

# Olympic Park Dust and PM<sub>10</sub> Monthly Monitoring Report

## November 2008

### Document History

				DOCUMENT REF: REP-ATK-PM-ZZZ-ZZZ-ZZZ-E-0109		
Revision	Purpose Description	Originated	Checked	Reviewed	Authorised	Date
1	Final for Issue to CLM/EHOs	S Arjunagi	E Yerushalmi	G M Bollan	RI Collinson	16/02/09
0	Draft for review	S Arjunagi	E Yerushalmi	G M Bollan	RI Collinson	07/01/09

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# Executive Summary

This report describes the results from the PM<sub>10</sub> and deposited dust monitoring regime in and around the Olympic Park site for the calendar month of November 2008.

November monitoring results confirm that short and long term statutory criteria are currently (or are likely to be) met at all off-site locations most representative of public exposure.

During November, there was only one exceedance of the 24-hour mean value of 50 µg/m<sup>3</sup> on the 4<sup>th</sup> of November at Gainsborough School. The exceedance was linked to a regional event caused by Guy Fawkes Night fireworks. There were no 24-hour mean exceedances of 50 µg/m<sup>3</sup> at any of the other analysers.

Exceedances of the 15-minute PM<sub>10</sub> site action limit were recorded during two days as one-off incidents at CZ4 Soil Wash and as a single one-off incident at CZ8c. The breaches observed at CZ4 Soil Wash and CZ8c appeared to be linked to activities at the Olympic Park.

The number of 24-hour mean exceedances at the CZ4 Soil Wash was already exceeding the statutory maximum allowable of 35 per year, but it should be noted that the sampling point is on-site, located close to a haul road and at some distance from any points of relevant exposure such as residential properties. As such, the site represents an over-estimate of the exposure of the nearest receptors.

Soiling in excess of 5% coverage was recorded in a single offsite location, Dust\_24, which has also in the past recorded soiling levels over 5%. The bearing of soiling and predominant wind direction indicated an offsite source not related to Olympic Park activities.

November monitoring results confirm an overall reduction in exceedances as well as rates of dust deposition, suggesting that dust abatement measures continue to have the desired effect though wet conditions will be contributing.

# 1. Introduction

- 1.1 As part of the monthly reporting requirement, Atkins has prepared the November 2008 summary report for dust and PM<sub>10</sub> data collected by the Tier 1 contractors (Morrison Construction Limited - MCL and BAM Nuttall Limited - BNL) and their consultants at the Olympic Park site. The report is in accordance with section 5.5, Reporting Requirements, of the Olympic Park Dust Monitoring Scheme (REP-ATK-TE-ZZZ-XXX-ZZZ-E-0002).
- 1.2 The report presents the November PM<sub>10</sub> and dust results. Appendix E of the report includes background information to the parameters covered, their guidelines, criteria, monitoring coverage and techniques used.
- 1.3 Data from eight Osiris locations monitoring real-time PM<sub>10</sub> during November are presented and discussed in this report. Data from a total of 20 Fablon Sticky Pad monitoring sites located off-site are also presented and discussed. Further results from on-site locations are presented in Appendix B. The dust and PM<sub>10</sub> monitoring sites selected, their descriptions, operators (BNL/MCL), locations and data coverage are presented in Appendix A. All of these locations can be found on the site map in Section 2.

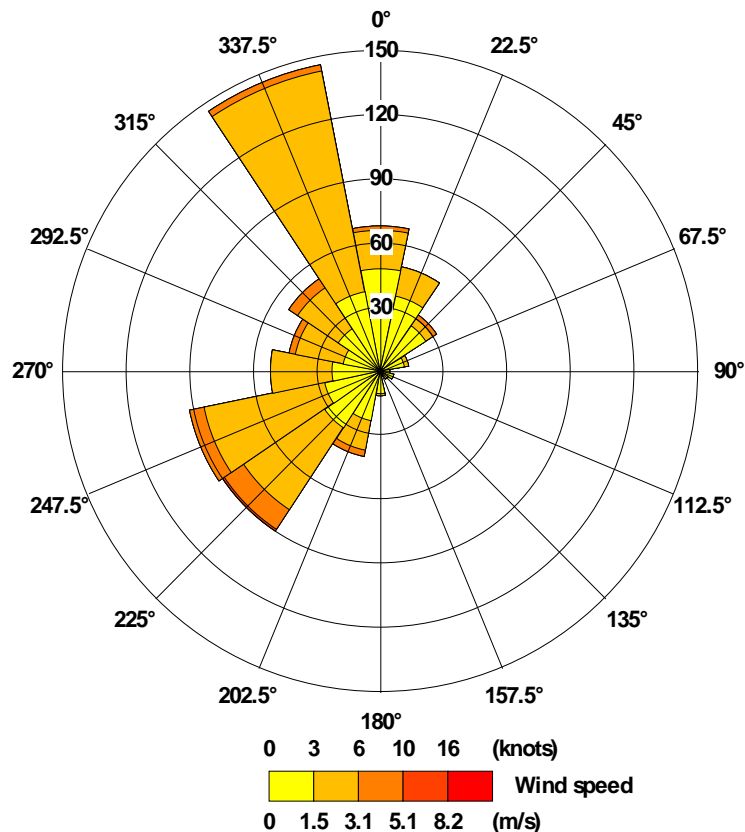


## 3. Results and Discussion

### Meteorology

- 3.1 The CZ4 Soil Wash meteorological station is co-located with the Osiris analyser installed at that position and has been providing meteorological data since April. Due to temporary issues with the data download software, data capture was only 70% during November. In order to present a full month's worth of representative data, a rose from the nearby London Air Monitoring Station at Dawlish Road is presented.
- 3.2 The Dawlish Road wind rose for November is illustrated in Figure 3.1.

**Figure 3.1 – November 2008 Windrose for London Air Network Dawlish Road Site Meteorological Station**



- 3.3 The on-site windrose in Appendix G shows a different wind direction to that observed at Dawlish Road, with slightly more prevalent north-westerly winds recorded at the Dawlish Road site during November during the on-site analyser's downtime.
- 3.4 The Met Office<sup>1</sup> UK overview for the month of November 2008 is as follows:

<sup>1</sup> <http://www.metoffice.gov.uk/climate/uk/2008/november.html>

*Mean temperatures were above average for England. The provisional mean value for the month is 6.8°C which is 0.7°C above the 1961-1990 average. The provisional rainfall total is 81.1 mm, which is 99% of the 1961-1990 average. It was mostly mild at first, but turning much colder later with sharp frost. Rainfall and sunshine close to average.*

## PM<sub>10</sub> Results

3.5 Data from the eight Osiris analysers are presented, compared to PM<sub>10</sub> criteria and discussed in this section. Data from each site are presented on two to three pages consisting of:

- 1) An in-month site discussion;
- 2) A summary table of the monthly and annual (or period) means and the number of 24 hour exceedances of 50 µg/m<sup>3</sup> compared with local networked analysers. It should be noted that there are no monthly criteria for PM<sub>10</sub> and that these are only presented for comparison with previous months and other sites;
- 3) A figure presenting both the 24 hourly mean and 15 minute exceedances throughout the month;
- 4) A table of the 15-minute mean exceedances condition at the time and action taken if any; and
- 5) A table of the daily mean exceedances summary for the site if any.

All Osiris data are highlighted with italics if below 75% capture.

3.6 The sites presented are:

- Gainsborough School located 100 metres from the Olympic Park CZ5c boundary, and approximately 500 metres from the soil washing facilities operated by MCL;
- West Greenway located outside the Olympic Park opposite CZ3 located 40 metres from new relevant receptors, operated by BNL;
- Quartermile Lane in CZ7a but also located next to a site with relevant exposure (Traveller site), operated by MCL;
- Carpenters Road in CZ1, located 60 metres west of the nearest relevant receptor, operated by BNL;
- CZ4 Soil Wash near the soil washing facilities, located 60 metres north-east from the nearest relevant receptor, operated by BNL;
- Metronet off-site location for short-term boundary monitoring, located within 10 metres from the nearest receptor;
- CZ8a short-term boundary monitoring, was initially located 40 metres from the nearest receptor, but moved off-site on the 17<sup>th</sup> of November and is now ten metres from the nearest receptor; and
- CZ8C short-term boundary monitoring, located 80 metres from the nearest receptor.

