

MVV Environment,  
Energy from Waste Combined Heat and Power Facility,  
North Yard,  
Devonport.

**Community Ambient Air Quality Monitoring Programme Report  
Quarter 4, 2021**





## **Overview of Monitoring Programme**

MVV started ambient air quality monitoring in the vicinity of the EfW CHP Facility in August 2014. Two pollutants are / were measured in the on-going survey, Nitrogen Dioxide (NO<sub>2</sub>) and particulate matter (as PM<sub>10</sub>). Monitoring of NO<sub>2</sub> is carried out at ten locations in the area. Two PM<sub>10</sub> real time monitoring stations were installed in 2014 in the vicinity of Camels Head junction and Moor Lane. These were monitored by MVV until 1<sup>st</sup> October 2020, when they were handed over to and adopted by Plymouth City Council for continued monitoring by the Environmental Health Dept. Therefore, this report will no longer deliver results from the PM<sub>10</sub> monitors.

## **Nitrogen Dioxide**

Oxides of nitrogen (NO<sub>x</sub>) are formed at the high temperatures and pressures found within vehicle engines and other combustion processes. Some of the nitrogen in the air and the fuel, mainly in the form of nitric oxide (NO), is oxidised to form NO<sub>2</sub> in the atmosphere. NO<sub>2</sub> is associated with adverse effects on human health, and it is this pollutant for which air quality standards have been set in the UK and elsewhere within the EU.

Diffusion tubes are used to measure levels of NO<sub>2</sub> within an area. These are small plastic tubes containing a chemical absorbent which reacts with NO<sub>2</sub> present in the air. The tubes are changed each month and then sent away to a laboratory for analysis. The results give a NO<sub>2</sub> level for each calendar month and these are used to derive an annual average which can be compared against the National Standards annual average air quality objective.

## **Locations**

The NO<sub>2</sub> monitoring sites have been divided between the area around the Camels Head junction (which could potentially be affected by emissions from site-related road traffic) and other locations representative of the urban background in St Budeaux and King's Tamerton.



## **National Standards**

The national air quality objective values, against which the monitoring results are compared, are shown in the Table below:

AIR QUALITY OBJECTIVES SET IN UK REGULATIONS			
Pollutant	Averaging Period	Objective Value ( $\mu\text{g}/\text{m}^3$ )	Maximum Permitted Exceedances
Nitrogen dioxide ( $\text{NO}_2$ )	Annual average	40	None
	Hourly average	200	18 hours per year
Particulate matter ( $\text{PM}_{10}$ )	Annual average	40	None
	Daily average	50	35 days per year

## **Quarter 4, 2021**

This quarterly update presents the results of monitoring carried out during October, November and December 2021.

### **1. Operational or Other Activity**

During this time, the EfW CHP facility was operating normally and undertook scheduled periods of shutdown from the 6<sup>th</sup> – 27<sup>th</sup> October for maintenance. Increased vehicle movements could be related to adults returning to employment after the gradual easing of COVID-19 restrictions throughout the period.

### **2. $\text{NO}_2$ Diffusion Tubes**

October: 10 tubes deployed 08/10/2021, 10 recovered 02/11/2021, results received 19/11/2021

November: 10 tubes deployed 02/11/2021, 10 recovered 02/12/2021, results received 22/12/2021

December: 10 tubes deployed 02/12/2021, 10 recovered 03/01/2022, results received 25/01/2022

### **3. $\text{PM}_{10}$ Monitors**

In line with planning conditions, the two monitoring stations at Wolseley Road and Moor Lane have been adopted by Plymouth City Council with effect from Oct 2020 and results will no longer be delivered via this report.

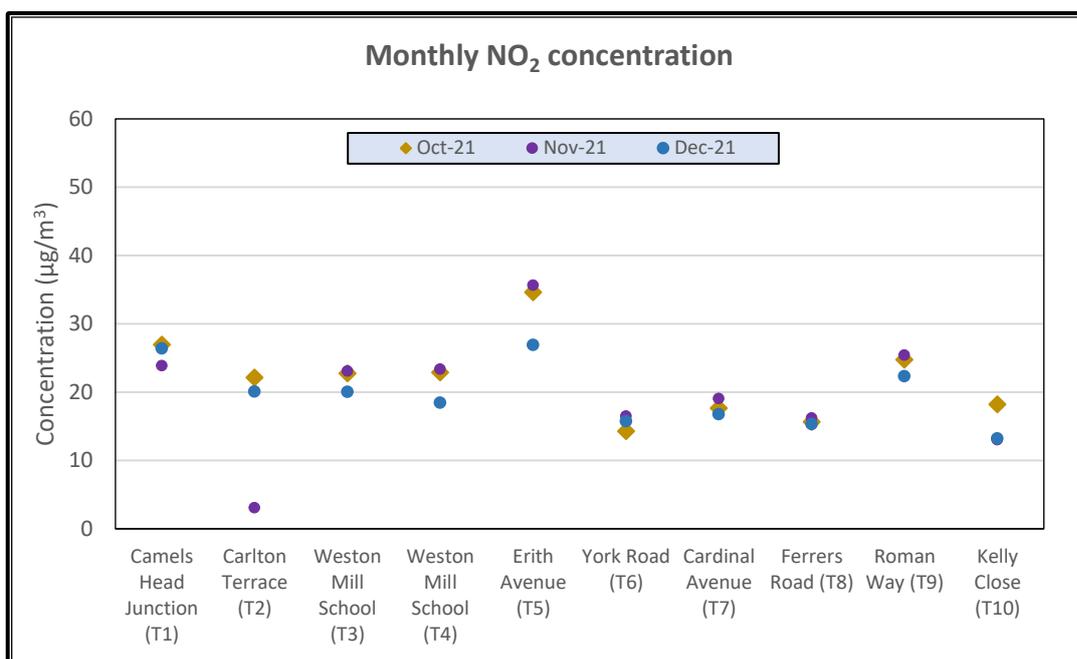


#### 4. NO<sub>2</sub> Diffusion Tube Monitoring

Note: Results shown include an adjustment for laboratory blank but are provisional until bias adjustment has taken place.

