



REPORT

METRO VANCOVER QUATERLY AIR PERMIT REPORTING

Neptune Bulk Terminal Ltd

Prepared for:

Neptune Bulk Terminal Ltd.

1001 Low Level Road

North Vancouver, BC, V7L 1A7

Envirochem Project No.: 8005-23

Reporting Period: 2024 – Q1

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1.0 BACKGROUND

To meet Metro Vancouver Air Permit GVA0081 (issued September 23rd, 2016) requirements, Neptune Bulk Terminals Ltd. (Neptune) has implemented a procedure for periodic permit reporting requirements to Metro Vancouver including this quarterly reporting.

Fulfilling these requirements requires processing and checking large amounts of data. The procedures in this report provide an efficient means of processing large amounts of data and ensuring that all calculations and outputs generated are completed accurately. In order to increase the efficiency of this process, Neptune has implemented a data management system which allows for uploading of data to the Neptune database and generation of outputs. Envirochem Services Inc. (Envirochem) has been retained to calculate, tabulate and report these requirements to Metro Vancouver and ensure that:

- Raw data being collected and used for generating outputs is valid,
- Correct methodologies are used to generate these outputs, and
- Any outputs being generated undergo quality assurance/quality control (QA/QC) before being submitted electronically to Metro Vancouver.

All of the procedures contained within this report detail methodologies in conformance with Section 3 Schedules A and B of the current version of the permit (September 23rd, 2016).

This report includes quarterly particulate matter monitoring reporting requirements.

2.0 QUARTERLY REPORTING

2.1 ON-SITE PM_{2.5} AND PM₁₀ MONITORING – 24 HR ROLLING AVERAGES

2.1.1 METHODOLOGY

Neptune is conducting continuous PM_{2.5} and PM₁₀ monitoring using two Met-One E-BAM Plus monitors on-site near the northwest boundary of Neptune Terminals on the roof of the terminal's electrical substation building.

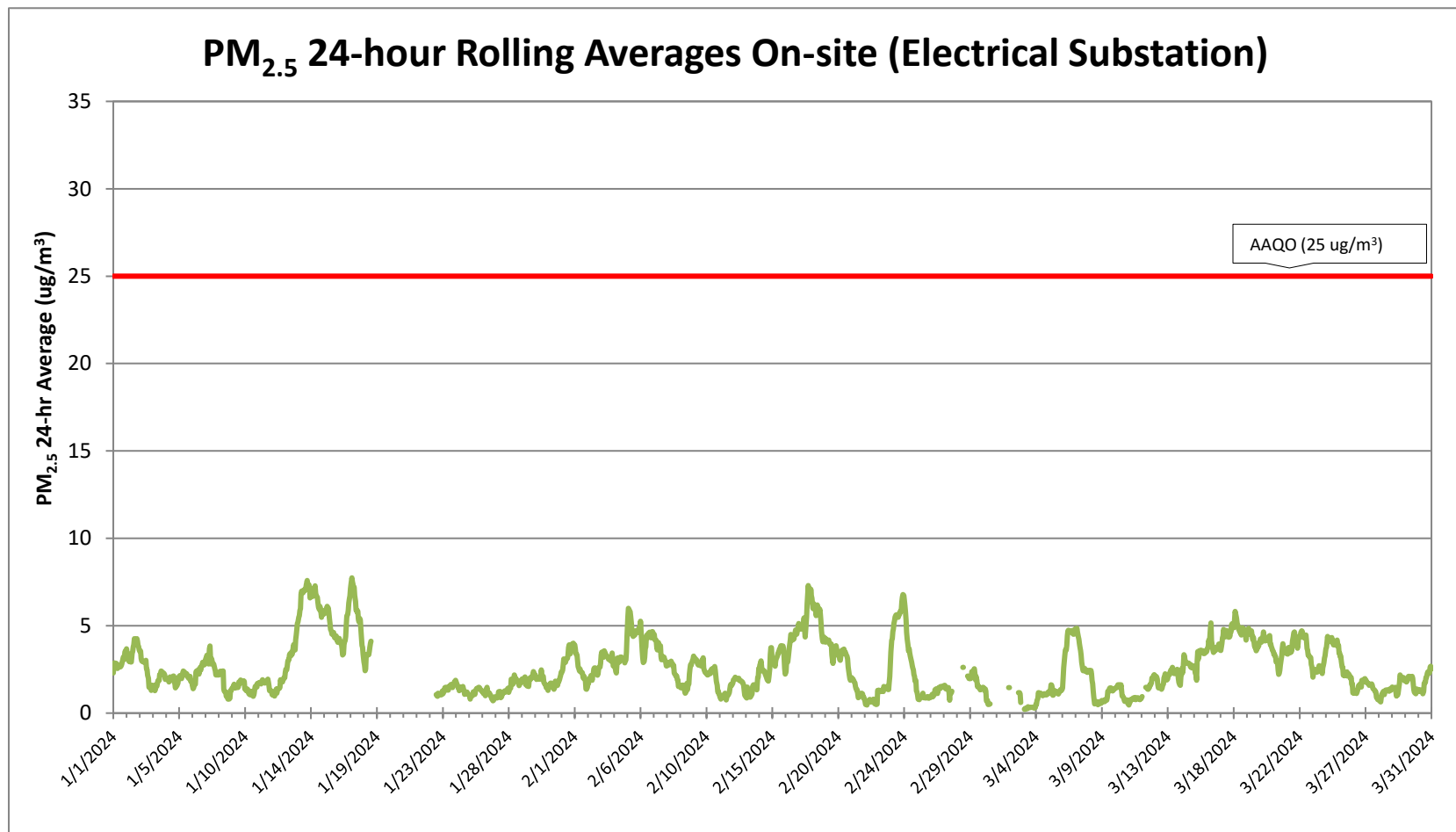
Ambient Air Monitoring data for PM_{2.5} and PM₁₀ are stored in Neptune's database. These data are retrieved and verified by Envirochem. QA/QC is performed on the raw data and any invalid data are flagged. Neptune's data management system is then updated accordingly.

