Northern Bus Garage
Noise, Vibration, and Dust Monitoring Report (April 2025)

Noise, Vibration, and Dust levels were monitored as part of the reconstruction of Northern Bus Garage, 4615 14th Street, NW, Washington, DC, for the month of April 2025.

The following memorandum identifies the monitoring points and instruments, presents the data, and provides a brief analysis of the results per monthly monitoring report attached by Geo Instruments for Clark Construction. The report is organized by medium: noise, vibration, and dust. Figures and graphs are attached. The red dashed line on each of the graphs represents the monitoring thresholds, which are summarized below for each instrument.

Noise Monitoring

Five noise monitors are positioned around the perimeter of the project site. (See Figure 1) Under DC regulations, the regulatory standard is 80 dBA, measured 25 ft from the property line (20 DCMR 2802.1). Because the noise monitoring devices are placed on the property line (rather than a 25 ft offset), the monitoring threshold for site activities is adjusted to 85 dBA (assuming the noise level will dissipate). Noise levels and vibration levels were measured automatically with Micromate and Geophone Instrument.

No operating issue with the monitoring instruments was identified.

Numerous noise level exceedances at all hours of the day and all days of the week. Mic1 and Mic3 recorded their loudest exceedances outside of working hours. Mic1, Mic3, and Mic5 recorded over 50% of their exceedances out of working hours. Please see Table 1 (The "Work Hours" category includes all weekend shifts and evening shifts that were worked during the month).

Vibration Monitoring

Five vibration monitors are positioned around the perimeter of the project site. (See Figure 1) Vibration thresholds are based the WMATA Design Criteria. Monitors VM-1 and VM-2 are set at a lower vibration threshold due to their proximity to the historic façade, which is more sensitive to any movement. Noise levels and vibration levels were measured automatically with Micromate and Geophone Instrument.

Table 2

Instrument Type	Monitoring Threshold
Vibration Monitor (VM-1)	0.2 in/sec
Vibration Monitor (VM-2)	0.2 in/sec
Vibration Monitor (VM-3)	2.0 in/sec
Vibration Monitor (VM-4)	2.0 in/sec
Vibration Monitor (VM-5)	2.0 in/sec

No operating issue with the monitoring instruments was identified.

Graphs showing monitoring results are presented in Graphs 1 to 5.

There were nine vibration exceedances in the month of April. The VM-2 exceedance on April 11th is due to the utility subcontractor's water shutdown on 14th St. There was no work on site during the April 27th exceedance. On April 30th, mesh construction fence banners were installed directly next to VM-2. The exceedances at VM-4 are a result of returning jersey barriers to their original position following completion of utility subcontractor's work on Iowa Avenue. This occurred on 4/24.

- VM2 – Exceedance with a reading of 0.73 in/sec on April 11 at 07:46.
- VM2 – Exceedance with a reading of 1.04 in/sec on April 21 at 07:48.
- VM2 – Exceedance with a reading of 0.35 in/sec on April 27 at 15:23.
- VM2 – Exceedance with a reading of 0.78 in/sec on April 30 at 12:53.
- VM2 – Exceedance with a reading of 0.20 in/sec on April 30 at 12:59.
- VM2 – Exceedance with a reading of 0.23 in/sec on April 30 at 13:01.
- VM4 – Exceedance with a reading of 3.56 in/sec on April 24 at 10:19.
- VM4 – Exceedance with a reading of 2.31 in/sec on April 24 at 12:34.
- VM4 – Exceedance with a reading of 3.87 in/sec on April 24 at 12:50.

Dust Monitoring Threshold Values and Exceedances:

Three dust monitors are positioned at the project site. (See Figure 2) EPA regulatory thresholds are based on a 24-hour monitoring period; the project has adopted thresholds to monitor site levels and provide an indication of when EPA standards might be exceeded. (See Table 3) Dust measurements were monitored using Aeroqual Dust Sentry Pro.

Table 3

Dust Monitoring Measurement	Monitoring Threshold
Particulates (PM2.5)	40 µg/m^3
Particulates (PM10)	50 µg/m^3

No operating issue with the monitoring instruments was identified.

Graphs showing monitoring results are presented in Graphs 6 to 11.

There were three Air Quality exceedances in the month of April.

- DM1 – Exceedance of the PM2.5 limit with a reading of 44 µg/m^3 on April 30 at 14:54.
    - Weather history shows sustained winds of 12 MPH and gusts of 22 MPH at this time.
- DM1 – Exceedance of the PM10 limit with a reading of 57 µg/m^3 on April 24 at 10:39.
    - Weather history shows sustained winds of 9 MPH at this time.
- DM1 – Exceedance of the PM10 limit with a reading of 76 µg/m^3 on April 30 at 14:54.
    - Weather history shows sustained winds of 12 MPH and gusts of 22 MPH at this time.

