



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

**Community Ambient Air Quality Monitoring Programme Report
Quarter 4, 2020**





Overview of Monitoring Programme

MVV started ambient air quality monitoring in the vicinity of the EfW CHP Facility in August 2014. Two pollutants are measured in the on-going survey, Nitrogen Dioxide (NO₂) and particulate matter (as PM₁₀). Monitoring of NO₂ is carried out at ten locations in the area. Two PM₁₀ 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 and adopted by Plymouth City Council for continued monitoring by the Public Protection Service. Therefore, this report will no longer deliver results from the PM₁₀ 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 NO₂ in the atmosphere. NO₂ 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 NO₂ within an area. These are small plastic tubes containing a chemical absorbent which reacts with NO₂ present in the air. The tubes are changed each month and then sent away to a laboratory for analysis. The results give a NO₂ 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 NO₂ 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. The PM₁₀ real time monitor is in the vicinity of Camels Head junction.

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 (µg/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 4 2020

This quarterly update presents the results of monitoring carried out during October, November, and December 2020.

1. Operational or Other Activity

During this time, the EfW CHP facility was operating normally and undertook scheduled periods of upkeep, maintenance, and repair.

It is evident this period that there has been a marginal increase in vehicular movements in the local vicinity possibly due to the easing of national lockdown restrictions imposed in March.

2. NO₂ Diffusion Tubes

Oct:10 tubes deployed 12/10/2020, 10 recovered 04/11/2020, results received 01/12/2020.

Nov:10 tubes deployed 04/11/2020, 10 recovered 09/12/2020, results received 25/01/2020.

Dec:10 tubes deployed 09/12/2020, 9 recovered 07/01/2021, results received 25/01/2020.

**(minor disruptions to issue of tubes, deploying, recovery and analysis during lockdown period)*

3. PM₁₀ Monitor maintenance, service or down time.

Monitors operational and serviced throughout quarter. Liaison with Plymouth City Council established and formal hand over of monitoring units completed.

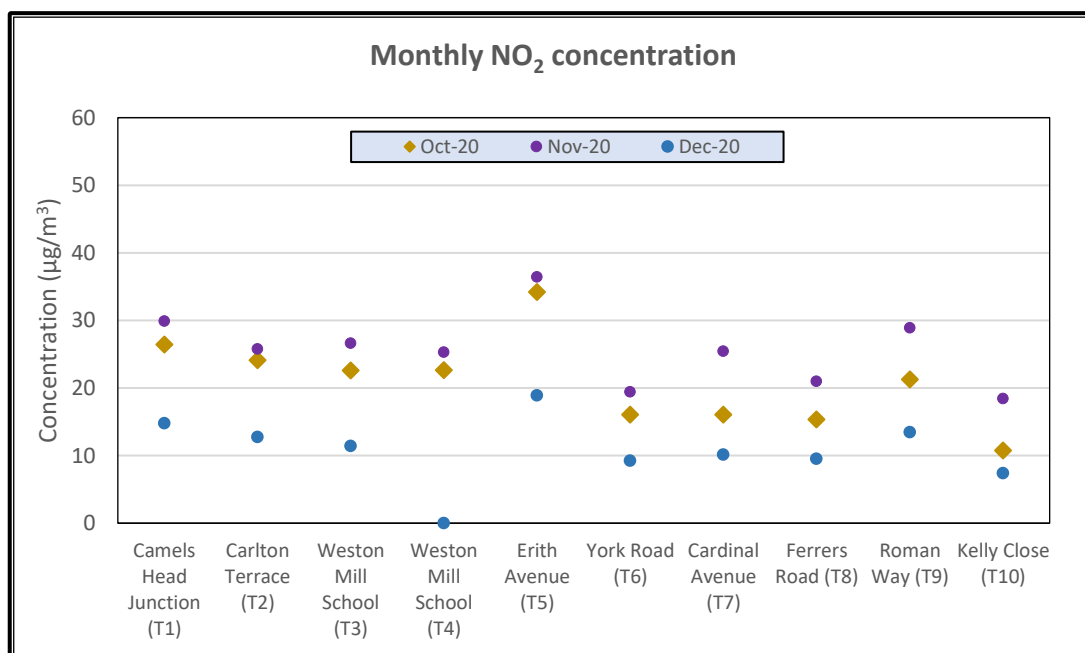


4. NO₂ Diffusion Tube Monitoring

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 2020 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/m³ at all the monitoring sites.



