

Northern Bus Garage

Noise, Vibration, and Dust Monitoring Report (July 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 July 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.

Numerous noise level exceedances at all hours of the day and all days of the week. Mic1, Mic3, and Mic5 recorded over 40% 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

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

Ninety-four (94) vibration exceedances were recorded at VM1, and two (2) more at VM2 during the month of July. The large number of events on July 1, July 2, and July 16 were caused by a subcontractor pavement breaking outside of the project fence adjacent to the VM1 vibration monitor. In at least two cases they moved our equipment causing 7.0 to 10.0 in/sec false readings. The VM2 exceedances were both short single impact events of unknown origin. A sample of the Waveform reports may be found in Attachments B and C.

- VM1 – Exceedance with a reading of 0.23 in/sec on July 1 at 08:09.
- VM1 – A concentrated series of 24 exceedances caused by an impact breaker or similar equipment with typical values from 0.20-0.28 in/sec with a few peaks from 0.31 to 0.37 in/sec on July 1 from 08:39 to 09:07.
- VM1 – Exceedance with a reading of 0.21 in/sec on July 1 at 10:54.
- VM1 – Exceedance with a reading of 0.20 in/sec on July 1 at 11:32.
- VM1 – Exceedance with a reading of 0.20 in/sec on July 1 at 11:34.
- VM1 – Exceedance with a reading of 0.20 in/sec on July 1 at 11:50.
- VM1 – Exceedance with a reading of 0.22 in/sec on July 1 at 12:15.
- VM1 – A concentrated series of 50 exceedances caused by an impact breaker or similar equipment with typical values from 0.20-0.83 in/sec with a few peaks from 8.02 to 10.0 in/sec on July 2 from 13:02 to 14:58.
- VM1 – Exceedance with a reading of 9.3 in/sec on July 3 at 09:18. This was due to moving of equipment.
- VM1 – Exceedance with a reading of 0.21 in/sec on July 3 at 10:40.

- VM1 – Exceedance with a reading of 1.27 in/sec on July 3 at 11:51.
- VM1 – Exceedance with a reading of 0.25 in/sec on July 16 at 09:00.
- VM1 – A concentrated series of 9 exceedances caused by an impact breaker or similar equipment with values from 0.24-0.39 in/sec on July 16 from 14:47 to 14:58.
- VM1 – Exceedance with a reading of 0.78 in/sec on July 17 at 14:58.
- VM2 – Exceedance with a reading of 0.472 in/sec on July 3 at 09:20.
- VM2 – Exceedance with a reading of 0.298 in/sec on July 28 at 11:33.

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.

Several air quality exceedances occurred during the month of July 2025. All three units recorded poor air quality on the evening of 7/4, likely caused by fireworks for local Independence Day celebrations. DM1 also recorded an emission the morning of July 24. DM2 also recorded an emission the morning of July 7.

Details of the air quality exceedances on 7/4 and 7/5 can be found below. It is important to note that there was no work on site during these exceedances.

- DM1 – The PM2.5 limit was exceeded with a peak reading of 145 µg/m³ from July 4 from 20:00 – July 5 08:13. The PM10 limit was exceeded with a peak reading of 145 µg/m³ on from July 4 from 20:00 – July 5 08:13. The peak was at 21:13.
- DM2 – The PM2.5 limit was exceeded with a peak reading of 135 µg/m³ from July 4 from 20:53 – July 5 06:38. The PM10 limit was exceeded with a peak reading of 135 µg/m³ on from July 4 from 20:00 – July 5 06:38. The peak was at 21:38.
- DM3 – The PM2.5 limit was exceeded with a peak reading of 194 µg/m³ from July 4 from 20:00 – July 5 08:01. The PM10 limit was exceeded with a peak reading of 194 µg/m³ on from July 4 from 20:00 – July 5 08:01. The peak was at 22:16.

Outside of the July 4th and July 5th event, there were four Air Quality exceedances in the month of June.

- DM1 – Exceedance of the PM2.5 limit with a reading of 57 µg/m³ on July 24 at 07:58.
- DM1 – Exceedance of the PM10 limit with a reading of 96 µg/m³ on July 24 at 07:58.
- DM2 – Exceedance of the PM2.5 limit with a reading of 73 µg/m³ on July 7 at 08:08.
- DM2 – Exceedance of the PM10 limit with a reading of 132 µg/m³ on July 7 at 08:08.

