Approx. Scale:	1:80,000
Date Revised:	Jun 23, 2026

Map Document: C:\WorkingFolder\Jobs_AMER\P\2402272\2402272.aprx



Predicted 1-Hour Nitrogen Oxides Concentrations (in µg/m³)

Preferred Method - Scenario 2

Map Projection: NAD 1983 UTM Zone 17N

Walker Landfill - Regional Municipality of Niagara, Ontario

True North

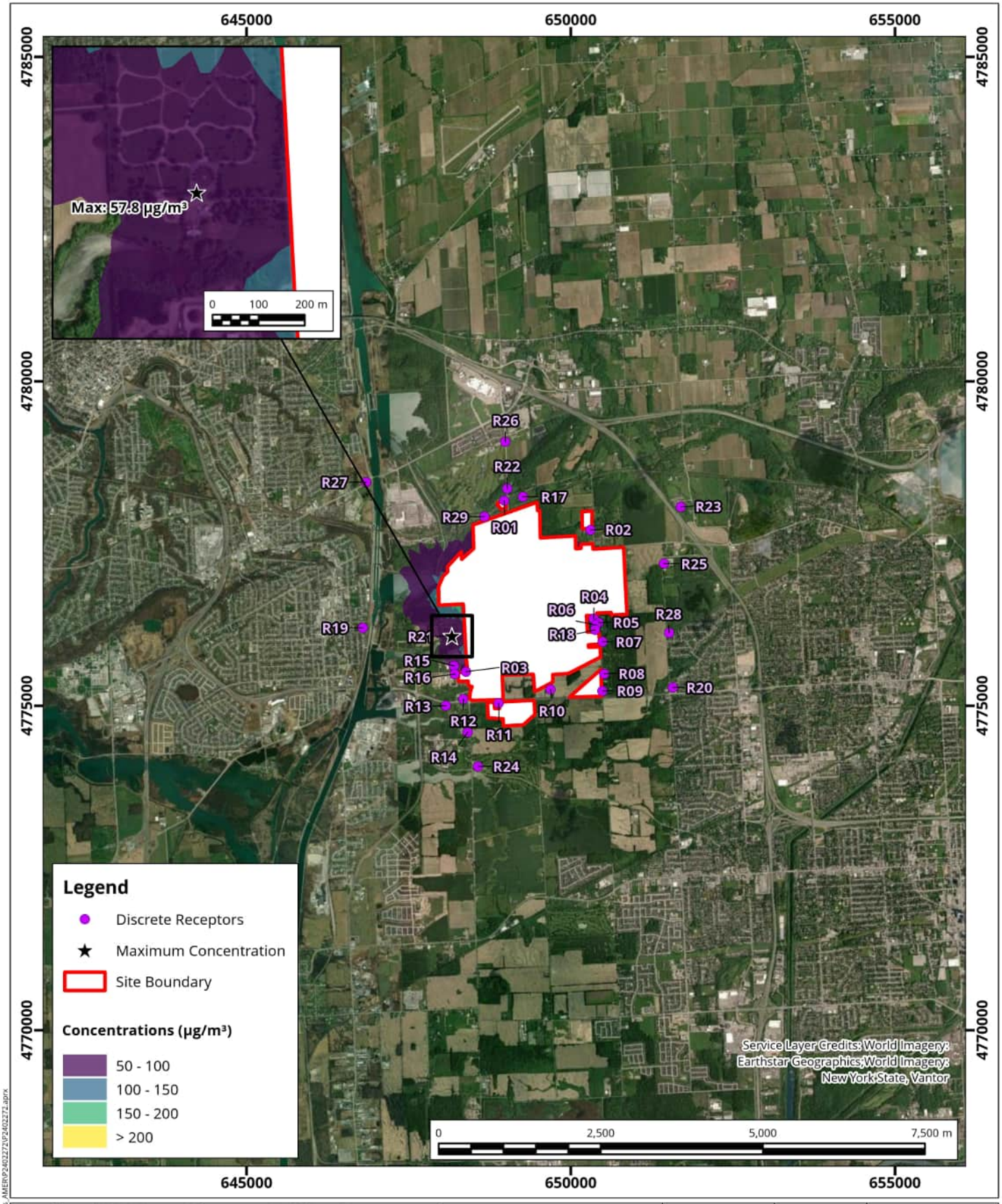
AAQC: 400 µg/m³

Background Concentration: 23.4 µg/m³

Project #: 2402272

Drawn by: PIP	Figure: O.2
Approx. Scale:	1:80,000
Date Revised:	Jun 23, 2026

Map Document: C:\Working Folder\Jobs_AMER\P\2402272\2402272.aprx



Predicted 24-Hour Nitrogen Oxides Concentrations (in µg/m³)

Preferred Method - Scenario 2

Map Projection: NAD 1983 UTM Zone 17N

Walker Landfill - Regional Municipality of Niagara, Ontario

True North

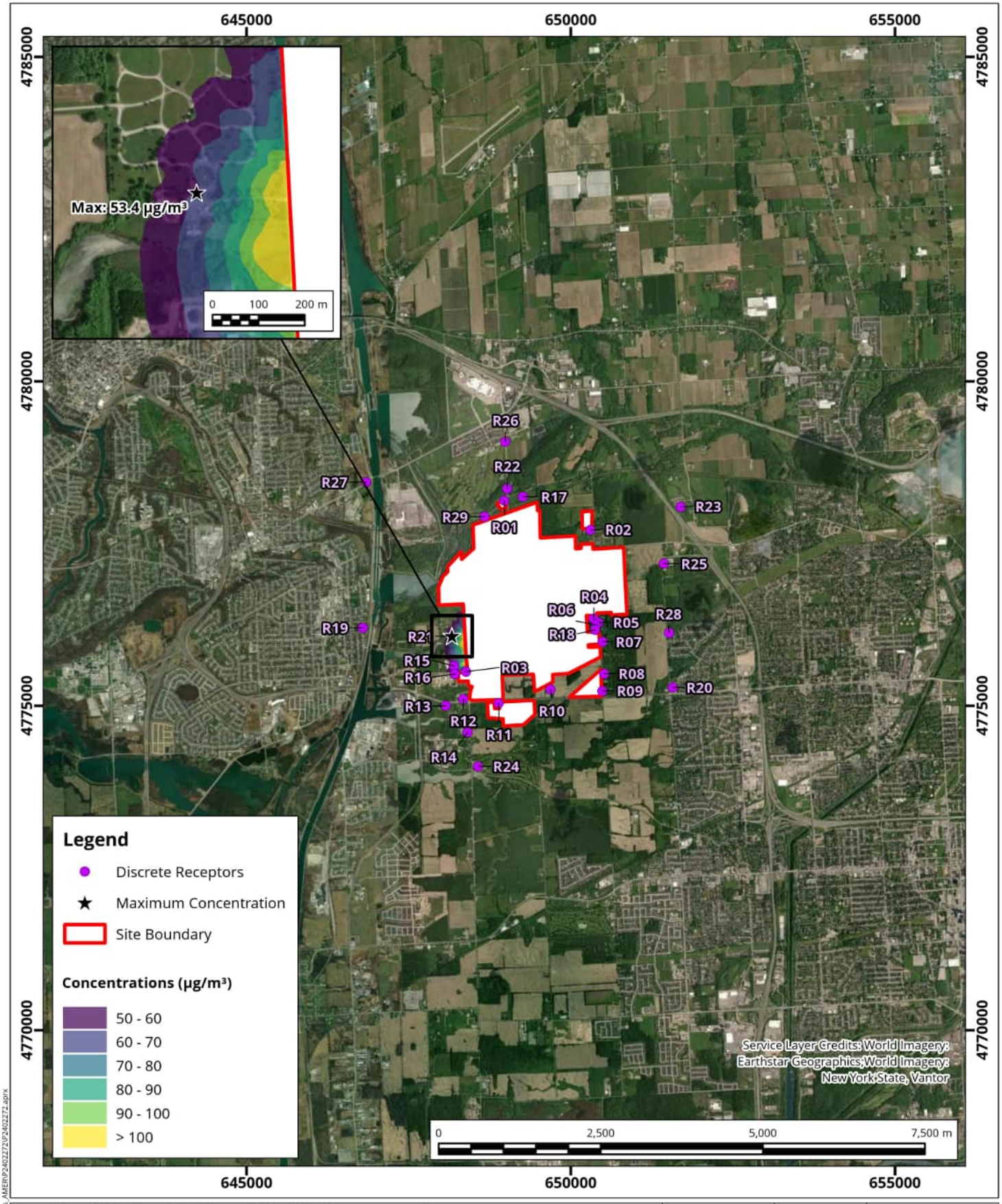
AAQC: 200 µg/m³

Background Concentration: 21.6 µg/m³

Project #: 2402272

Drawn by: PIP	Figure: O.3
Approx. Scale:	1:80,000
Date Revised:	Jun 23, 2026

Map Document: C:\Working Folder\Jobs_AMER\P\2402272\2402272.aprx



Predicted 1-Hour Sulphur Dioxide Concentrations (in µg/m³)

Preferred Method - Scenario 2

Map Projection: NAD 1983 UTM Zone 17N

Walker Landfill - Regional Municipality of Niagara, Ontario

True North

AAQC: 100 µg/m³

Background Concentration: 1.1 µg/m³

Project #: 2402272

Drawn by: PIP	Figure: O.4
Approx. Scale:	1:80,000
Date Revised:	Jun 23, 2026

Map Document: C:\WorkingFolder\Jobs_AMER\P\2402272\2402272.aprx

APPENDIX P

Appendix P1: Source Summary Tables - Dust, Landfill Gas and Combustion By-Products (Scenario 3 (End of Stage 4) - Year 2045)

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Source ID [1]	Source Type [1]	Source Description	Source Data								Emission Data							
			Stack Volumetric Flow Rate (Am^3/s)	Stack Exit Gas Temp. (°C)	Stack Inner Diameter (m)	Stack Exit Velocity (m/s)	Stack Height Above Grade (m)	Stack Height Above Roof (m)	Source Coordinates X (m)	Source Coordinates Y (m)	Contaminant	CAS Number	Emission Rate (g/s)	Emission Rate (g/m2-s)	Averaging Period (hours)	Emission Estimating Technique [2]	Emissions Data Quality [3]	% of Overall Emissions (%)
Niagara Biosolids Facility																		
BIOFILTR	AREA	Dryer Flue Gas	22.2	36	65.0 m x 8.1 m	0.03	1.52	N/A	648277	4776993	Nitrogen Oxides (NOx)	10102-44-0	8.56E-03	1.63E-05	10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	1.33E-03	2.53E-06	7446-09-5	EF	Above-Average	<1%
SILO_1	POINT	Silo #1 Bin Vent [4]	0.7	20	0.6x0.6	17.5	15	2.4	648324	4776920	TSP	n/a - TSP	2.00E-03		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	1.33E-03		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	2.00E-04		n/a - PM2.5	EF	Average	<1%
SILO_2	POINT	Silo #2 Bin Vent [4]	0.7	20	0.6x0.6	17.5	15	2.4	648324	4776915	TSP	n/a - TSP	2.00E-03		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	1.33E-03		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	2.00E-04		n/a - PM2.5	EF	Average	<1%
HEATING	VOLUME	Natural Gas Fired Comfort Heating	n/a	n/a	n/a	n/a	n/a	n/a	648313	4776920	Nitrogen Oxides (NOx)	10102-44-0	1.51E-02		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	9.04E-05		7446-09-5	EF	Above-Average	<1%
											TSP	n/a - TSP	1.15E-03		n/a - TSP	EF	Above-Average	<1%
											PM10	n/a - PM10	1.15E-03		n/a - PM10	EF	Above-Average	<1%
											PM2.5	n/a - PM2.5	1.15E-03		n/a - PM2.5	EF	Above-Average	<1%
MO_GEN	POINT	55 kW Natural Gas Fired Emergency Generator	0.2	427	0.15	11.32	4	1	648467	4777049	Nitrogen Oxides (NOx)	10102-44-0	1.69E-01		10102-44-0	EF	Above-Average	2%
											Sulphur Dioxide (SO2)	7446-09-5	1.92E-03		7446-09-5	EF	Above-Average	<1%
											TSP	n/a - TSP	2.43E-02		n/a - TSP	EF	Above-Average	<1%
											PM10	n/a - PM10	2.43E-02		n/a - PM10	EF	Above-Average	1%
											PM2.5	n/a - PM2.5	2.43E-02		n/a - PM2.5	EF	Above-Average	2%
BOILERS	VOLUME	Two 650,000 MBTU natural gas fired boilers	0.172	175	n/a	n/a	n/a	n/a	648448	4777095	Nitrogen Oxides (NOx)	10102-44-0	1.61E-02		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	9.63E-05		7446-09-5	EF	Above-Average	<1%
											TSP	n/a - TSP	1.22E-03		n/a - TSP	EF	Above-Average	<1%
											PM10	n/a - PM10	1.22E-03		n/a - PM10	EF	Above-Average	<1%
											PM2.5	n/a - PM2.5	1.22E-03		n/a - PM2.5	EF	Above-Average	<1%
DROPOFF	VOLUME	Receiving Leaf & yard Material in Open Windrc	n/a	n/a	n/a	n/a	n/a	n/a	648120	4776951	TSP	n/a - TSP	7.86E-03		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	3.44E-03		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	5.21E-04		n/a - PM2.5	EF	Average	<1%
MOVE1	VOLUME	Movement of Material into Windrow (Open Wi	n/a	n/a	n/a	n/a	n/a	n/a	648187	4776964	TSP	n/a - TSP	7.86E-03		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	3.44E-03		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	5.21E-04		n/a - PM2.5	EF	Average	<1%
MOVE2	VOLUME	Movement of Material into Windrow (GORE are	n/a	n/a	n/a	n/a	n/a	n/a	648280	4776647	TSP	n/a - TSP	7.86E-03		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	3.44E-03		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	5.21E-04		n/a - PM2.5	EF	Average	<1%
SCRTSP	VOLUME	Drop at Screening Area	n/a	n/a	n/a	n/a	n/a	n/a	648178	4776807	TSP	n/a - TSP	7.86E-03		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	3.44E-03		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	5.21E-04		n/a - PM2.5	EF	Average	<1%
SCREEN1	VOLUME	Screening Emissions	n/a	n/a	n/a	n/a	n/a	n/a	648259	4776746	TSP	n/a - TSP	1.22E-02		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	1.22E-02		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	1.83E-03		n/a - PM2.5	EF	Average	<1%
SCREEN2	VOLUME	Screening Emissions	n/a	n/a	n/a	n/a	n/a	n/a	648281	4776753	TSP	n/a - TSP	1.22E-02		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	1.22E-02		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	1.83E-03		n/a - PM2.5	EF	Average	<1%
SCREEN3	VOLUME	Screening Emissions	n/a	n/a	n/a	n/a	n/a	n/a	648135	4776839	TSP	n/a - TSP	2.29E-02		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	2.29E-02		n/a - PM10	EF	Average	1%
											PM2.5	n/a - PM2.5	3.44E-03		n/a - PM2.5	EF	Average	<1%
SCREEN4	VOLUME	Screening Emissions	n/a	n/a	n/a	n/a	n/a	n/a	648139	4776949	TSP	n/a - TSP	2.29E-02		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	2.29E-02		n/a - PM10	EF	Average	1%
											PM2.5	n/a - PM2.5	3.44E-03		n/a - PM2.5	EF	Average	<1%
FSTPL	VOLUME	Drop at Final Stockpile	n/a	n/a	n/a	n/a	n/a	n/a	648140	4776734	TSP	n/a - TSP	7.86E-03		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	3.44E-03		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	5.21E-04		n/a - PM2.5	EF	Average	<1%
FP	VOLUME	Loading of Material for Shipment Off-Site	n/a	n/a	n/a	n/a	n/a	n/a	648138	4776765	TSP	n/a - TSP	7.86E-03		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	3.44E-03		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	5.21E-04		n/a - PM2.5	EF	Average	<1%
GRINDR	VOLUME	Fugitive emissions from Grinder [7]	n/a	n/a	n/a	n/a	n/a	n/a	648136	4776795	TSP	n/a - TSP	2.29E-02		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	2.29E-02		n/a - PM10	EF	Average	1%
											PM2.5	n/a - PM2.5	3.44E-03		n/a - PM2.5	EF	Average	<1%
GRINDR2_N	VOLUME	Fugitive emissions from Grinder #2 [6]	n/a	n/a	n/a	n/a	n/a	n/a	648119	4776971	TSP	n/a - TSP	2.29E-02		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	2.29E-02		n/a - PM10	EF	Average	1%
											PM2.5	n/a - PM2.5	3.44E-03		n/a - PM2.5	EF	Average	<1%

Appendix P1: Source Summary Tables - Dust, Landfill Gas and Combustion By-Products (Scenario 3 (End of Stage 4) - Year 2045)

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Source ID [1]	Source Type [1]	Source Description	Source Data								Emission Data							
			Stack Volumetric Flow Rate (Am^3/s)	Stack Exit Gas Temp. (°C)	Stack Inner Diameter (m)	Stack Exit Velocity (m/s)	Stack Height Above Grade (m)	Stack Height Above Roof (m)	Source Coordinates X (m)	Source Coordinates Y (m)	Contaminant	CAS Number	Emission Rate (g/s)	Emission Rate (g/m2-s)	Averaging Period (hours)	Emission Estimating Technique [2]	Emissions Data Quality [3]	% of Overall Emissions (%)
CONV_PM	VOLUME	Stacking Conveyor Fugitive Emissions [7]	n/a	n/a	n/a	n/a	n/a	n/a	648281	4776764	TSP	n/a - TSP	8.22E-04		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	5.11E-04		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	1.44E-04		n/a - PM2.5	EF	Average	<1%
CONV_PM2_N	VOLUME	Stacking Conveyor #2 Fugitive Emissions - North Location [6]	n/a	n/a	n/a	n/a	n/a	n/a	648126	4776966	TSP	n/a - TSP	8.22E-04		n/a - TSP	EF	Average	<1%
											PM10	n/a - PM10	5.11E-04		n/a - PM10	EF	Average	<1%
											PM2.5	n/a - PM2.5	1.44E-04		n/a - PM2.5	EF	Average	<1%
GSTK	POINT	Grinder Engine - 860 kW, Diesel Fired [7]	2.7	575	0.2	86	5.5	1.5	648135	4776792	Nitrogen Oxides (NOx)	10102-44-0	9.45E-01		10102-44-0	EF	Marginal	10%
											Sulphur Dioxide (SO2)	7446-09-5	1.05E-01		7446-09-5	EF	Marginal	1%
											TSP	n/a - TSP	5.55E-02		n/a - TSP	EF	Marginal	1%
											PM10	n/a - PM10	5.55E-02		n/a - PM10	EF	Marginal	3%
											PM2.5	n/a - PM2.5	5.55E-02		n/a - PM2.5	EF	Marginal	5%
GSTK2_N	POINT	Grinder #2 Engine 860 kW, Diesel Fired - North Location [6]	2.7	575	0.2	86	5.5	1.5	648119	4776968	Nitrogen Oxides (NOx)	10102-44-0	9.45E-01		10102-44-0	EF	Marginal	10%
											Sulphur Dioxide (SO2)	7446-09-5	1.05E-01		7446-09-5	EF	Marginal	1%
											TSP	n/a - TSP	5.55E-02		n/a - TSP	EF	Marginal	1%
											PM10	n/a - PM10	5.55E-02		n/a - PM10	EF	Marginal	3%
											PM2.5	n/a - PM2.5	5.55E-02		n/a - PM2.5	EF	Marginal	5%
GENC	POINT	Generator #1 600 kW, Diesel Fired	2.4	553	0.25	48	3.5	0.5	648169	4776734	Nitrogen Oxides (NOx)	10102-44-0	2.43E+00		10102-44-0	EF	Marginal	25%
											Sulphur Dioxide (SO2)	7446-09-5	1.23E-03		7446-09-5	EF	Marginal	<1%
											TSP	n/a - TSP	1.80E-02		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	1.48E-02		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	1.24E-02		n/a - PM2.5	EF	Marginal	1%
SCREEN1C	POINT	Screen #1 Engine 130 kW, Diesel Fired	0.5	427	0.12	42	4	0.5	648258	4776746	Nitrogen Oxides (NOx)	10102-44-0	2.93E-01		10102-44-0	EF	Marginal	3%
											Sulphur Dioxide (SO2)	7446-09-5	1.94E-02		7446-09-5	EF	Marginal	<1%
											TSP	n/a - TSP	2.08E-02		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	2.08E-02		n/a - PM10	EF	Marginal	1%
											PM2.5	n/a - PM2.5	2.08E-02		n/a - PM2.5	EF	Marginal	2%
SCREEN2C	POINT	Screen #2 Engine 130 kW, Diesel Fired	0.5	427	0.12	42	4	0.5	648281	4776753	Nitrogen Oxides (NOx)	10102-44-0	2.93E-01		10102-44-0	EF	Marginal	3%
											Sulphur Dioxide (SO2)	7446-09-5	1.94E-02		7446-09-5	EF	Marginal	<1%
											TSP	n/a - TSP	2.08E-02		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	2.08E-02		n/a - PM10	EF	Marginal	1%
											PM2.5	n/a - PM2.5	2.08E-02		n/a - PM2.5	EF	Marginal	2%
SCREEN3C	POINT	Screen #3 Engine 130 kW, Diesel Fired	0.5	427	0.12	42	4	0.5	648134	4776839	Nitrogen Oxides (NOx)	10102-44-0	2.93E-01		10102-44-0	EF	Marginal	3%
											Sulphur Dioxide (SO2)	7446-09-5	1.94E-02		7446-09-5	EF	Marginal	<1%
											TSP	n/a - TSP	2.08E-02		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	2.08E-02		n/a - PM10	EF	Marginal	1%
											PM2.5	n/a - PM2.5	2.08E-02		n/a - PM2.5	EF	Marginal	2%
SCREEN4C	POINT	Screen #4 Engine 60 kW, Diesel Fired	0.24	525	0.1	31	4	0.5	648140	4776949	Nitrogen Oxides (NOx)	10102-44-0	1.35E-01		10102-44-0	EF	Marginal	1%
											Sulphur Dioxide (SO2)	7446-09-5	8.94E-03		7446-09-5	EF	Marginal	<1%
											TSP	n/a - TSP	9.59E-03		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	9.59E-03		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	9.59E-03		n/a - PM2.5	EF	Marginal	<1%
CONVEYOR	POINT	Stacking Conveyor Engine 60 kW, Diesel Fired [7]	0.24	525	0.1	31	2	n/a	648281	4776764	Nitrogen Oxides (NOx)	10102-44-0	6.60E-02		10102-44-0	EF	Marginal	<1%
											Sulphur Dioxide (SO2)	7446-09-5	4.36E-03		7446-09-5	EF	Marginal	<1%
											TSP	n/a - TSP	4.68E-03		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	4.68E-03		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	4.68E-03		n/a - PM2.5	EF	Marginal	<1%
CONVEY2N	POINT	Stacking Conveyor #2 Engine 60 kW, Diesel Fired [6]	0.24	525	0.1	31	2	n/a	648126	4776967	Nitrogen Oxides (NOx)	10102-44-0	6.60E-02		10102-44-0	EF	Marginal	<1%
											Sulphur Dioxide (SO2)	7446-09-5	4.36E-03		7446-09-5	EF	Marginal	<1%
											TSP	n/a - TSP	4.68E-03		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	4.68E-03		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	4.68E-03		n/a - PM2.5	EF	Marginal	<1%
R_BLDG	VOLUME	Processing Building - Operation of Diesel-Fired Heater	0.049	175	0.14	3.2	1.2	n/a	648214	4776739	Nitrogen Oxides (NOx)	10102-44-0	6.55E-03		10102-44-0	EF	Marginal	<1%
											Sulphur Dioxide (SO2)	7446-09-5	2.33E-02		7446-09-5	EF	Above-Average	<1%
											TSP	n/a - TSP	1.08E-03		n/a - TSP	EF	Above-Average	<1%
											PM10	n/a - PM10	6.55E-04		n/a - PM10	EF	Above-Average	<1%
											PM2.5	n/a - PM2.5	4.26E-04		n/a - PM2.5	EF	Above-Average	<1%
PR_CF1	LINE_VOLUME	Paved Road at Compost Facility - Inbound and Outbound Delivery	n/a	n/a	n/a	n/a	n/a	n/a	648346	4776573	Nitrogen Oxides (NOx)	10102-44-0	5.51E-04		10102-44-0	ST	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	3.60E-06		7446-09-5	ST	Above-Average	<1%
											Benzene	71-43-2	4.93E-07		71-43-2	ST	Above-Average	<1%
											TSP	n/a - TSP	3.23E-02		n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	4.23E-03		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	1.03E-03		n/a - PM2.5	ST	Above-Average	<1%

Appendix P1: Source Summary Tables - Dust, Landfill Gas and Combustion By-Products (Scenario 3 (End of Stage 4) - Year 2045)

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Source ID [1]	Source Type [1]	Source Description	Source Data								Emission Data							
			Stack Volumetric Flow Rate (Am^3/s)	Stack Exit Gas Temp. (°C)	Stack Inner Diameter (m)	Stack Exit Velocity (m/s)	Stack Height Above Grade (m)	Stack Height Above Roof (m)	Source Coordinates X (m)	Source Coordinates Y (m)	Contaminant	CAS Number	Emission Rate (g/s)	Emission Rate (g/m2-s)	Averaging Period (hours)	Emission Estimating Technique [2]	Emissions Data Quality [3]	% of Overall Emissions (%)
UR_CF2	LINE_VOLUME	Unpaved Road at Compost Facility - Inbound and Outbound Delivery	n/a	n/a	n/a	n/a	n/a	n/a	648114	4776735	Nitrogen Oxides (NOx)	10102-44-0	2.68E-04		10102-44-0	ST	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	3.21E-06		7446-09-5	ST	Above-Average	<1%
											Benzene	71-43-2	4.91E-07		71-43-2	ST	Above-Average	<1%
											TSP	n/a - TSP	3.00E-03		n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	5.64E-04		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	6.92E-05		n/a - PM2.5	ST	Above-Average	<1%
EQ_CF	VOLUME	Tailpipe Emission of Onsite Equipment at Compost Facility	n/a	n/a	n/a	n/a	n/a	n/a	648158	4776735	Nitrogen Oxides (NOx)	10102-44-0	5.09E-04		10102-44-0	ST	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	6.47E-06		7446-09-5	ST	Above-Average	<1%
											Benzene	71-43-2	1.10E-06		71-43-2	ST	Above-Average	<1%
											TSP	n/a - TSP	2.99E-05		n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	2.99E-05		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	2.99E-05		n/a - PM2.5	ST	Above-Average	<1%
Walker Environmental Group Inc. –																		
LEAPOND1	AREA	Existing Leachate Pond #1	--	--	--	--	--	--	648441	4777248	Hydrogen sulfide	7783-06-4	6.24E-06	3.59E-09	7783-06-4	ST	Above-Average	<1%
											Benzene	71-43-2	4.67E-06	2.69E-09	71-43-2	ST	Above-Average	<1%
											1,1,2-Trichloroethane	79-00-5	1.23E-06	7.05E-10	79-00-5	ST	Above-Average	<1%
											Vinyl chloride	75-01-4	5.69E-07	3.27E-10	75-01-4	ST	Above-Average	<1%
LEAPOND2	AREA	Existing Leachate Pond #2	--	--	--	--	--	--	648787	4777544	Hydrogen sulfide	7783-06-4	6.96E-06	3.59E-09	7783-06-4	ST	Above-Average	<1%
											Benzene	71-43-2	5.21E-06	2.69E-09	71-43-2	ST	Above-Average	<1%
											1,1,2-Trichloroethane	79-00-5	1.37E-06	7.05E-10	79-00-5	ST	Above-Average	<1%
											Vinyl chloride	75-01-4	6.34E-07	3.27E-10	75-01-4	ST	Above-Average	<1%
LEAPOND3	AREA	Existing Leachate Pond #3	--	--	--	--	--	--	648856	4777523	Hydrogen sulfide	7783-06-4	8.27E-06	3.59E-09	7783-06-4	ST	Above-Average	<1%
											Benzene	71-43-2	6.19E-06	2.69E-09	71-43-2	ST	Above-Average	<1%
											1,1,2-Trichloroethane	79-00-5	1.62E-06	7.05E-10	79-00-5	ST	Above-Average	<1%
											Vinyl chloride	75-01-4	7.53E-07	3.27E-10	75-01-4	ST	Above-Average	<1%
LEAPOND4	AREA	Proposed Leachate Pond #4	--	--	--	--	--	--	648776	4777487	Hydrogen sulfide	7783-06-4	1.13E-05	3.59E-09	7783-06-4	ST	Above-Average	<1%
											Benzene	71-43-2	8.47E-06	2.69E-09	71-43-2	ST	Above-Average	<1%
											1,1,2-Trichloroethane	79-00-5	2.22E-06	7.05E-10	79-00-5	ST	Above-Average	<1%
											Vinyl chloride	75-01-4	1.03E-06	3.27E-10	75-01-4	ST	Above-Average	<1%
LEAPOND5	AREA	Proposed Leachate Pond #5	--	--	--	--	--	--	648853	4777466	Hydrogen sulfide	7783-06-4	1.13E-05	3.59E-09	7783-06-4	ST	Above-Average	<1%
											Benzene	71-43-2	8.47E-06	2.69E-09	71-43-2	ST	Above-Average	<1%
											1,1,2-Trichloroethane	79-00-5	2.22E-06	7.05E-10	79-00-5	ST	Above-Average	<1%
											Vinyl chloride	75-01-4	1.03E-06	3.27E-10	75-01-4	ST	Above-Average	<1%
SOIL	AREA_POLY	Fugitive Emissions from Wast Soil Stockpile	--	--	--	--	--	--	648632	4776730	Hydrogen sulfide	7783-06-4	1.36E-04	3.61E-09	7783-06-4	ST	Above-Average	<1%
											Benzene	71-43-2	1.29E-05	3.42E-10	71-43-2	ST	Above-Average	<1%
											1,1,2-Trichloroethane	79-00-5	2.66E-05	7.05E-10	79-00-5	ST	Above-Average	2%
											Vinyl chloride	75-01-4	1.23E-05	3.27E-10	75-01-4	ST	Above-Average	<1%
SPick_Soil	VOLUME	Soil Pick up from Waste Soil Pile	n/a	n/a	n/a	n/a	n/a	n/a	648854	4776948	TSP	n/a - TSP	1.5E-02		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	6.5E-03		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	9.9E-04		n/a - PM2.5	EF	Marginal	<1%
SDrop_S4WF	VOLUME	Soil Drop off at Working Face of South Landfill Phase 2 - Stage 4	n/a	n/a	n/a	n/a	n/a	n/a	649726	4777167	TSP	n/a - TSP	1.5E-02		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	6.5E-03		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	9.9E-04		n/a - PM2.5	EF	Marginal	<1%
DROP_S4CAP	VOLUME	Clay Drop off at Final Capping Construction Area of South Landfill Phase 2 - Stage 4	n/a	n/a	n/a	n/a	n/a	n/a	649503	4776841	TSP	n/a - TSP	1.5E-03		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	6.4E-04		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	9.7E-05		n/a - PM2.5	EF	Marginal	<1%
DOZER_Soil	VOLUME	Bulldozer at Waste Soil Pile - Fugitive dust	n/a	n/a	n/a	n/a	n/a	n/a	648844	4776949	TSP	n/a - TSP	9.8E-01		n/a - TSP	EF		23%
											PM10	n/a - PM10	3.0E-01		n/a - PM10	EF		15%
											PM2.5	n/a - PM2.5	1.0E-01		n/a - PM2.5	EF		8%
DOZER_S4WF	VOLUME	Bulldozer at Working Face of South Landfill Phase 2 Stage 4 - Fugitive dust	n/a	n/a	n/a	n/a	n/a	n/a	649726	4777170	TSP	n/a - TSP	9.8E-01		n/a - TSP	EF		23%
											PM10	n/a - PM10	3.0E-01		n/a - PM10	EF		15%
											PM2.5	n/a - PM2.5	1.0E-01		n/a - PM2.5	EF		8%
DOZER_S4CAP	VOLUME	Bulldozer at Final Capping Construction Area of South Landfill Phase 2 - Stage 4 - Fugitive dust	n/a	n/a	n/a	n/a	n/a	n/a	649502	4776845	TSP	n/a - TSP	9.8E-01		n/a - TSP	EF	Above-Average	23%
											PM10	n/a - PM10	3.0E-01		n/a - PM10	EF	Above-Average	15%
											PM2.5	n/a - PM2.5	1.0E-01		n/a - PM2.5	EF	Above-Average	8%
EQ_Soil	VOLUME	Tailpipe Emission of Onsite Equipment at Soil Pile	n/a	n/a	n/a	n/a	n/a	n/a	648844	4776949	Nitrogen Oxides (NOx)	10102-44-0	2.3E-03		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	2.9E-05		7446-09-5	EF	Above-Average	<1%
											Benzene	71-43-2	4.4E-06		71-43-2	EF	Above-Average	<1%
											TSP	n/a - TSP	1.3E-04		n/a - TSP	EF	Above-Average	<1%
											PM10	n/a - PM10	1.3E-04		n/a - PM10	EF	Above-Average	<1%
											PM2.5	n/a - PM2.5	1.3E-04		n/a - PM2.5	EF	Above-Average	<1%

Appendix P1: Source Summary Tables - Dust, Landfill Gas and Combustion By-Products (Scenario 3 (End of Stage 4) - Year 2045)