3.7 Table 3.1 summarises the main 24 hour mean exceedances at each site in November. The table includes the London Network sites Ruckholt Close, Dawlish Close and Cam Road for comparison. These data are contemporary and subject to later ratification.

3.8 It should be noted that high ambient PM<sub>10</sub> concentrations are commonly expected in early November due to firework activity. This generally caused higher concentrations measured by the on-site analysers but the general increase in local background concentrations at the London Air monitoring sites can be seen at this time.

3.9 Data from the MetOne Beta Attenuation Meter located at the Quartermile Lane monitoring station is being collected but not yet being used to apply a correction factor to any site Osiris data. A number of issues are awaiting resolution including:

- The collection of a suitable large data set to determine long term performance differences between the two types of analyser

- An investigation into the suitability of applying a correction factor from one analyser across the whole Olympic Park monitoring regime
- Confirmation that the BAM is performing to manufacturer's specifications (due in January 2009)
- An adjustment of the Quartermile Lane Osiris' position to ensure that no systematic errors are being introduced as a result of the two analyser's spatial separation (due in January 2009).

Table 3.1 – PM<sub>10</sub> Concentrations November Summary Table

Site Name	Operator	Location	November Mean	November Exceedances	Comment
Gainsborough School, Hackney	MCL	30m West from CZ5c	24.7	1	Daily exceedances on the 4 <sup>th</sup> of November - (in November the highest levels of PM <sub>10</sub> across the London Air Quality Network were recorded between 4 <sup>th</sup> and 6 <sup>th</sup> ).  Likely to have been a regional event caused by Guy Fawkes Night fireworks.  Further possible contribution of PM <sub>10</sub> was the demolition of the plinth of the Gainsborough School footbridge. Manned jet washing was operating to minimise the emissions of dust during the demolition activities.
Greenway, Newham	BNL	Outside boundary of CZ3a/ 3b	18.8	0	n/a
Quartermile Lane, Hackney	MCL	Within CZ 7a next to Travellers' Site	20.9	0	n/a
On-site, Newham (Carpenters Road South)	BNL	Within CZ 1a	20.0	0	n/a
On-site , Tower Hamlets (CZ4 Soil Wash)	BNL	Boundary of CZ4	22.6	0	n/a
Metronet, Waltham Forest	Hyder	Offsite 100m East from CZ7a	22.5	0	n/a
Site 8a, Waltham Forest	Hyder	Within CZ 8a	13.3	0	n/a
Site 8c, Waltham Forest	Hyder	Within CZ 8c	16.7	0	n/a
Ruckholt Close	Waltham Forest	Offsite 90m North from CZ7a	14.8	0	n/a
Dawlish Road	Waltham Forest	Offsite >1km North from CZ7a	14.1	0	n/a

Cam Road	Newham	Offsite 370m East from CZ1a, 1b and 8c	16.7	0	n/a
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*Italics – indicates < 75% data capture*

### Gainsborough School. Hackney

- 3.10 The Gainsborough School November data included a single exceedance of the daily mean on Tuesday 4<sup>th</sup> November and no breaches of the 15 minute action level, discussed in Table 2.3.
- 3.11 The site had been collecting data since the 6<sup>th</sup> of July 2007, albeit with a break for maintenance. It is the longest running analyser at the Olympic Site with a robust annual mean directly comparable to the Air Quality Objectives.
- 3.12 Gainsborough School results show that the annual mean concentration is not exceeding the annual mean objective of 40 µg/m<sup>3</sup> and is comparable to the local networked analysers. Gainsborough School has completed over a year of monitoring, and the annual mean refers to a rolling 12 monthly average. With 81% coverage, and with an annual mean of 28 µg/m<sup>3</sup>, the annual mean was below the objective during the last year of monitoring.

**Table 3.2– Gainsborough School PM<sub>10</sub> Concentrations –  
November and Rolling Annual Mean Results (365 days; 01/12/07 – 30/11/08)**

Site Name	Operator	November Mean (Exceedances)	Annual Mean * (Exceedances **)
Gainsborough Road	MCL	24.7 (1)	27.8 (21)
Ruckholt Close	Waltham Forest	14.8 (0)	19.6 (6)
Cam Road	Newham	16.7 (0)	24.8 (8)
Dawlish Close	Waltham Forest	14.1 (0)	19.9 (3)

\*Annual Mean Objective of 40 µg/m<sup>3</sup>

\*\* Objective is less than 35 exceedances of a 24 hour mean of 50 µg/m<sup>3</sup> per year

Figure 3.2 - Gainsborough School 15-minute mean and daily mean PM<sub>10</sub> Concentrations – November (µg/m<sup>3</sup>)