Figure 1: Vibration and Noise Monitor Location Plan

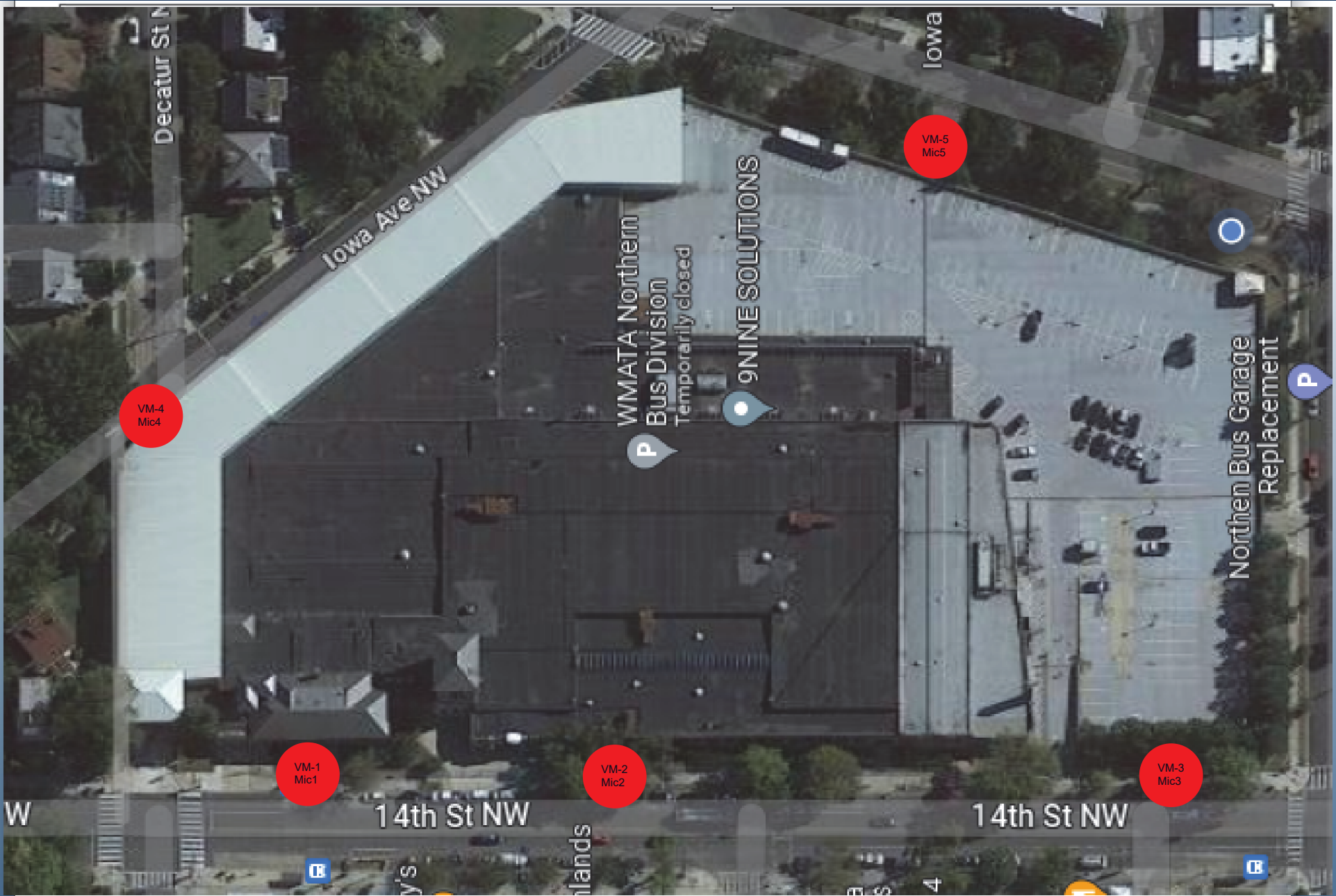


Figure 2: Dust Monitor Location Plan

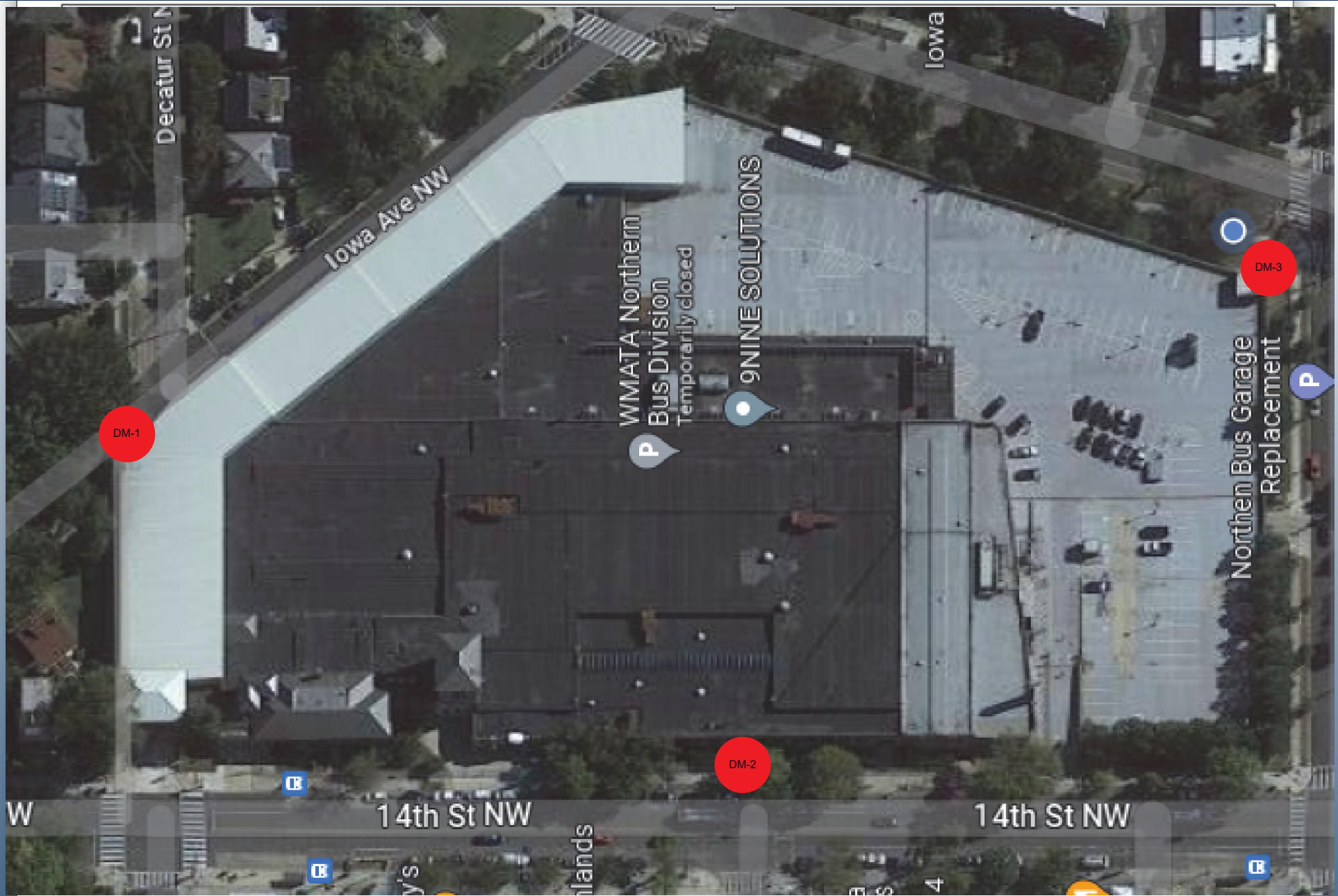


Table 1: Noise Summaries

VM1-MIC		
	Exceedance	Percentage
Work hours	831	55.73%
After hours	346	23.21%
Weekends	314	21.06%
Total	1491	100%

VM1-MIC			
	Work hours	After hours	Weekends
Lmax (dBA)	112.7	109.7	109.8
Lmin (dBA)	99.9	78.1	53.7
L10 (dBA)	107	92	83
L90 (dBA)	103	79	62
Leq (dBA)	105.3	87.6	80.7

VM2-MIC		
	Exceedance	Percentage
Work hours	535	64.93%
After hours	149	18.08%
Weekends	140	16.99%
Total	824	100%

VM2-MIC			
	Work hours	After hours	Weekends
Lmax (dBA)	112.4	109.4	110.3
Lmin (dBA)	74.8	69.1	61.2
L10 (dBA)	94	81	79
L90 (dBA)	78	70	65
Leq (dBA)	89.8	79.4	81.8

VM3-MIC		
	Exceedance	Percentage
Work hours	951	55.13%
After hours	415	24.06%
Weekends	359	20.81%
Total	1725	100%

VM3-MIC			
	Work hours	After hours	Weekends
Lmax (dBA)	113.5	110.8	110.7
Lmin (dBA)	90.3	79.4	56.5
L10 (dBA)	100	82	77
L90 (dBA)	92	81	62
Leq (dBA)	93.9	82.1	80.5

VM4-MIC		
	Exceedance	Percentage
Work hours	608	87.86%
After hours	38	5.49%
Weekends	46	6.65%
Total	692	100%

