

## Northern Bus Garage

### Noise, Vibration, and Dust Monitoring Report (February 2024)

Noise, Vibration, and Dust levels were monitored as part of the reconstruction of Northern Bus Garage, 4615 14<sup>th</sup> Street, NW, Washington, DC, for the month of February 2024.

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 recorded the highest noise levels of any location after work hours and on weekends. In addition, Mic1 and Mic5 were similar to one another with 51% of the exceedances coming outside of working hours. Mic2 had 56% of its exceedances outside of working hours. Mic3 recorded 48% of its exceedances during nights and weekends. Mic4 had 30% of its exceedances outside 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 on 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**

<b>Instrument Type</b>	<b>Monitoring Threshold</b>
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 no vibration exceedances in the month of February 2024.

#### **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**

<b>Dust Monitoring Measurement</b>	<b>Monitoring Threshold</b>
Particulates (PM2.5)	40 µg/m <sup>3</sup>
Particulates (PM10)	50 µg/m <sup>3</sup>

No operating issue with the monitoring instruments was identified.

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

There were no dust monitoring exceedances in the month of February 2024.



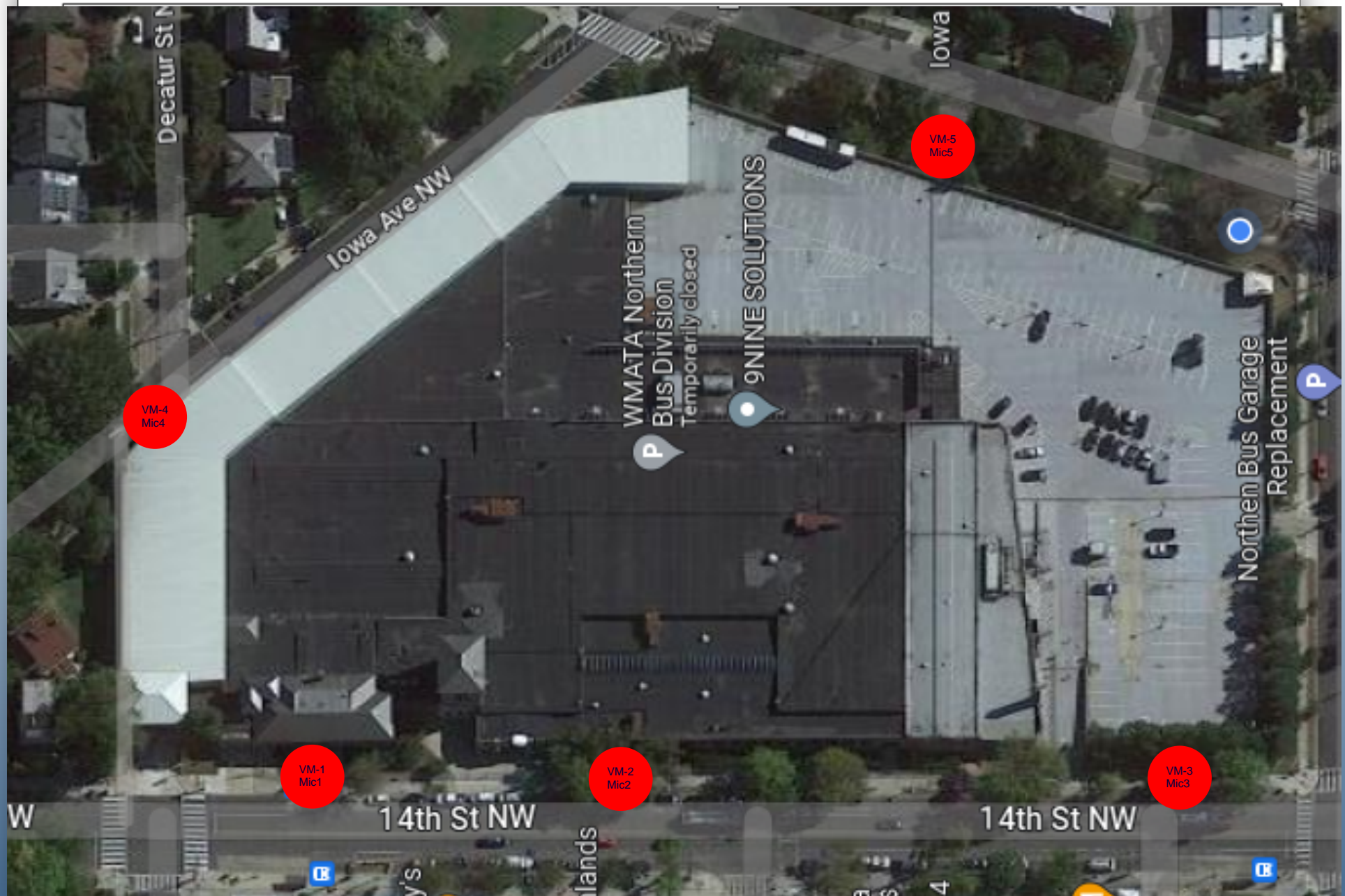
