

QUARTERLY NEPTUNE AIR PERMIT REPORTING



NEPTUNE BULK TERMINALS LTD.

Reporting Period: 2021 – Quarter 1



Neptune BULK TERMINALS LTD.

Prepared for:

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Reporting Period: 2021 – Quarter 1

TABLE OF CONTENTS

1	BACKGROUND.....	1
2	QUARTERLY REPORTING.....	2
2.1	ON-SITE PM _{2.5} AND PM ₁₀ MONITORING - 24-HR ROLLING AVERAGES	2
2.2	OFF-SITE PM _{2.5} AND PM ₁₀ MONITORING - 24-HOUR ROLLING AVERAGE EXCEEDANCES OF PM _{2.5} AND PM ₁₀ FROM AAQO	5

LIST OF FIGURES

Figure 1: 24-hour rolling averages of PM _{2.5} data from on-site monitor for the first calendar quarter 2021	3
Figure 2: 24-hour rolling averages of PM ₁₀ data from on-site monitor for the first calendar quarter 2021	4

LIST OF TABLES

Table 1: Off-Site 24-hour rolling average PM _{2.5} and PM ₁₀ AAQO exceedances for the first quarter (January 1 st to March 31 st , 2021)	6
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1 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.

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 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.

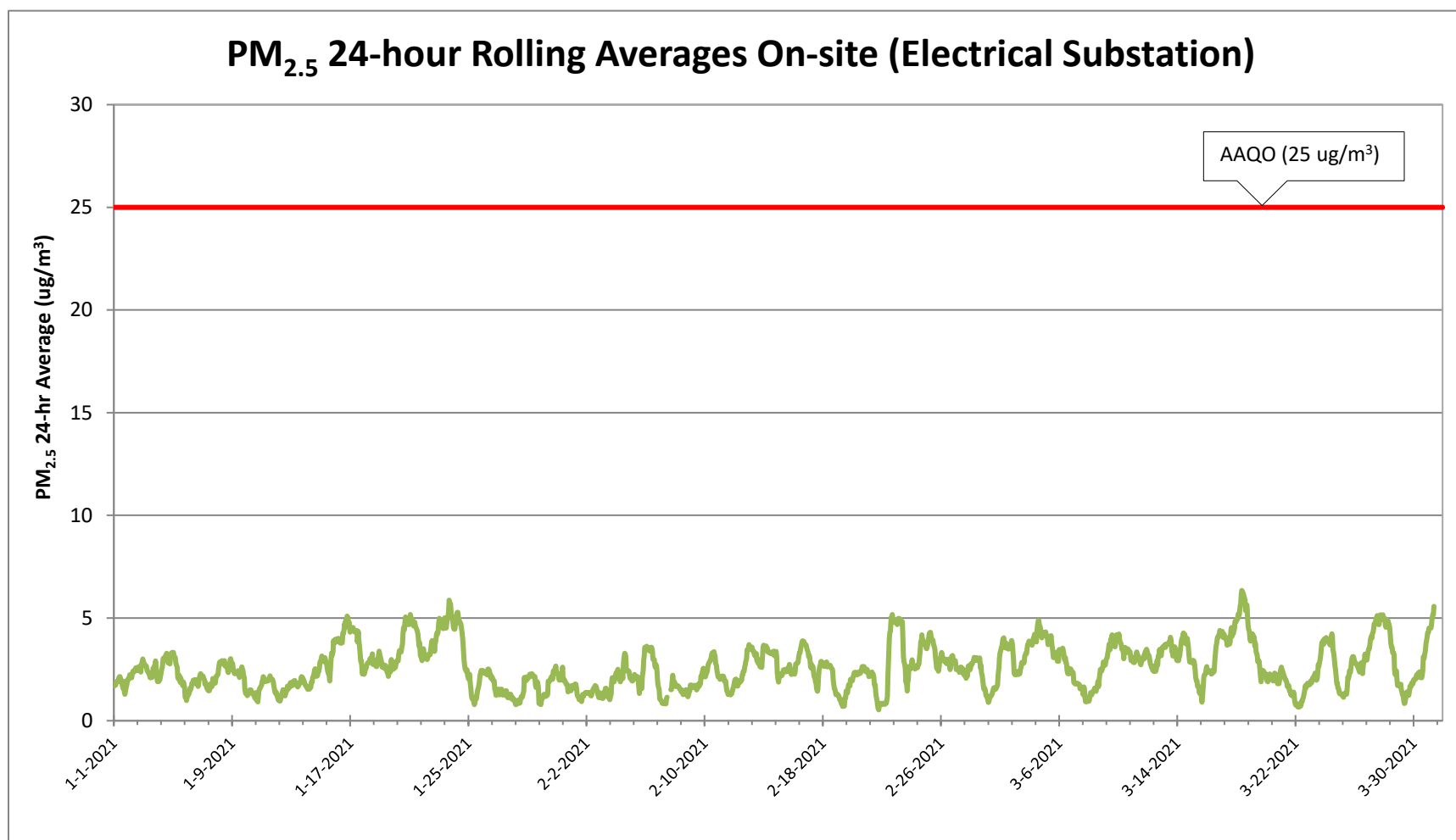
Ambient Air Monitoring data for PM_{2.5} and PM₁₀ are stored in Neptune's database. These data are retrieved and verified by Envirochem. QA/QC is performed on the raw data and any invalid data are flagged. Neptune's data management system is then updated accordingly.

