

## Particulate Monitoring in Limerick: Data Summary – 26 April to 31 July 2017



As part of the investigation into complaints of dust deposition, predominantly in the areas of the Slí Na Manach and Ard Aulin estates in the Mungret – Raheen area, Limerick, the EPA installed an Osiris<sup>1</sup> Particulate Monitor at a residence in the Slí Na Manach estate. Monitoring at this location commenced at approximately 17:00 on 26 April 2017. Data from this equipment were downloaded periodically and a number of summary reports were produced, which are available at:

- <http://www.epa.ie/enforcement/licenseeinfo/irishcementlimited/>

Osiris monitors were subsequently installed by Limerick City & County Council (LCCC) on 10 May 2017. These monitors were placed in three locations in greater Limerick City, including a location in Mungret, approximately 300 metres northwest of the EPA's monitoring site in Slí Na Manach. The other monitors were placed by LCCC at locations in O'Connell Street and Castletroy.

This network of particulate monitors have been installed by LCCC as a resource for the public, and results are publicly available via the LCCC website. This allows people to view data on air quality in their area at any point and also to look at trends in air quality over a period of time.

This current report presents particulate monitoring data for the period from 26 April to 31 July 2017, and includes data collected at both the EPA's and LCCC's locations in Mungret<sup>2</sup> and at the two other LCCC locations in Limerick.

The Osiris analyser provides results for the following particulate fractions:

- Total suspended particulates (TSP);
- PM<sub>10</sub> (particles with a diameter of 10 microns or less);
- PM<sub>2.5</sub> (particles with a diameter of 2.5 microns or less);
- PM<sub>1</sub> (particles with a diameter of 1 micron or less).

Statutory air quality limits for the purposes of the protection of human health are specified for the parameters PM<sub>10</sub> and PM<sub>2.5</sub> as follows:

- PM<sub>10</sub> – 24 hour average limit of 50 µg/m<sup>3</sup>;
- PM<sub>10</sub> – annual average limit of 40 µg/m<sup>3</sup>;
- PM<sub>2.5</sub> – 24 hour average limit of 25 µg/m<sup>3</sup>.

The Osiris analyser is set up to take a reading every fifteen minutes. Figures 1 and 2 illustrate the Daily average values for PM<sub>10</sub> and PM<sub>2.5</sub> respectively over the period 26 April – 31 July 2017, for comparison

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<sup>1</sup> <http://www.turnkey-instruments.com/environment.php?id=8>

<sup>2</sup> EPA data Slí Na Manach 26 April – 09 May; LCCC Data 3 Locations 10 May – 31 July

with the statutory limit values. Figures 3 and 4 below illustrate Hourly Average results over the same period.

Figures 1 and 2 indicate that the measured PM<sub>10</sub> and PM<sub>2.5</sub> results are all within the statutory limit values for each of the monitoring locations; the highest daily average PM<sub>10</sub> and PM<sub>2.5</sub> results are approximately 45 % and 29 %, respectively, of the relevant statutory limit values.

The averages of the daily values for both PM<sub>10</sub> and PM<sub>2.5</sub> were slightly higher at O'Connell Street over the period than at Mungret or Castletroy; values for these two locations were generally very similar.

The graphs also show that wind direction (measured at Shannon Airport) had no detectable influence on dust deposition rates at any monitoring location; winds from the northwest quadrant (270° – 330°) were not associated with higher dust deposition rates than winds from any other direction.

In summary, these results are considered to be indicative of good air quality at each of the monitoring locations and do not indicate any adverse impact from local sources. There is a general trend of slightly higher dust deposition rates at the O'Connell Street site, which is in line with expectations given the greater urbanisation of this location.

