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Ambient Air Quality Monitoring at Sunshine Canyon Landfill and Van Gogh Elementary School

Continuous monitoring of particulate matter, black carbon, wind speed, and wind direction began at the Sunshine Canyon Landfill (Landfill Site) and at Van Gogh Elementary School (Community Site) in Granada Hills in fall 2007.

These data are used to characterize ambient air pollution concentrations on a neighborhood scale in the context of the Los Angeles basin and to evaluate the impact of landfill operations on air quality in the community.

Particulate Matter (PM_{10})

PM_{10} is particulate matter less than 10 microns in diameter. A human hair is about 100 micrometers in diameter. Its width could hold roughly 10 PM_{10} particles. PM_{10} is present in dust, smoke, soot, and dirt. It can be inhaled and drawn into the lungs, causing health problems for some people.

Black Carbon (BC)

Black carbon is a sooty black material emitted from gas and diesel engines, coal-fired power plants, and other sources that burn fossil fuel. Many BC particles are too small to be visible. BC emissions can cause adverse health and climate effects.

Wind

Wind Speed (WS) and Wind Direction (WD) are measured because they can significantly affect when and how far airborne pollutants travel from their sources.

Wind-Blown Dust

Landfill Operations

Dirt Roads

Vehicular Traffic

Diesel Engines

Industrial Activities

Statistical Summary for the Spring 2024 Quarter

PM_{10} Exceedances

Total PM_{10} Spring Quarter Exceedances over 17 Years	16	**Landfill Site** Federal Exceedances	1	**Community Site** Federal Exceedances	346	**Landfill Site** State Exceedances	85	**Community Site** State Exceedances
Total Exceedances in the 66th Quarter	0	**Landfill Site** Federal Exceedances	0	**Community Site** Federal Exceedances	1	**Landfill Site** State Exceedances	0	**Community Site** State Exceedances

PM_{10}

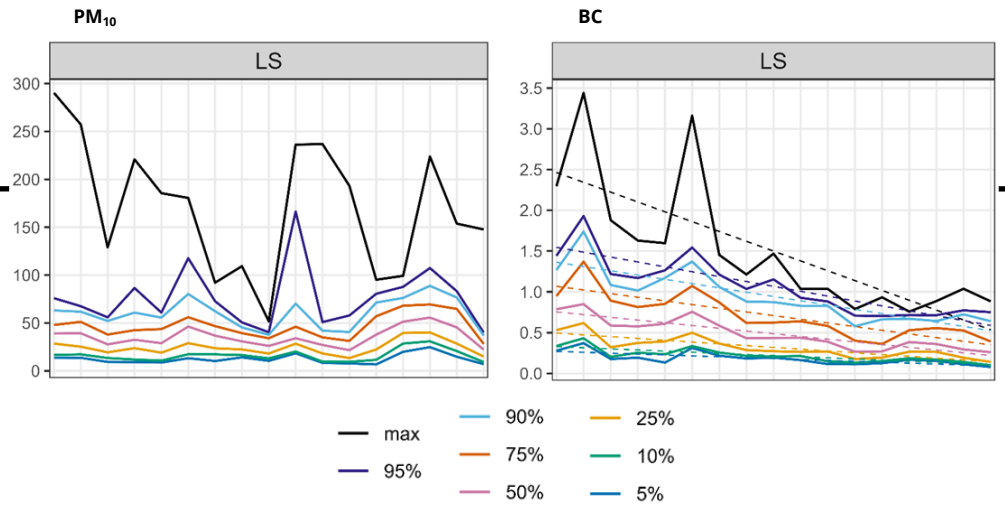
Landfill Site

There is not a statistically significant increasing or decreasing trend in the percentiles or maximum. All percentile levels and the maximum are lower than the previous four spring quarters.

Community Site

There is a statistically significant decreasing trend for all percentiles and the maximum.

Average and Maximum Black Carbon and PM_{10} Concentrations



Black Carbon

Landfill Site

There is a statistically significant decreasing trend in all percentiles and the maximum concentration at the Landfill site during spring quarters over the observational record. The maximum and all percentiles decreased at the Landfill site from the spring quarter of 2023 to the spring quarter of 2024.

Community Site

There is a statistically significant declining trend in spring quarter 24-hr BC concentrations at all percentiles and the maximum concentration. The maximum and all percentiles decreased at the Community site from the 2023 spring quarter to the 2024 spring quarter.

Data Completeness

	Data Capture			*Valid Data Used for Analysis*		
	PM_{10}	BC	WD and WD	PM_{10}	BC	WS and WD
Landfill Site	87.95%	88.00%	98.51%	96.29%	99.90%	100%
Community Site	99.86%	99.91%	100%	99.77%	99.86%	100%

June 2024

Sixty-Sixth Quarterly Report of Ambient Air Quality Monitoring at Sunshine Canyon Landfill and Van Gogh Elementary School

March 1, 2024 – May 31, 2024

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Quarterly Report
STI-922030-8161

June 25, 2024

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Executive Summary

Background

Continuous monitoring of meteorological and air quality parameters began at the Sunshine Canyon Landfill (Landfill site) and the Van Gogh Elementary School (Community site) in the nearby community of Granada Hills in fall 2007. The following parameters are measured at these sites: particulate matter less than 10 microns in aerodynamic diameter (PM_{10}), wind speed (WS), wind direction (WD), and black carbon (BC) as a surrogate for diesel particulate matter (DPM). The collected data are validated and evaluated quarterly for completeness. Monitoring is conducted to fulfill stipulations in the City of Los Angeles' Conditions of Approval for the expansion of the landfill.[1] Similar conditions cover the County of Los Angeles' portion of the landfill.[2]

PM_{10} concentrations are compared with federal and state PM_{10} standards. When PM_{10} concentrations are above the standard (i.e., an exceedance), additional comparisons are made with the historical, regional, and annual ambient PM_{10} concentrations. PM_{10} and BC data are analyzed in an in-depth annual report that characterizes the impacts of landfill operations on ambient air quality as observed at the Community site. This is done by quantifying PM_{10} and BC concentrations and exceedances and comparing concentrations between the Landfill and Community sites.