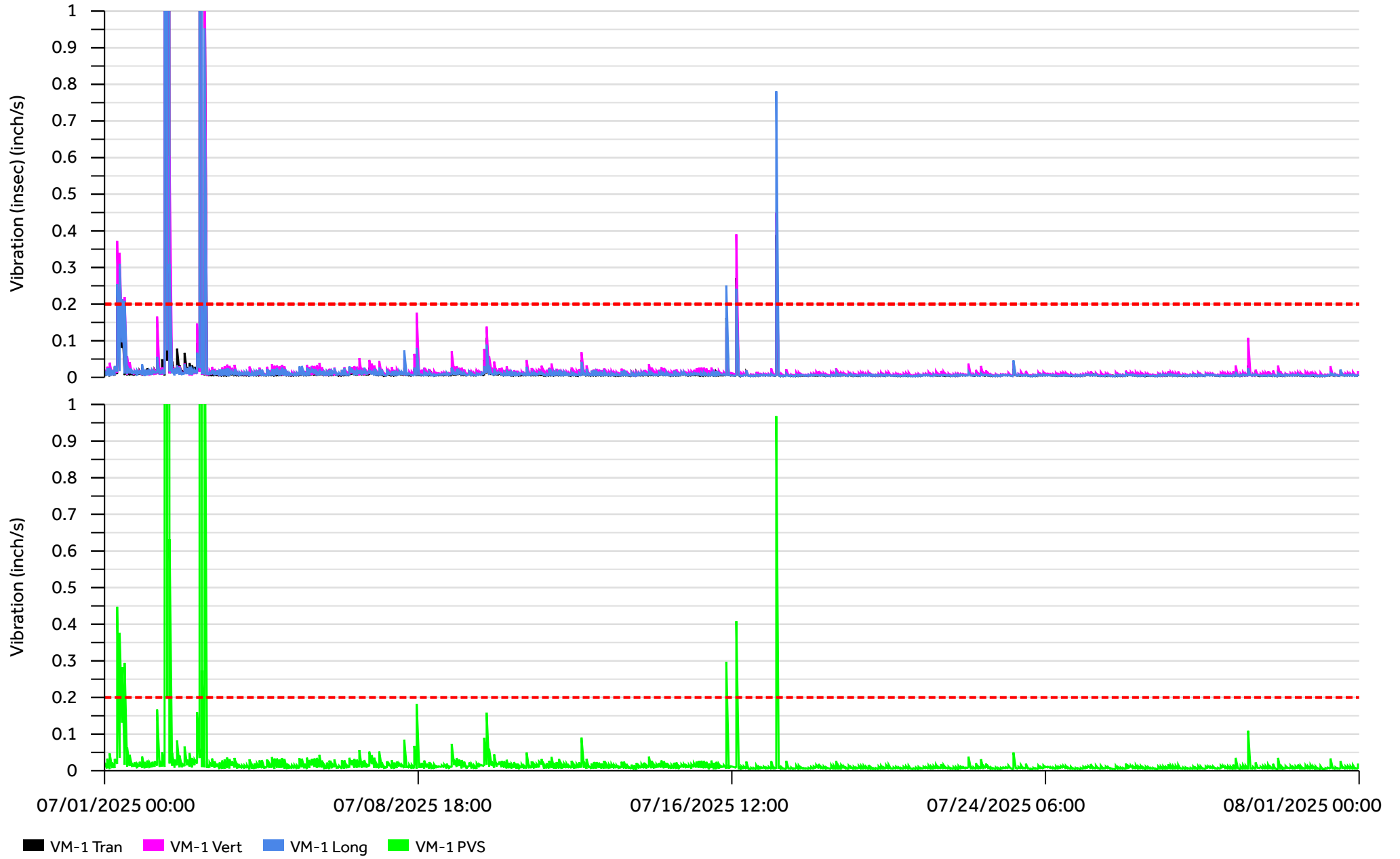
VM4-MIC			
	Work hours	After hours	Weekends
Lmax (dBA)	114.2	105.6	99.5
Lmin (dBA)	73.3	68.2	57.6
L10 (dBA)	91	81	78
L90 (dBA)	75	70	63
Leq (dBA)	84.8	78.5	74.4

VM5-MIC		
	Exceedance	Percentage
Work hours	126	43.45%
After hours	63	21.72%
Weekends	101	34.83%
Total	290	100%

VM5-MIC			
	Work hours	After hours	Weekends
Lmax (dBA)	110.3	109	106.1
Lmin (dBA)	56.8	59.9	54.5
L10 (dBA)	74	76	72
L90 (dBA)	59	67	57
Leq (dBA)	81.1	78	76.7