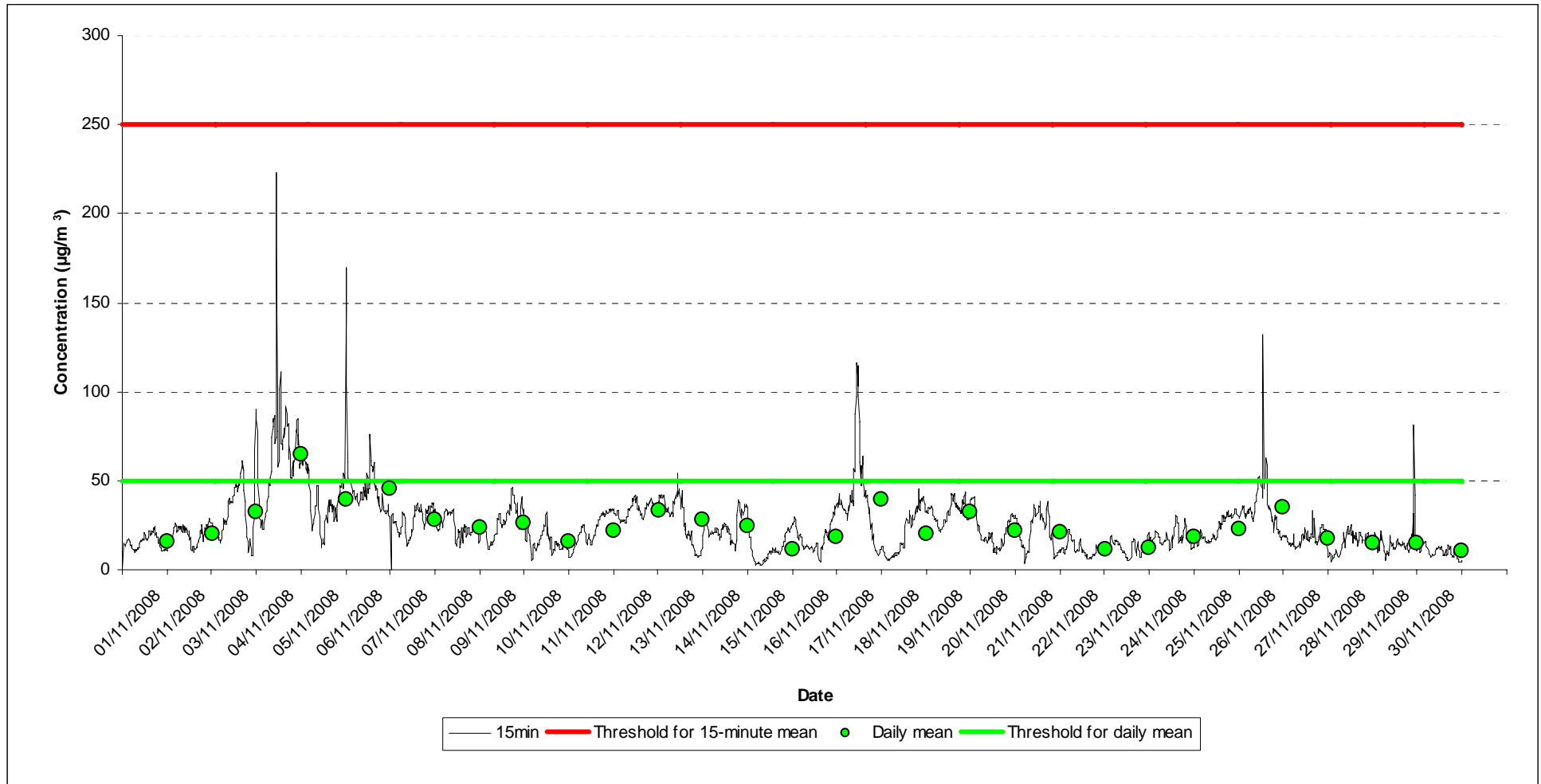


Table 3.3 - Gainsborough School Daily Mean Exceedances\* – November

Date	Day	No. of exceedances (October)	Annual No. of Daily exceedances (Rolling 365 days)	Daily Mean ( $\mu\text{g}/\text{m}^3$ )	Daily Wind Direction	Daily Wind Speed (m/sec)	Daily Rainfall (mm/hour)	Daily Temperature (Celsius)	Possible Source	Mitigation at Olympic Park
04 - Nov	Tuesday	1	21	64.6	NE (analyser is downwind of CZ5c)	0.6	0.0	10.6	<p>Activities at CZ5c included the demolition of the plinth of the Gainsborough School footbridge.</p> <p>Concentrations <math>&gt;50 \mu\text{g}/\text{m}^3</math> from 00:00 00:45 AM, 04:15 AM – 07:15 AM the following day.</p> <p>Other sites had highest levels of <math>\text{PM}_{10}</math> on the same day. Likely to have been a regional event caused by Guy Fawkes fireworks.</p>	Demolition activities of bridge had manned jet washing operating to minimise the emissions of dust during the demolition activities.
Total		1	21							

\* Air Quality Strategy Objective is less than 35 exceedances of a 24 hour mean of  $50 \mu\text{g}/\text{m}^3$  per year

### Greenway, Newham

- 3.13 The Greenway November data includes no exceedances of the 15-minute action limit and no exceedances of the daily mean. Relatively low concentrations have been consistently observed at this off-site location. It remains of interest following the commissioning of new properties adjacent to the Greenway to the south west of the monitoring position.
- 3.14 The Greenway analysers began collecting data on the 1<sup>st</sup> of November 2007, albeit with a month break due to a power cut and during site repositioning on the 10<sup>th</sup> of July 2008. The new location was 40 metres east of its original position, and for annual mean purposes has been considered the same site. A full year set of data is therefore available and results are now directly comparable to Air Quality Objectives.
- 3.15 The Greenway analyser has completed over a year of monitoring, and the annual mean refers to a rolling 12 monthly average. With 75% coverage and with an annual mean concentration of 22  $\mu\text{g}/\text{m}^3$ , the annual mean was well below the objective during the last year of monitoring.

**Table 3.4 - Greenway PM<sub>10</sub> Concentrations –  
October and Rolling Annual Mean Results (365 days; 01/12/07 – 30/11/08)**

Site Name	Operator	November Mean (Exceedances)	Annual Mean * (Exceedances **)
Greenway	BNL	18.8 (0)	21.6 (5)
Ruckholt Close	Waltham Forest	14.8 (0)	19.6 (6)
Cam Road	Newham	16.7 (0)	24.8 (8)
Dawlish Close	Waltham Forest	14.1 (0)	19.9 (3)

\*Annual Mean Objective of 40  $\mu\text{g}/\text{m}^3$

\*\* Objective is less than 35 exceedances of a 24 hour mean of 50  $\mu\text{g}/\text{m}^3$  per year

Daily PM<sub>10</sub> (local background = Cam Road & Dawlish Rd)

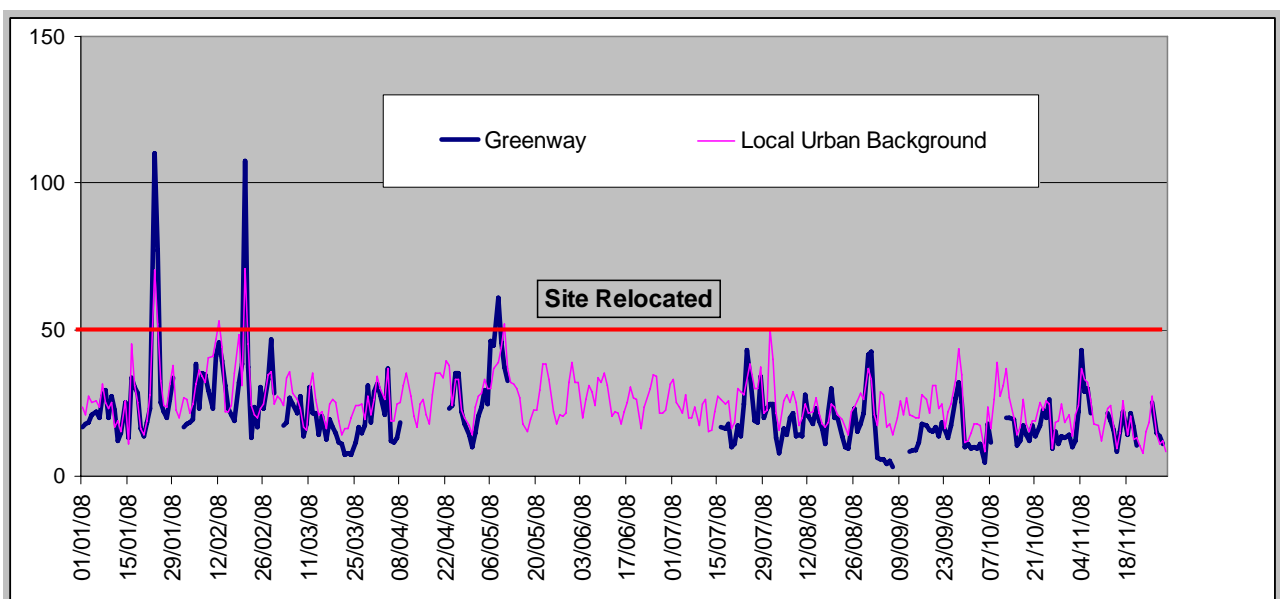
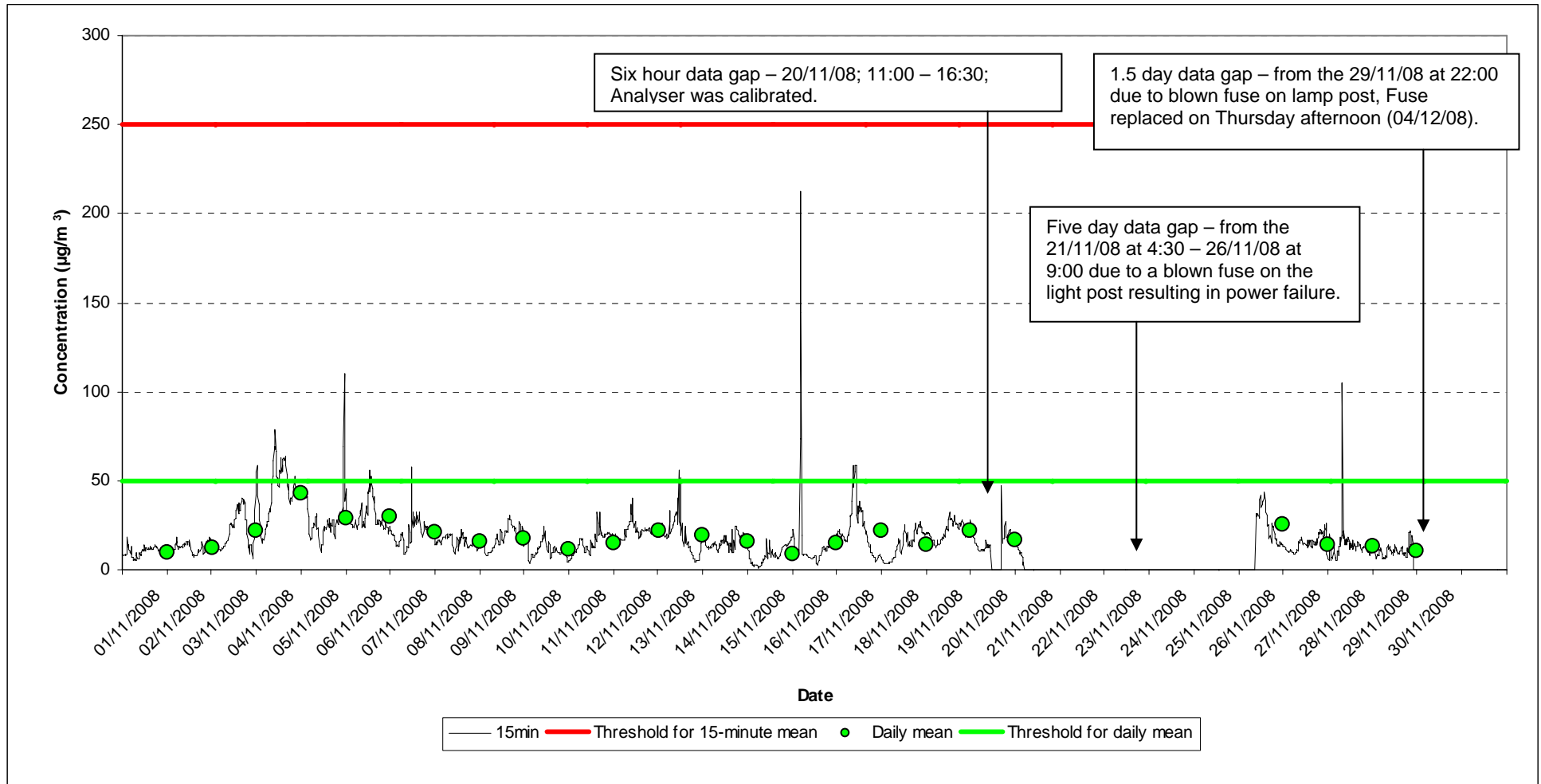


