Mt Piper Ash Placement Project Lamberts North– Air Quality Review September 2014 – August 2015

Table of Contents

SUMMARY

The Lamberts North OEMP includes an Air Quality Management Plan, which contains monitoring and reporting requirements, including the operation of five dust deposition gauges in the vicinity.

The current report presents the dust data collected in the first year of operations of Lamberts North, from September 2014 to August 2015, and similarly reviews the results against the requirements of the OEMP.

Conclusions and recommendations arising from the review of the air quality monitoring data collected during the second year of Lamberts North operations appear below. In undertaking this data review some comments and observations are made on the operation of the air quality management plan.

1. Annual average dust deposition results in the second year of the Mt Piper Ash Repository Lamberts North operations were below the criterion of 3.5 g/m2/month at 5 of the 5 Operation Environmental Management Plan (OEMP) gauges.
2. The dust gauge data from the second year of Lamberts North operations does not indicate that Lamberts North operations have resulted in dust deposition above the OEMP levels that trigger the requirement to implement additional control measures.
3. It is recommended that all reportable dust monitors are reviewed to ensure compliance with the Australian Standard.
4. The TEOM at Mt Piper PM10 annual average maximum of 30µg/m^3 has not been exceeded in the reporting period of September 2014 to August 2015. The PM10 24 hour maximum of 50µg/m^3 has not been exceeded during the reporting period.
5. The AQMS at Blackmans Flat PM10 annual average maximum of 30µg/m^3 has not been exceeded in the reporting period of September 2014 to August 2015. The PM10 daily average was greater than the 24 hour maximum of 50µg/m^3 on 1 day during the reporting period. After investigations the likely source of PM10 on these days is not from ash placement at Lamberts North but due to other unrelated source/s.
6. The guideline PM2.5 annual average maximum of 8µg/m^3 has not been exceeded in the reporting period of September 2014 to August 2015. The PM2.5 daily average has not been greater than the 24 hour maximum guideline of 25µg/m^3 during the reporting period.
7. No complaints regarding dust emissions from Lamberts North were received by either EnergyAustralia NSW or the Lamberts North site contractor during the second year of Lamberts North operations.
8. It is considered that the monitoring and reporting requirements of the OEMP are being met.

1.0 Introduction

In February 2012, EnergyAustralia NSW obtained approval to commence dry ash placement at Lamberts North, to the east of the existing ash placement repository for Mount Piper Power Station, known as the Mouth Piper Ash Repository referred to as Area 1 within the Environmental Assessment (SKM, 2010). Construction commenced at Lamberts North in January 2013 and placement of ash in Lamberts North commenced in September 2013.

Current Lamberts North activities are primarily being managed in accordance with the Operation Environmental Management Plan, or OEMP (CDM Smith, 2013). The OEMP includes an Air Quality Management and Monitoring Plan (AMMP), which contains monitoring and reporting requirements for air quality. In 2014, EnergyAustralia reviewed the air quality monitoring data collected during the first year of Lamberts North operations and reported on the results against the requirements of the OEMP (EANSW, 2014). The current report presents the dust deposition data collected in the second year of Lamberts North operations, from September 2014 to August 2015, and similarly reviews the results against the requirements of the OEMP.

2.0 The Lamberts North Air Quality Management Plan

The key objective of the Lamberts North air quality management plan is *"to manage resources effectively to ensure the prevention of conditions that may lead to visible dust emissions or exceedances of EnergyAustralia NSW's licence limits."* (CDM Smith, 2013)

The air quality management plan includes the following performance measures.

Targets:

- The local air quality in the vicinity of the sensitive receivers will not be impacted by Lamberts North Ash Placement operations; and
- Zero incidences of dust-related complaints for Lamberts North Ash Repository.

Indicators:

- Evidence of continuous improvement of dust suppression systems (including monitoring) in accordance with operational demands and meteorological conditions.
- Complaints register demonstrating zero occurrences of dust related complaints.
- That operational results are below the criteria of:
    - Increase in Total Suspended Particulates (TSP) by > 2g/m2/month to a maximum of 3.5g/m2/month at dust deposition gauges outside the ash placement area; and

- PM10 annual average is <30µg/ m3 and 24 hour maximum does not exceed 50µg/m3

The Plan states that *"Through the use of dust suppression equipment and the implementation of air quality management procedures, dust events can be controlled."* (CDM Smith, 2013)

The detailed list of management and mitigation measures in the Plan is included in Table 1.

Table 1: Mitigation measures

No.	Mitigation measures	Responsibility	Timing	Source/ Reference
General work practices				
1.	Water shall be primarily sourced from Lamberts North sediment or catchment ponds. Secondary water supplies maybe sourced from Mt Piper Power Station's existing water ponds located throughout the station precinct.	Contractor	At all times	D3 (d) (v)
2.	Adequate dust suppression shall be ensured on a continuous basis, even outside operational hours.	Contractor	At all times	D3 (d) (iv) OEMP section 2.3.1
3.	The contractor shall use suitable dust suppression equipment/machinery onsite. This equipment/ machinery shall be regularly serviced and maintained. The Contractor shall develop an irrigation operating protocol as detailed below in Table 6-26 within the OEMP.	Contractor	At all times	D3 (d) (iv) D3 (d) (vi) Irrigation operating protocol (in this plan)
4.	Haul road and auxiliary roads shall be regularly watered to ensure dust suppression is maintained. Speed limits will be enforced by Delta Electricity.	Contractor	At all times	D3 (d) (iv)
5.	In the event of meteorological conditions which increase the risk of a dust episode, additional suppression techniques will be used as per section of this plan.	Contractor	At all times	D3 (d) (iv)
6.	In the event of visible dust emissions, personnel shall notify the Contractor immediately, who will direct the water cart to spray the area and review the location and application rate of the sprinkler system.	All staff	At all times	D3 (d) (iv) and (viii)
7.	In the event of dust complaint, the contractor shall provide site activity log of their daily/ weekly operations as part of Delta Electricity investigations. The log shall include, but is not limited to; sprinkler management, daily water application rates, daily climatic conditions, haulage truck movements and hours of operation.	Contractor	As required	D3 (d) (iv)
8.	In the event of exceeded dust levels at the sensitive receiver locations, Delta Electricity shall carry out an investigation of TSP and/or PM_{10} to determine whether operations at Lamberts North were the potential cause of this exceedance. Specific criterion for PM_{10} and TSP has been provide in Table 6-24 performance indicators	Delta	As required	D3 (d) (iv)
Vehicle and machinery operations				
9.	Vehicles not directly involved in ash placement or suppression activities will be restricted to haul and auxiliary roads and will obey speed limit at all times.	Contractor	At all times	D3 (d) (iv)

No.	Mitigation measures	Responsibility	Timing	Source/ Reference
10.	The contractor will ensure that all vehicles are regularly serviced, inspected and cleaned.	Contractor	As required	
Diesel exhaust emissions				
11.	Where necessary, the effect of diesel emissions should be considered as part of air quality. Consequently, Diesel fuelled equipment will be regularly serviced and cleaned to ensure compliance with appropriate design emission standards for in-service vehicles.	Contractor	As required	D3 (d) (iv)
12.	Diesel powered stationary plant will be serviced maintained and upgraded as required to minimize air emissions as far as possible and to ensure licensed levels of air emissions are not exceeded.	Contractor	As required	D3 (d) (iv)
Ash placement				
13.	Ash will be placed in layers and the conditioning of fly ash with water shall be undertaken, ensuring that the moisture content sits at a target rate of 15-20% (or as otherwise determined by climatic conditions and compaction requirements).	Contractor	At all times	D3 (d) (iv) D3 (d) (vi)
14.	Optimal moisture content (OMC) for compaction will be maintained to achieve the target compaction ratio.	Contractor	At all times	D3 (d) (iv)
15.	Records of ash moisture content at placement and water usage for ash conditioning will be maintained.	Contractor	Weekly	D3 (d) (iv) D3 (d) (vi)
Capping and Rehabilitation				
16.	To achieve permanent dust suppression on external batters, a permanent capping layer of no less than 0.75m shall be applied. Consequently, capping will occur progressively as each area reaches its design height in accordance with the ash placement strategy.	Contractor	As required	D3 (d) (iv) and Landscape and Rehabilitation Plan
17.	Dust suppression techniques shall be maintained after capping until vegetation has been adequately established.	Contractor	As required	D3 (d) (iv)

These measures are monitored by EnergyAustralia NSW's ash placement contractor, Lend Lease Infrastructure, and are reported at the Monthly Contract Review Meetings.

The measures include:

- Moisture conditioning of ash;
- Temporary capping of ash faces not currently in use and where irrigation systems are not in operation;
- Routine maintenance of truck washes, and washout/surface drainage pits;
- Use of water cart, as required.

2.1 Air quality monitoring

The Air Quality Management and Monitoring Plan (AQMMP) include the following monitoring requirements (CDM Smith, 2013):

- *Air quality monitoring will be undertaken during the life of the Project and include the following:*

- *Air quality monitoring stations and dust gauges indicated in the AQMMP and Figure 1, shall be used to monitor dust emissions at the perimeter of the Lamberts North; and*
- *Investigations shall be undertaken to assess whether additional monitoring stations are required on the southern perimeter of Lamberts North; this assessment is based on, but not limited to, local weather patterns and sensitivity of surrounding properties.*

- *Dust deposition and TSP will be measured using existing dust deposition gauges situated along the Castlereagh Highway, Boulder Road and at Blackmans Flat, and adjacent to residential properties at Blackmans Flat. The results from these gauges will be used during the operation phase to monitor dust emissions (TSP and dust deposition). TSP will be calculated from dust deposition bottles.*
- *Samples will be removed from the dust deposition gauges on a monthly basis by a NATA approved laboratory and compared to baseline dust deposition monitoring records from Mount Piper, and the DECC amenity based criteria for dust deposition of 3.5 g/m2/month (annual). PM10 will be measured using one Tapered Element Oscillating Microbalance (TEOM) automated continuous particle monitor. The TEOM is located within the Mount Piper Power Station.*
- *PM10 and PM2.5 will be measured using one ambient monitor (high volume) Air Quality Monitoring Station (AQMS). The AQMS is located at Blackmans Flat.*

Seasonal weather monitoring will be also used as a means to verify any project related air quality impacts.

- Regional climatic conditions will be assessed in the early hours of the morning including but not limited to, temperature, humidity, wind speed and rainfall. This will determine water use for the day. Visual inspection of the site throughout the day, will determine if water application rates need adjusting to suit the climatic conditions occurring on site.

2.2 Reporting

The air quality management plan includes the following reporting requirements (CDM Smith, 2013):

- *Air quality observations will be recorded in the Weekly Environmental Checklist;*
- *Environmental Incident report forms will be completed and forwarded to the Contract Administrator as/when required;*
- *Details of any air quality/dust management, monitoring and any complaints will be provided in a Monthly Environmental Report;*
- *An Annual Air Quality review will be undertaken to review the past year's air quality data, analysis of any trends and make recommendations based on investigations. This report will include a review of annual PM10 exceedances of 20.5 μ/m^3, which is predicted at sensitive receiver 1 as described in the EA (SKM, 2010). This report will be made available to NSW Public Health Unit and the EPA upon request, unless received as part of the Annual Environmental Management Report (AEMR) for the project; and*
- *The AEMR will be submitted to the Director-General complete with the Annual Air Quality data in the Annual Air Quality review and can be completed and/or overseen by the Environmental Representative.*

3.0 The Air Quality Monitoring Program

3.1 OEMP dust gauge locations

The locations of the 5 dust deposition gauges existing at the commencement of Lamberts North operations in 2013 required by the OEMP are shown in Figure 1. They are dust gauges number 19, 22 and 23 positioned on the Castlereagh Highway between Boulder Road and Blackmans Flat Village; number 20 on the corner of Boulder Road and Castlereagh Highway and number 21 at the entrance on Boulder Road.

The approximate distance of the gauges from the nearest Lamberts North boundary are presented in Table 2. All gauges are well beyond the perimeter of Lamberts North and from Figure 1, it can be seen that, in some cases the gauges are nearby other potential dust sources, such as disturbed areas, mining activities and other power station operations.

Table 2 OEMP dust gauges distances from Lamberts North

Gauge Number	**Approximate distance (m) from Lamberts North boundary**
19	1200
20	1550
21	1900
22	550
23	250

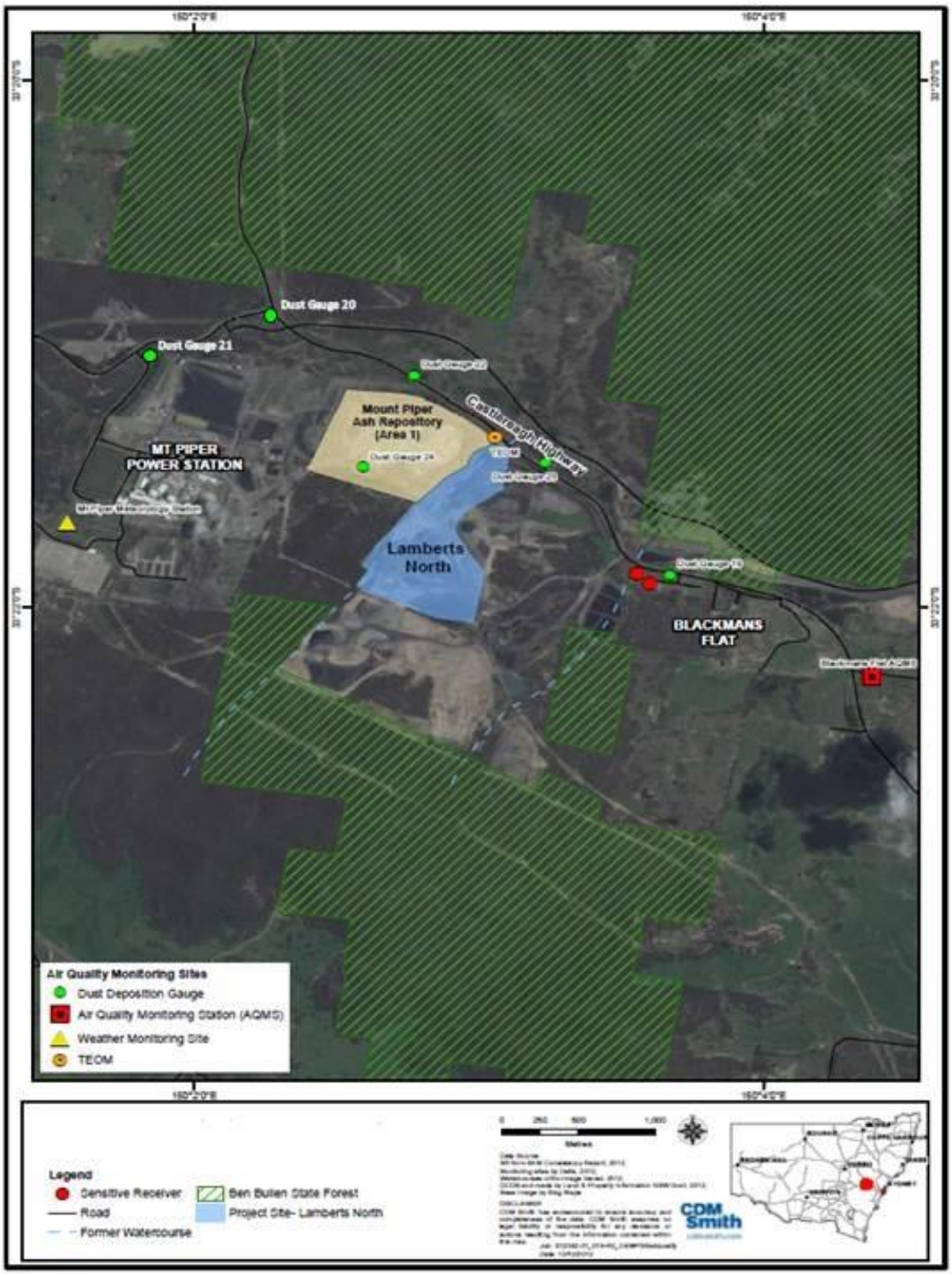


Figure 1: Lamberts North Air Quality Monitoring Points

3.2 Lamberts North on-site gauges

In addition to the gauges included in the OEMP, Lend Lease (LL) maintain a network of 14 dust deposition Gauges located on the perimeter of Lamberts North and Mt Piper ash placement areas. The locations of these gauges are shown in Figure 2.

As is the case with the on-site gauges at Kerosene Vale, these gauges are primarily used for Workplace Health and Safety monitoring, and inclusion of the results is not part of the project's CoA or OEMP. However, these data are considered in this report to provide a more comprehensive assessment of potential dust impacts from Lamberts North during investigations (Malfroy, 2012).

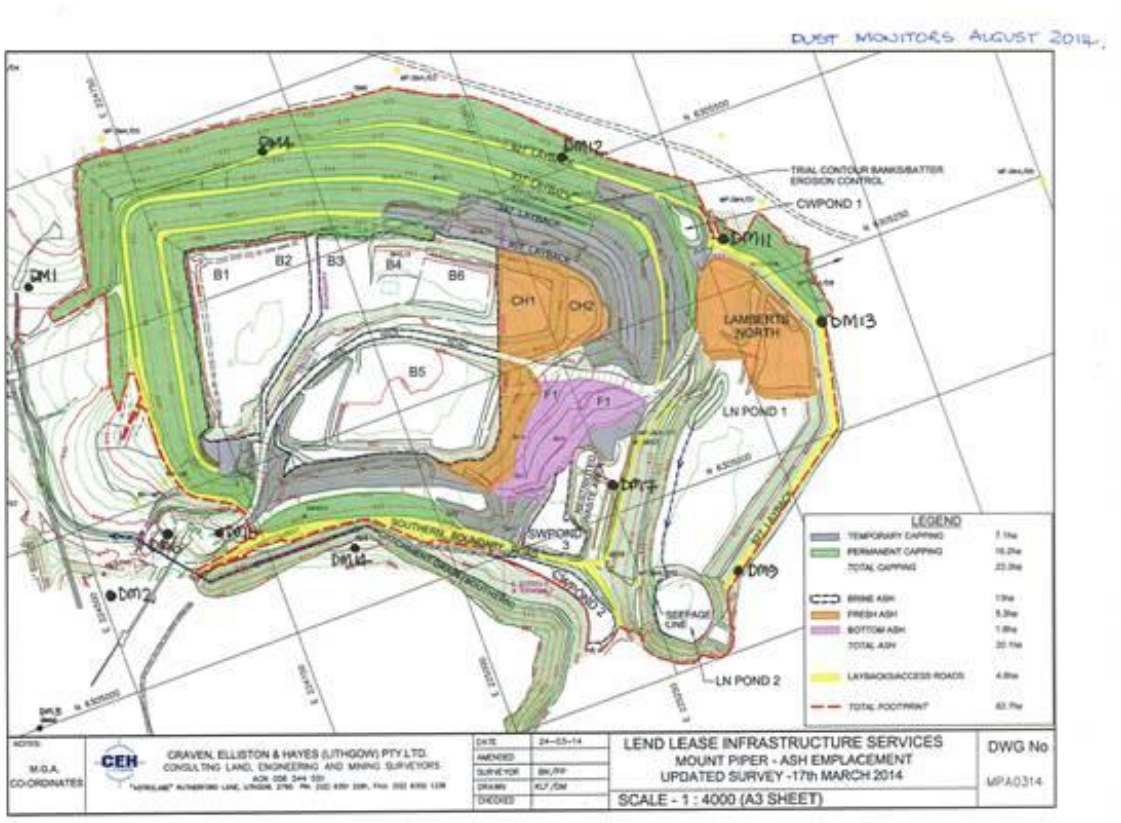


Figure 2: Lend Lease Lamberts North Air Quality Monitoring Points

3.3 Frequency and methods

The frequency of dust gauge monitoring is detailed within Table 3.