2.1.2 RESULTS

Using Neptune's data management system, Envirochem:

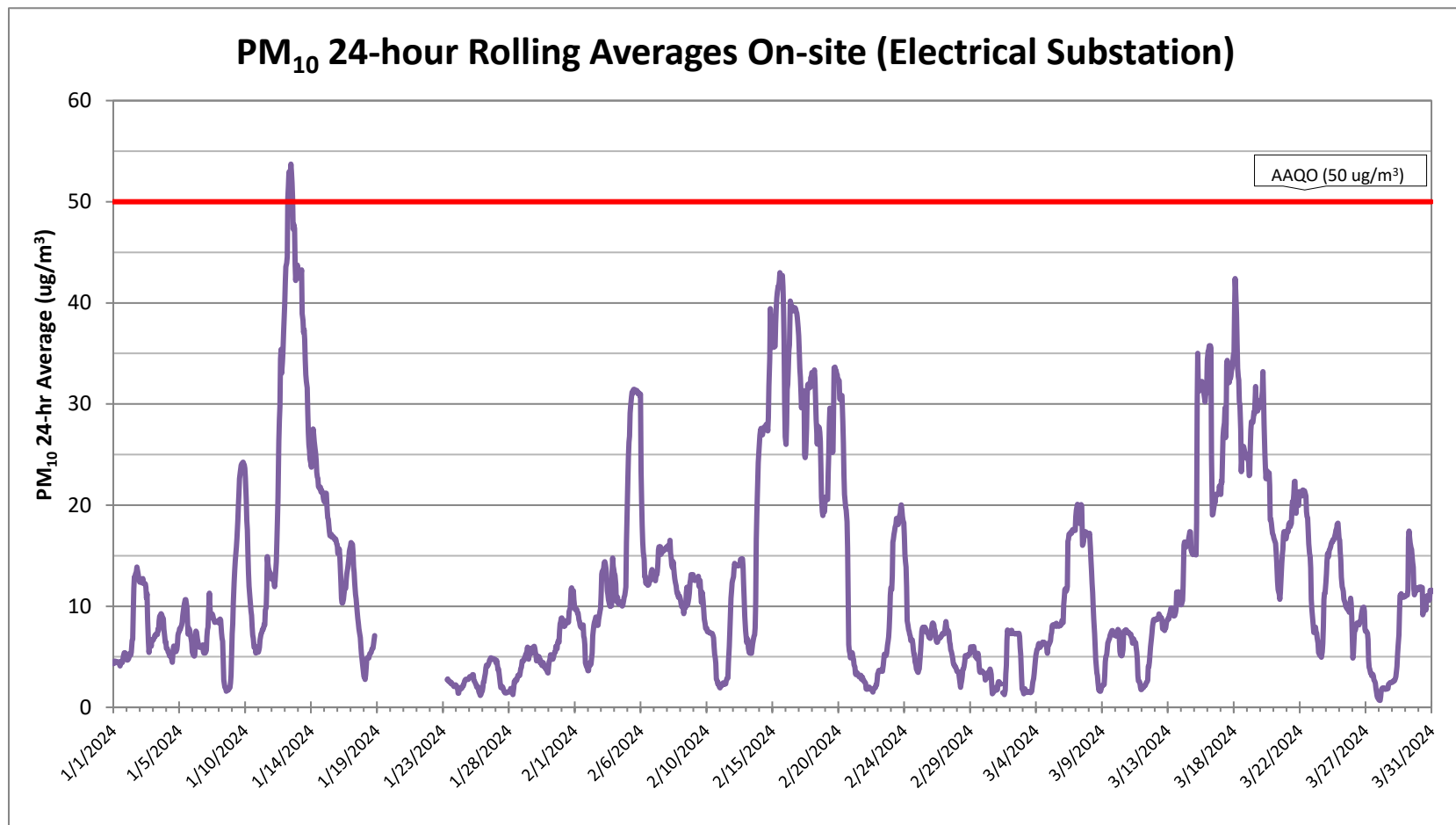
- Converts the vetted PM_{2.5} and PM₁₀ data to 24-hour rolling averages and performs QA/QC;
- On a quarterly basis, submits the graphs (**Figure 1** and **Figure 2**) to Metro Vancouver.

