

Monthly Environmental Data April 2015

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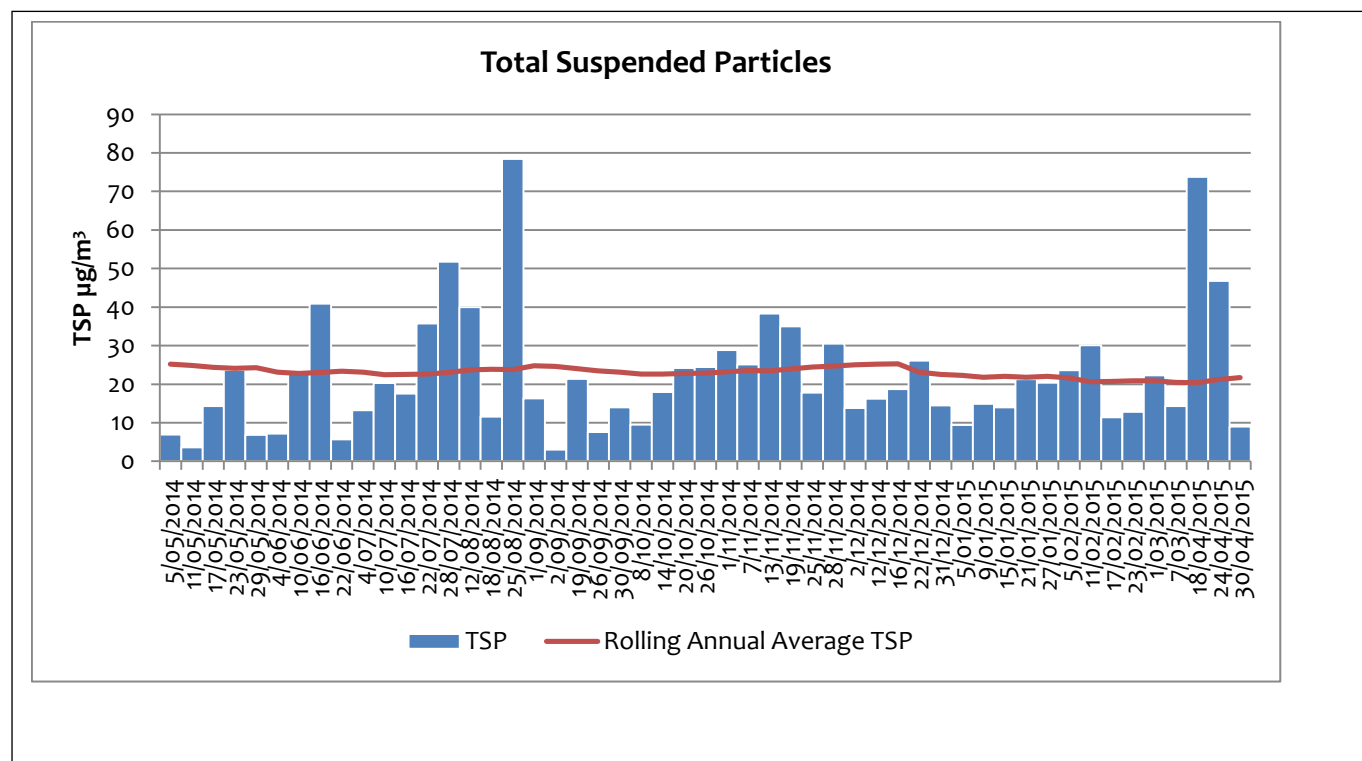
1 Air Quality

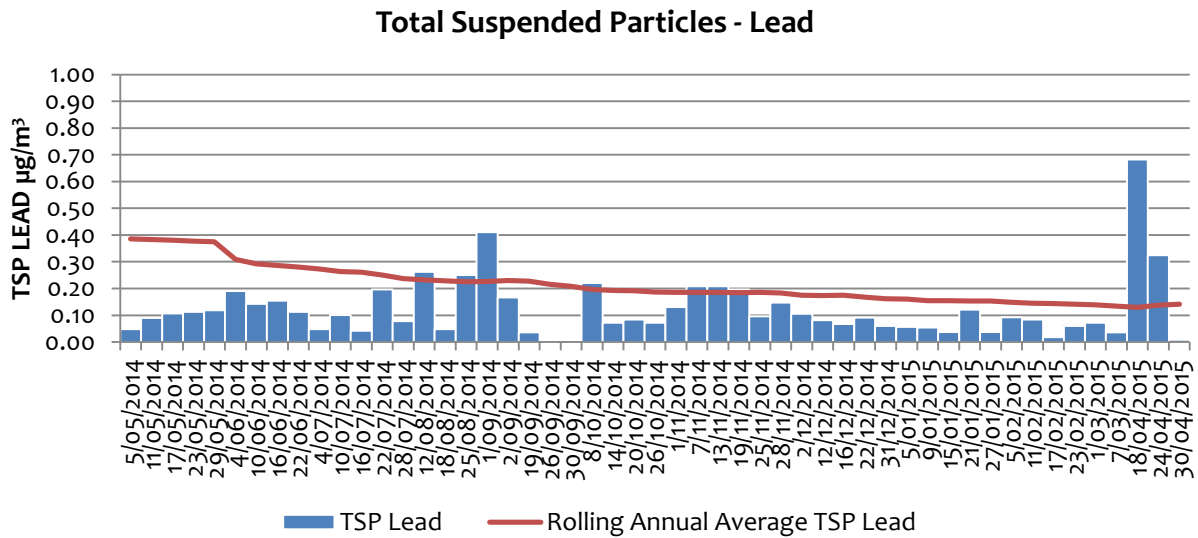
1.1 High Volume Air Samplers

EPL10 - SILVER TANK - ON SITE

DATE	TSP ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)
18/04/2015	73.80	0.68
24/04/2015	46.80	0.32
30/04/2015	9.00	0.01