Figure 3.3 - Greenway 15-minute mean and daily mean PM<sub>10</sub> Concentrations – November (µg/m<sup>3</sup>)



### Quartermile Lane, Hackney

- 3.16 The Quartermile Lane November data included no exceedances of the 15-minute action limit and no exceedances of the daily mean.
- 3.17 The Quartermile Lane analysers began collecting data on the 14<sup>th</sup> of March 2008 when the travellers' site was relocated. The site, although located within the Olympic Park, is representative of sensitive receptors (the Travellers' site) and is therefore of relevance when compared to the AQS Objectives. A full year's data is not available yet, and whilst results are therefore not yet directly comparable to Air Quality Objectives, they provide an indication of likelihood of compliance.
- 3.18 The long-term mean concentration and number of daily exceedances at Quartermile Lane are well below their objective during the period of operation and concentrations at this location are likely to meet the annual mean objectives, if conditions remain similar.

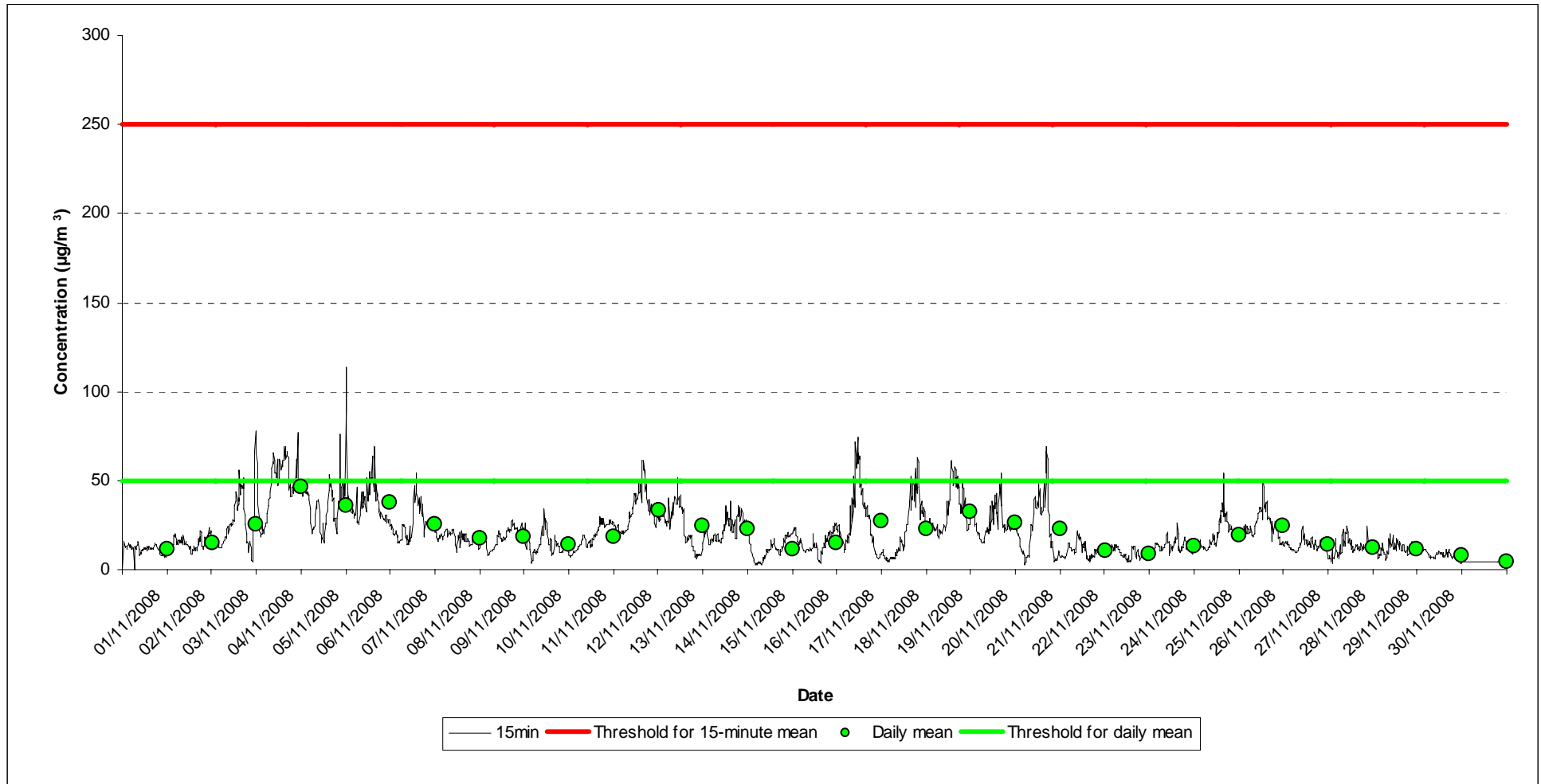
**Table 3.5 - Quartermile Lane PM<sub>10</sub> Concentrations –  
November and Rolling Annual Mean Results (262 days; 14/03/08 – 30/11/08)**

Site Name	Operator	November Mean (Exceedances)	Period Mean (Mar 08 - Nov 08) * (Exceedances **)
Quartermile Lane	MCL	20.9 (0)	27.9 (16)
Ruckholt Close	Waltham Forest	14.8 (0)	18.1 (1)
Cam Road	Newham	16.7 (0)	23.5 (1)
Dawlish Close	Waltham Forest	14.1 (0)	18.8 (0)

\*Annual Mean Objective of 40 µg/m<sup>3</sup>

\*\* Objective is less than 35 exceedances of a 24 hour mean of 50 µg/m<sup>3</sup> per year

Figure 3.4 - Quatermile Lane, Hackney 15-minute mean and daily mean PM<sub>10</sub> Concentrations – November (µg/m<sup>3</sup>)



### Carpenters Road South (on-site, Newham)

- 3.19 The Carpenters Road South (PM10\_09) site began collecting data on the 23<sup>rd</sup> of September at CZ1a, near the boundary and about 50 metres east from the previous location of the analyser (PM10\_03). The new location is expected to be more representative of off-site residential receptors, and so far has been observed to have lower concentrations as it is nearer to the boundary. This section presents the period mean and exceedances of the new location only.
- 3.20 The Carpenters Road South November data included no exceedances of the 15-minute action limit and no exceedances of the daily mean.
- 3.21 A full year of data is not available yet, and whilst results are therefore not yet directly comparable to Air Quality Objectives, they provide an indication of likelihood of compliance. Mean concentration and daily exceedances at Carpenters Road South are well below their objective during the period of operation and concentrations at this location are likely to meet the annual mean objectives if they remain the same.