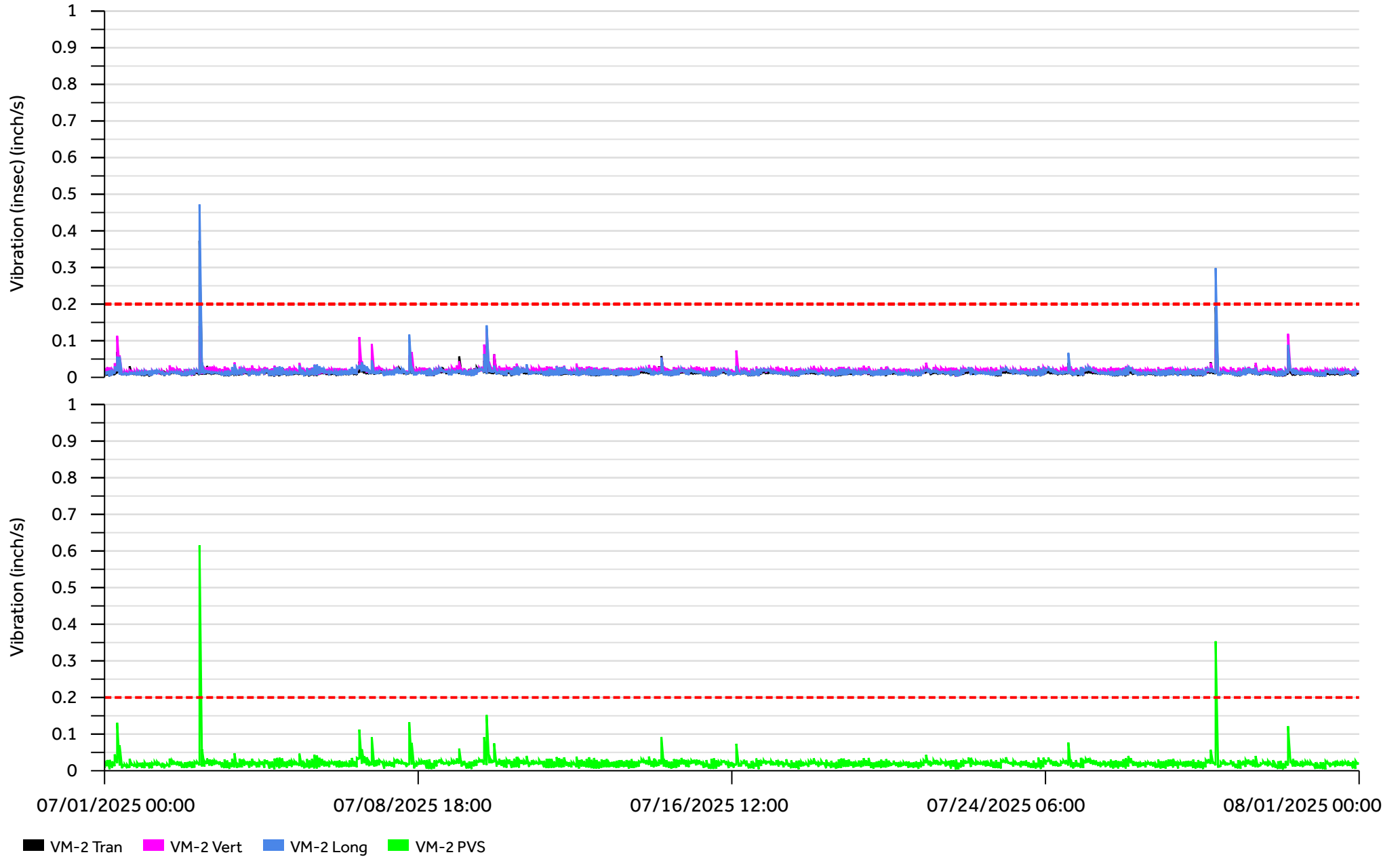
Graph 1

VM-1- Vibration Monitor



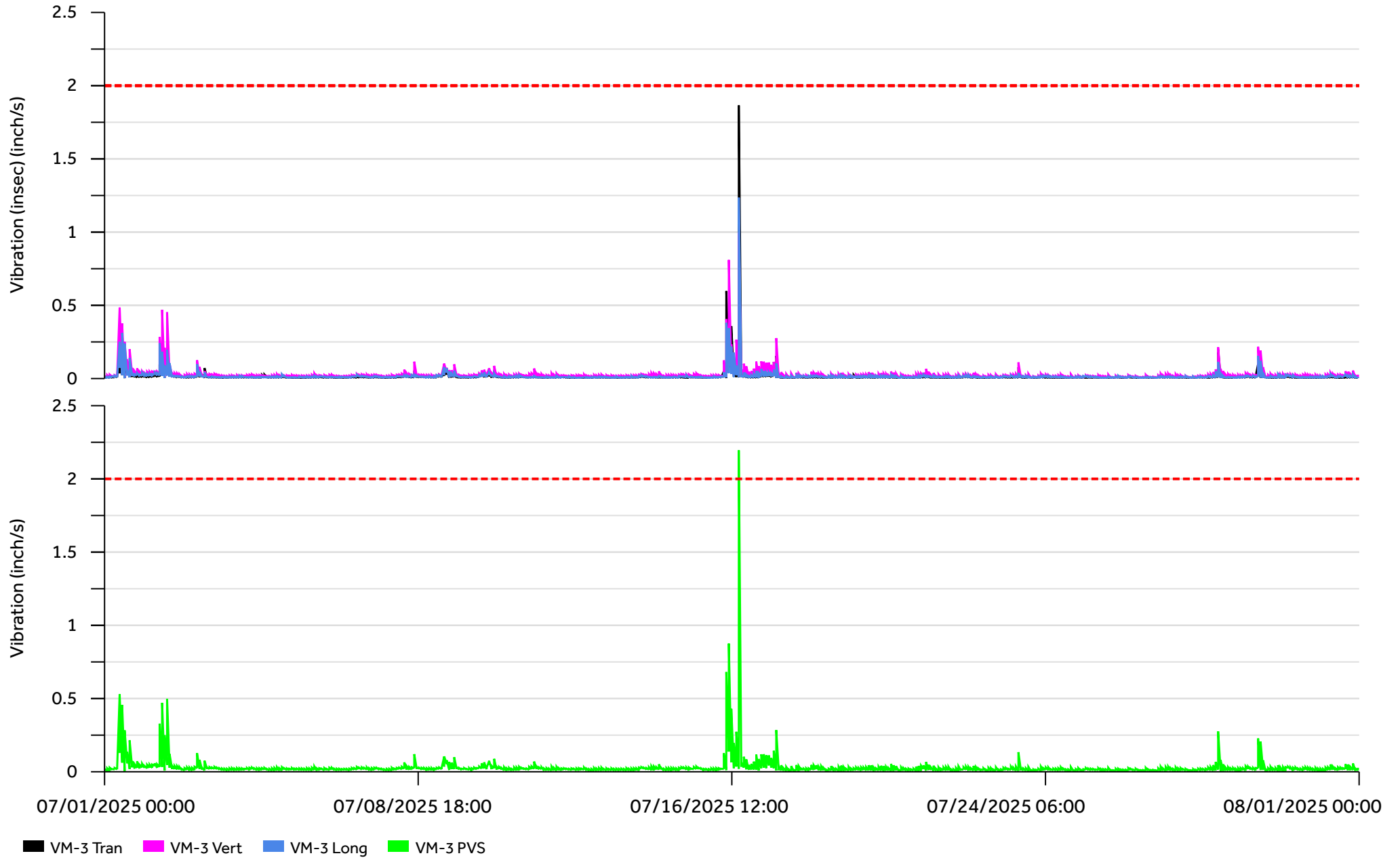
Graph 2

VM-2- Vibration Monitor



