



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

**Community Ambient Air Quality Monitoring Programme Report
Quarter 3, 2022**





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 (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, where they were handed over and adopted by Plymouth City Council for continued monitoring by the Environmental Health Dept. 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.



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 (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 3, 2022

This quarterly update presents the results of monitoring carried out during July, August and September 2022.

1. Operational or Other Activity

No adverse operational activities.

2. NO_2 Diffusion Tubes

July: 10 tubes deployed 05/07/2022, 9 recovered 09/08/2022 (1 missing from Ferrers Ave)

August: 10 tubes deployed 09/08/2022, 10 recovered 04/09/2022

September: 10 tubes deployed 04/09/2022, 10 recovered 05/10/2022

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 wef Oct 2020 and results will no longer be delivered via this report.

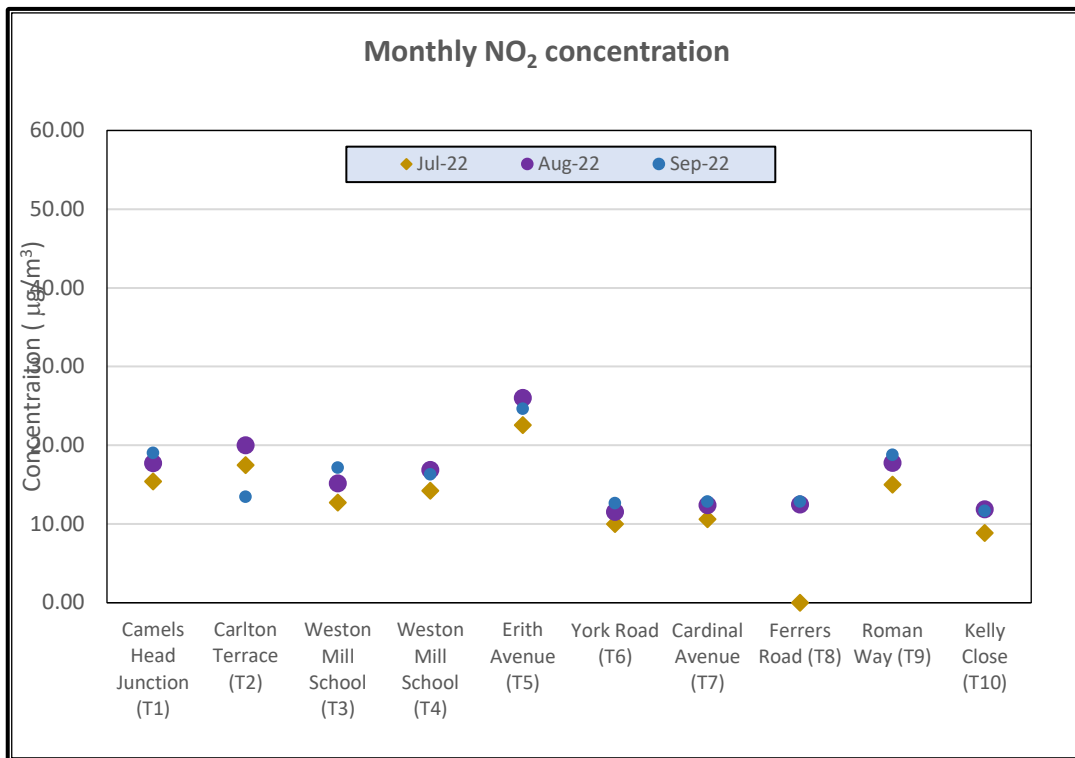
4. NO_2 Diffusion Tube Monitoring

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 July to the end of September 2022 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) 2022 | | | | | | | | | | | | | | | |
| Locatic | Description | Jan-22 | Feb-22 | Mar-22 | Apr-22 | May-22 | Jun-22 | Jul-22 | Aug-22 | Sep-22 | Oct-22 | Nov-22 | Dec-22 | 2021 Average | Average of all results to date |
| T1 | Camels Head Junction | 31.74 | 23.53 | 23.47 | 21.67 | 21.77 | 15.42 | 15.42 | 17.73 | 19.03 | | | | 21.09 | 23.95 |
| T2 | Junction of Weston Mill Drive & Carlton Terrace | 26.78 | 17.32 | 21.39 | 17.06 | 16.97 | 17.49 | 17.49 | 20.02 | 13.48 | | | | 18.67 | 20.14 |
| T3 | Weston Mill School | 24.72 | 0.00 | 16.97 | 15.95 | 16.12 | 12.74 | 12.74 | 15.16 | 17.15 | | | | 14.62 | 18.95 |
| T4 | Weston Mill School | 25.83 | 18.05 | 18.87 | 16.57 | 15.93 | 14.24 | 14.24 | 16.88 | 16.32 | | | | 17.44 | 18.17 |
| T5 | Erith Avenue | 37.39 | 31.06 | 27.60 | 0.61 | 46.23 | 22.59 | 22.59 | 26.01 | 24.65 | | | | 26.53 | 29.55 |