Table 3: Frequency of measurement and monitoring methods

Parameter	*Frequency of Measurement*	*NSW Approved Methods (AM) and Australian Standard (AS)*
Dust Gauges	Monthly	AM-1 Guide for siting of sampling units (AS 2922-1987) AM-10 Particulates- deposited matter-gravimetric method (AS 3580.10.1 1991)

The collected samples are analysed in the laboratory according to AS 3580 for:

• Insoluble solids: this is the matter that does not dissolve in water.

• Incombustible (ash)[1] content: this is the matter that remains after the sample has been combusted in the laboratory.

Results for insoluble solids and incombustible material are expressed as g/m^2/month.

The insoluble solids and incombustible (ash) content of a collected dust sample can provide information on possible sources of the dust but due to the time-scale over which data are collected (monthly) and the fact that many disparate sources can contribute to deposited dust, it is often not possible to use dust gauge data to positively identify the contributing sources.

3.4 PM10

The OEMP Air Quality Management Plan also requires the review of the annual PM10 results. The operational results are required to be below the criteria of an annual average PM10 of less than 30 $\mu g/m^3$ and the daily maximum should not exceed 50 $\mu g/m^3$. These criteria were developed as coarse fraction PM10 has the potential to exacerbate asthma in sensitive people and can result in other adverse health effects, predominantly on respiratory conditions. Any exposure of local residents to particulate emissions should be minimised as much as possible.

PM10 is measured using a Tapered Element Oscillating Microbalance (TEOM) automated continuous particle monitor. The TEOM is located within the Mount Piper Power Station, approximately 60 m to the north of Lamberts North ash placement operations. PM10 is also measured using an ambient monitor (high volume) Air Quality Monitoring Station (AQMS), which also measures PM2.5. The AQMS is located at Blackmans Flat, approximately 2.5 km south-west of the Lamberts North ash placement area.

Currently, there are no defined criteria for PM2.5 from DECC to be applied on a project-specific basis and the OEMP only requires that PM2.5 is measured. As a result, in the absence of criteria for reporting PM2.5, the National Environment Protection Council have standards and goals for the maximum ambient concentrations

[1] Ash content does not refer to coal ash but could include ash from coal combustion and other mineral matter derived from soil, for example.

detailed as the National Environment Measure for Ambient Air Quality (NEPM). The air quality NEPM sets the following advisory reporting standards and for particulates of PM2.5:

- Maximum daily ambient concentration up to 25 µg/m^3: and
- An annual maximum ambient concentration of 8 µg/m^3.

4.0 Results

In this section data are presented for the second year of ash placement at Lamberts North between September 2014 and August 2015.

4.1 OEMP dust gauges

Dust deposition data collected during monitoring at Mount Piper between January 2010 to September 2012 at dust gauges 19, 20, 21 22, 23 and 24 provided baseline dust deposition levels as required by CoA D3 (d) (i) (EANSW, 2014). An average of 1.5 g/m²/month for dust deposition was calculated from the data obtained from the six dust gauges around the site. This baseline level will be used for compliance assessment purposes during the operation of the Project. The operation of the Project shall aim to achieve compliance with this limit. In the event of exceedances of 2 g/m²/month (or more) above the baseline average of 1.5 g/m²/month, investigation will be undertaken to determine the likely cause.

When the dust gauge material is analysed on a monthly basis for insoluble solids, ash and combustible fractions, the analysts provide a description of the collected material, based on visual inspection including colour, size (fine, coarse etc.) and if possible the composition of the collected material, which might typically include the following: bugs, organics, plant material, spiders, bird droppings – as well as the more generic "dust". The colour of the collected dust is variously described as black, brown, grey and green (perhaps due to biological activity). If coal ash from Lamberts North were making a significant contribution to deposited dust levels, it might be expected that the collected ash would be described as grey (the colour of the coal-ash varies from light to dark grey), on a regular basis.

The monthly dust deposition data for the five OEMP dust gauges during the second year of operation, between September 2014 and August 2015, is shown in Table 4. The annual average dust deposition at 5 of the 5 dust gauges was not greater than the baseline of 1.5 g/m^2/month. In addition, the annual average dust deposition at 0 of the 5 gauges in the OEMP network was greater than the DECC assessment criteria total dust deposition of 3.5 g/m^2/month. However, an exceedance of the criteria occurred at one of the dust deposition gauges (gauge 21) in April 2015.

Table 4: Dust gauge data from OEMP for the second year of operations at Lamberts North (September 2014- August 2015). N.B: Insol. – Insoluble solids, g/m2/month, Frac. – Incombustible (ash/mineral) fraction of insoluble solids. Insoluble solid results of 0.1 g/m2/month are reported limit of detection, in which case incombustible fraction is not determined.

Gauge	19		20		21		22		23	
Month	Insol.	Frac.	Insol.	Frac.	Insol.	Frac.	Insol.	Frac.	Insol.	Frac.
Sep-14	0.8	0.3	1.0	0.3	0.9	0.3	0.5	0.1	0.4	0.0
Oct-14	3.4	1.0	1.0	0.3	0.9	0.1	1.1	0.4	0.9	0.3
Nov-14	3.4	1.8	1.5	0.6	1.7	0.6	1.5	0.8	1.3	0.8
Dec-14	1.7	0.8	1.6	0.8	2.4	1.0	2.2	1.0	1.6	0.8
Jan-15	0.5	0.0	0.0	0.0	0.5	0.0	0.8	0.1	0.6	0.1
Feb-15	0.8	0.4	0.5	0.1	1.0	0.3	0.5	0.1	0.3	0.1
Mar-15	1.4	0.8	0.5	0.0	1.4	0.6	0.0	0.0	0.6	0.2
Apr-15	0.2	0.1	0.6	0.3	3.6	1.5	0.5	0.1	1.0	0.5
May-15	0.4	0.2	0.6	0.1	1.0	0.3	0.9	0.3	0.4	0.1
Jun-15	0.6	0.2	0.1	0.1	0.7	0.1	0.5	0.1	0.3	0.1
Jul-15	0.2	0.2	1.2	0.1	1.6	0.2	0.5	0.1	0.9	0.3
Aug-15	0.2	0.1	0.6	0.1	0.8	0.1	0.3	0.1	0.7	0.3
Average[1]	**1.1**	**0.5**	**0.8**	**0.2**	**1.4**	**0.5**	**0.8**	**0.3**	**0.8**	**0.3**
Months > 3.5[*]	0		0		1		0		0	
Months > 1.5[#]	3		2		4		1		1	

[1] Annual average of monthly records

[*] DECC assessment criteria of total dust deposition of 2 g/m^2/month as a maximum monthly increase above baseline

[#] Baseline level (g/m^2/month)

As can be seen by Figure 1 and Table 2, Gauge 21 is located about 1900 m from Lamberts North on Mt Piper Power Station land and in close proximity to a live coal storage area and adjacent to a public road. The April exceedance recorded within dust gauge 21 was significantly and anomalously higher than at the other 4 OEMP dust gauges. Given the location of Gauge 21, adjacent to a public road, human interference in the operation of the dust gauge cannot be ruled out.

Investigations found that throughout the month of April, the wind blew from a predominantly South-Westerly direction with a total of 140mm of rain recorded at the Mt Piper Power Station Weather Station over the month of April. Lend Lease operations for the aforementioned period were focused at Lamberts North and use of the southern boundary road to move aggregate used for capping, however no dust events were logged within their reporting system for the days.

Table 5 shows the monthly deposition rates of the incombustible (“ash") component of the deposited dust at the 5 OEMP gauges, another EnergyAustralia NSW deposition gauge in the region for April 2015 and two Lend Lease dust deposition gauges (11 and 13), which are situated at the northern end of Lamberts North. Additionally, the monthly deposition rates for Lend Lease dust deposition gauges 8 and 14 have been included for comparison with results taken from Dust Gauge 24. The “ash’ component is included on the understanding that if emissions from Lamberts North were impacting the local area, these impacts would appear in increased deposition of incombustible (ash) material.

Table 5 also shows the bulk of the gauges show lower rates of insoluble material depositions than that at gauge 21, with the exception of gauge 24. In particular:

- Gauges 22 and 23, located within 600 m north of Lamberts North, were lower, recording 0.5 and 1.0 g/m^2/month of insoluble material in April, with a very low incombustible fraction of equal to or less than 0.5.

- Gauge 24 is notable as it is located within the Mt Piper Ash Placement area, to the left of the southern boundary road and set back on the right hand side of the haul road to Lamberts North, and is approximately 430 m from Lamberts North ash placement area, but is not included in the OEMP network. Lend Lease operations during April 2015 included capping to establish the southern access adjacent to the haul road and capping on the southern boundary. The two Lend Lease dust gauges (8 and 14), both located approximately 50 m from Gauge 24, recorded low values of insoluble material for the same time frame. As no other monitors located in the immediate vicinity of Gauge 24 recorded elevated levels, the high dust recorded in Gauge 24 for the month of April 2015 was isolated to within 20 m of the gauge and was not the result of operations at Lamberts North.

Table 5 Dust gauge information from Lamberts North OEMP and Lend Lease dust gauge information for April 2015.

DATE_FROM	DATE_TO	GAUGE NUMBER	INSOLUBLES	ASH	COMBUSTS	COMMENTS
EnergyAustralia NSW						
20/03/15	20/04/15	19	0.2	0.1	0.2	Clear, organic matter, small # fine green & small # coarse black dust
20/03/15	20/04/15	20	0.6	0.3	0.3	Clear, bugs, small # fine grey & small # coarse black/brown dust
20/03/15	20/04/15	21	3.6	1.5	2.1	Slightly cloudy, bugs, organic matter, large # fine brown & large # coarse brown/black dust
20/03/15	20/04/15	22	0.5	0.1	0.4	Clear, organic matter, small # fine grey & small # coarse black dust
20/03/15	20/04/15	23	1.0	0.5	0.5	Clear, organic matter, small # fine grey/black & small # coarse black/grey dust
20/03/2015	20/4/2015	24	20.4	6.3	14.1	Brown, bugs, organic matter, bird droppings, very large fine brown & very large coarse black dust
Lend Lease						
01/04/2015	30/04/2015	8	2.3	2	0.3	Clear, bugs, organic matter, fine brown/grey & coarse brown/black/grey dust
01/04/2015	30/04/2015	11	2.6	0.3	0.3	Clear, bugs, organic matter, fine brown & coarse brown/black dust
01/04/2015	30/04/2015	13	0.6	0.3	0.3	Clear, bugs, organic matter, fine brown/grey & coarse brown/black dust
01/04/2015	30/04/2015	14	0.3	0.2	0.1	Clear, organic matter, fine brown & coarse brown/black dust

4.2 Lamberts North on-site gauges

While the OEMP does not require that results from LL's on-site gauges be included in the annual report, the results for the second year of operations are included in for completeness. These data demonstrates that gauges located at the perimeter of Lamberts North and Mt Piper Ash Placement Area 1 recorded annual average deposition rates below 3.5 g/m^{2}month, with very few individual monthly result for gauges located close to Lamberts North (11 & 13 to the north, and 7 to the west & 9 to the east) exceeding 3.5 g/m^{2}month.

Table 6 Dust gauge data from the on-site gauges for the second year of Lamberts North operations (Sept 2014 - Aug 2015). N.B: Insol. – Insoluble solids, g/m2/month, Frac. – Incombustible (ash/mineral) fraction of insoluble solids.

	7		9		11		13	
	Insol.	**Frac.**	**Insol.**	**Frac.**	**Insol.**	**Frac.**	**Insol.**	**Frac.**
Sept	5.2	4.5	NS	NS	0.5	0.3	2.6	1.3
Oct	3.7	1.5	NS	NS	7.8	6.2	1.9	1.2
Nov	0.3	0.2	NS	NS	1.5	0.8	1.9	1.6
Dec	BD	BD	11.6	10.4	6.8	5.8	NS	NS
Jan	NS	NS	NS	NS	2.2	1.6	NS	NS
Feb	1.2	0.8	0.6	0.4	4.0	1.0	0.4	0.2
Mar	1.3	1.0	3.5	1.2	0.5	0.2	0.4	0.2
Apr	0.6	0.5	1.5	1.3	2.6	2.3	0.3	0.1
May	0.7	0.5	0.4	0.2	0.2	0.2	0.4	0.2
Jun	1.2	0.8	0.9	0.6	0.1	<0.1	0.3	0.2
Jul	0.5	0.3	0.8	0.5	0.2	0.1	0.9	0.8
Aug	1.8	1.4	1.2	0.5	0.4	0.3	0.6	0.4
Average	1.7	1.2	2.6	1.9	2.2	1.7	1.0	0.6
Months > 3.5	2		2		3		0	

The highest on-site monthly deposition rates generally occur at Gauges 7, 9 and 11, which from Figure 2 can be seen to be located on the boundary of Lamberts North and Mt Piper Ash Repository area.

4.3 PM10

As required by the OEMP Air Quality Management Plan, the review of the annual PM10 results has been performed within this section.

TEOM data shows that the PM10 annual average maximum of 30 µg/m^3 was not exceeded during the reporting period of September 2014 to August 2015, with the annual average recorded as 5.7 µg/m^3. In addition, the PM10 24 hour maximum of 50 µg/m^3 was not exceeded on any day during the reporting period (*Figure 3*; Appendix B).

PM10 is also measured using an ambient monitor (high volume) Air Quality Monitoring Station (AQMS) located at Blackmans Flat, which also measures PM2.5. The PM2.5 annual average maximum of 8µg/m^3 has not been exceeded in the reporting period of September 2014 to August 2015, with the annual average at 2.7 µg/m^3. The PM2.5 24 hour maximum of 25 µg/m^3 was not exceeded on any day during the reporting period (Figure 4; Appendix B).

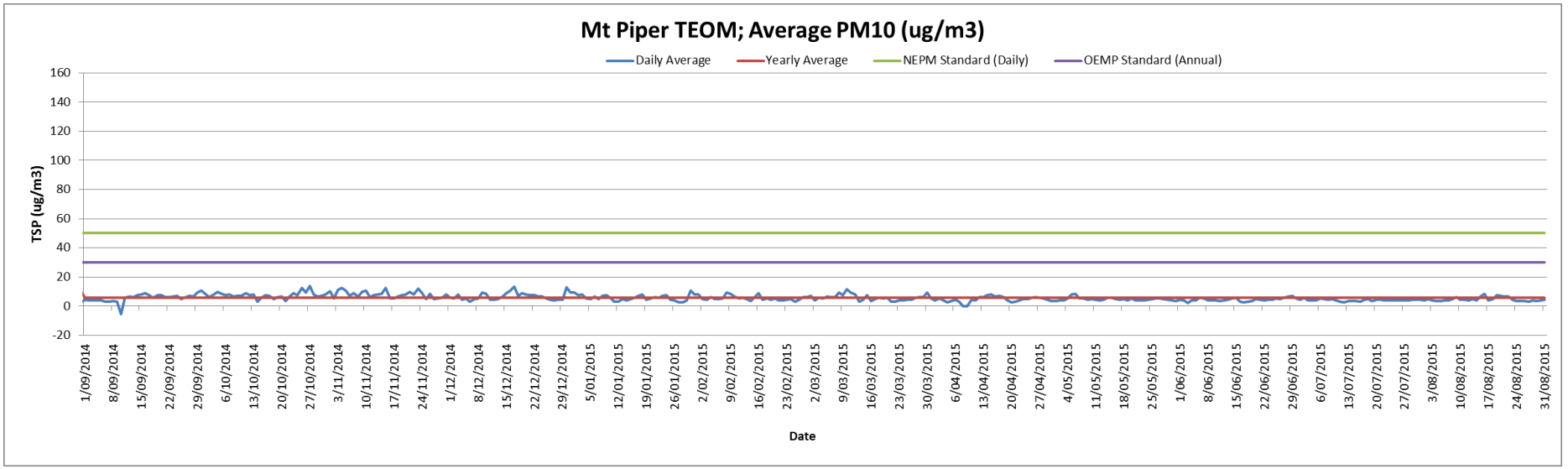


Figure 3: PM10 information from TEOM Mt Piper for September 2014 to August 2015.

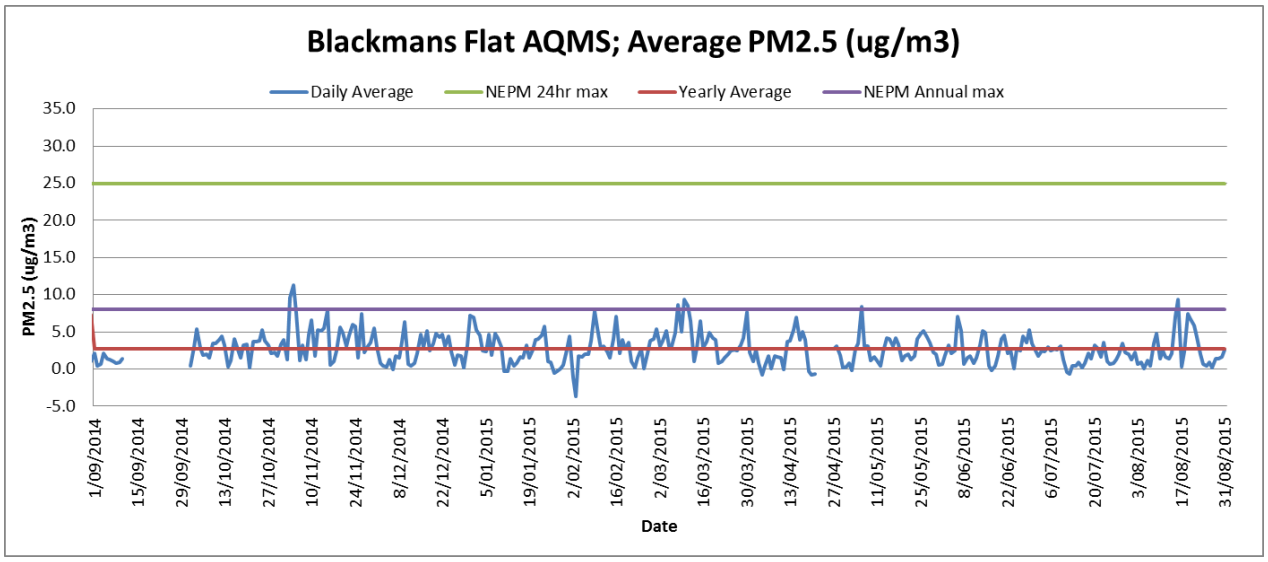


Figure 4: PM2.5 information from AQMS Blackmans Flat for September 2014 to August 2015.