2.1.2 RESULTS

Using Neptune's data management system, Envirochem:

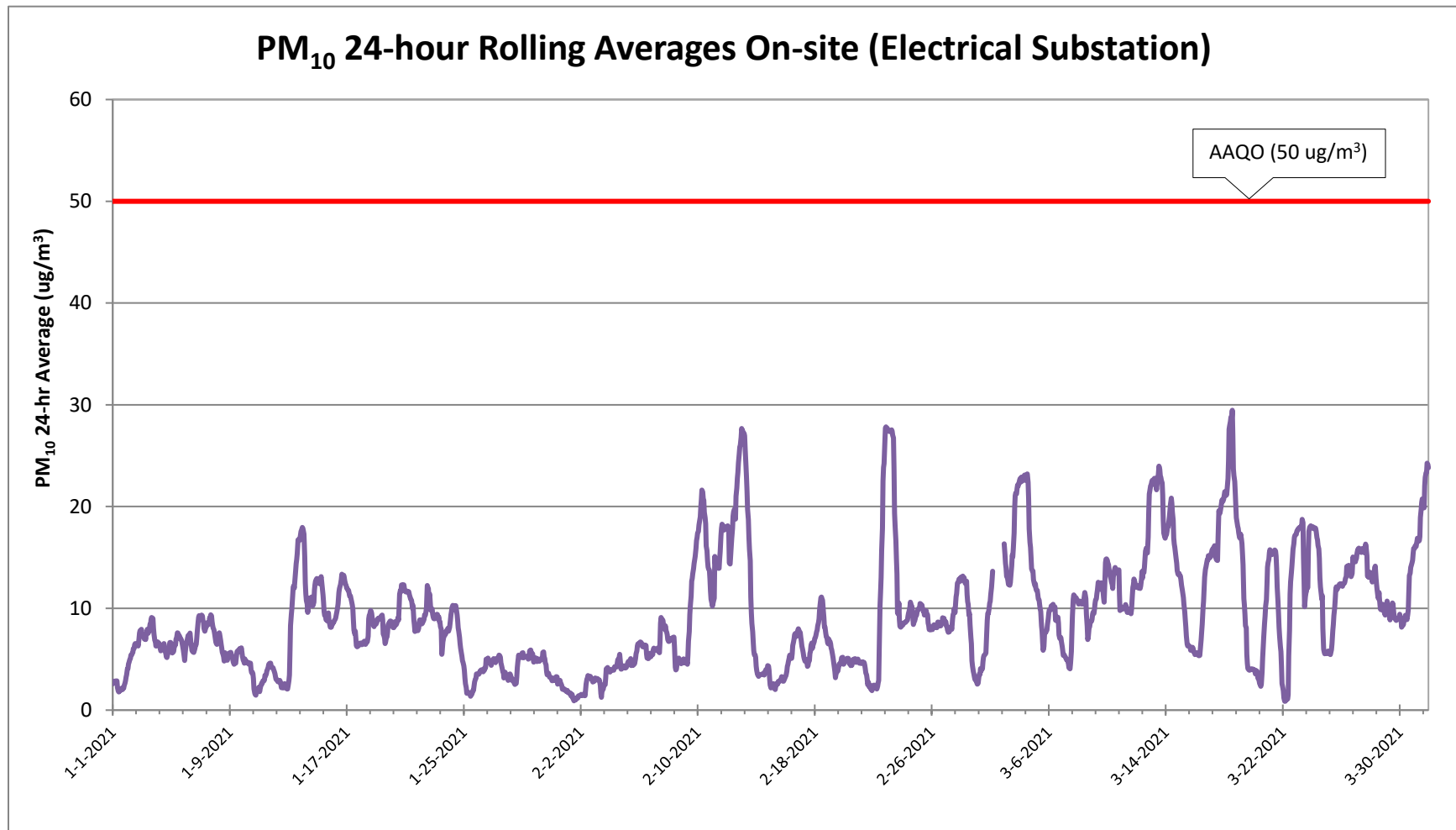
- Converts the vetted PM_{2.5} and PM₁₀ data to 24-hour rolling averages and performs QA/QC;
- On a quarterly basis, submits the graphs (**Figure 1** and **Figure 2**) to Metro Vancouver.

There were no PM_{2.5} and PM₁₀ AAQO exceedances observed in Q1 of 2021.



**Figure 1: 24-hour rolling averages of PM_{2.5} data from on-site monitor for the first calendar quarter 2021
(January 1st to March 31st, 2021)**

Note: Blank space indicates 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 2021
(January 1st to March 31st, 2021)**

Note: Blank space indicates that no data is available due to power failure or instrument maintenance

2.2 OFF-SITE PM_{2.5} AND PM₁₀ MONITORING - 24-HOUR ROLLING AVERAGE 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).

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, 2021)

METRO VANCOUVER PERMIT GVA 0081	
Neptune Bulk Terminals (Canada) Ltd.	
OFF-SITE 24-HR ROLLING AVERAGE PM_{2.5} AND PM₁₀ AAQO EXCEEDANCES	
Reporting Period:	January 1st - March 31st, 2021

Exceedance Event	MV AAQO		Neptune Office (340 Brooksbank Ave.)	Neighbourhood Pole (618 E 2 nd St.)
	Contaminant	µg/m ³	Period of Exceedance	
-	PM _{2.5}	25	No exceedances observed in Q1 of 2021	
	PM ₁₀	50		