**Table 3.6 - Carpenters Road South PM<sub>10</sub> Concentrations – November and Rolling Period Mean Results (69 days; 23/09/08 – 30/11/08)**

Site Name	Operator	November Mean (Exceedances)	Period Mean (Sep 08 – Nov 08) * (Exceedances **)
Carpenters Road South	BNL	20.0 (0)	24.4 (1)
Ruckholt Close	Waltham Forest	14.8 (0)	14.8 (0)
Cam Road	Newham	16.7 (0)	20.7 (0)
Dawlish Close	Waltham Forest	14.1 (0)	15.3 (0)

\*Annual Mean Objective of 40 µg/m<sup>3</sup>

\*\* Objective is less than 35 exceedances of a 24 hour mean of 50 µg/m<sup>3</sup> per year

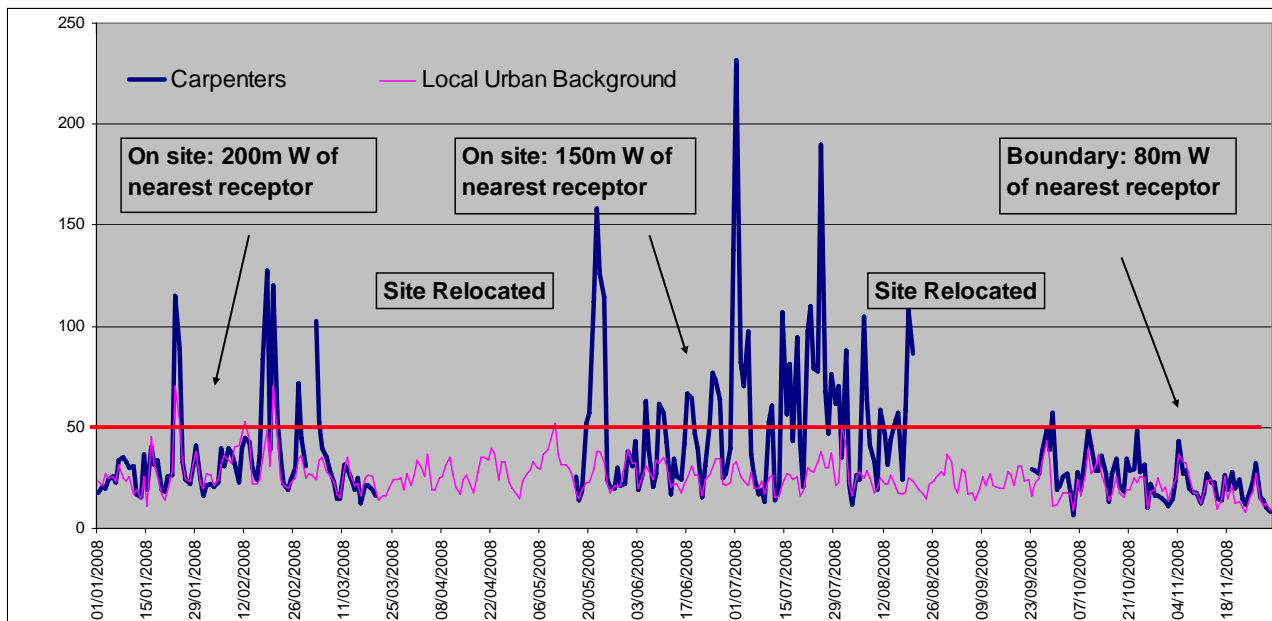
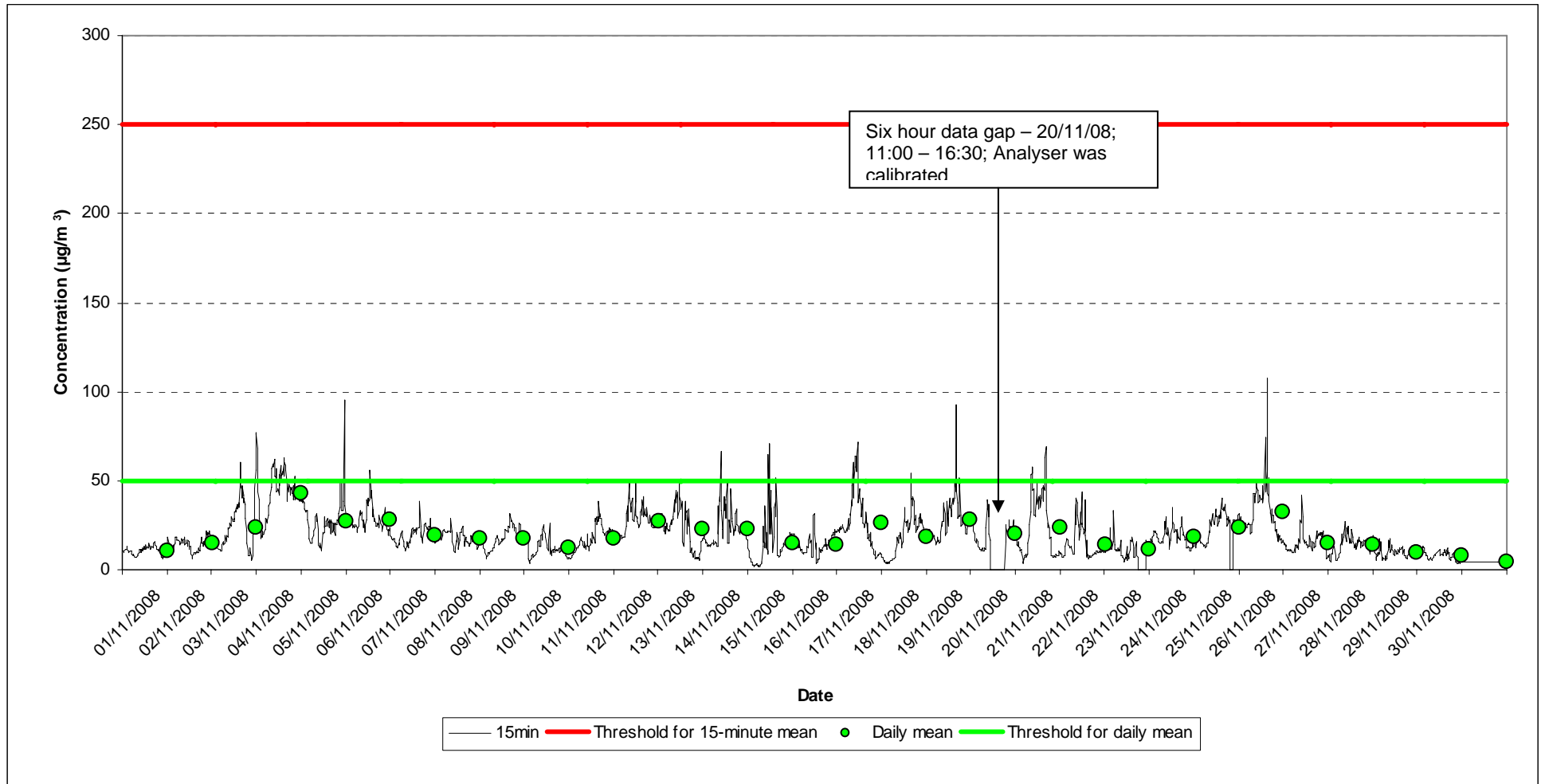


Figure 3.5 - Carpenters Road 15-minute mean and daily mean PM<sub>10</sub> Concentrations – November (µg/m<sup>3</sup>)



### CZ4 Soil Wash (On-site ,Tower Hamlets)

- 3.22 The CZ4 Soil Wash November data had two breaches of the 15-minute action limit; on Friday the 7<sup>th</sup> and Wednesday the 12<sup>th</sup>. Wind direction was predominantly west southwesterly during that period, and with no exceptional on-site activity, the source is difficult to determine. Activities at CZ4 included ongoing soil washing, earthwork and remediation.
- 3.23 The site has been collecting data since the 11<sup>th</sup> of January 2008, hence a full year set of data is not yet available. Whilst results are therefore not yet directly comparable to Air Quality Objectives, they provide an indication of likelihood of compliance.
- 3.24 The period mean concentration is likely to meet the annual mean objective as it is currently below the objective and is generally reducing with better mitigation in place and wetter conditions. However, the number of daily exceedances has already exceeded the objective of 35 days. It should also be noted that the analyser is located on site, close to the main haul road through the site, and is not representative of relevant receptors to which the Objectives apply.