The PM10 annual average maximum of 30 µg/m^3 has not been exceeded in the reporting period of September 2014 to August 2015, with the annual average at 10 µg/m^3. However, the PM10 24 hour maximum of 50 µg/m^3 was exceed been greater on 1 day since September 2014 (Figure 5). Results were greater than 50 µg/m^3 on the 6th May 2015 (65 µg/m^3) (raw data available in Appendix B). On this date, the wind direction was from a SW direction with no rain. Lend Lease operations for the 6th May were focused on brine co-placement at the Mt Piper Stage 1 at the B5 pad (refer to Figure 2) and not in Lamberts North and no dust events were logged within their reporting system for this date. Sprinklers were not in operation as there were calm conditions (wind speeds less than 12 km/hr) and it had rained a total of 8.2 mm of rain on the 2nd, 3rd and 4th May.

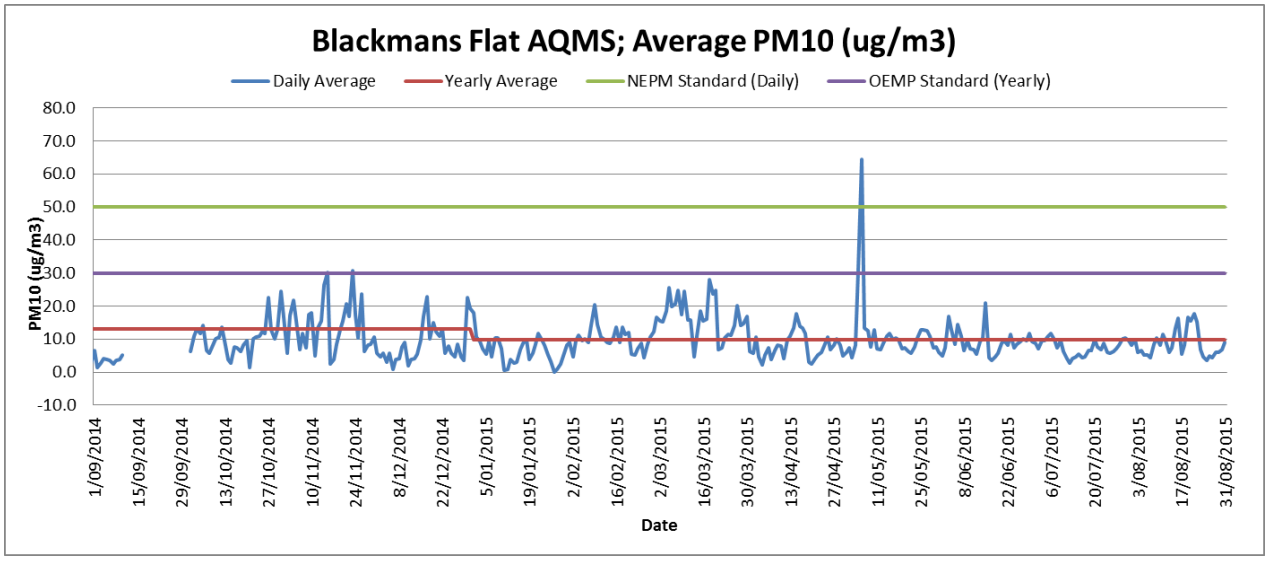


Figure 5: PM10 information from AQMS Blackmans Flat for September 2014 to August 2015.

During the same timeframe, Lend Lease dust deposition gauges 11 and 13 situated at the northern end of Lamberts North, all reported fine brown/grey and coarse brown dust, not indicative of ash (Table 7). If coal ash from Lamberts North were making a significant contributed to deposited dust levels, it might be expected that the collected dust would be described as grey as the colour of coal-ash varies from light to dark grey. It is therefore reasonable to conclude that the PM exceedance recorded at Blackmans Flat AQMS was not the result of ash placement, but from other unknown sources.

Table 7: Dust gauge information from Lamberts North OEMP and Lend Lease dust gauge information for May 2015.

DATE_FROM	DATE_TO	GAUGE NUMBER	INSOLUBLES	ASH	COMBUSTS	COMMENTS
EnergyAustralia NSW						
22/04/15	22/05/15	19	0.4	0.2	0.2	Clear, bugs, organic matter, fine brown/grey dust & coarse brown/black/grey/green dust
22/04/15	22/05/15	20	0.6	0.1	0.6	Clear, bugs, plant matter, organic matter, fine brown dust & coarse brown/black dust
22/04/15	22/05/15	21	1.0	0.3	0.7	Slightly cloudy, bugs, organic matter, fine brown dust & coarse brown/black dust
22/04/15	22/05/15	22	0.9	0.3	0.6	Clear, bugs, organic matter, fine black/grey dust & coarse black/grey dust
22/04/15	22/05/15	23	0.4	0.1	0.4	Clear, bugs, organic matter, fine grey dust & coarse black/grey dust
22/04/15	22/05/15	24	0.5	0.1	0.5	Clear, bugs, organic matter, fine brown/grey dust & coarse brown/black/green dust
Lend Lease						
6/05/15	2/06/15	11	0.2	0.2	<0.1	Clear, bugs, organic matter, fine brown/grey & coarse brown dust
6/05/15	2/06/15	13	0.3	0.2	0.2	Clear, organic matter, fine grey & coarse brown/grey dust

5.0 Discussion

Dust gauges are often positioned adjacent to dust generating activities to assess possible nuisance impacts at nearby receptors. As a passive collection system they are inexpensive to install and maintain but are subject to a number of limitations (Malfroy, 2012):

• They are more effective in collecting coarse particles than fine particles;

• Results are often influenced by things like insects, bird droppings and occasionally human interference;

• The collection period of a month makes the assessment of short-term, individual events impossible;

• Without further analysis, it is difficult, if not impossible, to use dust gauge results to discriminate between a number of possible sources.

Notwithstanding these limitations, dust gauge data, have the potential to provide some relevant information regarding the potential dust impacts arising from Lamberts North when used cautiously. It is noted that in relation to dust gauge samples, "ash" refers to the incombustible, inorganic fraction of the sample and the "ash" fraction of a sample cannot be directly related to coal-ash.

Related to this is the OEMP's requirement to undertake an investigation to determine the likely cause in the event of exceedances of 2 g/m^2/month (or more) above the baseline average of 1.5 g/m^2/month (CDM Smith, 2013). This requirement appears to be based on the simplistic assumption that any measured increase in dust deposition at the 5 OEMP gauges is the result of emissions from Lamberts North Operation. However, a diverse range of source (including regional dust storms) can contribute to the dust gauge results. Care must therefore be exercised in attempting to relate dust deposition results to potential dust sources as the contributing source, or sources, to an elevated result cannot always be simply or easily identified.

As noted above, dust gauges are most commonly placed adjacent to, or in close proximity to, potential "dusty" activities. In respect to the location of the OEMP gauges, it should be noted that data located at some distance from Lamberts North are unlikely to provide robust, useful information regarding potential impacts of operations at Lamberts North. Of the existing 5 OEMP gauges it is considered that Gauge 23, which is adjacent to Lamberts North, and Gauges 19 and 22 (Figure 1) are likely to provide the most useful information in assessing the potential impacts associated with Lamberts North Ash Repository. In 2014 – 2015 the annual average deposition at these 3 sites was 0.9 g/m^2/month and the criteria of 2 g/m^2/month (or more) above the baseline average of 1.5 g/m^2/month was not exceeded in any individual month at any of these sites.

The exceedance of the monthly dust deposition criteria in April 2015 at dust deposition gauge 21, which is located approximately 2 km WNW of the Lamberts North Ash Repository, was significantly and anomalously higher than at the other 4 OEMP dust gauges. During the same time, dust deposition gauge 24, which is not part of the OEMP network, also recorded a significant and anomalously high dust result.

Investigations into these exceedances found that throughout the month of April, the wind blew from a predominantly South-Westerly direction with a total of 140mm of rain recorded at the Mt Piper Power Station Weather Station over the month of April. The dust within dust deposition gauges 21 and 24 was found to contain large, fine brown and large, coarse brown-black dust, with the majority (58% and 69% respectively) of the insoluble material being combustible. During the same period, Lend Lease dust deposition gauges 8, 11, 13 and 14, reported fine brown and moderate coarse brown/black dust, not indicative of ash. If coal ash from Lamberts North were making a significant contribution to deposited dust levels, it might be expected that the collected ash would be described as grey (the colour of the coal-ash varies from light to dark grey). It is reasonable to conclude that the exceedances at dust deposition gauges 21 and 24 were not a result of Lamberts North ash placement but from other unknown sources.

During the investigation of the exceedances during April 2015, it was bought to EnergyAustralia NSW's attention that dust deposition monitor 24 does not conform to Australian Standard AS 3580.10.1:2003 *Determination of Particulate Matter – Deposited matter – Gravimetric method* in that it is currently less than the required minimum height. As a result, it is recommended that all reportable dust monitors are reviewed to ensure compliance with the Australian Standard.

In accordance with the OEMP Air Quality Monitoring Program, PM10 results were also reviewed as part of this report. According to the National Environment Protection Council, the National Environment Measure for Ambient Air Quality (NEPM) is that the PM10 24 hour maximum of 50ug/m^3 can have five allowable exceedances per year. The PM10 TEOM results indicated no exceedances of the 24 hour maximum and the PM10 AQMS results indicate one exceedance of the 24 hour maximum.

PM10 measured at the Blackmans Flat AQMS on the 6th May 2015 exceeded the 24 hour maximum. As previously stated, the wind direction for this particular day was in a NE direction, with no rain recorded. Lend Lease operations for the aforementioned day were focused on brine co-placement at the Mt Piper Stage 1 at the B5 pad (refer to Figure 2) and not in Lamberts North and no dust events were logged within their reporting system for this date. Sprinklers become operational under Lend Lease procedures when the wind speed is at 20 km/hr but were not in operation as there were calm conditions (wind speeds less than 12 km/hr) and a total of 8.2 mm of rain was recorded on the 2nd, 3rd and 4th May. No internal plant failures or operational changes were reported for this day. Figure 6 highlights the wind rose information for May 2015. It is clear that the wind speed for May 2015 was coming predominately from the SW, which would indicate that the source of PM10 particulates would not be from Lamberts North as Lamberts North is to the north-west of the AQMS and therefore the PM10 particulates must be from another source or sources.

Cold, overcast and wet conditions were experienced in early May 2015 in the Central Tablelands. Maximum wind gusts were recorded on the 5th and 6th May, with gusts reaching 42 km/hr and 30 km/hr respectively. These winds generated dusty conditions and a dust storm was reported in south-western New South Wales on

the 5th May, with dust driven by south to south-westerly winds behind the cold front reaching Sydney and the Illawarra by the 6th (BOM, 2015). This dust storm could explain the poor air quality experienced in the regional area. For example, high Air Quality Indexes (AQI) were recorded at the Bathurst region monitoring station on the aforementioned dates (82 and 189, respectively) and the 24 hour maximum for PM10 at the Bathurst region monitoring station on 5th and 6th May 2015 was recorded to be 211 µg/m^3 and 227 µg/m^3 respectively (OEH, 2015). In addition, AQI values for the 6th May were observed to be above 95 at all monitoring stations within NSW and PM10 particulate levels were above the national standard were recorded at the majority of the NSW monitoring stations.

NSW experienced extremely poor air quality at the beginning of May 2015, most likely as a result of the dust storm recorded on the 5th and 6th May. During this dust storm, relatively high levels of particulate matter were recorded at most monitoring stations. During the month of May, the wind was predominantly in a NE direction as recorded at the Mt Piper Weather Station (Figure 6) and given the extent of the impact of the dust storm, it is expected that the recorded exceedance for PM10 at Blackmans Flat AQMS was the result of the dust storm that affected NSW on the 5th and 6th May 2015 and not ash placement operations at Lamberts North.

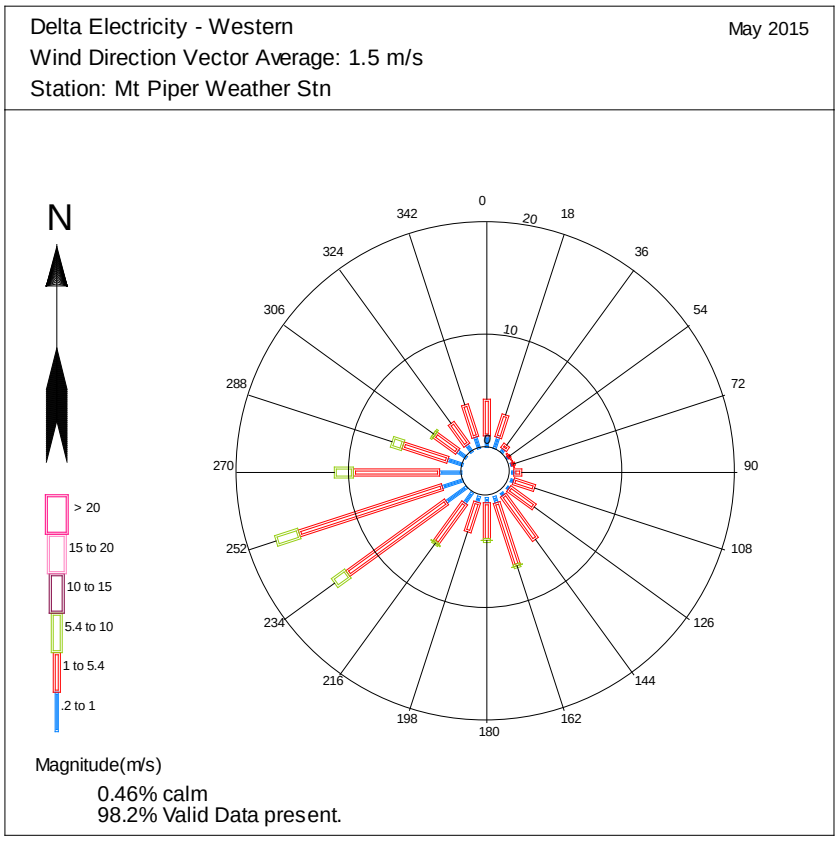


Figure 6: Wind rose information from Mt Piper Weather Station for May 2015.

6.0 Conclusions

1. Annual average dust deposition results in the second year of the Mt Piper Ash Repository Lamberts North operations were below the criterion of 3.5 g/m2/month at 5 of the 5 Operation Environmental Management Plan (OEMP) gauges.

2. The dust gauge data from the second year of Lamberts North operations does not indicate that Lamberts North operations have resulted in dust deposition above the OEMP levels that trigger the requirement to implement additional control measures.

3. It is recommended that all reportable dust monitors are reviewed to ensure compliance with the Australian Standard

4. The TEOM at Mt Piper PM10 annual average maximum of 30µg/m^3 has not been exceeded in the reporting period of September 2014 to August 2015. The PM10 24 hour maximum of 50µg/m^3 has not exceeded during the reporting period.

5. The AQMS at Blackmans Flat PM10 annual average maximum of 30µg/m^3 has not been exceeded in the reporting period of September 2014 to August 2015. The PM10 daily average was greater than the 24 hour maximum of 50µg/m^3 on 1 day during the reporting period. After investigations the likely source of PM10 on these days is not from ash placement at Lamberts North but due to a dust storm that affected the whole of NSW.

6. The guideline PM2.5 annual average maximum of 8µg/m^3 has not been exceeded in the reporting period of September 2014 to August 2015. The PM2.5 daily average has not been greater than the 24 hour maximum guideline of 25µg/m^3 during the reporting period.

7. No complaints regarding dust emissions from Lamberts North were received by either EnergyAustralia NSW or the Lamberts North site contractor during the second year of Lamberts North operations.

8. It is considered that the monitoring and reporting requirements of the OEMP are being met.

7.0 References

BOM. (2015). *Monthly Weather Review Australia - May 2015.* Bureau of Meteorology, Australia.

CDM Smith. (2013). *Lamberts North Ash Placement Project - Operation Environmental Management Plan.* CDM Smith Inc, NSW.

EANSW. (2014). *Mt Piper Ash Placement Project Lamberts North Air Quality Review 2013-2014.* EnergyAustralia NSW.

Malfroy. (2012). *Kerosene Vale Ash Repository Stage 2 - Air Quality Review April 2010-March2012.* Malfroy Environmental Strategies Pty Ltd, NSW.

OEH. (2015). *Daily air quality index (AQI)*. Retrieved August 20, 2015, from Office of Environment & Heritage: http://www.environment.nsw.gov.au/aqms/aqidaily.htm

SKM. (2010). *Mt Piper Ash Placement Project Environmental Assessment.* Sinclair Knight Merz Ltd, NSW.