NO ₂ MONITORING															
		Monthly NO ₂ Concentration (µg/m ³) 2020													
Locatio	Description	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	2020 Average	Average of all results to date
T1	Camels Head Junction	29.14	23.96	16.39	18.08	14.28	17.3	13.29	22.02	11.58	26.47	11.2	14.80	19.77	23.98
T2	Junction of Weston Mill Drive & Carlton Terrace	22.91	31.25	28.03	19.38	17.70	12.86	10.36	27.18	13.71	24.12	25.8	12.78	20.51	20.10
T3	Weston Mill School	23.07	30.68	20.92	15	13.43	0.63	21.57	21.57	12.49	22.63	26.63	11.45	18.34	19.26
T4	Weston Mill School	21.07	23.33	20.24	14.05	13.22	12.51	10.53	21.17	12.23	22.65	25.31	0	16.36	18.17
T5	Erith Avenue	29.3	33.84	27.64	21.54	22.43	19.43	19.24	33.61	21.31	34.19	36.43	18.92	26.49	29.61
T6	York Road	18.65	17.97	22.79	11.79	9.84	9.36	7.16	16.39	8.26	16.07	19.44	9.23	13.91	14.24
T7	Cardinal Avenue	18.24	15.78	14.27	12.99	10.17	7.15	7.79	15.72	9.07	16.07	25.44	10.13	13.57	14.74
T8	Ferrers Road, St Budeaux	19.21	0.55	26.15	12.69	10.02	7.53	7.35	14.29	8.58	15.37	20.98	9.56	12.69	14.28
T9	Roman Way, adjacent Plaistow Hill Infant & Nursery Sch.	24.75	22.12	21.92	20.7	19.64	15.48	11.89	24.99	14.60	21.28	28.93	13.49	19.98	25.91
T10	Kelly Close, Barne Barton	11.53	9.77	10.26	12.09	9.06	7.47	5.73	14.61	7.25	10.76	18.46	7.41	10.37	12.71

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-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Mean
T1	Camels Head Junction	21.22	19.83	23.16	21.89	20.37	19.86	18.92	19.31	18.45	19.25	19.91	19.48	20.14
T2	Junction of Weston Mill Drive & Carlton Terrace	16.18	15.55	27.40	25.39	23.85	22.02	20.36	21.21	20.38	20.75	21.06	20.37	21.21
T3	Weston Mill School	19.18	19.13	24.89	22.42	20.62	17.29	17.90	18.36	17.71	18.20	18.60	18.01	19.36
T4	Weston Mill School	12.93	11.69	21.55	19.67	18.38	17.40	16.42	17.02	16.48	17.10	17.61	16.14	16.87
T5	Erith Avenue	27.55	27.12	30.26	28.08	26.95	25.70	24.77	25.88	25.37	26.25	26.98	26.30	26.77
T6	York Road	13.77	12.83	19.80	17.80	16.21	15.07	13.94	14.24	13.58	13.83	14.03	13.63	14.90
T7	Cardinal Avenue	13.77	12.77	16.10	15.32	14.29	13.10	12.34	12.76	12.35	12.73	13.03	12.79	13.45
T8	Ferrers Road, St Budeaux	14.38	12.04	15.30	14.65	13.72	12.69	11.93	12.22	11.82	12.18	12.47	12.22	12.97
T9	Roman Way, adjacent Plaistow Hill Infant & Nursery Sch.	25.06	23.34	22.93	22.37	21.83	20.77	19.50	20.19	19.57	19.74	19.88	19.35	21.21
T10	Kelly Close, Barne Barton	11.82	10.54	10.52	10.91	10.54	10.03	9.42	10.06	9.75	9.85	9.94	9.73	10.26

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_enviro_nment_1/devonport/links_downloads/index.jsp