**Table 3.7 - CZ4 Soil Wash PM<sub>10</sub> Concentrations –  
November and Rolling Period Mean Results (325 days; 11/01/08 – 30/11/08)**

Site Name	Operator	November Mean (Exceedances)	Period Mean (Jan 08 – Nov 08) * (Exceedances **)
CZ4 Soil Wash	BNL	22.6 (0)	33.6 (39)
Ruckholt Close	Waltham Forest	14.8 (0)	19.3 (5)
Cam Road	Newham	16.7 (0)	24.7 (6)
Dawlish Close	Waltham Forest	14.1 (0)	19.8 (2)

\*Annual Mean Objective of 40 µg/m<sup>3</sup>

\*\* Objective is less than 35 exceedances of a 24 hour mean of 50 µg/m<sup>3</sup> per year

Figure 3.6 - CZ4 Soil Wash 15-minute mean and daily mean PM<sub>10</sub> Concentrations – November (µg/m<sup>3</sup>)

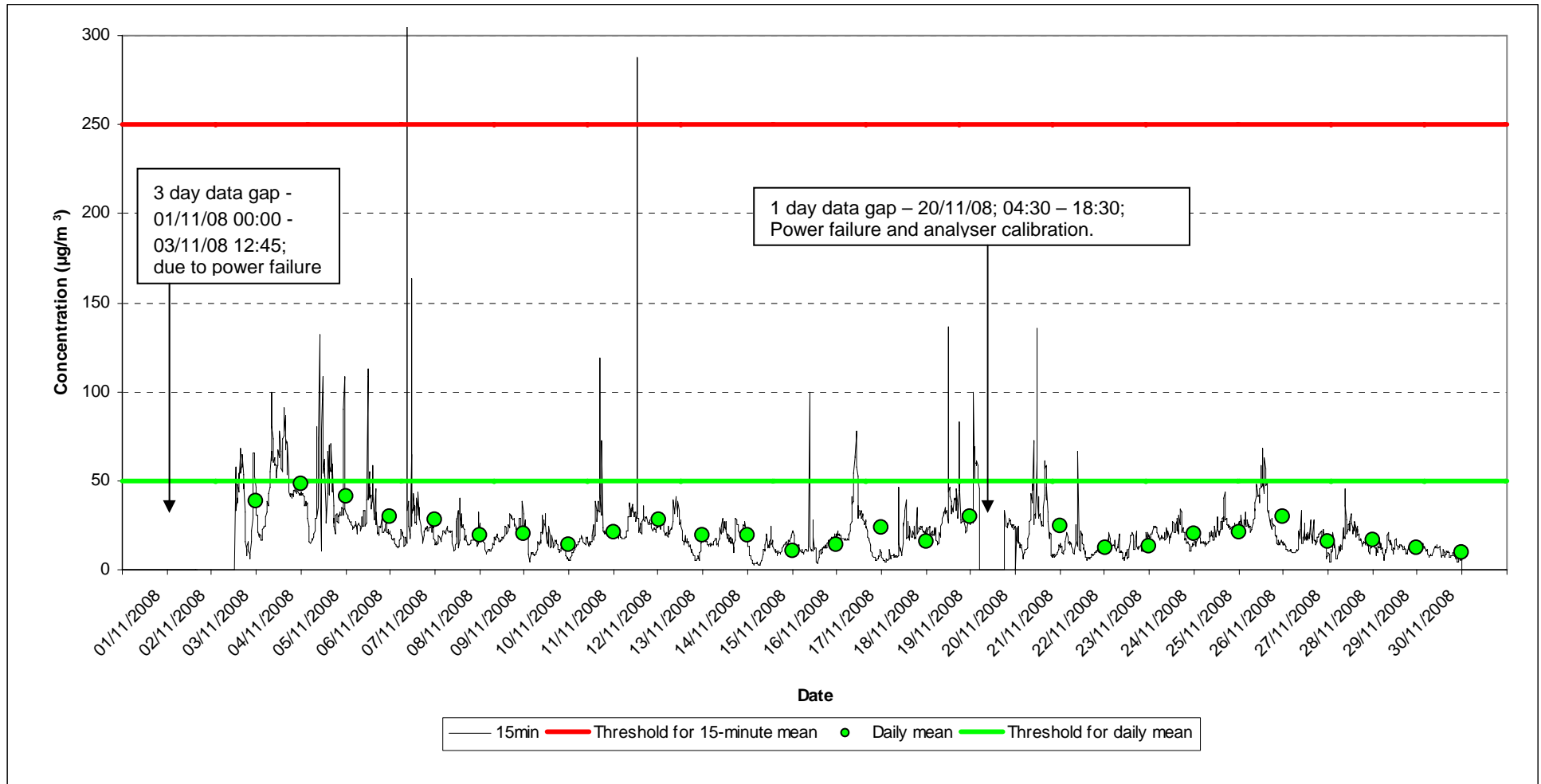


Table 3.8 - CZ4 Soil Wash 15-minute Site Action Limit\* Breaches – November

Date	Day	Time	No. of breaches	Maximum Exceedance ( $\mu\text{g}/\text{m}^3$ ) (15-min)	Wind Direction (15-min)	Wind Speed (m/sec) (15-min)	Rainfall (mm/hour) (15-min)	Temperature (Celsius) (15-min)	Possible Source	Mitigation at Olympic Park
07-Nov	Friday	0830 – 0845	1	400.0	W (analyser is upwind of Olympic Park)	2.3	0	10.9	Use of diesel powered tools to remove vegetation and erect a new fence in close proximity to the Osiris monitor	n/a – one-off incident.
12-Nov	Wed	1215 – 1230	1	287.5	W (analyser is upwind of Olympic Park)	2.6	0	11.0	Investigations showed a borehole being installed in close proximity to Osiris monitor.	n/a – one-off incident.
Total			2							

\* London Best Practice Guidance for the Control of Dust and Emissions from Construction and Demolition (2006) recommends a minimum site action limit of  $250 \mu\text{g}/\text{m}^3$  over a 15 minute average

### Boundary Monitoring – Metronet, Waltham Forest

- 3.25 Additional PM<sub>10</sub> monitoring commenced in August recording PM<sub>10</sub> at additional boundary or off-site locations. They included locations in CZ8a, in CZ8c and an external location called Metronet, east of CZ6.
- 3.26 The external Metronet analyser is part of the Boundary Monitoring. It is located on Metronet land behind residential properties along Westdown Road, adjacent to the North London line.
- 3.27 Monitoring at the Metronet site commenced on the 8<sup>th</sup> of October. Elevated levels were recorded in the initial data set and further analysis suggested performance issues with the analyser impacting the data set recorded over the first week of sampling. The data should, as a precaution, be considered robust only from the 15<sup>th</sup> of October.
- 3.28 The Metronet November data included no exceedances of the 15-minute action limit and no exceedances of the daily mean objective.

**Table 3.9–Boundary Monitoring Metronet PM<sub>10</sub> Concentrations – November and Rolling Period Mean Results (47 days; 15/10/08 – 30/11/08)**

