ADDENDUM TO

EXAMINATION OF PM$_{10}$ AND WIND MEASUREMENTS AT LEFEVRE PENINSULA PRIMARY SCHOOL

SEPTEMBER 2008
Addendum to

Examination of PM$_{10}$ and wind measurements at LeFevre Peninsula Primary School
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SUMMARY

The following graphs (Figures 1 to 19) are polar plots of percent PM$_{10}$ particles and percent of wind observations from a given direction from data measured at the Environment Protection Authority’s air monitoring station at LeFevre Peninsula Primary School. The graphs are similar to those in the original report but are based on data for a calendar month instead of longer periods of time. The graphs represent data from February 2007 to the end of August 2008.

As in the report, when the line representing percent particles is further from the centre than the line representing percent of wind from a given direction it is an indication, that PM$_{10}$ particles are higher than average for the site. It can be seen from a visual inspection of the graphs that for the sector including the stockpiles and Port Adelaide waterfront development (171 to 185 degrees) higher than average PM$_{10}$ readings occurred in:

- February, November, December 2007; and

For the sector including other industry (11 to 90 degrees), higher than average readings occurred in:

- March, April, June, July, August, September, October 2007; and
- March, April, May, June, July, August 2008.

Dust management at the development has improved in recent times. From March to August 2008 the PM$_{10}$ concentration from the direction of the stockpiles and development has been generally at or below average values for the site. Continued monitoring will determine if, as the weather warms and dries, this pattern continues.
MONTHLY POLAR PLOTS

The following graphs show percent PM$_{10}$ and percent of wind at the LeFevre Peninsula Primary School monitoring site for the period February 2007 to August 2008 on a monthly basis.

![Figure 1](image1.png)

Figure 1  Polar plot of percent PM$_{10}$ and percent wind from a given direction for February 2007

![Figure 2](image2.png)

Figure 2  Polar plot of percent PM$_{10}$ and percent wind from a given direction for March 2007
Figure 3  Polar plot of percent PM$_{10}$ and percent wind from a given direction for April 2007

Figure 4  Polar plot of percent PM$_{10}$ and percent wind from a given direction for May 2007
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Figure 5  Polar plot of percent PM$_{10}$ and percent wind from a given direction for June 2007

Figure 6  Polar plot of percent PM$_{10}$ and percent wind from a given direction for July 2007
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Figure 7  Polar plot of percent PM$_{10}$ and percent wind from a given direction for August 2007

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Figure 9  Polar plot of percent $PM_{10}$ and percent wind from a given direction for October 2007

Figure 10  Polar plot of percent $PM_{10}$ and percent wind from a given direction for November 2007
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Figure 12  Polar plot of percent PM$_{10}$ and percent wind from a given direction for January 2008
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**TIME PERIOD FOR DATA: FEBRUARY 2007 TO AUGUST 2008**

**Air Quality Standards and Guidelines:**
As listed in National Environment Protection (Ambient air Quality) Measure and accompanying technical papers

**Sampling location:**
LeFevre Peninsula Primary School

**Laboratory:**
SA EPA Air Quality Laboratory, 310 Richmond Rd, Netley, SA 5037

**Sampling and analysis methods**
PM$_{10}$ TEOM AS3580.9.8–2001

Vaisala model WAS425 Ultrasonic Wind Sensors @ 10 m height

Wind speed
$U_{95} = \pm 1.5 \, \mu g/m^3$ for 1hr average

Wind speed*
$\pm 0.135 m/s$ or $\pm 3\%$ of reading, whichever is greater

Wind direction*
$\pm 2$ degrees

* Sensor manufacturer’s specification

**Uncertainty of measurement:**
The expanded uncertainties of measurements ($U_{95}$) quoted above are at a confidence level of 95% with a coverage factor of 2. The values shown do not include any estimate of the effects associated with the sampling location.

**Report prepared by:**
Rob Mitchell, Manager Air Quality Laboratory

**File integrity:**
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For the recipient to manipulate data we recommend that data is copied into a separate workbook.
This will ensure data integrity for both the recipient and laboratory.

**NOTES:**

1 ‘Percent PM$_{10}$’ is the percentage of PM$_{10}$ particles for the month when wind is blowing from a given direction.

2 ‘Percent of wind from direction’ is the percent of observations for the month that the wind is blowing from a given direction.

3 Directions are in one-degree increments.

4 Data used are data averaged over 10 minutes.

5 The graphs for July and August 2008 have been made with a new template, so formatting appears slightly different but calculations are the same for all graphs.