The validated hourly data and a summary of the analytical results and field operations are reported to the Planning Department of the City of Los Angeles and to the Los Angeles County Department of Regional Planning. This Sixty-Sixth Quarterly Report summarizes the March 1–May 31, 2024 (2024 spring quarter) monitoring results from the seventeenth year of continuous data collection.

Statistics

For this quarter, the percentage of hourly PM_{10} data captured was 87.95% at the Landfill site and 99.86% at the Community site. Of the captured PM_{10} data, 3.71% of data at the Landfill site and 0.23% of data at the Community site were deemed invalid, and 8.70% of data at the Landfill site and 0.95% of data at the Community site were deemed suspect.

Hourly BC data capture was 88.00% at the Landfill site and 99.91% at the Community site. Of the captured hourly BC data, 0.10% of data at the Landfill site and 0.14% of data at the Community site were deemed invalid, and 0.46% of data at the Landfill site and 0.27% of data at the Community site were deemed suspect.

[1] Section C.10.a of Ordinance No. 172,933
[2] County Condition 81

One-min WS and WD data capture was 98.51% at the Landfill site and 100% at the Community site. Of the captured 1-min WS and WD data, none were deemed invalid at the Landfill or Community sites, 27.18% were deemed suspect at the Landfill site, and no data were deemed suspect at the Community site.

During this quarter, the state 24-hr PM_{10} standard (50 µg/m^3) was exceeded on 2% of days (1 out of the valid 76 days of the quarter) at the Landfill site, and on no days at the Community site (0 out of 92 days of the quarter). The federal 24-hr PM_{10} standard (150 µg/m^3) was not exceeded at the Landfill site or the Community site during the quarter. The 24-hr average BC concentration was 0.31 µg/m^3 at the Landfill and Community sites, which was the lowest 24-hr average BC concentration of all monitored spring quarters (2008–2024) at the Landfill site.

1. Introduction

This report summarizes data completeness, ambient PM_{10} concentrations, average and maximum ambient BC as a surrogate for DPM concentrations, instrument flow rate verification (quality control) data, and field operations for the quarterly period of March 1–May 31, 2024. Collected data are validated and evaluated quarterly for completeness. This is the seventeenth year that continuous monitors have collected data in the spring at the Sunshine Canyon Landfill site (previously called the Berm site) and the Van Gogh Elementary School Community site. Monitoring site locations are shown in Figure 1. PM_{10} is measured with a Beta attenuation monitor (BAM), and BC is measured with an Aethalometer. The Sunshine Canyon Landfill North monitoring site shown in Figure 1 was installed in December 2015 and decommissioned May 31, 2017. The Landfill site was relocated approximately 720 feet to the northwest during the last days of the fall 2023 quarter (August 29–31, 2023) to eliminate the negative impacts of nearby odor misters on data. The Magee Scientific Aethalometer AE33 came on the market six years ago and is now the dominant instrument for monitoring BC.

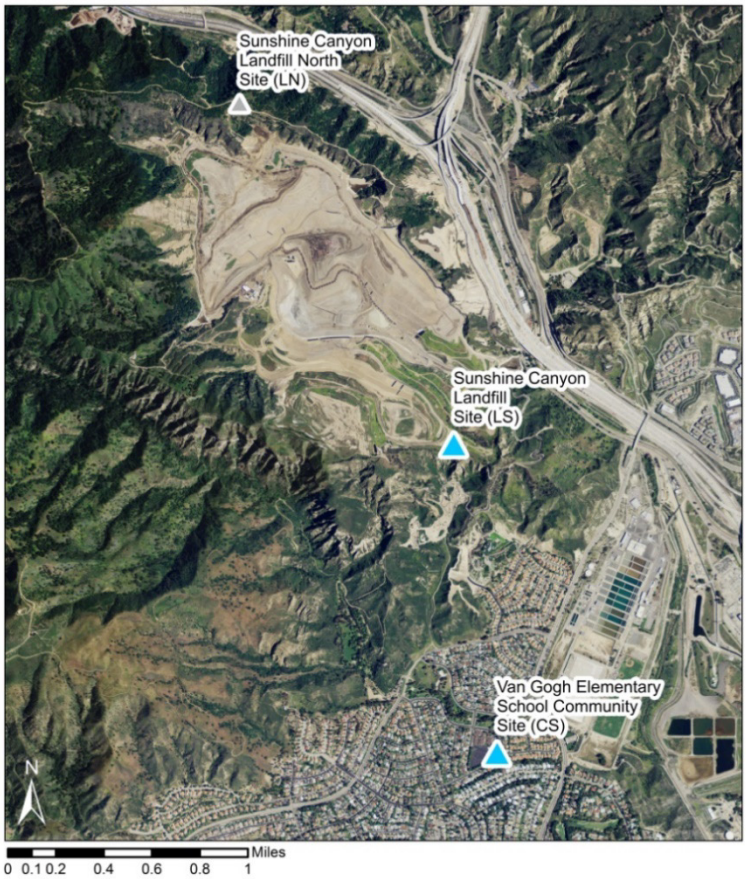

Figure 1. An aerial view of the Sunshine Canyon Landfill, including the Landfill and Community monitoring sites (blue triangles). The Sunshine Canyon Landfill North site (gray triangle) collected data from Dec. 1, 2015–May 31, 2017, and has been decommissioned.