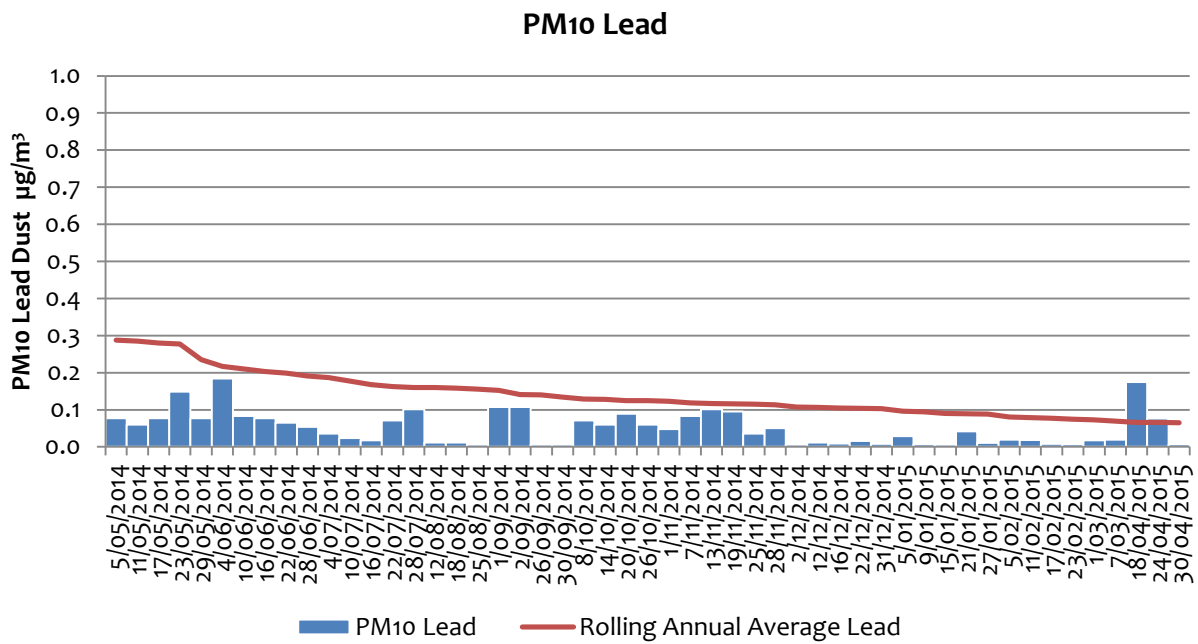
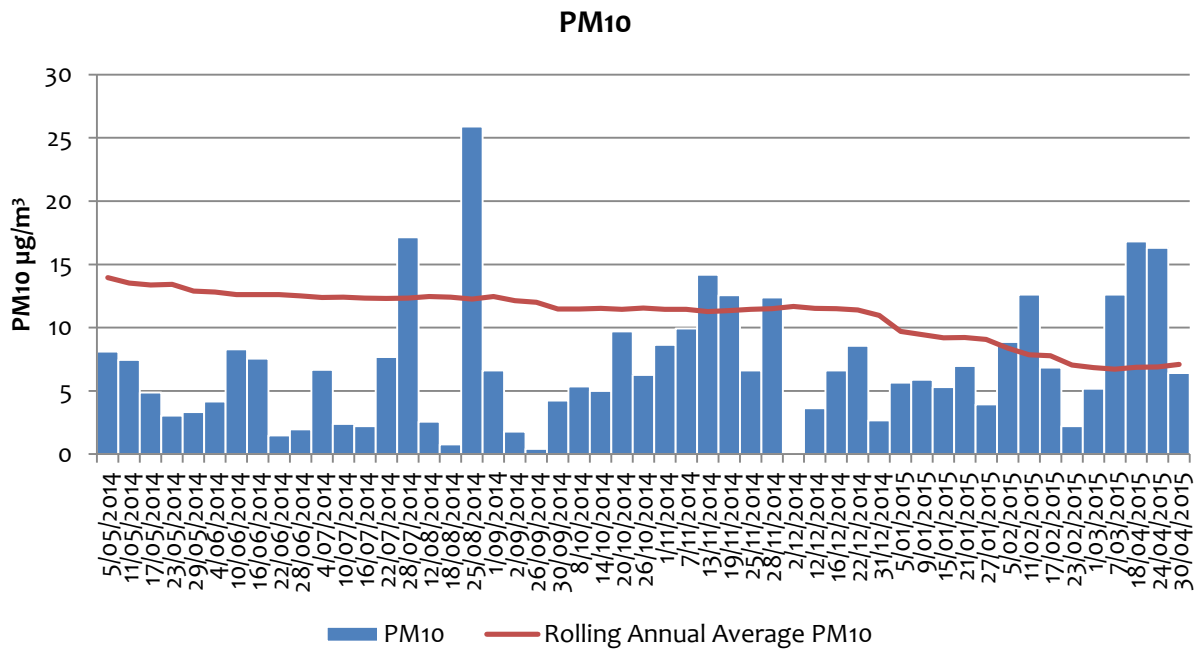
HVA1 was serviced in March 2015 and found to be unserviceable. This unit was taken out of service and replaced with a new machine in April. Only three sampling events were captured during April. This has been reported to the EPA.