Appendix A

Air Quality data and summary for Lamberts North OEMP dust gauges September 2014 – August 2015

DATE_FROM	DATE_TO	GAUGE NUMBER	INSOLUBLES	ASH	COMBUSTS	COMMENTS
19/08/14	19/09/14	19	0.8	0.3	0.5	Clear, bugs, small # fine grey/green & small # coarse brown dust
19/09/14	21/10/14	19	3.4	1.0	2.4	Slightly cloudy, bugs, organics, bird droppings, large # fine brown & large # coarse brown/black dust
21/10/14	21/11/14	19	3.4	1.8	1.6	Clear, bugs, large # fine grey & large # coarse black dust
21/11/14	23/12/14	19	1.7	0.8	0.9	Clear, bugs, mod # fine brown & mod # coarse brown/black dust
23/12/14	21/01/15	19	0.5	0.0	0.5	Clear, organics, small # fine black/green & small # coarse black/green dust
21/01/15	20/02/15	19	0.8	0.4	0.4	Clear, bugs, small # fine brown & small # coarse black dust
20/02/15	20/03/15	19	1.4	0.8	0.6	Clear, bugs, mod # fine grey & mod # coarse black dust
20/03/15	20/04/15	19	0.2	0.1	0.2	Clear, organic matter, small # fine green & small # coarse black dust
22/04/15	22/05/15	19	0.4	0.2	0.2	Clear, bugs, organic matter, fine brown/grey dust & coarse brown/black/grey/green dust
22/05/15	22/06/15	19	0.6	0.2	0.4	Clear, bugs, organic matter, fine grey/green dust & coarse brown/black/green dust
22/06/15	22/07/15	19	0.2	0.2	0.1	Clear, bugs, plant matter, organic matter, fine brown/grey/green dust & coarse brown/black dust
22/07/15	21/08/15	19	0.2	0.1	0.2	Clear, organic matter, fine grey dust & coarse brown dust
19/08/14	19/09/14	20	1.0	0.3	0.7	Clear, bugs, organics, small # fine grey/black & small # coarse grey/black dust
19/09/14	21/10/14	20	1.0	0.3	0.7	Clear, bugs, organics, small # fine brown & small # coarse brown dust
21/10/14	21/11/14	20	1.5	0.6	0.9	Clear, bugs, grass seeds, mod # fine brown/grey & mod # coarse black dust
21/11/14	23/12/14	20	1.6	0.8	0.8	Clear, bugs, plant matter, mod # fine brown/grey & mod # coarse brown/grey dust
23/12/14	21/01/15	20	0.0	0.0	0.0	Clear, bugs, plant matter, organics, small # fine grey & small # coarse brown/grey dust
21/01/15	20/02/15	20	0.5	0.1	0.5	Clear, bugs, small # fine grey & small # coarse black dust
20/02/15	20/03/15	20	0.5	0.0	0.5	Clear, bugs, small # fine grey & small # coarse black dust
20/03/15	20/04/15	20	0.6	0.3	0.3	Clear, bugs, small # fine grey & small # coarse black/brown dust
22/04/15	22/05/15	20	0.6	0.1	0.6	Clear, bugs, plant matter, organic matter, fine brown dust & coarse brown/black dust

DATE_FROM	DATE_TO	GAUGE NUMBER	INSOLUBLES	ASH	COMBUSTS	COMMENTS
22/05/15	22/06/15	20	0.1	0.1	0.1	Clear, bugs, plant matter, organic matter, bird droppings, fine brown/grey dust & coarse brown dust
22/06/15	22/07/15	20	1.2	0.1	1.2	Clear, bugs, plant matter, organic matter, bird droppings, fine brown/black dust & coarse brown/black dust
22/07/15	21/08/15	20	0.6	0.1	0.6	Clear, bugs, plant matter, fine grey/green dust & coarse black dust
19/08/14	19/09/14	21	0.9	0.3	0.6	Clear, bugs, plant matter, organics, small # fine grey/green & small # coarse brown/black dust
19/09/14	21/10/14	21	0.9	0.1	0.8	Slightly cloudy, bugs, organics, small # fine brown & small # coarse brown dust
21/10/14	21/11/14	21	1.7	0.6	1.1	Clear, bugs, plant matter, mod # fine brown/grey & mod # coarse black dust
21/11/14	23/12/14	21	2.4	1.0	1.4	Clear, bugs, plant matter, organics, mod # fine brown & mod # coarse brown/black dust
23/12/14	21/01/15	21	0.5	0.0	0.5	Clear, bugs, organics, small # fine brown/grey & small # coarse brown/black dust
21/01/15	20/02/15	21	1.0	0.3	0.7	Clear, bugs, small # fine brown & small # coarse black dust
20/02/15	20/03/15	21	1.4	0.6	0.8	Clear, bugs, mod # fine grey & mod # coarse black dust
20/03/15	20/04/15	21	3.6	1.5	2.1	Slightly cloudy, bugs, organic matter, large # fine brown & large # coarse brown/black dust
22/04/15	22/05/15	21	1.0	0.3	0.7	Slightly cloudy, bugs, organic matter, fine brown dust & coarse brown/black dust
22/05/15	22/06/15	21	0.7	0.1	0.6	Clear, bugs, spider, plant matter, organic matter, bird droppings, fine brown/green dust & coarse brown/black/green dust
22/06/15	22/07/15	21	1.6	0.2	1.4	Clear, bugs, plant matter, organic matter, fine brown/grey dust & coarse brown/black dust
22/07/15	21/08/15	21	0.8	0.4	0.4	Clear, bugs, plant matter, fine grey/green dust & coarse black dust
19/08/14	19/09/14	22	0.5	0.1	0.4	Clear, bugs, organics, small # fine grey/green & small # coarse brown/green dust
19/09/14	21/10/14	22	1.1	0.4	0.7	Slightly cloudy, bugs, plant matter, organics, small # fine brown & small # coarse brown dust
21/10/14	21/11/14	22	1.5	0.8	0.7	Clear, bugs, mod # fine grey & mod # coarse black dust
21/11/14	23/12/14	22	2.2	1.0	1.2	Clear, bugs, mod # fine brown & mod # coarse brown/black dust
23/12/14	21/01/15	22	0.8	0.1	0.7	Clear, bugs, plant matter, organics, small # fine brown/grey & small # coarse brown/black/grey/green dust
21/01/15	20/02/15	22	0.5	0.1	0.5	Clear, bugs, small # fine grey & small # coarse black dust
20/02/15	20/03/15	22	0.0	0.0	0.0	Clear, small # fine grey & small # coarse black dust
20/03/15	20/04/15	22	0.5	0.1	0.4	Clear, organic matter, small # fine grey & small # coarse black dust
22/04/15	22/05/15	22	0.9	0.3	0.6	Clear, bugs, organic matter, fine black/grey dust & coarse black/grey dust
22/05/15	22/06/15	22	0.5	0.1	0.4	Clear, bugs, organic matter, fine black/grey dust & coarse brown/black/grey dust

DATE_FROM	DATE_TO	GAUGE NUMBER	INSOLUBLES	ASH	COMBUSTS	COMMENTS
22/06/15	22/07/15	22	0.5	0.1	0.5	Clear, plant matter, organic matter, fine brown/grey dust & coarse brown/black dust
22/07/15	21/08/15	22	0.3	0.1	0.3	Clear, organic matter, fine grey dust & coarse brown/black dust
19/08/14	19/09/14	23	0.4	0.0	0.4	Clear, bugs, plant matter, organics, small # fine grey/green & small # coarse brown/black dust
19/09/14	21/10/14	23	0.9	0.3	0.6	Clear, plant matter, organics, small # fine brown & small # coarse brown dust
21/10/14	21/11/14	23	1.3	0.8	0.5	Clear, bugs, small # fine grey & small # coarse black dust
21/11/14	23/12/14	23	1.6	0.8	0.8	Clear, bugs, spider, mod # fine brown/grey & mod # coarse brown/grey dust
23/12/14	21/01/15	23	0.6	0.1	0.5	Clear, bugs, organics, small # fine grey & small # coarse brown/grey dust
21/01/15	20/02/15	23	0.3	0.1	0.3	Clear, bugs, small # fine grey & small # coarse brown dust
20/02/15	20/03/15	23	0.6	0.2	0.4	Clear, bugs, small # fine grey & small # coarse black dust
20/03/15	20/04/15	23	1.0	0.5	0.5	Clear, organic matter, small # fine grey/black & small # coarse black/grey dust
22/04/15	22/05/15	23	0.4	0.1	0.4	Clear, bugs, organic matter, fine grey dust & coarse black/grey dust
22/05/15	22/06/15	23	0.3	0.1	0.3	Clear, bugs, plant matter, fine grey/green dust & coarse black/green dust
22/06/15	22/07/15	23	0.9	0.3	0.6	Clear, bugs, organic matter, fine brown/grey dust & coarse brown/black dust
22/07/15	21/08/15	23	0.7	0.3	0.4	Clear, organic matter, fine grey dust & coarse black dust

Appendix B

Air Quality data and summary for Lamberts North TEOM PM10 Sept 2014 – Aug 2015

	Mount Piper TEOM; Average TSP (ug/m3)				
Date	Daily	Monthly	Annual	Maximum daily conc.	Maximum Annual conc.
1/09/2014	4	4.4	7.2	50	30
2/09/2014	4	4.4	7.2	50	30
3/09/2014	4	4.4	7.2	50	30
4/09/2014	4	4.4	7.2	50	30
5/09/2014	4	4.4	7.2	50	30
6/09/2014	3	4.4	7.2	50	30
7/09/2014	3	4.4	7.2	50	30
8/09/2014	4	4.4	7.2	50	30
9/09/2014	3	4.4	7.2	50	30
10/09/2014	-6	4.4	7.2	50	30
11/09/2014	6	4.4	7.2	50	30
12/09/2014	6	4.4	7.2	50	30
13/09/2014	6	4.4	7.2	50	30
14/09/2014	7	4.4	7.2	50	30
15/09/2014	8	4.4	7.2	50	30
16/09/2014	9	4.4	7.2	50	30
17/09/2014	8	4.4	7.2	50	30
18/09/2014	6	4.4	7.2	50	30
19/09/2014	8	4.4	7.2	50	30
20/09/2014	8	4.4	7.2	50	30
21/09/2014	6	4.4	7.2	50	30
22/09/2014	6	4.4	7.2	50	30
23/09/2014	7	4.4	7.2	50	30
24/09/2014	7	4.4	7.2	50	30
25/09/2014	5	4.4	7.2	50	30
26/09/2014	6	4.4	7.2	50	30
27/09/2014	7	4.4	7.2	50	30
28/09/2014	7	4.4	7.2	50	30
29/09/2014	9	4.4	7.2	50	30
30/09/2014	11	4.4	7.2	50	30
1/10/2014	8	5.7	7.2	50	30
2/10/2014	6	5.7	7.2	50	30
3/10/2014	8	5.7	7.2	50	30
4/10/2014	10	5.7	7.2	50	30
5/10/2014	9	5.7	7.2	50	30
6/10/2014	8	5.7	7.2	50	30
7/10/2014	8	5.7	7.2	50	30

	Mount Piper TEOM; Average TSP (ug/m3)				
Date	Daily	Monthly	Annual	Maximum daily conc.	Maximum Annual conc.
8/10/2014	7	5.7	7.2	50	30
9/10/2014	7	5.7	7.2	50	30
10/10/2014	7	5.7	7.2	50	30
11/10/2014	9	5.7	7.2	50	30
12/10/2014	8	5.7	7.2	50	30
13/10/2014	8	5.7	7.2	50	30
14/10/2014	3	5.7	7.2	50	30
15/10/2014	6	5.7	7.2	50	30
16/10/2014	7	5.7	7.2	50	30
17/10/2014	7	5.7	7.2	50	30
18/10/2014	5	5.7	7.2	50	30
19/10/2014	6	5.7	7.2	50	30
20/10/2014	7	5.7	7.2	50	30
21/10/2014	3	5.7	7.2	50	30
22/10/2014	7	5.7	7.2	50	30
23/10/2014	9	5.7	7.2	50	30
24/10/2014	8	5.7	7.2	50	30
25/10/2014	13	5.7	7.2	50	30
26/10/2014	9	5.7	7.2	50	30
27/10/2014	14	5.7	7.2	50	30
28/10/2014	8	5.7	7.2	50	30
29/10/2014	6	5.7	7.2	50	30
30/10/2014	7	5.7	7.2	50	30
31/10/2014	8	5.7	7.2	50	30
1/11/2014	10	7.5	7.2	50	30
2/11/2014	5	7.5	7.2	50	30
3/11/2014	11	7.5	7.2	50	30
4/11/2014	12	7.5	7.2	50	30
5/11/2014	11	7.5	7.2	50	30
6/11/2014	7	7.5	7.2	50	30
7/11/2014	9	7.5	7.2	50	30
8/11/2014	7	7.5	7.2	50	30
9/11/2014	10	7.5	7.2	50	30
10/11/2014	11	7.5	7.2	50	30
11/11/2014	6	7.5	7.2	50	30
12/11/2014	8	7.5	7.2	50	30
13/11/2014	8	7.5	7.2	50	30
14/11/2014	8	7.5	7.2	50	30
15/11/2014	12	7.5	7.2	50	30
16/11/2014	5	7.5	7.2	50	30
17/11/2014	5	7.5	7.2	50	30

	Mount Piper TEOM; Average TSP (ug/m3)				
Date	Daily	Monthly	Annual	Maximum daily conc.	Maximum Annual conc.
18/11/2014	7	7.5	7.2	50	30
19/11/2014	8	7.5	7.2	50	30
20/11/2014	8	7.5	7.2	50	30
21/11/2014	10	7.5	7.2	50	30
22/11/2014	8	7.5	7.2	50	30
23/11/2014	12	7.5	7.2	50	30
24/11/2014	9	7.5	7.2	50	30
25/11/2014	5	7.5	7.2	50	30
26/11/2014	8	7.5	7.2	50	30
27/11/2014	5	7.5	7.2	50	30
28/11/2014	5	7.5	7.2	50	30
29/11/2014	6	7.5	7.2	50	30
30/11/2014	8	7.5	7.2	50	30
1/12/2014	6	8.1	7.2	50	30
2/12/2014	5	8.1	7.2	50	30
3/12/2014	8	8.1	7.2	50	30
4/12/2014	5	8.1	7.2	50	30
5/12/2014	5	8.1	7.2	50	30
6/12/2014	3	8.1	7.2	50	30
7/12/2014	5	8.1	7.2	50	30
8/12/2014	5	8.1	7.2	50	30
9/12/2014	9	8.1	7.2	50	30
10/12/2014	8	8.1	7.2	50	30
11/12/2014	4	8.1	7.2	50	30
12/12/2014	4	8.1	7.2	50	30
13/12/2014	5	8.1	7.2	50	30
14/12/2014	6	8.1	7.2	50	30
15/12/2014	9	8.1	7.2	50	30
16/12/2014	11	8.1	7.2	50	30
17/12/2014	13	8.1	7.2	50	30
18/12/2014	7	8.1	7.2	50	30
19/12/2014	9	8.1	7.2	50	30
20/12/2014	8	8.1	7.2	50	30
21/12/2014	8	8.1	7.2	50	30
22/12/2014	7	8.1	7.2	50	30
23/12/2014	6	8.1	7.2	50	30
24/12/2014	7	8.1	7.2	50	30
25/12/2014	5	8.1	7.2	50	30
26/12/2014	5	8.1	7.2	50	30
27/12/2014	4	8.1	7.2	50	30
28/12/2014	4	8.1	7.2	50	30

	Mount Piper TEOM; Average TSP (ug/m3)				
Date	Daily	Monthly	Annual	Maximum daily conc.	Maximum Annual conc.
29/12/2014	4	8.1	7.2	50	30
30/12/2014	13	8.1	7.2	50	30
31/12/2014	9	8.1	7.2	50	30
1/01/2015	9	6.7	5.0	50	30
2/01/2015	7	6.7	5.0	50	30
3/01/2015	8	6.7	5.0	50	30
4/01/2015	5	6.7	5.0	50	30
5/01/2015	5	6.7	5.0	50	30
6/01/2015	6	6.7	5.0	50	30
7/01/2015	5	6.7	5.0	50	30
8/01/2015	7	6.7	5.0	50	30
9/01/2015	8	6.7	5.0	50	30
10/01/2015	6	6.7	5.0	50	30
11/01/2015	3	6.7	5.0	50	30
12/01/2015	3	6.7	5.0	50	30
13/01/2015	5	6.7	5.0	50	30
14/01/2015	4	6.7	5.0	50	30
15/01/2015	5	6.7	5.0	50	30
16/01/2015	6	6.7	5.0	50	30
17/01/2015	7	6.7	5.0	50	30
18/01/2015	8	6.7	5.0	50	30
19/01/2015	4	6.7	5.0	50	30
20/01/2015	5	6.7	5.0	50	30
21/01/2015	6	6.7	5.0	50	30
22/01/2015	6	6.7	5.0	50	30
23/01/2015	7	6.7	5.0	50	30
24/01/2015	8	6.7	5.0	50	30
25/01/2015	4	6.7	5.0	50	30
26/01/2015	4	6.7	5.0	50	30
27/01/2015	3	6.7	5.0	50	30
28/01/2015	3	6.7	5.0	50	30
29/01/2015	4	6.7	5.0	50	30
30/01/2015	11	6.7	5.0	50	30
31/01/2015	8	6.7	5.0	50	30
1/02/2015	8	5.8	5.0	50	30
2/02/2015	5	5.8	5.0	50	30
3/02/2015	4	5.8	5.0	50	30
4/02/2015	6	5.8	5.0	50	30
5/02/2015	5	5.8	5.0	50	30
6/02/2015	5	5.8	5.0	50	30
7/02/2015	5	5.8	5.0	50	30

	Mount Piper TEOM; Average TSP (ug/m3)				
Date	Daily	Monthly	Annual	Maximum daily conc.	Maximum Annual conc.
8/02/2015	9	5.8	5.0	50	30
9/02/2015	8	5.8	5.0	50	30
10/02/2015	7	5.8	5.0	50	30
11/02/2015	5	5.8	5.0	50	30
12/02/2015	6	5.8	5.0	50	30
13/02/2015	5	5.8	5.0	50	30
14/02/2015	4	5.8	5.0	50	30
15/02/2015	6	5.8	5.0	50	30
16/02/2015	9	5.8	5.0	50	30
17/02/2015	4	5.8	5.0	50	30
18/02/2015	5	5.8	5.0	50	30
19/02/2015	5	5.8	5.0	50	30
20/02/2015	5	5.8	5.0	50	30
21/02/2015	4	5.8	5.0	50	30
22/02/2015	4	5.8	5.0	50	30
23/02/2015	5	5.8	5.0	50	30
24/02/2015	5	5.8	5.0	50	30
25/02/2015	3	5.8	5.0	50	30
26/02/2015	4	5.8	5.0	50	30
27/02/2015	6	5.8	5.0	50	30
28/02/2015	6	5.8	5.0	50	30
1/03/2015	7	5.5	5.0	50	30
2/03/2015	4	5.5	5.0	50	30
3/03/2015	6	5.5	5.0	50	30
4/03/2015	5	5.5	5.0	50	30
5/03/2015	6	5.5	5.0	50	30
6/03/2015	6	5.5	5.0	50	30
7/03/2015	6	5.5	5.0	50	30
8/03/2015	10	5.5	5.0	50	30
9/03/2015	7	5.5	5.0	50	30
10/03/2015	11	5.5	5.0	50	30
11/03/2015	9	5.5	5.0	50	30
12/03/2015	8	5.5	5.0	50	30
13/03/2015	3	5.5	5.0	50	30
14/03/2015	4	5.5	5.0	50	30
15/03/2015	7	5.5	5.0	50	30
16/03/2015	4	5.5	5.0	50	30
17/03/2015	5	5.5	5.0	50	30
18/03/2015	6	5.5	5.0	50	30
19/03/2015	5	5.5	5.0	50	30
20/03/2015	6	5.5	5.0	50	30