Monitoring is conducted to fulfill stipulations in the City of Los Angeles' Conditions of Approval for the expansion of the landfill.[3] Similar conditions cover the County of Los Angeles' portion of the landfill.[4]

[3] Section C.10.a of Ordinance No. 172,933
[4] County Condition 81

2. Data Completeness

Completeness statistics for all measured variables during the 2024 spring quarter are shown in Table 1. Data deemed suspect are included in subsequent analyses (e.g., regional comparisons if applicable), while invalid data are not included. The percent data capture for PM_{10} was 87.95% at the Landfill site and 99.86% at the Community site. Of the captured PM_{10} data, 3.71% of data at the Landfill site and 0.23% of data at the Community site were deemed invalid. The percent of hourly PM_{10} values deemed suspect was 8.70% at the Landfill site and 0.95% at the Community site.

Table 1. Data completeness statistics for hourly PM_{10}, hourly BC, and 1-min WS and WD data for the 2024 spring quarter monitoring period.

Monitoring Location	Dates	Data Capture (%)[a]			Data Valid or Suspect (%)[b]			Data Suspect (%)[c]		
		PM_{10}	BC	WS/ WD	PM_{10}	BC	WS/ WD	PM_{10}	BC	WS/ WD
Landfill Site	03/01/24-05/31/24	87.95	88.00	98.51	96.29	99.90	100	8.70	0.46	27.18
Community Site	03/01/24-05/31/24	99.86	99.91	100	99.77	99.86	100	0.95	0.27	0

[a] Data Capture is the number of collected data values divided by the total number of expected data intervals during the date range indicated in the "Dates" column (e.g., for the raw BC 1-hr data, 24 data values per day are expected), multiplied by 100.
[b] Data Valid or Suspect is the number of data values that are either valid or suspect divided by the number of captured data values, multiplied by 100.
[c] Data Suspect is the number of data values labeled as suspect divided by the number of captured data values, multiplied by 100.

Hourly BC data capture was 88.00% at the Landfill site and 99.91% at the Community site. For BC, 0.10% of data at the Landfill site and 0.14% of data at the Community site were deemed invalid, and 0.46% of data at the Landfill site and 0.27% of data at the Community site were deemed suspect. The Landfill site experienced power supply issues from March 1-4 and March 5-12, which contributed to a lower capture rate of data at this site.

At the Landfill site, the WD capture percentage was 98.51%, no data were deemed invalid, and 27.18% of captured data were deemed suspect. Data were flagged as suspect due to a directional misalignment of +22 degrees east that was corrected during field operations on March 26, 2024. Data were retroactively adjusted to account for this directional misalignment. At the Community site, the WD capture percentage was 100%, and no data were deemed invalid or suspect.

3. PM_{10} Exceedances

Federal and state PM_{10} exceedances for the baseline spring quarter (2002), the previous 16 spring quarters (2008–2023), and the current spring quarter (2024) are summarized in Table 2 for the Landfill site and Table 3 for the Community site. In this quarter, the state PM_{10} standard of 50 µg/m^3 was exceeded on 2% of days (1 of 76 valid days) at the Landfill site, and 0% of days (0 of 92 valid days) at the Community site. The federal 24-hr PM_{10} standard (150 µg/m^3) was not exceeded at the Landfill or Community sites during the quarter. The Landfill site saw a decrease in the number of state exceedances over the past four spring quarters and is tied for the lowest percentage of days with a state exceedance.

Table 2. Number of federal and state 24-hr PM_{10} standard exceedances during spring quarters for the baseline year (2002) and 2008 to 2024 at the Landfill site. In the "Federal 24-hr" column, values represent the number of exceedances and the date(s) when exceedances occurred. In the "State 24-hr" column, values represent the number of exceedances/total days on which valid 24-hr averages were measured, and the percentage of exceedances out of the total number of days with valid concentrations. The most recent spring quarter is **bold**.

Quarter Period	Quarter Name	Exceedances of PM_{10} Standard	
		Federal 24-hr 150 µg/m³	State 24-hr 50 µg/m³
03/01/02–05/31/02	Baseline Year (2002)	0	21/56 (38%)
03/01/08–05/31/08	2008 Spring	1 (05/21/08)	20/89 (22%)
03/01/09–05/31/09	2009 Spring	1 (05/06/09)	24/89 (27%)
03/01/10–05/31/10	2010 Spring	0	10/90 (11%)
03/01/11–05/31/11	2011 Spring	1 (04/30/11)	8/49 (16%)
03/01/12–05/31/12	2012 Spring	1 (05/22/12)	15/89 (17%)
03/01/13–05/31/13	2013 Spring	2 (03/21/13, 04/08/13)	34/91 (37%)
03/01/14–05/31/14	2014 Spring	0	19/92 (21%)
03/01/15–05/31/15	2015 Spring	0	5/91 (5%)
03/01/16–05/31/16	2016 Spring	0	1/49 (2%)
03/01/17–05/31/17	2017 Spring	6 (03/27/17, 04/20/17, 04/21/17, 04/25/17, 04/27/17, 04/28/17)	26/86 (24%)
03/01/18–05/31/18	2018 Spring	1 (04/12/18)	5/87 (6%)
03/01/19-05/31/19	2019 Spring	1 (04/09/19)	6/87 (7%)
03/01/20-05/31/20	2020 Spring	0	24/72 (34%)
03/01/21-05/31/21	2021 Spring	0	50/88 (57%)
03/01/22-05/31/22	2022 Spring	1 (04/05/22)	51/86 (59%)
03/01/23-05/31/23	2023 Spring	1 (04/19/23)	26/71 (37%)
03/01/24-05/31/24	**2024 Spring**	**0**	**1/76 (2%)**

Table 3. Number of federal and state 24-hr PM_{10} standard exceedances during spring quarters for the baseline year (2002) and 2008 to 2024 at the Community site. In the "Federal 24-hr" column, values represent the number of exceedances and the date(s) when exceedances occurred. In the "State 24-hr" column, values represent the number of exceedances/total days on which valid 24-hr averages were measured, and the percentage of exceedances out of the total number of days with valid concentrations. The most recent spring quarter is **bold**.