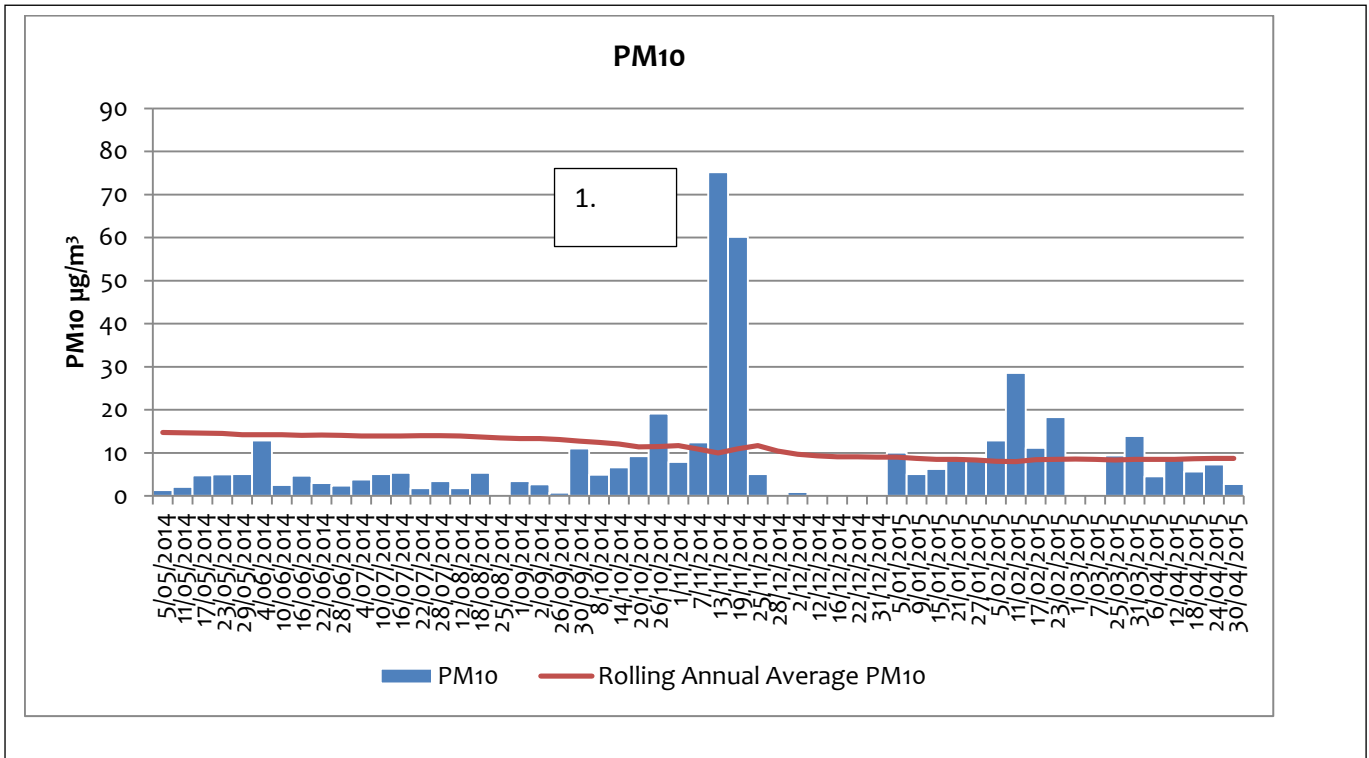
EPL11 - Silver Tank - On Site

DATE	PM10 ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)
18/04/2015	16.80	0.18
24/04/2015	16.30	0.08
30/04/2015	6.40	0.01
HVA2 was serviced in March 2015 and found to be unserviceable. This unit was taken out of service and replaced with a new machine in April. Only three sampling events were captured during April. This has been reported to the EPA.		



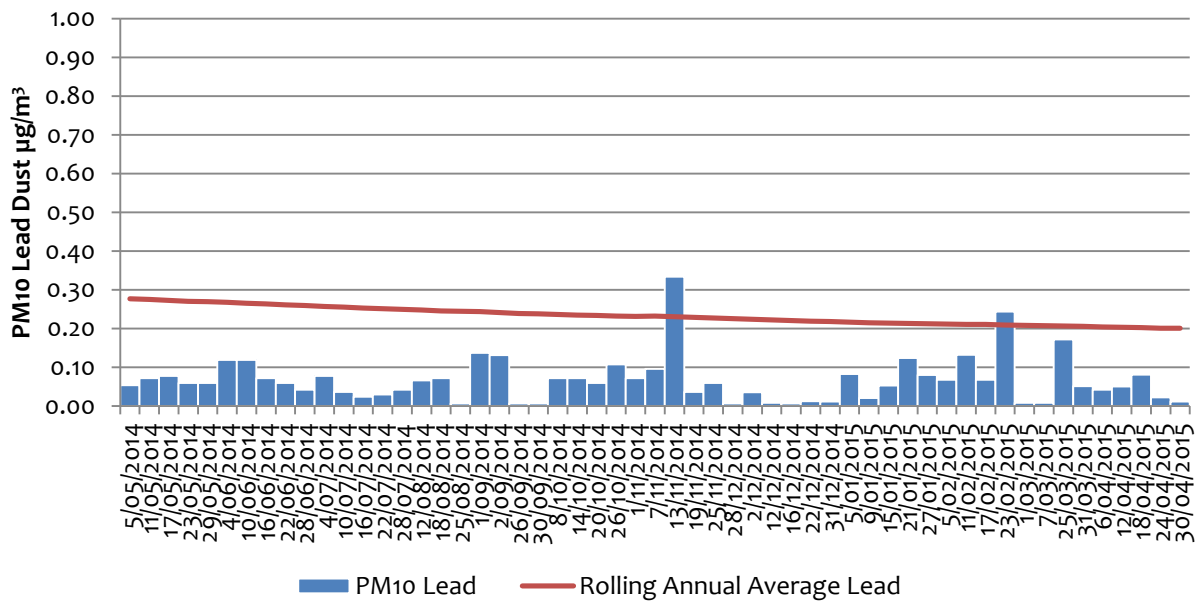
EPL12 - Blackwoods Pit – On Site

DATE	PM10 ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)
6/04/2015	4.60	0.042
12/04/2015	9.10	0.05
18/04/2015	5.70	0.081
24/04/2015	7.30	0.022
30/04/2015	2.80	0.011



1. High dust values in November coincide with road works that were carried out by Broken Hill City Council on Federation Way in the vicinity of Blackwoods Pit.