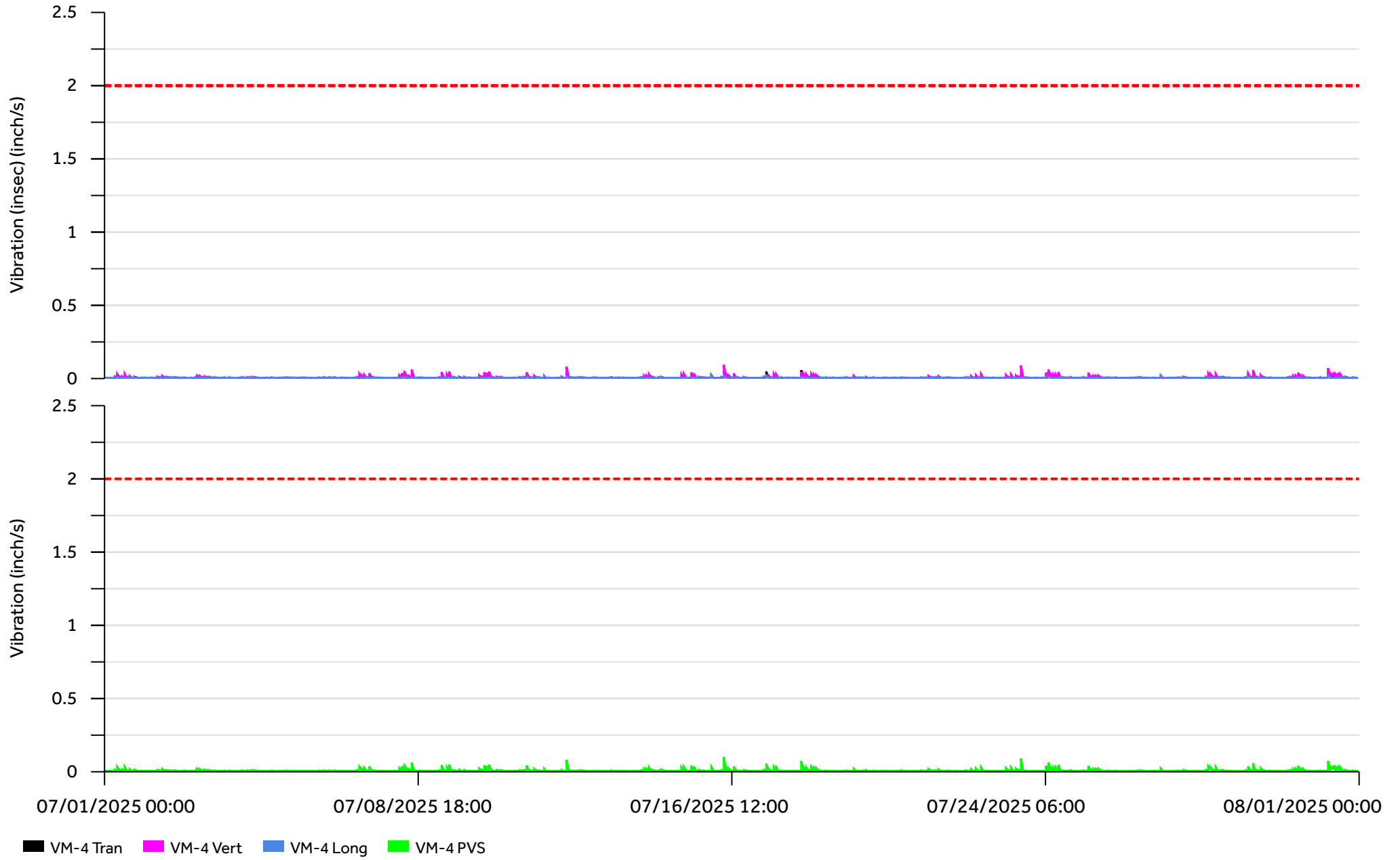
Graph 3

VM-3- Vibration Monitor



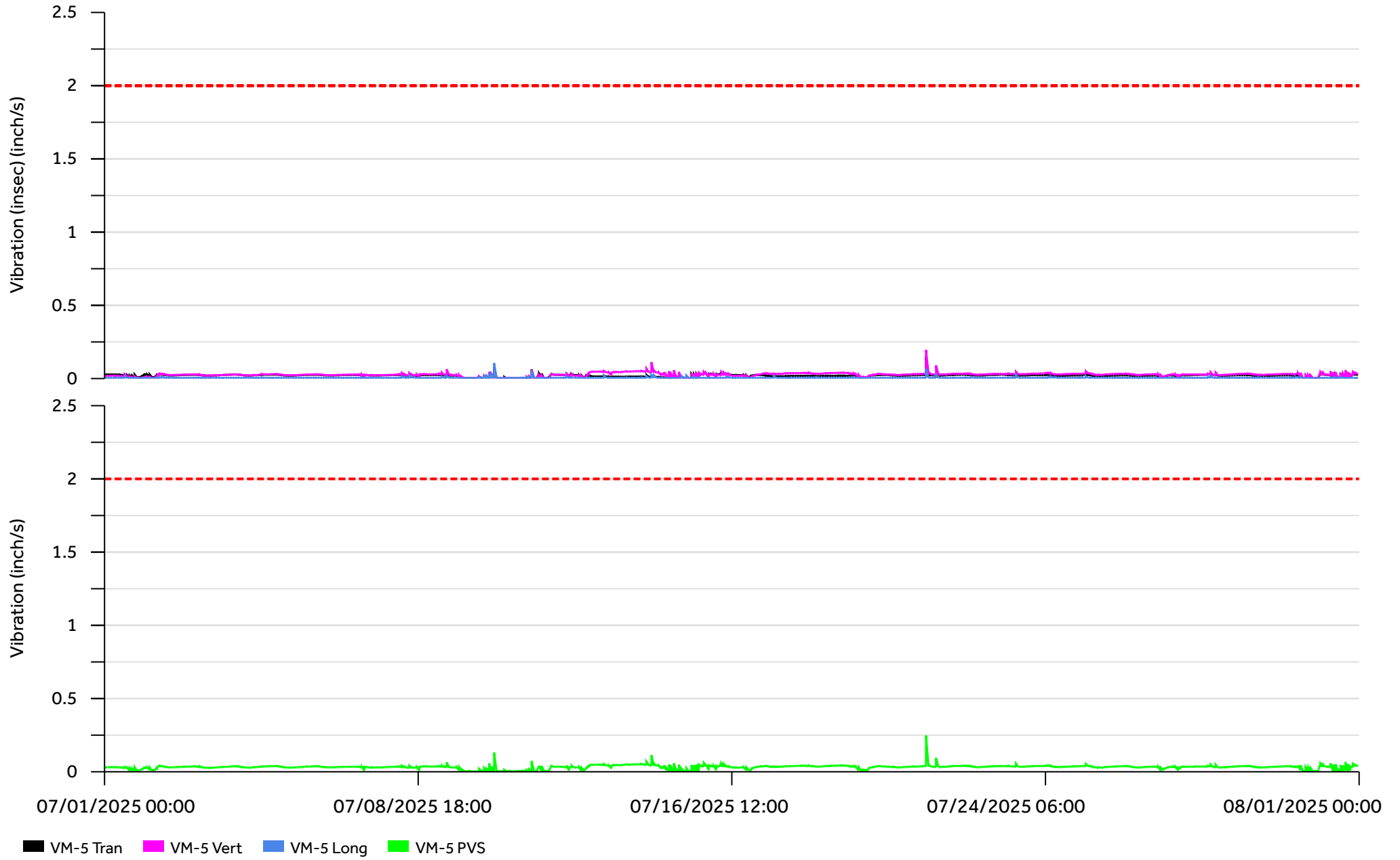
Graph 4

VM-4- Vibration Monitor



