

FORT MILL SCHOOL DISTRICT

Perimeter Air Quality Monitoring Program
Flint Hill Elementary School

Monthly Perimeter Air Monitoring Report

May 1 – 31, 2026

Prepared by:

Citadel Environmental Health & Safety, Inc.

Prepared for:

Fort Mill School District

1.0 PURPOSE

This report presents a summary of continuous perimeter air quality monitoring data collected at Flint Hill Elementary School for the period of May 1 through May 31, 2026. The monitoring is conducted under the Community Air Monitoring Plan (CAMP) established for the Fort Mill School District in coordination with Citadel Environmental Health and Safety, Inc. (Citadel EHS).

The purpose of the perimeter air quality monitoring program is to provide ongoing, real-time assessment of ambient air quality in the vicinity of the school and nearby industrial operations. Data are evaluated against the tiered threshold framework defined in the CAMP to determine whether observed conditions warrant internal review, district notification, or coordinated response.

2.0 MONITORING OVERVIEW

Two continuous air monitoring stations are positioned along the perimeter of Flint Hill Elementary School to capture ambient air quality conditions from both the upwind and downwind directions relative to the adjacent Silfab Solar manufacturing facility.

2.1 Monitor Locations

NE Monitor (Downwind): Positioned on the northeast side of the school property, between the school and the Silfab facility. Based on the prevailing west-southwest (WSW) wind direction, this monitor is downwind of the school and upwind of the facility and is positioned to detect any emissions in close proximity to the school.

SW Monitor (Upwind): Positioned on the southwest side of the school property, upwind of both the school and the Silfab facility under prevailing wind conditions. This monitor captures baseline ambient air quality and serves as a reference point for comparison with the downwind station.

2.2 Monitored Parameters

Both stations continuously measure the following parameters at 15-minute intervals: Particulate Matter (PM_{2.5} and PM₁₀), Methane (CH₄), Volatile Organic Compounds (VOCs), as well as meteorological data including wind speed, wind direction, temperature, relative humidity, and barometric pressure.

3.0 MONITORING FRAMEWORK

The CAMP defines a tiered response framework with three escalating threshold levels for each monitored parameter. Exceedance of a threshold on a 15-minute rolling average triggers the corresponding response protocol.

Table 1. CAMP Threshold Summary

Parameter	Notification (15-min, NE only)	Alert (15-min, NE&SW)	Action (15-min, NE&SW)	NAAQS (24-hr, NE&SW)
PM _{2.5} (µg/m ³)	30	60	—	35
PM ₁₀ (µg/m ³)	40	80	—	150
Methane (ppm)	3	7	10	—
VOCs (ppm)	0.25	0.50	5.00	—

Notification Level: Internal Citadel EHS review; no external notification required. **Alert Level:** District notification required per CAMP Section 6.2. **Action Level:** Emergency coordination between Citadel EHS, the district, and relevant agencies.

4.0 SCOPE OF WORK

No facility incidents were reported to Citadel EHS during the May 2026 monitoring period. The exceedance data presented in Section 5.0 are evaluated in the context of meteorological conditions, directional analysis, and regional air quality patterns.

5.0 DATA ANALYSIS

The following section presents all 15-minute rolling average readings that exceeded CAMP notification or alert thresholds during the reporting period. Each exceedance event is presented with corresponding data from both the NE (downwind) and SW (upwind) monitors, along with wind direction observations and contextual notes.

5.1 PM2.5 Exceedances

The NE monitor recorded one PM2.5 Notification Level event during the reporting period. On the evening of May 23, eight readings exceeded the 30 $\mu\text{g}/\text{m}^3$ threshold between 21:15 and 00:00 (peak 34.4 $\mu\text{g}/\text{m}^3$ at 23:00), with one additional reading of 30.7 $\mu\text{g}/\text{m}^3$ carrying into May 24 at 00:00. The SW monitor recorded elevated readings during the same period but remained below the notification threshold (peak 26.8 $\mu\text{g}/\text{m}^3$). Wind was from the northwest at very low speed (0.1–0.9 m/s), consistent with stagnant evening conditions. Both monitors showed gradually declining concentrations through the early morning hours of May 24.

The SW monitor recorded no PM2.5 exceedances during the reporting period.

No PM2.5 readings reached the Alert level or Action level at either monitor during the May monitoring period.

5.2 PM10 Exceedances

PM10 exceedances at the NE monitor included one Alert Level event and four Notification Level events. The SW monitor recorded three Notification Level events during the reporting period.