PM10 Lead



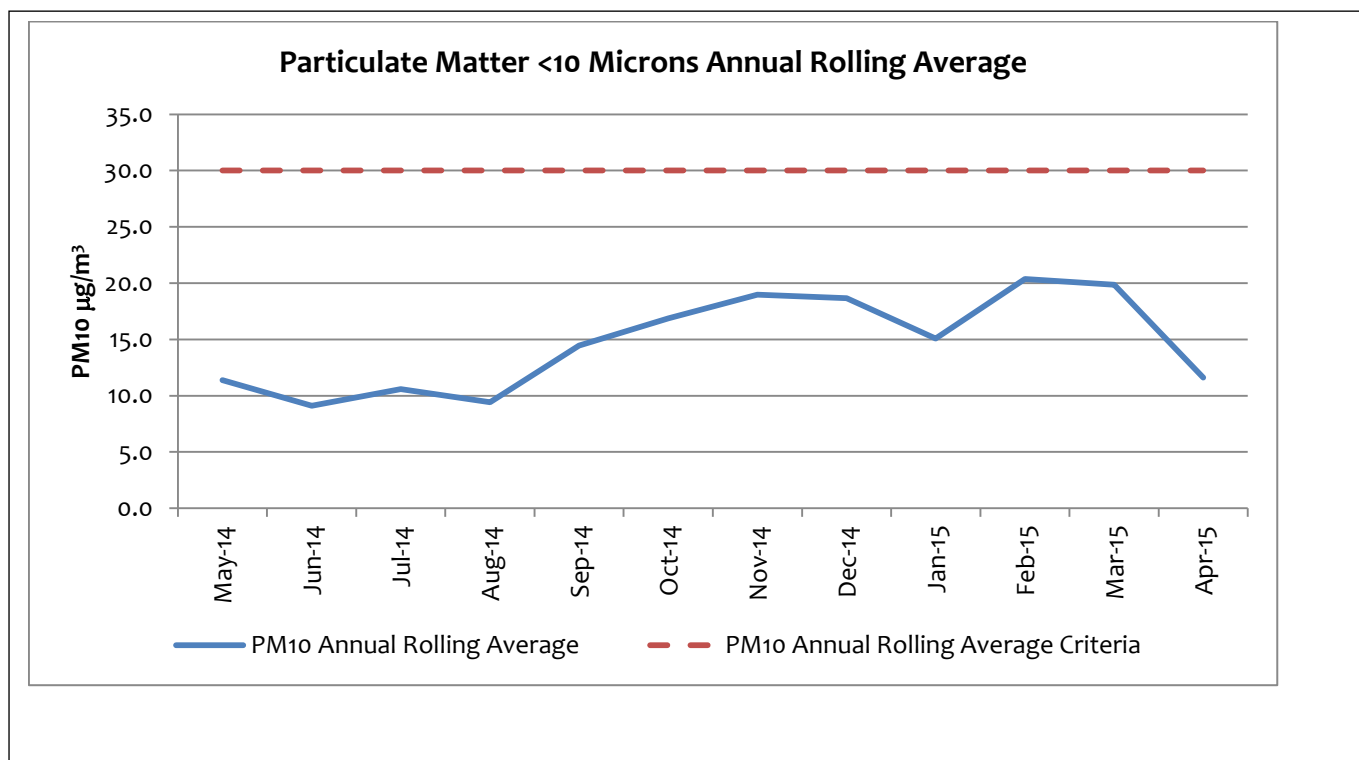
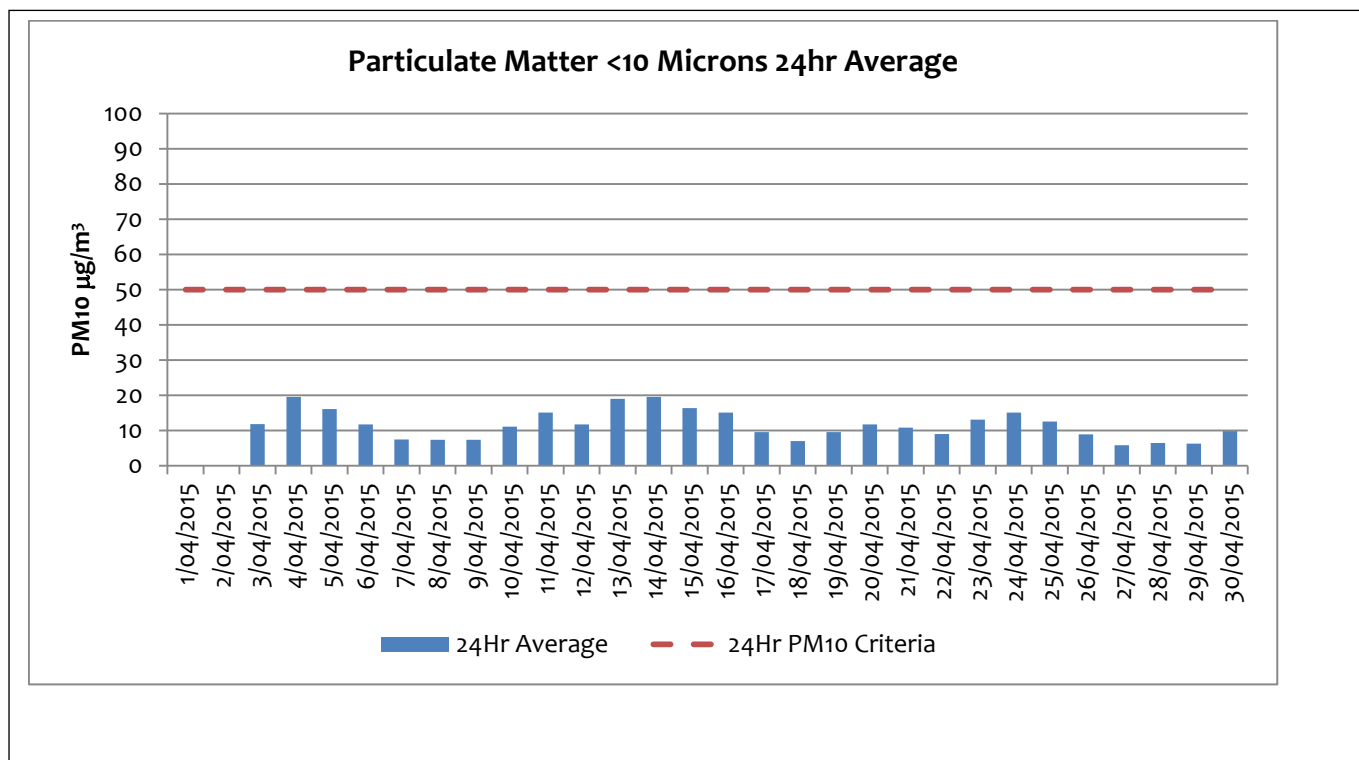
1.2 Tapered Element Oscillating Microbalance Sampling (TEOM)