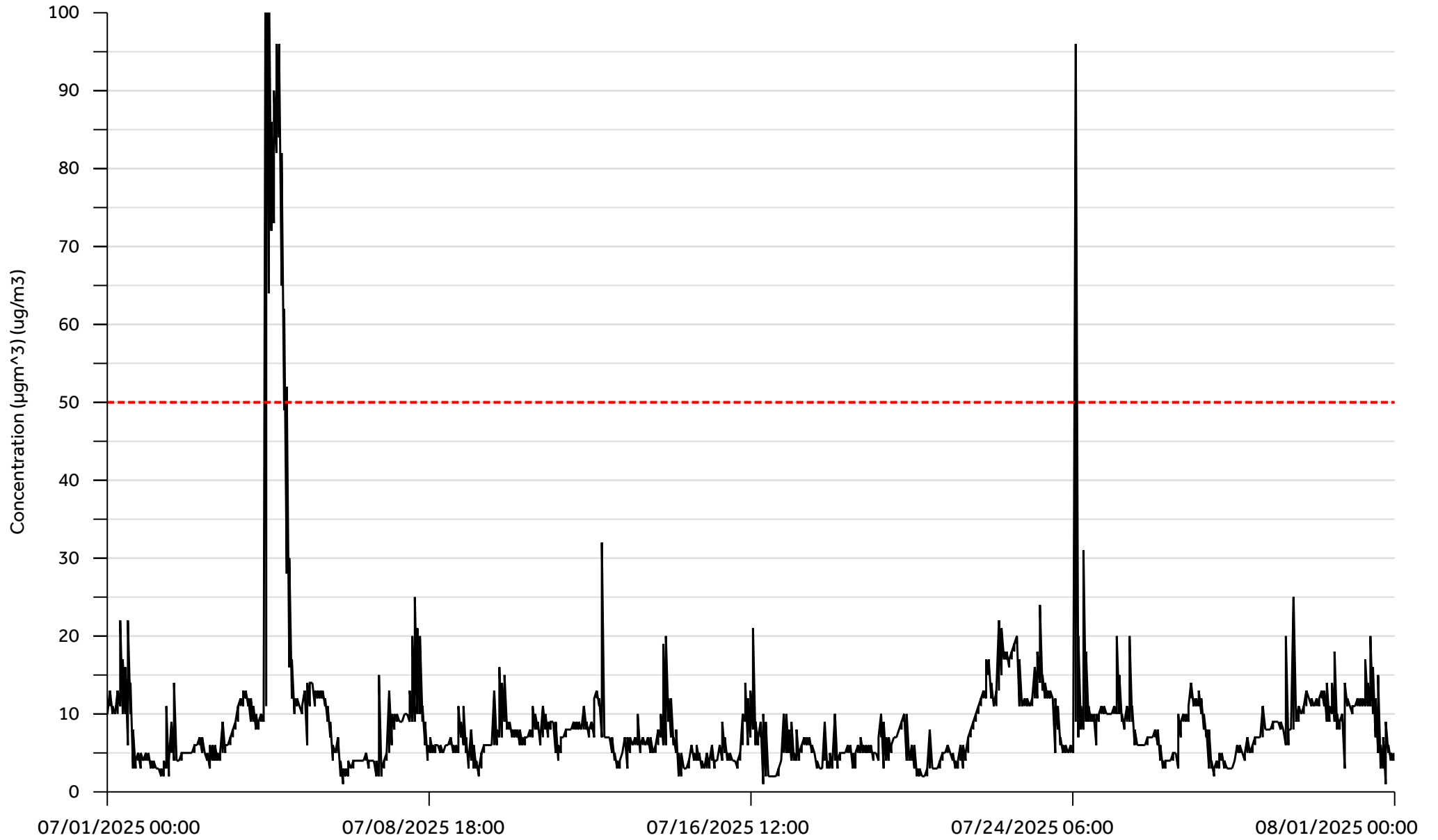
Graph 5

VM-5- Vibration Monitor



Graph 6

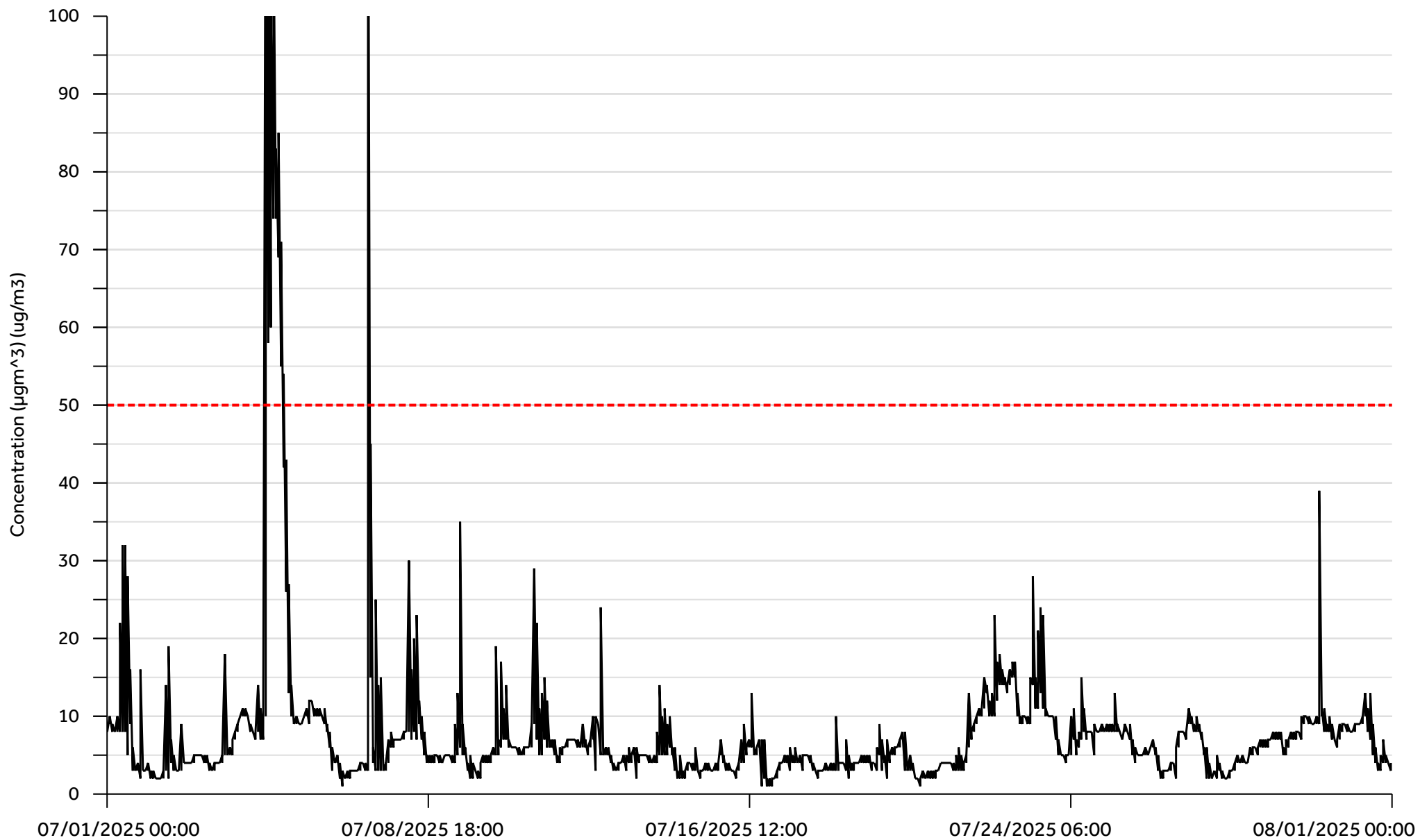
DM1 - PM10



■ DM1_PM10

Graph 7