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Source ID [1]	Source Type [1]	Source Description	Source Data								Emission Data							
			Stack Volumetric Flow Rate (Am^3/s)	Stack Exit Gas Temp. (°C)	Stack Inner Diameter (m)	Stack Exit Velocity (m/s)	Stack Height Above Grade (m)	Stack Height Above Roof (m)	Source Coordinates X (m)	Source Coordinates Y (m)	Contaminant	CAS Number	Emission Rate (g/s)	Emission Rate (g/m2-s)	Averaging Period (hours)	Emission Estimating Technique [2]	Emissions Data Quality [3]	% of Overall Emissions (%)
EQ_S4WF	VOLUME	Tailpipe Emission of Onsite Equipment at Working Face of South Landfill Phase 2 - Stage 4	n/a	n/a	n/a	n/a	n/a	n/a	649728	4777171	Nitrogen Oxides (NOx)	10102-44-0	6.1E-03		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	2.1E-05		7446-09-5	EF	Above-Average	<1%
											Benzene	71-43-2	6.8E-06		71-43-2	EF	Above-Average	<1%
											TSP	n/a - TSP	1.29E-04		n/a - TSP	EF	Above-Average	<1%
											PM10	n/a - PM10	1.29E-04		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	1.29E-04		n/a - PM2.5	ST	Above-Average	<1%
EQ_S4CAP	VOLUME	Tailpipe Emission of Onsite Equipment at Final Capping Construction Area of South Landfill Phase 2 - Stage 4	n/a	n/a	n/a	n/a	n/a	n/a	649504	4776846	Nitrogen Oxides (NOx)	10102-44-0	2.3E-03		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	2.9E-05		7446-09-5	EF	Above-Average	<1%
											Benzene	71-43-2	4.4E-06		71-43-2	EF	Above-Average	<1%
											TSP	n/a - TSP	1.3E-04		n/a - TSP	EF	Above-Average	<1%
											PM10	n/a - PM10	1.3E-04		n/a - PM10	EF	Above-Average	<1%
											PM2.5	n/a - PM2.5	1.3E-04		n/a - PM2.5	EF	Above-Average	<1%
TIP_S4	POINT	173 hp Diesel-Fired Landfill Tipper at South Landfill Phase 2 Stage 4 - Combustion	1.25	349	0.25	25.5	2	n/a	649718	4777173	Nitrogen Oxides (NOx)	10102-44-0	6.76E-01		10102-44-0	EF	Above-Average	7%
											Sulphur Dioxide (SO2)	7446-09-5	4.47E-02		7446-09-5	EF	Marginal	<1%
											TSP	n/a - TSP	4.80E-02		n/a - TSP	EF	Above-Average	1%
											PM10	n/a - PM10	4.80E-02		n/a - PM10	EF	Above-Average	2%
											PM2.5	n/a - PM2.5	4.80E-02		n/a - PM2.5	EF	Above-Average	4%
TIP2_S4	POINT	173 hp Diesel-Fired Landfill Tipper #2 at South Landfill Phase 2 Stage 4 - Combustion	1.25	349	0.25	25.5	2	n/a	649733	4777172	Nitrogen Oxides (NOx)	10102-44-0	6.76E-01		10102-44-0	EF	Above-Average	7%
											Sulphur Dioxide (SO2)	7446-09-5	4.47E-02		7446-09-5	EF	Marginal	<1%
											TSP	n/a - TSP	4.80E-02		n/a - TSP	EF	Above-Average	1%
											PM10	n/a - PM10	4.80E-02		n/a - PM10	EF	Above-Average	2%
											PM2.5	n/a - PM2.5	4.80E-02		n/a - PM2.5	EF	Above-Average	4%
EASTLF_FC	AREA_POLY	Fugitive Emissions from Areas under Final Cover at East Landfill	- -	- -	- -	- -	- -	- -	648369	4776777	Hydrogen sulfide	7783-06-4	9.24E-04	1.56E-09	7783-06-4	ST	Above-Average	3%
											Benzene	71-43-2	5.28E-05	8.90E-11	71-43-2	ST	Above-Average	2%
											1,1,2-Trichloroethane	79-00-5	1.82E-04	3.06E-10	79-00-5	ST	Above-Average	14%
											Vinyl chloride	75-01-4	8.42E-05	1.42E-10	75-01-4	ST	Above-Average	6%
SLF_FC	AREA_POLY	Fugitive Emissions from Areas under Final Cover at South Landfill Phase 1	- -	- -	- -	- -	- -	- -	648547	4775839	Hydrogen sulfide	7783-06-4	5.64E-04	1.11E-09	7783-06-4	ST	Above-Average	2%
											Benzene	71-43-2	1.32E-04	2.59E-10	71-43-2	ST	Above-Average	5%
											1,1,2-Trichloroethane	79-00-5	2.98E-04	5.88E-10	79-00-5	ST	Above-Average	23%
											Vinyl chloride	75-01-4	1.04E-04	2.05E-10	75-01-4	ST	Above-Average	8%
S1_FC	AREA_POLY	Fugitive Emissions from Areas under Final Cover at South Landfill Phase 2 - Stage 1	- -	- -	- -	- -	- -	- -	649436	4775998	Hydrogen sulfide	7783-06-4	4.90E-04	2.11E-09	7783-06-4	ST	Above-Average	1%
											Benzene	71-43-2	7.95E-05	3.42E-10	71-43-2	ST	Above-Average	3%
											1,1,2-Trichloroethane	79-00-5	1.80E-04	7.75E-10	79-00-5	ST	Above-Average	14%
											Vinyl chloride	75-01-4	6.28E-05	2.70E-10	75-01-4	ST	Above-Average	5%
S2_FC	AREA_POLY	Fugitive Emissions from Areas under Final Cover at South Landfill Phase 2 - Stage 2	- -	- -	- -	- -	- -	- -	650029	4776749	Hydrogen sulfide	7783-06-4	4.16E-04	2.78E-09	7783-06-4	ST	Above-Average	1%
											Benzene	71-43-2	6.75E-05	4.51E-10	71-43-2	ST	Above-Average	3%
											1,1,2-Trichloroethane	79-00-5	1.53E-04	1.02E-09	79-00-5	ST	Above-Average	12%
											Vinyl chloride	75-01-4	5.34E-05	3.56E-10	75-01-4	ST	Above-Average	4%
S3_FC	AREA_POLY	Fugitive Emissions from Areas under Final Cover at South Landfill Phase 2 - Stage 3	- -	- -	- -	- -	- -	- -	649737	4776845	Hydrogen sulfide	7783-06-4	5.26E-04	3.70E-09	7783-06-4	ST	Above-Average	1%
											Benzene	71-43-2	8.53E-05	6.01E-10	71-43-2	ST	Above-Average	3%
											1,1,2-Trichloroethane	79-00-5	1.93E-04	1.36E-09	79-00-5	ST	Above-Average	15%
											Vinyl chloride	75-01-4	6.74E-05	4.75E-10	75-01-4	ST	Above-Average	5%
S4_IC	AREA_POLY	Fugitive Emissions from Areas under Interim Cover at South Landfill Phase 2 - Stage 4	- -	- -	- -	- -	- -	- -	649577	4776995	Hydrogen sulfide	7783-06-4	2.70E-04	3.83E-09	7783-06-4	ST	Above-Average	<1%
											Benzene	71-43-2	1.90E-04	2.69E-09	71-43-2	ST	Above-Average	7%
											1,1,2-Trichloroethane	79-00-5	4.97E-05	7.05E-10	79-00-5	ST	Above-Average	4%
											Vinyl chloride	75-01-4	6.43E-04	9.12E-09	75-01-4	ST	Above-Average	49%
S4_FC	AREA_POLY	Fugitive Emissions from Areas under Final Cover at South Landfill Phase 2 - Stage 4	- -	- -	- -	- -	- -	- -	649381	4776812	Hydrogen sulfide	7783-06-4	1.14E-04	3.59E-09	7783-06-4	ST	Above-Average	<1%
											Benzene	71-43-2	1.86E-05	5.83E-10	71-43-2	ST	Above-Average	<1%
											1,1,2-Trichloroethane	79-00-5	4.21E-05	1.32E-09	79-00-5	ST	Above-Average	3%
											Vinyl chloride	75-01-4	1.47E-05	4.61E-10	75-01-4	ST	Above-Average	1%
WE_S4IC	AREA_POLY	Wind Erosion from Areas under Interim Cover at South Landfill	- -	- -	- -	- -	- -	- -	649577	4776995	TSP	n/a - TSP	0.00E+00	0.00E+00	n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	0.00E+00	0.00E+00	n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	0.00E+00	0.00E+00	n/a - PM2.5	ST	Above-Average	<1%
WE_S4CAP	AREA	Wind Erosion from Final Capping Construction Area at South Landfill Phase 2 - Stage 4	- -	- -	- -	- -	- -	- -	649383	4776852	TSP	n/a - TSP	0.00E+00	0.00E+00	n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	0.00E+00	0.00E+00	n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	0.00E+00	0.00E+00	n/a - PM2.5	ST	Above-Average	<1%
WE_SOIL	AREA_POLY	Wind Erosion from Waste Soil Stockpile	- -	- -	- -	- -	- -	- -	648632	4776730	TSP	n/a - TSP	0.00E+00	0.00E+00	n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	0.00E+00	0.00E+00	n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	0.00E+00	0.00E+00	n/a - PM2.5	ST	Above-Average	<1%
IDLE_WEIGH	VOLUME	Trucks Idling at the Weigh Scale	n/a	n/a	n/a	n/a	n/a	n/a	648928	4776513	Nitrogen Oxides (NOx)	10102-44-0	6.6E-03		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	3.0E-06		7446-09-5	EF	Above-Average	<1%
											Benzene	71-43-2	1.9E-08		71-43-2	EF	Above-Average	<1%
											TSP	n/a - TSP	1.19E-05		n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	1.19E-05		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	1.09E-05		n/a - PM2.5	ST	Above-Average	<1%

Appendix P1: Source Summary Tables - Dust, Landfill Gas and Combustion By-Products (Scenario 3 (End of Stage 4) - Year 2045)

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Source ID [1]	Source Type [1]	Source Description	Source Data								Emission Data							
			Stack Volumetric Flow Rate (Am^3/s)	Stack Exit Gas Temp. (°C)	Stack Inner Diameter (m)	Stack Exit Velocity (m/s)	Stack Height Above Grade (m)	Stack Height Above Roof (m)	Source Coordinates X (m)	Source Coordinates Y (m)	Contaminant	CAS Number	Emission Rate (g/s)	Emission Rate (g/m2-s)	Averaging Period (hours)	Emission Estimating Technique [2]	Emissions Data Quality [3]	% of Overall Emissions (%)
IDLE_S4WF	VOLUME	Trucks Idling at the Working Face of South Landfill Phase 2 - Stage 4	n/a	n/a	n/a	n/a	n/a	n/a	649714	4777160	Nitrogen Oxides (NOx)	10102-44-0	6.6E-03		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	3.0E-06		7446-09-5	EF	Above-Average	<1%
											Benzene	71-43-2	1.9E-08		71-43-2	EF	Above-Average	<1%
											TSP	n/a - TSP	1.19E-05		n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	1.19E-05		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	1.09E-05		n/a - PM2.5	ST	Above-Average	<1%
UR_SOCL	LINE_VOLUME	Unpaved Road - Transport of Soil and Clay between Soil Pile and Working Face and Construction Areas	n/a	n/a	n/a	n/a	n/a	n/a	648902	4776927	Nitrogen Oxides (NOx)	10102-44-0	1.5E-04		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	8.2E-07		7446-09-5	EF	Above-Average	<1%
											Benzene	71-43-2	1.1E-07		71-43-2	EF	Above-Average	<1%
											TSP	n/a - TSP	1.39E-02		n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	2.32E-03		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	2.35E-04		n/a - PM2.5	ST	Above-Average	<1%
PR_W1	LINE_VOLUME	Paved Road - Transport of Waste between Entrance and Weigh Scale	n/a	n/a	n/a	n/a	n/a	n/a	649341	4776584	Nitrogen Oxides (NOx)	10102-44-0	4.11E-04		10102-44-0	ST	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	9.43E-07		7446-09-5	ST	Above-Average	<1%
											Benzene	71-43-2	7.66E-08		71-43-2	ST	Above-Average	<1%
											TSP	n/a - TSP	4.86E-02		n/a - TSP	ST	Above-Average	1%
											PM10	n/a - PM10	6.35E-03		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	1.53E-03		n/a - PM2.5	ST	Above-Average	<1%
UR_W2	LINE_VOLUME	Unpaved Road at - Transport of Waste between Weigh Scale and Working Face	n/a	n/a	n/a	n/a	n/a	n/a	648928	4776513	Nitrogen Oxides (NOx)	10102-44-0	7.09E-05		10102-44-0	ST	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	5.26E-07		7446-09-5	ST	Above-Average	<1%
											Benzene	71-43-2	7.51E-08		71-43-2	ST	Above-Average	<1%
											TSP	n/a - TSP	5.41E-03		n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	1.00E-03		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	1.02E-04		n/a - PM2.5	ST	Above-Average	<1%
UR_W3	LINE_VOLUME	Unpaved Road at - Transport of Waste between Weigh Scale and Working Face	n/a	n/a	n/a	n/a	n/a	n/a	648901	4776446	Nitrogen Oxides (NOx)	10102-44-0	3.57E-04		10102-44-0	ST	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	8.77E-07		7446-09-5	ST	Above-Average	<1%
											Benzene	71-43-2	7.64E-08		71-43-2	ST	Above-Average	<1%
											TSP	n/a - TSP	5.29E-02		n/a - TSP	ST	Above-Average	1%
											PM10	n/a - PM10	9.77E-03		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	9.81E-04		n/a - PM2.5	ST	Above-Average	<1%
UR_W4	LINE_VOLUME	Unpaved Road - Transport of Soil, Clay and Waste between Weigh Scale and Working Face	n/a	n/a	n/a	n/a	n/a	n/a	649121	4777049	Nitrogen Oxides (NOx)	10102-44-0	1.23E-04		10102-44-0	ST	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	4.16E-07		7446-09-5	ST	Above-Average	<1%
											Benzene	71-43-2	4.47E-08		71-43-2	ST	Above-Average	<1%
											TSP	n/a - TSP	1.74E-02		n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	3.21E-03		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	3.23E-04		n/a - PM2.5	ST	Above-Average	<1%
UR_W5	LINE_VOLUME	Unpaved Road - Transport of Soil and Waste between Weigh Scale and Working Face	n/a	n/a	n/a	n/a	n/a	n/a	649352	4777069	Nitrogen Oxides (NOx)	10102-44-0	2.26E-04		10102-44-0	ST	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	5.55E-07		7446-09-5	ST	Above-Average	<1%
											Benzene	71-43-2	4.65E-08		71-43-2	ST	Above-Average	<1%
											TSP	n/a - TSP	3.50E-02		n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	6.46E-03		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	6.48E-04		n/a - PM2.5	ST	Above-Average	<1%
UR_S4CAP	LINE_VOLUME	Unpaved Road - Transport of Clay between Soil Pile and Final Capping Construction Area	n/a	n/a	n/a	n/a	n/a	n/a	649352	4777069	Nitrogen Oxides (NOx)	10102-44-0	7.22E-04		10102-44-0	ST	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	7.39E-06		7446-09-5	ST	Above-Average	<1%
											Benzene	71-43-2	1.11E-06		71-43-2	ST	Above-Average	<1%
											TSP	n/a - TSP	4.04E-02		n/a - TSP	ST	Above-Average	<1%
											PM10	n/a - PM10	7.46E-03		n/a - PM10	ST	Above-Average	<1%
											PM2.5	n/a - PM2.5	7.76E-04		n/a - PM2.5	ST	Above-Average	<1%
FLARE1	POINT	Landfill Gas Flare	7.5	871	3.0	1.1	12.2	n/a	648601	4775958	Nitrogen Oxides (NOx)	10102-44-0	9.64E-02		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	1.03E+00		7446-09-5	MB	Average	11%
											TSP	n/a - TSP	4.27E-02		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	4.27E-02		n/a - PM10	EF	Marginal	2%
											PM2.5	n/a - PM2.5	4.27E-02		n/a - PM2.5	EF	Marginal	4%
											Hydrogen Sulfide	7783-06-4	6.90E-03		7783-06-4	EF	Above-Average	19%
											Vinyl Chloride	75-01-4	5.65E-06		75-01-4	EF	Above-Average	<1%
											Benzene	71-43-2	3.98E-05		71-43-2	EF	Above-Average	2%
											1,1,2-Trichloroethane	79-00-5	3.24E-06		79-00-5	EF	Above-Average	<1%

Appendix P1: Source Summary Tables - Dust, Landfill Gas and Combustion By-Products (Scenario 3 (End of Stage 4) - Year 2045)

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Source ID [1]	Source Type [1]	Source Description	Source Data								Emission Data							
			Stack Volumetric Flow Rate (Am^3/s)	Stack Exit Gas Temp. (°C)	Stack Inner Diameter (m)	Stack Exit Velocity (m/s)	Stack Height Above Grade (m)	Stack Height Above Roof (m)	Source Coordinates X (m)	Source Coordinates Y (m)	Contaminant	CAS Number	Emission Rate (g/s)	Emission Rate (g/m2-s)	Averaging Period (hours)	Emission Estimating Technique [2]	Emissions Data Quality [3]	% of Overall Emissions (%)
FLARE2	POINT	Landfill Gas Flare	7.5	871	4.0	0.6	15.2	n/a	648607	4775953	Nitrogen Oxides (NOx)	10102-44-0	9.64E-02		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	1.03E+00		7446-09-5	MB	Average	11%
											TSP	n/a - TSP	4.27E-02		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	4.27E-02		n/a - PM10	EF	Marginal	2%
											PM2.5	n/a - PM2.5	4.27E-02		n/a - PM2.5	EF	Marginal	4%
											Hydrogen Sulfide	7783-06-4	6.90E-03		7783-06-4	EF	Above-Average	19%
											Vinyl Chloride	75-01-4	5.65E-06		75-01-4	EF	Above-Average	<1%
											Benzene	71-43-2	3.98E-05		71-43-2	EF	Above-Average	2%
											1,1,2-Trichloroethane	79-00-5	3.24E-06		79-00-5	EF	Above-Average	<1%
FLARE3	POINT	Landfill Gas Flare	7.5	871	4.0	0.6	15.2	n/a	648613	4775949	Nitrogen Oxides (NOx)	10102-44-0	9.64E-02		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	1.03E+00		7446-09-5	MB	Average	11%
											TSP	n/a - TSP	4.27E-02		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	4.27E-02		n/a - PM10	EF	Marginal	2%
											PM2.5	n/a - PM2.5	4.27E-02		n/a - PM2.5	EF	Marginal	4%
											Hydrogen Sulfide	7783-06-4	6.90E-03		7783-06-4	EF	Above-Average	19%
											Vinyl Chloride	75-01-4	5.65E-06		75-01-4	EF	Above-Average	<1%
											Benzene	71-43-2	3.98E-05		71-43-2	EF	Above-Average	2%
											1,1,2-Trichloroethane	79-00-5	3.24E-06		79-00-5	EF	Above-Average	<1%
PGEN1	POINT	82 bhp Portable Diesel Fired Generator Cummins Model #4BT3.3-G2	0.17	510	0.08	33.8	2.5	n/a	648429	4775836	Nitrogen Oxides (NOx)	10102-44-0	8.72E-02		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	1.70E-02		7446-09-5	EF	Marginal	<1%
											TSP	n/a - TSP	7.30E-03		n/a - TSP	EF	Above-Average	<1%
											PM10	n/a - PM10	7.30E-03		n/a - PM10	EF	Above-Average	<1%
											PM2.5	n/a - PM2.5	7.30E-03		n/a - PM2.5	EF	Above-Average	<1%
Integrated Gas Recovery Services Ir																		
GEN1	POINT	1,064 kW Landfill Gas Fired Generator	2.0	509	0.25	39.8	6.0	3.0	648553	4775929	Nitrogen Oxides (NOx)	10102-44-0	4.49E-01		10102-44-0	EF	Above-Average	5%
											Sulphur Dioxide (SO2)	7446-09-5	1.01E-01		7446-09-5	MB	Average	1%
											TSP	n/a - TSP	5.03E-02		n/a - TSP	EF	Marginal	1%
											PM10	n/a - PM10	5.03E-02		n/a - PM10	EF	Marginal	3%
											PM2.5	n/a - PM2.5	5.03E-02		n/a - PM2.5	EF	Marginal	4%
											Hydrogen Sulfide	7783-06-4	2.85E-03		7783-06-4	EF	Above-Average	8%
											Vinyl Chloride	75-01-4	2.34E-06		75-01-4	EF	Above-Average	<1%
											Benzene	71-43-2	1.65E-05		71-43-2	EF	Above-Average	<1%
											1,1,2-Trichloroethane	79-00-5	1.34E-06		79-00-5	EF	Above-Average	<1%
GEN2	POINT	1,064 kW Landfill Gas Fired Generator	2.0	509	0.25	39.8	6.0	3.0	648554	4775922	Nitrogen Oxides (NOx)	10102-44-0	4.49E-01		10102-44-0	EF	Above-Average	5%
											Sulphur Dioxide (SO2)	7446-09-5	1.01E-01		7446-09-5	MB	Average	1%
											TSP	n/a - TSP	5.03E-02		n/a - TSP	EF	Marginal	1%
											PM10	n/a - PM10	5.03E-02		n/a - PM10	EF	Marginal	3%
											PM2.5	n/a - PM2.5	5.03E-02		n/a - PM2.5	EF	Marginal	4%
											Hydrogen Sulfide	7783-06-4	2.85E-03		7783-06-4	EF	Above-Average	8%
											Vinyl Chloride	75-01-4	2.34E-06		75-01-4	EF	Above-Average	<1%
											Benzene	71-43-2	1.65E-05		71-43-2	EF	Above-Average	<1%
											1,1,2-Trichloroethane	79-00-5	1.34E-06		79-00-5	EF	Above-Average	<1%
GEN3	POINT	1,064 kW Landfill Gas Fired Generator	2.0	509	0.25	39.8	6.0	3.0	648558	4775914	Nitrogen Oxides (NOx)	10102-44-0	4.49E-01		10102-44-0	EF	Above-Average	5%
											Sulphur Dioxide (SO2)	7446-09-5	1.01E-01		7446-09-5	MB	Average	1%
											TSP	n/a - TSP	5.03E-02		n/a - TSP	EF	Marginal	1%
											PM10	n/a - PM10	5.03E-02		n/a - PM10	EF	Marginal	3%
											PM2.5	n/a - PM2.5	5.03E-02		n/a - PM2.5	EF	Marginal	4%
											Hydrogen Sulfide	7783-06-4	2.85E-03		7783-06-4	EF	Above-Average	8%
											Vinyl Chloride	75-01-4	2.34E-06		75-01-4	EF	Above-Average	<1%
											Benzene	71-43-2	1.65E-05		71-43-2	EF	Above-Average	<1%
											1,1,2-Trichloroethane	79-00-5	1.34E-06		79-00-5	EF	Above-Average	<1%
GEN4	POINT	1,064 kW Landfill Gas Fired Generator	2.0	509	0.25	39.8	6.0	3.0	648547	4775938	Nitrogen Oxides (NOx)	10102-44-0	4.49E-01		10102-44-0	EF	Above-Average	5%
											Sulphur Dioxide (SO2)	7446-09-5	1.01E-01		7446-09-5	MB	Average	1%
											TSP	n/a - TSP	5.03E-02		n/a - TSP	EF	Marginal	1%
											PM10	n/a - PM10	5.03E-02		n/a - PM10	EF	Marginal	3%
											PM2.5	n/a - PM2.5	5.03E-02		n/a - PM2.5	EF	Marginal	4%
											Hydrogen Sulfide	7783-06-4	2.85E-03		7783-06-4	EF	Above-Average	8%
											Vinyl Chloride	75-01-4	2.34E-06		75-01-4	EF	Above-Average	<1%
											Benzene	71-43-2	1.65E-05		71-43-2	EF	Above-Average	<1%
											1,1,2-Trichloroethane	79-00-5	1.34E-06		79-00-5	EF	Above-Average	<1%

Appendix P1: Source Summary Tables - Dust, Landfill Gas and Combustion By-Products (Scenario 3 (End of Stage 4) - Year 2045)

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Source ID [1]	Source Type [1]	Source Description	Source Data								Emission Data							
			Stack Volumetric Flow Rate (Am^3/s)	Stack Exit Gas Temp. (°C)	Stack Inner Diameter (m)	Stack Exit Velocity (m/s)	Stack Height Above Grade (m)	Stack Height Above Roof (m)	Source Coordinates X (m)	Source Coordinates Y (m)	Contaminant	CAS Number	Emission Rate (g/s)	Emission Rate (g/m2-s)	Averaging Period (hours)	Emission Estimating Technique [2]	Emissions Data Quality [3]	% of Overall Emissions (%)
SILFLAR2	POINT	Siloxane Flare 2 (new)	1.11	871	1.2	0.98	7.8	n/a	648530	4775914	Nitrogen Oxides (NOx)	10102-44-0	3.02E-02		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	4.37E-02		7446-09-5	MB	Average	<1%
											TSP	n/a - TSP	6.62E-03		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	6.62E-03		n/a - PM10	EF	Marginal	<1%
											PM2.5	n/a - PM2.5	6.62E-03		n/a - PM2.5	EF	Marginal	<1%
RNGFLARE	POINT	RNG Elevated Flare [8]	1.3	871	0.4	10.3	15.13	n/a	648541	4775766	Nitrogen Oxides (NOx)	10102-44-0	4.02E-01		10102-44-0	EF	Above-Average	4%
											Sulphur Dioxide (SO2)	7446-09-5	5.55E-01		7446-09-5	MB	Average	6%
											TSP	n/a - TSP	1.78E-01		n/a - TSP	EF	Marginal	4%
											PM10	n/a - PM10	1.78E-01		n/a - PM10	EF	Marginal	9%
											PM2.5	n/a - PM2.5	1.78E-01		n/a - PM2.5	EF	Marginal	15%
											Hydrogen Sulfide	7783-06-4	0.00E+00		7783-06-4	EF	Above-Average	<1%
											Vinyl Chloride	75-01-4	2.34E-05		75-01-4	EF	Above-Average	2%
											Benzene	71-43-2	1.65E-04		71-43-2	EF	Above-Average	6%
											1,1,2-Trichloroethane	79-00-5	1.34E-05		79-00-5	EF	Above-Average	1%
RNGTAIL	POINT	RNG Elevated Flare (Process tail gas) [8]	1.5	871	0.4	11.8	15.1	n/a	648541	4775766	Sulphur Dioxide (SO2)	7446-09-5	4.67E+00	4.67E+01	7446-09-5	MB	Average	51%
TO	POINT	Thermal Oxidizer	13.3	787	1.1	13.8	13.72	n/a	648494	4775921	Nitrogen Oxides (NOx)	10102-44-0	7.63E-02		10102-44-0	EF	Above-Average	<1%
											Sulphur Dioxide (SO2)	7446-09-5	0.00E+00		7446-09-5	MB	Average	<1%
											TSP	n/a - TSP	2.83E-02		n/a - TSP	EF	Marginal	<1%
											PM10	n/a - PM10	2.83E-02		n/a - PM10	EF	Marginal	1%
											PM2.5	n/a - PM2.5	2.83E-02		n/a - PM2.5	EF	Marginal	2%
											Hydrogen Sulfide	7783-06-4	5.92E-05		7783-06-4	EF	Above-Average	<1%
											Vinyl Chloride	75-01-4	2.25E-04		75-01-4	EF	Above-Average	17%
											Benzene	71-43-2	1.59E-03		71-43-2	EF	Above-Average	60%
											1,1,2-Trichloroethane	79-00-5	1.29E-04		79-00-5	EF	Above-Average	10%
Total																		
Total	- -	Total From all Sources	- -	- -	- -	- -	- -	- -	- -	- -	Nitrogen Oxides (NOx)	10102-44-0	9.74E+00	9.73E+00	1, 24	- -	- -	100%
											Sulphur Dioxide (SO2)	7446-09-5	9.18E+00	9.18E+00	1, 8760	- -	- -	100%
											TSP	n/a - TSP	4.27E+00	4.03E+00	24, 8760	- -	- -	100%
											PM10	n/a - PM10	1.98E+00	1.94E+00	24	- -	- -	100%
											PM2.5	n/a - PM2.5	1.21E+00	1.21E+00	24, 8760	- -	- -	100%
											Hydrogen Sulfide	7783-06-4	3.56E-02	3.22E-02	10 min, 24	- -	- -	100%
											Vinyl Chloride	75-01-4	1.32E-03	2.75E-04	24, 8760	- -	- -	100%
											Benzene	71-43-2	2.63E-03	1.95E-03	24	- -	- -	100%
											1,1,2-Trichloroethane	79-00-5	1.29E-03	1.58E-04	24	- -	- -	100%

Notes:

[1] Source ID, Source Type: should provide information on the modelling source type (e.g., Point, Area or Volume Source); the process source or sources within the modelling source (e.g., Process Line #1); and the stack or stacks within each process source.

[2] Emission Estimating Technique Short-Forms are V-ST (Validated Source Test), "ST" (Source Test), EF (Emission Factor), MB (Mass Balance), and EC (Engineering Calculation).

[3] Data Quality Categories: Highest; Above-Average; Average; and Marginal.

[4] These volume sources represent sources of fugitive dust emissions. The emissions from these sources are not ducted through any sort of stack or vent, therefore, no stack parameters are provided for these sources in the source summary table.

[5] ASPH_DC stack height above roof is the stack height above the adjacent dust collector structure.

Appendix P2: H2S and VOC Flux Chamber Sampling Data
Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Results	Units	South Landfill - Interim Cover									South Landfill - Final Cover					
		SOUTH LANDFILL INTERMITTENT COVER AREA #1	SOUTH LANDFILL INTERMITTENT COVER AREA #2	SOUTH LANDFILL INTERMITTENT COVER AREA #3	SOUTH LANDFILL INTERMITTENT COVER AREA #4	SOUTH LANDFILL INTERMITTENT COVER AREA #5	SOUTH LANDFILL INTERMITTENT COVER AREA #6	SOUTH LANDFILL INTERMITTENT COVER AREA #7	SOUTH LANDFILL INTERMITTENT COVER AREA #8	SOUTH LANDFILL INTERMITTENT COVER AREA #9	SOUTH LANDFILL FINAL COVER AREA #1	SOUTH LANDFILL FINAL COVER AREA #2	SOUTH LANDFILL FINAL COVER AREA #3	SOUTH LANDFILL FINAL COVER AREA #4	SOUTH LANDFILL FINAL COVER AREA #5	SOUTH LANDFILL FINAL COVER AREA #6
Hydrogen sulfide	µg/m³	8.8	5.6	5.6	5.6	5.6	5.6	5.8	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
Acetone	µg/m³	14.7	30.6	67.9	11.9	33	8.1	8.6	12.8	21.8	35.4	6.9	57.5	59.4	16.2	16.6
Allyl chloride	µg/m³	0.63	0.63	0.63	0.63	0.63	0.63	0.66	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
Benzene	µg/m³	0.32	0.32	32.9	0.32	1.15	0.32	0.32	0.32	1.85	0.32	0.83	0.32	0.32	0.32	0.32
Benzyl chloride	µg/m³	1	1	1	1	1	1	1.1	1	1	1	1	1	1	1	1
Bromodichloromethane	µg/m³	1.3	1.3	1.3	1.3	1.3	1.3	1.4	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Bromoform	µg/m³	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
Bromomethane	µg/m³	0.78	0.78	0.78	0.78	0.78	0.78	0.82	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
1,3-Butadiene	µg/m³	0.44	0.44	2.85	0.44	0.44	0.44	0.46	0.44	0.77	0.44	0.44	0.44	0.44	0.44	0.44
Carbon disulfide	µg/m³	1.6	1.7	2.3	1.6	1.6	1.6	1.6	1.6	1.6	13.5	1.6	1.6	2.2	1.6	2.9
Carbon tetrachloride	µg/m³	1.26	1.26	1.26	1.26	1.26	1.26	1.32	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26
Chlorobenzene	µg/m³	0.92	0.92	0.92	0.92	0.92	0.92	0.97	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Chloroethane	µg/m³	0.53	3.67	34.3	0.53	1.61	0.53	0.55	0.53	4.8	0.53	0.53	0.53	0.53	0.53	0.53
Chloroform	µg/m³	0.98	0.98	1.46	0.98	0.98	0.98	1.02	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Chloromethane	µg/m³	0.56	2.06	4.38	0.41	1.47	0.41	0.43	0.41	3.49	0.41	0.43	0.56	0.41	0.91	0.7
Cyclohexane	µg/m³	0.69	1.82	86	0.69	1.96	0.69	0.72	0.69	16.6	0.69	0.69	0.89	0.69	0.69	0.69
Dibromochloromethane	µg/m³	1.7	1.7	1.7	1.7	1.7	1.7	1.8	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
1,2-Dibromoethane	µg/m³	1.5	1.5	1.5	1.5	1.5	1.5	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,2-Dichlorobenzene	µg/m³	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
1,3-Dichlorobenzene	µg/m³	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
1,4-Dichlorobenzene	µg/m³	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Dichlorodifluoromethane	µg/m³	1.5	5	18.5	1	2.5	1	1	1	1.9	1	1	1.3	1	1.6	1.5
1,1-Dichloroethane	µg/m³	0.81	0.81	0.81	0.81	0.81	0.81	0.85	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
1,2-Dichloroethane	µg/m³	0.81	0.81	15.2	0.81	0.81	0.81	0.85	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
1,1-Dichloroethylene	µg/m³	0.79	0.79	2.62	0.79	0.79	0.79	0.83	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
cis-1,2-Dichloroethylene	µg/m³	0.79	0.79	204	0.79	7.41	0.79	0.83	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
trans-1,2-Dichloroethylene	µg/m³	0.79	0.79	15.6	0.79	0.79	0.79	0.83	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Dichloromethane	µg/m³	0.69	0.69	9.38	0.69	1.01	0.69	0.73	0.69	0.73	0.69	0.69	0.69	0.69	0.69	0.69
1,2-Dichloropropane	µg/m³	0.9	0.9	2.1	0.9	0.9	0.9	1	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
1,3-Dichloropropylene (cis+trans)	µg/m³	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
cis-1,3-Dichloropropylene	µg/m³	0.9	0.9	0.9	0.9	0.9	0.9	1	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
trans-1,3-Dichloropropylene	µg/m³	0.9	0.9	0.9	0.9	0.9	0.9	1	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
1,2-Dichlorotetrafluoroethane (Freon 114)	µg/m³	1.4	1.4	1.4	1.4	1.4	1.4	1.5	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
1,4-Dioxane	µg/m³	0.72	0.72	0.72	0.72	0.72	0.72	0.76	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
Ethyl acetate	µg/m³	0.76	0.76	12.8	0.83	0.9	0.9	1.01	0.97	0.97	0.9	0.83	0.86	1.3	0.83	1.01
Ethylbenzene	µg/m³	0.43	0.48	70.8	0.43	3.82	0.43	0.43	0.43	2.21	0.43	0.43	0.43	0.43	0.43	0.43
4-Ethyltoluene	µg/m³	1	1	4	1	1	1	1	1	1	1	1	1	1	1	1
n-Heptane	µg/m³	0.82	0.82	240	0.82	8.24	0.82	0.86	0.82	41.4	0.82	0.82	0.82	0.82	0.82	0.82
Hexachlorobutadiene	µg/m³	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
n-Hexane	µg/m³	0.88	0.7	152	0.7	4.69	0.7	0.74	0.7	34	0.7	0.7	0.85	0.7	0.7	0.7
2-Hexanone	µg/m³	4.1	4.1	4.92	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
Isopropanol	µg/m³	12.3	12.3	37.1	12.3	12.3	12.3	12.3	12.3	17	12.3	12.3	12.3	12.3	12.3	12.3
Isopropylbenzene (cumene)	µg/m³	1	1	2.6	2.1	1	1.2	1	2	1	1	1	1	1	1	1
Methyl ethyl ketone (MEK)	µg/m³	1.47	3.21	86.7	1.27	5.99	0.91	0.86	2.06	2.09	3.57	1.3	3.27	2.09	1.74	2.48
Methyl isobutyl ketone (MIBK)	µg/m³	0.82	0.82	9.83	0.82	0.82	0.82	0.86	0.82	1.56	0.82	0.82	0.82	0.82	0.82	0.82
Methyl-tert-butyl ether (MTBE)	µg/m³	0.72	0.72	2.13	0.72	0.72	0.72	0.76	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
Naphthalene	µg/m³	0.94	0.52	0.52	0.52	0.73	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52
Propylene	µg/m³	4.3	37.5	286	0.45	8.4	0.34	0.5	0.55	88.4	1.17	0.52	3.82	0.5	0.81	0.67
Styrene	µg/m³	0.85	0.85	5.88	0.85	0.85	0.85	0.89	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
1,1,2,2-Tetrachloroethane	µg/m³	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Tetrachloroethylene	µg/m³	1.4	1.4	34.6	1.4	1.8	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Tetrahydrofuran	µg/m³	0.59	0.59	23.1	0.59	0.74	0.59	0.62	0.59	0.59	0.65	0.59	0.59	0.59	0.59	0.59
Toluene	µg/m³	1.77	1.77	357	5.46	17.2	4.07	1.09	2.86	5.88	0.87	0.38	2.41	0.6	0.72	0.45
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	µg/m³	1.5	1.5	1.5	1.5	1.5	1.5	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,2,4-Trichlorobenzene	µg/m³	1.5	1.5	1.5	1.5	1.5	1.5	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1,1,1-Trichloroethane	µg/m³	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
1,1,2-Trichloroethane	µg/m³	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Trichloroethylene	µg/m³	1.1	1.1	26.8	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Trichlorofluoromethane	µg/m³	1.1	1.1	64	1.1	2.5	1.1	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
1,2,4-Trimethylbenzene	µg/m³	1	1	7.6	1	4.2	1	1	1	1	1	1	1	1	1	1
1,3,5-Trimethylbenzene	µg/m³	1	1	3.7	1	1	1	1	1	1	1	1	1	1	1	1
2,2,4-Trimethylpentane	µg/m³	0.9	1.7	68.2	0.9	1.8	0.9	1	0.9	17.1	0.9	0.9	0.9	0.9	0.9	0.9
Vinyl acetate	µg/m³	17.6	17.6	29.9	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6
Vinyl bromide	µg/m³	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Vinyl chloride	µg/m³	0.51	0.66	120	0.51	3.3	0.51	0.54	0.51	1.46	0.51	0.51	0.51	0.51	0.51	0.51
m+p-Xylene (mixture)	µg/m³	1	1.13	214	0.87	11.6	0.87	1.04	0.87	5.56	0.87	0.87	0.87	0.87	0.87	0.87
o-Xylene	µg/m³	0.43	0.43	61.6	0.43	3.47	0.43	0.43	0.43	1.48	0.43	0.43	0.43	0.43	0.43	0.43
Xylenes, total	µg/m³	1.3	1.6	276	1.3	15.1	1.3	1.5	1.3	7	1.3	1.3	1.3	1.3	1.3	1.3
BTEX, total	µg/m³	2.8	3.8	737	5.5	37.2	4.1	2.6	2.9	17	2.4	2.4	2.4	2.4	2.4	2.4

Notes:
[1] Sampling was conducted on Sep 2-5, 2025 and Sep 29, 2025.
[2] Samples with data below the dection threshold were assumed as the lowest dectection threshold for conservative assessment.