The NE monitor recorded four PM10 Notification Level events during the reporting period. On May 6, a single reading reached 66.1 $\mu\text{g}/\text{m}^3$ at 13:00 with wind from the south-southwest at 3.8 m/s; the SW monitor recorded PM10 at 9.3 $\mu\text{g}/\text{m}^3$. On May 11, a single reading reached 47.8 $\mu\text{g}/\text{m}^3$ at 13:00 with wind from the north-northwest at 2.1 m/s; the SW monitor recorded PM10 at 13.4 $\mu\text{g}/\text{m}^3$. On May 21, a single reading reached 41.2 $\mu\text{g}/\text{m}^3$ at 19:15 with wind from the west-southwest at 2.8 m/s; the SW monitor recorded PM10 at 15.9 $\mu\text{g}/\text{m}^3$. On May 23, six readings exceeded the threshold between 22:30 and 23:45 (peak 44.0 $\mu\text{g}/\text{m}^3$), concurrent with the PM2.5 event described in Section 5.1. All were brief and not sustained.

The SW monitor recorded three PM10 Notification Level events during the reporting period. On May 8, two readings reached 49.4 $\mu\text{g}/\text{m}^3$ and 41.9 $\mu\text{g}/\text{m}^3$ during overnight hours (03:30 and 06:00) with wind from the south-southwest at very low speed (0.2 m/s); the NE monitor recorded PM10 at 3.9 $\mu\text{g}/\text{m}^3$. On May 14, a single reading reached 55.0 $\mu\text{g}/\text{m}^3$ at 08:30 concurrent with the NE event described below, with wind from the north-northwest at 2.5 m/s. On May 15, a single reading reached 57.3 $\mu\text{g}/\text{m}^3$ at 07:00 with wind from the south-southwest at 0.4 m/s; the NE monitor recorded PM10 at 3.5 $\mu\text{g}/\text{m}^3$. All were brief, isolated spikes.

Overall, the Notification Level events were consistent with transient conditions and localized particulate generation and did not indicate sustained impacts attributable to site activities.

The table below summarizes the Alert Level event at the NE monitor. No PM10 Alert Level events were recorded at the SW monitor during this reporting period.

Table 2. NE Monitor (Downwind) — PM10 Alert Level Events

Date	Time Range	Peak ($\mu\text{g}/\text{m}^3$)	Duration	Level	Notes
May 14	09:00	148.8	Single	Alert	Highest PM10 reading of the reporting period. Single isolated spike. NE only; SW reading was 16.0 $\mu\text{g}/\text{m}^3$. Wind NW at 2.5 m/s (reversed from prevailing direction). SW monitor had a concurrent notification-level spike (55.0 $\mu\text{g}/\text{m}^3$) at 08:30. Daytime; school in session.

5.3 VOC Exceedances

The NE monitor recorded one VOC Alert Level event during the reporting period. On May 19, a reading of 0.81 ppm at 13:45 exceeded the 0.50 ppm alert threshold, followed by two additional notification-level readings of 0.29 ppm at 14:15 and 0.26 ppm at 14:30. The SW monitor recorded 0.00 ppm VOC throughout the entire event. Wind was from the south-southwest at 1.6–2.3 m/s. The VOC spike coincided with elevated PM readings at the NE monitor (PM2.5: 18.6 $\mu\text{g}/\text{m}^3$, PM10: 36.6 $\mu\text{g}/\text{m}^3$ at 13:45). The localized nature of this event — elevated only at the NE monitor with zero readings at the SW monitor — suggests a source in close proximity to the NE station.

The SW monitor recorded no VOC exceedances during the reporting period.

Table 3. NE Monitor (Downwind) — VOC Alert Level Events

Date	Time Range	Peak (ppm)	Duration	Level	Notes
May 19	13:45 – 14:30	0.81	~0.8 hrs	Alert	First VOC exceedance in the monitoring program. Peak of 0.81 ppm (alert), followed by two notification-level readings (0.29, 0.26 ppm). NE only; SW was 0.00 ppm throughout. Coincided with elevated PM at NE. Wind SSW at 1.6–2.3 m/s. Daytime; school in session.

5.4 Methane Exceedances

No methane readings exceeded CAMP thresholds at either monitor during the May 2026 reporting period. The NE monitor recorded a maximum methane reading of 1.58 ppm, and the SW monitor recorded a maximum of 1.84 ppm; both remained well below the 3 ppm notification threshold.

5.5 24-Hour Rolling Averages

The 24-hour rolling averages for all parameters remained below their respective National Ambient Air Quality Standards (NAAQS) throughout the reporting period at both monitors. The highest 24-hour PM_{2.5} average was 15.06 µg/m³ at the NE monitor on May 22 (well below the 35 µg/m³ standard), and the highest PM₁₀ average was 19.72 µg/m³ at the NE monitor on May 22 (well below the 150 µg/m³ standard). The short-term fluctuations captured in the 15-minute data did not translate into sustained air quality conditions of regulatory concern.