Figure 1: Vibration and Noise Monitor Location Plan

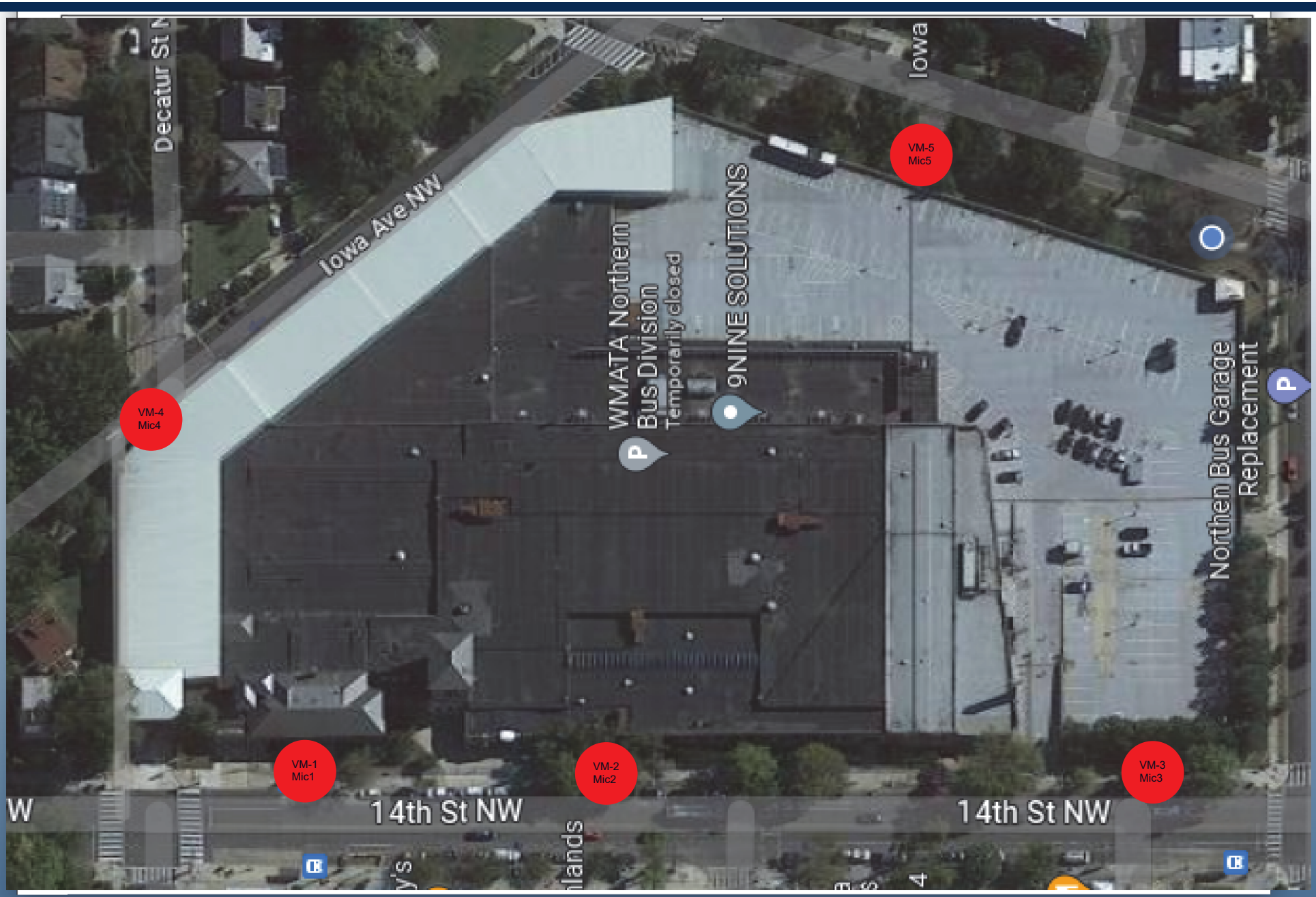


Figure 2: Dust Monitor Location Plan

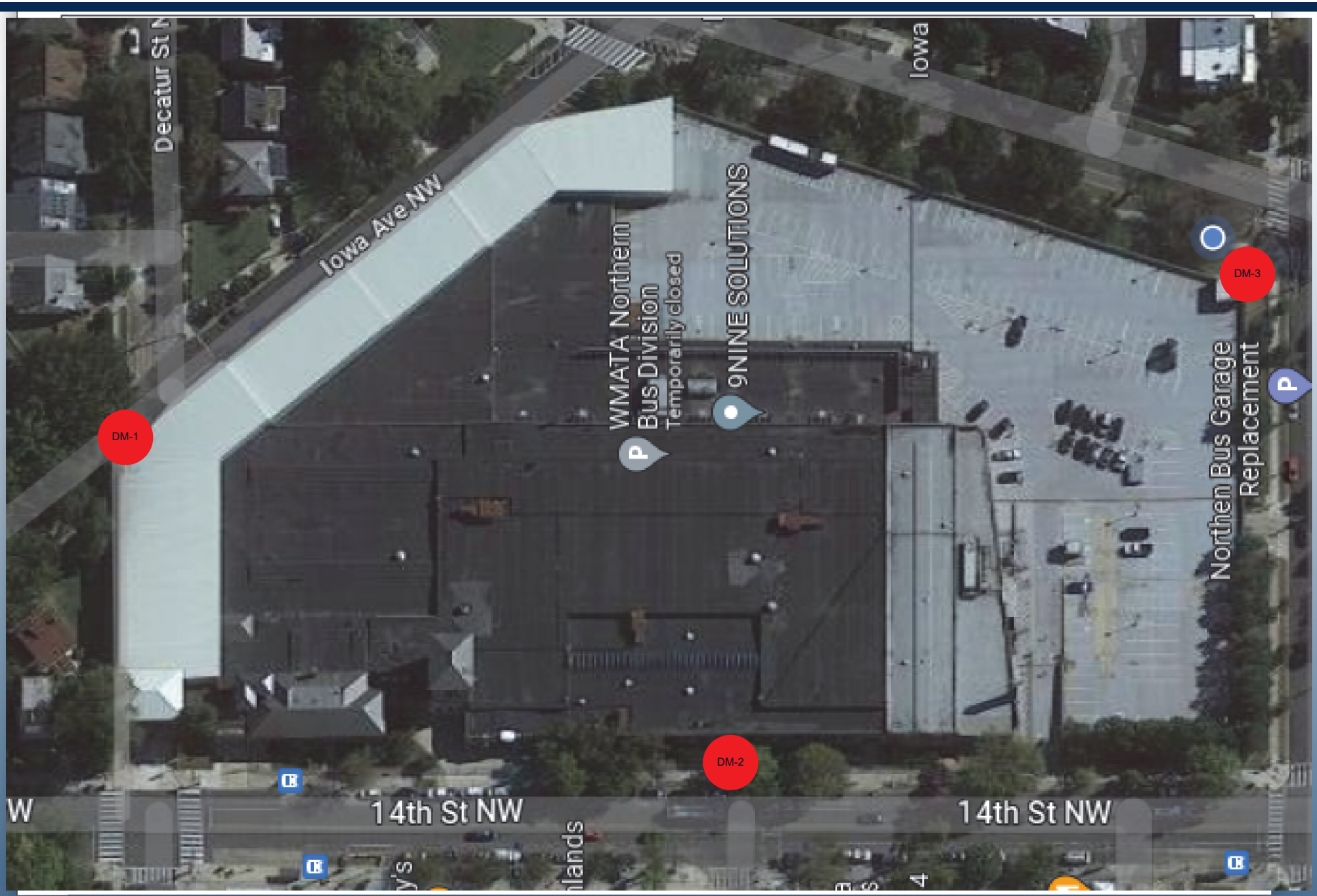


Table 1: Noise Summaries

VM1-MIC		
	Exceedance	Percentage
Work hours	517	49.47%
After hours	280	26.79%
Weekends	248	23.73%
Total	1045	100%

VM1-MIC			
	Work hours	After hours	Weekends
Lmax (dBA)	111.1	111.3	110.4
Lmin (dBA)	67.9	60.9	67.9
L10 (dBA)	65	80	80
L90 (dBA)	77	64	69
Leq (dBA)	82	79.4	80.1

VM2-MIC		
	Exceedance	Percentage
Work hours	432	68.68%
After hours	98	15.58%
Weekends	99	15.74%
Total	629	100%

VM2-MIC			
	Work hours	After hours	Weekends
Lmax (dBA)	110.1	106.8	107.6
Lmin (dBA)	63.6	52.8	60.8
L10 (dBA)	84	72	72
L90 (dBA)	72	61	62
Leq (dBA)	81.5	79	80.2

VM3-MIC		
	Exceedance	Percentage
Work hours	469	48.65%
After hours	247	25.62%
Weekends	248	25.73%
Total	964	100%