Monitoring Report

WMATA Bus Garage Monthly Report

**February 2024**

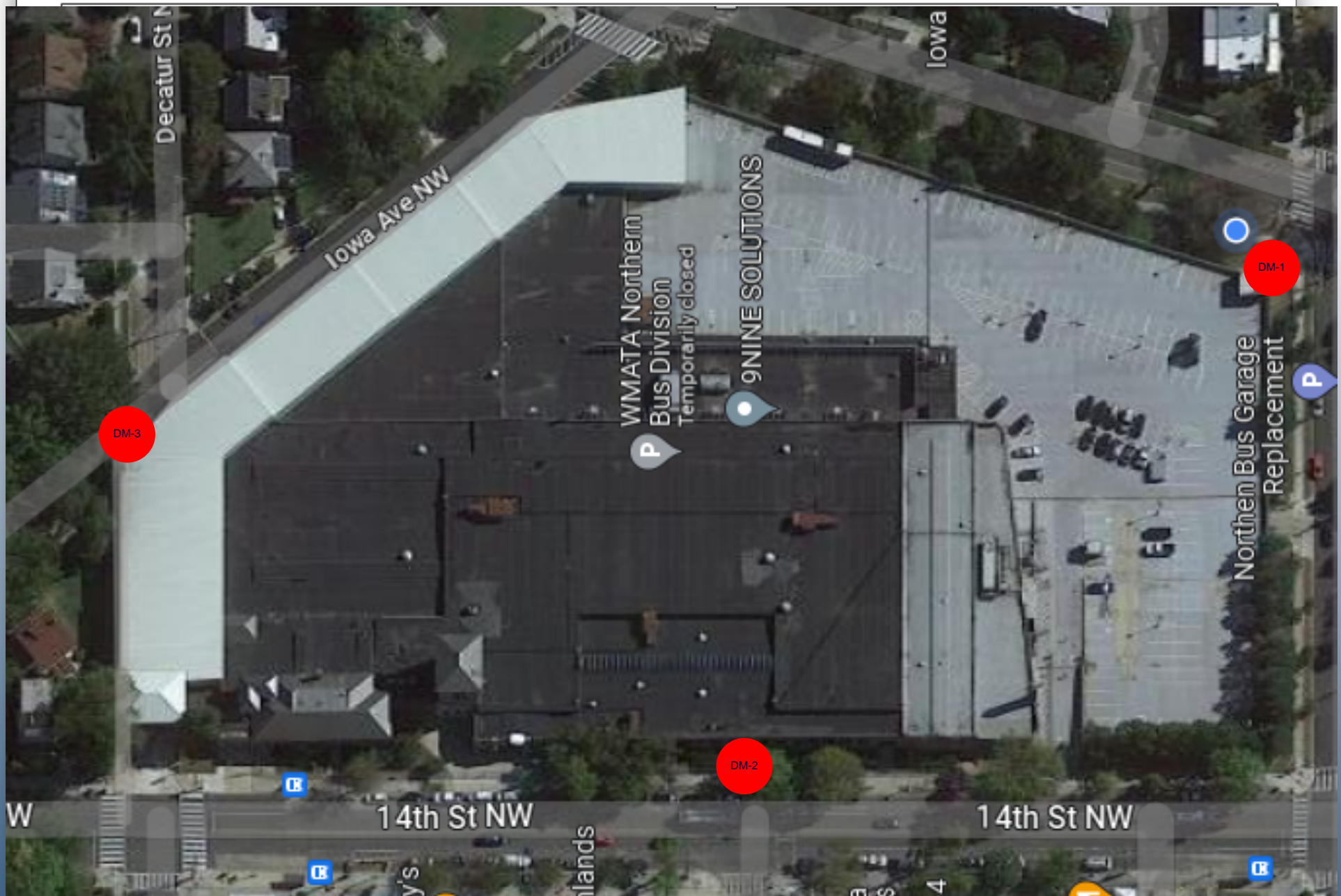
# Figure 1: Vibration and Noise Monitor Location Plan

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# Figure 2: Dust Monitor Location Plan

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# Table 1: Noise Summaries

VM1-MIC		
	Exceedance	Percentage
Work hours	375	49.02%
After hours	216	28.24%
Weekends	174	22.75%
Total	765	100%

VM1-MIC			
	Work hours	After hours	Weekends
Lmax (dBA)	110.8	119.5	118.4
Lmin (dBA)	73.8	54.6	54.5
L10 (dBA)	90	74	80
L90 (dBA)	75	59	69
Leq (dBA)	86.5	85.2	82.9

VM2-MIC		
	Exceedance	Percentage
Work hours	140	44.16%
After hours	99	31.23%
Weekends	78	24.61%
Total	317	100%

VM2-MIC			
	Work hours	After hours	Weekends
Lmax (dBA)	113.4	112	113.4
Lmin (dBA)	66.4	46.8	44.8
L10 (dBA)	80	70	66
L90 (dBA)	72	56	52
Leq (dBA)	77.3	80.1	75.8

VM3-MIC		
	Exceedance	Percentage
Work hours	499	52.36%
After hours	256	26.86%
Weekends	198	20.78%
Total	953	100%

VM3-MIC			
	Work hours	After hours	Weekends
Lmax (dBA)	111	105.6	109.6
Lmin (dBA)	76.8	65	54.5
L10 (dBA)	82	74	80
L90 (dBA)	78	69	59
Leq (dBA)	79.8	76.1	80.7

VM4-MIC		
	Exceedance	Percentage
Work hours	61	70.93%
After hours	13	15.12%
Weekends	12	13.95%
Total	86	100%

VM4-MIC			
	Work hours	After hours	Weekends
Lmax (dBA)	99.9	112.7	100.3
Lmin (dBA)	64.6	43	42.4
L10 (dBA)	75	66	58
L90 (dBA)	69	46	46
Leq (dBA)	73.3	77.3	67.6