	Mount Piper TEOM; Average TSP (ug/m3)				
Date	Daily	Monthly	Annual	Maximum daily conc.	Maximum Annual conc.
21/03/2015	3	5.5	5.0	50	30
22/03/2015	3	5.5	5.0	50	30
23/03/2015	4	5.5	5.0	50	30
24/03/2015	4	5.5	5.0	50	30
25/03/2015	5	5.5	5.0	50	30
26/03/2015	4	5.5	5.0	50	30
27/03/2015	6	5.5	5.0	50	30
28/03/2015	6	5.5	5.0	50	30
29/03/2015	6	5.5	5.0	50	30
30/03/2015	9	5.5	5.0	50	30
31/03/2015	5	5.5	5.0	50	30
1/04/2015	4	5.9	5.0	50	30
2/04/2015	5	5.9	5.0	50	30
3/04/2015	4	5.9	5.0	50	30
4/04/2015	2	5.9	5.0	50	30
5/04/2015	3	5.9	5.0	50	30
6/04/2015	4	5.9	5.0	50	30
7/04/2015	3	5.9	5.0	50	30
8/04/2015		5.9	5.0	50	30
9/04/2015		5.9	5.0	50	30
10/04/2015	4	5.9	5.0	50	30
11/04/2015	4	5.9	5.0	50	30
12/04/2015	6	5.9	5.0	50	30
13/04/2015	6	5.9	5.0	50	30
14/04/2015	7	5.9	5.0	50	30
15/04/2015	8	5.9	5.0	50	30
16/04/2015	6	5.9	5.0	50	30
17/04/2015	7	5.9	5.0	50	30
18/04/2015	6	5.9	5.0	50	30
19/04/2015	4	5.9	5.0	50	30
20/04/2015	3	5.9	5.0	50	30
21/04/2015	3	5.9	5.0	50	30
22/04/2015	4	5.9	5.0	50	30
23/04/2015	5	5.9	5.0	50	30
24/04/2015	5	5.9	5.0	50	30
25/04/2015	6	5.9	5.0	50	30
26/04/2015	6	5.9	5.0	50	30
27/04/2015	6	5.9	5.0	50	30
28/04/2015	5	5.9	5.0	50	30
29/04/2015	4	5.9	5.0	50	30
30/04/2015	4	5.9	5.0	50	30

	Mount Piper TEOM; Average TSP (ug/m3)				
Date	Daily	Monthly	Annual	Maximum daily conc.	Maximum Annual conc.
1/05/2015	4	4.9	5.0	50	30
2/05/2015	4	4.9	5.0	50	30
3/05/2015	4	4.9	5.0	50	30
4/05/2015	5	4.9	5.0	50	30
5/05/2015	8	4.9	5.0	50	30
6/05/2015	8	4.9	5.0	50	30
7/05/2015	5	4.9	5.0	50	30
8/05/2015	5	4.9	5.0	50	30
9/05/2015	4	4.9	5.0	50	30
10/05/2015	5	4.9	5.0	50	30
11/05/2015	4	4.9	5.0	50	30
12/05/2015	4	4.9	5.0	50	30
13/05/2015	5	4.9	5.0	50	30
14/05/2015	6	4.9	5.0	50	30
15/05/2015	6	4.9	5.0	50	30
16/05/2015	5	4.9	5.0	50	30
17/05/2015	5	4.9	5.0	50	30
18/05/2015	5	4.9	5.0	50	30
19/05/2015	4	4.9	5.0	50	30
20/05/2015	5	4.9	5.0	50	30
21/05/2015	4	4.9	5.0	50	30
22/05/2015	4	4.9	5.0	50	30
23/05/2015	4	4.9	5.0	50	30
24/05/2015	4	4.9	5.0	50	30
25/05/2015	5	4.9	5.0	50	30
26/05/2015	5	4.9	5.0	50	30
27/05/2015	5	4.9	5.0	50	30
28/05/2015	5	4.9	5.0	50	30
29/05/2015	4	4.9	5.0	50	30
30/05/2015	4	4.9	5.0	50	30
31/05/2015	3	4.9	5.0	50	30
1/06/2015	4	4.8	5.0	50	30
2/06/2015	4	4.8	5.0	50	30
3/06/2015	2	4.8	5.0	50	30
4/06/2015	4	4.8	5.0	50	30
5/06/2015	4	4.8	5.0	50	30
6/06/2015	6	4.8	5.0	50	30
7/06/2015	5	4.8	5.0	50	30
8/06/2015	4	4.8	5.0	50	30
9/06/2015	4	4.8	5.0	50	30
10/06/2015	4	4.8	5.0	50	30

Date	Mount Piper TEOM; Average TSP (ug/m3)				
	Daily	Monthly	Annual	Maximum daily conc.	Maximum Annual conc.
11/06/2015	4	4.8	5.0	50	30
12/06/2015	4	4.8	5.0	50	30
13/06/2015	4	4.8	5.0	50	30
14/06/2015	5	4.8	5.0	50	30
15/06/2015	6	4.8	5.0	50	30
16/06/2015	3	4.8	5.0	50	30
17/06/2015	3	4.8	5.0	50	30
18/06/2015	3	4.8	5.0	50	30
19/06/2015	3	4.8	5.0	50	30
20/06/2015	5	4.8	5.0	50	30
21/06/2015	5	4.8	5.0	50	30
22/06/2015	4	4.8	5.0	50	30
23/06/2015	4	4.8	5.0	50	30
24/06/2015	5	4.8	5.0	50	30
25/06/2015	5	4.8	5.0	50	30
26/06/2015	5	4.8	5.0	50	30
27/06/2015	6	4.8	5.0	50	30
28/06/2015	7	4.8	5.0	50	30
29/06/2015	7	4.8	5.0	50	30
30/06/2015	5	4.8	5.0	50	30
1/07/2015	5	4.4	5.0	50	30
2/07/2015	6	4.4	5.0	50	30
3/07/2015	4	4.4	5.0	50	30
4/07/2015	4	4.4	5.0	50	30
5/07/2015	4	4.4	5.0	50	30
6/07/2015	5	4.4	5.0	50	30
7/07/2015	5	4.4	5.0	50	30
8/07/2015	5	4.4	5.0	50	30
9/07/2015	5	4.4	5.0	50	30
10/07/2015	4	4.4	5.0	50	30
11/07/2015	3	4.4	5.0	50	30
12/07/2015	3	4.4	5.0	50	30
13/07/2015	4	4.4	5.0	50	30
14/07/2015	3	4.4	5.0	50	30
15/07/2015	3	4.4	5.0	50	30
16/07/2015	3	4.4	5.0	50	30
17/07/2015	4	4.4	5.0	50	30
18/07/2015	5	4.4	5.0	50	30
19/07/2015	4	4.4	5.0	50	30
20/07/2015	4	4.4	5.0	50	30
21/07/2015	4	4.4	5.0	50	30

Date	Mount Piper TEOM; Average TSP (ug/m3)				
	Daily	Monthly	Annual	Maximum daily conc.	Maximum Annual conc.
22/07/2015	4	4.4	5.0	50	30
23/07/2015	4	4.4	5.0	50	30
24/07/2015	4	4.4	5.0	50	30
25/07/2015	4	4.4	5.0	50	30
26/07/2015	4	4.4	5.0	50	30
27/07/2015	4	4.4	5.0	50	30
28/07/2015	4	4.4	5.0	50	30
29/07/2015	4	4.4	5.0	50	30
30/07/2015	4	4.4	5.0	50	30
31/07/2015	4	4.4	5.0	50	30
1/08/2015	4	4.1	5.0	50	30
2/08/2015	5	4.1	5.0	50	30
3/08/2015	4	4.1	5.0	50	30
4/08/2015	3	4.1	5.0	50	30
5/08/2015	3	4.1	5.0	50	30
6/08/2015	4	4.1	5.0	50	30
7/08/2015	4	4.1	5.0	50	30
8/08/2015	5	4.1	5.0	50	30
9/08/2015	6	4.1	5.0	50	30
10/08/2015	4	4.1	5.0	50	30
11/08/2015	4	4.1	5.0	50	30
12/08/2015	4	4.1	5.0	50	30
13/08/2015	5	4.1	5.0	50	30
14/08/2015	4	4.1	5.0	50	30
15/08/2015	7	4.1	5.0	50	30
16/08/2015	8	4.1	5.0	50	30
17/08/2015	4	4.1	5.0	50	30
18/08/2015	5	4.1	5.0	50	30
19/08/2015	7	4.1	5.0	50	30
20/08/2015	7	4.1	5.0	50	30
21/08/2015	7	4.1	5.0	50	30
22/08/2015	6	4.1	5.0	50	30
23/08/2015	4	4.1	5.0	50	30
24/08/2015	3	4.1	5.0	50	30
25/08/2015	3	4.1	5.0	50	30
26/08/2015	4	4.1	5.0	50	30
27/08/2015	3	4.1	5.0	50	30
28/08/2015	4	4.1	5.0	50	30
29/08/2015	4	4.1	5.0	50	30
30/08/2015	4	4.1	5.0	50	30
31/08/2015	4	4.1	5.0	50	30

Air Quality data and summary for Lamberts North AQMS PM2.5 and PM10 Sept 2014 – Aug 2015

Date	Blackmans AQMS; Average PM2.5 (ug/m3)					Blackmans AQMS; Average PM10 (ug/m3)				
	Daily	Monthly	Annual	Max. daily conc.	Max. yearly conc.	Daily	Monthly	Annual	Max. daily conc.	Max. Annual conc.
1/09/2014	2.1	1.2	2.7	25.0	8.0	6.6	3.7	13.0	50.0	30.0
2/09/2014	0.4	1.2	2.7	25.0	8.0	1.3	3.7	13.0	50.0	30.0
3/09/2014	0.7	1.2	2.7	25.0	8.0	2.8	3.7	13.0	50.0	30.0
4/09/2014	2.1	1.2	2.7	25.0	8.0	4.2	3.7	13.0	50.0	30.0
5/09/2014	1.4	1.2	2.7	25.0	8.0	3.8	3.7	13.0	50.0	30.0
6/09/2014	1.3	1.2	2.7	25.0	8.0	3.6	3.7	13.0	50.0	30.0
7/09/2014	1.0	1.2	2.7	25.0	8.0	2.6	3.7	13.0	50.0	30.0
8/09/2014	0.8	1.2	2.7	25.0	8.0	3.5	3.7	13.0	50.0	30.0
9/09/2014	0.9	1.2	2.7	25.0	8.0	3.9	3.7	13.0	50.0	30.0
10/09/2014	1.4	1.2	2.7	25.0	8.0	5.2	3.7	13.0	50.0	30.0
11/09/2014		1.2	2.7	25.0	8.0		3.7	13.0	50.0	30.0
12/09/2014		1.2	2.7	25.0	8.0		3.7	13.0	50.0	30.0
13/09/2014		1.2	2.7	25.0	8.0		3.7	13.0	50.0	30.0
14/09/2014		1.2	2.7	25.0	8.0		3.7	13.0	50.0	30.0
15/09/2014		1.2	2.7	25.0	8.0		3.7	13.0	50.0	30.0
16/09/2014		1.2	2.7	25.0	8.0		3.7	13.0	50.0	30.0
17/09/2014		1.2	2.7	25.0	8.0		3.7	13.0	50.0	30.0
18/09/2014		1.2	2.7	25.0	8.0		3.7	13.0	50.0	30.0
19/09/2014		1.2	2.7	25.0	8.0		3.7	13.0	50.0	30.0
20/09/2014		1.2	2.7	25.0	8.0		3.7	13.0	50.0	30.0
21/09/2014		1.2	2.7	25.0	8.0		3.7	13.0	50.0	30.0
22/09/2014		1.2	2.7	25.0	8.0		3.7	13.0	50.0	30.0
23/09/2014		1.2	2.7	25.0	8.0		3.7	13.0	50.0	30.0

Date	Blackmans AQMS; Average PM2.5 (ug/m3)					Blackmans AQMS; Average PM10 (ug/m3)				
	Daily	Monthly	Annual	Max. daily conc.	Max. yearly conc.	Daily	Monthly	Annual	Max. daily conc.	Max. Annual conc.
24/09/2014		1.2	2.7	25.0	8.0		3.7	13.0	50.0	30.0
25/09/2014		1.2	2.7	25.0	8.0		3.7	13.0	50.0	30.0
26/09/2014		1.2	2.7	25.0	8.0		3.7	13.0	50.0	30.0
27/09/2014		1.2	2.7	25.0	8.0		3.7	13.0	50.0	30.0
28/09/2014		1.2	2.7	25.0	8.0		3.7	13.0	50.0	30.0
29/09/2014		1.2	2.7	25.0	8.0		3.7	13.0	50.0	30.0
30/09/2014		1.2	2.7	25.0	8.0		3.7	13.0	50.0	30.0
1/10/2014		2.8	2.7	25.0	8.0		10.2	13.0	50.0	30.0
2/10/2014	0.5	2.8	2.7	25.0	8.0	6.4	10.2	13.0	50.0	30.0
3/10/2014	2.9	2.8	2.7	25.0	8.0	10.8	10.2	13.0	50.0	30.0
4/10/2014	5.4	2.8	2.7	25.0	8.0	13.1	10.2	13.0	50.0	30.0
5/10/2014	2.8	2.8	2.7	25.0	8.0	11.7	10.2	13.0	50.0	30.0
6/10/2014	1.9	2.8	2.7	25.0	8.0	14.3	10.2	13.0	50.0	30.0
7/10/2014	1.9	2.8	2.7	25.0	8.0	6.6	10.2	13.0	50.0	30.0
8/10/2014	1.5	2.8	2.7	25.0	8.0	5.9	10.2	13.0	50.0	30.0
9/10/2014	3.5	2.8	2.7	25.0	8.0	8.1	10.2	13.0	50.0	30.0
10/10/2014	3.5	2.8	2.7	25.0	8.0	10.0	10.2	13.0	50.0	30.0
11/10/2014	4.0	2.8	2.7	25.0	8.0	10.8	10.2	13.0	50.0	30.0
12/10/2014	4.4	2.8	2.7	25.0	8.0	13.5	10.2	13.0	50.0	30.0
13/10/2014	3.3	2.8	2.7	25.0	8.0	9.4	10.2	13.0	50.0	30.0
14/10/2014	0.3	2.8	2.7	25.0	8.0	3.9	10.2	13.0	50.0	30.0
15/10/2014	1.1	2.8	2.7	25.0	8.0	2.8	10.2	13.0	50.0	30.0
16/10/2014	4.0	2.8	2.7	25.0	8.0	7.7	10.2	13.0	50.0	30.0
17/10/2014	2.9	2.8	2.7	25.0	8.0	7.4	10.2	13.0	50.0	30.0
18/10/2014	1.5	2.8	2.7	25.0	8.0	6.2	10.2	13.0	50.0	30.0

Date	Blackmans AQMS; Average PM2.5 (ug/m3)					Blackmans AQMS; Average PM10 (ug/m3)				
	Daily	Monthly	Annual	Max. daily conc.	Max. yearly conc.	Daily	Monthly	Annual	Max. daily conc.	Max. Annual conc.
19/10/2014	3.2	2.8	2.7	25.0	8.0	8.1	10.2	13.0	50.0	30.0
20/10/2014	3.4	2.8	2.7	25.0	8.0	9.5	10.2	13.0	50.0	30.0
21/10/2014	0.1	2.8	2.7	25.0	8.0	1.5	10.2	13.0	50.0	30.0
22/10/2014	3.7	2.8	2.7	25.0	8.0	10.1	10.2	13.0	50.0	30.0
23/10/2014	3.7	2.8	2.7	25.0	8.0	10.6	10.2	13.0	50.0	30.0
24/10/2014	3.8	2.8	2.7	25.0	8.0	11.0	10.2	13.0	50.0	30.0
25/10/2014	5.2	2.8	2.7	25.0	8.0	12.3	10.2	13.0	50.0	30.0
26/10/2014	3.8	2.8	2.7	25.0	8.0	11.7	10.2	13.0	50.0	30.0
27/10/2014	3.2	2.8	2.7	25.0	8.0	22.7	10.2	13.0	50.0	30.0
28/10/2014	2.1	2.8	2.7	25.0	8.0	12.7	10.2	13.0	50.0	30.0
29/10/2014	2.3	2.8	2.7	25.0	8.0	10.2	10.2	13.0	50.0	30.0
30/10/2014	1.8	2.8	2.7	25.0	8.0	12.8	10.2	13.0	50.0	30.0
31/10/2014	3.3	2.8	2.7	25.0	8.0	24.4	10.2	13.0	50.0	30.0
1/11/2014	4.0	4.4	2.7	25.0	8.0	16.6	14.2	13.0	50.0	30.0
2/11/2014	1.2	4.4	2.7	25.0	8.0	5.7	14.2	13.0	50.0	30.0
3/11/2014	9.6	4.4	2.7	25.0	8.0	17.1	14.2	13.0	50.0	30.0
4/11/2014	11.4	4.4	2.7	25.0	8.0	21.7	14.2	13.0	50.0	30.0
5/11/2014	7.6	4.4	2.7	25.0	8.0	15.5	14.2	13.0	50.0	30.0
6/11/2014	1.1	4.4	2.7	25.0	8.0	6.9	14.2	13.0	50.0	30.0
7/11/2014	3.2	4.4	2.7	25.0	8.0	11.7	14.2	13.0	50.0	30.0
8/11/2014	1.3	4.4	2.7	25.0	8.0	7.4	14.2	13.0	50.0	30.0
9/11/2014	4.7	4.4	2.7	25.0	8.0	17.4	14.2	13.0	50.0	30.0
10/11/2014	6.6	4.4	2.7	25.0	8.0	18.1	14.2	13.0	50.0	30.0
11/11/2014	1.8	4.4	2.7	25.0	8.0	5.1	14.2	13.0	50.0	30.0
12/11/2014	5.3	4.4	2.7	25.0	8.0	13.4	14.2	13.0	50.0	30.0