VM3-MIC			
	Work hours	After hours	Weekends
Lmax (dBA)	111.1	115.7	106.1
Lmin (dBA)	60.5	51.8	66.7
L10 (dBA)	79	70	75
L90 (dBA)	70	55	72
Leq (dBA)	82.1	83.4	76.4

VM4-MIC		
	Exceedance	Percentage
Work hours	604	93.35%
After hours	18	2.78%
Weekends	25	3.86%
Total	647	100%

VM4-MIC			
	Work hours	After hours	Weekends
Lmax (dBA)	120.1	97.2	113.7
Lmin (dBA)	91.1	45.5	60.2
L10 (dBA)	106	71	65
L90 (dBA)	94	49	61
Leq (dBA)	100.4	68	81.2

VM5-MIC		
	Exceedance	Percentage
Work hours	140	47.62%
After hours	69	23.47%
Weekends	85	28.91%
Total	294	100%

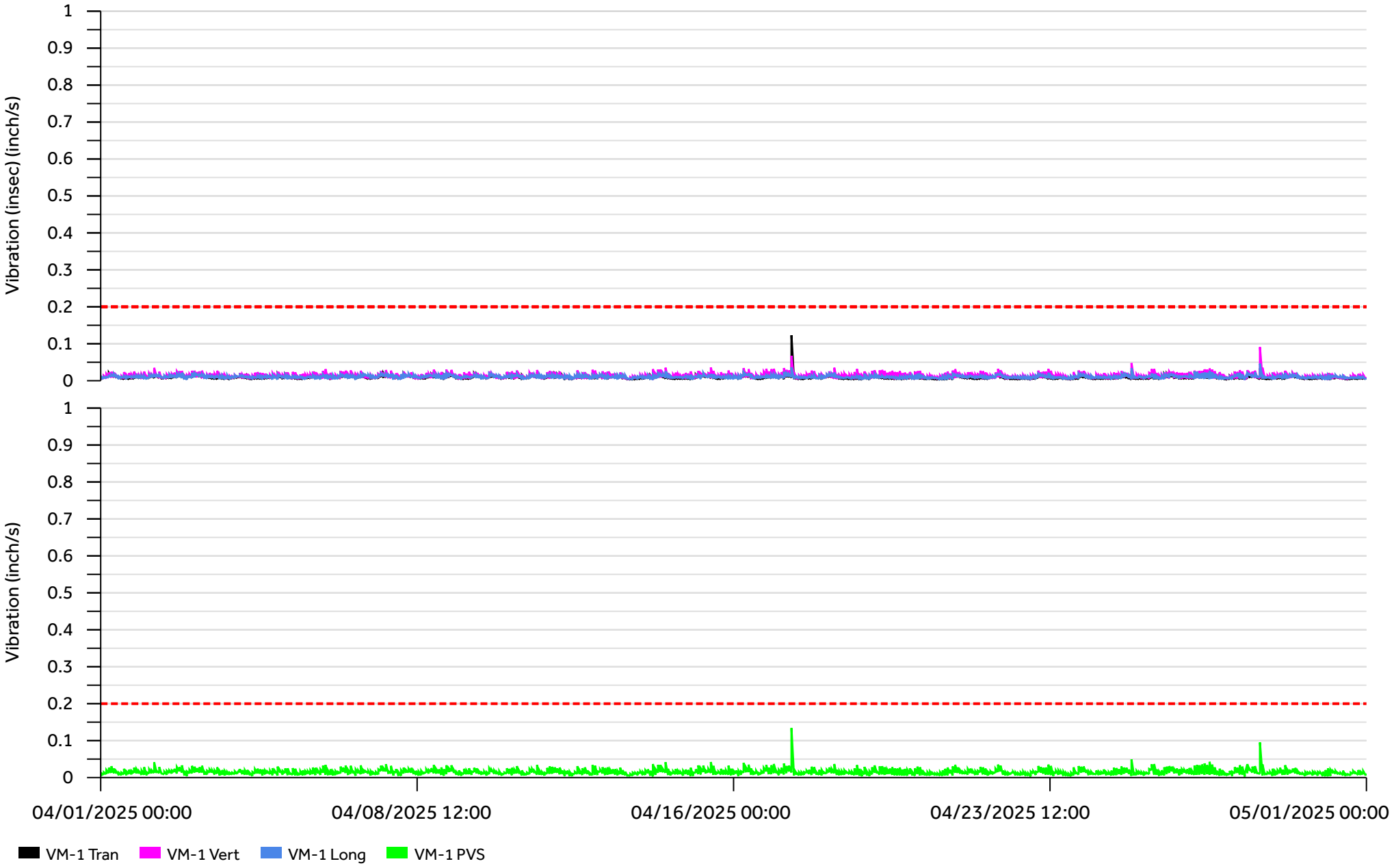
VM5-MIC			
	Work hours	After hours	Weekends
Lmax (dBA)	109.7	107.7	107.1
Lmin (dBA)	62.7	46.5	50.4
L10 (dBA)	83	68	74
L90 (dBA)	64	52	55
Leq (dBA)	80.5	80.5	77.1

Summary tables contain values for working hours, after hours, and weekend time periods:

- Lmax: Highest Maximum Noise Level recorded for the month, in dBA.
- Lmin: Highest Minimum Noise Level recorded for the month, in dBA.
- L10: Highest noise level that was exceeded 10% of the time of all recording periods this month, in dBA.
- L90: Highest noise level that was exceeded 90% of the time of all recording periods this month, in dBA.
- Leq: Highest Equivalent Continuous Sound Level, or 'average' of all recording periods this month, in dBA.