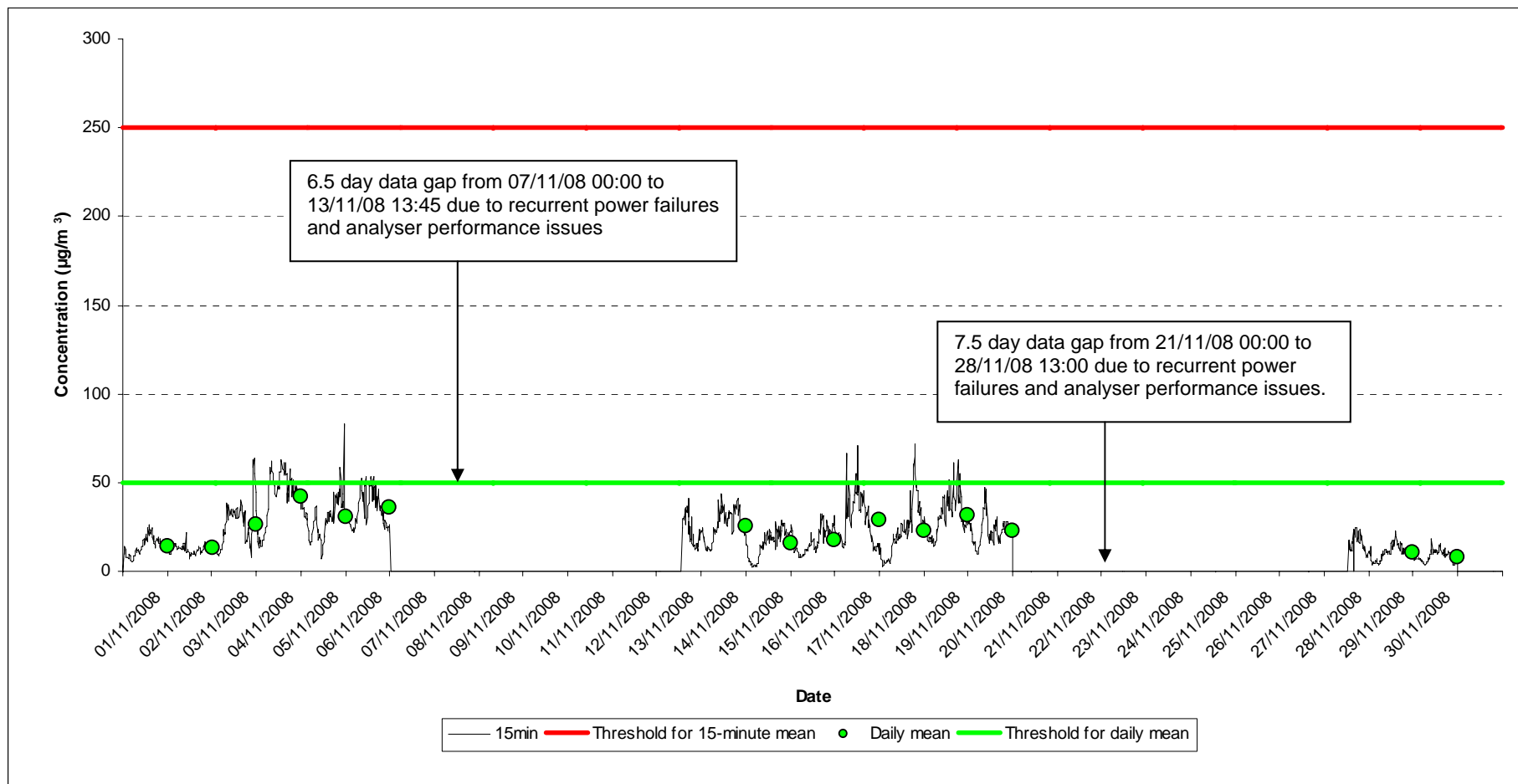
Site Name	Operator	November Mean (Exceedances)	Period Mean (Oct 08 – Nov 08)* (Exceedances **)
Metronet	Hyder	22.5 (0)	24.6 (0)
Ruckholt Close	Waltham Forest	14.8 (0)	12.6 (0)
Cam Road	Newham	16.7 (0)	20.8 (0)
Dawlish Close	Waltham Forest	14.1 (0)	14.2 (3)

\*Annual Mean Objective of 40 µg/m<sup>3</sup>

\*\* Objective is less than 35 exceedances of a 24 hour mean of 50 µg/m<sup>3</sup> per year

*Italics* – indicates < 75% data capture

Figure 3.7 - Metronet 15-minute mean and daily mean PM<sub>10</sub> Concentrations – November (µg/m<sup>3</sup>)



### Boundary Monitoring – CZ8a (Marshgate Lane)

- 3.29 The monitor was located on the Bow Back River boundary wall, south east of CZ8a and has been collecting data since the 13<sup>th</sup> of August 2008. The analyser was removed at the beginning of November due to works affecting the hoarding to which it was attached.
- 3.30 The analyser was relocated off-site at the nearest dwelling to the Olympic Park boundary on the 17<sup>th</sup> of November. The site has been renamed "**Marsghate Lane**". A number of performance issues affected the analyser and recording only started on the 28<sup>th</sup>. Results will hence be included in future reports.

### Boundary Monitoring – CZ8c

- 3.31 The monitor is located on wall of substation at entrance to CZ8c along Bridgwater Road. The site had been collecting data since the 19<sup>th</sup> of August 2008. A full year set of data is not available yet. Whilst results are therefore not yet directly comparable to Air Quality Objectives, they provide an indication of likelihood of compliance.
- 3.32 The CZ8c data included one exceedance of the 15-minute action limit, and no exceedances of the daily mean.

**Table 3.10–Boundary Monitoring – Site 8c PM<sub>10</sub> Concentrations  
November and Rolling Period Mean Results (104 days; 19/08/08 – 30/11/08)**

Site Name	Operator	November Mean (Exceedances)	Period Mean (Aug 08 – Nov 08) * (Exceedances **)
Site 8c	Hyder	16.7 (0)	27.0 (4)
Ruckholt Close	Waltham Forest	14.8 (0)	16.4 (0)
Cam Road	Newham	16.7 (0)	21.3 (0)
Dawlish Close	Waltham Forest	14.1 (0)	16.2 (0)

\*Annual Mean Objective of 40 µg/m<sup>3</sup>

\*\* Objective is less than 35 exceedances of a 24 hour mean of 50 µg/m<sup>3</sup> per year

Figure 3.8 – Site 8c 15-minute mean and daily mean PM<sub>10</sub> Concentrations – November (µg/m<sup>3</sup>)