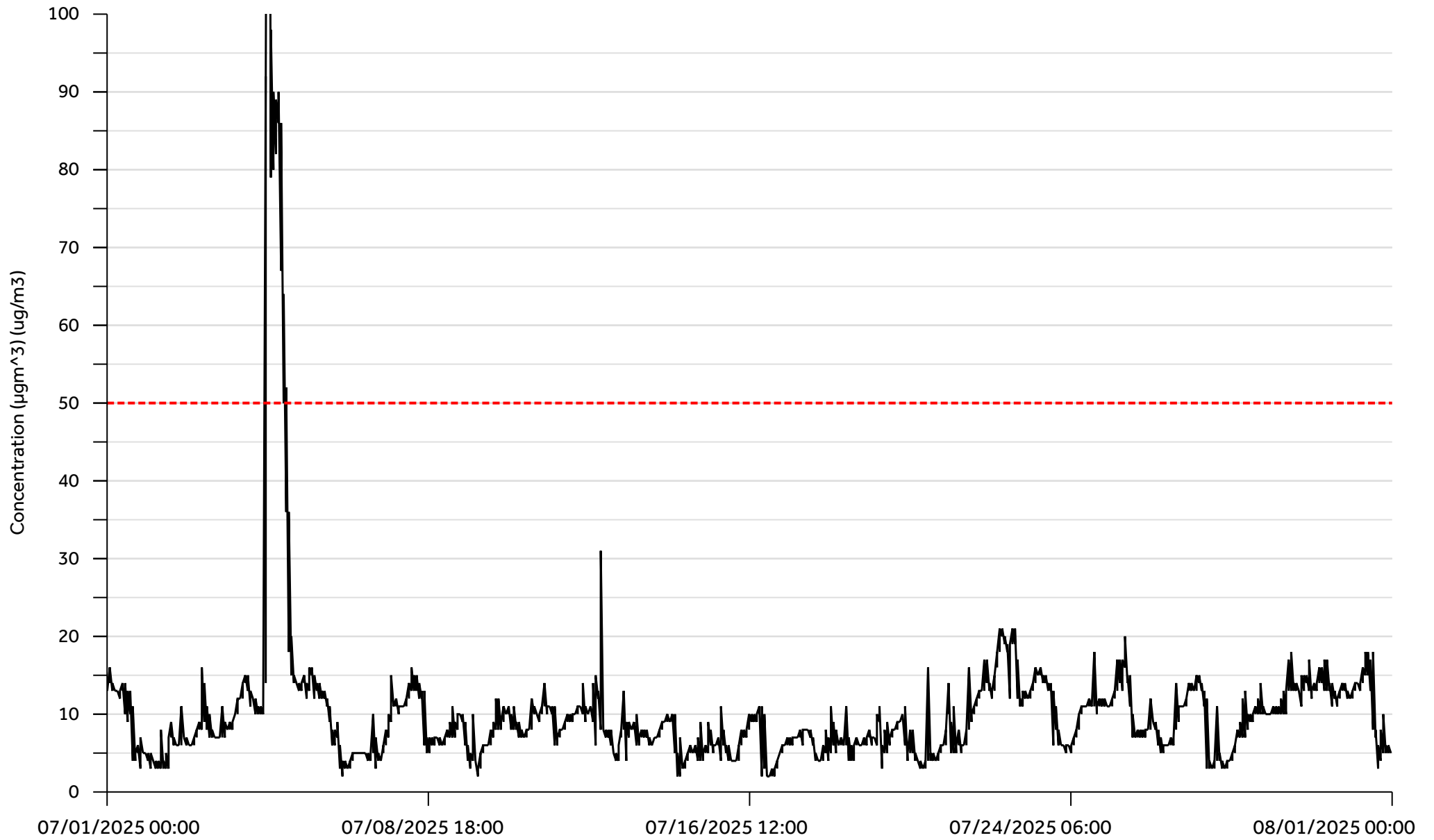
DM2-PM10



DM2_PM10

Graph 8

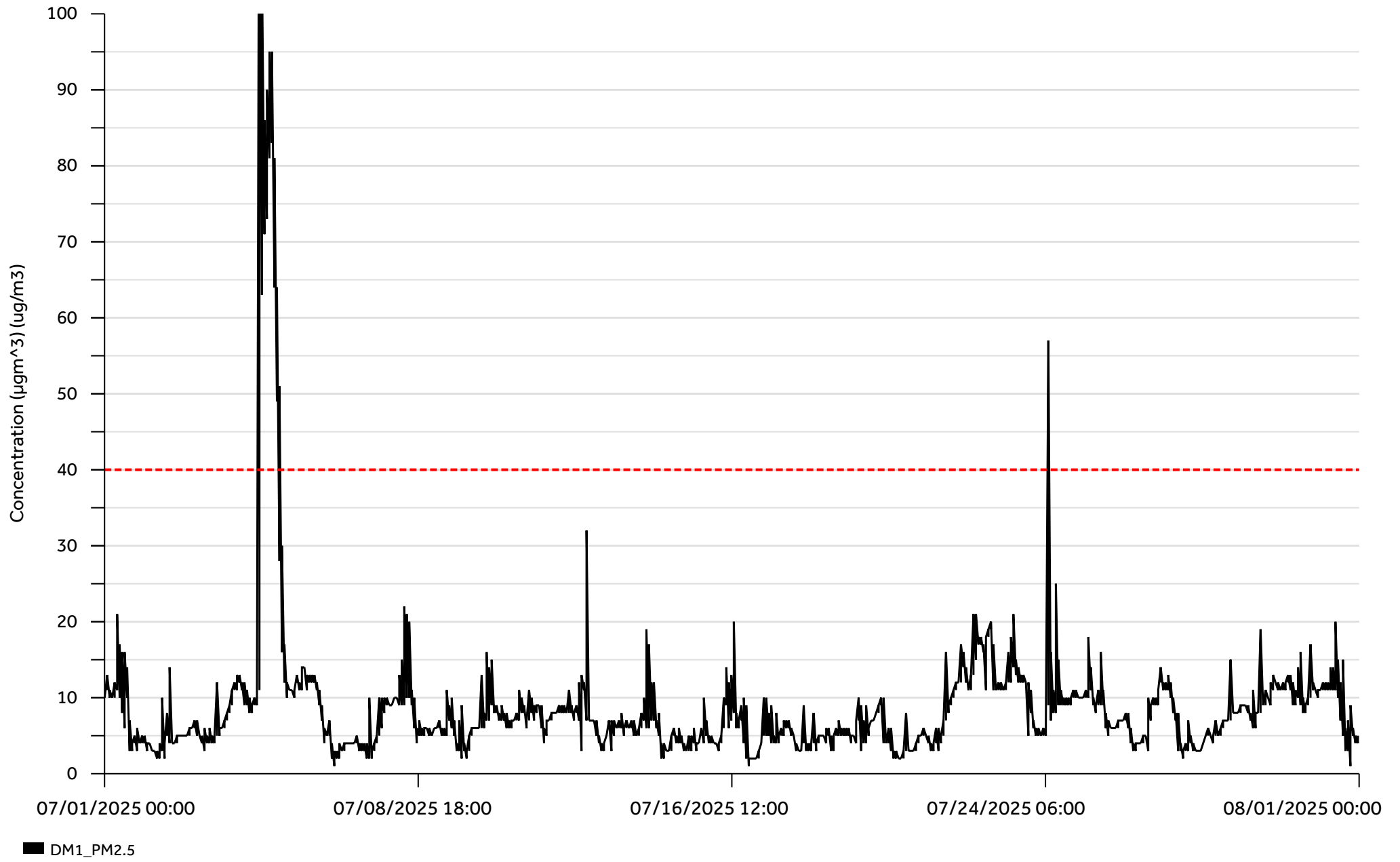
DM3-PM10



DM3_PM10