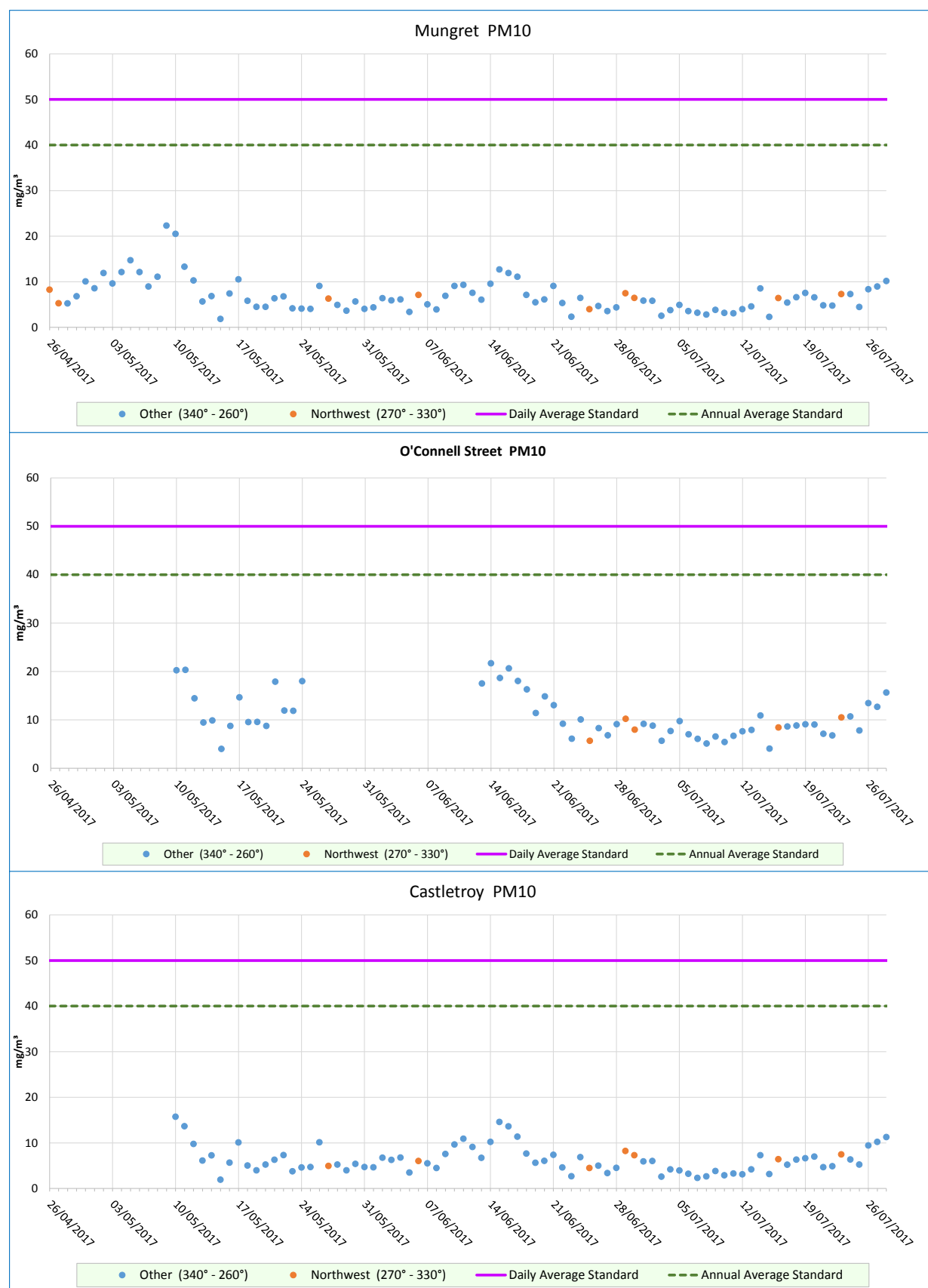
Review of the data in Figures 3 and 4 does not indicate that there were any extended episodes of elevated particulates. There were variations in the measured levels of particulates over the course of the monitoring period, which would be expected and are typical of normal variations in particulate levels. There were occasional isolated peak readings which exceeded the numeric limits, most notably at the O'Connell Street location, but in each case these were of very short duration and were of no significance for air quality.

## **Conclusion**

The results of particulate deposition monitoring at Mungret and at two other locations in Limerick City indicate that there is a trend towards slightly higher particulate deposition rates at the O'Connell Street location relative to the other two locations, but each location was fully compliant with statutory air quality standards for particulates.

There was no indication of additional dust deposition associated with any particular wind direction, nor was any significant local source of dust indicated in relation to any of the monitoring locations. The relatively greater rates in O'Connell Street are consistent with its greater degree of urbanisation relative to Mungret and Castletroy.

**Figure 1 PM10 24hr Average values for Monitoring Sites at Mungret, O'Connell Street and Castletroy 26 April - 31 July 2017**



Note: The monitor located at O'Connell Street was offline between 25 May and 12 June 2017

**Figure 2 PM2.5 24hr Average values for Monitoring Sites at Mungret, O'Connell Street and Castletroy 26 April - 31 July 2017**



Note: The monitor located at O'Connell Street was offline between 25 May and 12 June 2017.

**Figure 3 PM10 Hourly Average values for Monitoring Sites at Mungret, O'Connell Street and Castletroy 26 April - 31 July 2017**



Note: The monitor located at O'Connell Street was offline between 25 May and 12 June 2017.

**Figure 4** PM2.5 Hourly Average values for Monitoring Sites at Mungret, O'Connell Street and Castletroy 26 April - 31 July 2017



Note: The monitor located at O'Connell Street was offline between 25 May and 12 June 2017.