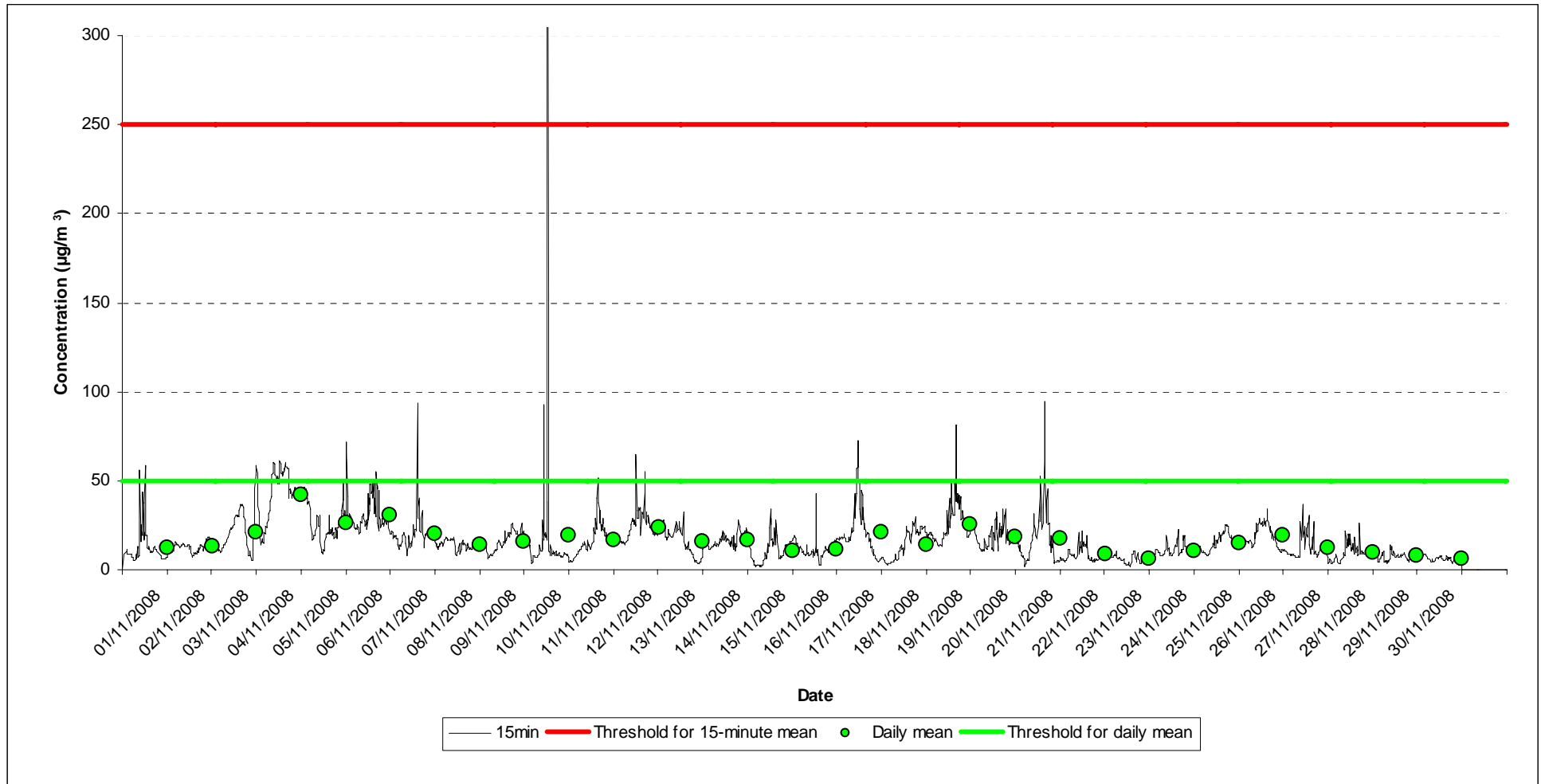


Table 3.11 – Site 8c 15-minute Site Action Limit\* Breaches – November

Date	Day	Time	No. of breaches	Maximum Exceedance ( $\mu\text{g}/\text{m}^3$ ) (15-min)	Wind Direction (15-min)	Wind Speed (m/sec) (15-min)	Rainfall (mm/hour) (15-min)	Temperature (Celsius) (15-min)	Possible Source	Mitigation at Olympic Park
10-Nov	Monday	1200 – 1215	1	573.0	W (analyser is downwind of Olympic Park)	2.0	0.8	12.1	CZ8c activities included Pylon Removals LA1880 & LA1900 and ongoing earthworks. However, no visible dust recorded during site visit. It is therefore possible that this reading is an artefact.	n/a – one-off incident. No specific mitigation measures recorded at this time owing to transience of episode and likely artefact status.
Total			1							

\* London Best Practice Guidance for the Control of Dust and Emissions from Construction and Demolition (2006) recommends a minimum site action limit of  $250 \mu\text{g}/\text{m}^3$  over a 15 minute average

## Dust Results

- 3.33 This section discusses results of monitoring at off-site and boundary locations. The dust data are collected weekly over a period of four weeks to include all of November. A full treatment is given in Appendix C. Only locations which exceeded the 5% relative soiling (Effective Area Coverage) criterion are discussed.
- 3.34 Site Dust 24, located east of Construction Zone 8c and 30 metres from the nearest residential receptor,, has recorded, along with Dust 22 generally high level of soiling, exceeding the 5% threshold every month for over six months. Dust 22 did not exceed the 5% threshold during November; however, Dust 24 continued to do so. The site is located generally downwind from CZ8a and CZ8b; however, it is more likely to be affected by sources not related to the Olympic Park activities such as the earth works at Stratford City development over the railway line, Murphy's tunnelling works, works at Stratford Station and construction of apartments on Warton Road and Stratford High Street. The development at Warton Road is closer to the monitoring location and may actually be acting as a screen against emissions from CZ8c. In addition, stock piles were treated with Dustbuster (a proprietary polymer coating system for surfaces and stockpiles) to minimise dust blow from the south-west, roads around the site are being damped down by bowser on a regular basis and additional wheel-wash facilities were installed to reduce as far as possible material leaving the site on vehicle wheels.
- 3.35 Bearing assessments and likely sources of dust are further discussed in Appendix C. A five month trend graph for Dust 24 can be seen in Appendix D. Previous Dust 24 data included only maximum and minimum readings from a possible eight bearings and is therefore not directly comparable with the last five months' data which included soiling on all four bearings.
- 3.36 The "traffic light" matrix in Appendix D provides an in-month snapshot of relative soiling at each location. The higher number of decreases observed in the maximum concentration is consistent with the number of green entries, indicating a decrease in soiling, as it appears slightly more often throughout the matrix than the red colour. Arguably the overall trend observed is that of a slight decrease in soiling.

## 4. Conclusions

- 4.1 Near-site PM<sub>10</sub> data were available for periods of between one month to one year. Monitoring commenced at Gainsborough School in July 2007, and has therefore collected over a year's worth of data. West Greenway commenced in November 2007 and therefore also now has a year's worth of data. Data from both sites show compliance with both the annual mean and the number of daily exceedances permitted. Other sites have yet to complete a full year of monitoring and are therefore not directly comparable with long-term Air Quality Objectives, which are applied on an annual basis. The CZ4 Soil Wash site has seen a gradual decrease in PM<sub>10</sub> concentration, and annual mean is now likely to meet the annual mean PM<sub>10</sub> criterion if results are considered pro rata and concentrations over a twelve month period remain similar to the past couple of months. The Quartermile Lane, Carpenters South, and the three boundary "health monitoring" sites appear more likely to meet this annual mean PM<sub>10</sub> criterion.
- 4.2 Early November air quality was influenced by seasonal PM<sub>10</sub> episodes from fireworks.
- 4.3 Data from off-site analysers indicates that both the short term and long term objectives are met or are likely to be met once they complete a full year's worth of data. Data from both Gainsborough School and t Greenway show compliance the annual objectives.
- 4.4 Data from on-site analysers strongly suggests that maximum permitted number of 35 exceedances of the 24 hour mean concentration for PM<sub>10</sub> criterion may not be met at one or more of the sites. The number of daily exceedances permitted in a year had already been exceeded at the CZ4 Soil Wash on-site location with 39 exceedances so far.
- 4.5 Boundary Monitoring at CZ8a and CZ8c has barely three months worth of data, but if considered pro rata the number of days above 50 µg/m<sup>3</sup> permitted is likely to be exceeded at CZ8a, and possibly CZ8c as well. The Carpenters Road site's previous location has also exceeded the daily exceedances permitted, but has since been relocated closer to the boundary, and although remaining an on-site analyser, has recorded reduced concentrations. Finally, the Quartermile Lane analyser also located on-site but close to receptors is recording concentrations below the annual objectives and is expected to meet them once it completes a full year's worth of data.
- 4.6 Greenway and Metronet recorded no 24-hour exceedances during November, although Gainsborough School had a one 24-hour exceedance in November compared to two in October. The exceedance at Gainsborough School was likely to have resulted from a regional event not related to the Olympic Park construction activities. All of the on-site analysers, Carpenters Road South, Quartermile Lane, Site 8a, 8c and CZ4 Soil Wash did not record any 24-hour exceedances during November.
- 4.7 The site action limit of 250 µg/m<sup>3</sup> was exceeded at CZ4 Soil Wash on two separate days; Friday morning on the 7<sup>th</sup> of November and Wednesday noon on the 12<sup>th</sup> of November. Both one-off breaches are unlikely to have been as a result from major Olympic Park activities due to opposite wind direction and no reported visible dust on-site. Furthermore, the nearby Fablon pads (Dust\_13 and Dust\_15) were both below the 5% threshold in November. This indicates to a more localised source of fine particles. Investigations suggest that the one-off breach on the 7<sup>th</sup> was linked to the use of fuel powered tools to remove vegetation and erect a new fence, and the one-off breach on the 12<sup>th</sup> was associated with a bore well being installed nearby.
- 4.8 A one-off breach of the 15 minute site action level was also found at one Boundary Monitoring site; Site 8c recorded a one-off breach during Wednesday noon on the 10<sup>th</sup> of November, in contrast with last month's 36 breaches. No visible dust observations were made during the breach, hence it was not possible to ascertain the exact source.

- 4.9 The PM<sub>10</sub> data at the Olympic Park Osiris sites appear to generally follow the trends of the local analyser. Results have improved suggesting that dust abatement measures are having the desired effect.
- 4.10 Soiling rates exceeded the >5% EAC criterion for at least one week in at least one direction at one off-site location; Dust 24. A reduction in soiling was observed in comparison to the previous month of October. The wind direction in month as recorded on-site was predominantly west south-westerly. The site which exceeded the >5% EAC criterion had predominant soiling on the north bearing of the Fablon sheets indicating to sources not related to the Olympic Park; most likely construction of apartments on Warton Road and Stratford High Street.