Appendix P2: H2S and VOC Flux Chamber Sampling Data
Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Results	Units	East Landfill - Final Cover			South Landfill - Working Face						Waste Soil Stockpile			Leachate Pond		
		EAST LANDFILLL FIANL COVER AREA #7	EAST LANDFILLL FIANL COVER AREA #8	EAST LANDFILLL FIANL COVER AREA #9	SOUTH LANDFILL WORKING FACE #1	SOUTH LANDFILL WORKING FACE #2	SOUTH LANDFILL WORKING FACE #3	SOUTH LANDFILL WORKING FACE #4	SOUTH LANDFILL WORKING FACE #5	SOUTH LANDFILL WORKING FACE #6	SOUTH LANDFILL WASTE SOIL STOCKPILE #1	SOUTH LANDFILL WASTE SOIL STOCKPILE #2	SOUTH LANDFILL WASTE SOIL STOCKPILE #3	SCFLP#1	SCFLP#2	SCFLP#3
Hydrogen sulfide	µg/m³	5.6	5.6	5.6	5.6	5.6	5.6	5.7	5.6	5.6	5.7	5.6	5.6	5.6	5.6	5.6
Acetone	µg/m³	24.9	17.6	17.3	406	1040	205	125	143	1770	14.7	6.6	14.2	1240	603	748
Allyl chloride	µg/m³	0.63	0.63	0.63	3.04	15.6	15.8	15.6	15.7	196	0.63	0.63	0.63	0.63	0.63	0.63
Benzene	µg/m³	0.32	0.32	0.32	3.8	7.99	8.05	7.99	8.02	99.7	0.35	0.42	0.83	4.63	3.61	4.34
Benzyl chloride	µg/m³	1	1	1	1	25.3	26.1	25.9	26	324	1	1	1	1	1	1
Bromodichloromethane	µg/m³	1.3	1.3	1.3	1.3	33.5	33.8	33.5	33.6	419	1.3	1.3	1.3	4.2	2.7	3.1
Bromoform	µg/m³	2.1	2.1	2.1	2.1	51.7	52.2	51.7	51.9	646	2.1	2.1	2.1	2.1	2.1	2.1
Bromomethane	µg/m³	0.78	0.78	0.78	0.78	19.4	19.6	19.4	19.5	243	0.78	0.78	0.78	0.82	0.78	0.78
1,3-Butadiene	µg/m³	0.44	0.44	0.44	0.44	11.1	11.2	11.1	11.1	138	0.44	0.44	0.44	65.9	60.2	76.5
Carbon disulfide	µg/m³	1.7	2.6	1.6	3.4	38.9	39.2	38.9	39.2	486	1.6	1.6	1.6	3.3	3.3	3.7
Carbon tetrachloride	µg/m³	1.26	1.26	1.26	1.26	31.4	31.8	31.4	31.6	393	1.26	1.26	1.26	1.26	1.26	1.26
Chlorobenzene	µg/m³	0.92	0.92	0.92	0.92	23	23.2	23	23.1	288	0.92	0.92	0.92	0.92	0.92	0.92
Chloroethane	µg/m³	0.53	0.53	0.53	0.53	13.2	13.3	13.2	13.2	165	0.53	0.53	0.53	0.58	0.53	1.37
Chloroform	µg/m³	0.98	0.98	0.98	0.98	24.4	24.6	24.4	24.5	305	0.98	0.98	0.98	3.96	3.03	2.54
Chloromethane	µg/m³	0.41	0.41	0.41	1.3	10.3	10.4	10.3	10.4	129	0.47	0.83	0.66	1.42	1.05	5.97
Cyclohexane	µg/m³	0.69	0.69	0.69	3.51	17.2	17.4	17.2	17.3	215	0.69	0.69	0.69	0.69	0.69	0.69
Dibromochloromethane	µg/m³	1.7	1.7	1.7	1.7	42.6	43	42.6	42.8	532	1.7	1.7	1.7	4.2	3.2	4.3
1,2-Dibromoethane	µg/m³	1.5	1.5	1.5	1.5	38.4	38.8	38.4	38.6	480	1.5	1.5	1.5	1.5	1.5	1.5
1,2-Dichlorobenzene	µg/m³	1.2	1.2	1.2	1.2	30.1	30.4	30.1	30.2	376	1.2	1.2	1.2	1.2	1.2	1.2
1,3-Dichlorobenzene	µg/m³	1.2	1.2	1.2	1.2	30.1	30.4	30.1	30.2	376	1.2	1.2	1.2	1.2	1.2	1.2
1,4-Dichlorobenzene	µg/m³	1.2	1.2	1.2	1.2	30.1	30.4	30.1	30.2	376	1.2	1.2	1.2	1.2	2.3	1.2
Dichlorodifluoromethane	µg/m³	1	1	1	3	24.7	25	24.7	24.8	309	1	2.2	1.7	1	1	1
1,1-Dichloroethane	µg/m³	0.81	0.81	0.81	0.81	20.2	20.4	20.2	20.3	253	0.81	0.81	0.81	0.81	0.81	0.81
1,2-Dichloroethane	µg/m³	0.81	0.81	0.81	3.08	20.2	20.4	20.2	20.3	253	0.81	0.81	0.81	0.81	0.81	0.81
1,1-Dichloroethylene	µg/m³	0.79	0.79	0.79	0.79	19.8	20	19.8	19.9	248	0.79	0.79	0.79	0.79	0.79	0.79
cis-1,2-Dichloroethylene	µg/m³	0.79	0.79	0.79	0.79	19.8	20	19.8	19.9	248	0.79	0.79	0.79	0.79	0.79	0.79
trans-1,2-Dichloroethylene	µg/m³	0.79	0.79	0.79	0.79	19.8	20	19.8	19.9	248	0.79	0.79	0.79	0.79	0.79	0.79
Dichloromethane	µg/m³	0.69	0.69	0.69	2.43	24.2	17.5	17.4	17.4	217	0.69	0.69	0.69	0.9	0.73	0.69
1,2-Dichloropropane	µg/m³	0.9	0.9	0.9	0.9	23.1	23.3	23.1	23.2	289	0.9	0.9	0.9	0.9	0.9	0.9
1,3-Dichloropropylene (cis+trans)	µg/m³	1.8	1.8	1.8	1.8	45.4	45.8	45.4	45.6	567	1.8	1.8	1.8	1.8	1.8	1.8
cis-1,3-Dichloropropylene	µg/m³	0.9	0.9	0.9	0.9	22.7	22.9	22.7	22.8	284	0.9	0.9	0.9	0.9	0.9	0.9
trans-1,3-Dichloropropylene	µg/m³	0.9	0.9	0.9	0.9	22.7	22.9	22.7	22.8	284	0.9	0.9	0.9	0.9	0.9	0.9
1,2-Dichlorotetrafluoroethane (Freon 114)	µg/m³	1.4	1.4	1.4	1.4	35	35.3	35	35.1	437	1.4	1.4	1.4	1.4	1.4	1.4
1,4-Dioxane	µg/m³	0.72	0.72	0.72	1.4	18	18.2	18	18.1	225	0.72	0.72	0.72	0.72	8.14	0.79
Ethyl acetate	µg/m³	0.72	0.72	0.72	117	34.3	18.2	18	18.1	225	0.72	0.72	0.72	8.22	6.85	10.4
Ethylbenzene	µg/m³	0.43	0.43	0.43	13.8	15.9	11.6	10.8	13.4	135	0.43	0.43	0.52	2.82	2.43	3.21
4-Ethyltoluene	µg/m³	1	1	1	5.6	24.6	24.8	24.6	24.7	307	1	1	1	1	1	1
n-Heptane	µg/m³	0.82	0.82	0.82	34.8	20.5	20.7	20.5	20.6	256	0.82	0.82	0.82	9.02	5.74	7.54
Hexachlorobutadiene	µg/m³	2.1	2.1	2.1	2.1	53.3	53.8	53.3	53.5	666	2.1	2.1	2.1	2.1	2.1	2.1
n-Hexane	µg/m³	0.7	0.7	0.7	18.7	17.6	17.8	17.6	17.7	220	0.7	0.7	0.7	7.16	5.18	6.31
2-Hexanone	µg/m³	4.1	4.1	4.1	21.7	102	103	102	103	1280	4.1	4.1	4.1	6.96	4.1	6.56
Isopropanol	µg/m³	12.3	12.3	12.3	84.3	61.4	61.9	61.4	61.7	767	12.3	12.3	12.3	32.9	33.7	23.6
Isopropylbenzene (cumene)	µg/m³	1	1	1	2.2	24.6	24.8	24.6	24.7	307	1	1	1	1	1.9	1
Methyl ethyl ketone (MEK)	µg/m³	2.48	2.09	1.18	1370	964	419	428	351	8400	1.68	1.18	3.21	271	183	295
Methyl isobutyl ketone (MIBK)	µg/m³	0.82	0.82	0.82	11.6	20.5	20.7	20.5	20.6	256	0.82	0.82	0.82	3.11	2.87	2.7
Methyl-tert-butyl ether (MTBE)	µg/m³	0.72	0.72	0.72	0.72	18	18.2	18	18.1	225	0.72	0.72	0.72	0.97	0.76	0.79
Naphthalene	µg/m³	0.52	0.52	0.52	3.77	13.1	13.2	13.1	13.2	164	0.52	0.63	1.68	1.15	4.19	1.05
Propylene	µg/m³	0.41	0.34	0.45	10.1	86.7	12.2	22.5	8.64	108	0.74	1.26	0.98	6.47	6.95	9.07
Styrene	µg/m³	0.85	0.85	0.85	13.9	27.3	25	21.3	21.4	266	0.85	0.85	0.94	3.41	2.17	3.88
1,1,2,2-Tetrachloroethane	µg/m³	1.4	1.4	1.4	1.4	34.3	34.7	34.3	34.5	429	1.4	1.4	1.4	1.4	1.4	1.4
Tetrachloroethylene	µg/m³	1.4	1.4	1.4	4.1	33.9	4480	33.9	40.7	424	1.4	1.4	2.4	1.4	1.4	1.4
Tetrahydrofuran	µg/m³	0.59	0.59	0.59	18	14.7	14.9	14.7	14.8	184	0.59	0.59	0.59	298	439	360
Toluene	µg/m³	0.38	0.83	0.38	41.1	43	24.7	11	16	118	0.9	4.3	6.18	505	320	475
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	µg/m³	1.5	1.5	1.5	1.5	38.3	38.7	38.3	38.5	479	1.5	1.5	1.5	1.5	1.5	1.5
1,2,4-Trichlorobenzene	µg/m³	1.5	1.5	1.5	1.5	37.1	37.5	37.1	37.2	464	1.5	1.5	1.5	1.5	1.5	1.5
1,1,1-Trichloroethane	µg/m³	1.1	1.1	1.1	1.1	27.3	27.6	27.3	27.4	341	1.1	1.1	1.1	1.1	1.1	1.1
1,1,2-Trichloroethane	µg/m³	1.1	1.1	1.1	1.1	27.3	27.6	27.3	27.4	341	1.1	1.1	1.1	1.1	1.1	1.1
Trichloroethylene	µg/m³	1.1	1.1	1.1	1.1	26.9	27.1	26.9	27	336	1.1	1.1	1.1	1.1	1.1	1.1
Trichlorofluoromethane	µg/m³	1.1	1.1	1.1	7.4	28.1	28.4	28.1	28.2	351	1.1	1.1	1.1	1.1	1.1	1.1
1,2,4-Trimethylbenzene	µg/m³	1	1	1	22.8	31.3	24.8	24.6	24.7	307	1	1	1	2.1	4.7	2.3
1,3,5-Trimethylbenzene	µg/m³	1	1	1	6.9	24.6	24.8	24.6	24.7	307	1	1	1	1	3.1	1
2,2,4-Trimethylpentane	µg/m³	0.9	0.9	0.9	10.6	23.4	23.6	23.4	23.4	292	0.9	0.9	0.9	14.5	10.3	13.5
Vinyl acetate	µg/m³	17.6	17.6	17.6	299	141	86.6	44	44.4	549	1.8	1.8	1.8	10.9	10.2	10.9
Vinyl bromide	µg/m³	0.9	0.9	0.9	0.9	21.9	22.1	21.9	22	273	0.9	0.9	0.9	0.9	0.9	0.9
Vinyl chloride	µg/m³	0.51	0.51	0.51	0.51	12.8	12.9	12.8	12.8	160	0.51	0.51	0.51	0.51	0.51	0.51
m+p-Xylene (mixture)	µg/m³	0.87	0.87	0.87	39.1	34.5	30.6	21.7	38	271	0.87	0.87	1.26	8.42	15.4	9.81
o-Xylene	µg/m³	0.43	0.43	0.43	14.2	15.1	12.7	10.8	11.8	135	0.43	0.43	0.43	2.91	12.9	3.6
Xylenes, total	µg/m³	1.3	1.3	1.3	53.3	49.6	43.4	32.6	49.8	407	1.3	1.3	1.3	11.3	28.3	13.4
BTEX, total	µg/m³	2.4	2.4	2.4	112	108	79.6	60.8	79.3	760	2.4	4.7	8.8	524	355	496

Notes:
[1] Sampling was conducted on Sep 2-5, 2025 and Sep 29, 2025.
[2] Samples with data below the dection threshold were assumed as the lowest dectection threshold for conservative assessment.

Appendix P3: H2S and VOC Flux Chamber Data - Emission Flux Rate Calculation

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Contaminant	Average Emisison Flux Rate (g/m2/s) [1] [2]									
	East Landfill - Interim Cover [3]	East Landfill - Final Cover	South Landfill - Working Face	South Landfill - Interim Cover	South Landfill - Final Cover	Study Landfill - Working Face [3]	Study Landfill - Interim Cover [3]	Study Landfill - Final Cover [4]	Waste Soil Stockpile	Leachate Pond
Hydrogen sulfide	3.83E-09	3.59E-09	3.60E-09	3.83E-09	2.50E-09	3.60E-09	3.83E-09	3.59E-09	3.61E-09	3.59E-09
Benzene	2.69E-09	2.05E-10	1.45E-08	2.69E-09	5.83E-10	1.45E-08	2.69E-09	5.83E-10	3.42E-10	2.69E-09
1,1,2-Trichloroethane	7.05E-10	7.05E-10	4.83E-08	7.05E-10	1.32E-09	4.83E-08	7.05E-10	1.32E-09	7.05E-10	7.05E-10
Vinyl chloride	9.12E-09	3.27E-10	2.26E-08	9.12E-09	4.61E-10	2.26E-08	9.12E-09	4.61E-10	3.27E-10	3.27E-10

Notes:

[1] Sampling was conducted on Sep 2-5, 2025 and Sep 29, 2025.

[2] Samples with data below the dection threshold were assumed as the lowest dectection threshold for conservative assessment.

[3] Sampling data for interim cover of South Landfill was adopted for interim cover of East Landfill.

[4] Sampling data for working face/interim cover of South Landfill was adopted for working face/interim cover of Study Landfill.

[5] The higher of the final cover data among East Landfill and South Landfill was adopted for final cover of Study Landfill for conservative assessment.

Sample Calculation for East Landfill - Interim Cover (Hydrogen sulfide)

Flow Rate = 5 L/min

Flux chamber area = 0.13 m^2

Average Hydrogen sulfide concentration = 5.6 µg/m^3

Emission flux rate =

$$\frac{5.6\ \mu g}{1\ m^3} \times \frac{1\ g}{1000000\ \mu g} \times \frac{5\ L}{1\ min} \times \frac{1\ m^3}{1000\ L} \times \frac{1\ min}{60\ s} \times \frac{}{0.13\ m^2} = 3.59E\text{-}09\ g/s$$

Appendix P4: Landfill Gas Sampling Data

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Results	CAS Number	Molecular Weight	CANISTER 1	CANISTER 2	Units	Maximum (%)	AVG (%)
Matrix Gases and CH4							
%v/v Dry Basis (Correct)							
O2 %			1.79%	1.07%	%	1.79%	1.43%
N2 %			99.16%	99.12%	%	99.16%	99.14%
CO2%			34.40%	36.40%	%	36.40%	35.40%
CH4 %			48.20%	50.90%	%	50.90%	49.55%

Non Methane Compounds	CAS Number	Molecular Weight	CANISTER 1	CANISTER 2	Units	Maximum (mg/m^3)	AVG (mg/m^3)	AVG (ppm)
Carbon disulfide	75-15-0	76.13	1.97	1.99	mg/m^3	1.99	1.98	0.64
Carbonyl sulfide	463-58-1	60.07	4.35	5.18	mg/m^3	5.18	4.77	1.94
Dimethyl disulfide	624-92-0	94.19	2.44	2.47	mg/m^3	2.47	2.46	0.64
Dimethyl sulfide	75-18-3	62.13	13.60	14.20	mg/m^3	14.20	13.90	5.47
Hydrogen sulfide	7783-06-4	34.08	914.00	1140.00	mg/m^3	1140.00	1027.00	736.80
Methyl mercaptan	74-93-1	48.10	9.88	9.58	mg/m^3	9.88	9.73	4.95
Sulfur, total reduced (as H2S), N	-	34.08	931.00	1160.00	mg/m^3	1160.00	1045.50	750.07
Acetone	67-64-1	58.08	26.10	33.00	mg/m^3	33.00	29.55	12.44
Allyl chloride	107-05-1	76.52	0.28	0.27	mg/m^3	0.28	0.28	0.09
Benzene	71-43-2	78.11	5.02	6.84	mg/m^3	6.84	5.93	1.86
Benzyl chloride	100-44-7	126.58	0.46	0.45	mg/m^3	0.46	0.46	0.09
Bromodichloromethane	75-27-4	163.82	0.60	0.59	mg/m^3	0.60	0.59	0.09
Bromoform	75-25-2	252.73	0.92	0.91	mg/m^3	0.92	0.91	0.09
Bromomethane	74-83-9	94.94	0.35	0.34	mg/m^3	0.35	0.34	0.09
Butadiene, 1,3-	106-99-0	54.09	0.27	0.31	mg/m^3	0.31	0.29	0.13
Carbon tetrachloride	56-23-5	153.81	0.56	0.55	mg/m^3	0.56	0.56	0.09
Chlorobenzene	108-90-7	112.56	0.41	0.40	mg/m^3	0.41	0.41	0.09
Chloroethane	75-00-3	64.51	0.30	0.34	mg/m^3	0.34	0.32	0.12
Chloroform	67-66-3	119.38	0.44	0.43	mg/m^3	0.44	0.43	0.09
Chloromethane	74-87-3	50.49	0.18	0.18	mg/m^3	0.18	0.18	0.09
Cyclohexane	110-82-7	84.16	2.73	3.42	mg/m^3	3.42	3.08	0.89
Dibromochloromethane	124-48-1	208.28	0.76	0.75	mg/m^3	0.76	0.75	0.09
Dibromoethane, 1,2-	106-93-4	187.86	0.69	0.67	mg/m^3	0.69	0.68	0.09
Dichlorobenzene, 1,2-	95-50-1	147.00	0.54	0.53	mg/m^3	0.54	0.53	0.09
Dichlorobenzene, 1,3-	541-73-1	147.00	0.54	0.53	mg/m^3	0.54	0.53	0.09
Dichlorobenzene, 1,4-	106-46-7	147.00	0.54	1.48	mg/m^3	1.48	1.01	0.17
Dichlorodifluoromethane	75-71-8	120.91	0.98	1.17	mg/m^3	1.17	1.08	0.22
Dichloroethane, 1,1-	75-34-3	98.96	0.36	0.36	mg/m^3	0.36	0.36	0.09
Dichloroethane, 1,2-	107-06-2	98.96	0.81	1.06	mg/m^3	1.06	0.93	0.23
Dichloroethylene, 1,1-	75-35-4	96.94	0.35	0.35	mg/m^3	0.35	0.35	0.09
Dichloroethylene, cis-1,2-	156-59-2	96.94	1.32	1.65	mg/m^3	1.65	1.49	0.37
Dichloroethylene, trans-1,2-	156-60-5	96.94	0.48	1.33	mg/m^3	1.33	0.91	0.23
Dichloromethane	75-09-2	84.93	0.51	0.63	mg/m^3	0.63	0.57	0.16
Dichloropropane, 1,2-	78-87-5	112.99	0.41	0.47	mg/m^3	0.47	0.44	0.10
Dichloropropylene, cis+trans-1,3	542-75-6	110.97	0.81	1.02	mg/m^3	1.02	0.92	0.20
Dichloropropylene, cis-1,3-	10061-01-5	110.97	0.41	0.40	mg/m^3	0.41	0.40	0.09
Dichloropropylene, trans-1,3-	10061-02-6	110.97	0.41	0.63	mg/m^3	0.63	0.52	0.11
Dichlorotetrafluoroethane, 1,2-	76-14-2	170.92	0.62	0.61	mg/m^3	0.62	0.62	0.09
Dioxane, 1,4-	123-91-1	88.11	0.32	0.32	mg/m^3	0.32	0.32	0.09
Ethyl acetate	141-78-6	88.11	10.60	16.20	mg/m^3	16.20	13.40	3.72
Ethylbenzene	100-41-4	106.17	7.56	26.30	mg/m^3	26.30	16.93	3.90
Ethyltoluene, 4-	622-96-8	120.19	0.44	2.75	mg/m^3	2.75	1.59	0.32
Heptane, n-	142-82-5	100.20	8.53	12.10	mg/m^3	12.10	10.32	2.52
Hexachlorobutadiene	87-68-3	260.74	0.95	0.93	mg/m^3	0.95	0.94	0.09
Hexane, n-	110-54-3	86.18	4.12	4.97	mg/m^3	4.97	4.55	1.29
Hexanone, 2-	591-78-6	100.16	1.83	11.00	mg/m^3	11.00	6.42	1.57
Isopropanol	67-63-0	60.10	21.10	29.70	mg/m^3	29.70	25.40	10.33
Isopropylbenzene	98-82-8	120.19	0.46	2.70	mg/m^3	2.70	1.58	0.32

Appendix P4: Landfill Gas Sampling Data

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Results	CAS Number	Molecular Weight	CANISTER 1	CANISTER 2	Units	Maximum (%)	AVG (%)
Matrix Gases and CH4							
%v/v Dry Basis (Correct)							
O2 %			1.79%	1.07%	%	1.79%	1.43%
N2 %			99.16%	99.12%	%	99.16%	99.14%
CO2%			34.40%	36.40%	%	36.40%	35.40%
CH4 %			48.20%	50.90%	%	50.90%	49.55%

Non Methane Compounds	CAS Number	Molecular Weight	CANISTER 1	CANISTER 2	Units	Maximum (mg/m^3)	AVG (mg/m^3)	AVG (ppm)
Methyl ethyl ketone [MEK]	78-93-3	72.11	35.10	52.80	mg/m^3	52.80	43.95	14.90
Methyl isobutyl ketone [MIBK]	108-10-1	100.16	1.35	3.71	mg/m^3	3.71	2.53	0.62
Methyl-tert-butyl ether [MTBE]	1634-04-4	88.15	0.32	0.32	mg/m^3	0.32	0.32	0.09
Naphthalene	91-20-3	128.17	0.23	1.83	mg/m^3	1.83	1.03	0.20
Propylene	115-07-1	42.08	30.50	37.90	mg/m^3	37.90	34.20	19.87
Styrene	100-42-5	104.15	0.38	3.13	mg/m^3	3.13	1.76	0.41
Tetrachloroethane, 1,1,2,2-	79-34-5	167.85	0.61	0.60	mg/m^3	0.61	0.61	0.09
Tetrachloroethylene	127-18-4	165.83	0.88	2.27	mg/m^3	2.27	1.57	0.23
Tetrahydrofuran	109-99-9	72.11	9.11	11.80	mg/m^3	11.80	10.46	3.54
Toluene	108-88-3	92.14	34.90	64.80	mg/m^3	64.80	49.85	13.23
Trichloro-1,2,2-trifluoroethane,	76-13-1	187.37	0.68	0.67	mg/m^3	0.68	0.68	0.09
Trichlorobenzene, 1,2,4-	120-82-1	181.44	0.66	0.65	mg/m^3	0.66	0.66	0.09
Trichloroethane, 1,1,1-	71-55-6	133.40	0.49	0.48	mg/m^3	0.49	0.48	0.09
Trichloroethane, 1,1,2-	79-00-5	133.40	0.49	0.48	mg/m^3	0.49	0.48	0.09
Trichloroethylene	79-01-6	131.38	0.84	1.31	mg/m^3	1.31	1.08	0.20
Trichlorofluoromethane	75-69-4	137.36	0.67	0.84	mg/m^3	0.84	0.76	0.13
Trimethylbenzene, 1,2,4-	95-63-6	120.19	0.44	7.77	mg/m^3	7.77	4.10	0.83
Trimethylbenzene, 1,3,5-	108-67-8	120.19	0.44	3.19	mg/m^3	3.19	1.81	0.37
Trimethylpentane, 2,2,4-	540-84-1	114.23	2.36	2.91	mg/m^3	2.91	2.64	0.56
Vinyl acetate	108-05-4	86.09	0.79	0.77	mg/m^3	0.79	0.78	0.22
Vinyl bromide	593-60-2	106.95	0.39	0.38	mg/m^3	0.39	0.39	0.09
Vinyl chloride	75-01-4	62.50	0.77	0.92	mg/m^3	0.92	0.84	0.33
Xylene, m+p-	108-38-3 / 106-42-3	106.16	9.64	53.00	mg/m^3	53.00	31.32	7.21
Xylene, o-	95-47-6	106.17	3.51	20.10	mg/m^3	20.10	11.81	2.72
Xylenes, total	1330-20-7	106.17	13.10	73.10	mg/m^3	73.10	43.10	9.93
BTEX, total	-	-	60.60	171.00	mg/m^3	171.00	115.80	28.90

Results	CAS Number	Molecular Weight	CANISTER 1	CANISTER 2	Units	Maximum (%)	AVG (%)
4-Bromofluorobenzene	-	-	8.98%	8.44%	%	8.98%	8.71%

Notes:

[1] Testing based on stream analysis conducted on Jan 27, 2026.

[2] Conversion (25°C, 1 atm): Concentration (ppm) = 24.45 × concentration (mg/m3) ÷ molecular weight.

Appendix P5: Combustion Source Emission Rate Calculations (All Contaminants except SO2)

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Source Characteristics											Emission Rate Calculations								
Source ID	Description	Horse Power [9] (hp)	Engine Power (kW)	Total LFG Gas Volume [9] (dscm/hr)	Total LFG Gas Volume [9] (dscm/s)	Total Methane Gas Volume [1%] (dscm/hr)	Total Methane Gas Volume (dscm/s)	Flow Rate (standard) [9] (m^3/s)	Flow Rate (actual) (m^3/s)	Load Factor	Contaminant	Emission Factor [1] ($kg/10^9 dscm$ methane)	[2] (g/m^3 landfill gas)	[3] (lb/hp-hr)	[4] (lb/hp-hr)	[5] (lb/MMBTU)	[6] (g/kW-hr)	[7] (g/hp-hr)	[8] ($lb/10^6$ scf)	Emission Rate (g/s)
TIP_S4	173 hp Diesel-Fired Landfill Tipper at South Landfill Phase 2 Stage 4 - Combustion	173	--	--	--	--	--	-	1.25	1.0	Nitrogen Oxides (NOx)	--	--	0.031	--	--	--	--	--	0.676
											TSP	--	--	2.20E-03	--	--	--	--	--	0.048
											PM10	--	--	2.20E-03	--	--	--	--	--	0.048
											PM2.5	--	--	2.20E-03	--	--	--	--	--	0.048
TIP2_S4	173 hp Diesel-Fired Landfill Tipper #2 at South Landfill Phase 2 Stage 4 - Combustion	173	--	--	--	--	--	-	1.25	1.0	Nitrogen Oxides (NOx)	--	--	0.031	--	--	--	--	--	0.676
											TSP	--	--	2.20E-03	--	--	--	--	--	0.048
											PM10	--	--	2.20E-03	--	--	--	--	--	0.048
											PM2.5	--	--	2.20E-03	--	--	--	--	--	0.048
Gen1	1,064 kW Landfill Gas Fired Generator	1,468	--	475	0.13	235	0.07	0.74	2.02	1.0	Nitrogen Oxides (NOx)	--	--	--	--	--	--	1.10E+00	--	0.449
											TSP	7.70E+02	--	--	--	--	--	--	--	0.050
											PM10	7.70E+02	--	--	--	--	--	--	--	0.050
											PM2.5	7.70E+02	--	--	--	--	--	--	--	0.050
Gen2	1,064 kW Landfill Gas Fired Generator	1,468	--	475	0.13	235	0.07	0.74	2.02	1.0	Nitrogen Oxides (NOx)	--	--	--	--	--	--	1.10E+00	--	0.449
											TSP	7.70E+02	--	--	--	--	--	--	--	0.050
											PM10	7.70E+02	--	--	--	--	--	--	--	0.050
											PM2.5	7.70E+02	--	--	--	--	--	--	--	0.050
Gen3	1,064 kW Landfill Gas Fired Generator	1,468	--	475	0.13	235	0.07	0.74	2.02	1.0	Nitrogen Oxides (NOx)	--	--	--	--	--	--	1.10E+00	--	0.449
											TSP	7.70E+02	--	--	--	--	--	--	--	0.050
											PM10	7.70E+02	--	--	--	--	--	--	--	0.050
											PM2.5	7.70E+02	--	--	--	--	--	--	--	0.050
Gen4	1,064 kW Landfill Gas Fired Generator	1,468	--	475	0.13	235	0.07	0.74	2.02	1.0	Nitrogen Oxides (NOx)	--	--	--	--	--	--	1.10E+00	--	0.449
											TSP	7.70E+02	--	--	--	--	--	--	--	0.050
											PM10	7.70E+02	--	--	--	--	--	--	--	0.050
											PM2.5	7.70E+02	--	--	--	--	--	--	--	0.050
PGen1	82 bhp Portable Diesel Fired Generator Cummins Model #4BT3.3-G2	66	49	--	--	--	--	--	0.17	1.0	Nitrogen Oxides (NOx)	-	--	--	--	--	--	4.78E+00	--	0.087
											TSP	-	--	--	--	--	--	4.00E-01	--	0.007
											PM10	-	--	--	--	--	--	4.00E-01	--	0.007
											PM2.5	-	--	--	--	--	--	4.00E-01	--	0.007
Screen1C	Screen #1 Engine 130 kW, Diesel Fired	174	130	--	--	--	--	-	0.48	0.43	Nitrogen Oxides (NOx)	--	--	0.031	--	--	--	--	--	0.293
											TSP	--	--	2.20E-03	--	--	--	--	--	0.021
											PM10	--	--	2.20E-03	--	--	--	--	--	0.021
											PM2.5	--	--	2.20E-03	--	--	--	--	--	0.021
Screen2C	Screen #2 Engine 130 kW, Diesel Fired	174	130	--	--	--	--	-	0.48	0.43	Nitrogen Oxides (NOx)	--	--	0.031	--	--	--	--	--	0.293
											TSP	--	--	2.20E-03	--	--	--	--	--	0.021
											PM10	--	--	2.20E-03	--	--	--	--	--	0.021
											PM2.5	--	--	2.20E-03	--	--	--	--	--	0.021
Screen3C	Screen #3 Engine 130 kW, Diesel Fired	174	130	--	--	--	--	-	0.48	0.43	Nitrogen Oxides (NOx)	--	--	0.031	--	--	--	--	--	0.293
											TSP	--	--	2.20E-03	--	--	--	--	--	0.021
											PM10	--	--	2.20E-03	--	--	--	--	--	0.021
											PM2.5	--	--	2.20E-03	--	--	--	--	--	0.021
Screen4C	Screen #4 Engine 60 kW, Diesel Fired	80	60	--	--	--	--	-	0.48	0.43	Nitrogen Oxides (NOx)	--	--	0.031	--	--	--	--	--	0.135
											TSP	--	--	2.20E-03	--	--	--	--	--	0.010
											PM10	--	--	2.20E-03	--	--	--	--	--	0.010
											PM2.5	--	--	2.20E-03	--	--	--	--	--	0.010
CONVEYOR	Stacking Conveyor Engine 60 kW, Diesel Fired	80	60	--	--	--	--	-	0.24	0.21	Nitrogen Oxides (NOx)	--	--	0.031	--	--	--	--	--	0.066
											TSP	--	--	2.20E-03	--	--	--	--	--	0.005
											PM10	--	--	2.20E-03	--	--	--	--	--	0.005
											PM2.5	--	--	2.20E-03	--	--	--	--	--	0.005
CONVEY2N	Stacking Conveyor #2 Engine 60 kW, Diesel Fired	80	60	--	--	--	--	-	0.24	0.21	Nitrogen Oxides (NOx)	--	--	0.031	--	--	--	--	--	0.066
											TSP	--	--	2.20E-03	--	--	--	--	--	0.005
											PM10	--	--	2.20E-03	--	--	--	--	--	0.005
											PM2.5	--	--	2.20E-03	--	--	--	--	--	0.005
GSTK	Grinder Engine 860 kW, Diesel Fired	1,153	860	--	--	--	--	-	2.70	0.43	Nitrogen Oxides (NOx)	--	--	--	--	--	9.2	--	--	0.945
											TSP	--	--	--	--	--	0.54	--	--	0.055
											PM10	--	--	--	--	--	0.54	--	--	0.055
											PM2.5	--	--	--	--	--	0.54	--	--	0.055
GSTK2_N	Grinder #2 Engine 860 kW, Diesel Fired	1,153	860	--	--	--	--	-	2.70	0.43	Nitrogen Oxides (NOx)	--	--	--	--	--	9.2	--	--	0.945
											TSP	--	--	--	--	--	0.54	--	--	0.055
											PM10	--	--	--	--	--	0.54	--	--	0.055
											PM2.5	--	--	--	--	--	0.54	--	--	0.055
GENC	Generator #1 600 kW, Diesel Fired	805	600	--	--	--	--	-	2.36	1.0	Nitrogen Oxides (NOx)	--	--	--	0.024	--	--	--	--	2.433
											TSP	--	--	--	--	0.0697	--	--	--	0.018
											PM10	--	--	--	--	0.0573	--	--	--	0.015
											PM2.5	--	--	--	--	0.0479	--	--	--	0.012
MO_GEN	55 kW Natural Gas Fired Emergency Generator	74	55	--	--	--	--	-	0.20	1.0	Nitrogen Oxides (NOx)	--	--	--	--	--	--	8.23	--	0.169
											TSP	--	--	--	--	--	--	--	7.6	0.024
											PM10	--	--	--	--	--	--	--	7.6	0.024
											PM2.5	--	--	--	--	--	--	--	7.6	0.024

Appendix P5: Combustion Source Emission Rate Calculations (All Contaminants except SO2)

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Source Characteristics										Load Factor	Contaminant	Emission Rate Calculations								
												Emission Factor								Emission Rate
Source ID	Description	Horse Power [9] (hp)	Engine Power (kW)	Total LFG Gas Volume [9] (dscm/hr)	Total LFG Gas Volume [9] (dscm/s)	Total Methane Gas Volume [10] (dscm/hr)	Total Methane Gas Volume (dscm/s)	Flow Rate (standard) [9] (m^3/s)	Flow Rate (actual) (m^3/s)			[1] (kg/10^9dscm methane)	[2] (g/m^3 landfill gas)	[3] (lb/hp-hr)	[4] (lb/hp-hr)	[5] (lb/MMBTU)	[6] (g/kW-hr)	[7] (g/hp-hr)	[8] (lb/10^6 scf)	(g/s)
--	Total	--	--	--	--	--	--	--	--	--	Nitrogen Oxides (NOx)	-	--	-	-	-	--	-	-	**8.886**
											TSP	--	--	--	--		--			**0.540**
											PM10	--	--	--	--		--			**0.537**
											PM2.5	--	--	--	--	-	--	-	-	**0.535**

Notes:

[1] Emission Factors taken from US EPA AP-42 Chapter 2.4, Table 2.4-4. TSP is assumed to same as PM_{10} and $PM_{2.5}$.
[2] Emission Factor calculated based on concentration of sulphur compounds in raw landfill gas (see Appendix F2).
[3] Emission Factors taken from US EPA AP-42 Chapter 3.3, Table 3.3-1. PM is assumed to same for TSP, PM_{10} and $PM_{2.5}$.
[4] Emission Factors taken from US EPA AP-42 Chapter 3.4, Table 3.4-1.
[5] Emission Factors taken from US EPA AP-42 Chapter 3.4, Table 3.4-2.
[6] Emission Factors taken from "Nonroad Compression-Ignition Engines: Exhaust Emission Standards" (US EPA, 2016).
[7] Emission Factors supplied by the Manufacturer.
[8] Emission Factors taken from US EPA AP-42 Chapter 1.4, Table 1.4-1 and Table 1.4-2. PM is assumed to same for TSP, PM_{10} and $PM_{2.5}$.
[9] Operating parameters from all generators obtained from manufacturer's specifications.
[10] Methane content of landfill gas, based on 2026 source testing = 50%
[11] Velocity is calculated based on the stack diameter and actual flow rate.

Appendix P6: Combustion Source Emission Rate Calculations (SO2)

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Source Characteristics												Emission Rate Calculations								
Source ID	Description	Horse Power [9]	Engine Power	Total LFG Gas Volume [9]	Total LFG Gas Volume [9]	Total Methane Gas Volume [10]	Total Methane Gas Volume	Flow Rate (standard) [9]	Flow Rate (actual)	Load Factor	Contaminant	Emission Factor								Emission Rate
												[1] (kg/10^{9}dscm methane)	[2] (g/m^3 landfill gas)	[3] (lb/hp-hr)	[4] (lb/hp-hr)	[5] (lb/MMBTU)	[6] (g/kW-hr)	[7] (g/hp-hr)	[8] (lb/10^6 scf)	
		(hp)	(kW)	(dscm/hr)	(dscm/s)	(dscm/hr)	(dscm/s)	(m^3/s)	(m^3/s)											(g/s)
TIP_S4	173 hp Diesel-Fired Landfill Tipper at South Landfill Phase 2 Stage 4 - Combustion	173	--	--	--	--	--	-	1.25	1.0	Sulphur Dioxide (SO2)	--	--	2.05E-03	--	--	--	--	--	0.045
TIP2_S4	173 hp Diesel-Fired Landfill Tipper #2 at South Landfill Phase 2 Stage 4 - Combustion	173	--	--	--	--	--	-	1.25	1.0	Sulphur Dioxide (SO2)	--	--	2.05E-03	--	--	--	--	--	0.045
Gen1	1,064 kW Landfill Gas Fired Generator	1,468	--	862.20	0.24	427.22	0.12	1.35	3.66	1.0	Sulphur Dioxide (SO2)	--	4.22E-01	--	--	--	--	--	--	0.101
Gen2	1,064 kW Landfill Gas Fired Generator	1,468	--	862.20	0.24	427.22	0.12	1.35	3.66	1.0	Sulphur Dioxide (SO2)	--	4.22E-01	--	--	--	--	--	--	0.101
Gen3	1,064 kW Landfill Gas Fired Generator	1,468	--	862.20	0.24	427.22	0.12	1.35	3.66	1.0	Sulphur Dioxide (SO2)	--	4.22E-01	--	--	--	--	--	--	0.101
Gen4	1,064 kW Landfill Gas Fired Generator	1,468	--	862.20	0.24	427.22	0.12	1.35	3.66	1.0	Sulphur Dioxide (SO2)	--	4.22E-01	--	--	--	--	--	--	0.101
PGen1	82 bhp	66	49	--	--	--	--	--	0.17	1.0	Sulphur Dioxide (SO2)	-	--	2.05E-03	--	--	--	--	--	0.017
Screen1C	Screen #1 Engine 130 kW, Diesel Fired	174	130	--	--	--	--	-	0.48	0.4	Sulphur Dioxide (SO2)	--	--	2.05E-03	--	--	--	--	--	0.019
Screen2C	Screen #2 Engine 130 kW, Diesel Fired	174	130	--	--	--	--	-	0.48	0.4	Sulphur Dioxide (SO2)	--	--	2.05E-03	--	--	--	--	--	0.019
Screen3C	Screen #3 Engine 130 kW, Diesel Fired	174	130	--	--	--	--	-	0.48	0.4	Sulphur Dioxide (SO2)	--	--	2.05E-03	--	--	--	--	--	0.019
Screen4C	Screen #4 Engine 60 kW, Diesel Fired	80	60	--	--	--	--	-	0.48	0.4	Sulphur Dioxide (SO2)	--	--	2.05E-03	--	--	--	--	--	0.009
CONVEYOR	Stacking Conveyor Engine 60 kW, Diesel Fired	80	60	--	--	--	--	-	0.24	0.2	Sulphur Dioxide (SO2)	--	--	2.05E-03	--	--	--	--	--	0.004
CONVEY2N	Stacking Conveyor #2 Engine 60 kW, Diesel Fired	80	60	--	--	--	--	-	0.24	0.2	Sulphur Dioxide (SO2)	--	--	2.05E-03	--	--	--	--	--	0.004
GSTK	Grinder Engine 860 kW, Diesel Fired	1,153	860	--	--	--	--	-	2.70	0.4	Sulphur Dioxide (SO2)	--	--	--	--	--	--	0.76	--	0.105
GSTK2_N	Grinder #2 Engine 860 kW, Diesel Fired	1,153	860	--	--	--	--	-	2.70	0.4	Sulphur Dioxide (SO2)	--	--	--	--	--	--	0.76	--	0.105
GENC	Generator #1 600 kW, Diesel Fired	805	600	--	--	--	--	-	2.36	1.0	Sulphur Dioxide (SO2)	--	--	--	1.21E-05	--	--	--	--	0.001
MO_GEN	55 kW Natural Gas Fired Emergency Generator	74	55	--	--	--	--	-	0.20	1.0	Sulphur Dioxide (SO2)	--	--	--	--	--	--	--	0.6	0.002

Notes:

[1] Emission Factors taken from US EPA AP-42 Chapter 2.4, Table 2.4-4. TSP is assumed to same as PM_{10} and $PM_{2.5}$.
[2] Emission Factor calculated based on concentration of sulphur compounds in raw landfill gas (see Appendix F2).
[3] Emission Factors taken from US EPA AP-42 Chapter 3.3, Table 3.3-1. PM is assumed to same for TSP, PM_{10} and $PM_{2.5}$.
[4] Emission Factors taken from US EPA AP-42 Chapter 3.4, Table 3.4-1.
[5] Emission Factors taken from US EPA AP-42 Chapter 3.4, Table 3.4-2.
[6] Emission Factors taken from "Nonroad Compression-Ignition Engines: Exhaust Emission Standards" (US EPA, 2016).
[7] Emission Factors supplied by the Manufacturer.
[8] Emission Factors taken from US EPA AP-42 Chapter 1.4, Table 1.4-1 and Table 1.4-2. PM is assumed to same for TSP, PM_{10} and $PM_{2.5}$.
[9] Operating parameters from all generators obtained from manufacturer's specifications.
[10] Methane content of landfill gas, based on 2026 source testing = 50%
[11] Velocity is calculated based on the stack diameter and actual flow rate.