Particulate Matter <10 Microns 24Hr Average		
Date	TEOM 1 - EPL 13 (µg/m ³) Essential Water – Off Site	TEOM 2 – EPL 14 (µg/m ³) Blackwoods Pit – On Site
1/04/2015	See footnote	19.73
2/04/2015		20.66
3/04/2015	11.79	27.12
4/04/2015	19.55	23.23
5/04/2015	16.07	17.35
6/04/2015	11.74	12.12
7/04/2015	7.50	9.19
8/04/2015	7.42	15.24
9/04/2015	7.34	16.99
10/04/2015	11.08	18.26
11/04/2015	15.06	19.69
12/04/2015	11.73	13.40
13/04/2015	19.01	14.58
14/04/2015	19.55	14.73
15/04/2015	16.38	14.84
16/04/2015	15.15	18.15
17/04/2015	9.60	11.53
18/04/2015	7.06	7.80
19/04/2015	9.57	10.96
20/04/2015	11.78	17.86
21/04/2015	10.80	19.91
22/04/2015	8.98	15.74
23/04/2015	13.11	18.29
24/04/2015	15.10	17.72
25/04/2015	12.57	12.09
26/04/2015	8.95	9.97
27/04/2015	5.83	7.93
28/04/2015	6.48	10.07
29/04/2015	6.28	10.11
30/04/2015	9.82	12.03

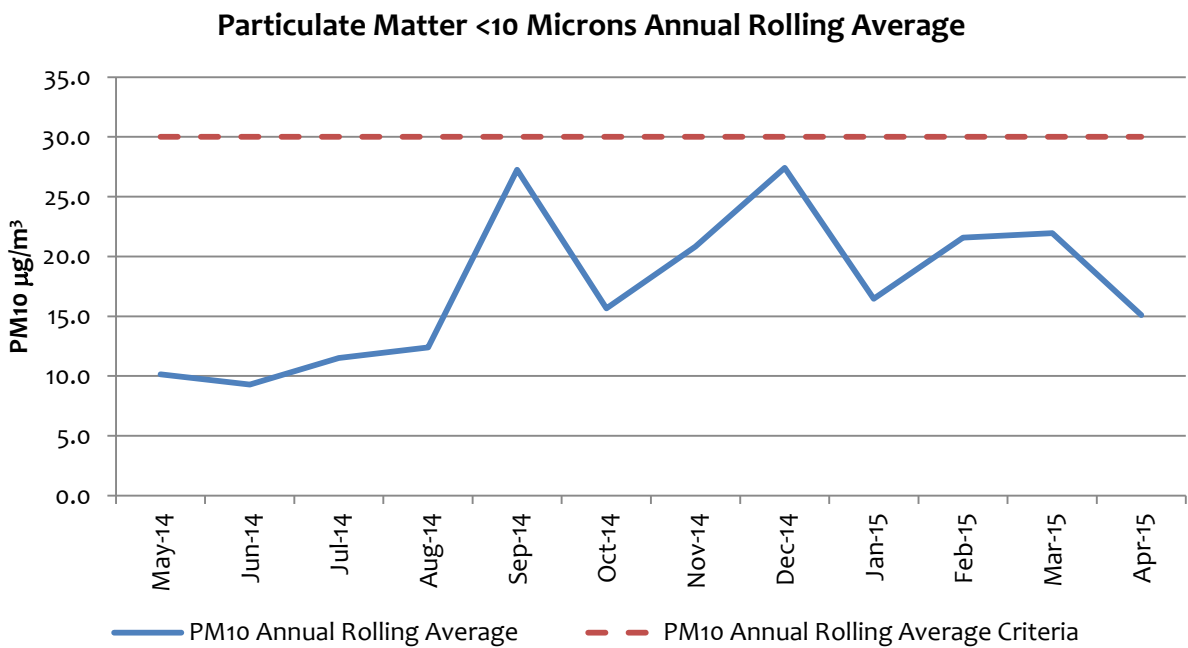
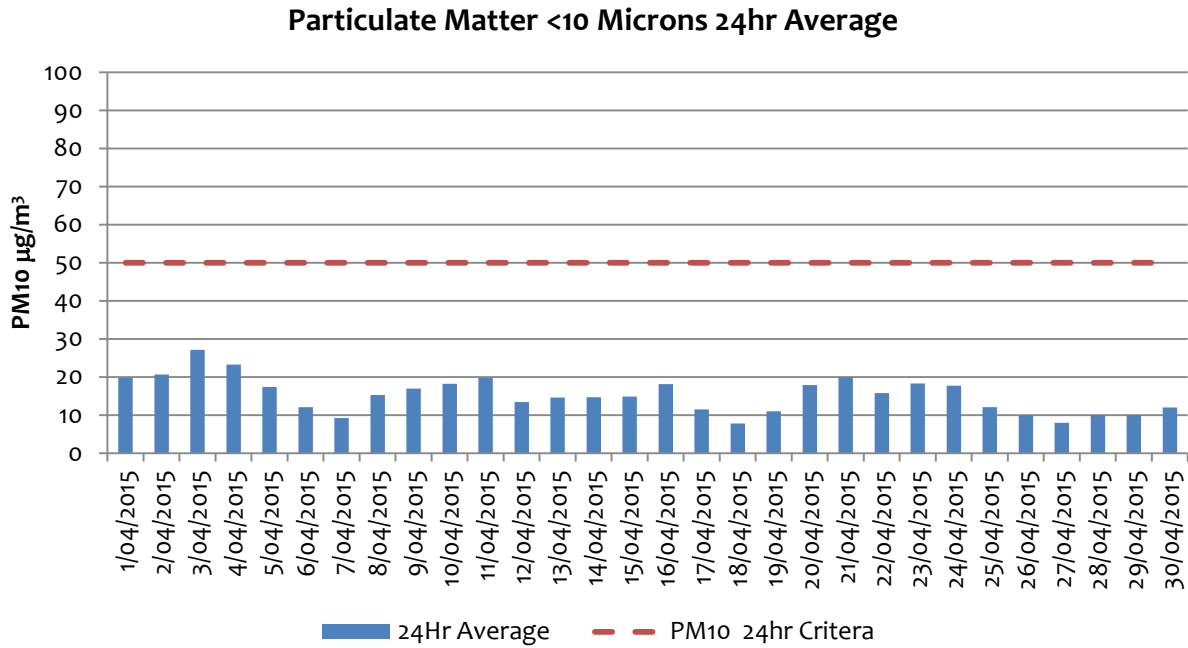
TEOM 1 stopped recording data after a service conducted in March. The TEOM has since been reset and is recording as normal.