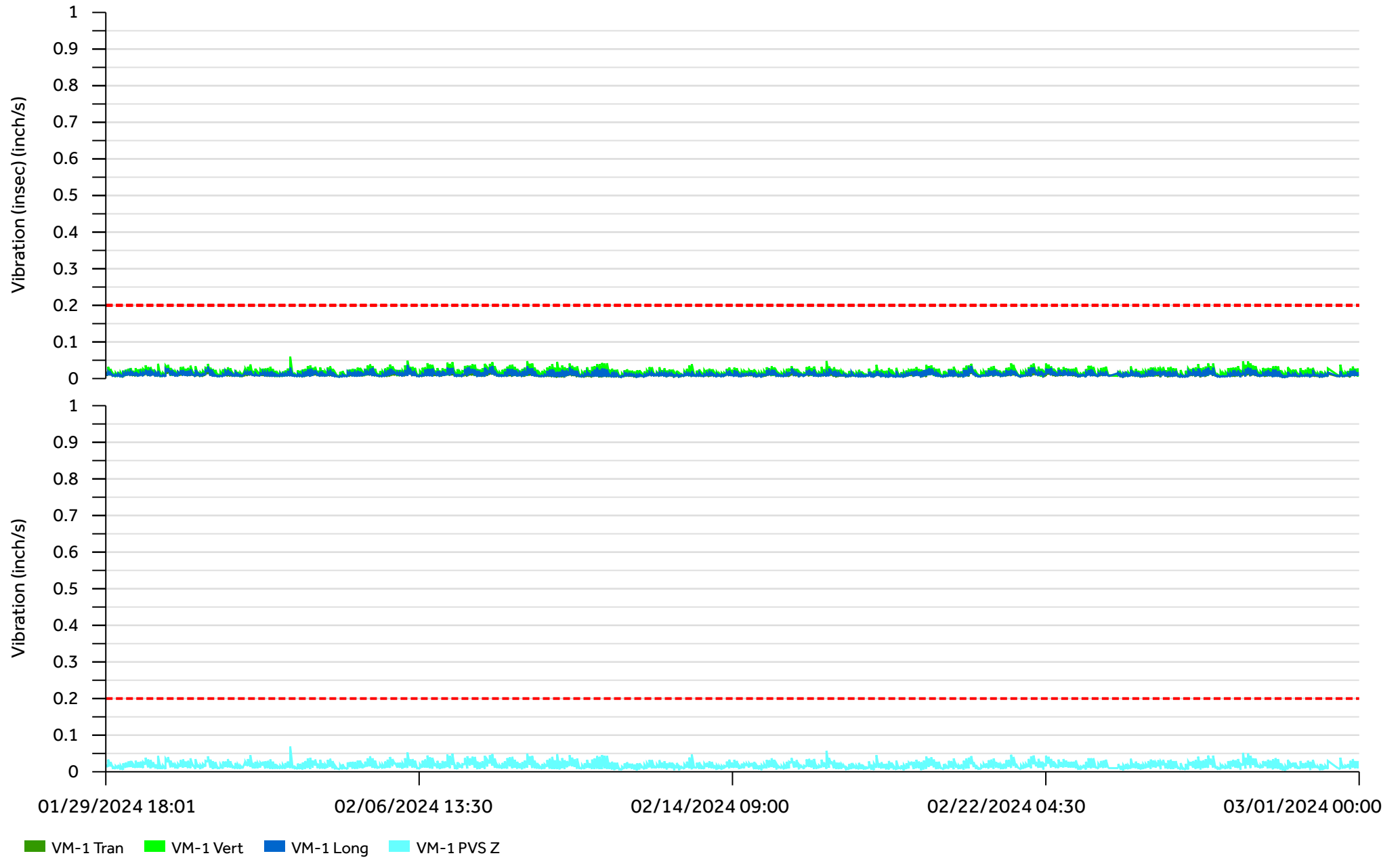
VM5-MIC		
	Exceedance	Percentage
Work hours	110	49.33%
After hours	68	30.49%
Weekends	45	20.18%
Total	223	100%

VM5-MIC			
	Work hours	After hours	Weekends
Lmax (dBA)	111.5	116	105
Lmin (dBA)	64.3	49.5	45
L10 (dBA)	84	73	68
L90 (dBA)	70	56	52
Leq (dBA)	81.4	84.9	76.4

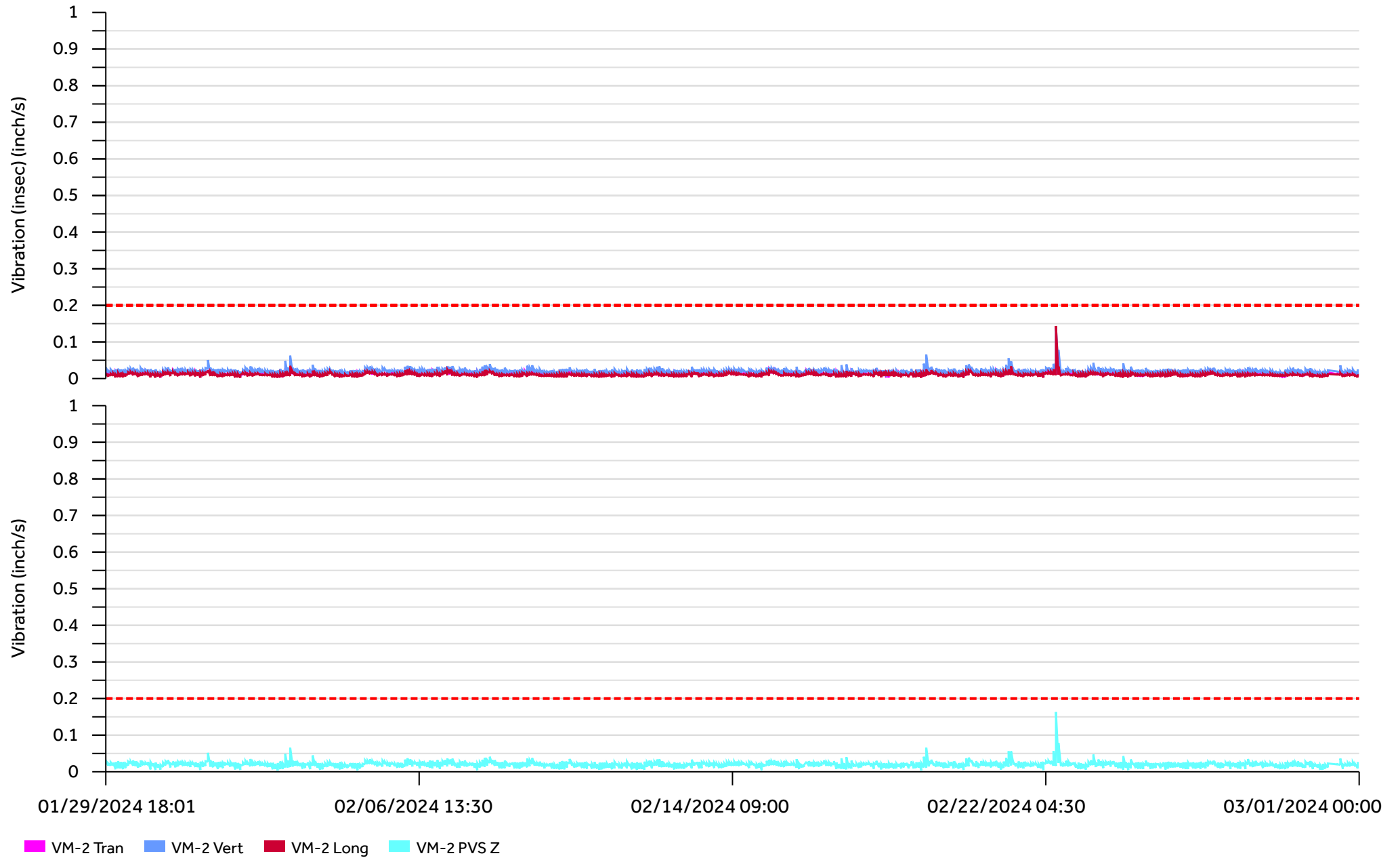
## NOTES:

- Exceedance analyses are presented in the left table. Noise level summaries are presented in the right table.
- Measurements and Key:  
 Lmax: Maximum Noise Level (for the month, in dBA)  
 Lmin: Minimum Noise Level (for the month, in dBA)  
 L10: The noise level exceeded 10% of the time (for the month, in dBA)  
 L90: The noise level exceeded 90% of the time (for the month, in dBA)  
 Leq: Equivalent Continuous Sound Level, an 'average' (for the month, in dBA)

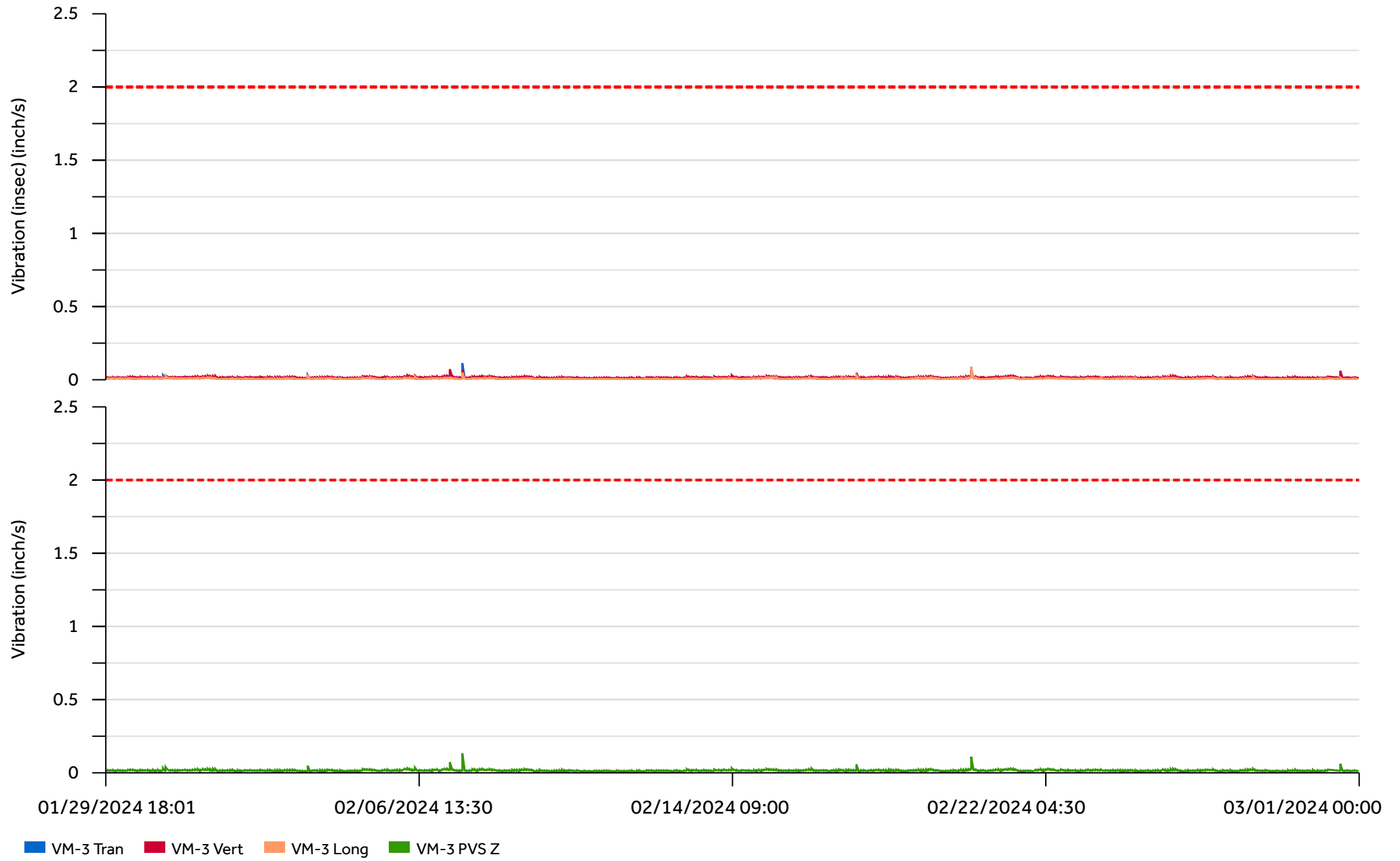
Graph 1:  
VM-1- Vibration Monitor



Graph 2:  
VM-2- Vibration Monitor

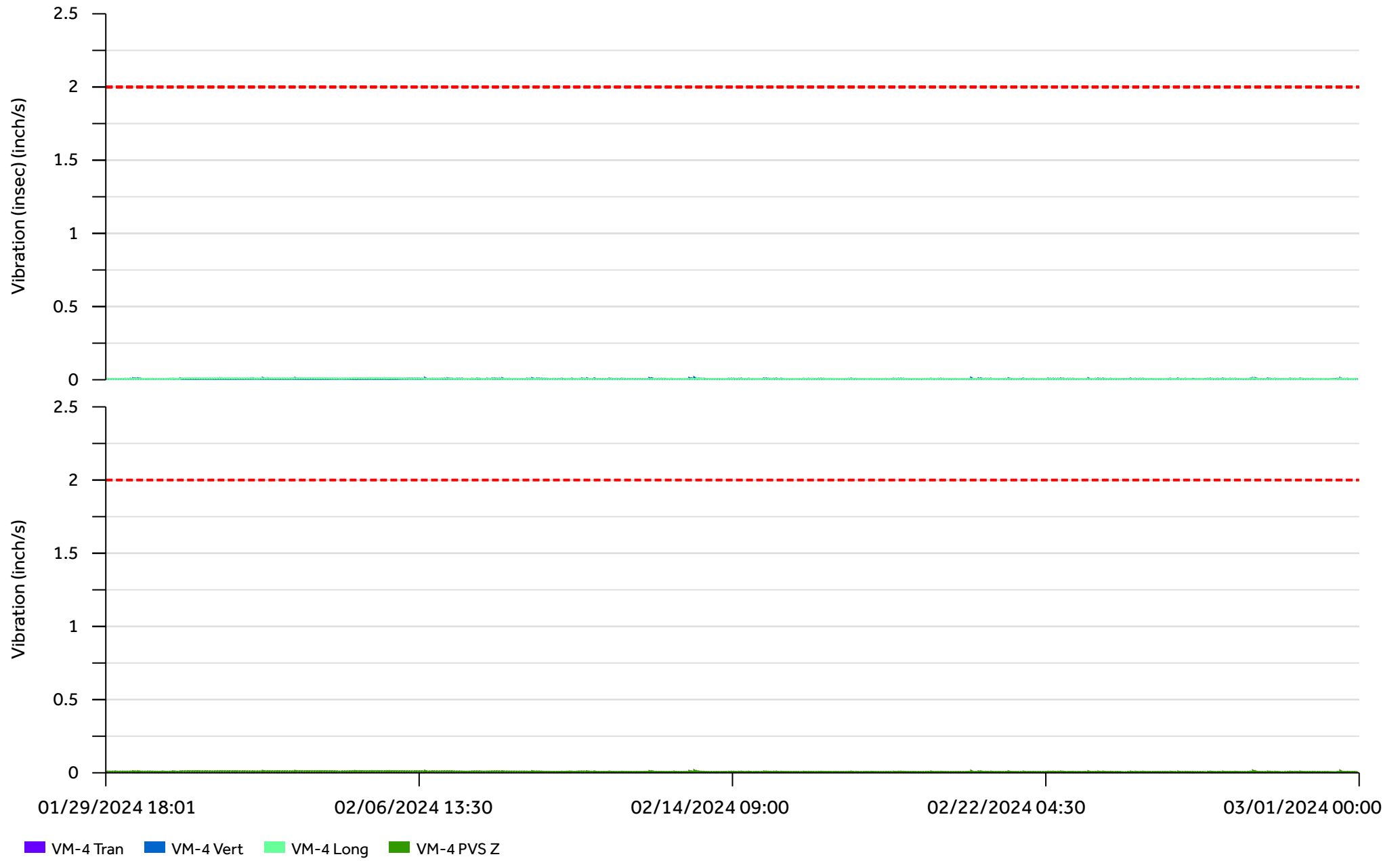


Graph 3:  
VM-3- Vibration Monitor