During Quarter 1 of 2024, there was a brief minimal exceedance of the 24-hour PM₁₀ AAQO at Neptune's on-site monitor (see **Figure 2**). No exceedances of the PM_{2.5} AAQO were observed.



**Figure 1: 24-hour rolling averages of PM_{2.5} data from on-site monitor for the first calendar quarter 2024
(January 1st to March 31st, 2024)**

Note: Blank spaces indicate that no data is available due to power failure or instrument maintenance.



**Figure 2: 24-hour rolling averages of PM₁₀ data from on-site monitor for the first calendar quarter 2024
(January 1st to March 31st, 2024)**

Note: Blank spaces indicate that no data is available due to power failure or instrument maintenance.

2.2 OFF-SITE PM_{2.5} AND PM₁₀ MONITORING – 24 HR ROLLING EXCEEDANCES OF PM_{2.5} AND PM₁₀ FROM AAQO

2.2.1 METHODOLOGY

Neptune is conducting continuous PM_{2.5} and PM₁₀ monitoring off-site from the terminal at these two locations (in the neighbouring areas):

- To the northeast of the Neptune Terminals, on the roof of 340 Brooksbank Avenue (Neptune's office) equipped with a PM₁₀ monitor (Met One E-BAM Plus) and a PM_{2.5} monitor (SHARP 5030i).
- To the northwest of the Neptune Terminals in the residential area at 618 2nd Street East using two pole mounted PM_{2.5} and PM₁₀ monitors (Met One E-BAM Plus). *(Note that this location was non-operational during this period due to an electrical supply issue caused by construction adjacent to the monitors as communicated with Metro Vancouver staff.)*

Ambient Air Monitoring data for PM_{2.5} and PM₁₀ is stored in Neptune's database. These data are retrieved and verified by Envirochem. QA/QC is performed on the raw data and any invalid data are flagged. Neptune's data management system is then updated accordingly.

2.2.2 RESULTS

Using Neptune's data management system, Envirochem:

- Converts the vetted PM_{2.5} and PM₁₀ data to 24-hour rolling averages;
- Retrieves the quarterly 24-hour rolling averages from Neptune's database;
- Identifies and flags any 24-hour rolling averages which exceed Metro Vancouver Ambient Air Quality Objectives (AAQOs) for PM_{2.5} and PM₁₀;
- On a quarterly basis, tabulates all exceedances (**Table 1**) and submits them to Metro Vancouver.

Table 1: Off-Site 24-hour rolling average PM_{2.5} and PM₁₀ AAQO exceedances for the first quarter (January 1st to March 31st, 2024)

METRO VANCOUVER PERMIT GVA 0081	
Neptune Bulk Terminals (Canada) Ltd.	
OFF-SITE 24-HR ROLLING AVERAGE PM _{2.5} AND PM ₁₀ AAQO EXCEEDANCES	
Reporting Period:	January 1 st – March 31 st , 2024

Exceedance Event	MV AAQO		Neptune Office (340 Brooksbank Ave)	Neighbourhood Pole (618 E 2 nd St.)	Possible Cause
	Contaminant	µg/m ³	Period of Exceedance		
1	PM _{2.5}	25	No exceedances	(a)	N/A
	PM ₁₀	50	16:00 March 12 th – 09:00 March 13 th	(a)	Data from additional monitoring stations were reviewed and this appears to be a localized spike, possibly caused by construction activities in the immediate vicinity of the monitor

Note: AAQOs are based on 24-hour rolling averages. For hours presented above, periods are representative of the previous 24 hours.

(a): The PM_{2.5} and PM₁₀ units at Neighbourhood Pole (618 E 2nd St) were non-operational during this period due to an electrical supply issue caused by construction adjacent to the monitor as communicated with Metro Vancouver staff.