PM10 µg/m ³ 12 Month Rolling Average												
	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14	Jan-15	Feb-15	Mar-15	Apr-15
TEOM 1 EPL13 Essential Water Off Site	11.4	9.1	10.6	9.4	14.4	16.9	19.0	18.7	15.1	20.4	19.8	11.6
TEOM 2 EPL14 Blackwoods Pit On Site	10.2	9.3	11.5	12.4	27.2	15.7	20.8	27.4	16.5	21.6	22.0	15.1

EPL13 – Essential Water – Off Site

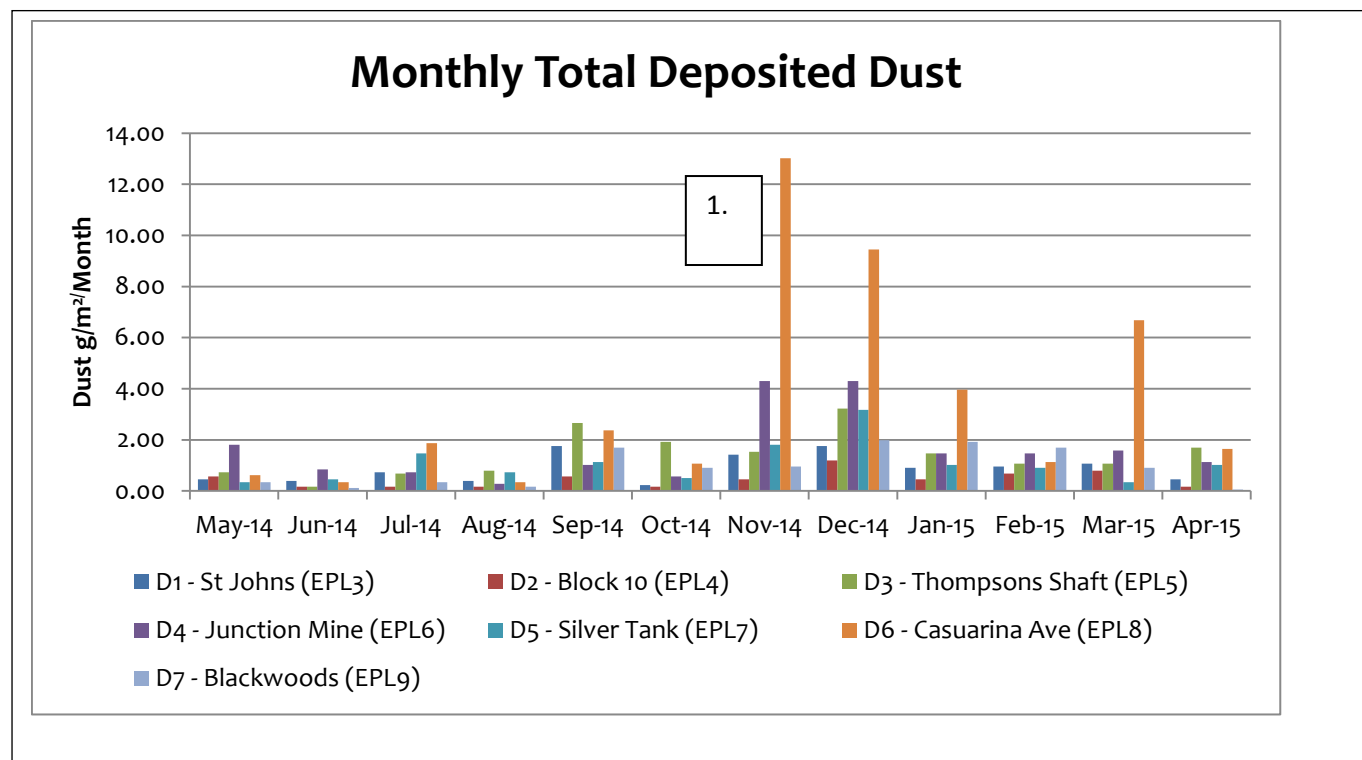


EPL14 – Blackwoods Pit – On Site



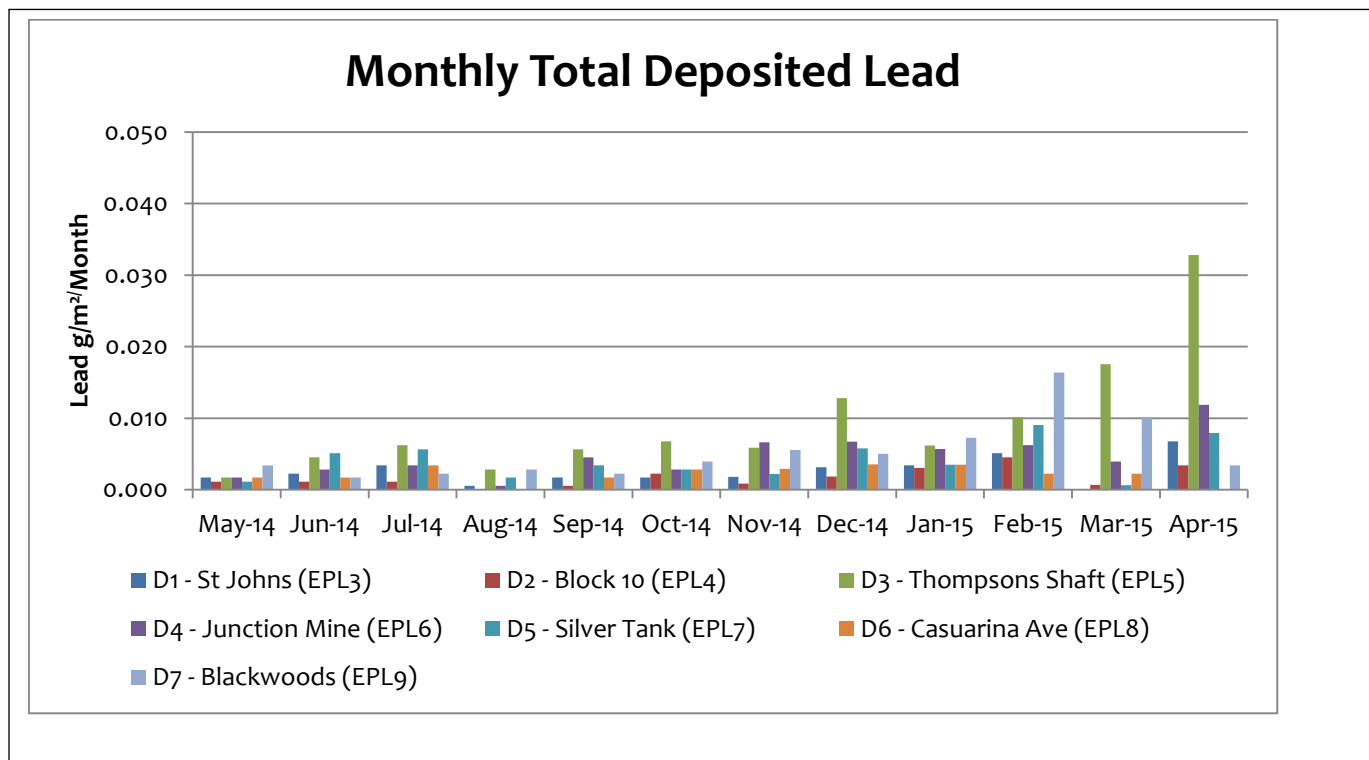
1.3 Dust Deposition Sampling

Total Deposited Dust (g/m ² /Month)							
Date	D1 (off site)	D2	D3	D4	D5	D6 (off site)	D7
April 2015	0.45	0.17	1.70	1.13	1.02	1.64	0.06
Background Average	4.0	3.1	4.3	5.7	n/a	5.8	n/a



1. Samples at Casuarina Ave appear to have been tampered with in November and December 2014 as well as March 2015. These jars when picked up had large volumes of water present.

Total Deposited Lead (g/m ² /Month)							
Date	D1 (Off Site)	D2	D3	D4	D5	D6 (Off Site)	D7
April 2015	0.007	0.003	0.033	0.012	0.008	0.000	0.003
Background Average	0.0000	0.001	0.0018	0.0040	0.0010	0.0020	0.0100



2 Blasting (Vibration and Overpressure)

Note: Vibration is recorded in Peak Particle Velocity (ppv), Overpressure is recorded in Decibels (dBL)

April Summary:

- 8 production firings
- 1 Blast recorded a ppv of >5mm/s
- 0 Blasts recorded a ppv of >10mm/s
- 0 Blasts recorded an over pressure level over 115 (dBL)
- 0 Blasts recorded an over pressure above 120 (dBL)

Date	Monitoring Location	PPV (mm/s)	O/Press (dBL)
1/04/2015	V2 Hire Yard	0.39	88
9/04/2015	V1 Silver Tank	0.22	94
9/04/2015	V2 Hire Yard	1.51	97.5
12/04/2015	V2 Hire Yard	1.22	91.5
14/04/2015	V1 Silver Tank	0.2	88
14/04/2015	V2 Hire Yard	1.32	91.5
16/04/2015	V1 Silver Tank	0.16	97.5
16/04/2015	V2 Hire Yard	0.32	81.9
19/04/2015	V1 Silver Tank	0.25	106
19/04/2015	V2 Hire Yard	5.1	112.6
24/04/2015	V1 Silver Tank	0.18	108.4
24/04/2015	V2 Hire Yard	1.04	115
29/04/2015	V1 Silver Tank	0.14	81.9
29/04/2015	V2 Hire Yard	0.54	95.9

3 Noise

Quarterly noise monitoring is continuing as per the Pollution Reduction Program on EPL 12559. Two noise assessments have been undertaken since November last year. EMGA Mitchell McLennan Pty Limited (EMM) completed the analysis for both assessments. The latest report concluded as follows:

“EMM has completed a noise monitoring assessment of operational noise from RASP Mine activities as per the site's EPL (12559). The monitoring assessment for this second quarterly survey found that noise limits were inapplicable due to meteorological conditions, notwithstanding noise from RASP Mine operations (including the crushing plant) were below the noise limits at most locations, and for most measurements. Subsequent additional attended measurements identified site noise to be below the relevant noise limits hence reaffirming compliance at all locations.”

The report is published in full on the CBH website.

4 Water

4.1 Ground Water Sampled 8/04/2015

		UNDERGROUND FEED	SHAFT 7
Analyte grouping/Analyte	Units		
pH Value	pH Unit	6.5	6.64
Electrical Conductivity @ 25°C	µS/cm	10400	11700
Total Dissolved Solids @180°C	mg/L	10800	11800
Hydroxide Alkalinity as CaCO ₃	mg/L	<1	<1
Carbonate Alkalinity as CaCO ₃	mg/L	<1	<1
Bicarbonate Alkalinity as CaCO ₃	mg/L	11	26
Total Alkalinity as CaCO ₃	mg/L	11	26
Sulfate as SO ₄ - Turbidimetric	mg/L	4850	5160
Chloride	mg/L	1190	1420
Calcium	mg/L	513	551
Magnesium	mg/L	221	293
Sodium	mg/L	1140	1350
Cadmium	mg/L	2.43	1.84
Manganese	mg/L	338	423
Lead	mg/L	0.304	1.08
Zinc	mg/L	1070	990
Iron	mg/L	2.17	0.81

4.2 Surface Water

Insufficient rainfall for opportunistic surface water sampling during April 2015

Surface Water Table Nov 2014 to Nov 2015

EPA Identification Number	Frequency	Comment
EPL29	2 x Per year when contains water	Insufficient water for sample
EPL30	2 x Per year when contains water	Insufficient water for sample
EPL31	2 x Per year when contains water	Sampled during January
EPL32	2 x Per year when contains water	Insufficient water for sample
EPL33 Horwood Dam	2 x Per year when contains water	Not sampled yet, waiting for rainfall event
EPL34 Upstream	2 x Per year when contains water	Insufficient water for sample
EPL35 Downstream	2 x Per year when contains water	Insufficient water for sample

5 Weather Data

BHOP – Automatic Weather Station was unavailable for the month of April. Currently a new weather station is planned for June 2015.