Appendix P7: Landfill Gas Flow and Emission Rate Calculations (All Contaminants except SO2)

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Volume of Methane and LFG Generated in Year 2045

Landfill	Volume of Methane Generated from ECCC Methane Tool (m3/yr)	Volume of LFG Generated (m3/yr) [1]
East Landfill	5,421,053	10,842,106
South Landfill Phase 1	18,268,721	36,537,442
South Landfill Phase 2 - Stage 1	6,926,136	13,852,272
South Landfill Phase 2 - Stage 2	9,131,856	18,263,712
South Landfill Phase 2 - Stage 3	12,165,101	24,330,202
South Landfill Phase 2 - Stage 4	11,798,641	23,597,282
Total	**63,711,508**	**127,423,016**

Note:
[1] Methane accounts for 50% of LFG, as a default in the ECCC Methane Tool.

Total Volume of LFG Collected in Year 2045

Landfill	Source ID	Cover	Gas Collection Efficiency (%)	Area	Volume of LFG Generated for the Entire Landfill from ECCC Methane Tool (m3/yr)	Volume of LFG Generated (m3/yr)	Volume of LFG Collected (m3/yr)
East Landfill	EASTLF_FC	Final Cover	85%	593,594	10,842,106	10,842,106	9,215,790
South Landfill Phase 1	SLF_FC	Final Cover	85%	507,646	36,537,442	36,537,442	31,056,826
South Landfill Phase 2 - Stage 1	S1_FC	Final Cover	85%	232,375	13,852,272	13,852,272	11,774,431
South Landfill Phase 2 - Stage 2	S2_FC	Final Cover	85%	149,688	18,263,712	18,263,712	15,524,155
South Landfill Phase 2 - Stage 3	S3_FC	Final Cover	85%	142,014	24,330,202	24,330,202	20,680,672
South Landfill Phase 2 - Stage 4	S4_IC	Interim Cover	70%	70,479	23,597,282	16,245,399	11,371,779
South Landfill Phase 2 - Stage 4	S4_FC	Final Cover	85%	31,895	23,597,282	7,351,883	6,249,100
				Total	-	**127,423,016**	**105,872,754**

Flow Rate of Each of the Equipment

LFG-Fired Equipment	Volume of LFG Provided by Walker			Scaled Volume of LFG	
	(cfm)	(m3/yr)	Ratio	(m3/yr)	(m3/s)
FLARE1	967	14,387,223	9%	10,055,380	0.32
FLARE2	967	14,387,223	9%	10,055,380	0.32
FLARE3	967	14,387,223	9%	10,055,380	0.32
Silflar2	150	2,232,500	1%	1,560,318	0.05
GEN1	400	5,953,334	4%	4,160,847	0.13
GEN2	400	5,953,334	4%	4,160,847	0.13
GEN3	400	5,953,334	4%	4,160,847	0.13
GEN4	400	5,953,334	4%	4,160,847	0.13
RNGFLARE	4,000	59,533,338	39%	41,608,471	1.32
TO	1,528	22,741,735	15%	15,894,436	0.50
Total	**10,178**	**151,482,579**	**100%**	**105,872,754**	**3.36**

Notes:
[1] LFG volume provided by WEG for a conservative operating scenario, assuming all equipment operates simultaneously. LFG volume of SILFLAR2 and TO are based on the maximum capacity due to the lack of information.
[2] LFG volume is scaled based on the collected LFG volume as predicted in ECCC Tool.

Modelling Parameters - Scaled Flow Rate for Gas Quantity

Source ID	Maximum Design Gas Flow Rate (m³/s)	Maximum Design Exhaust Flow Rate (m³/s)	Actual Gas Flow Rate (m³/s)	Actual Exhaust Flow Rate (m³/s)
FLARE1	1.18	27.8	0.32	7.5
FLARE2	2.37	55.8	0.32	7.5
FLARE3	2.37	55.8	0.32	7.5
RNGFLARE	2.36	2.4	1.32	1.3
Silflar2	0.07	1.57	0.05	1.1
TO	0.72	18.95	0.50	13.3
GEN1	0.21	3.21	0.13	2.0
GEN2	0.21	3.21	0.13	2.0
GEN3	0.21	3.21	0.13	2.0
GEN4	0.21	3.21	0.13	2.0

NMOC Emission Rate of Each Flare and Generator

					FLARE1	FLARE2	FLARE3	RNGFLARE	GEN1	GEN2	GEN3	GEN4
Compound	CAS Number	Molecular Weight (g/mol)	Conc. In Raw LFG (from tesitng results in 2026)		Flare 1 Emission Rate (g/s)	Flare 2 Emission Rate (g/s)	Flare 3 Emission Rate (g/s)	RNG_FLARE Emission Rate (g/s)	Gen 1 Emission Rate (g/s)	Gen 2 Emission Rate (g/s)	Gen 3 Emission Rate (g/s)	Gen 4 Emission Rate (g/s)
			(ppm)	(g/m³)								
Maximum LFG Volumetric Flow (m³/s)	**- -**	**- -**	**- -**		**0.32**	**0.32**	**0.32**	**1.32**	**0.13**	**0.13**	**0.13**	**0.13**
Destruction Efficiency	**- -**	**- -**	**- -**		**98.0%**	**98.0%**	**98.0%**	**98.0%**	**98.0%**	**98.0%**	**98.0%**	**98.0%**
Hydrogen Sulfide	7783-06-4	34.08	736.80	1.08E+00	6.90E-03	6.90E-03	6.90E-03	0.00E+00	2.85E-03	2.85E-03	2.85E-03	2.85E-03
Vinyl Chloride	75-01-4	62.50	0.33	8.86E-04	5.65E-06	5.65E-06	5.65E-06	2.34E-05	2.34E-06	2.34E-06	2.34E-06	2.34E-06
Benzene	71-43-2	78.11	1.86	6.24E-03	3.98E-05	3.98E-05	3.98E-05	1.65E-04	1.65E-05	1.65E-05	1.65E-05	1.65E-05
1,1,2-Trichloroethane	79-00-5	133.40	0.09	5.08E-04	3.24E-06	3.24E-06	3.24E-06	1.34E-05	1.34E-06	1.34E-06	1.34E-06	1.34E-06

Sample Calculation

Calculation of Hydrogen Sulphide Emission Rate (Flare1) = Maximum LFG Flow (m³/s) * Concentration in Raw LFG (g/m³) * (1 - Detruction Efficiency)
= 0.32 m³/s * 6.90E-03 g/m³ * (1 - 0.98)
= 6.90E-03 g/s

Appendix P8: Landfill Gas Flare Combustion Emission Rate Calculations (All Contaminants except SO2)

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Walker South Landfill Phase 2 Environmental Assessment

				Emission Rate Calculations			
Source ID	**Description**	**Maximum LFG Volumetric Flow [1] (m^3/s)**	**Maximum Methane Volumetric Flow [2] [3] [4] [5] (m^3/s)**	**Contaminant [6]**	**Emission Factor [7] ($kg/10^6$dscm methane)**	**Emission Factor [8] (g/m^3 landfill gas)**	**Emission Rate (g/s)**
FLARE1	Landfill Gas Flare	0.32	0.16	Nitrogen Oxides (NOx)	610	- -	9.64E-02
				Particulate Matter (PM)	270	- -	4.27E-02
FLARE2	Landfill Gas Flare	0.32	0.16	Nitrogen Oxides (NOx)	610	- -	9.64E-02
				Particulate Matter (PM)	270	- -	4.27E-02
FLARE3	Landfill Gas Flare	0.32	0.16	Nitrogen Oxides (NOx)	610	- -	9.64E-02
				Particulate Matter (PM)	270	- -	4.27E-02
RNGFlare	RNG Off-spec Gas Flare	1.32	0.66	Nitrogen Oxides (NOx)	610	- -	4.02E-01
				Particulate Matter (PM)	270	- -	1.78E-01
SILFLAR2	Siloxane Flare 2 (new)	0.05	0.02	Nitrogen Oxides (NOx)	610	- -	1.50E-02
				Particulate Matter (PM)	270	- -	6.62E-03
SILFLAR2	Siloxane Flare 2 - Natural gas scenario	0.05	0.05	Nitrogen Oxides (NOx)	610	- -	3.02E-02
TO	Thermal Oxidizer	0.50	0.10	Nitrogen Oxides (NOx)	610	- -	6.15E-02
				Particulate Matter (PM)	270	- -	2.72E-02

Notes:

[1] Dry standard (actual)

[2] Methane content of landfill gas, based on 2026 source testing = 50%

[3] Methane content of landfill gas, based on design methane concentration for the elevated flare = 50%

[4] Emissions for the siloxane flare natural gas scenario were calculated based on a methan concentration of 100%

[5] Methane Content in gas stream to Thermal Oxidizer, based on client provided data = 20%

[6] Emissions from the siloxane flare natural gas scenario only considered emissions of nitrogen oxides.

[7] Emission Factor from AP-42 Chapter 2.4 (Final version, November 1998)

[8] Emission Factor calculated based on concentration of sulphur compounds in raw landfill gas (see Appendix P10)

Sample Calculation

Calculation of Nitrogen Oxides Emission Rate (FLARE1) = Maximum LFG Flow (m^3/s) * Emission Factor for NOx (kg/10^6 dscm) * (1000 g/100000 dscm)

= 0.16 m^3/s * 610 kg/10^6 dscm * 1000/1000000

= 9.64E-02 g/s

Appendix P9: Landfill Gas Flow Calculations (SO2)

Walker South Landfill Phase 2 Environmental Assessment

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Volume of Methane and LFG Generated in Year 2045

Landfill	Volume of Methane Generated from ECCC Methane Tool (m3/yr)	Volume of LFG Generated (m3/yr) [1]
East Landfill	5,421,053	10,842,106
South Landfill Phase 1	18,268,721	36,537,442
South Landfill Phase 2 - Stage 1	6,926,136	13,852,272
South Landfill Phase 2 - Stage 2	9,131,856	18,263,712
South Landfill Phase 2 - Stage 3	12,165,101	24,330,202
South Landfill Phase 2 - Stage 4	11,798,641	23,597,282
Total	**63,711,508**	**127,423,016**

Note:
[1] Methane accounts for 50% of LFG, as a default in the ECCC Methane Tool.

Total Volume of LFG Collected in Year 2045

Landfill	Source ID	Cover	Gas Collection Efficiency (%)	Area	Volume of LFG Generated for the Entire Landfill from ECCC Methane Tool (m3/yr)	Volume of LFG Generated (m3/yr)	Volume of LFG Collected (m3/yr)
East Landfill	EASTLF_FC	Final Cover	85%	593,594	10,842,106	10,842,106	9,215,790
South Landfill Phase 1	SLF_FC	Final Cover	85%	507,646	36,537,442	36,537,442	31,056,826
South Landfill Phase 2 - Stage 1	S1_FC	Final Cover	85%	232,375	13,852,272	13,852,272	11,774,431
South Landfill Phase 2 - Stage 2	S2_FC	Final Cover	85%	149,688	18,263,712	18,263,712	15,524,155
South Landfill Phase 2 - Stage 3	S3_FC	Final Cover	85%	142,014	24,330,202	24,330,202	20,680,672
South Landfill Phase 2 - Stage 4	S4_IC	Interim Cover	70%	70,479	23,597,282	16,245,399	11,371,779
South Landfill Phase 2 - Stage 4	S4_FC	Final Cover	85%	31,895	23,597,282	7,351,883	6,249,100
				Total	**-**	**127,423,016**	**105,872,754**

Flow Rate of Each of the Equipment

LFG-Fired Equipment	Volume of LFG Provided by Walker		
	(cfm)	(m3/yr)	(m3/s)
FLARE1	833	12,402,779	0.50
FLARE2	833	12,402,779	0.50
FLARE3	833	12,402,779	0.50
Silflar2	130	1,934,833	0.08
GEN1	400	5,953,334	0.24
GEN2	400	5,953,334	0.24
GEN3	400	5,953,334	0.24
GEN4	400	5,953,334	0.24
RNGFLARE	300	4,465,000	0.18
RNGTAIL	3,200	47,626,671	1.51
TO	1,528	22,741,735	0.91
Total	**9,258**	**137,789,911**	**5.14**

2025 LFG Collected from ECCC Methane Tool = 83,451,516 m3/yr

Modelling Parameters - Scaled Flow Rate for Gas Quantity

Source ID	Maximum Design Gas Flow Rate (m^3/s)	Maximum Design Exhaust Flow Rate (m^3/s)	Actual Gas Flow Rate (m^3/s)	Actual Exhaust Flow Rate (m^3/s)
FLARE1	1.18	27.8	0.50	11.8
FLARE2	2.37	55.8	0.50	11.7
FLARE3	2.37	55.8	0.50	11.7
RNGFLARE	2.36	2.4	0.18	0.2
RNGTAIL	2.36	2.4	1.51	1.5
Silflar2	0.07	1.57	0.08	1.7
TO	0.72	18.95	0.91	24.1
GEN1	0.21	3.21	0.24	3.7
GEN2	0.21	3.21	0.24	3.7
GEN3	0.21	3.21	0.24	3.7
GEN4	0.21	3.21	0.24	3.7

Appendix P10: Calculation of SO2 Emission Factor (SO2)

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Walker South Landfill Phase 2 Environmental Assessment

Concentration of Sulphur in Landfill Gas (from 2026 Source Testing)

Sulphurs	MW (g/mol)	Concentration (ppm)	Number of Sulphurs per Compound	Concentration of Sulphur Compounds as S (ppm)
Carbonyl Sulphide	60.07	1.94	1	1.94
Carbon Disulphide	76.14	0.64	2	1.27
Dimethyl Sulphide	62.13	5.47	1	5.47
Hydrogen Sulphide	34.08	736.80	1	736.80
Methyl Mercaptan	48.11	4.95	1	4.95
		Total	**7**	**750.43**

Concentration of Sulphur in Landfill Gas (Scaled based on Actual H2S concentrations of Each Equipment)

Equipment	H2S Concentration (ppm)	Compounds as S (ppm)	Concentration µg/m³	Concentration g/m³	$Concentration_{SO2}$ = g/m³
FLARE1	735.00	748.59	1,033,582	1.03	2.07
FLARE2	735.00	748.59	1,033,582	1.03	2.07
FLARE3	735.00	748.59	1,033,582	1.03	2.07
RNGFLARE	1100.00	1120.34	1,546,857	1.55	3.09
RNGTAIL	1100.00	1120.34	1,546,857	1.55	3.09
GEN1	150.00	152.77	210,935	0.21	0.42
GEN2	150.00	152.77	210,935	0.21	0.42
GEN3	150.00	152.77	210,935	0.21	0.42
GEN4	150.00	152.77	210,935	0.21	0.42
Silflar2	200.00	203.70	281,247	0.28	0.56
TO	0.00	0.00	0	0.00	0.00

Sample Calculation for FLARE1

Conversion of Concentration from ppm to µg/m³

$Concentration_{µg/m³} = Concentration_{ppm} * [(MW * 1.0 atm)/(8.205 x10\text{-}5 m^3\text{-atm/gmol-K})*(273+ToK)$
MW_S = Molecular weight of Sulphur (32.06 g/gmol)
T = Temperature of landfill gas (assumed 10°C)

Concentration = **1,033,582** µg/m³ of total sulphur in landfill gas
= 1.034 g/m³ of total sulphur in landfill gas

Assuming 100% of the sulphur in the landfill gas is converted to sulphur dioxide (SO_2) during combustion

$Concentration_{SO2} =$ ConcentrationS * (MWSO2 / MWS)

MW_S = Molecular weight of Sulphur (32.06 g/gmol)
MW_{SO2} = Molecular weight of Sulphur Dioxide (64.07 g/gmol)

$Concentration_{SO2} =$ 2.066 g/m³ of total sulphur dioxide in combusted landfill gas

Appendix P11: Landfill Gas Flare Combustion Emission Rate Calculations (SO2)

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Walker South Landfill Phase 2 Environmental Assessment

				Emission Rate Calculations			
Source ID	**Description**	**Maximum LFG Volumetric Flow [1] (m^3/s)**	**Maximum Methane Volumetric Flow [2] [3] [4] [5] (m^3/s)**	**Contaminant [6]**	**Emission Factor [7] ($kg/10^6$dscm methane)**	**Emission Factor [8] (g/m^3 landfill gas)**	**Emission Rate (g/s)**
FLARE1	Landfill Gas Flare	0.50	0.25	Sulphur Dioxide (SO2)	- -	2.07E+00	1.03E+00
FLARE2	Landfill Gas Flare	0.50	0.25	Sulphur Dioxide (SO2)	- -	2.07E+00	1.03E+00
FLARE3	Landfill Gas Flare	0.50	0.25	Sulphur Dioxide (SO2)	- -	2.07E+00	1.03E+00
RNGFlare	RNG Off-spec Gas Flare	0.18	0.09	Sulphur Dioxide (SO2)	- -	3.09E+00	5.55E-01
RNGTAIL	RNG Off-spec Gas Flare	1.51	0.76	Sulphur Dioxide (SO2)	- -	3.09E+00	4.67E+00
SILFLAR2	Siloxane Flare 2 (new)	0.08	0.04	Sulphur Dioxide (SO2)	- -	5.62E-01	4.37E-02
TO	Thermal Oxidizer	0.91	0.18	Sulphur Dioxide (SO2)	- -	0.00E+00	0.00E+00

Notes:

[1] Dry standard (actual)

[2] Methane content of landfill gas, based on 2026 source testing = 50%

[3] Methane content of landfill gas, based on design methane concentration for the elevated flare = 50%

[4] Emissions for the siloxane flare natural gas scenario were calculated based on a methan concentration of 100%

[5] Methane Content in gas stream to Thermal Oxidizer, based on client provided data = 20%

[6] Emissions from the siloxane flare natural gas scenario only considered emissions of nitrogen oxides.

[7] Emission Factor from AP-42 Chapter 2.4 (Final version, November 1998)

[8] Emission Factor calculated based on concentration of sulphur compounds in raw landfill gas (see Appendix F2)

Sample Calculation

Calculation of Sulphur Oxides Emission Rate (FLARE1) = Maximum LFG Flow (m^3/s) * Emission Factor for SO2 (g/m3)

= 0.5 m^3/s * 2.07 g/m3

= 1.03E+00 g/s

Appendix P12: Elevated Flare Pseudo Parameter Calculation - RNGFLARE

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Based on MECP Technical Bulletin - Modelling Open Flares under O. Reg. 419/05 dated February 2017

Table 1: Scenario Summary

Parameter	Value
Date of Flare Event	--
Source ID	RNG_FLARE

Table 2: Properties of Gas

Parameter	Value	Unit
Density	1.2	kg/m³ @ 311 K and 101.3 kPa
Molecular Weight	30.0	g/mol
Lower Heating Value	16.0	MJ/m³ @ 311K and 101.3 kPa
Mole Fraction in Feed	1	-

Table 3: Composition of Gas Streams to be Flared

Parameter	Stream 1 - Landfill Gas	Propane Pilot Flow	Total Stream to Flare	Unit
Stream MW	30.0	16.04	30.0	kg/kgmol
Volumetric Rate to Flare	646.6	0.62	647	m^3/hr

Table 4: Properties of Flare Gas

Parameter	Value	Unit
Stream MW	30.0	kg/kgmol
Site Atmospheric Pressure	101.3	kPa
Universal Gas Constant (R)	8.3145	(kPa-m³)/(K-kgmol)
Gas Temperature (T_{gas})	37.78	°C
	310.78	K
Volumetric Rate to Flare	647.3	m³/hr
Total Heat Release Rate	3.0	MJ/s

Table 5: Flare Parameters

Total Maximum to Flare		
Parameter	**Value**	**Unit**
Complete Combustion Total Heat Release Rate (Q_T)	3.0	MJ/s
	3.05E+06	J/s
Flame Radiation Loss (f)	55	%
	0.55	fraction
Flare Stack Tip Height (H_s)	15.13	m
Volumetric Rate to Flare (20°C, 101.15 kPa)	647	m³/hr
	0.180	m³/s
Flare Stack Tip Diameter (D_{nozzle})	0.41	m
Density of Flared Gas (ρ_{gas})	1.177	kg/m³
Density of Air at Ambient Temperature (ρ_{air})	1.183	kg/m³
Gravitational Constant (g)	9.807	m/s²
Air Specific Heat at Ambient Air Temperature ($C_{p,\,air}$)	1004	J/(kg-K)
Modelled Ambient Air Temperature (T_{amb})	25	°C
	298	K
Assumed Stack Gas Exit Temperature (T_{stack})	871	°C

Appendix P12: Elevated Flare Pseudo Parameter Calculation - RNGFLARE

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Walker South Landfill Phase 2 Environmental Assessment

Table 6: Summary of Calculated Parameters

Total Maximum to Flare		
Parameter	**Value**	**Unit**
Net Heat Release (Q_n)	1.372E+06	J/s
Effective Stack Height (H_{eff})	17.10	m
Actual Gas Exit Velocity (V_{nozzle})	1.386	m/s
Momentum Flux (F_m)	0.07890	m^4/s^2
Buoyancy Flux (F_b)	12.1	m^4/s^3
Effective Exit Velocity (V_{eff}) [1]	1.500000	m/s
Effective Diameter (D_{eff})	2.24	m

[1] Effective exit velocity has a minimum value of 1.5 m/s as per the MECP Technical Bulletin "Modelling Open Flares under O. Reg. 419/05", February 2017.

Sample Calculations:

1) Calculation of net heat release rate (Q_n)

$Q_n = Q_T \times (1 - f)$

$= 3048071\ J/s * (1 - 0.55)$

$= 1.37E+06\ J/s$

2) Calculation of Effective Stack Height (H_{eff})

$H_{eff} = H_S + 4.56 \times 10^{-3} * (Q_n/4.1868)^{0.478}$

$= 15.1257m + 0.00456 * (1371632\ J/s / 4.1868)^{0.478}$

$= 17.1\ m$

3) Calculation of Actual Gas Exit Velocity (including lift gas) at flare nozzle before combustion (V_{nozzle})

$$V_{nozzle} = \frac{\text{Volumetric Flow Rate to Flare } (m^3/s)}{\pi D^2/4}$$

$$V_{nozzle} = \frac{0.18\ m^3/s}{\pi * (0.4064m)^2 / 4}$$

$V_{nozzle} = 1.386\ m/s$

4) Calculation of Momentum Flux (F_M)

$$F_M = \frac{\rho_{gas}}{\rho_{air} * 4} * D_{nozzle}^2 * V_{nozzle}^2$$

$$= \frac{1.177\ kg/m^3}{1.183\ kg/m^3 * 4} * (0.4064m)^2 * (1.4m)^2$$

$= 7.89E-02\ m^4/s^2$

5) Calculation of Buoyancy Flux (F_b)

$$F_b = g * \frac{Q_n}{(\pi * \rho_{air} * T_{amb} * C_{p,air})}$$

$$= 9.807\ m/s^2 * \frac{1371632\ J/s}{(\pi * 1.183 kg/m^3 * 298\ K * 1004\ J/(kg\text{-}K))}$$

$= 12.10\ m^4/s^3$

6) Calculation of Effective Exit Velocity (V_{eff})

$$V_{eff} = g * \frac{Fm}{Fb} * \frac{Tstack - Tamb}{Tamb}$$

$$= 9.807\ m/s^2 * \frac{0.0789\ m^4/s^2}{12.1\ m^4/s^3} * \frac{871\ °C - 298\ K}{298\ K}$$

$= 0.123\ m/s$

Minimum effective exit velociy is 1.5 m/s; if calculated value is less than minimum, 1.5 m/s is used.

7) Calculation of Effective Diameter (D_{eff})

$$D_{eff} = 2 * \left(\frac{Fb * Tstack}{g * Veff * (Tstack - Tamb)}\right)^{\wedge 0.5}$$

$$= 2 * \left(\frac{12.1\ m^4/s^3 * 871\ °C}{9.807\ m/s^2 * 1.5\ m/s * (871\ °C - 298\ K)}\right)^{\wedge 0.5}$$

$= 2.2\ m$

Appendix P13: Elevated Flare Pseudo Parameter Calculation - RNGTAIL

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Based on MECP Technical Bulletin - Modelling Open Flares under O. Reg. 419/05 dated February 2017

Table 1: Scenario Summary

Parameter	Value
Date of Flare Event	--
Source ID	RNGTAIL

Table 2: Properties of Gas

Parameter	Value	Unit
Density	1.2	kg/m³ @ 311 K and 101.3 kPa
Molecular Weight	16.6	g/mol
Lower Heating Value	31.4	MJ/m³ @ 311K and 101.3 kPa
Mole Fraction in Feed	1	-

Table 3: Composition of Gas Streams to be Flared

Parameter	Stream 1 - Landfill Gas	Propane Pilot Flow	Total Stream to Flare	Unit
Stream MW	16.6	16.04	16.6	kg/kgmol
Volumetric Rate to Flare	5436.8	0.62	5437	m^3/hr

Table 4: Properties of Flare Gas

Parameter	Value	Unit
Stream MW	16.6	kg/kgmol
Site Atmospheric Pressure	101.3	kPa
Universal Gas Constant (R)	8.3145	(kPa-m³)/(K-kgmol)
Gas Temperature (T_{gas})	37.78	°C
	310.78	K
Volumetric Rate to Flare	5437.5	m³/hr
Total Heat Release Rate	50.2	MJ/s

Table 5: Flare Parameters

Total Maximum to Flare		
Parameter	**Value**	**Unit**
Complete Combustion Total Heat Release Rate (Q_T)	50.2	MJ/s
	5.02E+07	J/s
Flame Radiation Loss (f)	55	%
	0.55	fraction
Flare Stack Tip Height (H_s)	15.13	m
Volumetric Rate to Flare (20°C, 101.15 kPa)	5437	m³/hr
	1.510	m³/s
Flare Stack Tip Diameter (D_{nozzle})	0.41	m
Density of Flared Gas (ρ_{gas})	1.177	kg/m³
Density of Air at Ambient Temperature (ρ_{air})	1.183	kg/m³
Gravitational Constant (g)	9.807	m/s²
Air Specific Heat at Ambient Air Temperature ($C_{p,air}$)	1004	J/(kg-K)
Modelled Ambient Air Temperature (T_{amb})	25	°C
	298	K
Assumed Stack Gas Exit Temperature (T_{stack})	871	°C

Appendix P13: Elevated Flare Pseudo Parameter Calculation - RNGTAIL

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Table 6: Summary of Calculated Parameters

Total Maximum to Flare		
Parameter	**Value**	**Unit**
Net Heat Release (Q_n)	2.259E+07	J/s
Effective Stack Height (H_{eff})	22.66	m
Actual Gas Exit Velocity (V_{nozzle})	11.644	m/s
Momentum Flux (F_m)	5.56817	m^4/s^2
Buoyancy Flux (F_b)	199.2	m^4/s^3
Effective Exit Velocity (V_{eff}) [1]	1.500000	m/s
Effective Diameter (D_{eff})	9.07	m

[1] Effective exit velocity has a minimum value of 1.5 m/s as per the MECP Technical Bulletin "Modelling Open Flares under O. Reg. 419/05", February 2017.

Sample Calculations:

1) Calculation of net heat release rate (Q_n)

$$Q_n = Q_T \times (1 - f)$$

$$= 50198275\ J/s * (1 - 0.55)$$

$$= 2.26E+07\ J/s$$

2) Calculation of Effective Stack Height (H_{eff})

$$H_{eff} = H_S + 4.56 \times 10^{-3} * (Q_n/4.1868)^{0.478}$$

$$= 15.1257m + 0.00456 * (22589224\ J/s / 4.1868)^{\wedge}0.478$$

$$= 22.7\ m$$

3) Calculation of Actual Gas Exit Velocity (including lift gas) at flare nozzle before combustion (V_{nozzle})

$$V_{nozzle} = \frac{\text{Volumetric Flow Rate to Flare } (m^3/s)}{\pi D^2/4}$$

$$V_{nozzle} = \frac{1.51\ m^3/s}{\pi * (0.4064m)^2 / 4)}$$

$$V_{nozzle} = 11.644\ m/s$$

4) Calculation of Momentum Flux (F_M)

$$F_M = \frac{\rho_{gas}}{\rho_{air} * 4} * D_{nozzle}^2 * V_{nozzle}^2$$

$$= \frac{1.177\ kg/m^3}{1.183\ kg/m^3 * 4} * (0.4064m)^2 * (11.6m)^2$$

$$= 5.57E+00\ m^4/s^2$$

5) Calculation of Buoyancy Flux (F_b)

$$F_b = g * \frac{Q_n}{(\pi * \rho_{air} * T_{amb} * C_{p,air})}$$

$$= 9.807\ m/s^2 * \frac{22589224\ J/s}{(\pi * 1.183 kg/m^3 * 298\ K * 1004\ J/(kg\text{-}K))}$$

$$= 199.23\ m^4/s^3$$

6) Calculation of Effective Exit Velocity (V_{eff})

$$V_{eff} = g * \frac{Fm}{Fb} * \frac{Tstack - Tamb}{Tamb}$$

$$= 9.807\ m/s^2 * \frac{5.5682\ m^4/s^2}{199.2\ m^4/s^3} * \frac{871\ °C - 298\ K}{298\ K}$$

$$= 0.527\ m/s$$

Minimum effective exit velociy is 1.5 m/s; if calculated value is less than minimum, 1.5 m/s is used.

7) Calculation of Effective Diameter (D_{eff})

$$D_{eff} = 2 * \left(\frac{Fb * Tstack}{g * Veff * (Tstack - Tamb)}\right)^{\wedge 0.5}$$

$$= 2 * \left(\frac{199.2\ m^4/s^3 * 871\ °C}{9.807\ m/s^2 * 1.5\ m/s * (871\ °C - 298\ K)}\right)^{\wedge 0.5}$$

$$= 9.1\ m$$

Appendix P14: Siloxane Flare Actual Flow Rate Calculation

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Walker South Landfill Phase 2 Environmental Assessment

LFG Flow Rate	0.05	m^3/sec
CH_4 Flow Rate	0.02	m^3/sec, assuming 50% of gas to be CH_4
CO_2 Flow Rate	0.02	m^3/sec, assuming 50% of gas to be CO_2
No. of Moles CH_4 in Gas	1.01	, under 1atm and 298K
Moles in Exhaust Gas	10.52	(based on stoiciometry)
Moles to Volume of Gas	10.64	total no. of moles of CH_4
	0.26	m^3 of exhaust gas from CH_4 combustion (standard)
	0.28	m^3 of exhaust gas from CH_4 + CO_2 (standard)
Convert to Actual Conditions	1144	actual exhaust temperature (K)
	1.09	total exhaust flow at actual conditions (m^3/s)

Notes:

Actual flow rate considering both siloxane and fuel gas combustion

Appendix P15: Thermal Oxidizer Emission Rate Calculations

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Vertical up-fired Thermal Oxidizer with one main burner and auxiliary pilot burner
Secondry air train for oxidation of waste streams

Design Basis (May August 2021)

Exhaust Flow	0.5	m^3/s
Methane Content	5%	%

Design Temp	787 - 982	°C
VOC destruction Efficiency	98%	%

Compound	CAS Number	Molecular Weight (g/mol)	Average Conc. In Raw LFG (Max of tesitng results in 2005, 2016 and 2026) (ppm)	Manufacturer Guarenteed Outlet Concentration (ppm) [1]	Average Conc. In gas to Thermal Oxidizer (g/m^3) [2]	Scaled relative to total NMOC in Landgem [3]	Scaled relative to outlet NMOC (ppm) [3]	Average Conc. In gas from Thermal Oxidizer (g/m^3) [4]	Therm_Ox Emission Rate (g/s)
Maximum LFG Volumetric Flow (m^3/s)	--	--	--		--	--	--	--	**0.50**
Destruction Efficiency	--	--	--		--	--	--	--	**98%**
NMOC Concentration (ppm)						**595.00**	**300.00**	--	--
VOC									
Hydrogen Sulfide	7783-06-4	34.1	736.80	4.00	0.0059	--	--	--	5.92E-05
Vinyl Chloride	75-01-4	62.5	0.33	--	0.0009	0.06%	0.17	4.46E-04	2.25E-04
Benzene	71-43-2	78.1	1.86	--	0.0062	0.31%	0.94	3.15E-03	1.59E-03
1,1,2-Trichloroethane	79-00-5	133.4	0.09	--	0.0005	0.01%	0.04	2.56E-04	1.29E-04

Sample Calculation for Thermal Oxidizer

Calculation of Hydrogen Sulphide Emission Rate = Maximum LFG Flow (m^3/s) * Concentration in Raw LFG (g/m^3) * (1 - Detruction Efficiency)
= 0.5 m^3/s * 0.0059 g/m^3 * (1 - 0.98)
= 5.92E-05 g/s

Notes:
[1] H2S emissions were calculated using the manufacturer guarenteed outlet concentration.
[2] Concentration for each contaminant calculated using raw LFG concentration ratios
[3] Average concentration for Thermal Oxidizer based on manufacturer outlet concentration of NMOC scaled by Landgem NMOC concentration for contaminants of intrest.
[4] Conversion Formula: Concentration (ppm) = 24.45 x concentration (mg/m3) ÷ molecular weight

NOx Emissions from Natural Gas Burner in Thermal Oxidizer

Burner Firing Rate 1.2 MMBTU/hr
1.18E-03 10^6 scf/hr , assuming a heating value of 1020 MMBTU/10^6 scf

Contaminants	Emission Factor (lb/10^6scf) [1]	Emission Rate from Natural Gas Combustion (g/s)	Emissions from Waste Stream Combustion (g/s) [2]	Total Emissions (g/s) [3]
Nitrogen Oxides	100	1.48E-02	6.15E-02	7.63E-02
Particulate Matter	7.6	1.13E-03	2.72E-02	2.83E-02

Sample Calculation

Nitrogen Oxides Emission Rate from Natural Gas Combustion = (1.18E-03 10^6 scf/h) x (100 lb / 10^6 scf) x (453.6 g / lb) / (3600 s / h)
= 1.48E-02 g/s

Notes:
[1] Emission Factors taken from US EPA AP-42 Chapter 1.4, Table 1.4-1 and Table 1.4-2. PM is assumed to same for TSP, PM_{10} and $PM_{2.5}$.
[2] Refer to Appendix Appendix P8 for waste stream analysis
[3] Combustion emissions calculated by sumation of natural gas combustion and waste stream combustion rates.