Quarter Period	Quarter Name	Exceedances of PM_{10} Standard	
		Federal 24-hr 150 µg/m³	State 24-hr 50 µg/m³
03/01/02–05/31/02	Baseline Year (2002)	0	17/55 (31%)
03/01/08–05/31/08	2008 Spring	1 (05/21/08)	6/92 (7%)
03/01/09–05/31/09	2009 Spring	0	17/88 (19%)
03/01/10–05/31/10	2010 Spring	0	7/91 (8%)
03/01/11–05/31/11	2011 Spring	0	3/92 (3%)
03/01/12–05/31/12	2012 Spring	0	9/70 (13%)
03/01/13–05/31/13	2013 Spring	0	18/92 (20%)
03/01/14–05/31/14	2014 Spring	0	6/92 (7%)
03/01/15–05/31/15	2015 Spring	0	1/91 (1%)
03/01/16–05/31/16	2016 Spring	0	0/69 (0%)
03/01/17–05/31/17	2017 Spring	0	0/90 (0%)
03/01/18–05/31/18	2018 Spring	0	0/92 (0%)
03/01/19-05/31/19	2019 Spring	0	1/91 (2%)
03/01/20-05/31/20	2020 Spring	0	0/58 (0%)
03/01/21-05/31/21	2021 Spring	0	0/92 (0%)
03/01/22-05/31/22	2022 Spring	0	0/92 (0%)
03/01/23-05/31/23	2023 Spring	0	0/92 (0%)
03/01/24-05/31/24	**2024 Spring**	**0**	**0/92 (0%)**

4. Average and Maximum BC and PM_{10} Concentrations

Although no federal or state standards exist for BC concentrations in ambient air, BC is a measurable component of ambient air that correlates well with DPM. Because of growing evidence that DPM is associated with several negative health effects, BC is often measured to quantify the relative amounts of DPM in ambient air. Findings from the Multiple Air Toxics Exposure Study V (MATES V) conducted by the South Coast Air Quality Management District (South Coast AQMD) found DPM to be the most important toxic air pollutant contributing to negative health impacts in the Los Angeles basin (South Coast Air Quality Management District, 2015).

BC is measured by an aethalometer, which passes air through a filter tape to trap suspended particles. Light-absorbing particles attenuate a light beam projected through the deposit. The buildup of BC on the air sampling tape causes an artifact that affects the accuracy of the measured concentration (Drinovec et al., 2015; Allen, 2014), subjecting aethalometers to a saturation effect. Instrument response is dampened with heavier loading (i.e., higher concentrations) of BC aerosols. This artifact can cause BC concentration readings to be lower than the true concentration. However, mathematical methods to correct the BC concentration values are available and widely used. All reported BC values to date from the 29th Quarterly Report (winter 2015) have now been adjusted for the Landfill, Landfill North, and Community sites. Because the compensation process changes the reported concentrations, and because uncompensated values were used in previous reports, prior-year BC concentrations shown in this report do not match concentrations reported before the 29th Quarterly Report. All available BC data shown in this Quarterly Report have been compensated (data were unavailable from the baseline year).

The 24-hr average and maximum compensated BC concentrations collected during the 2024 spring quarter, the compensated BC data from the 16 previous spring quarters, and the uncompensated data from the baseline year are provided in Table 4 for the Landfill site and Table 5 for the Community site. The 2024 spring quarter 24-hr average BC concentration are the lowest on record at the Landfill site.

Table 4. The 24-hr BC concentrations for spring quarters from the baseline year (2002) and each year from 2008 to 2024 at the Landfill site. Uncompensated BC values are reported for the 2002 spring quarter. The most recent spring quarter is shown in **bold**.

Quarterly Period	Quarter Name	BC Concentrations (µg/m^3)	
		Average 24-Hr	Maximum 24-Hr
03/01/02–05/31/02	Baseline Year (2002)	0.72[a]	2.18[a]
03/01/08–05/31/08	2008 Spring	0.80	2.30
03/01/09–05/31/09	2009 Spring	1.01	3.44
03/01/10–05/31/10	2010 Spring	0.64	1.88
03/01/11–05/31/11	2011 Spring	0.62	1.63
03/01/12–05/31/12	2012 Spring	0.65	1.60
03/01/13–05/31/13	2013 Spring	0.84	3.17
03/01/14–05/31/14	2014 Spring	0.64	1.46
03/01/15–05/31/15	2015 Spring	0.50	1.22
03/01/16–05/31/16	2016 Spring	0.50	1.47
03/01/17–05/31/17	2017 Spring	0.47	1.04
03/01/18–05/31/18	2018 Spring	0.45	1.04
03/01/19–05/31/19	2019 Spring	0.32	0.79
03/01/20–05/31/20	2020 Spring	0.32	0.93
03/01/21–05/31/21	2021 Spring	0.41	0.76
03/01/22–05/31/22	2022 Spring	0.40	0.89
03/01/23–05/31/23	2023 Spring	0.37	1.04
03/01/24–05/31/24	**2024 Spring**	**0.31**	**0.88**

[a] Uncompensated BC values.