The following data was obtained from the Bureau of Meteorology Broken Hill

Date	Day	Temps		Rain	Evap	Sun	Max wind gust			9 am						3 pm					
		Min	Max				Dir	Spd	Time	Temp	RH	Cld	Dir	Spd	MSLP	Temp	RH	Cld	Dir	Spd	MSLP
		°C	°C					km/h	local	°C	%	g th		km/h	hPa	°C	%	g th		km/h	hPa
1	We	16.5	33.8	0			NW	35	14:30	21.9	39	4	NNE	19	1018.7	32.7	18	6	WNW	17	1015.6
2	Th	18.5	19.1	0			S	43	07:49	19.1	79	7	S	33	1020.1	16.9	78	8	S	26	1020.3
3	Fr	12.8	21.2	1.2			SE	33	12:33	13.4	43	8	ESE	15	1022.5	18.7	33	5	ESE	22	1019.7
4	Sa	11.4	27.3	1.6			SSW	31	13:01	14.3	44	3	WSW	9	1018.3	25.6	28	1	S	17	1014.7
5	Su		29.9	0			WNW	72	14:01	25.7	30	2	NNE	13	1012.5	19.8	70	8	W	13	1009.6
6	Mo	10.9	21.4	3.2			WSW	65	14:07	14.1	66	2	SW	17	1009.9	19.3	54	6	WSW	39	1007.2
7	Tu	6.1	17.4	0.8			SSW	56	14:28	10.0	93	8	SW	31	1016.4	16.3	56	6	SSW	43	1017.4
8	We	7.4	19.3	0.2			SSW	46	00:06	11.7	62	1	S	31	1025.7	18.2	39	1	S	26	1023.4
9	Th	7.8	21.7	0			SSW	43	16:18	12.5	69	1	SSW	13	1026.1	20.8	36	1	SSW	22	1021.4
10	Fr	9.4	22.2	0			S	33	13:53	13.2	62	6	S	15	1024.3	21.6	32	4	SSE	19	1020.6
11	Sa	11.8	27.5	0			S	24	16:33	19.4	42	1	ESE	2	1021.6	26.1	25	2	NNW	7	1017.3
12	Su	15.3	28.0	0			S	31	13:35	19.7	35	8	E	11	1020.0	26.4	22	4	S	17	1017.3
13	Mo	14.5	28.5	0			NNE	31	10:21	19.3	36	6	NE	17	1019.8	27.2	20	7	NE	9	1016.0
14	Tu	17.9	32.1	0			NNW	31	11:37	20.8	36	6	N	13	1017.0	31.5	27	3	N	17	1014.5
15	We	20.7	35.4	0			WNW	46	13:30	26.3	32	5	NNW	19	1019.3	34.1	23	2	WNW	28	1017.5
16	Th	16.6	19.5	0			S	35	17:42	18.1	64	7	SSE	22	1025.0	18.9	70	8	SSE	24	1021.9
17	Fr	13.6	18.8	29.4			NE	46	10:33	15.8	100	8	ENE	17	1019.8	18.5	96	8	ENE	6	1014.9
18	Sa	14.0	19.1	7.2			SW	39	11:14	14.1	100	8	SSW	19	1017.9	17.1	72	7	SW	28	1016.9
19	Su	9.1	15.4	0.4			SSW	59	01:11	11.1	78	1	S	35	1028.3	14.9	45	1	SSE	35	1028.0
20	Mo	4.4	15.0	0			SSE	57	11:02	8.1	69	1	S	33	1034.1	14.5	37	0	S	37	1030.0
21	Tu	4.6	16.4	0			SSW	39	11:37	8.0	78	0	SSE	26	1030.1	15.9	39	0	S	26	1025.5
22	We	6.1	19.4	0			S	33	12:53	9.7	81	0	SW	11	1024.2	18.7	39	2	S	22	1019.7
23	Th	8.7	22.1	0			SW	26	14:33	11.4	85	7	SW	15	1017.6	20.8	51	4	WSW	17	1013.2
24	Fr	11.5	23.3	0			W	46	16:43	16.6	67	1	WNW	19	1010.4	22.0	41	2	W	33	1007.4
25	Sa	10.1	14.8	0.2			WSW	67	10:16	11.3	78	8	WNW	31	1008.2	14.1	53	7	SW	46	1012.3
26	Su	10.3		0			SSW	48	09:36	10.7	95	8	SSW	31	1022.4				SSW	30	1021.4
27	Mo						SSE	39	08:20				S	26	1026.5				S	15	1024.4
28	Tu						SSE	33	21:36				S	13	1028.3				S	20	1025.2
29	We						SE	43	15:10				SSE	13	1028.0				SSE	24	1024.3
30	Th		21.3				SE	35	16:57				S	20	1025.0				SE	17	1022.2
Statistics for April 2015																					
Mean		11.6	22.7							15.2	63	4		19	1021.3	21.2	44	4		23	1018.7
Lowest		4.4	14.8	0						8.0	30	0	ESE	2	1008.2	14.1	18	0	ENE	6	1007.2
Highest		20.7	35.4	29.4			WNW	72		26.3	100	8	S	35	1034.1	34.1	96	8	SW	46	1030.0
Total				44.2																	

Legend

Dir = Direction, Spd=Wind Speed, Temp=Temperature, RH=Relative Humidity, CLD=Cloud, MSLP=Mean Sea Level Pressure

6 Data Log

Sample	Date sent to lab	Result Received	Date Published
Hi Volume Samples	5/5/2015	13/5/2015	29/5/2015
TEOM	Real time	-	29/5/2015
Dust Deposition	6/5/2015	18/5/2015	29/5/2015
Water	9/4/2015	16/4/2015	29/5/2015
Blast Vibration and overpressure	Real Time	-	29/5/2015

A foam box containing dust deposition jars was lost by the courier during April. They were reported missing by the lab and eventually recovered and processed.

7 Correction Log April 2015

There are no data corrections for April 2015. However there have been some improvements in the reported data. Concentrations of dust and lead as a component of dust in the hi vol analysis are now NATA accredited. Concentration was previously calculated in house from reported totals on the filter papers.