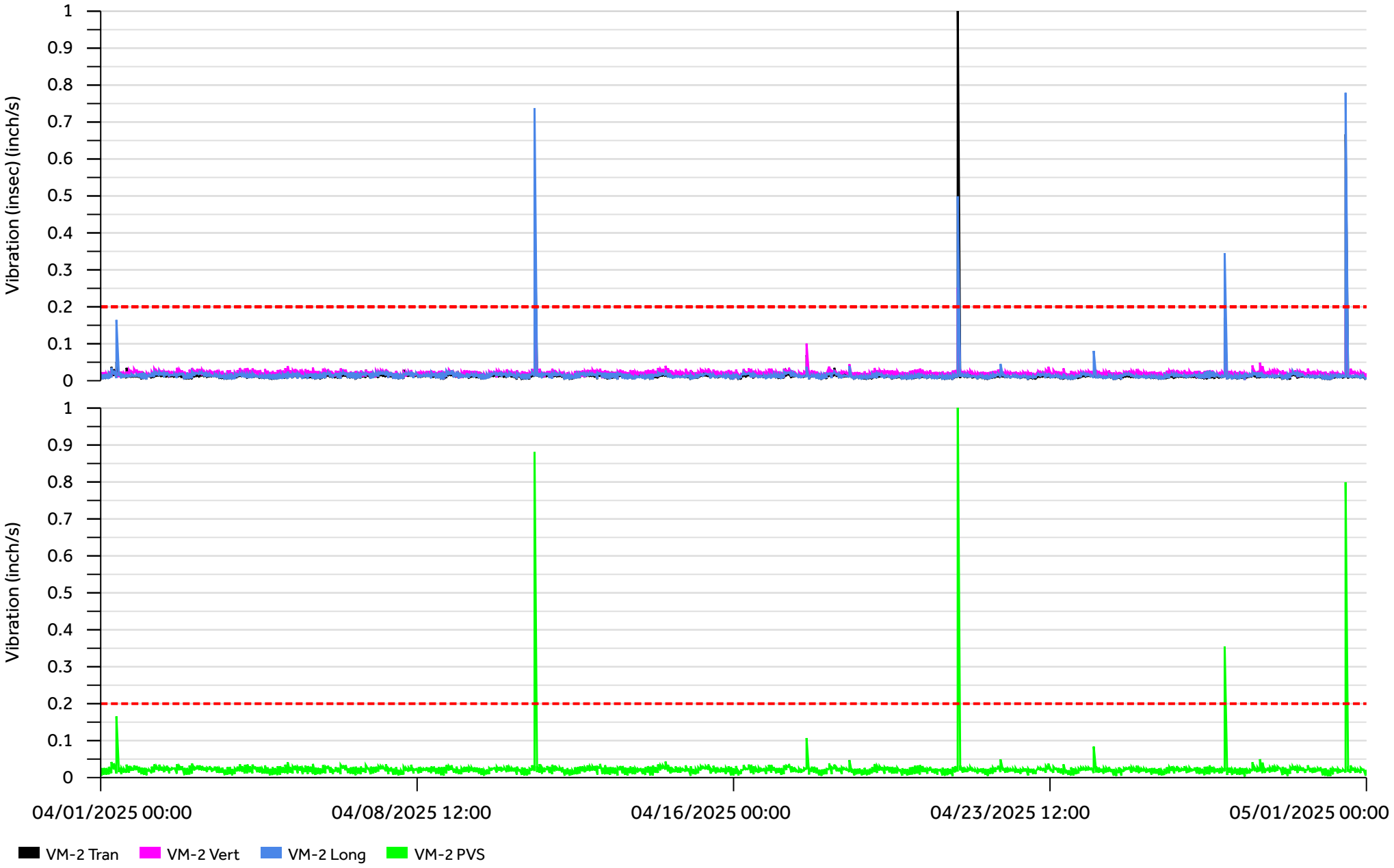
Graph 1

VM-1- Vibration Monitor



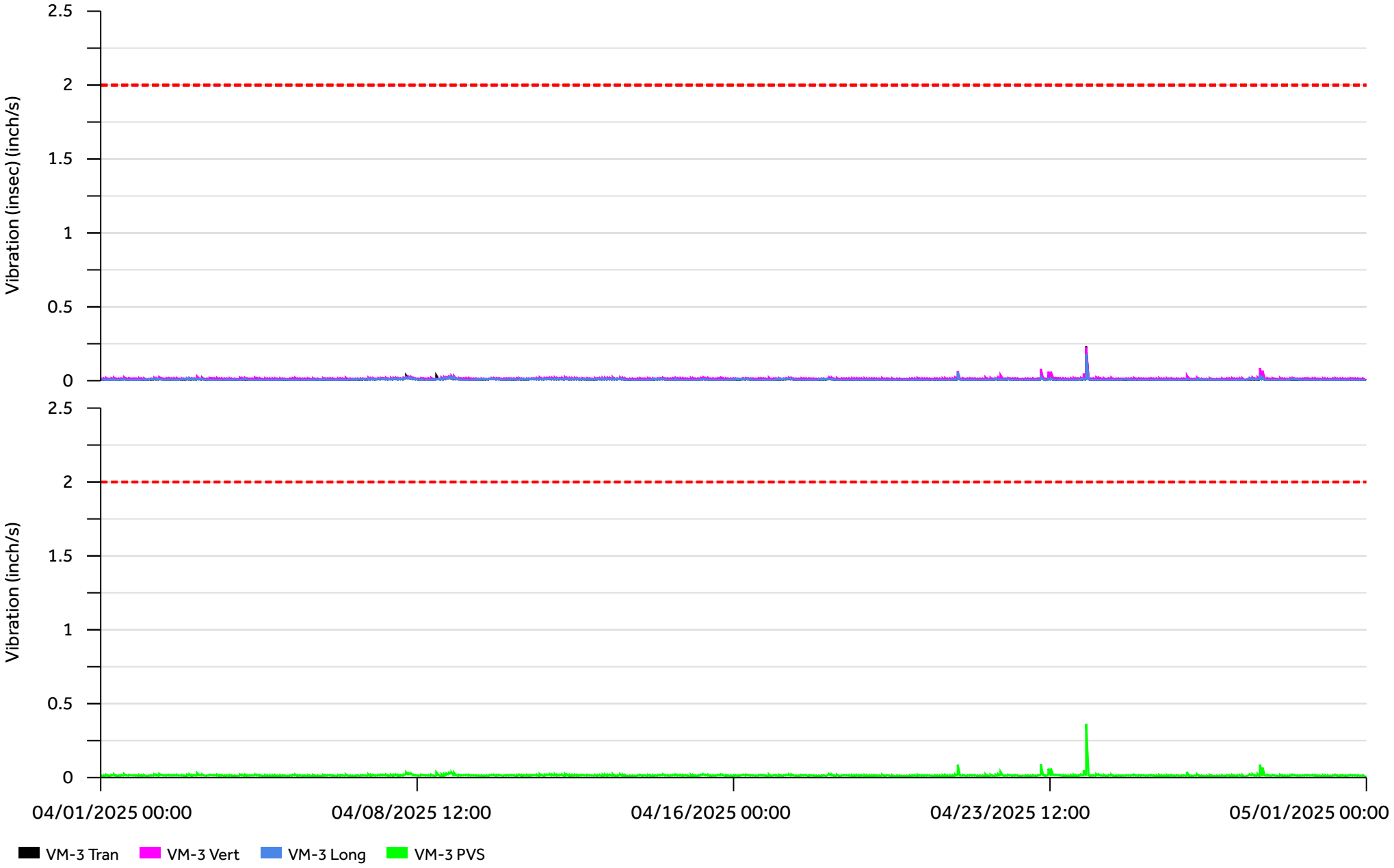
Graph 2