Table 5. The 24-hr BC concentrations for spring quarters from the baseline year (2002) and each year from 2008 to 2024 at the Community site. Uncompensated BC values are reported for the 2002 spring quarter. The most recent spring quarter is shown in **bold**.

Quarterly Period	Quarter Name	BC Concentrations (µg/m³)	
		Average 24-Hr	Maximum 24-Hr
03/01/02–05/31/02	Baseline Year (2002)	0.72[a]	2.22[a]
03/01/08–05/31/08	2008 Spring	0.61	1.37
03/01/09–05/31/09	2009 Spring	0.81	1.95
03/01/10–05/31/10	2010 Spring	0.64	1.80
03/01/11–05/31/11	2011 Spring	0.54	1.47
03/01/12–05/31/12	2012 Spring	0.66	1.70
03/01/13–05/31/13	2013 Spring	0.66	1.49
03/01/14–05/31/14	2014 Spring	0.49	1.44
03/01/15–05/31/15	2015 Spring	0.61	1.68
03/01/16–05/31/16	2016 Spring	0.56	1.97
03/01/17–05/31/17	2017 Spring	0.49	1.12
03/01/18–05/31/18	2018 Spring	0.42	1.04
03/01/19-05/31/19	2019 Spring	0.31	0.75
03/01/20–05/31/20	2020 Spring	0.21	0.64
03/01/21–05/31/21	2021 Spring	0.36	0.66
03/01/22–05/31/22	2022 Spring	0.30	0.68
03/01/23–05/31/23	2023 Spring	0.34	0.90
03/01/24–05/31/24	**2024 Spring**	**0.31**	**0.85**

[a] Uncompensated BC values.

Distributions of 24-hr average PM_{10} and BC data from spring quarters 2008 through 2024 (presented as notched box-whisker plots[5]) and percentile trends for these metrics are shown in Figures 2 through 5.

[5] A notched box-whisker plot shows the entire distribution of concentrations for each year. Each box illustrates the 25th (lower box extent), 50th (median, midline), and 75th (upper box extent) percentiles. The extent of the box indicates the interquartile range (IQR), where 50% of the data lie. The whiskers indicate values that are up to 1.5 times the IQR from the 25th or 75th percentile. Data outside of the IQR are referred to as "outliers" and are plotted individually. The boxes are notched (narrowed) at the median and return to full width at the 95% lower- and upper-confidence interval values (i.e., the extents of the notches indicate the range in which the median falls with 95% confidence). If the notches of any two boxes do not overlap, there is strong evidence that the medians are statistically different at the 95% confidence level.

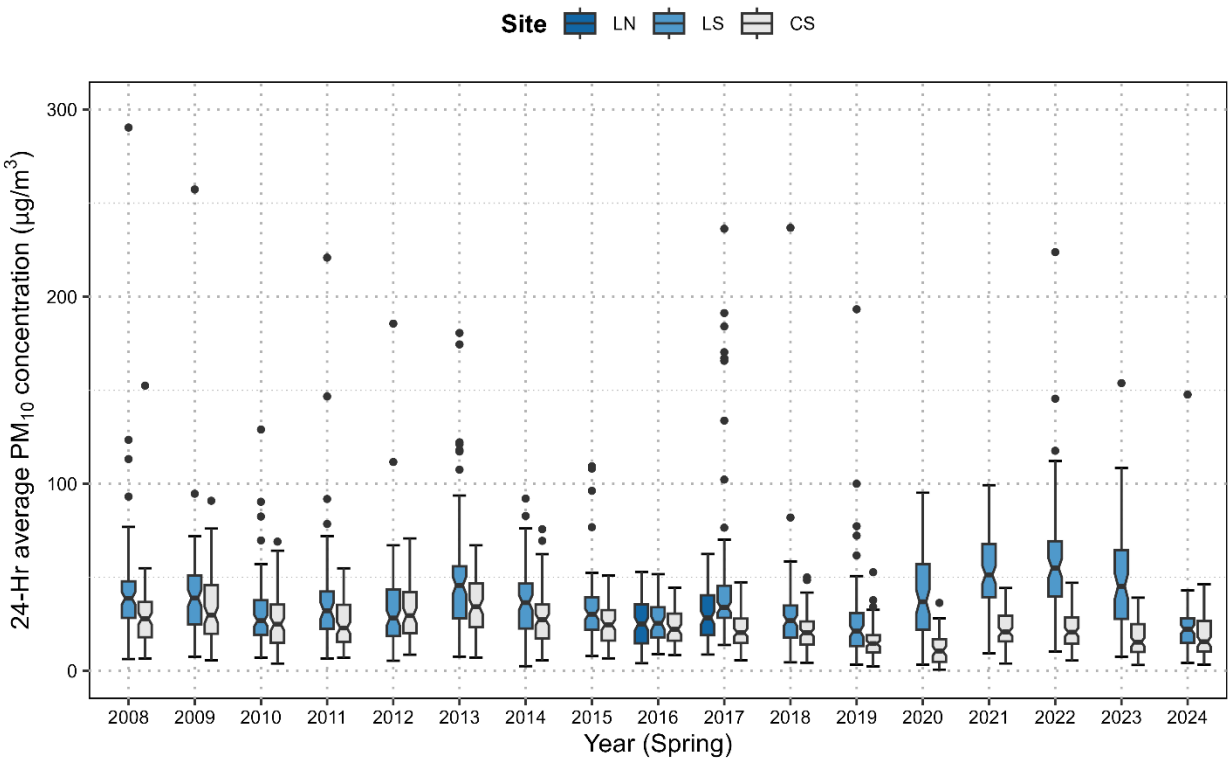

Figure 2. Distribution of 24-hr average PM_{10} concentrations at the Sunshine Canyon Landfill North, Landfill, and Community sites during spring (March-May) quarters from 2008 to 2024.