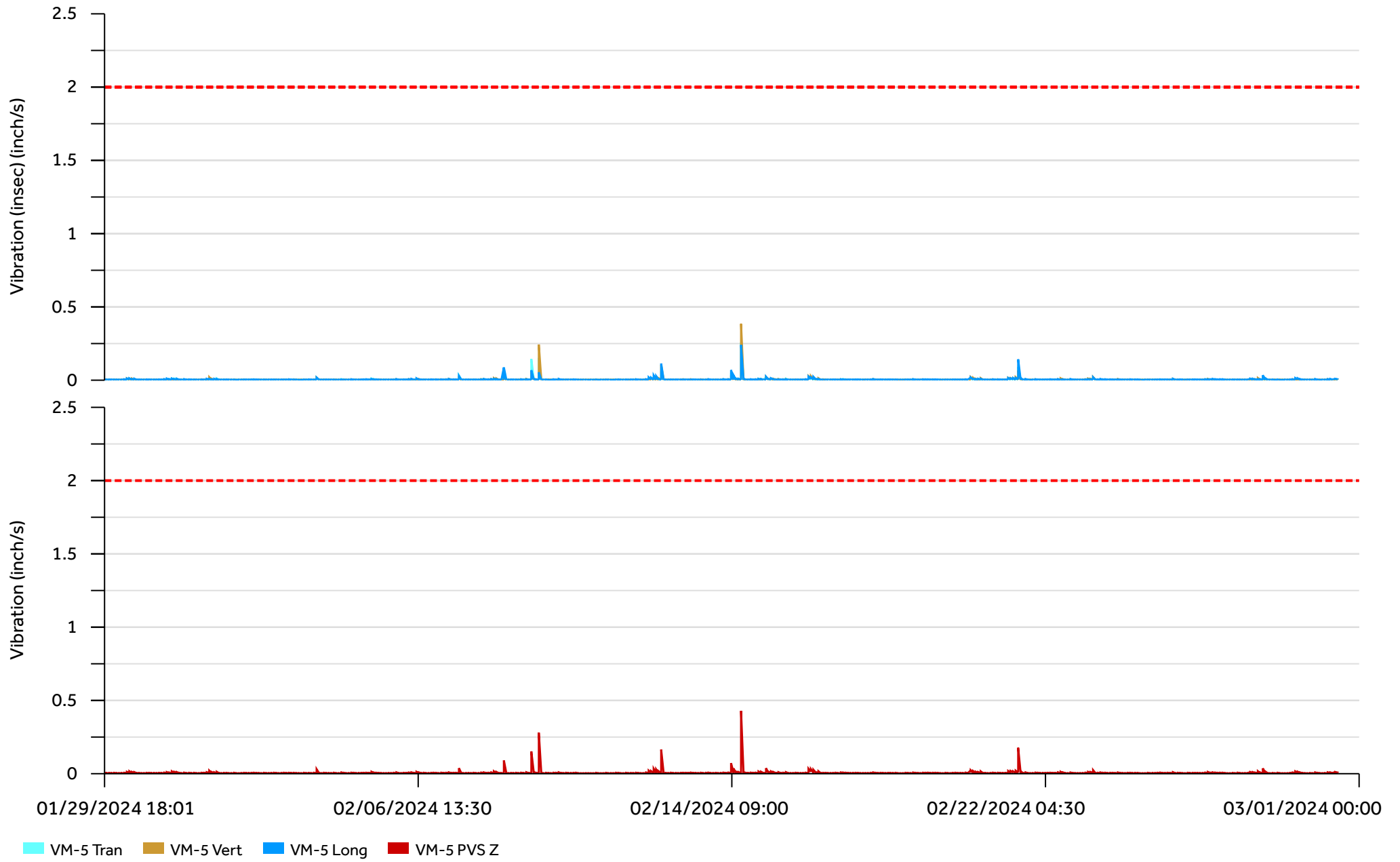




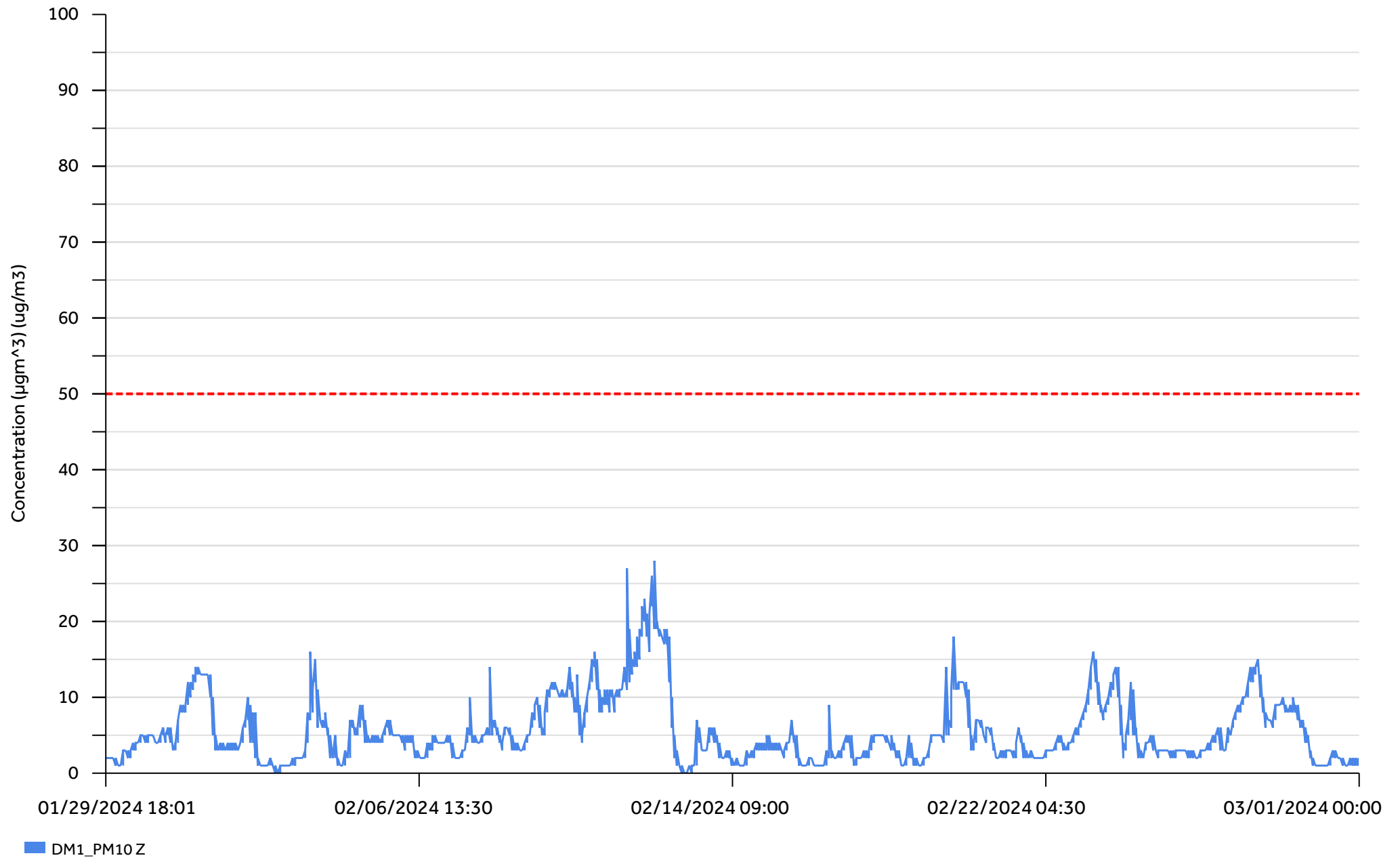
Graph 4:  
VM-4- Vibration Monitor



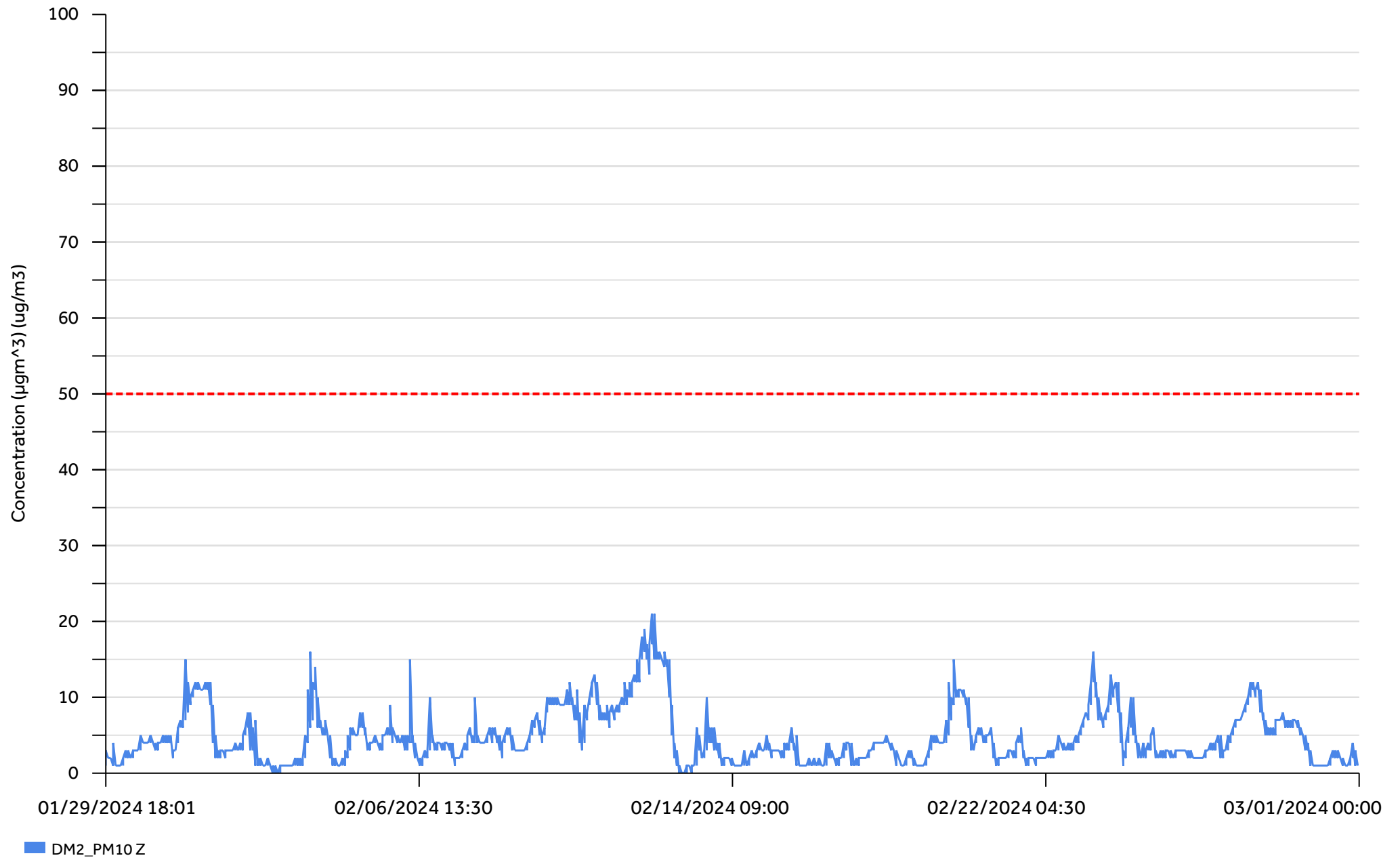
Graph 5:  
VM-5- Vibration Monitor



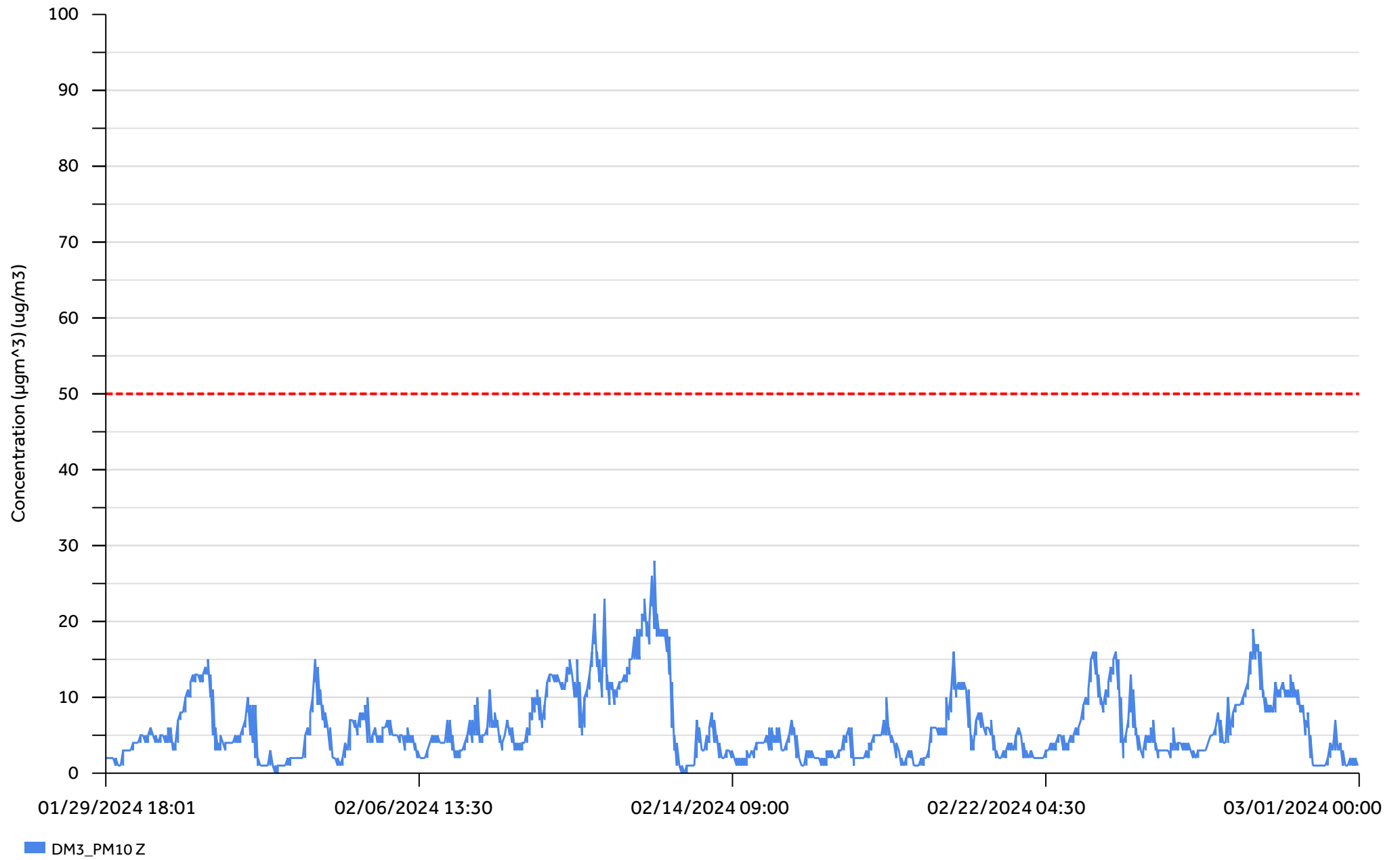