VM-2- Vibration Monitor



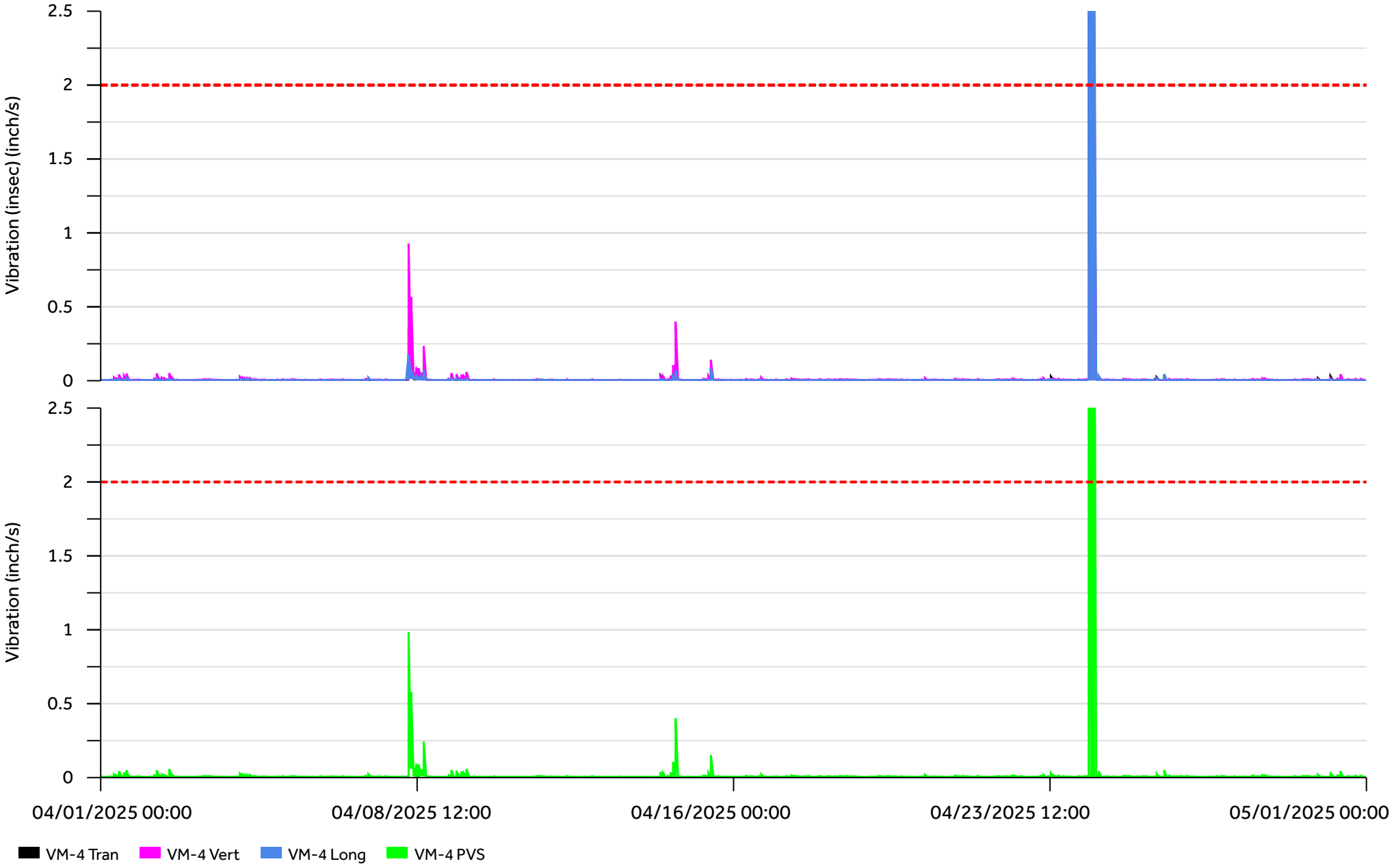
Graph 3

VM-3- Vibration Monitor



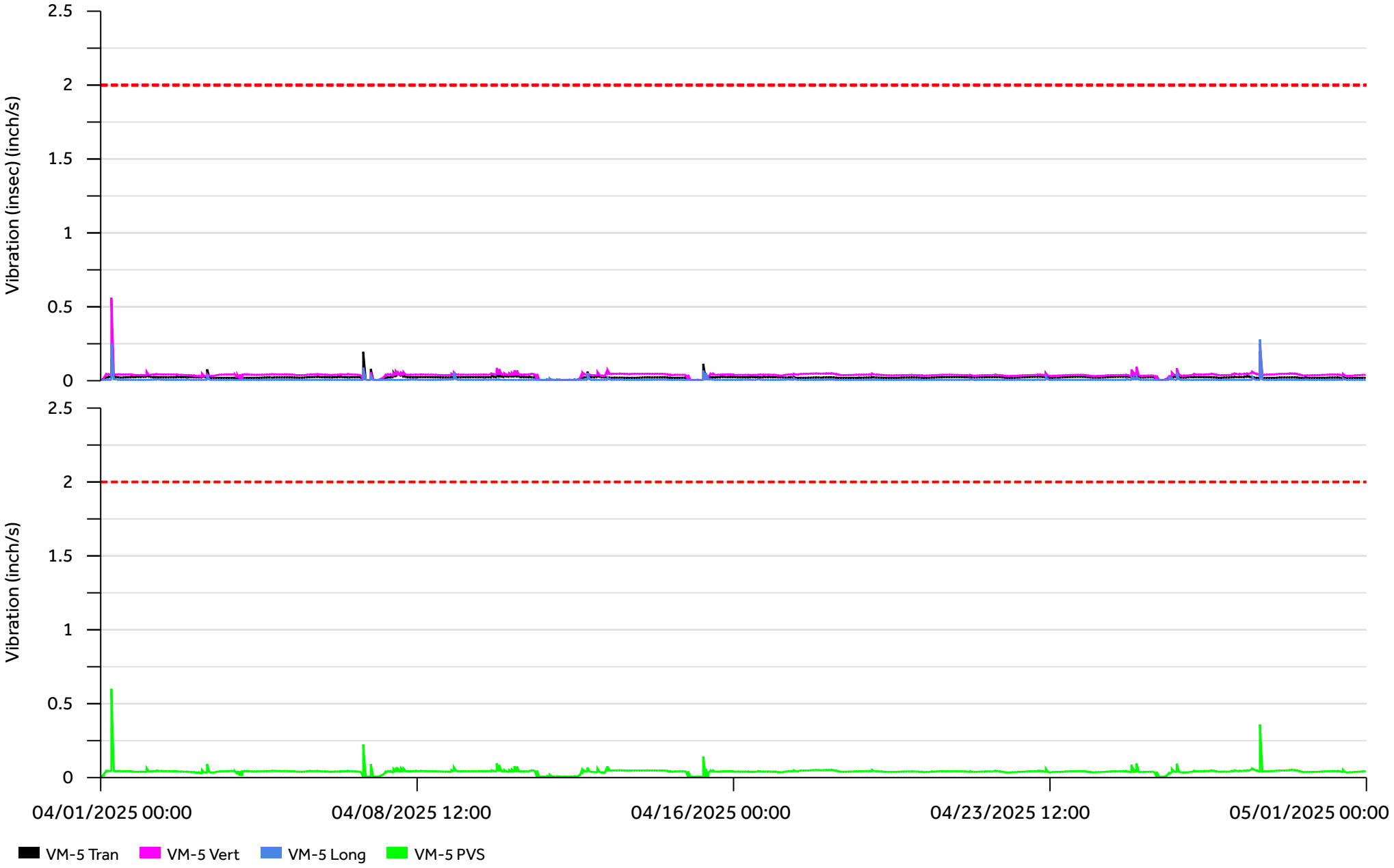