Appendix P16: On-Site Mobile Equipment Emissions - Fugitive Dust

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UNPAVED ROAD SECTIONS - AP-42 Section 13.2.2
PAVED ROAD SECTIONS - AP-42 Section 13.2.1

Paved Roads: $E = k\,(sL)^{0.91}\,(W)^{1.02}$
Unpaved Roads - Industrial: $E = 281.9\,k\,(s / 12)^{a}\,(W / 3)^{b}$
Unpaved Roads - Public: $E = 281.9\,k\,(s / 12)^{a}\,(S / 30)^{d} / (M / 0.5)^{c} - C$

E particulate emission factor (g/VKT)
k particle size multiplier (see below)
sL road surface silt loading (g/m^2)
W average weight of the vehicles traveling the road (US short tons)
s surface material silt content (%)
C emission factor for 1980's vehicle fleet exhaust, brake wear and tire wear
M surface material moisture content (%)
S mean vehicle speed (mph)
a,b,c,d constants (see below)

Route ID [1]	Route Description	Traffic Passes [2] Hourly (#/h)	Daily (#/d)	Annual (#/a)	Segment Length [2] (m)	Road Surface [3]	Roadway Type [4]	Mean Vehicle Speed (km/h)	(mph)	Average Vehicle Weight [5] (tons)	Surface Material Moisture Content [6] (%)	Surface Silt Content [7] (%)	Road Surface Silt Loading [8] (g/m^2)	Base AP-42 Emission Factor TSP (g/VKT)	PM_{10} (g/VKT)	$PM_{2.5}$ (g/VKT)	Base Emission Rate TSP (g/s)	PM_{10} (g/s)	$PM_{2.5}$ (g/s)	Additional Control Efficiency Applied (%)	Final Controlled Emission Rate TSP (g/s)	Data Quality Rating	PM_{10} (g/s)	Data Quality Rating	$PM_{2.5}$ (g/s)	Data Quality Rating
PR_CF1	Paved Road at Compost Facility - Inbound and Outbound Delivery	1	1	1	861	Paved	Industrial	-	-	26.3	-	-	1.0	1.35E+02	1.74E+01	4.22E+00	3.22E-02	4.17E-03	1.01E-03		3.22E-02		4.17E-03		1.01E-03	
UR_CF2	Unpaved Road at Compost Facility - Inbound and Outbound Delivery	1	1	1	49	Unpaved	Industrial	25	16	26.3	-	8.35%	-	4.41E+03	8.11E+02	8.11E+01	5.96E-02	1.09E-02	1.09E-03	95%	2.98E-03		5.47E-04		5.47E-05	
UR_SOCL	Unpaved Road - Transport of Soil and Clay between Soil Pile and Working Face and Construction Areas	1	1	1	251	Unpaved	Industrial	25	16	32.6	-	5.97%	-	3.97E+03	6.60E+02	6.60E+01	2.77E-01	4.60E-02	4.60E-03	95%	1.38E-02		2.30E-03		2.30E-04	
PR_W1	Paved Road - Transport of Waste between Entrance and Weigh Scale	1	1	1	826	Paved	Industrial	-	-	41.0	-	-	1.0	2.12E+02	2.74E+01	6.62E+00	4.86E-02	6.29E-03	1.52E-03		4.86E-02		6.29E-03		1.52E-03	
UR_W2	Unpaved Road at - Transport of Waste between Weigh Scale and Working Face	1	1	1	72	Unpaved	Industrial	20	12	41.0	-	8.35%	-	5.38E+03	9.90E+02	9.90E+01	1.08E-01	1.98E-02	1.98E-03	95%	5.40E-03		9.92E-04		9.92E-05	
UR_W3	Unpaved Road at - Transport of Waste between Weigh Scale and Working Face	1	1	1	707	Unpaved	Industrial	20	12	41.0	-	8.35%	-	5.38E+03	9.90E+02	9.90E+01	1.06E+00	1.94E-01	1.94E-02	95%	5.29E-02		9.72E-03		9.72E-04	
UR_W4	Unpaved Road - Transport of Soil, Clay and Waste between Weigh Scale and Working Face	1	1	1	235	Unpaved	Industrial	20	12	39.9	-	8.35%	-	5.32E+03	9.78E+02	9.78E+01	3.47E-01	6.39E-02	6.39E-03	95%	1.74E-02		3.19E-03		3.19E-04	
UR_W5	Unpaved Road - Transport of Soil and Waste between Weigh Scale and Working Face	1	1	1	474	Unpaved	Industrial	20	12	39.8	-	8.35%	-	5.31E+03	9.76E+02	9.76E+01	6.99E-01	1.28E-01	1.28E-02	95%	3.50E-02		6.42E-03		6.42E-04	
UR_S4CAP	Unpaved Road - Transport of Clay between Soil Pile and Final Capping Construction Area	1	1	1	535	Unpaved	Industrial	20	12	41.7	-	8.35%	-	5.43E+03	9.97E+02	9.97E+01	8.06E-01	1.48E-01	1.48E-02	95%	4.03E-02		7.41E-03		7.41E-04	

Notes:

[1] Route ID numbers provided on site plan.
[2] Length of a specific road segment. A separate segment should be used whenever one or more parameters change.
[3] Paved surfaces include asphalt, concrete, and recycled asphalt (if it forms a relatively consistent surface).
[4] Publicly accessible and dominated by light vehicles, or industrial, and dominated by heavy vehicles.
[5] The average vehicle weight reflects the average of the empty and loaded vehicle weight, for travel in both directions.
[6] Required only for publicly accessible unpaved roads.
[7] Required only for unpaved roads (public and industrial).
[8] Required only for industrial paved roads.

Comments

Silica content is based onsite sampling data.
Constants for TSP (PM44) extrapolated from published factors for PM30, PM10 and PM2.5. Data quality downgraded by one step.

Constants for Mobile Emission Equations

Roadway Type	k	a	b	c	d	Quality
Paved Roads:	0.15	-	-	-	-	-
	0.62	-	-	-	-	-
	3.23	-	-	-	-	-
	4.79	-	-	-	-	-
Unpaved Roads - Industrial:	0.15	0.9	0.45	-	-	C
	1.5	0.9	0.45	-	-	B
	4.9	0.7	0.45	-	-	B
	7.32	0.6	0.45	-	-	C
Unpaved Roads - Public:	0.18	1	-	0.2	0.5	C
	1.8	1	-	0.2	0.5	B
	6	1	-	0.3	0.3	B
	8.96	1	-	0.49	0.2	C

Sample calculation for uncontrolled TSP emission factor for Source PR_CF1: Paved Road at Compost Facility - Inbound and Outbound Delivery

EF = (4.79) x (1 g/m²)^0.91 x (26.3 tons)^1.02 = 135 g TSP / vehicle kilometer travelled (vkt)

Sample calculation for TSP emission rate for Source PR_CF1: Paved Road at Compost Facility - Inbound and Outbound Delivery

$$\frac{1\ \text{vehicles}}{1\ \text{h}} \times \frac{1\ \text{km}}{1000\ \text{m}} \times \frac{135\ g_{TSP}}{1\ \text{vehicle km}} \times \frac{1\ \text{h}}{3600\ \text{s}} \times \frac{100\%\ g_{TSP\ uncontrolled}}{1\ g_{TSP}} = 3.22\text{E-}02\ g_{TSP}/\text{s}$$

Appendix P17: Averaged Emission Rates for On-road Vehicles Based on Speed and Vehicle Class (Year 2045)

Walker South Landfill Phase 2 Environmental Assessment

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Km to Mile Conversion Factor	1.609 km per mile
Hour to Seconds	3600 s/hr

Vehicle Type		Contaminant Emission Rate by Vehicle Speed (km/hr)																											
		TSP				PM10				PM2.5				Benzene				Nitrogen Dioxide				Nitrogen Oxides				Sulphur Dioxide			
		0	20	25	50	0	20	25	50	0	20	25	50	0	20	25	50	0	20	25	50	0	20	25	50	0	20	25	50
		g/s	g/vkt	g/vkt	g/vkt	g/s	g/vkt	g/vkt	g/vkt	g/s	g/vkt	g/vkt	g/vkt	g/s	g/vkt	g/vkt	g/vkt	g/s	g/vkt	g/vkt	g/vkt	g/s	g/vkt	g/vkt	g/vkt	g/s	g/vkt	g/vkt	g/vkt
small	PassengerCar	3.62E-06	6.56E-02	6.11E-02	2.92E-02	3.62E-06	6.56E-02	6.11E-02	2.92E-02	3.20E-06	9.10E-03	8.42E-03	4.28E-03	5.51E-07	3.65E-04	3.30E-04	2.21E-04	6.11E-07	5.88E-04	5.44E-04	4.90E-04	3.91E-06	3.76E-03	3.48E-03	3.14E-03	2.34E-06	9.07E-04	8.03E-04	5.54E-04
small	PassengerTruck	1.88E-06	7.23E-02	6.77E-02	3.09E-02	1.88E-06	7.23E-02	6.77E-02	3.09E-02	1.66E-06	9.84E-03	9.20E-03	4.49E-03	6.36E-07	4.27E-04	3.88E-04	2.54E-04	8.90E-06	1.86E-03	1.61E-03	1.07E-03	4.81E-05	1.06E-02	9.31E-03	6.38E-03	3.07E-06	1.19E-03	1.05E-03	7.34E-04
small	LightCommercialTruck	3.02E-06	7.42E-02	6.94E-02	3.30E-02	3.02E-06	7.42E-02	6.94E-02	3.30E-02	2.67E-06	1.07E-02	9.94E-03	5.09E-03	1.18E-06	8.08E-04	7.50E-04	3.99E-04	2.33E-05	4.29E-03	3.57E-03	2.07E-03	1.25E-04	2.39E-02	2.02E-02	1.20E-02	3.51E-06	1.37E-03	1.22E-03	8.30E-04
medium	SingleUnitShortHaulTruck	6.02E-06	1.98E-01	1.57E-01	7.23E-02	6.02E-06	1.98E-01	1.57E-01	7.23E-02	5.41E-06	2.89E-02	2.34E-02	1.20E-02	1.84E-06	1.42E-03	1.23E-03	6.02E-04	4.64E-04	1.22E-01	1.02E-01	5.68E-02	2.48E-03	6.53E-01	5.45E-01	3.03E-01	5.29E-06	2.61E-03	2.36E-03	1.79E-03
medium	SingleUnitLongHaulTruck	6.02E-06	2.02E-01	1.60E-01	7.41E-02	6.02E-06	2.02E-01	1.60E-01	7.41E-02	5.41E-06	2.94E-02	2.37E-02	1.21E-02	1.84E-06	1.41E-03	1.21E-03	5.96E-04	4.64E-04	1.22E-01	1.01E-01	5.60E-02	2.48E-03	6.48E-01	5.39E-01	2.99E-01	5.29E-06	2.57E-03	2.32E-03	1.74E-03
large	CombinationShortHaulTruck	2.92E-05	4.98E-01	3.75E-01	1.64E-01	2.92E-05	4.98E-01	3.75E-01	1.64E-01	2.69E-05	7.61E-02	6.05E-02	3.09E-02	2.79E-08	1.09E-05	8.90E-06	4.25E-06	2.36E-03	5.81E-01	4.98E-01	3.02E-01	1.25E-02	3.09E+00	2.64E+00	1.60E+00	5.86E-06	3.94E-03	3.79E-03	3.16E-03
large	CombinationLongHaulTruck	1.84E-05	5.68E-01	4.20E-01	1.81E-01	1.84E-05	5.68E-01	4.20E-01	1.81E-01	1.69E-05	8.06E-02	6.19E-02	2.94E-02	4.97E-08	1.92E-05	1.56E-05	7.56E-06	2.64E-03	6.63E-01	5.64E-01	3.42E-01	1.40E-02	3.52E+00	2.99E+00	1.82E+00	5.98E-06	4.16E-03	4.00E-03	3.29E-03
	Small	**2.84E-06**	**7.07E-02**	**6.61E-02**	**3.11E-02**	**2.84E-06**	**7.07E-02**	**6.61E-02**	**3.11E-02**	**2.51E-06**	**9.87E-03**	**9.19E-03**	**4.62E-03**	**7.88E-07**	**5.34E-04**	**4.89E-04**	**2.91E-04**	**1.09E-05**	**2.25E-03**	**1.91E-03**	**1.21E-03**	**5.91E-05**	**1.28E-02**	**1.10E-02**	**7.16E-03**	**2.98E-06**	**1.15E-03**	**1.02E-03**	**7.06E-04**
	Medium	**6.02E-06**	**2.00E-01**	**1.58E-01**	**7.32E-02**	**6.02E-06**	**2.00E-01**	**1.58E-01**	**7.32E-02**	**5.41E-06**	**2.92E-02**	**2.35E-02**	**1.20E-02**	**1.84E-06**	**1.42E-03**	**1.22E-03**	**5.99E-04**	**4.64E-04**	**1.22E-01**	**1.02E-01**	**5.64E-02**	**2.48E-03**	**6.51E-01**	**5.42E-01**	**3.01E-01**	**5.29E-06**	**2.59E-03**	**2.34E-03**	**1.76E-03**
	Large	**2.38E-05**	**5.33E-01**	**3.97E-01**	**1.73E-01**	**2.38E-05**	**5.33E-01**	**3.97E-01**	**1.73E-01**	**2.19E-05**	**7.84E-02**	**6.12E-02**	**3.01E-02**	**3.88E-08**	**1.51E-05**	**1.23E-05**	**5.90E-06**	**2.50E-03**	**6.22E-01**	**5.31E-01**	**3.22E-01**	**1.33E-02**	**3.30E+00**	**2.82E+00**	**1.71E+00**	**5.92E-06**	**4.05E-03**	**3.89E-03**	**3.23E-03**

Appendix P18: Summary of Emission Rates for On-road and Non-road Vehicles Based on Speed and Vehicle Class (Year 2045)

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Vehicle Type				Contaminant Emission Rate																			
MOVES Identifier			Speed	TSP			PM10			PM2.5			Benzene			Nitrogen Dioxide			Nitrogen Oxides			Sulphur Dioxide		
On-road / Non-road	Vehicle Type	HP ID	(km/hr)	g/VKT	g/hr	g/s	g/VKT	g/hr	g/s	g/VKT	g/hr	g/s	g/VKT	g/hr	g/s	g/VKT	g/hr	g/s	g/VKT	g/hr	g/s	g/VKT	g/hr	g/s
On-road	Large	-	0	-	-	2.38E-05	-	-	2.38E-05	-	-	2.19E-05	-	-	3.88E-08	-	-	2.50E-03	-	-	1.33E-02	-	-	5.92E-06
On-road	Large	-	20	5.33E-01	-	-	5.33E-01	-	-	7.84E-02	-	-	1.51E-05	-	-	6.22E-01	-	-	3.30E+00	-	-	4.05E-03	-	-
On-road	Large	-	25	3.97E-01	-	-	3.97E-01	-	-	6.12E-02	-	-	1.23E-05	-	-	5.31E-01	-	-	2.82E+00	-	-	3.89E-03	-	-
On-road	Large	-	50	1.73E-01	-	-	1.73E-01	-	-	3.01E-02	-	-	5.90E-06	-	-	3.22E-01	-	-	1.71E+00	-	-	3.23E-03	-	-
On-road	Small	-	25	6.61E-02	-	-	6.61E-02	-	-	9.19E-03	-	-	4.89E-04	-	-	1.91E-03	-	-	1.10E-02	-	-	1.02E-03	-	-
Non-road	Tractors/Loaders/Backhoes	300	-	-	3.60E-01	1.00E-04	-	3.60E-01	1.00E-04	-	3.60E-01	1.00E-04	-	1.49E-02	4.14E-06	-	-	-	-	5.45E+00	1.51E-03	-	6.94E-02	1.93E-05
Non-road	Skid Steer Loaders	100	-	-	6.01E-01	1.67E-04	-	6.01E-01	1.67E-04	-	6.01E-01	1.67E-04	-	2.81E-02	7.82E-06	-	-	-	-	1.74E+01	4.83E-03	-	3.28E-02	9.11E-06
Non-road	Excavators	600	-	-	1.49E+00	4.14E-04	-	1.49E+00	4.14E-04	-	1.49E+00	4.14E-04	-	5.27E-02	1.46E-05	-	-	-	-	2.70E+01	7.49E-03	-	3.42E-01	9.51E-05
Non-road	Graders	750	-	-	2.72E+00	7.55E-04	-	2.72E+00	7.55E-04	-	2.72E+00	7.55E-04	-	9.63E-02	2.67E-05	-	-	-	-	4.92E+01	1.37E-02	-	6.25E-01	1.74E-04
Non-road	Off-highway Trucks	300	-	-	9.11E-01	2.53E-04	-	9.11E-01	2.53E-04	-	9.11E-01	2.53E-04	-	3.14E-02	8.73E-06	-	-	-	-	1.60E+01	4.46E-03	-	2.04E-01	5.66E-05
Non-road	Off-highway Trucks	600	-	-	1.55E+00	4.29E-04	-	1.55E+00	4.29E-04	-	1.55E+00	4.29E-04	-	5.40E-02	1.50E-05	-	-	-	-	2.76E+01	7.66E-03	-	3.50E-01	9.73E-05
Non-road	Off-highway Trucks	1000	-	-	1.19E+01	3.32E-03	-	1.19E+01	3.32E-03	-	1.19E+01	3.32E-03	-	9.72E-01	2.70E-04	-	-	-	-	1.13E+03	3.14E-01	-	7.24E-01	2.01E-04
Non-road	Crawler Tractor/Dozers	600	-	-	1.54E+00	4.28E-04	-	1.54E+00	4.28E-04	-	1.54E+00	4.28E-04	-	5.46E-02	1.52E-05	-	-	-	-	2.79E+01	7.76E-03	-	3.55E-01	9.85E-05

Appendix P19: Traffic Count and Total Emission per Roadway

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Peak Hourly Traffic Count per Roadway

MOVES Identifier			Haul Trucks						Onsite Equipment													
			Trucks on Paved Roads (delivering raw materials, finished products, composts)	Trucks on Unpaved Roads (delivering raw materials, finished products)	Trucks (Transport of Refuse)	Trucks (Transport of Refuse - Idling)	Trucks (Transport of Waste Soil)	Site Pick-up Truck/Car	Compactor	Tipper	Water Truck	Fuel Truck	Sweeper Truck	Loader	Skid Steer	Excavator	Pick-up Trucks (on Unpaved Road)	Grader	Bulldozer	End-Dump Tractor Trailer / Tractor Trailer on Paved Roads	End-Dump Tractor Trailer / Tractor Trailer on Unpaved Roads	Tandem Delivery Truck (on Unpaved Road)
	On-road / Non-road		On-road	On-road	On-road	On-road	On-road	On-road	Non-road	Non-road	Non-road	Non-road	Non-road	Non-road	Non-road	Non-road	On-road	Non-road	Non-road	On-road	On-road	On-road
	Vehicle Type		Large	Large	Large	Large	Large	Small	Crawler Tractor/Dozers	Off-Highway Trucks	Off-Highway Trucks	Off-Highway Trucks	Off-Highway Trucks	Tractors/Loaders/Backhoes	Skid Steer Loaders	Excavators	Small	Graders	Crawler Tractor/Dozers	Large	Large	Large
	Speed (km/hr)		50	25	20	0	25	25	-	-	-	-	-	-	-	-	25	-	-	50	25	25
	Engine (hp)		-	-	-	-	-	-	523	400	400	825	200	272	80	303	-	600	347	-	-	-
Route	Source ID	Segment Length (m)																				
Paved Road at Compost Facility - Inbound and Outbound Delivery	PR_CF1	860.9	0	8	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Unpaved Road at Compost Facility - Inbound and Outbound Delivery	UR_CF2	48.6	0	8	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Tailpipe Emission of Onsite Equipment at Compost Facility	EQ_CF	-	0	0	0	0	0	0	0	0	1	0	0	5	0	0	0	0	0	0	0	0
Tailpipe Emission of Onsite Equipment at Soil Pile	EQ_SOIL	-	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0
Trucks Idling at the Weigh Scale	IDLE_WEIGH	-	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trucks Idling at the Working Face of South Landfill Phase 2 - Stage 4	IDLE_S4WF	-	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tailpipe Emission of Onsite Equipment at Working Face of South Landfill Phase 2 - Stage 4	EQ_S4WF	-	0	0	0	0	0	0	5	2	1	1	1	1	1	3	4	0	1	0	0	0
Tailpipe Emission of Onsite Equipment at Final Capping Construction Area of South Landfill Phase 2 - Stage 4	EQ_S4CAP	-	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0
Unpaved Road - Transport of Soil and Clay between Soil Pile and Working Face and Construction Areas	UR_SOCL	251.1	0	0	0	0	38	0	0	0	1	0	0	0	0	0	0	0	0	0	3	0
Paved Road - Transport of Waste between Entrance and Weigh Scale	PR_W1	826.4	0	0	58	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Unpaved Road at - Transport of Waste between Weigh Scale and Working Face	UR_W2	72.2	0	0	58	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Unpaved Road at - Transport of Waste between Weigh Scale and Working Face	UR_W3	706.8	0	0	58	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Unpaved Road - Transport of Soil, Clay and Waste between Weigh Scale and Working Face	UR_W4	235.2	0	0	58	0	38	0	0	0	1	0	0	0	0	0	0	0	0	0	3	0
Unpaved Road - Transport of Soil and Waste between Weigh Scale and Working Face	UR_W5	473.7	0	0	58	0	38	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Unpaved Road - Transport of Clay between Soil Pile and Final Capping Construction Area	UR_S4CAP	534.8	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	3	0

Note:

[1] Load factors are extracted from "Median Life, Annual Activity, and Load Factor Values for Nonroad Engine Emissions Modeling", EPA-420-R-10-016, NR-005d, July 2010.

Tailpipe Emission Factor by Equipment Type

MOVES Identifier			Tailpipe Emission Factor by Equipment Type																			
			Haul Trucks						Onsite Equipment													
			Trucks on Paved Roads (delivering raw materials, finished products, composts)	Trucks on Unpaved Roads (delivering raw materials, finished products)	Trucks (Transport of Refuse)	Trucks (Transport of Refuse - Idling)	Trucks (Transport of Waste Soil)	Site Pick-up Truck/Car	Compactor	Tipper	Water Truck	Fuel Truck	Sweeper Truck	Loader	Skid Steer	Excavator	Pick-up Trucks (on Unpaved Road)	Grader	Bulldozer	End-Dump Tractor Trailer / Tractor Trailer on Paved Roads	End-Dump Tractor Trailer / Tractor Trailer on Unpaved Roads	Tandem Delivery Truck (on Unpaved Road)
	On-road / Non-road		On-road	On-road	On-road	On-road	On-road	On-road	Non-road	Non-road	Non-road	Non-road	Non-road	Non-road	Non-road	Non-road	On-road	Non-road	Non-road	On-road	On-road	On-road
	Vehicle Type		Large	Large	Large	Large	Large	Small	Crawler Tractor/Dozers	Off-Highway Trucks	Off-Highway Trucks	Off-Highway Trucks	Off-Highway Trucks	Tractors/Loaders/Backhoes	Skid Steer Loaders	Excavators	Small	Graders	Crawler Tractor/Dozers	Large	Large	Large
	Speed (km/hr)		50	25	20	0	25	25	-	-	-	-	-	-	-	-	25	-	-	50	25	25
	Engine (hp)		-	-	-	-	-	-	523	400	400	825	200	272	80	303	-	600	347	-	-	-
	Load Factor		-	-	-	-	-	-	0.59	0.59	0.59	0.59	0.59	0.21	0.21	0.59	-	0.59	0.59	-	-	-
Contaminant	CAS Number	Pollutantid	g/VKT	g/VKT	g/VKT	g/s	g/VKT	g/VKT	g/hr	g/hr	g/hr	g/hr	g/hr	g/hr	g/hr	g/hr	g/VKT	g/hr	g/hr	g/VKT	g/VKT	g/VKT
TSP	PM	100	1.73E-01	3.97E-01	5.33E-01	2.38E-05	3.97E-01	6.61E-02	1.54E+00	1.55E+00	1.55E+00	1.19E+01	9.11E-01	3.60E-01	6.01E-01	1.49E+00	6.61E-02	2.72E+00	1.54E+00	1.73E-01	3.97E-01	3.97E-01
PM10	PM10	100	1.73E-01	3.97E-01	5.33E-01	2.38E-05	3.97E-01	6.61E-02	1.54E+00	1.55E+00	1.55E+00	1.19E+01	9.11E-01	3.60E-01	6.01E-01	1.49E+00	6.61E-02	2.72E+00	1.54E+00	1.73E-01	3.97E-01	3.97E-01
PM2.5	PM25	110	3.01E-02	6.12E-02	7.84E-02	2.19E-05	6.12E-02	9.19E-03	1.54E+00	1.55E+00	1.55E+00	1.19E+01	9.11E-01	3.60E-01	6.01E-01	1.49E+00	9.19E-03	2.72E+00	1.54E+00	3.01E-02	6.12E-02	6.12E-02
Benzene	71-43-2	20	5.90E-06	1.23E-05	1.51E-05	3.88E-08	1.23E-05	4.89E-04	5.46E-02	5.40E-02	5.40E-02	9.72E-01	3.14E-02	1.49E-02	2.81E-02	5.27E-02	4.89E-04	9.63E-02	5.46E-02	5.90E-06	1.23E-05	1.23E-05
Nitrogen Dioxide	NO2	33	3.22E-01	5.31E-01	6.22E-01	2.50E-03	5.31E-01	1.91E-03	-	-	-	-	-	-	-	-	1.91E-03	-	-	3.22E-01	5.31E-01	5.31E-01
Nitrogen Oxides	10102-44-0	3	1.71E+00	2.82E+00	3.30E+00	1.33E-02	2.82E+00	1.10E-02	2.79E+01	2.76E+01	2.76E+01	1.13E+03	1.60E+01	5.45E+00	1.74E+01	2.70E+01	1.10E-02	4.92E+01	2.79E+01	1.71E+00	2.82E+00	2.82E+00
Sulphur Dioxide	7446-09-5	31	3.23E-03	3.89E-03	4.05E-03	5.92E-06	3.89E-03	1.02E-03	3.55E-01	3.50E-01	3.50E-01	7.24E-01	2.04E-01	6.94E-02	3.28E-02	3.42E-01	1.02E-03	6.25E-01	3.55E-01	3.23E-03	3.89E-03	3.89E-03

Emission Rate per Roadway

Source ID	Vehicle Passes per Hour	Number of Volume Sources	Tailpipe Emission Rate per Roadway (g/hr)						Tailpipe + Fugitive Emission Rate per Vehicle per Roadway (g/s)							Emission Rate per Vehicle per Roadway per Volume Source (g/s)						
			TSP	PM10	PM2.5	Benzene	Nitrogen Dioxide	Nitrogen Oxides	Sulphur Dioxide	TSP	PM10	PM2.5	Benzene	Nitrogen Dioxide	Nitrogen Oxides	Sulphur Dioxide	TSP	PM10	PM2.5	Benzene	Nitrogen Dioxide	Nitrogen Oxides (NOx)	Sulphur Dioxide (SO2)
			g/hr	g/hr	g/hr	g/hr	g/hr	g/hr	g/hr	g/s	g/s	g/s	g/s	g/s	g/s	g/s	g/s	g/s	g/s	g/s	g/s	g/s	g/s
PR_CF1	18	54	3.65E+00	3.65E+00	1.33E+00	3.19E-02	3.66E+00	3.57E+01	2.33E-01	3.23E-02	4.23E-03	1.03E-03	4.93E-07	5.64E-05	5.51E-04	3.60E-06	5.98E-04	7.83E-05	1.91E-05	9.12E-09	1.04E-06	1.02E-05	6.67E-08
UR_CF2	18	3	1.07E+00	1.07E+00	9.36E-01	3.18E-02	2.06E-01	1.74E+01	2.08E-01	3.00E-03	5.64E-04	6.92E-05	4.91E-07	3.19E-06	2.68E-04	3.21E-06	9.98E-04	1.88E-04	2.31E-05	1.64E-07	1.06E-06	8.93E-05	1.07E-06
EQ_CF	12	1	1.29E+00	1.29E+00	1.29E+00	4.75E-02	0.00E+00	2.20E+01	2.80E-01	2.99E-05	2.99E-05	2.99E-05	1.10E-06	0.00E+00	5.09E-04	6.47E-06	2.99E-05	2.99E-05	2.99E-05	1.10E-06	0.00E+00	5.09E-04	6.47E-06
EQ_SOIL	4	1	1.82E+00	1.82E+00	1.82E+00	6.40E-02	0.00E+00	3.27E+01	4.16E-01	1.27E-04	1.27E-04	1.27E-04	4.45E-06	0.00E+00	2.27E-03	2.89E-05	1.27E-04	1.27E-04	1.27E-04	4.45E-06	0.00E+00	2.27E-03	2.89E-05
IDLE_WEIGH	4	1	1.71E-01	1.71E-01	1.58E-01	2.79E-04	1.80E+01	9.55E+01	4.26E-02	1.19E-05	1.19E-05	1.09E-05	1.94E-08	1.25E-03	6.63E-03	2.96E-06	1.19E-05	1.19E-05	1.09E-05	1.94E-08	1.25E-03	6.63E-03	2.96E-06
IDLE_S4WF	4	1	1.71E-01	1.71E-01	1.58E-01	2.79E-04	1.80E+01	9.55E+01	4.26E-02	1.19E-05	1.19E-05	1.09E-05	1.94E-08	1.25E-03	6.63E-03	2.96E-06	1.19E-05	1.19E-05	1.09E-05	1.94E-08	1.25E-03	6.63E-03	2.96E-06
EQ_S4WF	40	1	1.86E+01	1.86E+01	1.86E+01	9.83E-01	0.00E+00	8.76E+02	3.05E+00	1.29E-04	1.29E-04	1.29E-04	6.83E-06	0.00E+00	6.08E-03	2.12E-05	1.29E-04	1.29E-04	1.29E-04	6.83E-06	0.00E+00	6.08E-03	2.12E-05
EQ_S4CAP	4	1	1.82E+00	1.82E+00	1.82E+00	6.40E-02	0.00E+00	3.27E+01	4.16E-01	1.27E-04	1.27E-04	1.27E-04	4.45E-06	0.00E+00	2.27E-03	2.89E-05	1.27E-04	1.27E-04	1.27E-04	4.45E-06	0.00E+00	2.27E-03	2.89E-05
UR_SOCL	84	14	5.00E+00	5.00E+00	1.54E+00	3.20E-02	5.47E+00	4.53E+01	2.47E-01	1.39E-02	2.32E-03	2.35E-04	1.06E-07	1.81E-05	1.50E-04	8.16E-07	9.90E-04	1.65E-04	1.68E-05	7.55E-09	1.29E-06	1.07E-05	5.83E-08
PR_W1	118	61	2.64E+01	2.64E+01	4.67E+00	3.26E-02	2.98E+01	1.75E+02	4.01E-01	4.86E-02	6.35E-03	1.53E-03	7.66E-08	7.02E-05	4.11E-04	9.43E-07	7.97E-04	1.04E-04	2.51E-05	1.26E-09	1.15E-06	6.74E-06	1.55E-08
UR_W2	118	5	3.14E+00	3.14E+00	1.24E+00	3.19E-02	2.61E+00	3.01E+01	2.24E-01	5.41E-03	1.00E-03	1.02E-04	7.51E-08	6.13E-06	7.09E-05	5.26E-07	1.08E-03	2.00E-04	2.04E-05	1.50E-08	1.23E-06	1.42E-05	1.05E-07
UR_W3	118	59	2.28E+01	2.28E+01	4.12E+00	3.25E-02	2.55E+01	1.52E+02	3.73E-01	5.29E-02	9.77E-03	9.81E-04	7.64E-08	6.00E-05	3.57E-04	8.77E-07	8.97E-04	1.66E-04	1.66E-05	1.29E-09	1.02E-06	6.05E-06	1.49E-08
UR_W4	200	13	1.20E+01	1.20E+01	2.57E+00	3.22E-02	1.36E+01	8.85E+01	2.99E-01	1.74E-02	3.21E-03	3.23E-04	4.47E-08	1.89E-05	1.23E-04	4.16E-07	1.34E-03	2.47E-04	2.48E-05	3.44E-09	1.45E-06	9.46E-06	3.20E-08
UR_W5	194	26	2.27E+01	2.27E+01	4.17E+00	3.25E-02	2.67E+01	1.58E+02	3.88E-01	3.50E-02	6.46E-03	6.48E-04	4.65E-08	3.82E-05	2.26E-04	5.55E-07	1.35E-03	2.48E-04	2.49E-05	1.79E-09	1.47E-06	8.69E-06	2.14E-08
UR_S4CAP	8	30	1.55E+00	1.55E+00	1.01E+00	3.19E-02	8.52E-01	2.08E+01	2.13E-01	4.04E-02	7.46E-03	7.76E-04	1.11E-06	2.96E-05	7.22E-04	7.39E-06	1.35E-03	2.49E-04	2.59E-05	3.69E-08	9.86E-07	2.41E-05	2.46E-07

Appendix P20: Hourly Profile of Roadway Traffic Passess

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

Hourly Traffic Passess per Roadway

Operation Hours (starting from)		Source ID	Description	Number of Passess per Hour																							
from	to			0000 - 0100	0100 - 0200	0200 - 0300	0300 - 0400	0400 - 0500	0500 - 0600	0600 - 0700	0700 - 0800	0800 - 0900	0900 - 1000	1000 - 1100	1100 - 1200	1200 - 1300	1300 - 1400	1400 - 1500	1500 - 1600	1600 - 1700	1700 - 1800	1800 - 1900	1900 - 2000	2000 - 2100	2100 - 2200	2200 - 2300	2300 - 2400
7	17	PR_CF1	Paved Road at Compost Facility - Inbound and Outbound Delivery	0	0	0	0	0	0	0	18	18	18	18	18	18	18	18	18	18	0	0	0	0	0	0	0
7	17	UR_CF2	Unpaved Road at Compost Facility - Inbound and Outbound Delivery	0	0	0	0	0	0	0	18	18	18	18	18	18	18	18	18	18	0	0	0	0	0	0	0
7	17	EQ_CF	Tailpipe Emission of Onsite Equipment at Compost Facility	0	0	0	0	0	0	0	12	12	12	12	12	12	12	12	12	12	0	0	0	0	0	0	0
5	19	EQ_SOIL	Tailpipe Emission of Onsite Equipment at Soil Pile	0	0	0	0	0	4	4	4	4	4	4	4	4	4	4	4	4	4	4	0	0	0	0	0
7	17	IDLE_WEIGH	Trucks Idling at the Weigh Scale	0	0	0	0	0	0	0	4	4	4	4	4	4	4	4	4	4	0	0	0	0	0	0	0
7	17	IDLE_S4WF	Trucks Idling at the Working Face of South Landfill Phase 2 - Stage 4	0	0	0	0	0	0	0	4	4	4	4	4	4	4	4	4	4	0	0	0	0	0	0	0
6	18	EQ_S4WF	Tailpipe Emission of Onsite Equipment at Working Face of South Landfill Phase 2 - Stage 4	0	0	0	0	0	0	2	38	38	38	38	38	38	38	38	38	38	2	0	0	0	0	0	0
7	17	EQ_S4CAP	Tailpipe Emission of Onsite Equipment at Final Capping Construction Area of South Landfill Phase 2 - Stage 4	0	0	0	0	0	0	0	4	4	4	4	4	4	4	4	4	4	0	0	0	0	0	0	0
7	18	UR_SOCL	Unpaved Road - Transport of Soil and Clay between Soil Pile and Working Face and Construction Areas	0	0	0	0	0	0	0	8	8	8	8	8	8	8	8	8	8	76	0	0	0	0	0	0
7	17	PR_W1	Paved Road - Transport of Waste between Entrance and Weigh Scale	0	0	0	0	0	0	0	118	94	98	82	90	90	90	114	70	36	0	0	0	0	0	0	0
7	17	UR_W2	Unpaved Road at - Transport of Waste between Weigh Scale and Working Face	0	0	0	0	0	0	0	118	94	98	82	90	90	90	114	70	36	0	0	0	0	0	0	0
7	17	UR_W3	Unpaved Road at - Transport of Waste between Weigh Scale and Working Face	0	0	0	0	0	0	0	118	94	98	82	90	90	90	114	70	36	0	0	0	0	0	0	0
7	18	UR_W4	Unpaved Road - Transport of Soil, Clay and Waste between Weigh Scale and Working Face	0	0	0	0	0	0	0	124	100	104	88	96	96	96	120	76	42	76	0	0	0	0	0	0
7	18	UR_W5	Unpaved Road - Transport of Soil and Waste between Weigh Scale and Working Face	0	0	0	0	0	0	0	118	94	98	82	90	90	90	114	70	36	76	0	0	0	0	0	0
7	17	UR_S4CAP	Unpaved Road - Transport of Clay between Soil Pile and Final Capping Construction Area	0	0	0	0	0	0	0	8	8	8	8	8	8	8	8	8	8	0	0	0	0	0	0	0

Appendix P21: Wind Erosion Emissions

Walker South Landfill Phase 2 Environmental Assessment

RWDI Project #2402272

INDUSTRIAL WIND EROSION - AP-42 Section 13.2.5

Meteorological Station Anemometer height, z (m):	10	
Maximum recorded hourly wind speed (m/s):	16.03	
Fastest Mile Wind Speed (m/s):	18.43	**[1]**
Shear Velocity u* (m/s):	0.909	**[2]**

Prandtl-von Kármán Equation: $u^* = u_z \, k / \ln(z / z_o)$, $k = 0.4$

Emission factor: $E = K \Sigma P_i$ (i from 1 to N)

Erosion potential function: $P = 58 (u^* - u_t^*)^2 + 25 (u^* - u_t^*)$

$P = 0$ for $u^* \le u_t^*$

u^* shear / friction velocity (m/s)
u_z wind speed at height z (m/s)
k von Kármán's contstant
K particle size multiplier (1, 0.6, 0.5 and 0.075 for TSP, PM_{15}, PM_{10} and $PM_{2.5}$, respectively)
z_o surface roughness length (m)
z anemometer height (m)

ID [3]	Pile	z_o (m)	u*	u_t* [3] (m/s)	Number of Disturbances [4] Hourly (#/h)	Daily (#/d)	Annual (#/a)	Area Disturbed [5] (m^2)	Maximum Erosion Potential	Base AP-42 Emission Factor TSP (g/m^2)	PM_{10} (g/m^2)	$PM_{2.5}$ (g/m^2)	Base Emission Rate TSP (g/s)	PM_{10} (g/s)	$PM_{2.5}$ (g/s)	Additional Control Efficiency Applied (%)	Final Controlled Emission Rate at 16.03 m/s TSP (g/s)	Data Quality Rating	PM_{10} (g/s)	Data Quality Rating	$PM_{2.5}$ (g/s)	Data Quality Rating
WE_S4IC	Wind Erosion from Areas under Interim Cover at South Landfill	0.003	0.909	1.02	1	1	1	70479	0.000	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0%	0.0E+00	E	0.0E+00	E	0.0E+00	E
WE_S4CAP	Wind Erosion from Final Capping Construction Area at South Landfill Phase 2 -	0.003	0.909	1.02	1	1	1	4000	0.000	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0%	0.0E+00	E	0.0E+00	E	0.0E+00	E
WE_SOIL	Wind Erosion from Waste Soil Stockpile	0.003	0.909	1.02	1	1	1	37767	0.000	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0%	0.0E+00	E	0.0E+00	E	0.0E+00	E

Notes:

[1] Speed-up factor to convert hourly mean wind speeds to fastest mile wind gust taken from Durst curve for in North America (1.15).
(Krayer, William R>, Marshall, Richard D. 1992: Gust Factors Applied to Hurrican Winds. Bulletin of the American Meteorological Society, Vol. 73, No. 5, May 1992)

[2] Used for sample calculations & factor validation

[3] Typical threshold friction veolocities can be taken from Table 13.2.5-2 of AP-42, or other suitable sources.

[4] Reflects the estimated maximum number of disturbances for each pile within the specified time period.

[5] Estimated from type of operations (e.g., loader operations, scraper activity, etc.)