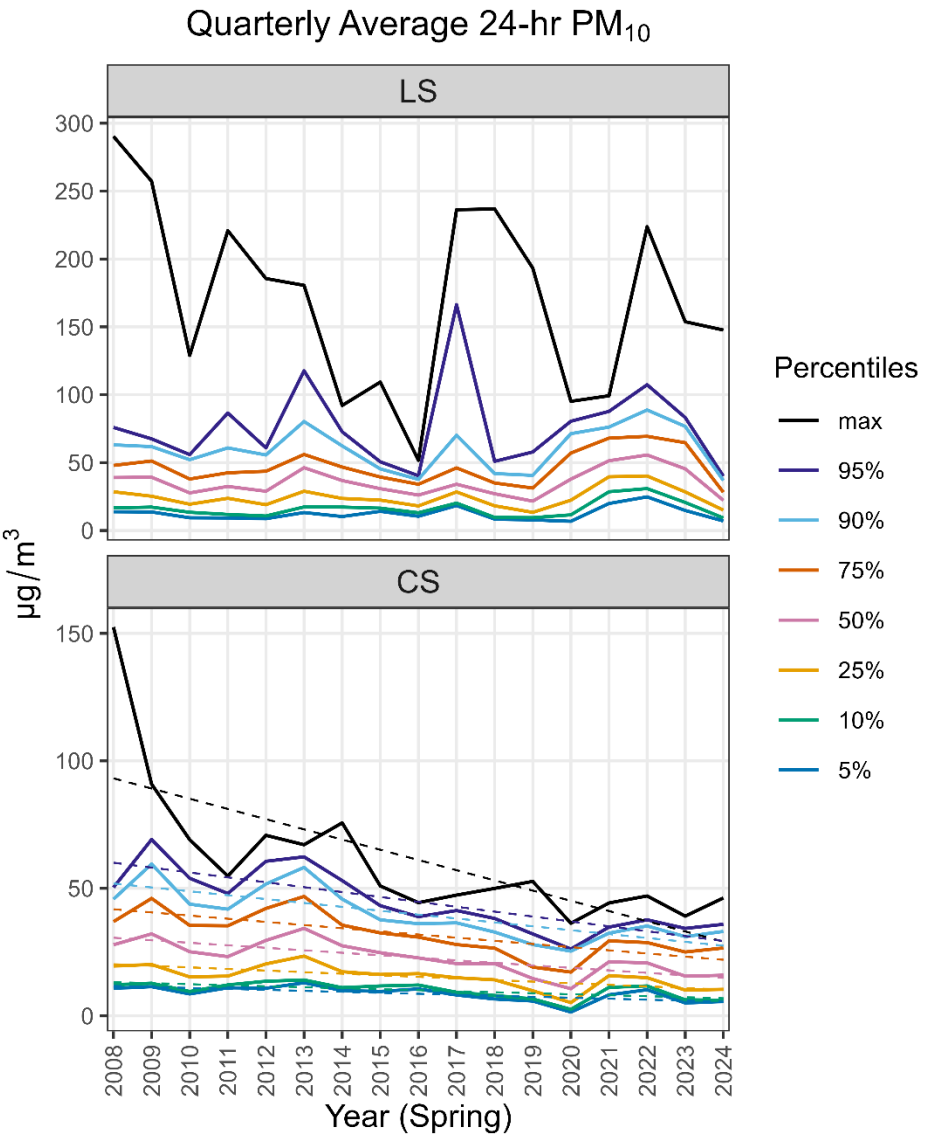

Figure 3. Trends of 24-hr average PM_{10} maximum and percentiles at the Sunshine Canyon Landfill site (top) and Community site (bottom) during spring (March-May) quarters from 2008 to 2024. The dashed lines denote statistically significant linear trends. Statistical significance was defined at the 95% confidence level (*p-value* ≤0.05). Note: the y-axis scale is larger at the Landfill site than the Community site.

