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

Community Ambient Air Quality Monitoring Programme Report Quarter 1, 2023

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_2) and particulate matter (as PM_{10}). Monitoring of NO_2 is carried out at ten locations in the area. Two PM_{10} real time monitoring stations were installed in 2014 in the vicinity of Camels Head junction and Moor Lane. These were monitored by MVV until 1st October 2020, when they were handed over to and adopted by Plymouth City Council for continued monitoring by the Environmental Health Department. Therefore, this report will no longer deliver results from the PM_{10} monitors.

Nitrogen Dioxide

Oxides of nitrogen (NO_X) 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_2 in the atmosphere. NO_2 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_2 within an area. These are small plastic tubes containing a chemical absorbent which reacts with NO_2 present in the air. The tubes are changed each month and then sent away to a laboratory for analysis. The results give a NO_2 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_2 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 ($\mu g/m^3$)	Maximum Permitted Exceedances
Nitrogen dioxide (NO_2)	Annual average	40	None
	Hourly average	200	18 hours per year
Particulate matter (PM_{10})	Annual average	40	None
	Daily average	50	35 days per year

Quarter 1, 2023

This quarterly update presents the results of monitoring carried out during January, February and March 2023.

1. Operational or Other Activity

No abnormal conditions identified during the reporting period.

2. NO_2 Diffusion Tubes

January: 10 tubes deployed 13/01/2023, 10 recovered 08/02/2023.
February: 10 tubes deployed 08/02/2023, 10 recovered 15/03/2023.
March: 10 tubes deployed 15/03/2023, 10 recovered 11/04/2023

3. PM_{10} Monitors

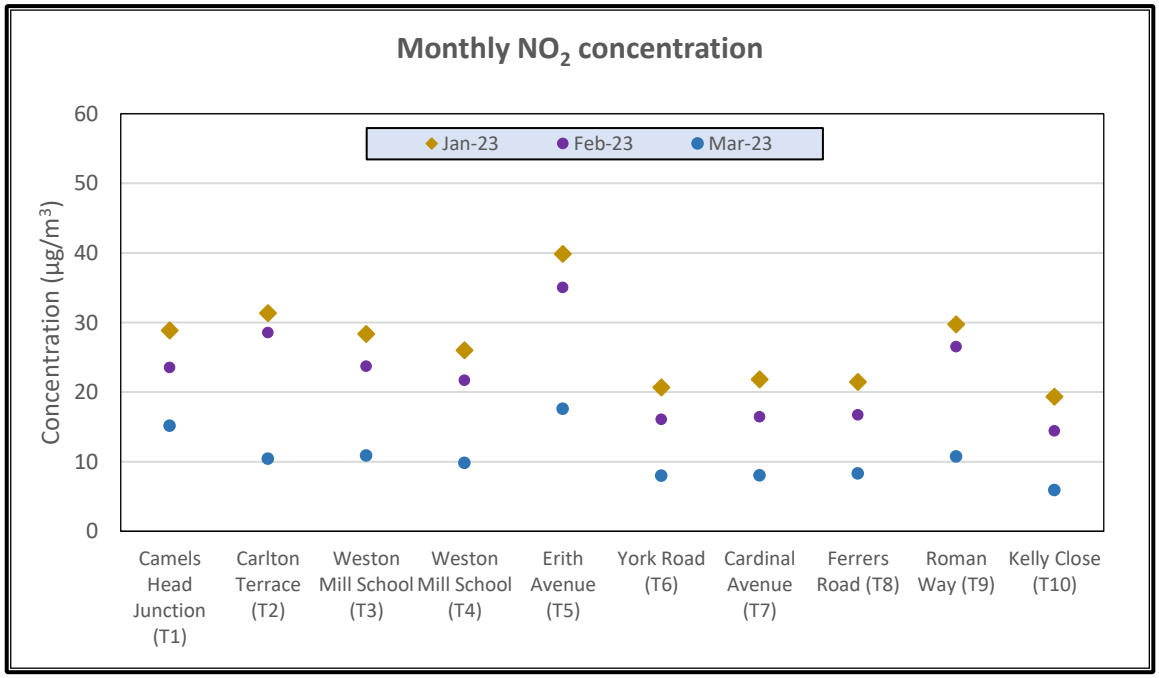
In line with planning conditions the two monitoring stations at Wolseley Road and Moor Lane have been adopted by Plymouth City Council with effect from October 2020 and results will no longer be delivered via this report.

4. NO_2 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 Jan to the end of Mar 2023 are shown in the graph below.



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^3 at all the monitoring sites.

NO_2 MONITORING															
		Monthly NO2 Concentration (µg/m^3) 2022													
Locatio	Description	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	2023 Average	Average of all results to date
T1	Camels Head Junction	28.84	23.54	15.14										22.51	23.95
T2	Junction of Weston Mill Drive & Carlton Terrace	31.33	28.52	10.43										23.43	20.14
T3	Weston Mill School	28.33	23.68	10.87										20.96	18.95
T4	Weston Mill School	26	21.67	9.79										19.15	18.17
T5	Erith Avenue	39.87	35.04	17.58										30.83	29.55
T6	York Road	20.66	16.05	7.96										14.89	14.28
T7	Cardinal Avenue	21.81	16.41	8.03										15.42	14.85
T8	Ferrers Road, St Budeaux	21.43	16.71	8.30										15.48	14.41
T9	Roman Way, adjacent Plaistow Hill Infant & Nursery Sch.	29.72	26.52	10.74										22.33	25.67
T10	Kelly Close, Barne Barton	19.34	14.43	5.90										13.22	12.80

Key
Air quality standard not exceeded
Air quality standard exceeded

		NO_2 MONITORING												
		12-month rolling average NO_2 Concentration (µg/m^3)												
Locatio	Description	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-22	Mean
T1	Camels Head Junction	28.84	26.19	22.51										25.85
T2	Junction of Weston Mill Drive & Carlton Terrace	31.33	29.93	23.43										28.23
T3	Weston Mill School	28.33	26.01	20.96										25.10
T4	Weston Mill School	26.00	23.84	19.15										23.00
T5	Erith Avenue	39.87	37.46	30.83										36.05
T6	York Road	20.66	18.36	14.89										17.97
T7	Cardinal Avenue	21.81	19.11	15.42										18.78
T8	Ferrers Road, St Budeaux	21.43	19.07	15.48										18.66
T9	Roman Way, adjacent Plaistow Hill Infant & Nursery Sch.	29.72	28.12	22.33										26.72
T10	Kelly Close, Barne Barton	19.34	16.89	13.22										16.48

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