Table 4. NE Monitor — Daily Averages (May 1–31)

Date	CH ₄ (ppm)	VOC (ppm)	PM _{2.5} (µg/m ³)	PM ₁₀ (µg/m ³)	Temp (°C)	RH (%)
May 1	1.15	0.00	2.10	5.33	17.8	47.7
May 2	1.18	0.00	3.88	6.43	15.7	69.7
May 3	1.24	0.00	4.39	6.41	16.5	53.5
May 4	1.12	0.00	3.43	6.08	20.2	45.9
May 5	1.06	0.00	4.05	9.32	22.7	47.2
May 6	1.01	0.00	4.52	10.20	22.5	67.2
May 7	0.97	0.00	2.65	6.46	21.6	85.4
May 8	1.04	0.00	3.17	7.96	20.2	60.2
May 9	1.03	0.00	4.97	8.79	20.2	71.4
May 10	0.91	0.00	4.93	7.95	25.0	56.8
May 11	1.08	0.00	5.06	9.23	20.4	68.3
May 12	1.08	0.00	2.76	5.60	19.0	52.9
May 13	1.08	0.00	3.14	6.26	20.6	52.1
May 14	0.96	0.00	3.10	9.34	23.0	43.0
May 15	1.07	0.00	2.11	4.71	19.7	47.3
May 16	0.97	0.00	4.19	8.30	22.8	55.3
May 17	0.83	0.00	6.37	10.94	27.1	59.8
May 18	0.76	0.00	5.83	10.21	28.4	57.2
May 19	0.76	0.02	6.19	11.18	28.4	55.8
May 20	0.72	0.01	5.63	10.47	28.6	57.3
May 21	0.74	0.00	6.86	12.27	27.5	63.5
May 22	0.89	0.00	15.06	19.72	21.5	93.3
May 23	0.92	0.00	14.61	19.51	19.9	92.7
May 24	0.92	0.00	10.12	14.02	23.4	80.2
May 25	0.78	0.00	4.23	9.46	25.3	87.6
May 26	0.78	0.00	5.01	12.88	25.7	88.5
May 27	0.76	0.00	5.06	12.86	26.8	81.8
May 28	0.66	0.00	6.20	12.95	29.3	67.5

Date	CH4 (ppm)	VOC (ppm)	PM2.5 (µg/m³)	PM10 (µg/m³)	Temp (°C)	RH (%)
May 29	0.79	0.00	5.56	11.43	27.4	55.6
May 30	0.79	0.00	11.23	15.15	26.9	65.2
May 31	0.83	0.00	5.61	10.41	23.2	55.4
Action/ Exceedance Limits	10 (15-min avg.)	5.00 (15- min avg.)	35	150	n/a	n/a

Table 5. SW Monitor — Daily Averages (May 1–31)

Date	CH4 (ppm)	VOC (ppm)	PM2.5 (µg/m³)	PM10 (µg/m³)	Temp (°C)	RH (%)
May 1	1.35	0.00	1.90	4.07	18.0	46.3
May 2	1.36	0.00	3.15	5.21	15.9	67.1
May 3	1.40	0.00	3.41	5.07	15.8	53.2
May 4	1.51	0.00	3.02	4.97	19.8	47.0
May 5	1.55	0.00	3.54	6.64	22.4	47.8
May 6	1.53	0.00	4.58	8.40	22.7	64.5
May 7	1.47	0.00	2.66	5.65	21.8	80.8
May 8	1.40	0.00	3.58	9.69	19.9	59.0
May 9	1.43	0.00	4.56	8.41	20.2	69.8
May 10	1.51	0.00	3.92	7.26	24.7	55.4
May 11	1.42	0.00	3.96	7.64	20.6	64.4
May 12	1.35	0.00	2.63	5.20	19.1	51.9
May 13	1.48	0.00	3.12	6.13	20.5	51.5
May 14	1.47	0.00	2.92	7.09	22.1	41.4
May 15	1.44	0.00	2.52	6.15	19.5	45.5
May 16	1.53	0.00	3.84	8.08	22.9	53.9
May 17	1.55	0.00	5.78	10.28	27.3	58.3
May 18	1.46	0.00	5.44	9.70	28.5	56.6
May 19	1.42	0.00	5.44	10.09	28.5	55.0
May 20	1.40	0.00	5.30	9.80	28.5	57.2
May 21	1.35	0.00	5.93	10.50	27.3	62.9
May 22	1.26	0.00	9.93	13.50	21.9	87.2
May 23	1.28	0.00	10.23	13.79	20.1	87.5
May 24	1.45	0.00	7.33	10.46	23.6	76.2
May 25	1.42	0.00	4.15	8.89	25.6	83.7
May 26	1.40	0.00	5.20	12.35	25.8	84.8