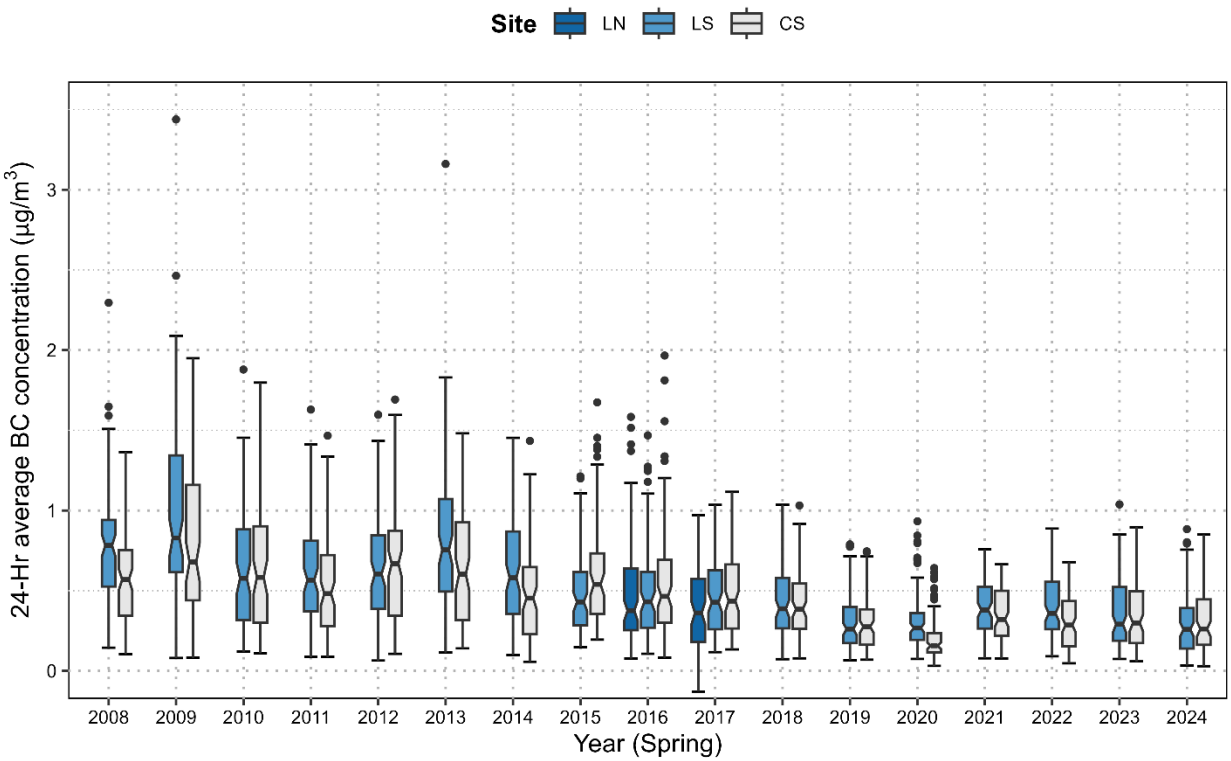

Figure 4. Distribution of 24-hr average BC concentrations at the Sunshine Canyon Landfill North, Landfill, and Community sites during spring (March-May) quarters from 2008 to 2024.

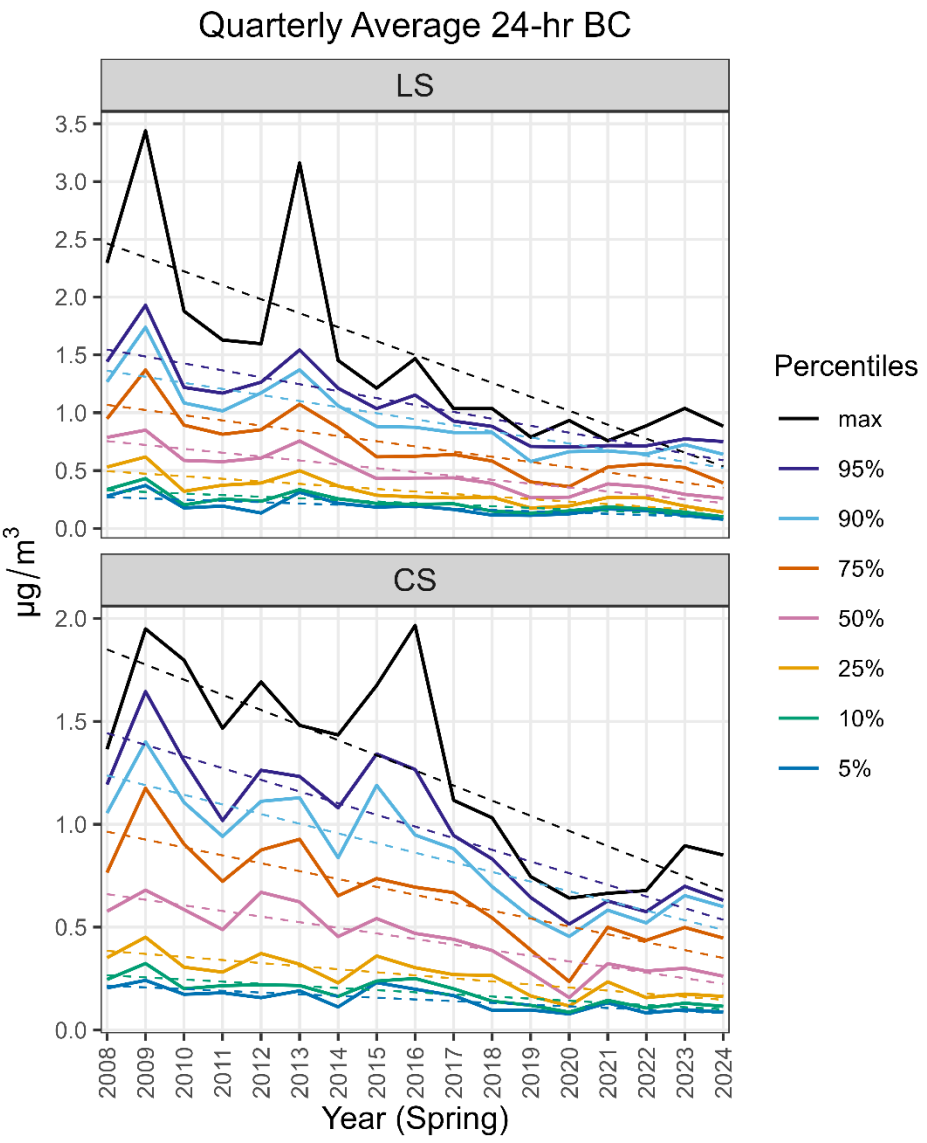

Figure 5. Trends of 24-hr average BC maximum and percentiles at the Sunshine Canyon Landfill site (top) and Community site (bottom) during spring (March-May) quarters from 2008 to 2024. The dashed lines denote statistically significant decreasing linear trends. Statistical significance was defined at the 95% confidence level (*p-value* ≤0.05). Note: the y-axis scale is larger at the Community site than the Landfill site.