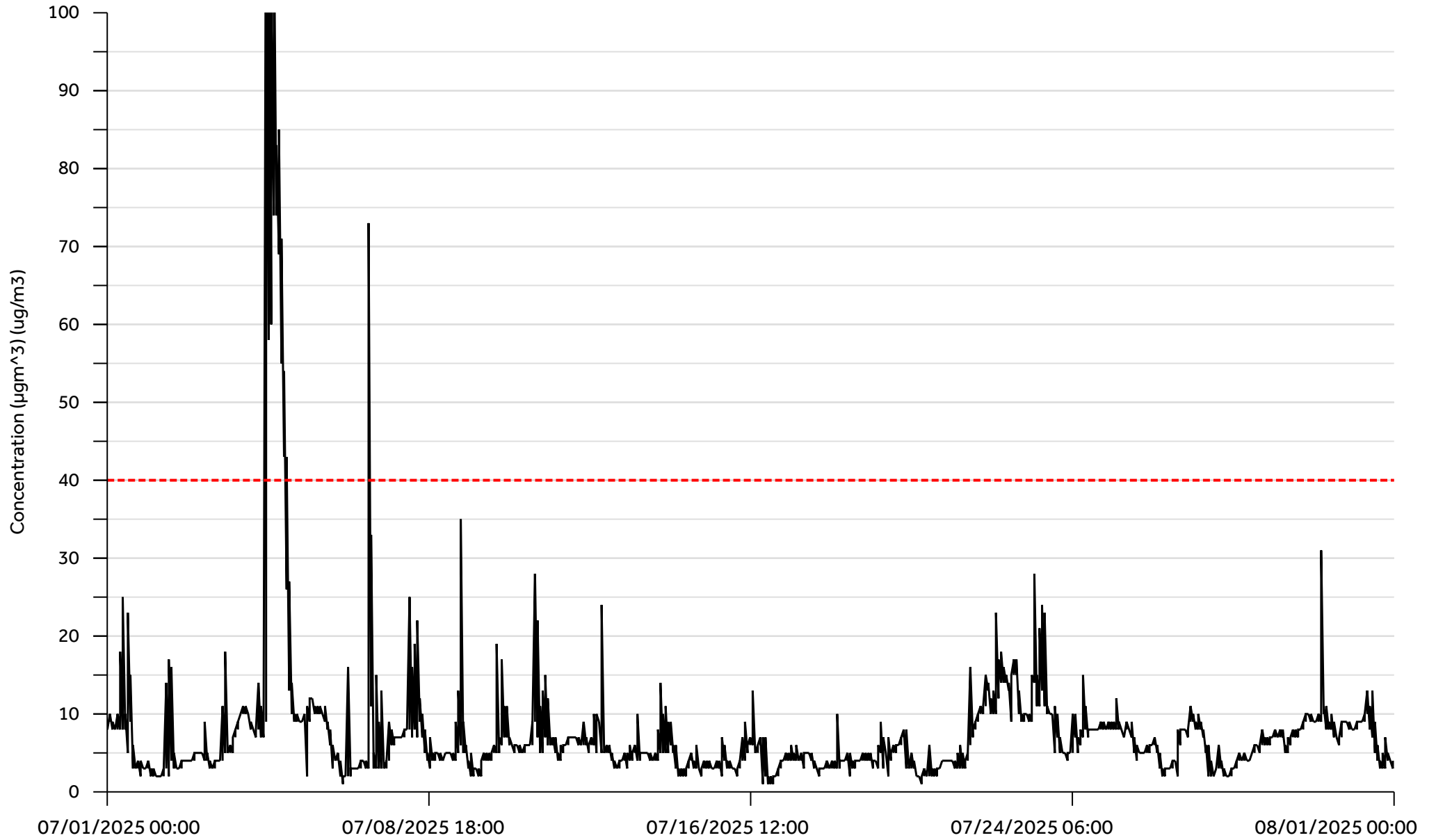
Graph 9

DM1-PM2.5



Graph 10

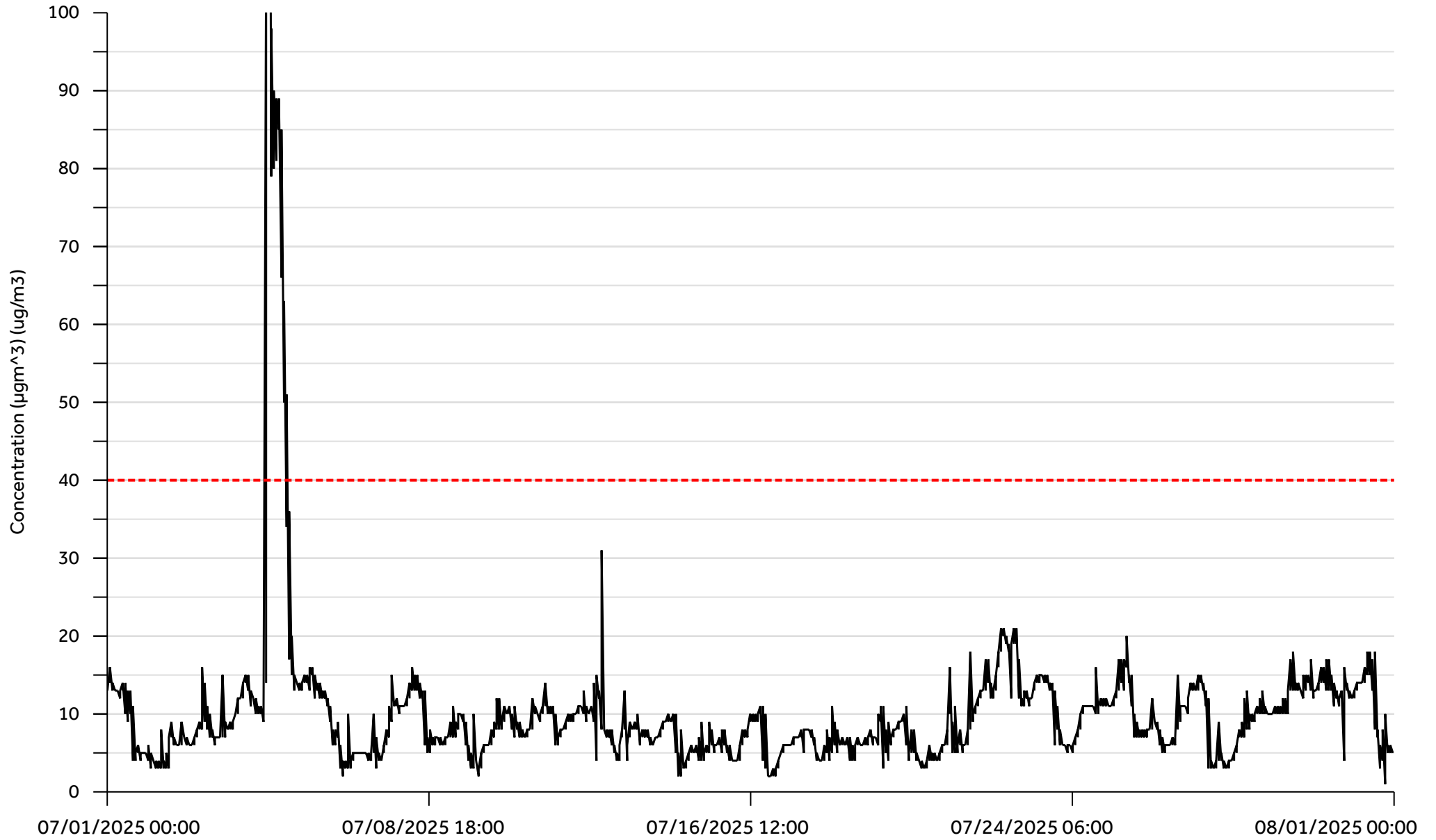
DM2-PM2.5



DM2_PM2.5

Graph 11

DM3-PM2.5



■ DM3_PM2.5