Graph 4

VM-4- Vibration Monitor



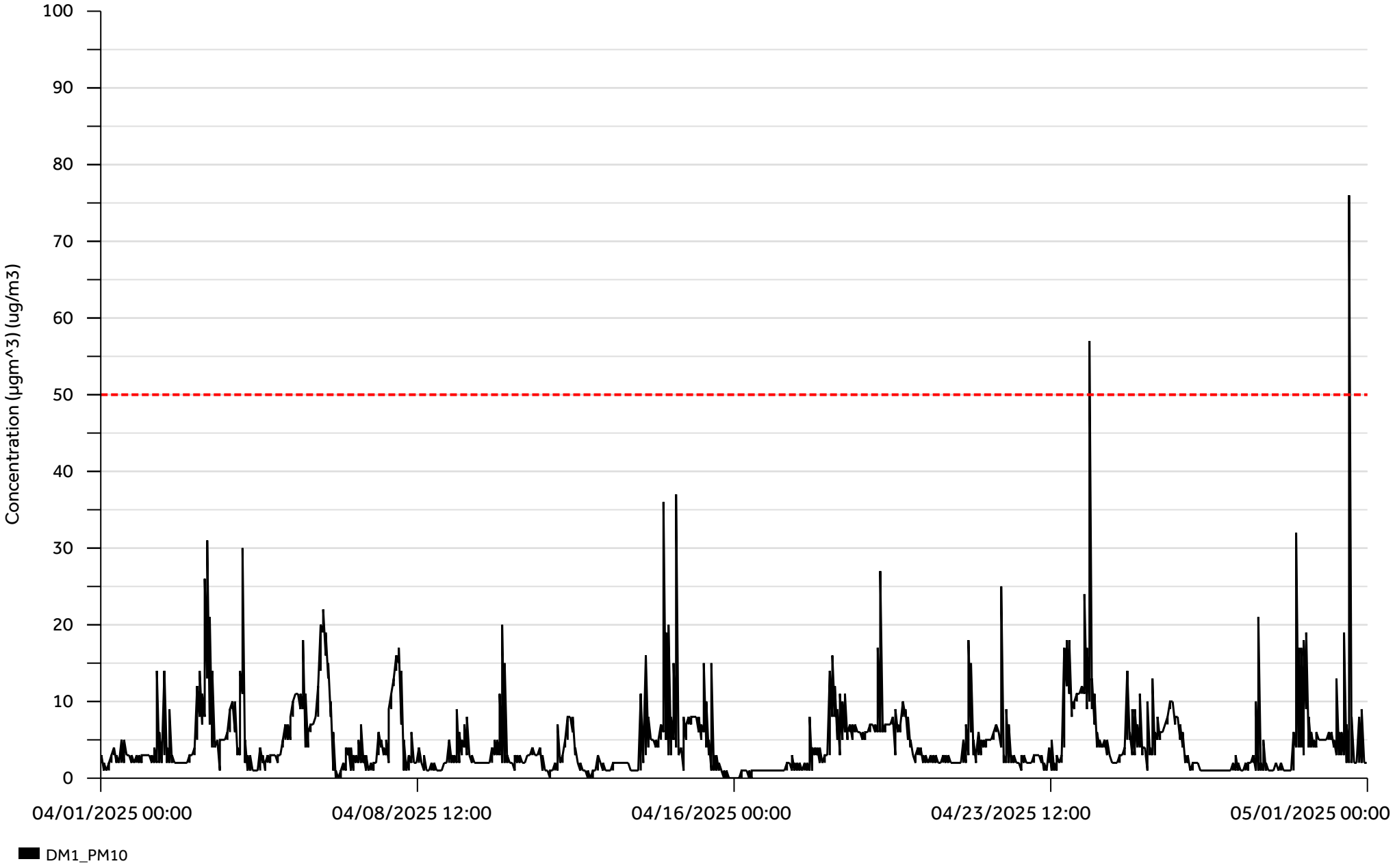
Graph 5

VM-5- Vibration Monitor



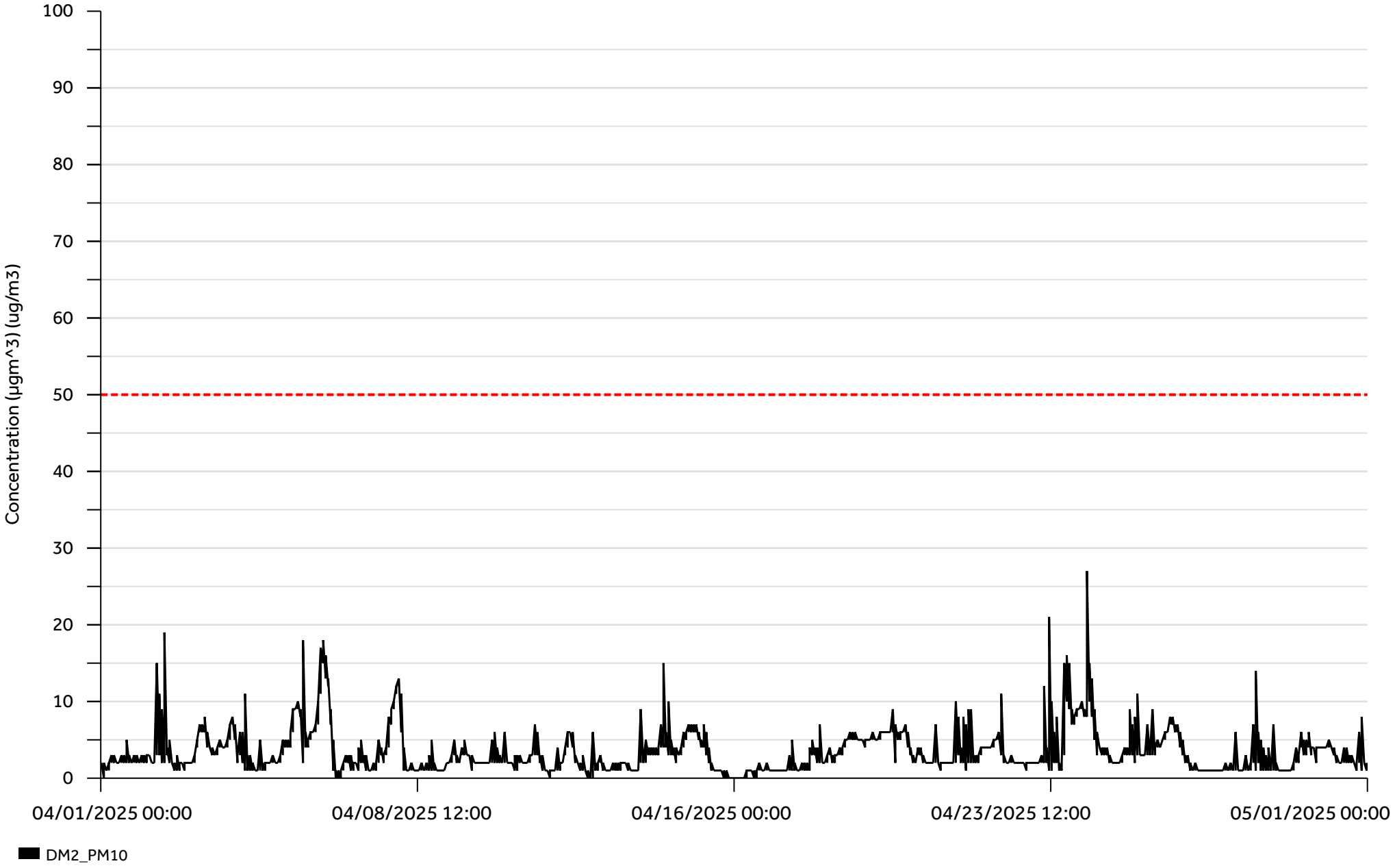