Date	Blackmans AQMS; Average PM2.5 (ug/m3)					Blackmans AQMS; Average PM10 (ug/m3)				
	Daily	Monthly	Annual	Max. daily conc.	Max. yearly conc.	Daily	Monthly	Annual	Max. daily conc.	Max. Annual conc.
13/11/2014	5.1	4.4	2.7	25.0	8.0	15.5	14.2	13.0	50.0	30.0
14/11/2014	5.5	4.4	2.7	25.0	8.0	26.5	14.2	13.0	50.0	30.0
15/11/2014	7.9	4.4	2.7	25.0	8.0	30.2	14.2	13.0	50.0	30.0
16/11/2014	0.5	4.4	2.7	25.0	8.0	2.5	14.2	13.0	50.0	30.0
17/11/2014	1.0	4.4	2.7	25.0	8.0	3.8	14.2	13.0	50.0	30.0
18/11/2014	2.5	4.4	2.7	25.0	8.0	8.3	14.2	13.0	50.0	30.0
19/11/2014	5.6	4.4	2.7	25.0	8.0	12.9	14.2	13.0	50.0	30.0
20/11/2014	4.9	4.4	2.7	25.0	8.0	15.6	14.2	13.0	50.0	30.0
21/11/2014	3.1	4.4	2.7	25.0	8.0	20.6	14.2	13.0	50.0	30.0
22/11/2014	4.6	4.4	2.7	25.0	8.0	16.8	14.2	13.0	50.0	30.0
23/11/2014	6.0	4.4	2.7	25.0	8.0	30.7	14.2	13.0	50.0	30.0
24/11/2014	5.7	4.4	2.7	25.0	8.0	17.5	14.2	13.0	50.0	30.0
25/11/2014	1.6	4.4	2.7	25.0	8.0	10.3	14.2	13.0	50.0	30.0
26/11/2014	7.4	4.4	2.7	25.0	8.0	23.7	14.2	13.0	50.0	30.0
27/11/2014	2.2	4.4	2.7	25.0	8.0	6.3	14.2	13.0	50.0	30.0
28/11/2014	3.1	4.4	2.7	25.0	8.0	8.1	14.2	13.0	50.0	30.0
29/11/2014	3.6	4.4	2.7	25.0	8.0	8.5	14.2	13.0	50.0	30.0
30/11/2014	5.6	4.4	2.7	25.0	8.0	10.7	14.2	13.0	50.0	30.0
1/12/2014	2.9	2.6	2.7	25.0	8.0	5.8	8.4	13.0	50.0	30.0
2/12/2014	0.8	2.6	2.7	25.0	8.0	4.7	8.4	13.0	50.0	30.0
3/12/2014	0.4	2.6	2.7	25.0	8.0	5.8	8.4	13.0	50.0	30.0
4/12/2014	0.3	2.6	2.7	25.0	8.0	2.9	8.4	13.0	50.0	30.0
5/12/2014	1.3	2.6	2.7	25.0	8.0	5.7	8.4	13.0	50.0	30.0
6/12/2014	0.0	2.6	2.7	25.0	8.0	0.9	8.4	13.0	50.0	30.0
7/12/2014	1.8	2.6	2.7	25.0	8.0	3.8	8.4	13.0	50.0	30.0

Date	Blackmans AQMS; Average PM2.5 (ug/m3)					Blackmans AQMS; Average PM10 (ug/m3)				
	Daily	Monthly	Annual	Max. daily conc.	Max. yearly conc.	Daily	Monthly	Annual	Max. daily conc.	Max. Annual conc.
8/12/2014	1.5	2.6	2.7	25.0	8.0	4.2	8.4	13.0	50.0	30.0
9/12/2014	3.7	2.6	2.7	25.0	8.0	7.8	8.4	13.0	50.0	30.0
10/12/2014	6.3	2.6	2.7	25.0	8.0	9.1	8.4	13.0	50.0	30.0
11/12/2014	0.7	2.6	2.7	25.0	8.0	2.0	8.4	13.0	50.0	30.0
12/12/2014	0.4	2.6	2.7	25.0	8.0	3.7	8.4	13.0	50.0	30.0
13/12/2014	0.7	2.6	2.7	25.0	8.0	4.1	8.4	13.0	50.0	30.0
14/12/2014	2.1	2.6	2.7	25.0	8.0	5.6	8.4	13.0	50.0	30.0
15/12/2014	4.6	2.6	2.7	25.0	8.0	9.8	8.4	13.0	50.0	30.0
16/12/2014	3.0	2.6	2.7	25.0	8.0	16.9	8.4	13.0	50.0	30.0
17/12/2014	5.2	2.6	2.7	25.0	8.0	22.9	8.4	13.0	50.0	30.0
18/12/2014	2.5	2.6	2.7	25.0	8.0	10.2	8.4	13.0	50.0	30.0
19/12/2014	3.4	2.6	2.7	25.0	8.0	15.1	8.4	13.0	50.0	30.0
20/12/2014	4.8	2.6	2.7	25.0	8.0	12.4	8.4	13.0	50.0	30.0
21/12/2014	4.4	2.6	2.7	25.0	8.0	10.9	8.4	13.0	50.0	30.0
22/12/2014	4.7	2.6	2.7	25.0	8.0	13.0	8.4	13.0	50.0	30.0
23/12/2014	3.1	2.6	2.7	25.0	8.0	5.8	8.4	13.0	50.0	30.0
24/12/2014	4.4	2.6	2.7	25.0	8.0	8.0	8.4	13.0	50.0	30.0
25/12/2014	2.4	2.6	2.7	25.0	8.0	5.7	8.4	13.0	50.0	30.0
26/12/2014	0.6	2.6	2.7	25.0	8.0	4.6	8.4	13.0	50.0	30.0
27/12/2014	1.9	2.6	2.7	25.0	8.0	8.4	8.4	13.0	50.0	30.0
28/12/2014	1.8	2.6	2.7	25.0	8.0	4.6	8.4	13.0	50.0	30.0
29/12/2014	0.2	2.6	2.7	25.0	8.0	3.5	8.4	13.0	50.0	30.0
30/12/2014	3.2	2.6	2.7	25.0	8.0	22.6	8.4	13.0	50.0	30.0
31/12/2014	7.2	2.6	2.7	25.0	8.0	19.4	8.4	13.0	50.0	30.0
1/01/2015	7.0	2.4	2.7	25.0	8.0	18.0	6.5	9.7	50.0	30.0

Date	Blackmans AQMS; Average PM2.5 (ug/m3)					Blackmans AQMS; Average PM10 (ug/m3)				
	Daily	Monthly	Annual	Max. daily conc.	Max. yearly conc.	Daily	Monthly	Annual	Max. daily conc.	Max. Annual conc.
2/01/2015	5.2	2.4	2.7	25.0	8.0	10.6	6.5	9.7	50.0	30.0
3/01/2015	4.5	2.4	2.7	25.0	8.0	9.3	6.5	9.7	50.0	30.0
4/01/2015	2.5	2.4	2.7	25.0	8.0	7.0	6.5	9.7	50.0	30.0
5/01/2015	2.3	2.4	2.7	25.0	8.0	5.4	6.5	9.7	50.0	30.0
6/01/2015	4.7	2.4	2.7	25.0	8.0	9.4	6.5	9.7	50.0	30.0
7/01/2015	1.8	2.4	2.7	25.0	8.0	4.7	6.5	9.7	50.0	30.0
8/01/2015	4.8	2.4	2.7	25.0	8.0	10.4	6.5	9.7	50.0	30.0
9/01/2015	4.1	2.4	2.7	25.0	8.0	10.3	6.5	9.7	50.0	30.0
10/01/2015	3.0	2.4	2.7	25.0	8.0	7.2	6.5	9.7	50.0	30.0
11/01/2015	-0.3	2.4	2.7	25.0	8.0	0.6	6.5	9.7	50.0	30.0
12/01/2015	-0.3	2.4	2.7	25.0	8.0	0.9	6.5	9.7	50.0	30.0
13/01/2015	1.4	2.4	2.7	25.0	8.0	3.9	6.5	9.7	50.0	30.0
14/01/2015	0.4	2.4	2.7	25.0	8.0	2.8	6.5	9.7	50.0	30.0
15/01/2015	0.7	2.4	2.7	25.0	8.0	3.0	6.5	9.7	50.0	30.0
16/01/2015	1.6	2.4	2.7	25.0	8.0	6.7	6.5	9.7	50.0	30.0
17/01/2015	1.5	2.4	2.7	25.0	8.0	8.7	6.5	9.7	50.0	30.0
18/01/2015	3.2	2.4	2.7	25.0	8.0	9.7	6.5	9.7	50.0	30.0
19/01/2015	1.5	2.4	2.7	25.0	8.0	3.9	6.5	9.7	50.0	30.0
20/01/2015	2.7	2.4	2.7	25.0	8.0	5.7	6.5	9.7	50.0	30.0
21/01/2015	3.9	2.4	2.7	25.0	8.0	8.6	6.5	9.7	50.0	30.0
22/01/2015	4.0	2.4	2.7	25.0	8.0	11.8	6.5	9.7	50.0	30.0
23/01/2015	4.5	2.4	2.7	25.0	8.0	9.9	6.5	9.7	50.0	30.0
24/01/2015	5.8	2.4	2.7	25.0	8.0	8.2	6.5	9.7	50.0	30.0
25/01/2015	1.0	2.4	2.7	25.0	8.0	5.2	6.5	9.7	50.0	30.0
26/01/2015	0.9	2.4	2.7	25.0	8.0	3.3	6.5	9.7	50.0	30.0

Date	Blackmans AQMS; Average PM2.5 (ug/m3)					Blackmans AQMS; Average PM10 (ug/m3)				
	Daily	Monthly	Annual	Max. daily conc.	Max. yearly conc.	Daily	Monthly	Annual	Max. daily conc.	Max. Annual conc.
27/01/2015	-0.5	2.4	2.7	25.0	8.0	0.2	6.5	9.7	50.0	30.0
28/01/2015	-0.3	2.4	2.7	25.0	8.0	0.9	6.5	9.7	50.0	30.0
29/01/2015	0.0	2.4	2.7	25.0	8.0	2.4	6.5	9.7	50.0	30.0
30/01/2015	0.6	2.4	2.7	25.0	8.0	4.9	6.5	9.7	50.0	30.0
31/01/2015	2.6	2.4	2.7	25.0	8.0	8.2	6.5	9.7	50.0	30.0
1/02/2015	4.4	2.6	2.7	25.0	8.0	9.1	10.1	9.7	50.0	30.0
2/02/2015	-1.2	2.6	2.7	25.0	8.0	4.6	10.1	9.7	50.0	30.0
3/02/2015	-3.7	2.6	2.7	25.0	8.0	9.5	10.1	9.7	50.0	30.0
4/02/2015	1.8	2.6	2.7	25.0	8.0	11.1	10.1	9.7	50.0	30.0
5/02/2015	1.6	2.6	2.7	25.0	8.0	9.5	10.1	9.7	50.0	30.0
6/02/2015	1.9	2.6	2.7	25.0	8.0	10.2	10.1	9.7	50.0	30.0
7/02/2015	2.0	2.6	2.7	25.0	8.0	9.0	10.1	9.7	50.0	30.0
8/02/2015	3.9	2.6	2.7	25.0	8.0	14.2	10.1	9.7	50.0	30.0
9/02/2015	7.8	2.6	2.7	25.0	8.0	20.4	10.1	9.7	50.0	30.0
10/02/2015	5.5	2.6	2.7	25.0	8.0	14.6	10.1	9.7	50.0	30.0
11/02/2015	2.7	2.6	2.7	25.0	8.0	10.6	10.1	9.7	50.0	30.0
12/02/2015	3.1	2.6	2.7	25.0	8.0	10.1	10.1	9.7	50.0	30.0
13/02/2015	2.3	2.6	2.7	25.0	8.0	8.9	10.1	9.7	50.0	30.0
14/02/2015	1.5	2.6	2.7	25.0	8.0	8.9	10.1	9.7	50.0	30.0
15/02/2015	4.1	2.6	2.7	25.0	8.0	10.5	10.1	9.7	50.0	30.0
16/02/2015	7.0	2.6	2.7	25.0	8.0	13.5	10.1	9.7	50.0	30.0
17/02/2015	2.1	2.6	2.7	25.0	8.0	9.0	10.1	9.7	50.0	30.0
18/02/2015	4.0	2.6	2.7	25.0	8.0	13.7	10.1	9.7	50.0	30.0
19/02/2015	2.7	2.6	2.7	25.0	8.0	11.4	10.1	9.7	50.0	30.0
20/02/2015	3.6	2.6	2.7	25.0	8.0	12.0	10.1	9.7	50.0	30.0

Date	Blackmans AQMS; Average PM2.5 (ug/m3)					Blackmans AQMS; Average PM10 (ug/m3)				
	Daily	Monthly	Annual	Max. daily conc.	Max. yearly conc.	Daily	Monthly	Annual	Max. daily conc.	Max. Annual conc.
21/02/2015	1.1	2.6	2.7	25.0	8.0	5.6	10.1	9.7	50.0	30.0
22/02/2015	0.1	2.6	2.7	25.0	8.0	5.3	10.1	9.7	50.0	30.0
23/02/2015	1.5	2.6	2.7	25.0	8.0	7.2	10.1	9.7	50.0	30.0
24/02/2015	2.8	2.6	2.7	25.0	8.0	8.9	10.1	9.7	50.0	30.0
25/02/2015	0.1	2.6	2.7	25.0	8.0	4.4	10.1	9.7	50.0	30.0
26/02/2015	2.1	2.6	2.7	25.0	8.0	8.4	10.1	9.7	50.0	30.0
27/02/2015	3.8	2.6	2.7	25.0	8.0	10.6	10.1	9.7	50.0	30.0
28/02/2015	4.1	2.6	2.7	25.0	8.0	12.4	10.1	9.7	50.0	30.0
1/03/2015	5.4	4.1	2.7	25.0	8.0	16.6	16.4	9.7	50.0	30.0
2/03/2015	3.1	4.1	2.7	25.0	8.0	15.6	16.4	9.7	50.0	30.0
3/03/2015	3.8	4.1	2.7	25.0	8.0	15.3	16.4	9.7	50.0	30.0
4/03/2015	5.1	4.1	2.7	25.0	8.0	18.4	16.4	9.7	50.0	30.0
5/03/2015	3.0	4.1	2.7	25.0	8.0	25.7	16.4	9.7	50.0	30.0
6/03/2015	3.1	4.1	2.7	25.0	8.0	19.9	16.4	9.7	50.0	30.0
7/03/2015	4.9	4.1	2.7	25.0	8.0	20.8	16.4	9.7	50.0	30.0
8/03/2015	8.6	4.1	2.7	25.0	8.0	24.9	16.4	9.7	50.0	30.0
9/03/2015	5.0	4.1	2.7	25.0	8.0	17.5	16.4	9.7	50.0	30.0
10/03/2015	9.3	4.1	2.7	25.0	8.0	24.5	16.4	9.7	50.0	30.0
11/03/2015	8.5	4.1	2.7	25.0	8.0	15.7	16.4	9.7	50.0	30.0
12/03/2015	6.5	4.1	2.7	25.0	8.0	15.7	16.4	9.7	50.0	30.0
13/03/2015	1.0	4.1	2.7	25.0	8.0	4.7	16.4	9.7	50.0	30.0
14/03/2015	2.8	4.1	2.7	25.0	8.0	11.0	16.4	9.7	50.0	30.0
15/03/2015	6.5	4.1	2.7	25.0	8.0	18.6	16.4	9.7	50.0	30.0
16/03/2015	2.9	4.1	2.7	25.0	8.0	15.6	16.4	9.7	50.0	30.0
17/03/2015	3.6	4.1	2.7	25.0	8.0	16.1	16.4	9.7	50.0	30.0

Date	Blackmans AQMS; Average PM2.5 (ug/m3)					Blackmans AQMS; Average PM10 (ug/m3)				
	Daily	Monthly	Annual	Max. daily conc.	Max. yearly conc.	Daily	Monthly	Annual	Max. daily conc.	Max. Annual conc.
18/03/2015	4.9	4.1	2.7	25.0	8.0	28.1	16.4	9.7	50.0	30.0
19/03/2015	4.1	4.1	2.7	25.0	8.0	23.8	16.4	9.7	50.0	30.0
20/03/2015	3.9	4.1	2.7	25.0	8.0	24.8	16.4	9.7	50.0	30.0
21/03/2015	0.8	4.1	2.7	25.0	8.0	6.9	16.4	9.7	50.0	30.0
22/03/2015	1.0	4.1	2.7	25.0	8.0	7.3	16.4	9.7	50.0	30.0
23/03/2015	1.5	4.1	2.7	25.0	8.0	10.2	16.4	9.7	50.0	30.0
24/03/2015	2.0	4.1	2.7	25.0	8.0	11.6	16.4	9.7	50.0	30.0
25/03/2015	2.5	4.1	2.7	25.0	8.0	11.3	16.4	9.7	50.0	30.0
26/03/2015	2.7	4.1	2.7	25.0	8.0	14.2	16.4	9.7	50.0	30.0
27/03/2015	2.5	4.1	2.7	25.0	8.0	20.3	16.4	9.7	50.0	30.0
28/03/2015	3.2	4.1	2.7	25.0	8.0	14.2	16.4	9.7	50.0	30.0
29/03/2015	4.2	4.1	2.7	25.0	8.0	14.6	16.4	9.7	50.0	30.0
30/03/2015	7.6	4.1	2.7	25.0	8.0	16.8	16.4	9.7	50.0	30.0
31/03/2015	2.3	4.1	2.7	25.0	8.0	6.4	16.4	9.7	50.0	30.0
1/04/2015	1.0	2.0	2.7	25.0	8.0	5.7	7.8	9.7	50.0	30.0
2/04/2015	2.6	2.0	2.7	25.0	8.0	10.8	7.8	9.7	50.0	30.0
3/04/2015	0.8	2.0	2.7	25.0	8.0	4.5	7.8	9.7	50.0	30.0
4/04/2015	-0.8	2.0	2.7	25.0	8.0	2.2	7.8	9.7	50.0	30.0
5/04/2015	0.4	2.0	2.7	25.0	8.0	5.3	7.8	9.7	50.0	30.0
6/04/2015	1.7	2.0	2.7	25.0	8.0	7.5	7.8	9.7	50.0	30.0
7/04/2015	0.0	2.0	2.7	25.0	8.0	3.8	7.8	9.7	50.0	30.0
8/04/2015	1.7	2.0	2.7	25.0	8.0	6.6	7.8	9.7	50.0	30.0
9/04/2015	1.7	2.0	2.7	25.0	8.0	8.1	7.8	9.7	50.0	30.0
10/04/2015	1.6	2.0	2.7	25.0	8.0	8.0	7.8	9.7	50.0	30.0
11/04/2015	0.0	2.0	2.7	25.0	8.0	4.1	7.8	9.7	50.0	30.0