Sample Calculations

Shear Velocity: = (18.4345 m/s) x 0.4 / LN ((10 m) / (0.003 m)) = 0.909 m/s

Maximum Erosion Potential: 0.909 m/s < 1.02 m/s therefore no erosion potential

TSP Emission Factor: no erosion poetntial

Base Emission Rate: no erosion poetntial

Appendix P22: Bulk Material Handling Emissions

Walker South Landfill Phase 2 Environmental Assessment

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Material handling emissions: $E = 0.0016\ k\ (U / 2.2)^{1.3} / (M / 2)^{1.4}$

E emission factor
k particle size multiplier (0.8, 0.35 and 0.053 for TSP, PM_{10} and $PM_{2.5}$) [3]
U mean wind speed, meters per second (m/s)
M material moisture content (%)

AGGREGATE HANDLING AND STORAGE PILES - AP-42 Section 13.2.4

Average recorded hourly wind speed (m/s): 3.9
(used for sample calculations & factor validation)

Source ID [1]	Description	Processing Rate Hourly (Mg/h)	Processing Rate Daily (Mg/d)	Site Data: Site Specific Data? (y/n)	Site Data: Silt Content (%)	Site Data: Moisture Content (%)	Site Data: Source Conditions Valid [1]	Base AP-42 Emission Factor: TSP [2] (kg/Mg)	Base AP-42 Emission Factor: PM_{10} (kg/Mg)	Base AP-42 Emission Factor: $PM_{2.5}$ (kg/Mg)	Base Emission Rate: TSP (g/s)	Base Emission Rate: PM_{10} (g/s)	Base Emission Rate: $PM_{2.5}$ (g/s)	Additional Control Efficiency Applied (%)	Final Controlled Emission Rate at 3.9 m/s: TSP (g/s)	TSP Data Quality Rating	Final Controlled Emission Rate at 3.9 m/s: PM_{10} (g/s)	PM_{10} Data Quality Rating	Final Controlled Emission Rate at 3.9 m/s: $PM_{2.5}$ (g/s)	$PM_{2.5}$ Data Quality Rating
Walker Environmental Group Inc. – Landfill																				
SPick_Soil	Soil Pick up from Waste Soil Pile	1000	1000	y	56.5%	32.8%	silt too high	5.4E-05	2.3E-05	3.6E-06	1.5E-02	6.5E-03	9.9E-04		1.5E-02	B	6.5E-03	B	9.9E-04	B
SDrop_S4WF	Soil Drop off at Working Face of South Landfill Phase 2 - Stage 4	1000	1000	y	56.5%	32.8%	silt too high	5.4E-05	2.3E-05	3.6E-06	1.5E-02	6.5E-03	9.9E-04		1.5E-02	B	6.5E-03	B	9.9E-04	B
DROP_S4CAP	Clay Drop off at Final Capping Construction Area of South Landfill Phase 2 - Stage 4	98	981	y	56.5%	32.8%	silt too high	5.4E-05	2.3E-05	3.6E-06	1.5E-03	6.4E-04	9.7E-05		1.5E-03	B	6.4E-04	B	9.7E-05	B
Niagara Biosolids Facility and Compost Facility																				
DROPOFF	Receiving Leaf & yard Material in Open Windrow Area	100	1000	n	9%	10%	moisture too high	2.8E-04	1.2E-04	1.9E-05	7.9E-03	3.4E-03	5.2E-04		7.9E-03	C	3.4E-03	C	5.2E-04	C
MOVE1	Movement of Material into Windrow (Open Windrow area)	100	1000	n	9%	10%	moisture too high	2.8E-04	1.2E-04	1.9E-05	7.9E-03	3.4E-03	5.2E-04		7.9E-03	C	3.4E-03	C	5.2E-04	C
MOVE2	Movement of Material into Windrow (GORE area)	100	1000	n	9%	10%	moisture too high	2.8E-04	1.2E-04	1.9E-05	7.9E-03	3.4E-03	5.2E-04		7.9E-03	C	3.4E-03	C	5.2E-04	C
SCRTSP	Drop at Screening Area	100	1000	n	9%	10%	moisture too high	2.8E-04	1.2E-04	1.9E-05	7.9E-03	3.4E-03	5.2E-04		7.9E-03	C	3.4E-03	C	5.2E-04	C
FSTPL	Drop at Final Stockpile	100	1000	n	9%	10%	moisture too high	2.8E-04	1.2E-04	1.9E-05	7.9E-03	3.4E-03	5.2E-04		7.9E-03	C	3.4E-03	C	5.2E-04	C
FP	Loading of Material for Shipment Off-Site	100	1000	n	9%	10%	moisture too high	2.8E-04	1.2E-04	1.9E-05	7.9E-03	3.4E-03	5.2E-04		7.9E-03	C	3.4E-03	C	5.2E-04	C

Notes:
[1] Relates to AP-42 Section 13.2.4-4
[2] k-factor for TSP (PM44) scaled up logarithmically to 0.8 from published k-factor of 0.74 which refers to PM30.

Comments
Maximum shipping rate is 1000 tonnes per hour (e-mail dated November 28, 2014)
Shipping occurs 24 hours per day.
Silica content of the Particulate Matter is based on mineral identification samples taken from the si 1.6%
Landfill soil sources assumed to not have significant silica content, as this type of material is soil, rather than rock/mineral.

Sample calculation for uncontrolled TSP emission factor for Source SPick_Soil: Soil Pick up from Waste Soil Pile, at a sample wind speed of 3.9 m/s

EF = 0.0016 x (0.74) x ((3.9 m/s) / 2.2)^1.3 / ((32.8%) / 2)^1.4 = 5.4E-05 kg TSP / Mg handled

Sample calculation for TSP emission rate for Source SPick_Soil: Soil Pick up from Waste Soil Pile, at a sample wind speed of 3.9 m/s

$$\frac{1000\ Mg_{handled}}{1\ h} \times \frac{5.4E\text{-}05\ kg_{TSP}}{1\ Mg_{handled}} \times \frac{1\ h}{3600\ s} \times \frac{1000\ g_{TSP}}{1\ kg_{TSP}} \times \frac{100\%\ g_{TSP\ uncontrolled}}{1\ g_{TSP}} = 1.5E\text{-}02\ g_{TSP} / s$$

Appendix P23: Bulldozing Emission Rate Calculations

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Western Surface Coal Mining AP -42 Section 11.9 (11.9-2, 11.9-4)

Total Parti PM10 PM2.5

ID	Process Name / Description	AP-42 Process Description	Process Code	AP-42 Chapter	Activity Rate			Units	Additional Parameters				Base AP-42 Emission Factor				Base Emission Rate			Additional Control Efficiency Applied [5] (%)	Final Controlled Emission Rate					
					Hourly (units/h)	Daily (units/d)	Annual (units/a)		Material Moisture Content [1] (%)	Material Silt Content [2] (%)	Drop Height [3] (m)	Mean Vehicle Speed [4] (km/h)	TSP	PM_{10}	$PM_{2.5}$	Units	TSP (g/s)	PM_{10} (g/s)	$PM_{2.5}$ (g/s)		TSP (g/s)	Data Quality Rating	PM_{10} (g/s)	Data Quality Rating	$PM_{2.5}$ (g/s)	Data Quality Rating
DOZER_Soil	Bulldozer at Waste Soil Pile - Fugitive dust	Bulldozing - overburden	4	Table 11.9-2	1	-	-	hours of operation	32.8	56.5	-	-	3.52E+00	1.08E+00	3.70E-01	kg/hr	9.78E-01	3.00E-01	1.03E-01		9.78E-01	B	3.00E-01	D	1.03E-01	D
DOZER_S4WF	Bulldozer at Working Face of South Landfill Phase 2 Stage 4 - Fugitive dust	Bulldozing - overburden	4	Table 11.9-2	1	-	-	hours of operation	32.8	56.5	-	-	3.52E+00	1.08E+00	3.70E-01	kg/hr	9.78E-01	3.00E-01	1.03E-01		9.78E-01	B	3.00E-01	D	1.03E-01	D
DOZER_S4CAP	Bulldozer at Final Capping Construction Area of South Landfill Phase 2 - Stag	Bulldozing - overburden	4	Table 11.9-2	1	-	-	hours of operation	32.8	56.5	-	-	3.52E+00	1.08E+00	3.70E-01	kg/hr	9.78E-01	3.00E-01	1.03E-01		9.78E-01	B	3.00E-01	D	1.03E-01	D

Notes:

[1] Applies to truck loading, bulldozing and dragline operations only

[2] Applies to bulldozing operations only

[3] Applies to dragline operations only

[4] Applies to grading operations only

[5] Enter the control efficiency for each source - if no controls are applied, leave blank

Sample calculations for TSP emission factor for DOZER_Soil: Bulldozer at Waste Soil Pile - Fugitive dust

TSP Emission Factor = 2.6 x 56.5^1.2 / 32.8^1.3 = 3.52E+00 kg/hr

Sample calculations for TSP emission rate for DOZER_Soil: Bulldozer at Waste Soil Pile - Fugitive dust

$$\frac{3.52E{+}00\ kg_{TSP}}{1\ hour} \left| \frac{1\ h}{3600\ s} \right| \frac{1000\ g_{TSP}}{1\ kg_{TSP}} = 9.78E{-}01\ g_{TSP}/s$$

Appendix P24: Processing Emissions

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Soource ID	Source Description / Process Decription	AP-42 Process Description [1] [2]	Process Code	AP-42 Chapter	Processing Rate			Base AP-42 Emission Factor			Base Emission Rate			Additional Control Efficiency Applied (%) [4]	Final Controlled Emission Rate					
					Hourly (Mg/h)	Daily (Mg/d)	Annual (Mg/a)	TSP [3] (kg/Mg)	PM_{10} (kg/Mg)	$PM_{2.5}$ (kg/Mg)	TSP (g/s)	PM_{10} (g/s)	$PM_{2.5}$ (g/s)		TSP (g/s)	Data Quality Rating	PM_{10} (g/s)	Data Quality Rating	$PM_{2.5}$ (g/s)	Data Quality Rating
Niagara Biosolids Facility and Compost Facility																			
SILO_1	Silo #1 Bin Vent	Pneumatic cement unloading to elevated storage silo	24	11.12-1	20	480		3.60E-01	2.40E-01	3.60E-02	2.00E+00	1.33E+00	2.00E-01	99.9%	2.00E-03	E	1.33E-03	E	2.00E-04	E
SILO_2	Silo #2 Bin Vent	Pneumatic cement unloading to elevated storage silo	24	11.12-1	20	480		3.60E-01	2.40E-01	3.60E-02	2.00E+00	1.33E+00	2.00E-01	99.9%	2.00E-03	E	1.33E-03	E	2.00E-04	E
SCREEN1	Screening Emissions	Fines screening (controlled)	12	11.19.2-1	40	960		1.10E-03	1.10E-03	1.65E-04	1.22E-02	1.22E-02	1.83E-03		1.22E-02	E	1.22E-02	E	1.83E-03	E
SCREEN2	Screening Emissions	Fines screening (controlled)	12	11.19.2-1	40	960		1.10E-03	1.10E-03	1.65E-04	1.22E-02	1.22E-02	1.83E-03		1.22E-02	E	1.22E-02	E	1.83E-03	E
SCREEN3	Screening Emissions	Fines screening (controlled)	12	11.19.2-1	75	1800		1.10E-03	1.10E-03	1.65E-04	2.29E-02	2.29E-02	3.44E-03		2.29E-02	E	2.29E-02	E	3.44E-03	E
SCREEN4	Screening Emissions	Fines screening (controlled)	12	11.19.2-1	75	1800		1.10E-03	1.10E-03	1.65E-04	2.29E-02	2.29E-02	3.44E-03		2.29E-02	E	2.29E-02	E	3.44E-03	E
GRINDR	Fugitive emissions from Grinder	Fines screening (controlled)	12	11.19.2-1	75	1800		1.10E-03	1.10E-03	1.65E-04	2.29E-02	2.29E-02	3.44E-03		2.29E-02	E	2.29E-02	E	3.44E-03	E
GRINDR2_N	Fugitive emissions from Grinder #2	Fines screening (controlled)	12	11.19.2-1	75	1800		1.10E-03	1.10E-03	1.65E-04	2.29E-02	2.29E-02	3.44E-03		2.29E-02	E	2.29E-02	E	3.44E-03	E
CONV_PM	Stacking Conveyor Fugitive Emissions	Conveyor transfer point (controlled)	14	11.19.2-1	80	1920		3.70E-05	2.30E-05	6.50E-06	8.22E-04	5.11E-04	1.44E-04		8.22E-04	E	5.11E-04	D	1.44E-04	E
CONV_PM2_N	Stacking Conveyor #2 Fugitive Emissions	Conveyor transfer point (controlled)	14	11.19.2-1	80	1920		3.70E-05	2.30E-05	6.50E-06	8.22E-04	5.11E-04	1.44E-04		8.22E-04	E	5.11E-04	D	1.44E-04	E

Notes:

[1] AP-42 process listed as "controlled" reflects between 70-90% control due to high moisture / water sprays, as described in AP-42 Section 11.19.2.

[2] The "controlled" AP-42 emission factors were used, rather than the "uncontrolled" factors.

[3] AP-42 Emission Factor is based on PM44.

[4] Baghouse is installed at the silos, with a 99.9% of control efficiency.

Comments
Percentage of total material handled by each process was outlined by Keith Porter (Walker Brothers Quarry) during a meeting on June 27, 2005.
The percentages are as follows: Primary crushing 100%, secondary crushing 70%, and tertiary crushing 45%.
Future percentages were assumed to be the same as existing conditions.
Classifier - amount of material that is processed through this piece of equipment was provided by Walker via email.
The maximum processing rate for the classifier is 75 Mg/hour.
Quarry Handling/Drop Point number and location as indicated by Keith Porter during June 27/05 meeting at RWDI office.
Mass of material drilled per hour based on 33 holes drilled in 1.25 days, to a depth of 12.5 meters (41 feet), and a stone density of 2,500 kg/m3.
Material handling for cone crusher and Screen #2 = 200 tonnes per hour, as per call with Keith Porter and Shawn Jordan on November 16, 2006.
Emissions have been corrected to PM44, as AP-42 presents PM100.

Sample calculation for TSP emissions from Source SILO_1: Silo #1 Bin Vent

$$\frac{20\ Mg_{processed}}{1\ h} \times \frac{3.6E\text{-}01\ kg_{TSP}}{1\ Mg_{processed}} \times \frac{1\ h}{3600\ s} \times \frac{1000}{1} \times \frac{0.1\%\ g_{TSP\ uncontrolled}}{1\ g_{TSP}} = 2.00E\text{-}03\ g_{TSP}/s$$

Appendix P25: Biosolids and Compost Facility Calculations - SO2 Emissions for Boiler (BIOFILTR)

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Maximum Production Rate (Biosolids Throughput)	2800	kg DS / hr
Biofilter Flowrate	22.2	m³/s

CAS No.	Chemical Name	Concentration in Biosolids [1] (g/kg DS/hr)	Source Concentration (µg/m³)	Control Efficiency of Acid Scrubber	Control Efficiency of Biofilter	Maximum Production			Notes
						Emission Rate (g/hr)	Emission Rate (g/s)	Emission Rate (g/m2-s)	
7446-09-5	Sulfur Dioxide	-	1,200	95%	-	-	1.33E-03	2.53E-06	[1]

Notes:

[1] Area of the biofilter is 65m x 8.1m = 526.5 m2.

[2] Based on information provided by Sandwell Consulting Engineers for original application.

Sample calculation for Sulfur Dioxide emission rate for Source: BIOFILTR

$$\frac{1200.00\ \mu g}{1\ m^3} \times \frac{22.2\ m^3}{1\ h} \times \frac{5\%\ \text{Loss}}{} \times \frac{1\ g}{1{,}000{,}000\ \mu g} \times \frac{}{526.5\ m2} = 2.53E\text{-}06\ g/m^2\text{-}s$$

Appendix P26: Biosolids and Compost Facility Calculations - Boiler (BIOFILTR)

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Parameter	Value	Units
Fuel Type	Natural Gas	
Fuel Heating Value	1020	(Btu/scf)
Fuel Density		(lb/gal)
Firing Configuration	Wall-fired	
Boiler Efficiency	80%	(%)
Excess Air	0.3	(%)

Exhaust Information	Value	Units
Exhaust Temperature (°C)	175	(°C)
Calculated Exit Temperature	448	(K)

Fuel Sulphur Information	Value	Units
Natural Gas Sulphur Content	2000	(grains/10^6scf)
Fuel Oil Sulphur Content	0	(%)

Rating (enter one set of units)	Value	Units
Boiler Heat Input (Btu/h)	12,660,000	(Btu/h)
Calculated Heat Input	12.66	(MMBtu/hr)
Boiler Size Cut-off	<100	(MMBtu/hr)

Pollution Controls	Value	Units
NSPS	n/a	
Low-NOx Burners	no	
Flue-gas Recirculation	no	

Fuel & Air Parameters	Value	Units	Sample Calculation / Comment
Fuel Consumption	12412	(scf/h)	= (12.66 MMBTU/h) x (1000000 BTU/MMBTU) / (1020 BTU/scf)
	351508	(L/h)	
Fuel Molar Flow Rate (NG Only)	14871	(mol'h)	= (12412 scf/h) x (28.32 L/scf) x (101.3 kPa) / (8.314 L·kPa/mol·K) / (288 K)
Fuel Mass Flow Rate	238	(kg/h)	= (14871 mol/h) x (16.03 g/mol) / (1000 g/kg)
Stoichiometric Ratio (NG only)	13.376	ratio	= 1 CO2 + 2 H2O + 0.6 O2 + 2 x 3.76 x (1 + 0.3) N2 per mol CH4
Theoretical Moist Air (Oil Only)	not applicable		
Combustion Air	184043	(mol/h)	= (14871 mol fuel / h) x (2 mol O2 / mol fuel) x (1 + (30% XS Air)) x (4.76 mol air / mol O2)
	5300	(kg/h)	= (184043 mol air / h) x (28.8 g air / mol air) / (1000 g / kg)
	4124	(m^3/h) @ 0°C	= (184043 mol/h) x (8.314 L·kPa/mol·K) x (288 K) / (101.3 kPa) / (1000 L/m^3)
	2427	(scfm) @ 0°C	= (4124 m^3/h) x (35.31 ft^3/m^3) / (60 min/h)

Exhaust Parameters	Value	Units	Sample Calculation
Exhaust Gas Molar Flow (NG only)	198914	(mol/h)	= (14871 mol/h) x (13.376 mol exhaust / mol fuel)
Theoretical Flue Gas (Oil Only)	not applicable	(m^3_{air} / L_{fuel})	
Exhaust Gas Mass Flow Rate	5538	(kg/h)	= (14871 mol fuel / h) x (373 g exhaust / mol fuel)
Exhaust Gas Flow	7314	(Am³/h)	= (198914 mol/h) x (8.314 L·kPa/mol·K) x (448 K) / (101.3 kPa) / (1000 L/m^3)
	2.03	(Am³/s)	= (7314 m^3 / h) / (3600 s / h)
	4702	(m^3/h) @ 0°C	= (7314 m^3 / h) x (288K) / (448 K)
	2767	(scfm) @ 0°C	= (4702 m^3 / h) x (35.31 ft^3 / m^3) / (60 min / h)

Emission Calculations for the Biosolids Natural Gas Fired Dryer Exhausting through Biofilter

Based on Manufacturer's specifications

Emissions Guarantee from Manufacturer: 45 ppm NOx at 3% O_2

Exhaust Gas Molar Flow Rate (based on calculations in boiler spreadsheet) : 14,871 mol/hr

Molecular Weight of Nitrogen Oxides (based on MW of Nitrogen Dioxide) : 46.05 g/mol

Sample Calculation

NOx Emissions (g/s) = Exhaust Gas Molar Flow Rate x NOx Emission Rate x NOx Molecular Weight x conversion factors
NOx Emissions (g/s) = (14871 mol / hr) * (45 / 1,000,000) * (46.05 g/mol) * (1 hr / 3,600 s)
NOx Emissions (g/s) = 8.56E-03 g/s
NOx Emissions (g/m^2-s) = ######### , with an area of 65m x 8.1m = 526.5 m2

Appendix P27: Biosolids and Compost Facility Calculations - Boiler (BOILERS)

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Parameter	Value	Units
Fuel Type	Natural Gas	
Fuel Heating Value	1020	(Btu/scf)
Fuel Density		(lb/gal)
Firing Configuration	Wall-fired	
Boiler Efficiency	80%	(%)
Excess Air	0.3	(%)

Exhaust Information	Value	Units
Exhaust Temperature (°C)	125	(°C)
Calculated Exit Temperature	398	(K)

Fuel Sulphur Information	Value	Units
Natural Gas Sulphur Content	2000	(grains/10^6scf)
Fuel Oil Sulphur Content	0	(%)

Rating (enter one set of units)	Value	Units
Boiler Heat Input (Btu/h)	650,000	(Btu/h)
Calculated Heat Input	0.65	(MMBtu/hr)
Boiler Size Cut-off	<100	(MMBtu/hr)

Pollution Controls	Value	Units
NSPS	n/a	
Low-NOx Burners	no	
Flue-gas Recirculation	no	

Fuel & Air Parameters	Value	Units	Sample Calculation / Comment
Fuel Consumption	637	(scf/h)	= (0.65 MMBTU/h) x (1000000 BTU/MMBTU) / (1020 BTU/scf)
	18040	(L/h)	
Fuel Molar Flow Rate (NG Only)	763	(mol'h)	= (637 scf/h) x (28.32 L/scf) x (101.3 kPa) / (8.314 L·kPa/mol·K) / (288 K)
Fuel Mass Flow Rate	12	(kg/h)	= (763 mol/h) x (16.03 g/mol) / (1000 g/kg)
Stoichiometric Ratio (NG only)	13.376	ratio	= 1 CO2 + 2 H2O + 0.6 O2 + 2 x 3.76 x (1 + 0.3) N2 per mol CH4
Theoretical Moist Air (Oil Only)	not applicable		
Combustion Air	9443	(mol/h)	= (763 mol fuel / h) x (2 mol O2 / mol fuel) x (1 + (30% XS Air)) x (4.76 mol air / mol O2)
	272	(kg/h)	= (9443 mol air / h) x (28.8 g air / mol air) / (1000 g / kg)
	212	(m^3/h) @ 0°C	= (9443 mol/h) x (8.314 L·kPa/mol·K) x (288 K) / (101.3 kPa) / (1000 L/m^3)
	125	(scfm) @ 0°C	= (212 m^3/h) x (35.31 ft^3/m^3) / (60 min/h)

Exhaust Parameters	Value	Units	Sample Calculation
Exhaust Gas Molar Flow (NG only)	10206	(mol/h)	= (763 mol/h) x (13.376 mol exhaust / mol fuel)
Theoretical Flue Gas (Oil Only)	not applicable	(m^3_{air} / L_{fuel})	
Exhaust Gas Mass Flow Rate	279	(kg/h)	= (763 mol fuel / h) x (373 g exhaust / mol fuel)
Exhaust Gas Flow	333	(Am^3/h)	= (10206 mol/h) x (8.314 L·kPa/mol·K) x (398 K) / (101.3 kPa) / (1000 L/m^3)
	0.09	(Am^3/s)	= (333 m^3 / h) / (3600 s / h)
	241	(m^3/h) @ 0°C	= (333 m^3 / h) x (288K) / (398 K)
	142	(scfm) @ 0°C	= (241 m^3 / h) x (35.31 ft^3 / m^3) / (60 min / h)

Criteria Contaminants	Emission Factor Value	Emission Factor Units	Emission Rate Value	Emission Rate Units	Data Quality	Sample Calculation
Sulphur Dioxide	0.6	(lb/10^6scf)	4.82E-05	(g/s)	A	= (637 scf/h) x (0.6 lb / 10^6 scf) x (453.6 g / lb) / (3600 s / h)
Oxides of Nitrogen	100	(lb/10^6scf)	8.03E-03	(g/s)	B	= (637 scf/h) x (100 lb / 10^6 scf) x (453.6 g / lb) / (3600 s / h)
Filterable Particulate	7.6	(lb/10^6scf)	6.10E-04	(g/s)	D	= (637 scf/h) x (7.6 lb / 10^6 scf) x (453.6 g / lb) / (3600 s / h)
Condensible Particulate	--		--			
Total Particulate	7.6	(lb/10^6scf)	6.10E-04	(g/s)	D	= (637 scf/h) x (7.6 lb / 10^6 scf) x (453.6 g / lb) / (3600 s / h)

Note: Total Particulate = Filterable + Condensible, if applicable. Lowest data quality rating of either filterable or condensible applied.

Appendix P28: Biosolids and Compost Facility Calculations - Boiler (HEATING)

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Parameter	Value	Units
Fuel Type	Natural Gas	
Fuel Heating Value	1020	(Btu/scf)
Fuel Density		(lb/gal)
Firing Configuration	Wall-fired	
Boiler Efficiency	0.8	(%)
Excess Air	0.3	(%)

Exhaust Information	Value	Units
Exhaust Temperature (°C)	175	(°C)
Calculated Exit Temperature	448	(K)

Fuel Sulphur Information	Value	Units
Natural Gas Sulphur Content	2000	(grains/10^6scf)
Fuel Oil Sulphur Content	0	(%)

Rating (enter one set of units)	Value	Units
Boiler Heat Input (Btu/h)	1,215,000	(Btu/h)
Calculated Heat Input	1.22	(MMBtu/hr)
Boiler Size Cut-off	<100	(MMBtu/hr)

Pollution Controls	Value	Units
NSPS	n/a	
Low-NOx Burners	no	
Flue-gas Recirculation	no	

Fuel & Air Parameters	Value	Units	Sample Calculation / Comment
Fuel Consumption	1196	(scf/h)	= (1.22 MMBTU/h) x (1000000 BTU/MMBTU) / (1020 BTU/scf)
	33871	(L/h)	
Fuel Molar Flow Rate (NG Only)	1433	(mol'h)	= (1196 scf/h) x (28.32 L/scf) x (101.3 kPa) / (8.314 L·kPa/mol·K) / (288 K)
Fuel Mass Flow Rate	23	(kg/h)	= (1433 mol/h) x (16.03 g/mol) / (1000 g/kg)
Stoichiometric Ratio (NG only)	13.376	ratio	= 1 CO2 + 2 H2O + 0.6 O2 + 2 x 3.76 x (1 + 0.3) N2 per mol CH4
Theoretical Moist Air (Oil Only)	not applicable		
Combustion Air	17735	(mol/h)	= (1433 mol fuel / h) x (2 mol O2 / mol fuel) x (1 + (30% XS Air)) x (4.76 mol air / mol O2)
	511	(kg/h)	= (17735 mol air / h) x (28.8 g air / mol air) / (1000 g / kg)
	397	(m^3/h) @ 0°C	= (17735 mol/h) x (8.314 L·kPa/mol·K) x (288 K) / (101.3 kPa) / (1000 L/m^3)
	234	(scfm) @ 0°C	= (397 m^3/h) x (35.31 ft^3/m^3) / (60 min/h)

Exhaust Parameters	Value	Units	Sample Calculation
Exhaust Gas Molar Flow (NG only)	19168	(mol/h)	= (1433 mol/h) x (13.376 mol exhaust / mol fuel)
Theoretical Flue Gas (Oil Only)	not applicable	(m^3_{air} / L_{fuel})	
Exhaust Gas Mass Flow Rate	535	(kg/h)	= (1433 mol fuel / h) x (373 g exhaust / mol fuel)
Exhaust Gas Flow	705	(Am³/h)	= (19168 mol/h) x (8.314 L·kPa/mol·K) x (448 K) / (101.3 kPa) / (1000 L/m^3)
	0.20	(Am³/s)	= (705 m^3 / h) / (3600 s / h)
	453	(m^3/h) @ 0°C	= (705 m^3 / h) x (288K) / (448 K)
	267	(scfm) @ 0°C	= (453 m^3 / h) x (35.31 ft^3 / m^3) / (60 min / h)

Criteria Contaminants	Emission Factor Value	Emission Factor Units	Emission Rate Value	Emission Rate Units	Data Quality	Sample Calculation
Sulphur Dioxide	0.6	(lb/10^6scf)	9.04E-05	(g/s)	A	= (1196 scf/h) x (0.6 lb / 10^6 scf) x (453.6 g / lb) / (3600 s / h)
Oxides of Nitrogen	100	(lb/10^6scf)	1.51E-02	(g/s)	B	= (1196 scf/h) x (100 lb / 10^6 scf) x (453.6 g / lb) / (3600 s / h)
Filterable Particulate	7.6	(lb/10^6scf)	1.15E-03	(g/s)	D	= (1196 scf/h) x (7.6 lb / 10^6 scf) x (453.6 g / lb) / (3600 s / h)
Condensible Particulate	--		--			
Total Particulate	7.6	(lb/10^6scf)	1.15E-03	(g/s)	D	= (1196 scf/h) x (7.6 lb / 10^6 scf) x (453.6 g / lb) / (3600 s / h)

Note: Total Particulate = Filterable + Condensible, if applicable. Lowest data quality rating of either filterable or condensible applied.

Appendix P29: Biosolids and Compost Facility Calculations - Boiler (R_BLDG)

RWDI Project #2402272

Walker South Landfill Phase 2 Environmental Assessment

Parameter	Value	Units
Fuel Type	No. 2 Fuel Oil	
Fuel Heating Value	137000	(Btu/gal)
Fuel Density		(lb/gal)
Firing Configuration	Normal firing	
Boiler Efficiency	0.8	(%)
Excess Air	0.15	(%)

Exhaust Information	Value	Units
Exhaust Temperature (°C)	175	(°C)
Calculated Exit Temperature	448	(K)

Fuel Sulphur Information	Value	Units
Natural Gas Sulphur Content	2000	(grains/10^6scf)
Fuel Oil Sulphur Content	0.5	(%)

Rating (enter one set of units)	Value	Units
Boiler Heat Input (Btu/h)	350,000	(Btu/h)
Calculated Heat Input	0.35	(MMBtu/hr)
Boiler Size Cut-off	<100	(MMBtu/hr)

Pollution Controls	Value	Units
NSPS	n/a	
Low-NOx Burners	no	
Flue-gas Recirculation	no	

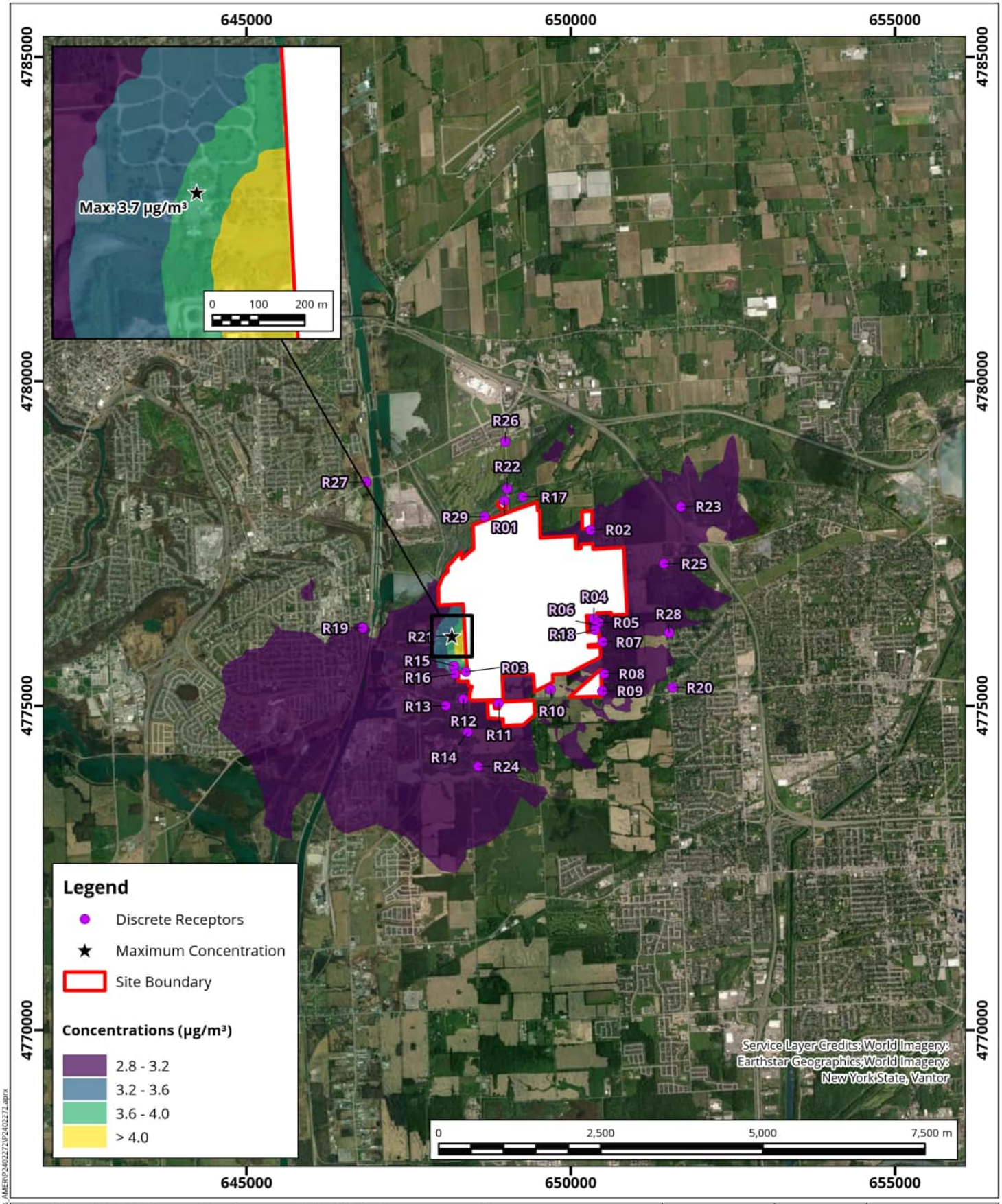
Fuel & Air Parameters	Value	Units	Sample Calculation / Comment
Fuel Consumption	2.6	(gal/h)	= (0.35 MMBTU/h) x (1000000 BTU/MMBTU) / (137000 BTU/gal)
	10	(L/h)	
Fuel Molar Flow Rate (NG Only)	not applicable		not applicable
Fuel Mass Flow Rate	0	(kg/h)	= (2.6 gal/h) x (lb/gal) / (2.205 lb/kg)
Stoichiometric Ratio (NG only)	not applicable		not applicable
Theoretical Moist Air (Oil Only)	345	(kg air / MMBT	based on 7.5 lb theoretical dry air per 10,000 BTU of fuel oil
Combustion Air	4810	(mol/h)	= (139 kg air / h) x (1000 g / kg) / (28.8 g air / mol air)
	139	(kg/h)	= 0.35 MMBTU/h x 345 kg/MMBTU x (115% XS Air)
	108	(m^3/h) @ 0°C	= (4810 mol/h) x (8.314 L·kPa/mol·K) x (288 K) / (101.3 kPa) / (1000 L/m^3)
	64	(scfm) @ 0°C	= (108 m^3/h) x (35.31 ft^3/m^3) / (60 min/h)

Exhaust Parameters	Value	Units	Sample Calculation
Exhaust Gas Molar Flow (NG only)	not applicable	(mol/h)	not applicable
Theoretical Flue Gas (Oil Only)	10.4	(m^3_{air} / L_{fuel})	at standard temperature & pressure
Exhaust Gas Mass Flow Rate	139	(kg/h)	0 kg fuel / h + 139 kg air / h
Exhaust Gas Flow	171	(Am³/h)	= (104 m^3 air / h) x (448 K) / (288K)
	0.05	(Am³/s)	= (171 m^3 / h) / (3600 s / h)
	104	(m^3/h) @ 0°C	= (10.4 m^3 air / L fuel) x (10 L fuel / h)
	61	(scfm) @ 0°C	= (104 m^3 / h) x (35.31 ft^3 / m^3) / (60 min / h)

Criteria Contaminants	Emission Factor Value	Emission Factor Units	Emission Rate Value	Emission Rate Units	Data Quality	Sample Calculation
Sulphur Dioxide	71	(lb/10^3gal)	2.33E-02	(g/s)	A	= (2.6 gal / h) x (71 lb / 10^3 gal) x (453.6 g / lb) / (3600 s / h)
Oxides of Nitrogen	20	(lb/10^3gal)	6.55E-03	(g/s)	A	= (2.6 gal / h) x (20 lb / 10^3 gal) x (453.6 g / lb) / (3600 s / h)
Filterable Particulate	2	(lb/10^3gal)	6.55E-04	(g/s)	A	= (2.6 gal / h) x (2 lb / 10^3 gal) x (453.6 g / lb) / (3600 s / h)
Condensible Particulate	1.3	(lb/10^3gal)	4.26E-04	(g/s)	D	= (2.6 gal / h) x (1.3 lb / 10^3 gal) x (453.6 g / lb) / (3600 s / h)
Total Particulate	3.3	(lb/10^3gal)	1.08E-03	(g/s)	D	= (2.6 gal / h) x (3.3 lb / 10^3 gal) x (453.6 g / lb) / (3600 s / h)

Note: Total Particulate = Filterable + Condensible, if applicable. Lowest data quality rating of either filterable or condensible applied.