Graph 6

DM1 - PM10



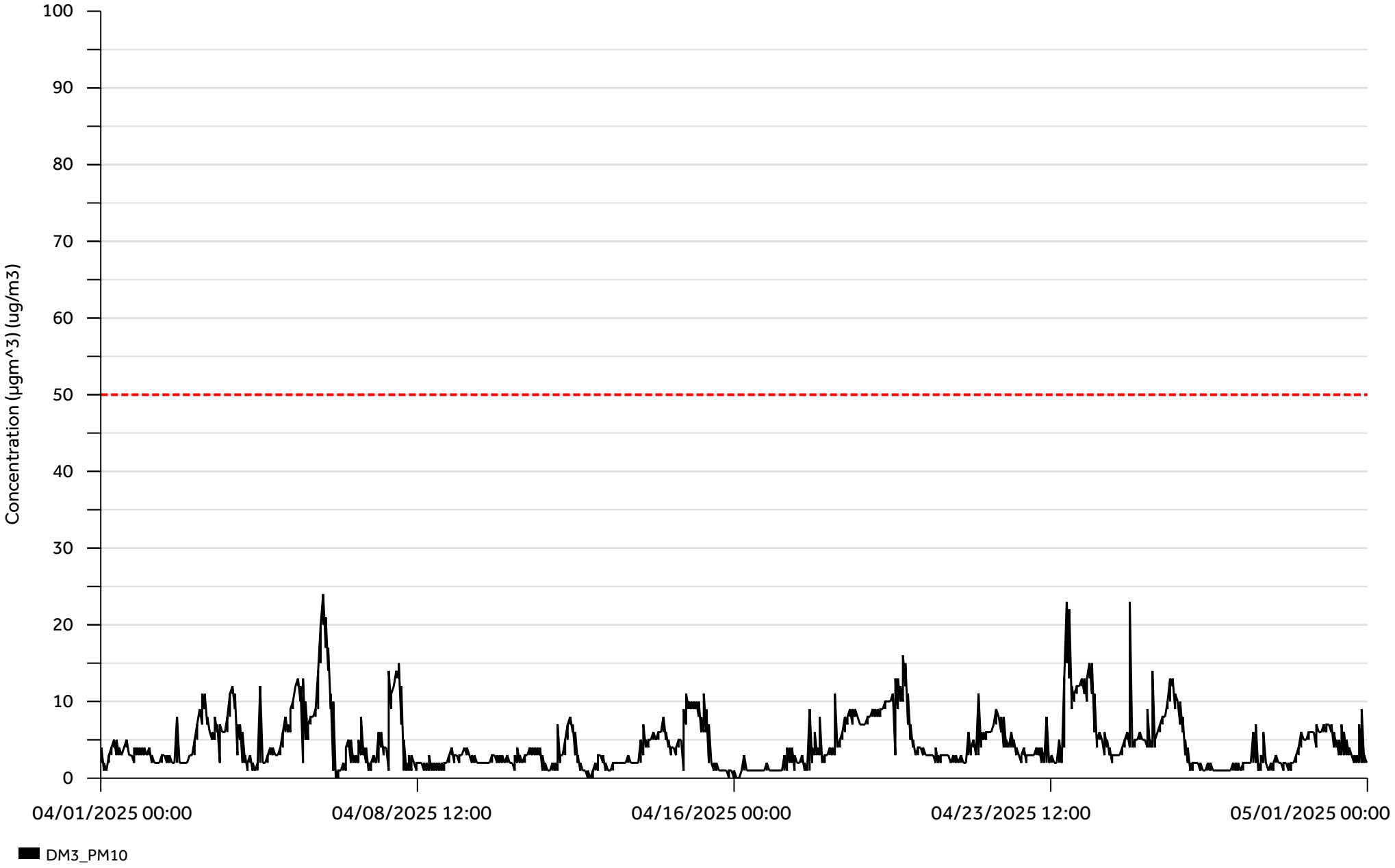
Graph 7

DM2-PM10



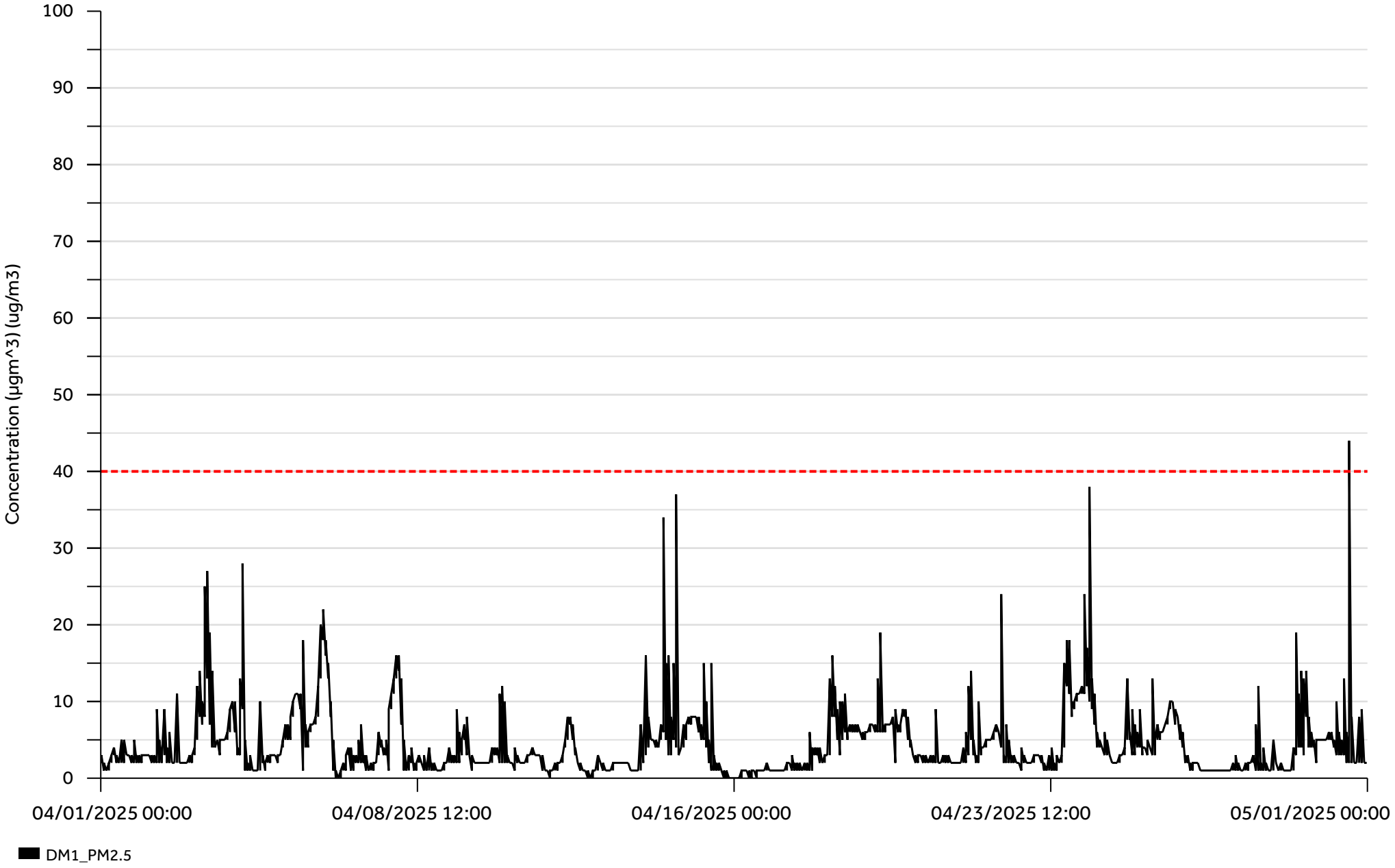