At this time of year, the median 24-hr average PM_{10} concentrations measured at the Community site are usually lower than at the Landfill site (Figure 2). This remained true in the 2024 spring quarter. However, as indicated by the overlapping notches in the box-whisker plot, the difference between the median 24-hr PM_{10} concentrations at the Community and Landfill sites is not statistically significant. At the Landfill site, there is not a statistically significant increasing or decreasing trend in the percentiles or maximum (Figure 3). All percentile levels and the maximum are lower than the previous four spring quarters. PM_{10} concentrations at the Landfill site in the 2024 spring quarter mark

a departure from concentrations from 2020 to 2023. At the Community site, there is a statistically significant decreasing trend for all percentiles and the maximum.

During spring quarters, the median 24-hr average BC concentrations are not usually significantly different between the Landfill and the Community sites, as indicated by overlapping notches in the box-whisker plot (Figure 4). In the spring 2024 quarter, the median 24-hr average BC concentration at the Community site was approximately equal to the Landfill site. As BC concentrations at both sites continue to decrease, it is expected that median 24-hr average BC concentrations will converge to a similar value. There is some year-to-year variability in median 24-hr average BC concentrations over the 17 recorded consecutive years, but the range of 24-hr average BC values has generally decreased over time at both monitoring sites. The Landfill site recorded the lowest median 24-hr average BC concentrations of all spring quarters monitored during this study.

There is a statistically significant decreasing trend in all percentiles and the maximum concentration at the Landfill site during spring quarters over the observational record. The maximum and all percentiles decreased at the Landfill site from the spring quarter of 2023 to the spring quarter of 2024. At the Community site, there is a statistically significant declining trend in spring quarter 24-hr BC concentrations at all percentiles and the maximum concentration. The maximum and all percentiles decreased at the Community site from the 2023 spring quarter to the 2024 spring quarter.

5. Field Operations

Tables 6 and 7 list dates and major tasks associated with visits to the Landfill and Community sites during the 2024 spring quarter.

Table 6. Landfill monitoring site visits, field maintenance, and operations.

Date of Site Visit	Description of Work
3/5/2024	Cleaned roller, vane, and nozzle on BAM Replaced tape on BAM Restarted BAM Performed flow checks on Aethalometer and BAM
3/11/2024	Restarted BAM due to power loss
3/18/2024	Changed tape on BAM
3/20/2024	Cleaned roller, vane, and nozzle on BAM Performed flow checks on Aethalometer and BAM
3/26/2024	Performed annual calibration on meteorological sensors
6/4/2024[a]	Cleaned roller, vane, and nozzle on BAM Changed tape on BAM Restarted BAM Performed flow checks on Aethalometer and BAM

[a] The next site visits that occurred after the current quarter is included in this report. The information from these site visits is used to assess the quality of the last portion of data from the current quarter.

Table 7. Community site visits, field maintenance, and operations.

Date of Site Visit	Description of Work
3/20/2024	Cleaned roller, vane, and nozzle on BAM Performed flow checks on Aethalometer and BAM Performed leak test on BAM
4/1/2024	Performed annual calibration on meteorological sensors
6/4/2024[a]	Cleaned roller, vane, and nozzle on BAM Replaced tape on BAM Restarted BAM Performed flow checks on Aethalometer and BAM

[a] The next site visit that occurred after the current quarter is included in this report. The information from this site visit is used to assess the quality of the last portion of data from the current quarter.

Aethalometer and BAM flow rates measured with a National Institute of Standards and Technology (NIST)-traceable flow standard are shown in Table 8. BAM flow rates are volumetric (i.e., they depend on local temperature and pressure), and Aethalometer flow rates are at standard temperature and pressure. The target flow rate of the BAM is 16.7 liters per minute (lpm) volumetric to meet the 10-micron particle cut point of the inlet, with an acceptable range of 16.0 to 17.3 lpm. The Aethalometer has no particle size cut point.

Table 8. Flow rates for the BAM PM_{10} and Aethalometer BC monitors at the Landfill and Community sites. "Ref." is the Reference and "Aeth." is the Aethalometer.

Location	Date	Flow Rate (lpm)					
		As Found		As Left		As Found	
		BAM	Ref.	BAM	Ref.	Aeth.	Ref.
Sunshine Canyon Landfill	3/20/2024	16.7	16.7	16.56	16.7	5.0	5.18
Sunshine Canyon Community	3/20/2024	16.7	16.7	16.65	16.7	4.9	5.11
	6/4/2024	16.7	16.7	16.47	16.7	4.9	5.08

6. References

Allen G. (2014) Analysis of spatial and temporal trends of black carbon in Boston. Report prepared by Northeast States for Coordinated Air Use Management (NESCAUM), Boston, MA, January. Available at http://www.nescaum.org/documents/analysis-of-spatial-and-temporal-trends-of-black-carbon-in-boston/nescaum-boston-bc-final-rept-2014.pdf/.

Drinovec L., Močnik G., Zotter P., Prévôt A.S.H., Ruckstuhl C., Coz E., Rupakheti M., Sciare J., Müller T., Wiedensohler A., and Hansen A.D.A. (2015) The "dual-spot" Aethalometer: an improved measurement of aerosol black carbon with real-time loading compensation. *Atmospheric Measurement Techniques*, 8, 1965-1979, doi: 10.5194/amt-8-1965-2015. Available at http://www.atmos-meas-tech.net/8/1965/2015/amt-8-1965-2015.pdf.

South Coast Air Quality Management District (2015) Multiple Air Toxics Exposure Study in the South Coast Air Basin: MATES IV. Final report, August. Available at http://www.aqmd.gov/docs/default-source/air-quality/air-toxic-studies/mates-iv/mates-iv-final-draft-report-4-1-15.pdf?sfvrsn=7.