APPENDIX Q



Predicted 10-Minute Hydrogen Sulphide Concentrations (in µg/m³)

Preferred Method - Scenario 3

Map Projection: NAD 1983 UTM Zone 17N

Walker Landfill - Regional Municipality of Niagara, Ontario

True North

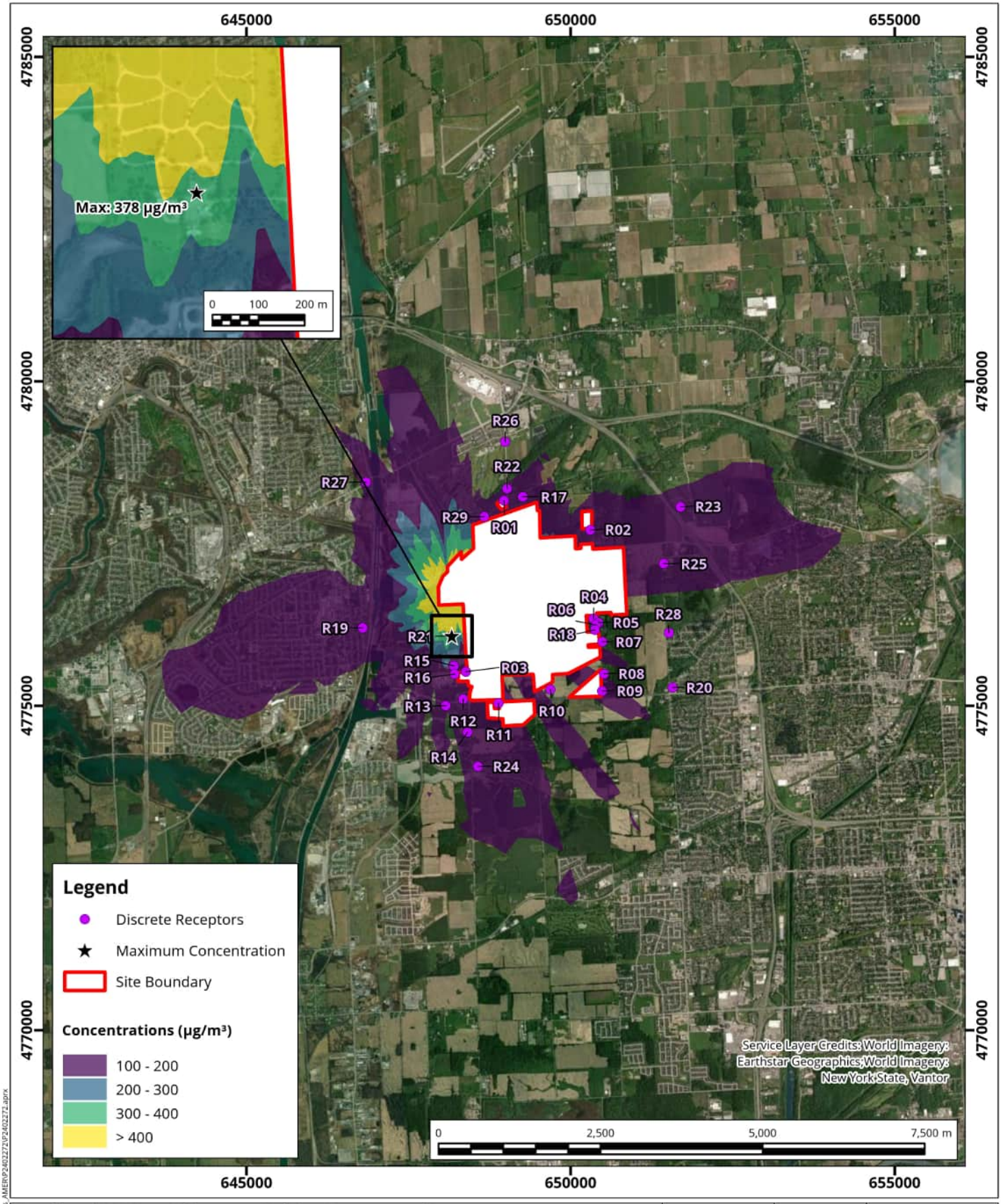
AAQC: 13 µg/m³

Background Concentration: 2.4 µg/m³

Project #: 2402272

Drawn by: PIP	Figure: Q.1
Approx. Scale:	1:80,000
Date Revised:	Jun 23, 2026

Map Document: C:\Working Folder\Jobs_AMER\P\2402272\2402272.aprx



Predicted 1-Hour Nitrogen Oxides Concentrations (in µg/m³)

Preferred Method - Scenario 3

Map Projection: NAD 1983 UTM Zone 17N

Walker Landfill - Regional Municipality of Niagara, Ontario

True North

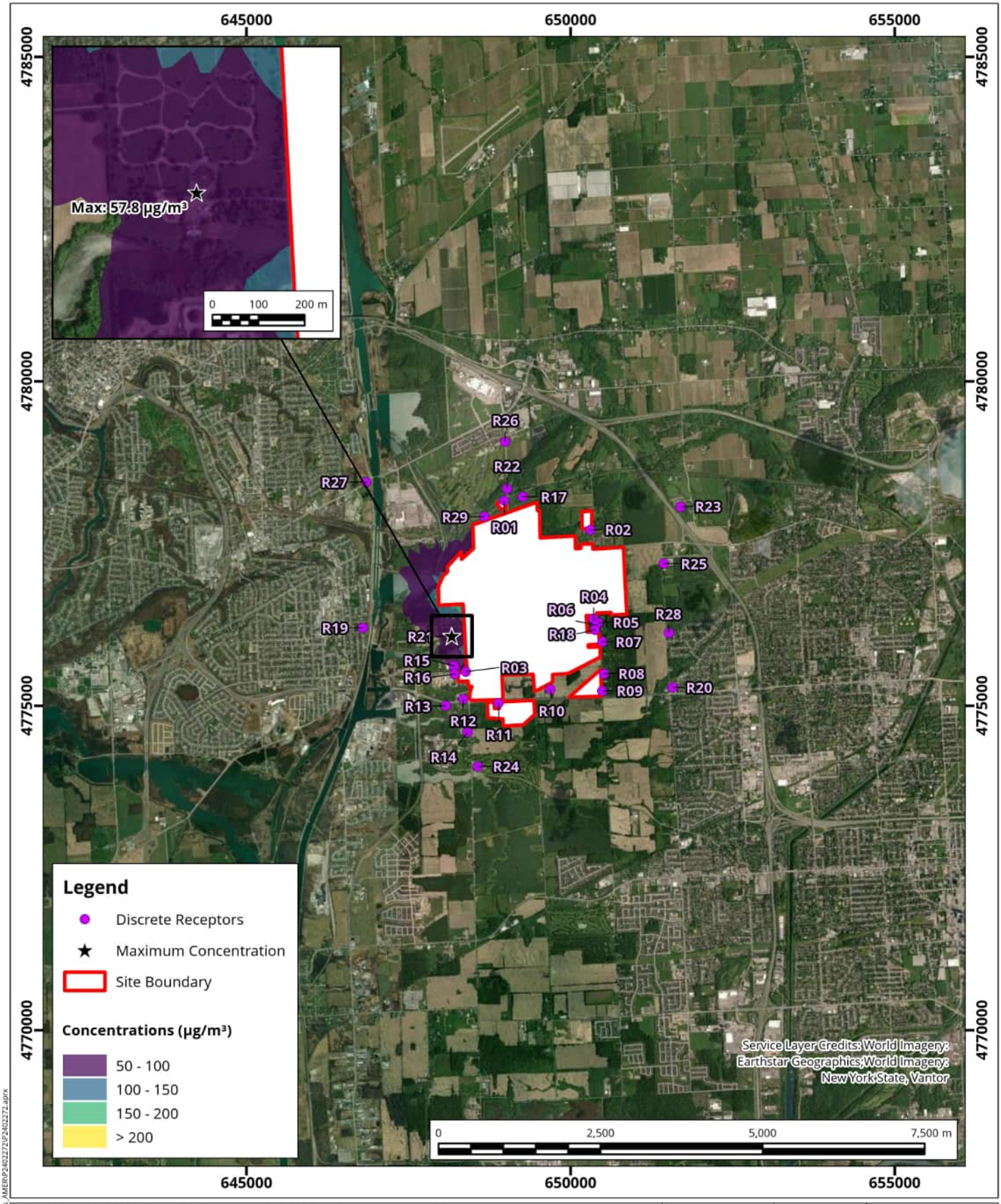
AAQC: 400 µg/m³

Background Concentration: 23.4 µg/m³

Project #: 2402272

Drawn by: PIP	Figure: Q.2
Approx. Scale:	1:80,000
Date Revised:	Jun 23, 2026

Map Document: C:\Working Folder\Jobs_AMEC\P\2402272\2402272.aprx



Predicted 24-Hour Nitrogen Oxides Concentrations (in µg/m³)

Preferred Method - Scenario 3

Map Projection: NAD 1983 UTM Zone 17N

Walker Landfill - Regional Municipality of Niagara, Ontario

True North

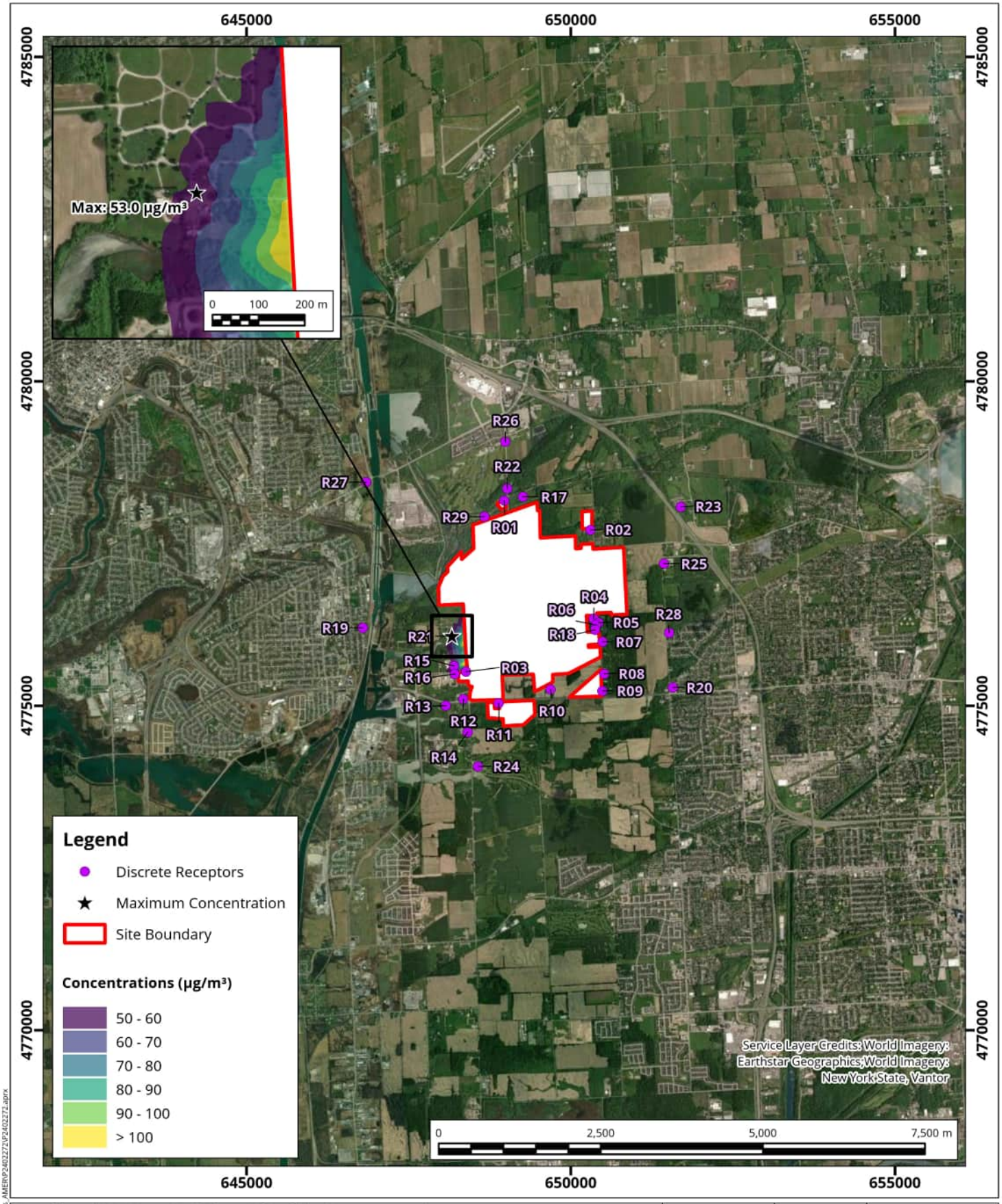
AAQC: 200 µg/m³

Background Concentration: 21.6 µg/m³

Project #: 2402272

Drawn by: PIP	Figure: Q.3
Approx. Scale:	1:80,000
Date Revised:	Jun 23, 2026

Map Document: C:\Working Folder\Jobs_AMER\P2402272\P2402272.aprx



Predicted 1-Hour Sulphur Dioxide Concentrations (in µg/m³)

Preferred Method - Scenario 3

Map Projection: NAD 1983 UTM Zone 17N

Walker Landfill - Regional Municipality of Niagara, Ontario

True North

AAQC: 100 µg/m³

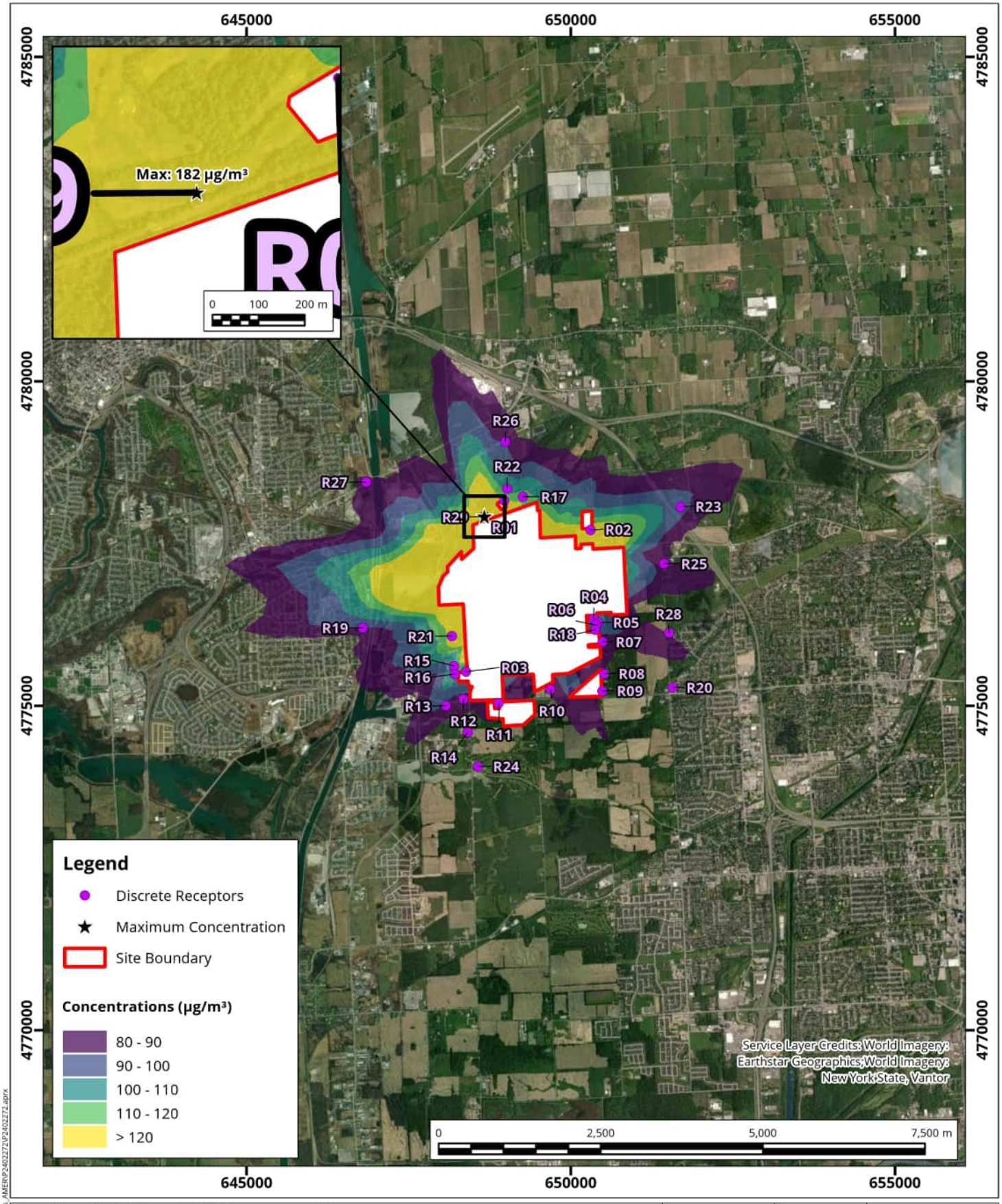
Background Concentration: 1.1 µg/m³

Project #: 2402272

Drawn by: PIP	Figure: Q.4
Approx. Scale:	1:80,000
Date Revised:	Jun 23, 2026

Map Document: C:\WorkingFolder\Jobs_AMER\P2402272\P2402272.aprx

APPENDIX R



Predicted 24-Hour TSP Concentrations (in µg/m³)

Preferred Method - Scenario 1

Map Projection: NAD 1983 UTM Zone 17N

Walker Landfill - Regional Municipality of Niagara, Ontario

True North

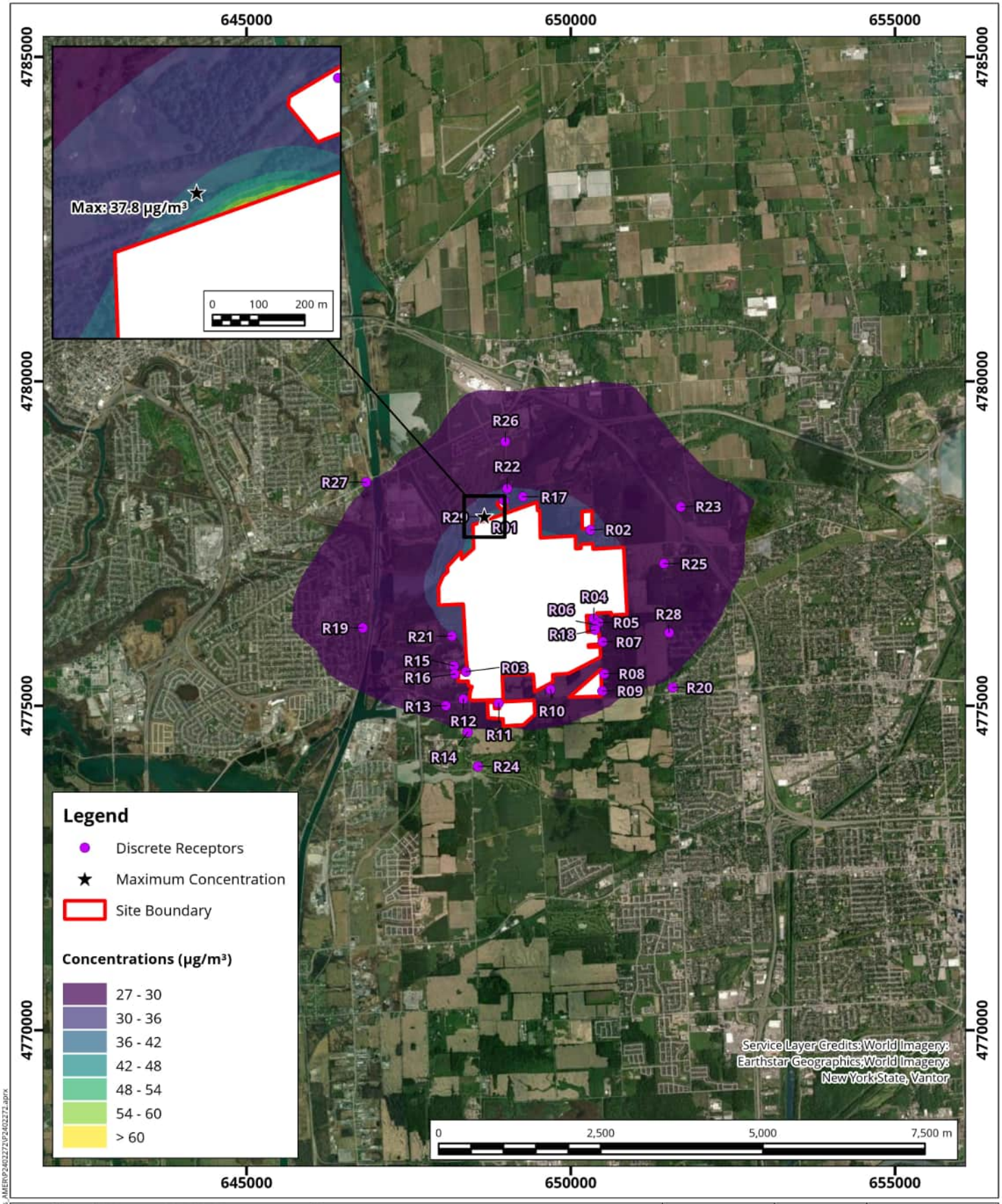
AAQC: 120 µg/m³

Background Concentration: 51 µg/m³

Project #: 2402272

Drawn by: PIP	Figure: R.1
Approx. Scale:	1:80,000
Date Revised:	Jun 19, 2026

Map Document: C:\WorkingFolder\Jobs_AMER\P\2402272\2402272.aprx



Predicted Annual TSP Concentrations (in µg/m³)

Preferred Method - Scenario 1

Map Projection: NAD 1983 UTM Zone 17N

Walker Landfill - Regional Municipality of Niagara, Ontario

True North

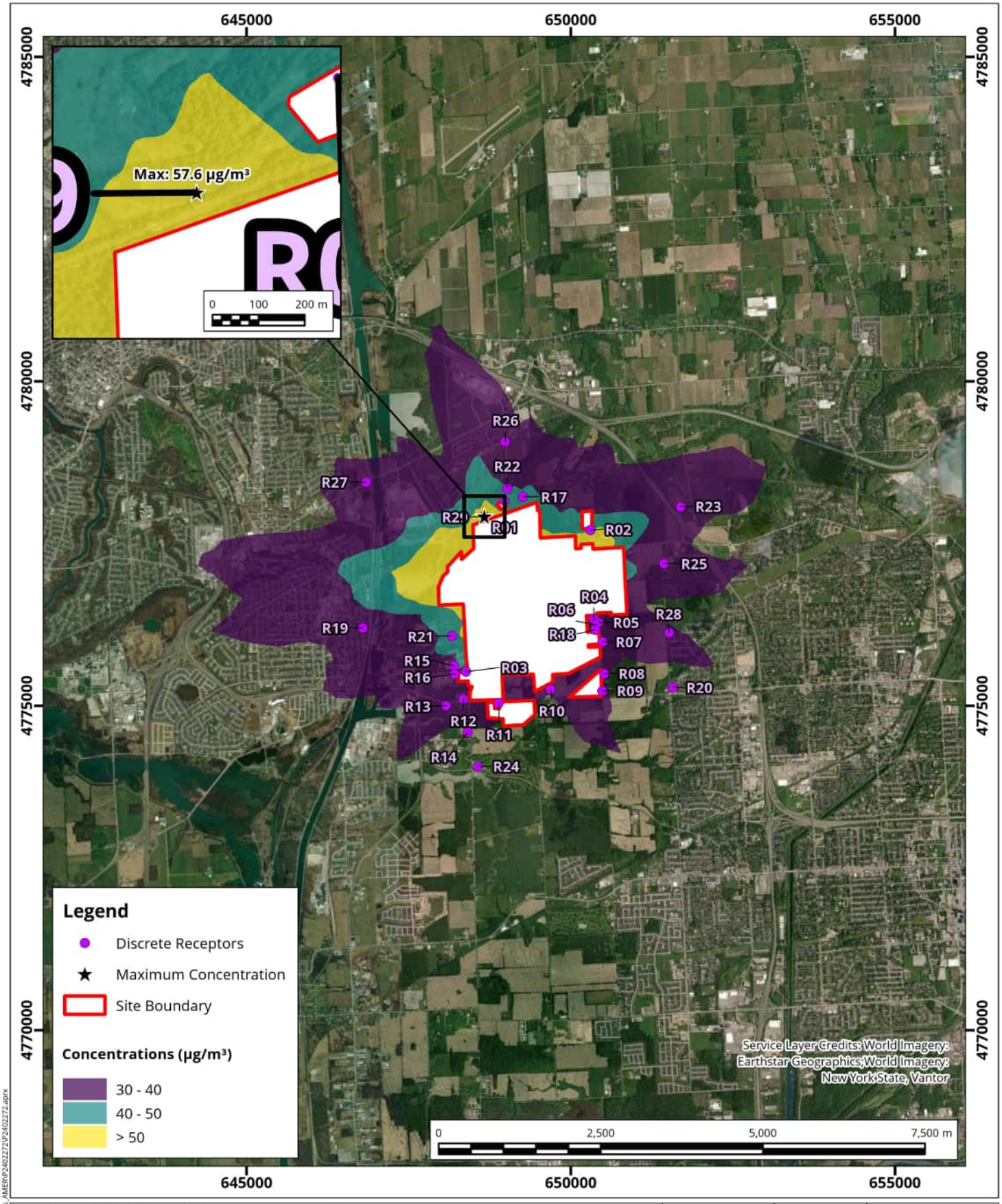
AAQC: 60 µg/m³

Background Concentration: 26 µg/m³

Project #: 2402272

Drawn by: PIP	Figure: R.2
Approx. Scale:	1:80,000
Date Revised:	Jun 23, 2026

Map Document: C:\WorkingFolder\Jobs\AMEC\P\2402272\2402272.aprx



Predicted 24-Hour PM_{10} Concentrations (in µg/m³)

Preferred Method - Scenario 1

Map Projection: NAD 1983 UTM Zone 17N

Walker Landfill - Regional Municipality of Niagara, Ontario

True North

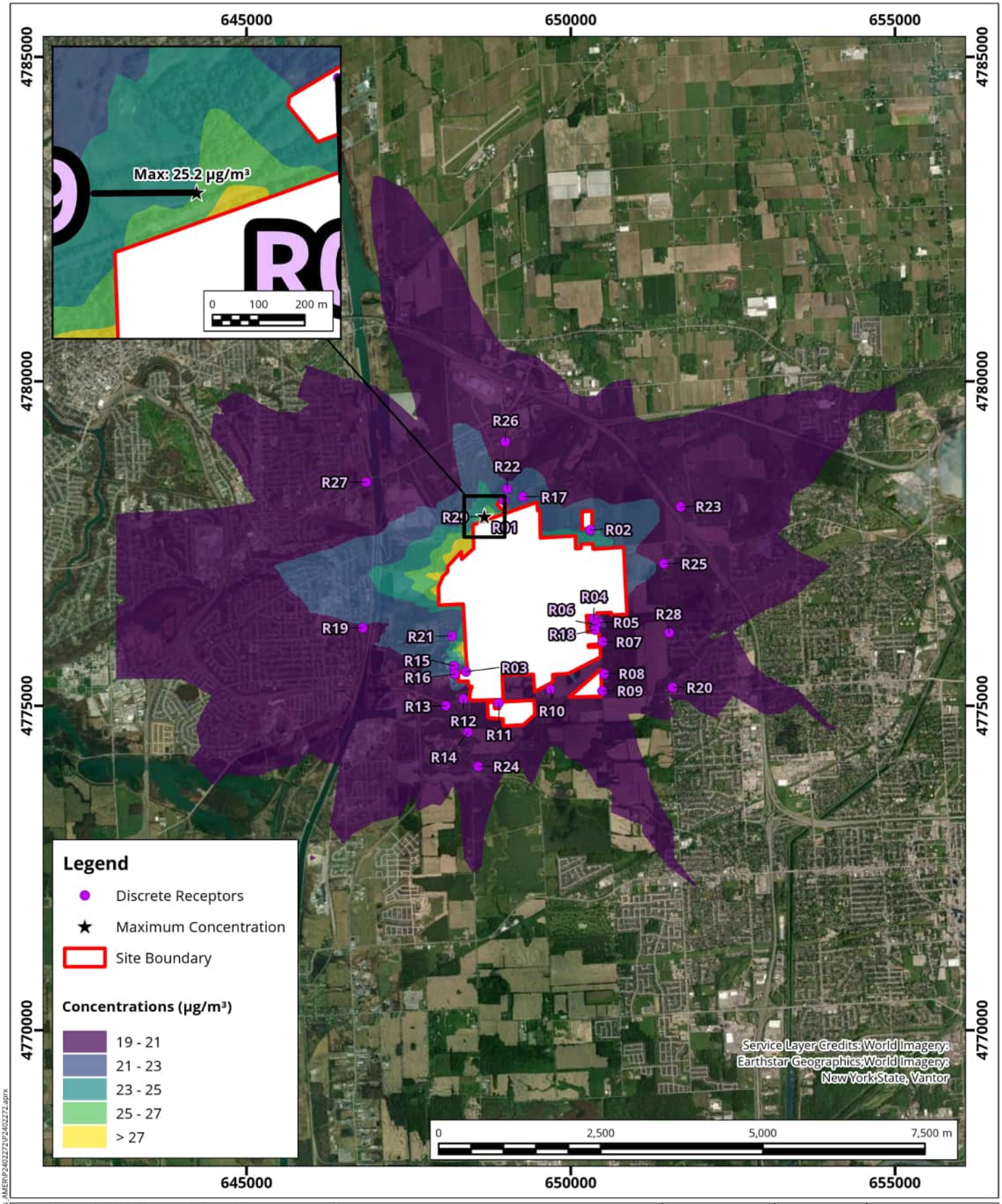
AAQC: 50 µg/m³

Background Concentration: 21.9 µg/m³

Project #: 2402272

Drawn by: PIP	Figure: R.3
Approx. Scale:	1:80,000
Date Revised:	Jun 19, 2026

Map Document: C:\WorkingFolder\Jobs_AMER\P\2402272\2402272.aprx



Map Document: C:\WorkingFolder\Jobs\AMER\P2402272\P2402272.aprx

Predicted 24-Hour $PM_{2.5}$ Concentrations (in µg/m³)

Preferred Method - Scenario 1

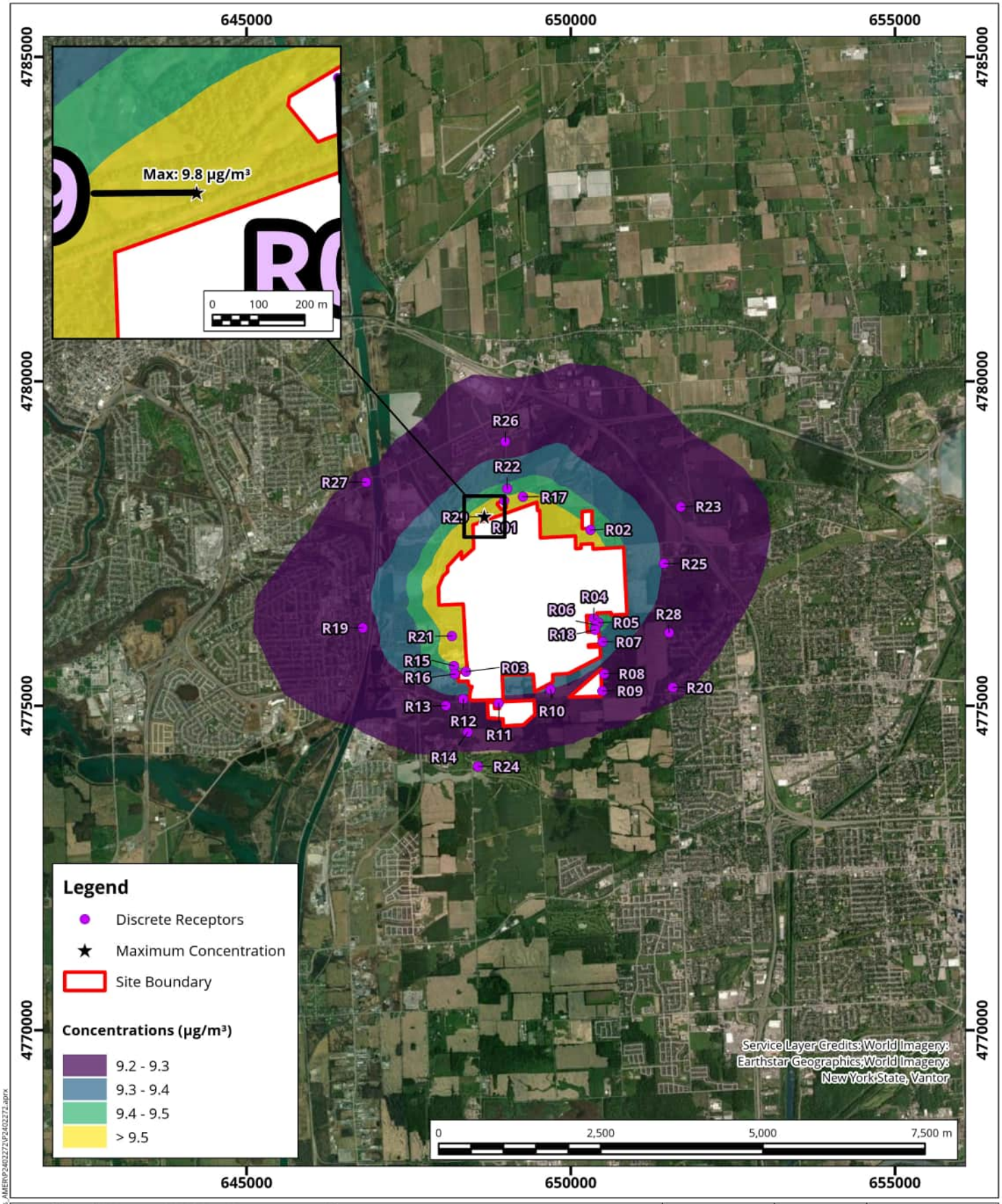
Map Projection: NAD 1983 UTM Zone 17N

Walker Landfill - Regional Municipality of Niagara, Ontario

True North

AAQC / CAAQS 2020: 27 µg/m³
CAAQS 2030: 23 µg/m³
Background Concentration: 17.8 µg/m³
Project #: 2402272

Drawn by: PIP	Figure: R.4
Approx. Scale:	1:80,000
Date Revised:	Jun 19, 2026



Predicted Annual $PM_{2.5}$ Concentrations (in µg/m³)

Preferred Method - Scenario 1

Map Projection: NAD 1983 UTM Zone 17N

Walker Landfill - Regional Municipality of Niagara, Ontario

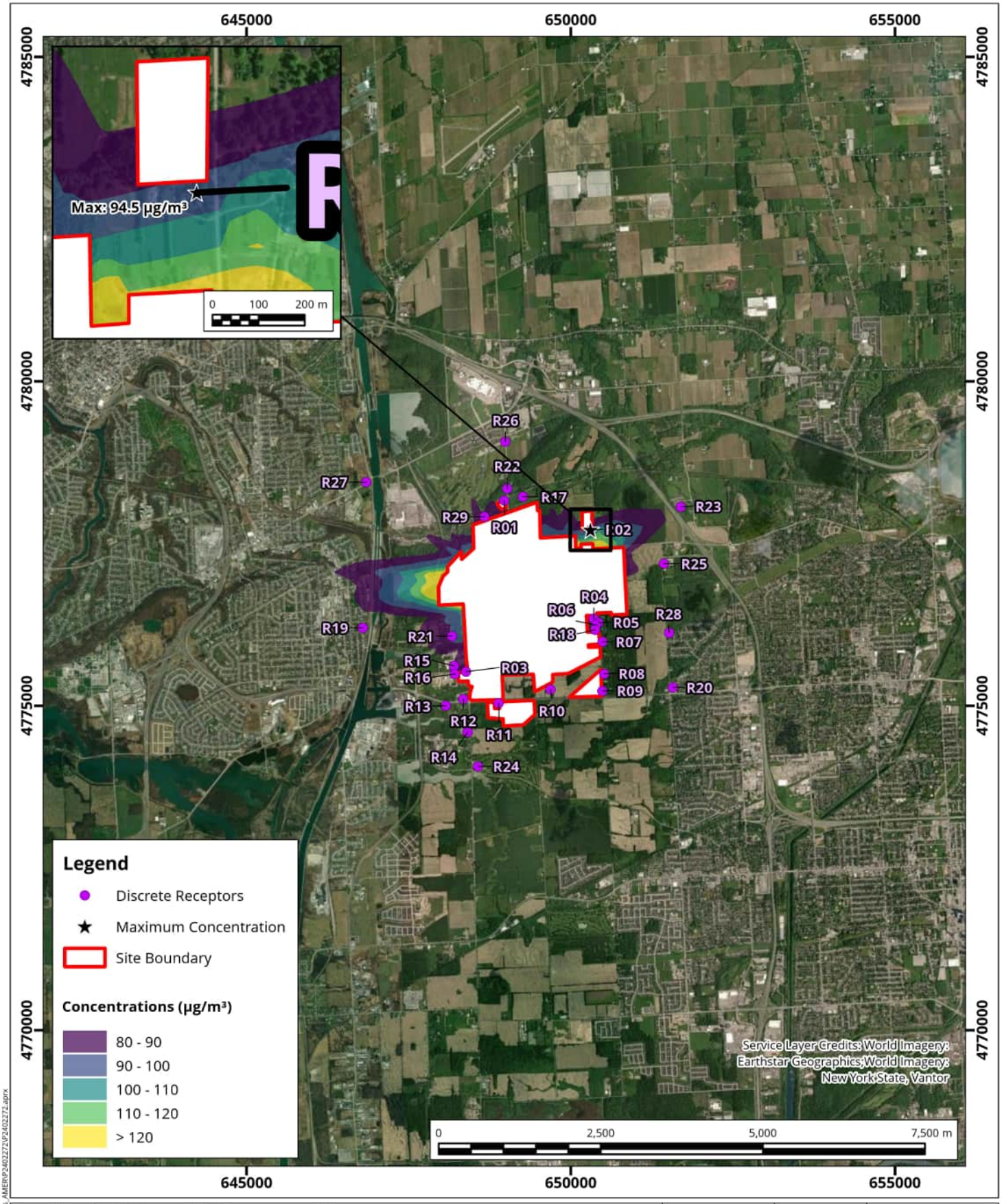
True North

AAQC / CAAQS 2020: 8.8 µg/m³
CAAQS 2030: 8 µg/m³
Background Concentration: 9.1 µg/m³
Project #: 2402272

Drawn by: PIP	Figure: R.5
Approx. Scale:	1:80,000
Date Revised:	Jun 19, 2026

Map Document: C:\WorkingFolder\Jobs_AMER\P\2402272\2402272.aprx

APPENDIX S



Predicted 24-Hour TSP Concentrations (in µg/m³)