Date	Blackmans AQMS; Average PM2.5 (ug/m3)					Blackmans AQMS; Average PM10 (ug/m3)				
	Daily	Monthly	Annual	Max. daily conc.	Max. yearly conc.	Daily	Monthly	Annual	Max. daily conc.	Max. Annual conc.
12/04/2015	3.7	2.0	2.7	25.0	8.0	9.8	7.8	9.7	50.0	30.0
13/04/2015	3.8	2.0	2.7	25.0	8.0	10.9	7.8	9.7	50.0	30.0
14/04/2015	5.3	2.0	2.7	25.0	8.0	13.4	7.8	9.7	50.0	30.0
15/04/2015	6.9	2.0	2.7	25.0	8.0	17.7	7.8	9.7	50.0	30.0
16/04/2015	4.0	2.0	2.7	25.0	8.0	13.8	7.8	9.7	50.0	30.0
17/04/2015	5.0	2.0	2.7	25.0	8.0	13.5	7.8	9.7	50.0	30.0
18/04/2015	3.9	2.0	2.7	25.0	8.0	11.8	7.8	9.7	50.0	30.0
19/04/2015	-0.2	2.0	2.7	25.0	8.0	3.2	7.8	9.7	50.0	30.0
20/04/2015	-0.8	2.0	2.7	25.0	8.0	2.6	7.8	9.7	50.0	30.0
21/04/2015	-0.7	2.0	2.7	25.0	8.0	4.2	7.8	9.7	50.0	30.0
22/04/2015		2.0	2.7	25.0	8.0	5.3	7.8	9.7	50.0	30.0
23/04/2015		2.0	2.7	25.0	8.0	6.1	7.8	9.7	50.0	30.0
24/04/2015		2.0	2.7	25.0	8.0	7.9	7.8	9.7	50.0	30.0
25/04/2015		2.0	2.7	25.0	8.0	10.6	7.8	9.7	50.0	30.0
26/04/2015		2.0	2.7	25.0	8.0	6.9	7.8	9.7	50.0	30.0
27/04/2015	2.7	2.0	2.7	25.0	8.0	8.2	7.8	9.7	50.0	30.0
28/04/2015	3.0	2.0	2.7	25.0	8.0	10.0	7.8	9.7	50.0	30.0
29/04/2015	1.8	2.0	2.7	25.0	8.0	8.3	7.8	9.7	50.0	30.0
30/04/2015	0.2	2.0	2.7	25.0	8.0	4.9	7.8	9.7	50.0	30.0
1/05/2015	0.3	2.6	2.7	25.0	8.0	5.9	11.5	9.7	50.0	30.0
2/05/2015	0.8	2.6	2.7	25.0	8.0	7.5	11.5	9.7	50.0	30.0
3/05/2015	-0.2	2.6	2.7	25.0	8.0	4.3	11.5	9.7	50.0	30.0
4/05/2015	2.8	2.6	2.7	25.0	8.0	8.2	11.5	9.7	50.0	30.0
5/05/2015	3.5	2.6	2.7	25.0	8.0	30.4	11.5	9.7	50.0	30.0
6/05/2015	8.4	2.6	2.7	25.0	8.0	64.5	11.5	9.7	50.0	30.0

Date	Blackmans AQMS; Average PM2.5 (ug/m3)					Blackmans AQMS; Average PM10 (ug/m3)				
	Daily	Monthly	Annual	Max. daily conc.	Max. yearly conc.	Daily	Monthly	Annual	Max. daily conc.	Max. Annual conc.
7/05/2015	3.1	2.6	2.7	25.0	8.0	13.3	11.5	9.7	50.0	30.0
8/05/2015	3.1	2.6	2.7	25.0	8.0	12.6	11.5	9.7	50.0	30.0
9/05/2015	1.1	2.6	2.7	25.0	8.0	7.8	11.5	9.7	50.0	30.0
10/05/2015	1.6	2.6	2.7	25.0	8.0	12.8	11.5	9.7	50.0	30.0
11/05/2015	1.2	2.6	2.7	25.0	8.0	7.1	11.5	9.7	50.0	30.0
12/05/2015	0.5	2.6	2.7	25.0	8.0	6.9	11.5	9.7	50.0	30.0
13/05/2015	2.4	2.6	2.7	25.0	8.0	8.8	11.5	9.7	50.0	30.0
14/05/2015	4.2	2.6	2.7	25.0	8.0	10.9	11.5	9.7	50.0	30.0
15/05/2015	4.0	2.6	2.7	25.0	8.0	11.7	11.5	9.7	50.0	30.0
16/05/2015	3.0	2.6	2.7	25.0	8.0	9.9	11.5	9.7	50.0	30.0
17/05/2015	4.2	2.6	2.7	25.0	8.0	10.3	11.5	9.7	50.0	30.0
18/05/2015	3.4	2.6	2.7	25.0	8.0	9.9	11.5	9.7	50.0	30.0
19/05/2015	1.2	2.6	2.7	25.0	8.0	7.2	11.5	9.7	50.0	30.0
20/05/2015	1.8	2.6	2.7	25.0	8.0	7.4	11.5	9.7	50.0	30.0
21/05/2015	2.0	2.6	2.7	25.0	8.0	6.4	11.5	9.7	50.0	30.0
22/05/2015	1.2	2.6	2.7	25.0	8.0	5.8	11.5	9.7	50.0	30.0
23/05/2015	1.8	2.6	2.7	25.0	8.0	7.7	11.5	9.7	50.0	30.0
24/05/2015	4.0	2.6	2.7	25.0	8.0	10.4	11.5	9.7	50.0	30.0
25/05/2015	4.8	2.6	2.7	25.0	8.0	12.8	11.5	9.7	50.0	30.0
26/05/2015	5.1	2.6	2.7	25.0	8.0	12.8	11.5	9.7	50.0	30.0
27/05/2015	4.3	2.6	2.7	25.0	8.0	12.5	11.5	9.7	50.0	30.0
28/05/2015	3.6	2.6	2.7	25.0	8.0	11.0	11.5	9.7	50.0	30.0
29/05/2015	2.2	2.6	2.7	25.0	8.0	7.4	11.5	9.7	50.0	30.0
30/05/2015	2.0	2.6	2.7	25.0	8.0	7.8	11.5	9.7	50.0	30.0
31/05/2015	0.6	2.6	2.7	25.0	8.0	6.1	11.5	9.7	50.0	30.0

Date	Blackmans AQMS; Average PM2.5 (ug/m3)					Blackmans AQMS; Average PM10 (ug/m3)				
	Daily	Monthly	Annual	Max. daily conc.	Max. yearly conc.	Daily	Monthly	Annual	Max. daily conc.	Max. Annual conc.
1/06/2015	0.7	2.7	2.7	25.0	8.0	5.0	9.1	9.7	50.0	30.0
2/06/2015	1.9	2.7	2.7	25.0	8.0	7.4	9.1	9.7	50.0	30.0
3/06/2015	3.2	2.7	2.7	25.0	8.0	16.9	9.1	9.7	50.0	30.0
4/06/2015	2.1	2.7	2.7	25.0	8.0	12.8	9.1	9.7	50.0	30.0
5/06/2015	2.5	2.7	2.7	25.0	8.0	8.5	9.1	9.7	50.0	30.0
6/06/2015	7.1	2.7	2.7	25.0	8.0	14.3	9.1	9.7	50.0	30.0
7/06/2015	5.2	2.7	2.7	25.0	8.0	10.9	9.1	9.7	50.0	30.0
8/06/2015	0.7	2.7	2.7	25.0	8.0	6.6	9.1	9.7	50.0	30.0
9/06/2015	1.5	2.7	2.7	25.0	8.0	9.5	9.1	9.7	50.0	30.0
10/06/2015	1.7	2.7	2.7	25.0	8.0	7.2	9.1	9.7	50.0	30.0
11/06/2015	0.8	2.7	2.7	25.0	8.0	6.8	9.1	9.7	50.0	30.0
12/06/2015	1.5	2.7	2.7	25.0	8.0	5.5	9.1	9.7	50.0	30.0
13/06/2015	3.2	2.7	2.7	25.0	8.0	9.2	9.1	9.7	50.0	30.0
14/06/2015	5.1	2.7	2.7	25.0	8.0	10.4	9.1	9.7	50.0	30.0
15/06/2015	4.9	2.7	2.7	25.0	8.0	20.9	9.1	9.7	50.0	30.0
16/06/2015	0.4	2.7	2.7	25.0	8.0	4.3	9.1	9.7	50.0	30.0
17/06/2015	-0.2	2.7	2.7	25.0	8.0	3.4	9.1	9.7	50.0	30.0
18/06/2015	0.5	2.7	2.7	25.0	8.0	4.6	9.1	9.7	50.0	30.0
19/06/2015	1.8	2.7	2.7	25.0	8.0	5.7	9.1	9.7	50.0	30.0
20/06/2015	4.0	2.7	2.7	25.0	8.0	8.7	9.1	9.7	50.0	30.0
21/06/2015	4.6	2.7	2.7	25.0	8.0	9.7	9.1	9.7	50.0	30.0
22/06/2015	2.2	2.7	2.7	25.0	8.0	8.2	9.1	9.7	50.0	30.0
23/06/2015	2.6	2.7	2.7	25.0	8.0	11.5	9.1	9.7	50.0	30.0
24/06/2015	0.1	2.7	2.7	25.0	8.0	7.3	9.1	9.7	50.0	30.0
25/06/2015	2.7	2.7	2.7	25.0	8.0	8.5	9.1	9.7	50.0	30.0

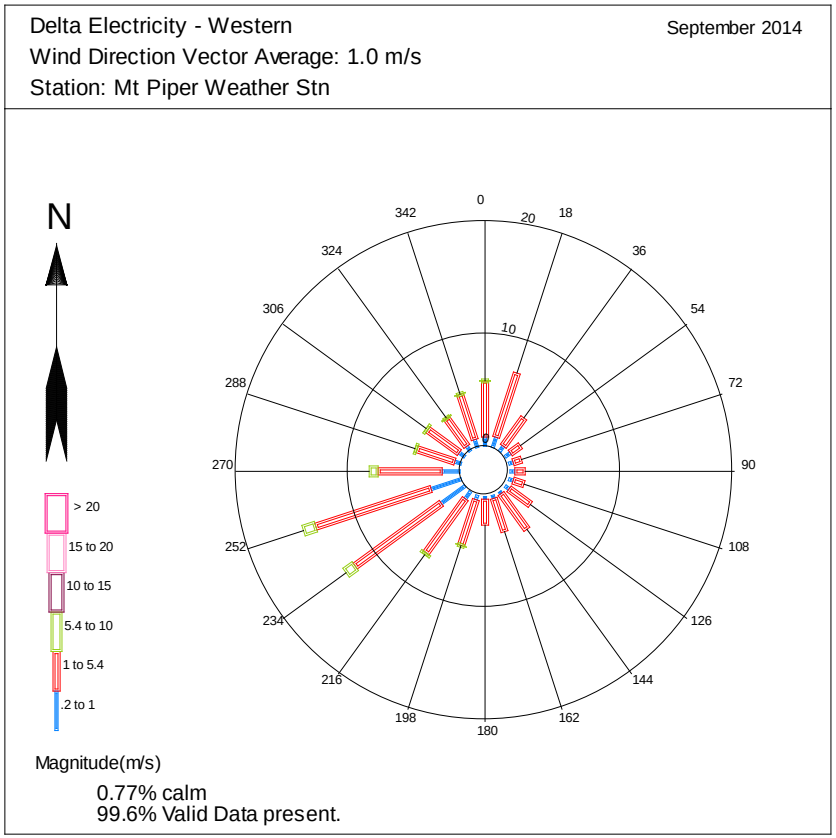
Date	Blackmans AQMS; Average PM2.5 (ug/m3)					Blackmans AQMS; Average PM10 (ug/m3)				
	Daily	Monthly	Annual	Max. daily conc.	Max. yearly conc.	Daily	Monthly	Annual	Max. daily conc.	Max. Annual conc.
26/06/2015	2.5	2.7	2.7	25.0	8.0	9.3	9.1	9.7	50.0	30.0
27/06/2015	4.4	2.7	2.7	25.0	8.0	10.1	9.1	9.7	50.0	30.0
28/06/2015	3.6	2.7	2.7	25.0	8.0	9.6	9.1	9.7	50.0	30.0
29/06/2015	5.3	2.7	2.7	25.0	8.0	11.8	9.1	9.7	50.0	30.0
30/06/2015	3.4	2.7	2.7	25.0	8.0	9.2	9.1	9.7	50.0	30.0
1/07/2015	2.5	1.7	2.7	25.0	8.0	8.8	7.4	9.7	50.0	30.0
2/07/2015	1.7	1.7	2.7	25.0	8.0	7.0	7.4	9.7	50.0	30.0
3/07/2015	2.5	1.7	2.7	25.0	8.0	9.4	7.4	9.7	50.0	30.0
4/07/2015	2.3	1.7	2.7	25.0	8.0	9.5	7.4	9.7	50.0	30.0
5/07/2015	2.9	1.7	2.7	25.0	8.0	10.8	7.4	9.7	50.0	30.0
6/07/2015	2.4	1.7	2.7	25.0	8.0	11.7	7.4	9.7	50.0	30.0
7/07/2015	2.8	1.7	2.7	25.0	8.0	9.7	7.4	9.7	50.0	30.0
8/07/2015	2.6	1.7	2.7	25.0	8.0	7.3	7.4	9.7	50.0	30.0
9/07/2015	3.1	1.7	2.7	25.0	8.0	9.5	7.4	9.7	50.0	30.0
10/07/2015	1.3	1.7	2.7	25.0	8.0	6.3	7.4	9.7	50.0	30.0
11/07/2015	-0.4	1.7	2.7	25.0	8.0	4.1	7.4	9.7	50.0	30.0
12/07/2015	-0.7	1.7	2.7	25.0	8.0	2.7	7.4	9.7	50.0	30.0
13/07/2015	0.4	1.7	2.7	25.0	8.0	4.1	7.4	9.7	50.0	30.0
14/07/2015	0.4	1.7	2.7	25.0	8.0	4.7	7.4	9.7	50.0	30.0
15/07/2015	0.9	1.7	2.7	25.0	8.0	5.5	7.4	9.7	50.0	30.0
16/07/2015	0.2	1.7	2.7	25.0	8.0	4.3	7.4	9.7	50.0	30.0
17/07/2015	0.8	1.7	2.7	25.0	8.0	4.6	7.4	9.7	50.0	30.0
18/07/2015	2.1	1.7	2.7	25.0	8.0	6.4	7.4	9.7	50.0	30.0
19/07/2015	1.4	1.7	2.7	25.0	8.0	6.6	7.4	9.7	50.0	30.0
20/07/2015	3.2	1.7	2.7	25.0	8.0	9.8	7.4	9.7	50.0	30.0

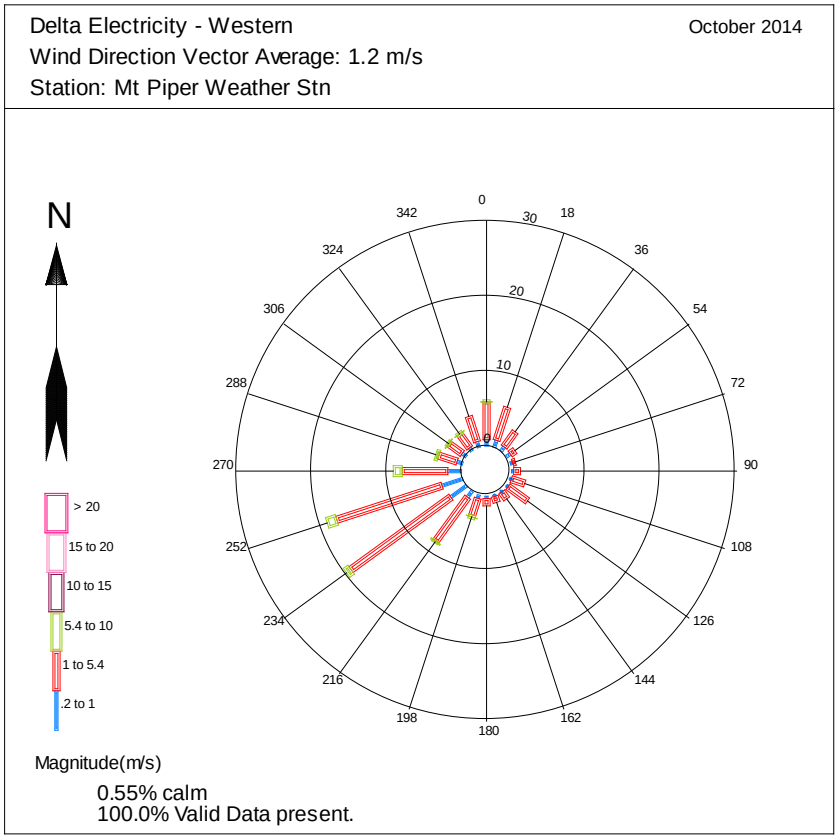
Date	Blackmans AQMS; Average PM2.5 (ug/m3)					Blackmans AQMS; Average PM10 (ug/m3)				
	Daily	Monthly	Annual	Max. daily conc.	Max. yearly conc.	Daily	Monthly	Annual	Max. daily conc.	Max. Annual conc.
21/07/2015	2.9	1.7	2.7	25.0	8.0	7.6	7.4	9.7	50.0	30.0
22/07/2015	1.7	1.7	2.7	25.0	8.0	6.9	7.4	9.7	50.0	30.0
23/07/2015	3.6	1.7	2.7	25.0	8.0	8.6	7.4	9.7	50.0	30.0
24/07/2015	1.0	1.7	2.7	25.0	8.0	6.1	7.4	9.7	50.0	30.0
25/07/2015	0.7	1.7	2.7	25.0	8.0	5.6	7.4	9.7	50.0	30.0
26/07/2015	0.8	1.7	2.7	25.0	8.0	6.2	7.4	9.7	50.0	30.0
27/07/2015	1.3	1.7	2.7	25.0	8.0	7.0	7.4	9.7	50.0	30.0
28/07/2015	2.1	1.7	2.7	25.0	8.0	8.1	7.4	9.7	50.0	30.0
29/07/2015	3.5	1.7	2.7	25.0	8.0	10.0	7.4	9.7	50.0	30.0
30/07/2015	2.2	1.7	2.7	25.0	8.0	10.3	7.4	9.7	50.0	30.0
31/07/2015	2.0	1.7	2.7	25.0	8.0	9.5	7.4	9.7	50.0	30.0
1/08/2015	1.3	2.5	2.7	25.0	8.0	8.1	8.6	9.7	50.0	30.0
2/08/2015	2.2	2.5	2.7	25.0	8.0	9.8	8.6	9.7	50.0	30.0
3/08/2015	0.7	2.5	2.7	25.0	8.0	5.9	8.6	9.7	50.0	30.0
4/08/2015	0.9	2.5	2.7	25.0	8.0	6.5	8.6	9.7	50.0	30.0
5/08/2015	0.1	2.5	2.7	25.0	8.0	5.3	8.6	9.7	50.0	30.0
6/08/2015	1.1	2.5	2.7	25.0	8.0	5.3	8.6	9.7	50.0	30.0
7/08/2015	0.5	2.5	2.7	25.0	8.0	4.3	8.6	9.7	50.0	30.0
8/08/2015	3.5	2.5	2.7	25.0	8.0	8.6	8.6	9.7	50.0	30.0
9/08/2015	4.8	2.5	2.7	25.0	8.0	10.4	8.6	9.7	50.0	30.0
10/08/2015	1.3	2.5	2.7	25.0	8.0	8.3	8.6	9.7	50.0	30.0
11/08/2015	2.4	2.5	2.7	25.0	8.0	11.4	8.6	9.7	50.0	30.0
12/08/2015	1.6	2.5	2.7	25.0	8.0	9.6	8.6	9.7	50.0	30.0
13/08/2015	1.4	2.5	2.7	25.0	8.0	6.0	8.6	9.7	50.0	30.0
14/08/2015	2.1	2.5	2.7	25.0	8.0	7.3	8.6	9.7	50.0	30.0