Graph 6:  
DM1 - PM10



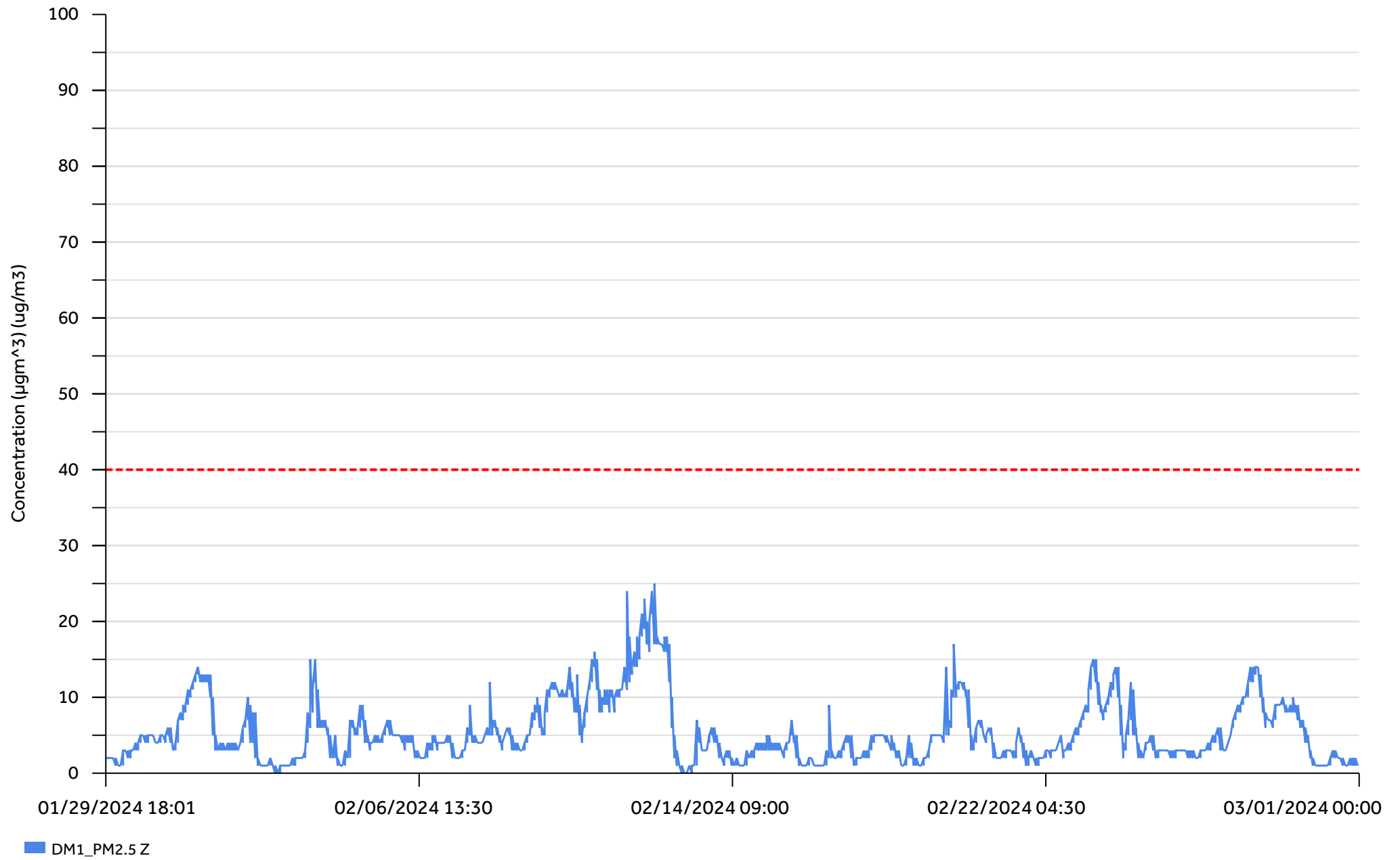
Graph 7:  
DM2-PM10



Graph 8:  
DM3-PM10



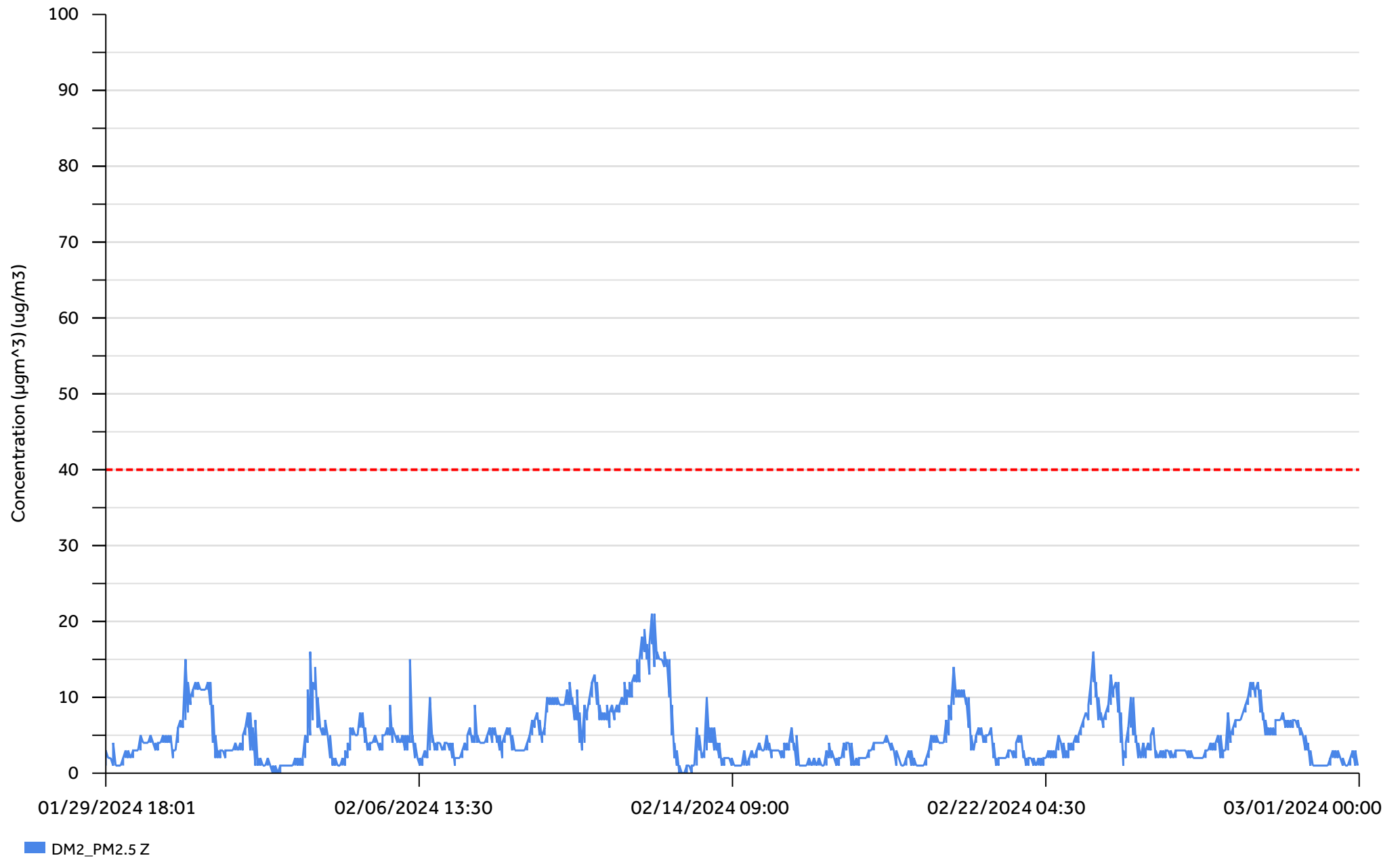
Graph 9:  
DM1-PM2.5





Graph 10:

DM2-PM2.5



Graph 11:  
DM3-PM2.5