Date	CH4 (ppm)	VOC (ppm)	PM2.5 (µg/m³)	PM10 (µg/m³)	Temp (°C)	RH (%)
May 27	1.43	0.00	4.99	11.83	26.9	78.7
May 28	1.44	0.00	5.64	12.04	29.3	64.3
May 29	1.38	0.00	4.95	10.22	27.7	53.1
May 30	1.41	0.00	7.32	11.14	27.4	61.7
May 31	1.28	0.00	5.05	9.44	23.6	53.2
Action/ Exceedance Limits	10 (15-min avg.)	5.00 (15- min avg.)	35	150	n/a	n/a

6.0 OBSERVATIONS AND CONCLUSIONS

The May 2026 monitoring period was characterized by a moderate number of exceedance events. PM10 and VOCs were the only parameters to exceed alert-level CAMP thresholds, and both alert-level events occurred exclusively at the NE (downwind) monitor. PM2.5 produced a single notification-level event. No methane exceedances were observed at either station. The following observations summarize the key findings:

The May 19 VOC Alert Level event was the first VOC exceedance recorded in the monitoring program. A peak reading of 0.81 ppm at the NE monitor at 13:45 exceeded the 0.50 ppm alert threshold. Two subsequent readings at 14:15 and 14:30 remained at notification level (0.29 and 0.26 ppm). The SW monitor recorded 0.00 ppm VOC throughout the entire event. The VOC spike coincided with elevated particulate matter at the NE monitor (PM2.5: 18.6 µg/m³, PM10: 36.6 µg/m³), suggesting a common localized source. Wind was from the south-southwest at 1.6–2.3 m/s. The complete absence of VOC readings at the SW monitor indicates the source was in close proximity to the NE station. The event occurred during school hours.

The May 14 PM10 Alert Level event was a single isolated spike at the NE monitor. A reading of 148.8 µg/m³ at 09:00 was the highest PM10 reading of the reporting period. The SW monitor recorded 16.0 µg/m³ at the same time. Wind was from the north-northwest at 2.5 m/s, which reverses the prevailing wind direction and changes the typical upwind/downwind relationship between the monitors. The SW monitor also recorded a notification-level spike to 55.0 µg/m³ at 08:30, 30 minutes before the NE peak. The transient, single-reading nature of this event is consistent with localized dust generation rather than sustained emissions. The event occurred during school hours.

Exceedance events during May continued the April pattern of occurring predominantly at the NE monitor. Similar to April, PM10 exceedances were localized to the NE station under varying wind conditions, while the SW monitor generally showed baseline-level concentrations. This pattern differs from March 2026, when exceedances were predominantly observed at the SW monitor. The consistency of the NE-dominant pattern across April and May suggests localized sources near the NE monitor or between the two monitoring stations.

Several exceedance events occurred during daytime hours when school was in session. Both alert-level events (May 14 at 09:00 and May 19 at 13:45) and multiple notification-level PM10 events (May 6 and May 11, both at 13:00) occurred during normal school hours. The May 23 PM2.5/PM10 event occurred during evening hours. Fort Mill schools were in session for most of May, with the school year typically concluding in late May or early June. However, the intermittent and localized nature of these spikes is consistent with transient sources such as construction activity, vehicle traffic, or grounds maintenance rather than sustained industrial emissions.

All 24-hour rolling averages for all parameters remained below NAAQS action levels throughout the reporting period at both monitors (Tables 4 and 5). The highest daily PM_{2.5} average was 15.06 µg/m³ at the NE monitor on May 22 and 10.23 µg/m³ at the SW monitor on May 23, both well below the 35 µg/m³ NAAQS standard. The highest daily PM₁₀ average was 19.72 µg/m³ at the NE monitor, well below the 150 µg/m³ standard.

Based on the actions and thresholds established in the CAMP, the alert-level exceedances identified during this period warranted district notification per CAMP Section 6.2. No exceedances reached the Action Level, which would require emergency coordination between Citadel EHS, the district, and relevant agencies.

7.0 LIMITATIONS

The data presented in this report reflect ambient air conditions measured at two fixed monitoring locations along the school perimeter. While the dual-station configuration provides directional context, it does not capture conditions at every point on or near the campus. Readings are influenced by meteorological factors, including wind speed and direction, temperature, and atmospheric stability, which can vary over short distances and timeframes.

Fifteen-minute rolling averages are used for threshold comparison as defined in the CAMP. Short-duration exceedances (single 15-minute readings) may reflect transient conditions and do not necessarily indicate sustained exposure. The 24-hour rolling averages provide a complementary measure for comparison against federal NAAQS standards.

This report is based on data as received from the monitoring instruments. Citadel EHS performs routine quality assurance and quality control procedures; however, instrument calibration, sensor drift, or data transmission interruptions may occasionally affect individual readings.

8.0 SIGNATURES

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