| T6 | York Road | 18.97 | 12.81 | 13.81 | 12.16 | 10.74 | 9.99 | 9.99 | 11.56 | 12.67 | | | | 12.52 | 14.28 |
| T7 | Cardinal Avenue | 20.74 | 14.21 | 14.82 | 13.17 | 0.00 | 10.60 | 10.60 | 12.42 | 12.85 | | | | 12.16 | 14.85 |
| T8 | Ferrers Road, St Budeaux | 18.53 | 11.76 | 13.71 | 12.87 | 10.98 | 0.00 | 0.00 | 12.47 | 12.87 | | | | 10.35 | 14.41 |
| T9 | Roman Way, adjacent Plaistow Hill Infant & Nursery Sch. | 0.46 | 59.70 | 23.66 | 20.66 | 18.50 | 15.02 | 15.02 | 17.77 | 18.78 | | | | 21.06 | 25.67 |
| T10 | Kelly Close, Barne Barton | 15.33 | 9.12 | 15.53 | 13.76 | 10.89 | 8.87 | 8.87 | 11.87 | 11.66 | | | | 11.77 | 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) | | | | | | | | | | | | | | |
| Locatic | Description | Jan-22 | Feb-22 | Mar-22 | Apr-22 | May-22 | Jun-22 | Jul-22 | Aug-22 | Sep-22 | Oct-22 | Nov-22 | Dec-22 | Mean |
| T1 | Camels Head Junction | 31.74 | 27.64 | 26.25 | 25.10 | 24.44 | 22.93 | 21.86 | 21.34 | 21.09 | | | | 24.71 |
| T2 | Junction of Weston Mill Drive & Carlton Terrace | 26.78 | 22.05 | 21.83 | 20.64 | 19.90 | 19.50 | 19.21 | 19.32 | 18.67 | | | | 20.88 |
| T3 | Weston Mill School | 24.72 | 12.36 | 13.90 | 14.41 | 14.75 | 14.42 | 14.18 | 14.30 | 14.62 | | | | 15.29 |
| T4 | Weston Mill School | 25.83 | 21.94 | 20.92 | 19.83 | 19.05 | 18.25 | 17.68 | 17.58 | 17.44 | | | | 19.83 |
| T5 | Erith Avenue | 37.39 | 34.23 | 32.02 | 24.17 | 28.58 | 27.58 | 26.87 | 26.76 | 26.53 | | | | 29.35 |
| T6 | York Road | 18.97 | 15.89 | 15.20 | 14.44 | 13.70 | 13.08 | 12.64 | 12.50 | 12.52 | | | | 14.33 |
| T7 | Cardinal Avenue | 20.74 | 17.47 | 16.59 | 15.73 | 12.59 | 12.26 | 12.02 | 12.07 | 12.16 | | | | 14.62 |
| T8 | Ferrers Road, St Budeaux | 18.53 | 15.15 | 14.67 | 14.22 | 13.57 | 11.31 | 9.69 | 10.04 | 10.35 | | | | 13.06 |
| T9 | Roman Way, adjacent Plaistow Hill Infant & Nursery Sch. | 0.46 | 30.08 | 27.94 | 26.12 | 24.60 | 23.00 | 21.86 | 21.35 | 21.06 | | | | 21.83 |
| T10 | Kelly Close, Barne Barton | 15.33 | 12.23 | 13.33 | 13.44 | 12.93 | 12.25 | 11.77 | 11.78 | 11.77 | | | | 12.76 |

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