##### Three Monthly Monitoring

The results of the monitoring for the three-month period October to the end of December 2021 are shown in the graph below.



**Note: November and December values for Kelly Close (T10) are so close to each other (13.05 and 13.24, see table below) that only one dot is visible on the graph above.**



## Summary of Results

A summary of results to date are shown in the Tables below where the rolling 12-month average can be directly compared with the Annual Air Quality mean objective. The mean concentrations to date are seen to be within the air quality objective of 40 µg/m<sup>3</sup> at all the monitoring sites.

NO <sub>2</sub> MONITORING															
		Monthly NO <sub>2</sub> Concentration (µg/m <sup>3</sup> ) 2021													
Locatio	Description	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	2021 Average	Average of all results to date
T1	Camels Head Junction	31.27	21.4	16.98		19.57	17.35	19.32	17.94	25.13	26.96	23.89	26.41	22.38	23.95
T2	Junction of Weston Mill Drive & Carlton Terrace	26.54	16.22	20.97		13.96	12.37	13.42	15.35	21.80	22.14	3.07	20.10	16.90	20.14
T3	Weston Mill School	0	15.37	17.45		12.82	14.82	14.44	14.60	19.29	22.77	23.07	20.05	15.88	18.95
T4	Weston Mill School	23.24	15.78	15.45		13.36	15.22	14.80	14.05	19.68	22.91	23.35	18.46	17.85	18.17
T5	Erith Avenue	35.81	21.55	26.77		0.00	24.03	23.67	23.18	33.34	34.63	35.68	26.93	25.96	29.55
T6	York Road	21.51	12.72	12.01		11.11	9.18	9.68	9.75	13.37	14.31	16.52	15.73	13.26	14.28
T7	Cardinal Avenue	21.87	15.78	15.30		10.87	8.31	10.66	9.98	15.35	17.69	19.09	16.76	14.70	14.85
T8	Ferrers Road, St Budeaux	19.64	20.43	13.14		11.23	8.76	10.28	9.52	14.13	15.64	16.2	15.31	14.03	14.41
T9	Roman Way, adjacent Plaistow Hill Infant & Nursery Sch.	23.75	14.1	20.75		16.75	20.19	17.98	16.01	21.34	24.77	25.43	22.36	20.31	25.67
T10	Kelly Close, Barne Barton	17.97	16.16	11.24		11.02	9.4	9.51	8.66	13.94	18.21	13.05	13.24	12.95	12.80

Key  
 Air quality standard not exceeded  
 Air quality standard exceeded

NO <sub>2</sub> MONITORING														
		12-month rolling average NO <sub>2</sub> Concentration (µg/m <sup>3</sup> )												
Locatio	Description	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Mean
T1	Camels Head Junction	19.48	19.66	19.45		22.30	21.31	19.32	17.94	25.13	26.96	23.89	26.41	21.99
T2	Junction of Weston Mill Drive & Carlton Terrace	20.37	20.67	19.42		19.42	18.01	13.42	15.35	21.80	22.14	3.07	20.10	17.62
T3	Weston Mill School	18.01	16.08	14.81		11.41	12.09	14.44	14.60	19.29	22.77	23.07	20.05	16.96
T4	Weston Mill School	16.14	16.32	15.69		16.96	16.61	14.80	14.05	19.68	22.91	23.35	18.46	17.72
T5	Erith Avenue	26.30	26.85	25.82		21.03	21.63	23.67	23.18	33.34	34.63	35.68	26.93	27.19
T6	York Road	13.63	13.87	13.43		14.34	13.31	9.68	9.75	13.37	14.31	16.52	15.73	13.45
T7	Cardinal Avenue	12.79	13.09	13.09		15.96	14.43	10.66	9.98	15.35	17.69	19.09	16.76	14.44
T8	Ferrers Road, St Budeaux	12.22	12.25	13.91		16.11	14.64	10.28	9.52	14.13	15.64	16.20	15.31	13.66
T9	Roman Way, adjacent Plaistow Hill Infant & Nursery Sch.	19.35	19.26	18.59		18.84	19.11	17.98	16.01	21.34	24.77	25.43	22.36	20.28
T10	Kelly Close, Barne Barton	9.73	10.26	10.79		14.10	13.16	9.51	8.66	13.94	18.21	13.05	13.24	12.24

Key  
 Air quality standard not exceeded  
 Air quality standard exceeded

## Chimney Emission Data

Chimney emission data for the MVV Environment Devonport EfW CHP Facility is published weekly on the MVV website.

[https://www.mvv.de/en/mvv\\_energie\\_gruppe/mvv\\_umwelt/beteiligungen/mvv\\_environment\\_1/devonport/links\\_downloads/index.jsp](https://www.mvv.de/en/mvv_energie_gruppe/mvv_umwelt/beteiligungen/mvv_environment_1/devonport/links_downloads/index.jsp)