Date	Blackmans AQMS; Average PM2.5 (ug/m3)					Blackmans AQMS; Average PM10 (ug/m3)				
	Daily	Monthly	Annual	Max. daily conc.	Max. yearly conc.	Daily	Monthly	Annual	Max. daily conc.	Max. Annual conc.
15/08/2015	7.0	2.5	2.7	25.0	8.0	13.3	8.6	9.7	50.0	30.0
16/08/2015	9.3	2.5	2.7	25.0	8.0	16.3	8.6	9.7	50.0	30.0
17/08/2015	0.3	2.5	2.7	25.0	8.0	5.5	8.6	9.7	50.0	30.0
18/08/2015	2.4	2.5	2.7	25.0	8.0	8.3	8.6	9.7	50.0	30.0
19/08/2015	7.4	2.5	2.7	25.0	8.0	16.6	8.6	9.7	50.0	30.0
20/08/2015	6.7	2.5	2.7	25.0	8.0	15.7	8.6	9.7	50.0	30.0
21/08/2015	5.9	2.5	2.7	25.0	8.0	17.7	8.6	9.7	50.0	30.0
22/08/2015	4.3	2.5	2.7	25.0	8.0	15.2	8.6	9.7	50.0	30.0
23/08/2015	2.0	2.5	2.7	25.0	8.0	6.7	8.6	9.7	50.0	30.0
24/08/2015	0.7	2.5	2.7	25.0	8.0	4.6	8.6	9.7	50.0	30.0
25/08/2015	0.4	2.5	2.7	25.0	8.0	3.7	8.6	9.7	50.0	30.0
26/08/2015	0.9	2.5	2.7	25.0	8.0	4.9	8.6	9.7	50.0	30.0
27/08/2015	0.1	2.5	2.7	25.0	8.0	4.3	8.6	9.7	50.0	30.0
28/08/2015	1.4	2.5	2.7	25.0	8.0	5.9	8.6	9.7	50.0	30.0
29/08/2015	1.3	2.5	2.7	25.0	8.0	6.0	8.6	9.7	50.0	30.0
30/08/2015	1.7	2.5	2.7	25.0	8.0	6.8	8.6	9.7	50.0	30.0
31/08/2015	2.6	2.5	2.7	25.0	8.0	9.1	8.6	9.7	50.0	30.0

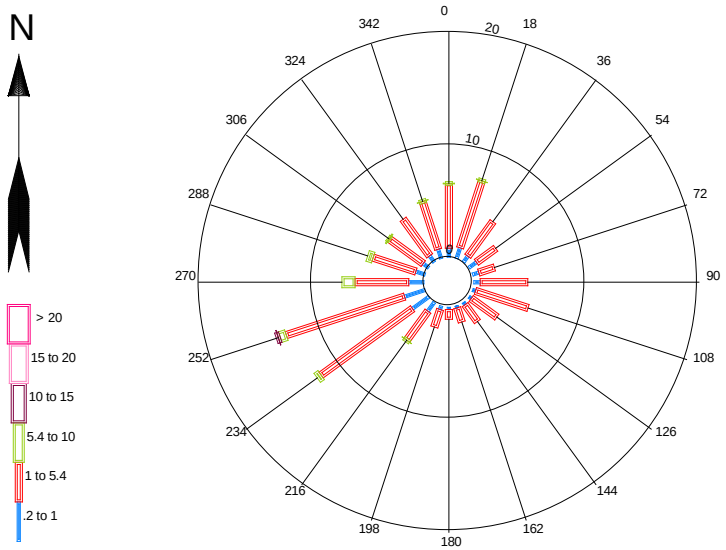
Appendix C

Wind rose at Mt Piper Weather Station for September 2014 to August 2015





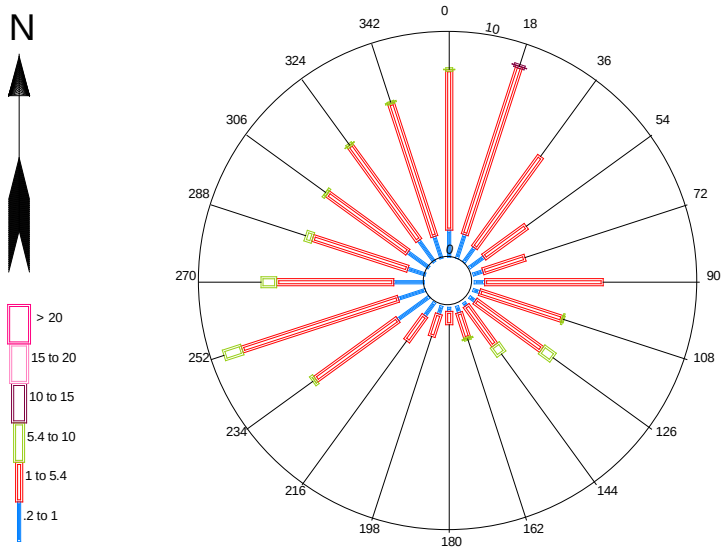
Delta Electricity - Western
November 2014
Wind Direction Vector Average: 0.7 m/s
Station: Mt Piper Weather Stn



Magnitude(m/s)

0.6% calm
79.7% Valid Data present.

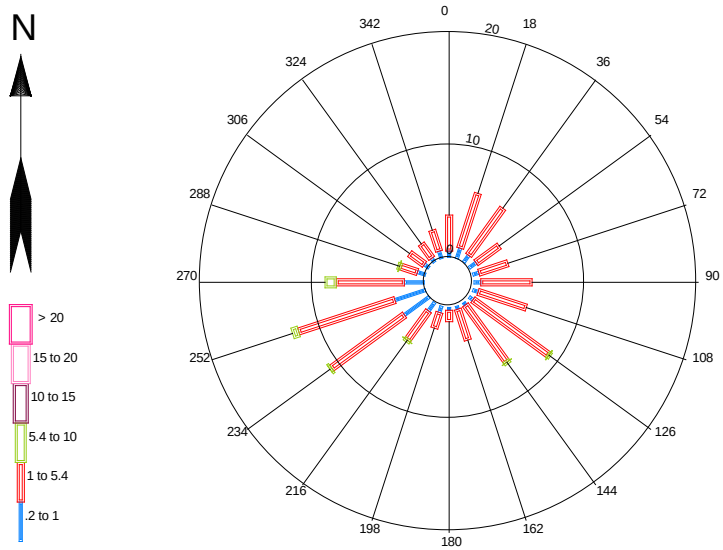
Delta Electricity - Western
December 2014
Wind Direction Vector Average: 0.5 m/s
Station: Mt Piper Weather Stn



Magnitude(m/s)

0.53% calm
100.0% Valid Data present.

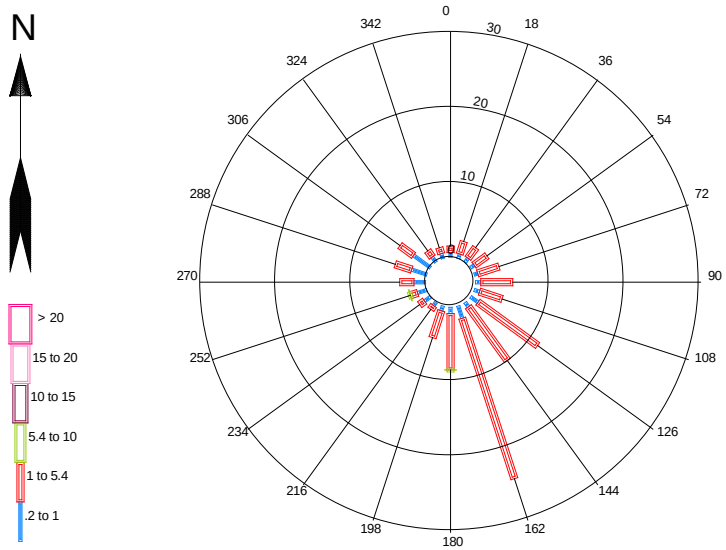
Delta Electricity - Western
January 2015
Wind Direction Vector Average: 0.3 m/s
Station: Mt Piper Weather Stn



Magnitude(m/s)

0.98% calm
85.0% Valid Data present.

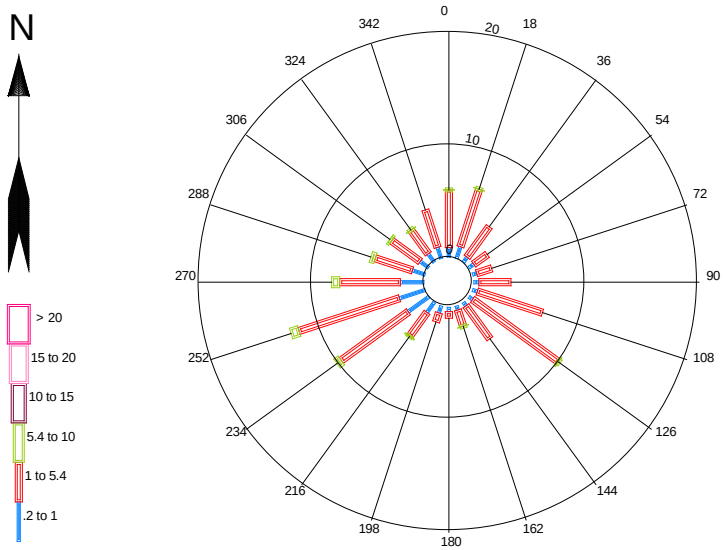
Delta Electricity - Western
February 2015
Wind Direction Vector Average: 1.1 m/s
Station: Mt Piper Weather Stn



Magnitude(m/s)

0.95% calm
100.0% Valid Data present.

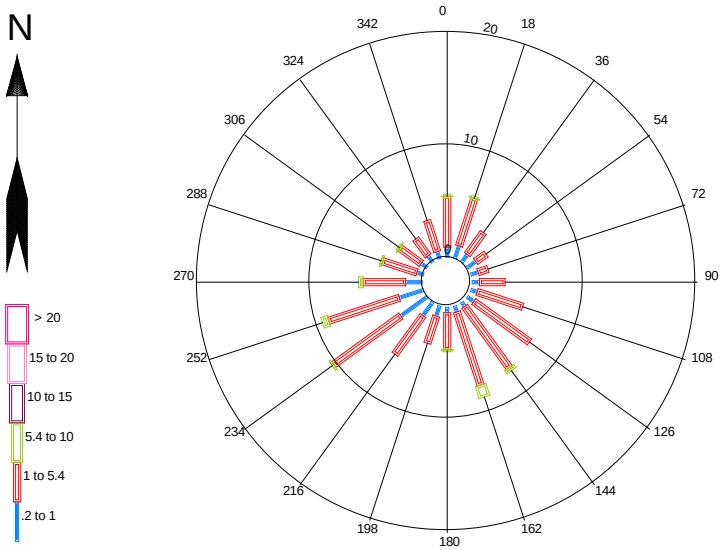
Delta Electricity - Western
March 2015
Wind Direction Vector Average: 0.3 m/s
Station: Mt Piper Weather Stn



Magnitude(m/s)

0.61% calm
99.9% Valid Data present.

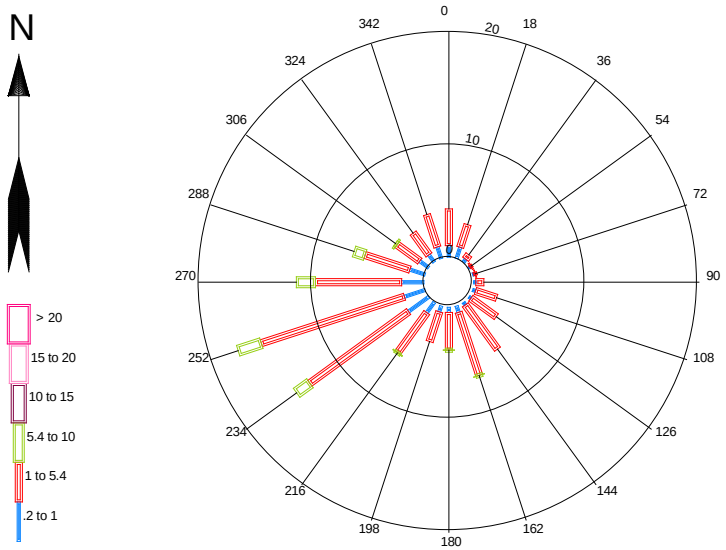
Delta Electricity - Western
April 2015
Wind Direction Vector Average: 0.6 m/s
Station: Mt Piper Weather Stn



Magnitude(m/s)

0.66% calm
100.0% Valid Data present.

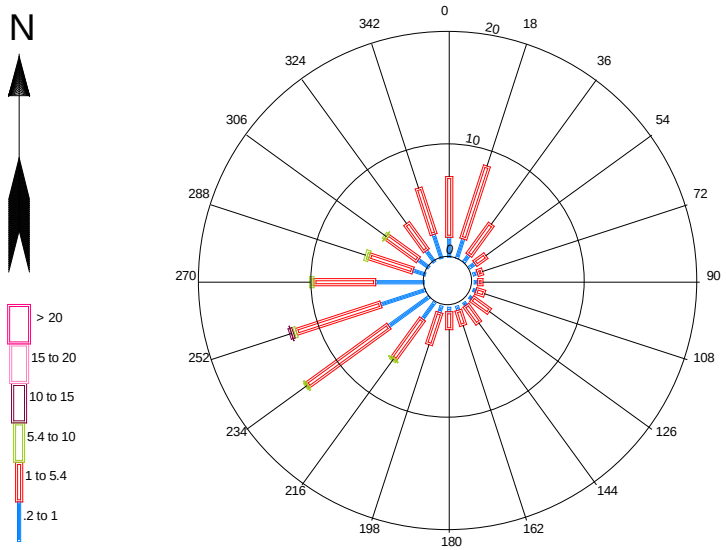
Delta Electricity - Western
May 2015
Wind Direction Vector Average: 1.5 m/s
Station: Mt Piper Weather Stn



Magnitude(m/s)

0.46% calm
98.2% Valid Data present.

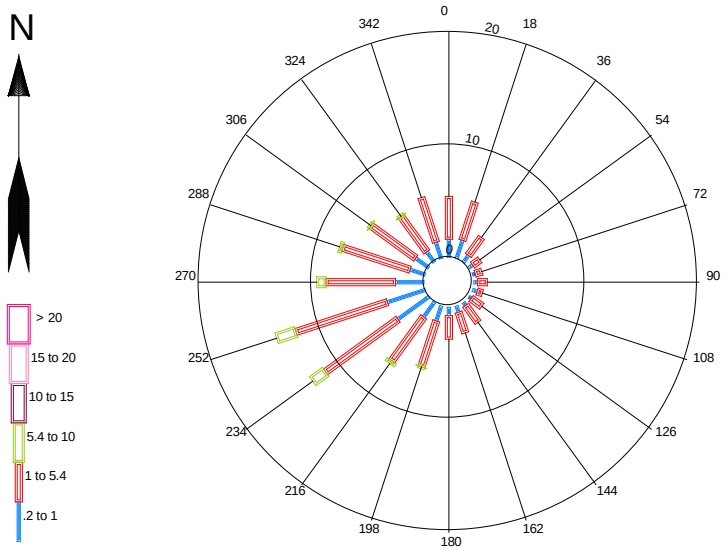
Delta Electricity - Western
June 2015
Wind Direction Vector Average: 0.6 m/s
Station: Mt Piper Weather Stn



Magnitude(m/s)

0.74% calm
99.9% Valid Data present.

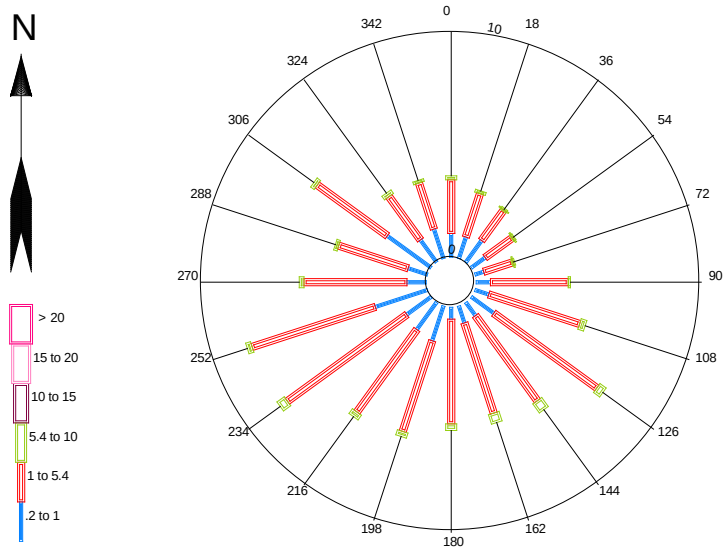
Delta Electricity - Western
Wind Direction Vector Average: 1.2 m/s
Station: Mt Piper Weather Stn
July 2015



Magnitude(m/s)

1.49% calm
100.0% Valid Data present.

Delta Electricity - Western
Wind Direction Vector Average: 1.1 m/s
Station: Mt Piper Weather Stn
August 2015



Magnitude(m/s)

0.12% calm
99.6% Valid Data present.