Graph 8

DM3-PM10



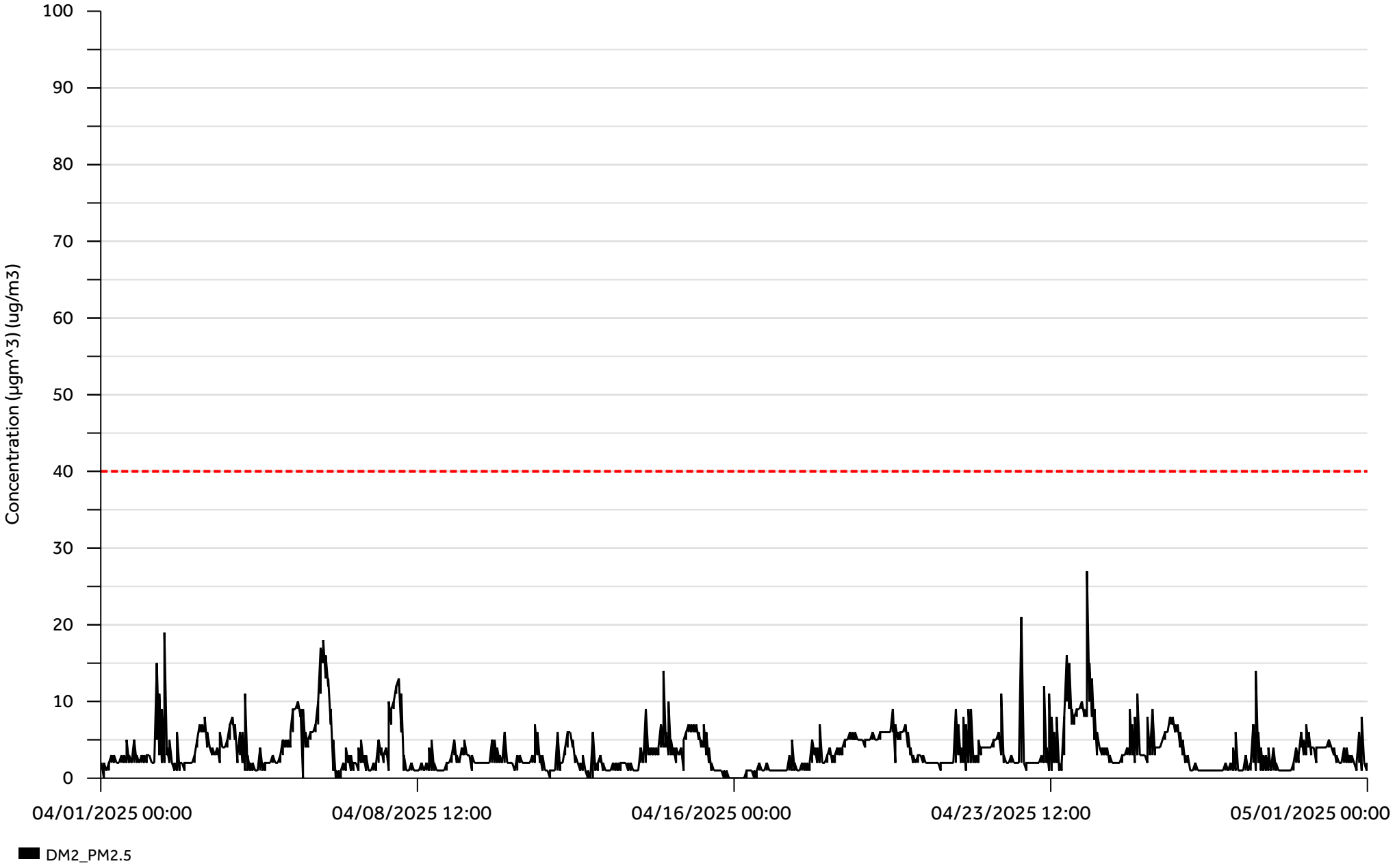
Graph 9

DM1-PM2.5



Graph 10

DM2-PM2.5



Graph 11

DM3-PM2.5