Preferred Method - Scenario 2

Map Projection: NAD 1983 UTM Zone 17N

Walker Landfill - Regional Municipality of Niagara, Ontario

True North

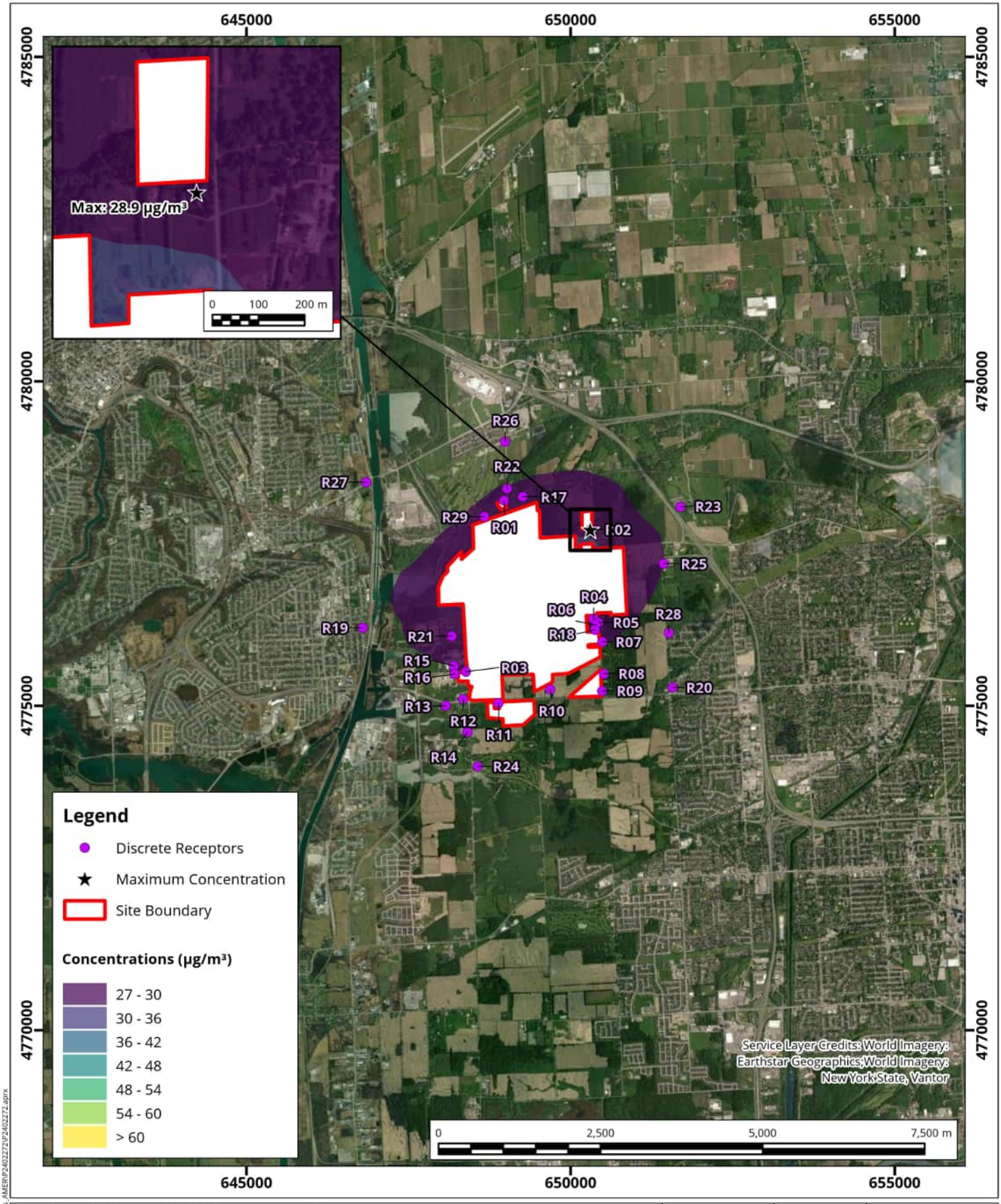
AAQC: 120 µg/m³

Background Concentration: 51 µg/m³

Project #: 2402272

Drawn by: PIP	Figure: S.1
Approx. Scale:	1:80,000
Date Revised:	Jun 19, 2026

Map Document: C:\WorkingFolder\Jobs_AMER\P\2402272\2402272.aprx



Predicted Annual TSP Concentrations (in µg/m³)

Preferred Method - Scenario 2

Map Projection: NAD 1983 UTM Zone 17N

Walker Landfill - Regional Municipality of Niagara, Ontario

True North

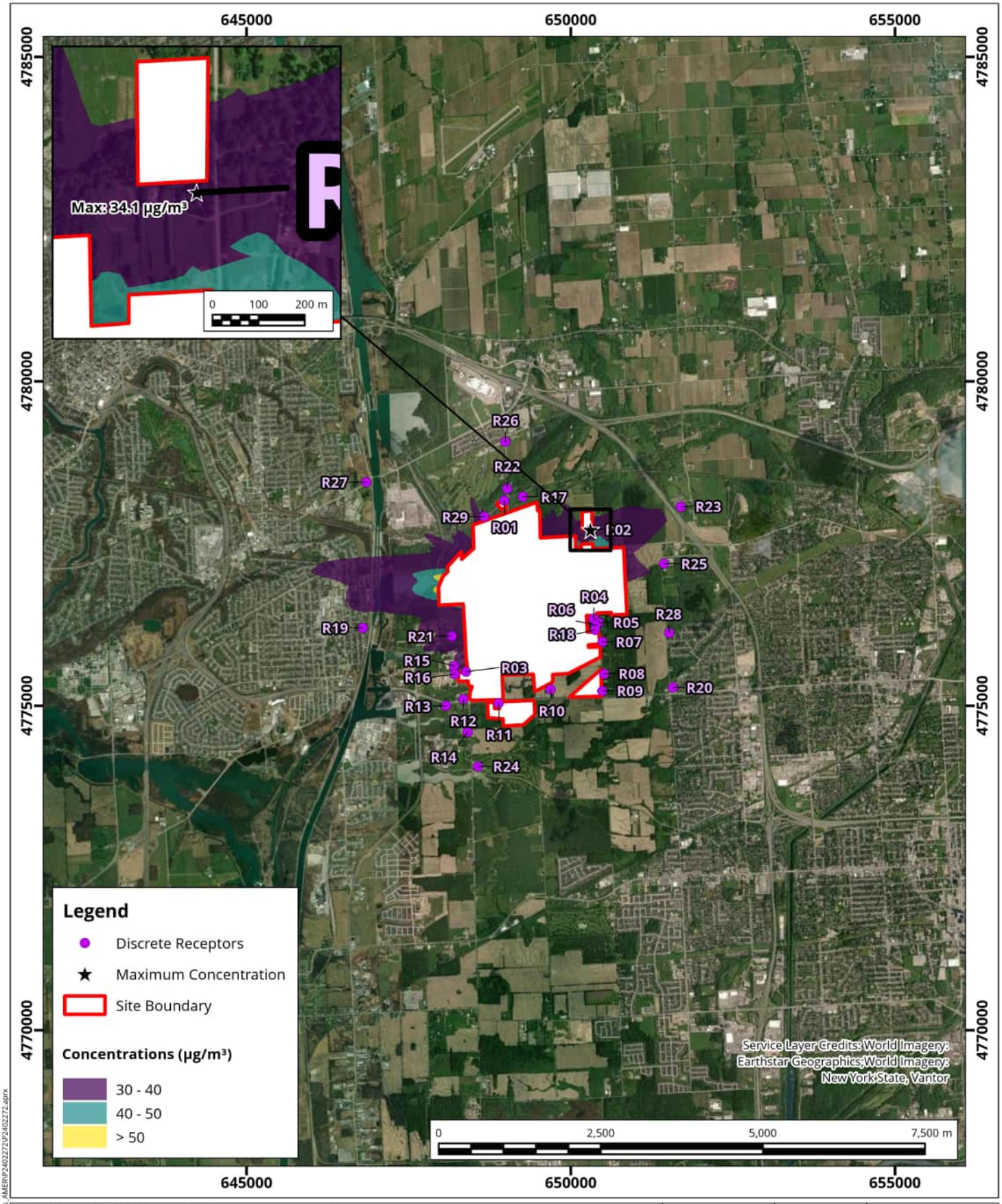
AAQC: 60 µg/m³

Background Concentration: 26 µg/m³

Project #: 2402272

Drawn by: PIP	Figure: S.2
Approx. Scale:	1:80,000
Date Revised:	Jun 23, 2026

Map Document: C:\WorkingFolder\Jobs_AMER\P\2402272\2402272.aprx



Predicted 24-Hour PM_{10} Concentrations (in µg/m³)

Preferred Method - Scenario 2

Map Projection: NAD 1983 UTM Zone 17N

Walker Landfill - Regional Municipality of Niagara, Ontario

True North

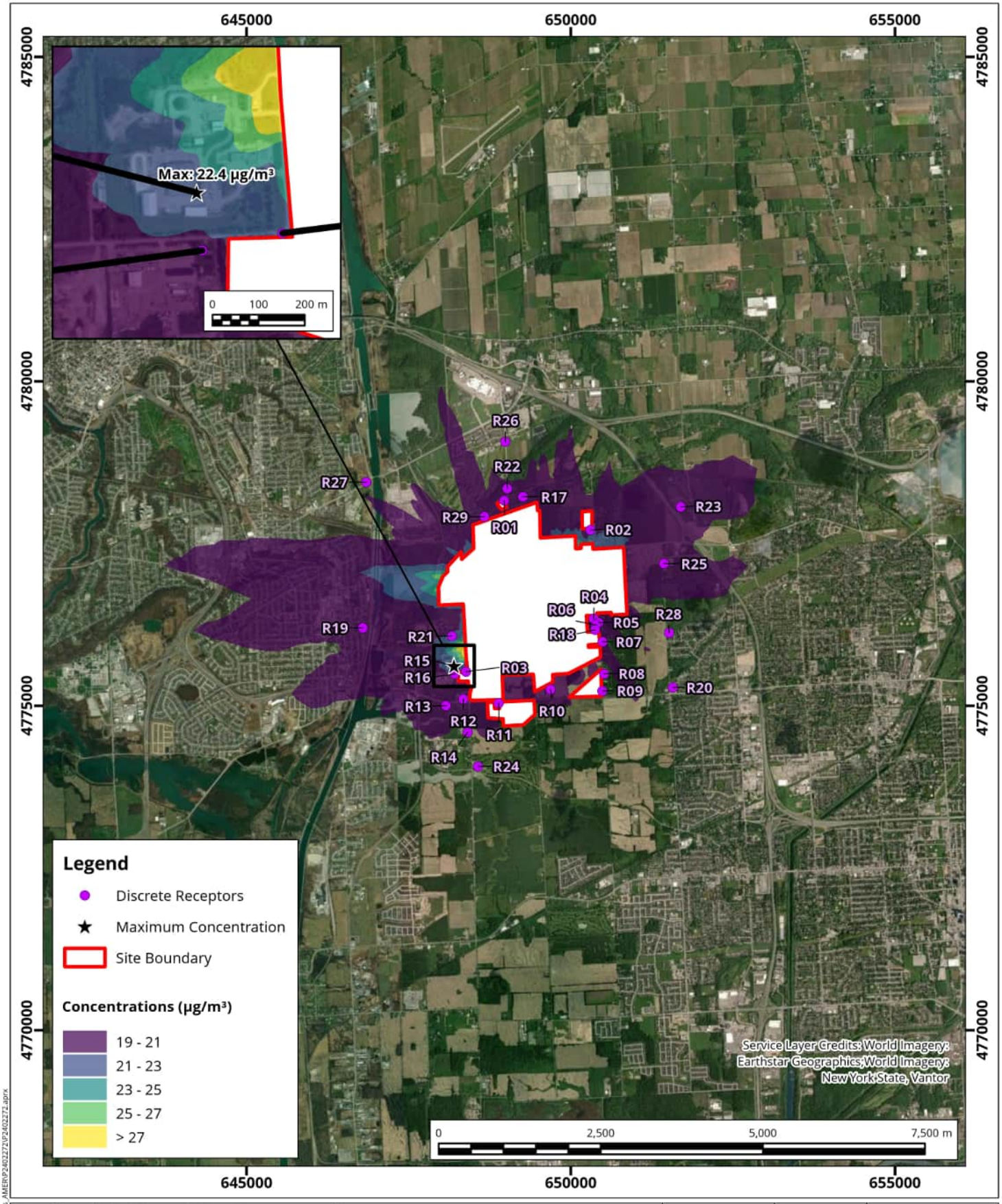
AAQC: 50 µg/m³

Background Concentration: 21.9 µg/m³

Project #: 2402272

Drawn by: PIP	Figure: S.3
Approx. Scale:	1:80,000
Date Revised:	Jun 19, 2026

Map Document: C:\WorkingFolder\Jobs_AMER\P\2402272\2402272.aprx



Predicted 24-Hour $PM_{2.5}$ Concentrations (in µg/m³)

Preferred Method - Scenario 2

Map Projection: NAD 1983 UTM Zone 17N

Walker Landfill - Regional Municipality of Niagara, Ontario

True North

AAQC / CAAQS 2020: 27 µg/m³

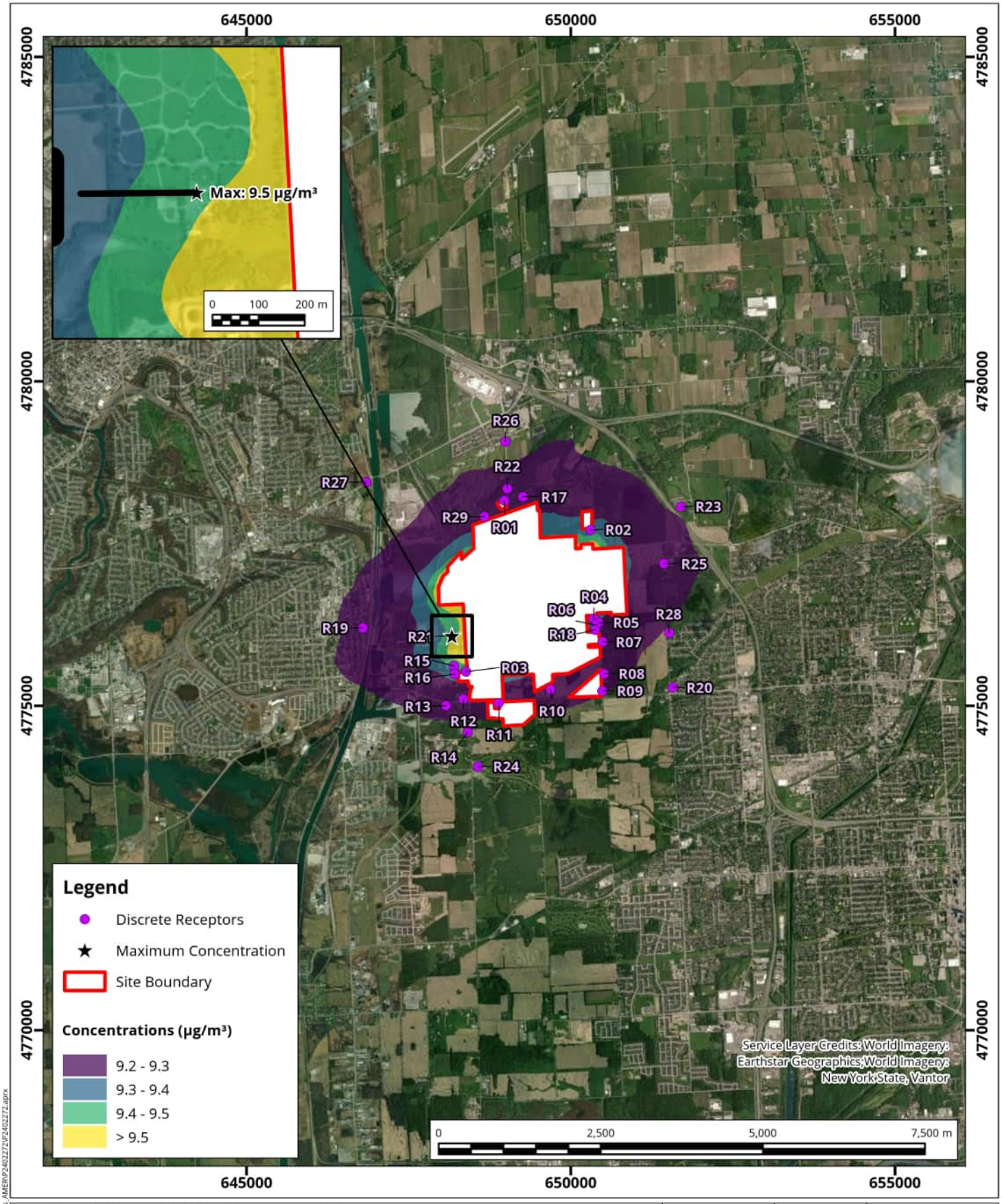
CAAQS 2030: 23 µg/m³

Background Concentration: 17.8 µg/m³

Project #: 2402272

Drawn by: PIP	Figure: S.4
Approx. Scale:	1:80,000
Date Revised:	Jun 19, 2026

Map Document: C:\WorkingFolder\Jobs_AMER\P\2402272\2402272.aprx



Predicted Annual $PM_{2.5}$ Concentrations (in µg/m³)

Preferred Method - Scenario 2

Map Projection: NAD 1983 UTM Zone 17N

Walker Landfill - Regional Municipality of Niagara, Ontario

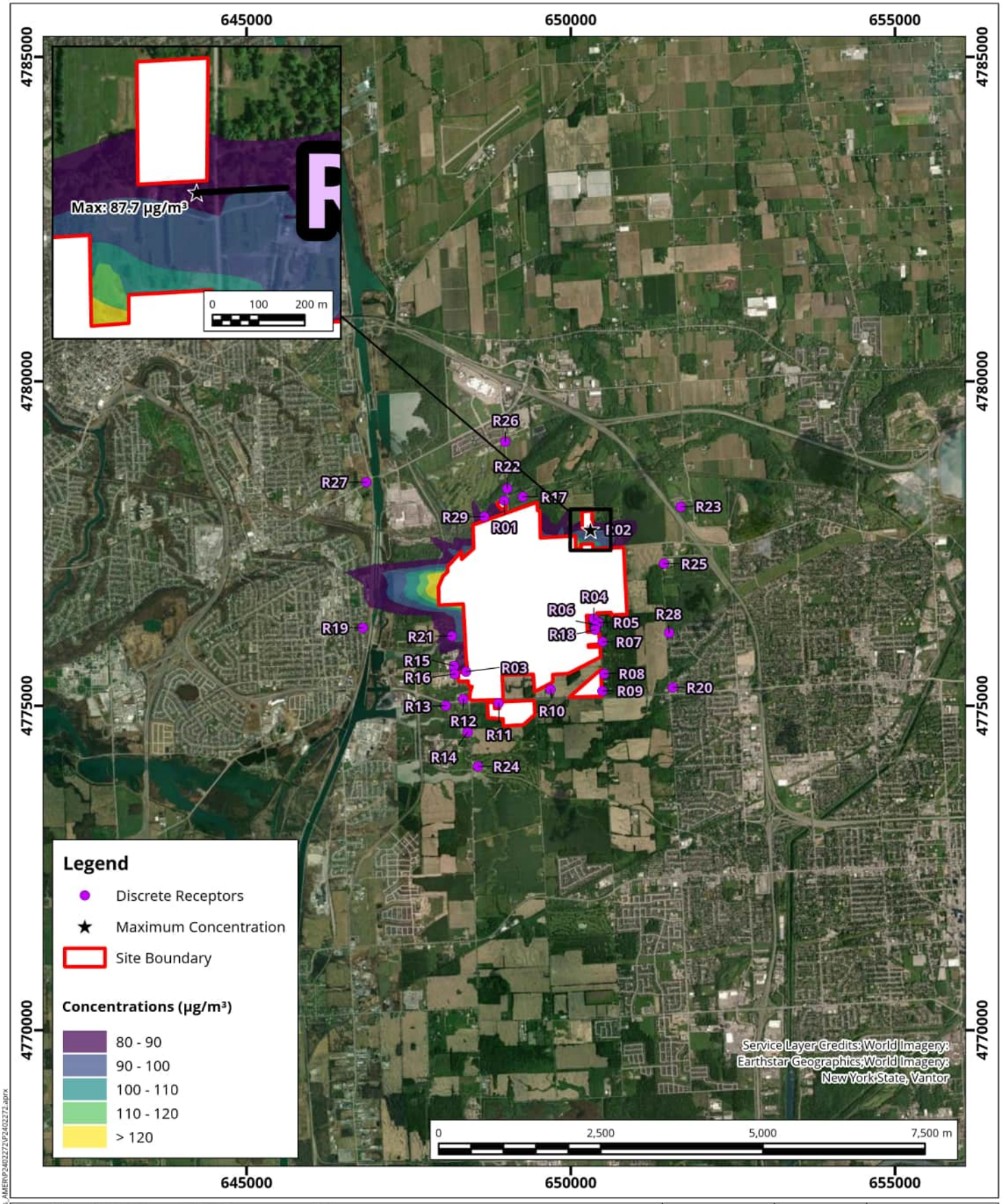
True North

AAQC / CAAQS 2020: 8.8 µg/m³
CAAQS 2030: 8 µg/m³
Background Concentration: 9.1 µg/m³
Project #: 2402272

Drawn by: PIP	Figure: S.5
Approx. Scale:	1:80,000
Date Revised:	Jun 19, 2026

Map Document: C:\WorkingFolder\Jobs_AMER\P\2402272\2402272.aprx

APPENDIX T



Predicted 24-Hour TSP Concentrations (in µg/m³)

Preferred Method - Scenario 3

Map Projection: NAD 1983 UTM Zone 17N

Walker Landfill - Regional Municipality of Niagara, Ontario

True North

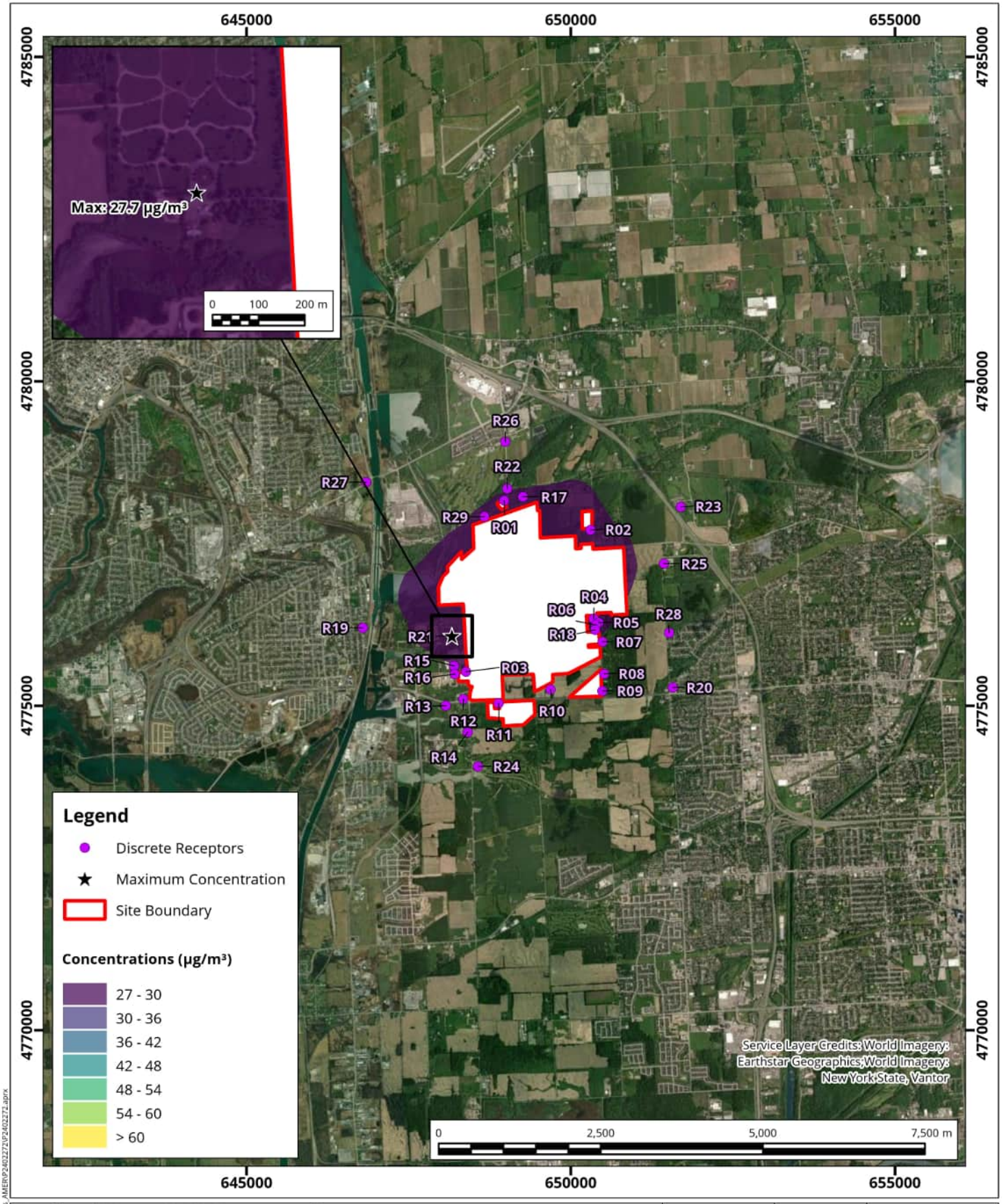
AAQC: 120 µg/m³

Background Concentration: 51 µg/m³

Project #: 2402272

Drawn by: PIP	Figure: T.1
Approx. Scale:	1:80,000
Date Revised:	Jun 19, 2026

Map Document: C:\WorkingFolder\Jobs_AMER\P\2402272\2402272.aprx



Predicted Annual TSP Concentrations (in µg/m³)

Preferred Method - Scenario 3

Map Projection: NAD 1983 UTM Zone 17N

Walker Landfill - Regional Municipality of Niagara, Ontario

True North

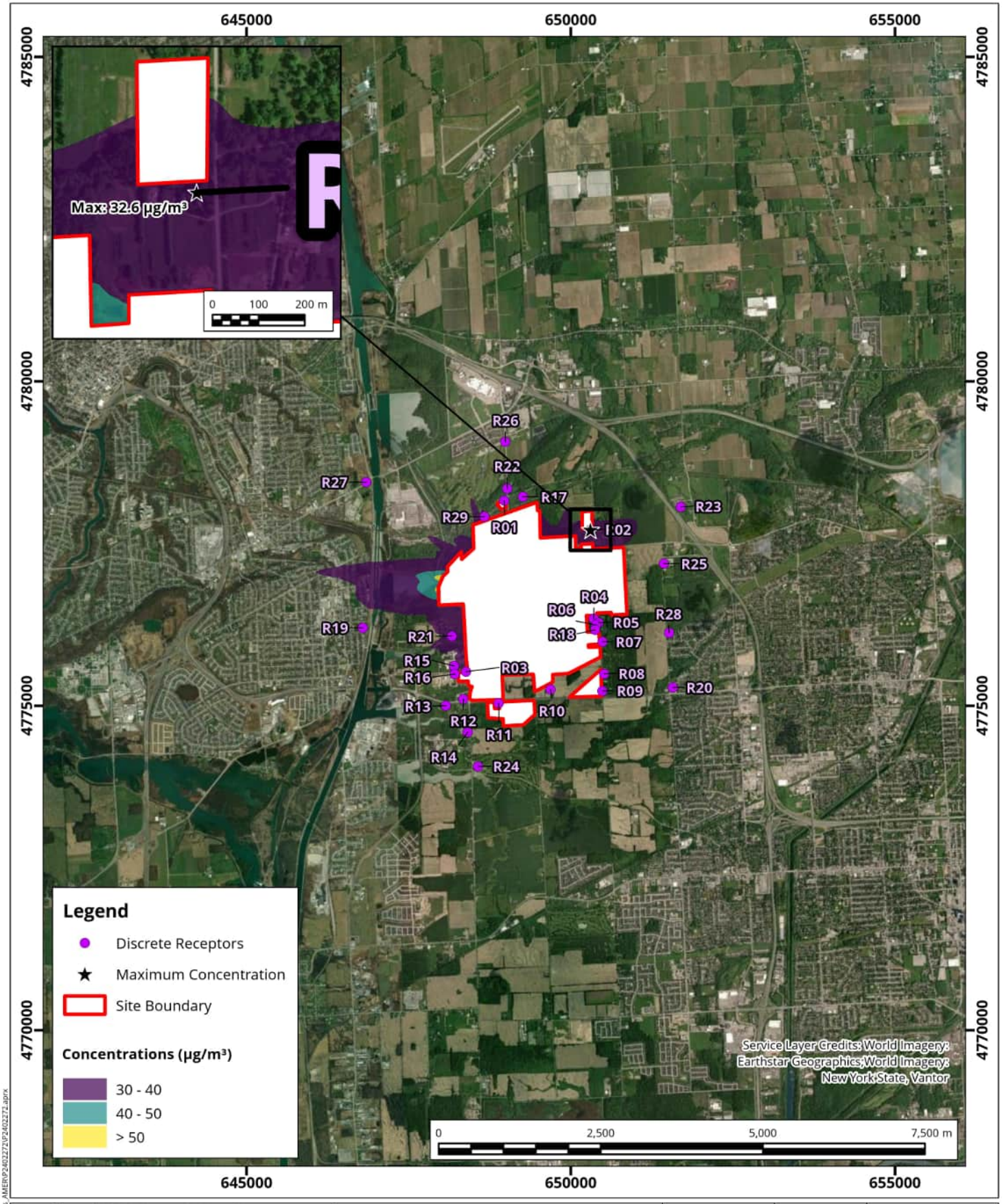
AAQC: 60 µg/m³

Background Concentration: 26 µg/m³

Project #: 2402272

Drawn by: PIP	Figure: T.2
Approx. Scale:	1:80,000
Date Revised:	Jun 23, 2026

Map Document: C:\Working Folder\Jobs AMER\P\2402272\2402272.aprx



Predicted 24-Hour PM_{10} Concentrations (in µg/m³)

Preferred Method - Scenario 3

Map Projection: NAD 1983 UTM Zone 17N

Walker Landfill - Regional Municipality of Niagara, Ontario

True North

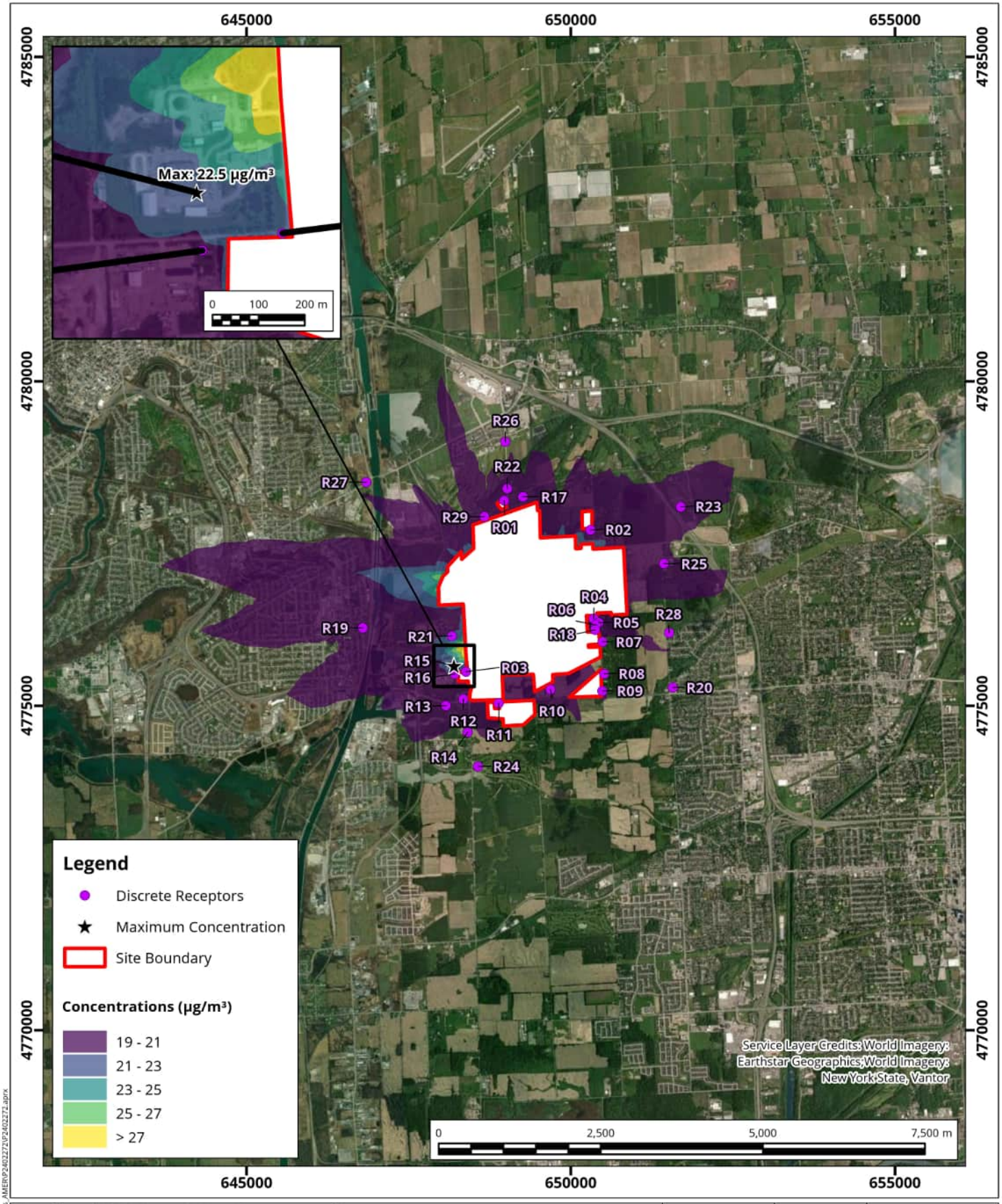
AAQC: 50 µg/m³

Background Concentration: 21.9 µg/m³

Project #: 2402272

Drawn by: PIP	Figure: T.3
Approx. Scale:	1:80,000
Date Revised:	Jun 19, 2026

Map Document: C:\Working Folder\Jobs_AMER\P-24022272\2402272.aprx



Predicted 24-Hour $PM_{2.5}$ Concentrations (in µg/m³)

Preferred Method - Scenario 3

Map Projection: NAD 1983 UTM Zone 17N

Walker Landfill - Regional Municipality of Niagara, Ontario

True North

AAQC / CAAQS 2020: 27 µg/m³

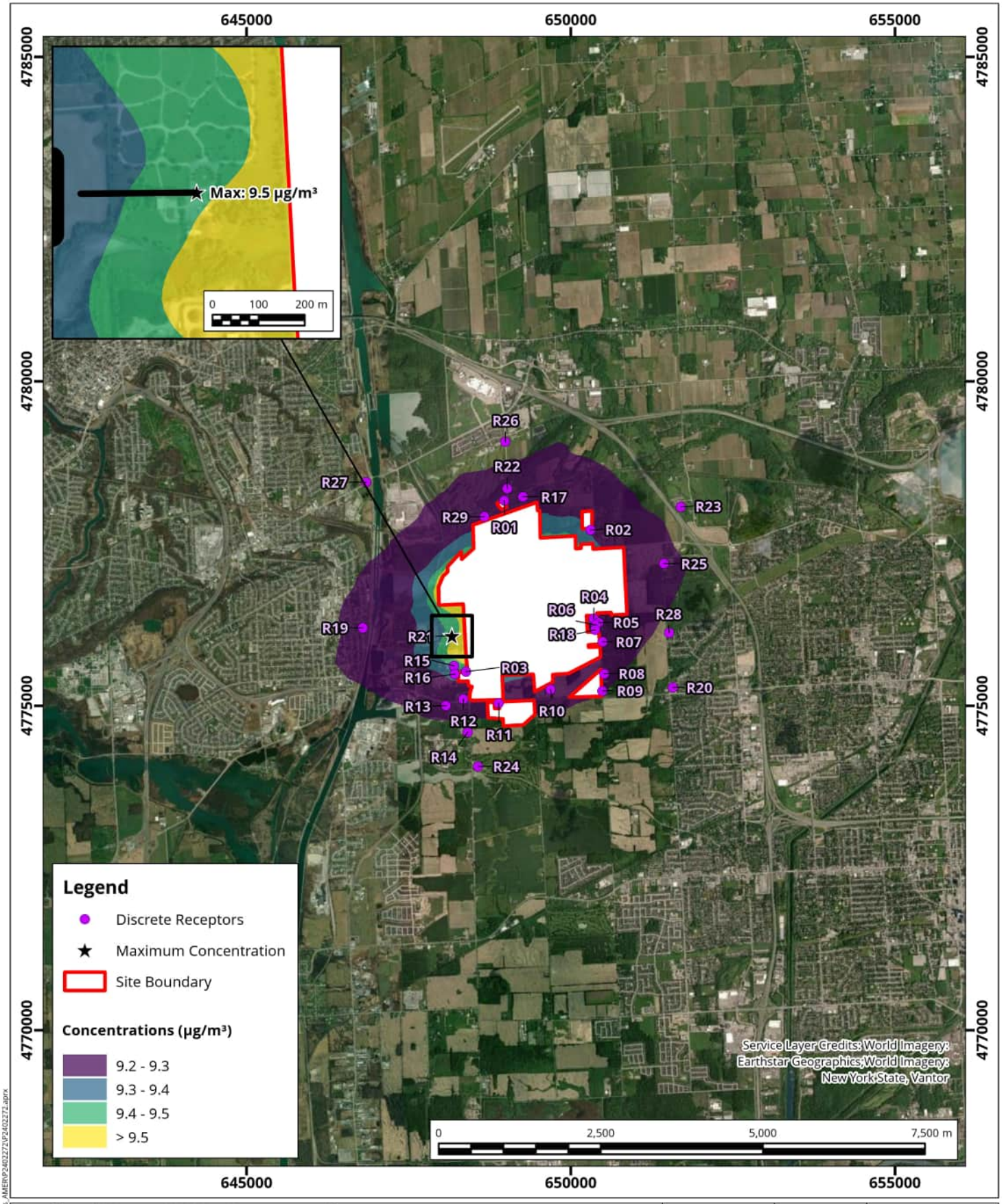
CAAQS 2030: 23 µg/m³

Background Concentration: 17.8 µg/m³

Project #: 2402272

Drawn by: PIP	Figure: T.4
Approx. Scale:	1:80,000
Date Revised:	Jun 19, 2026

Map Document: C:\WorkingFolder\Jobs_AMER\P\2402272\2402272.aprx



Predicted Annual $PM_{2.5}$ Concentrations (in µg/m³)

Preferred Method - Scenario 3

Map Projection: NAD 1983 UTM Zone 17N

Walker Landfill - Regional Municipality of Niagara, Ontario

True North

AAQC / CAAQS 2020: 8.8 µg/m³
CAAQS 2030: 8 µg/m³
Background Concentration: 9.1 µg/m³
Project #: 2402272

Drawn by: PIP	Figure: T.5
Approx. Scale:	1:80,000
Date Revised:	Jun 19, 2026

Map Document: C:\WorkingFolder\Jobs_AMER\P\2402272\2402272.aprx