

Monthly Environmental Data January 2015

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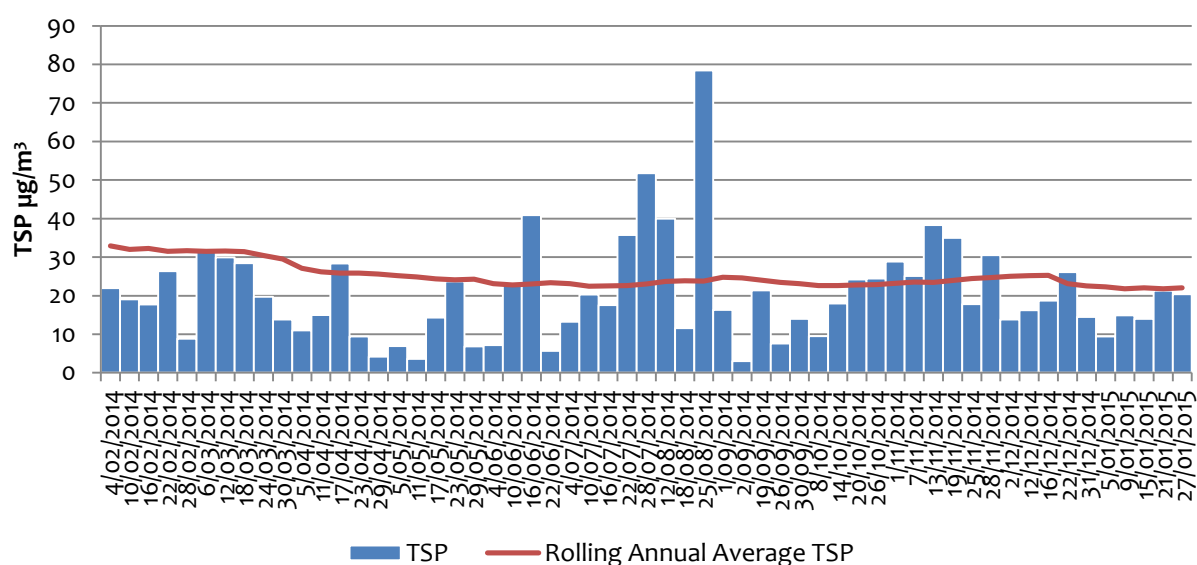
1 Air Quality

1.1 High Volume Air Samplers

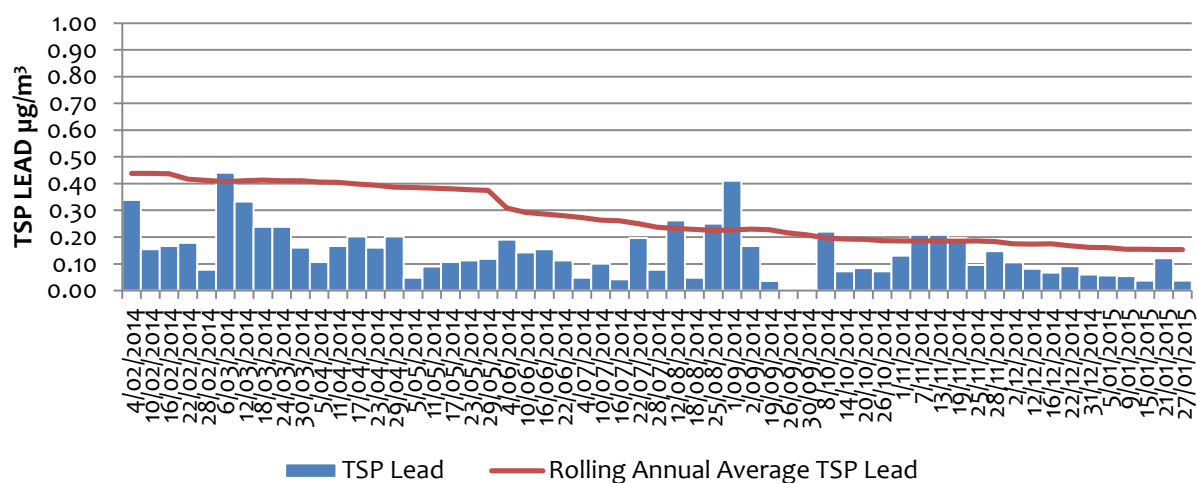
EPL10 - SILVER TANK - ON SITE

DATE	TSP ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)
5/01/2015	9	0.06
9/01/2015	15	0.05
15/01/2015	14	0.04
21/01/2015	21	0.12
27/01/2015	6	0.04

Total Suspended Particles

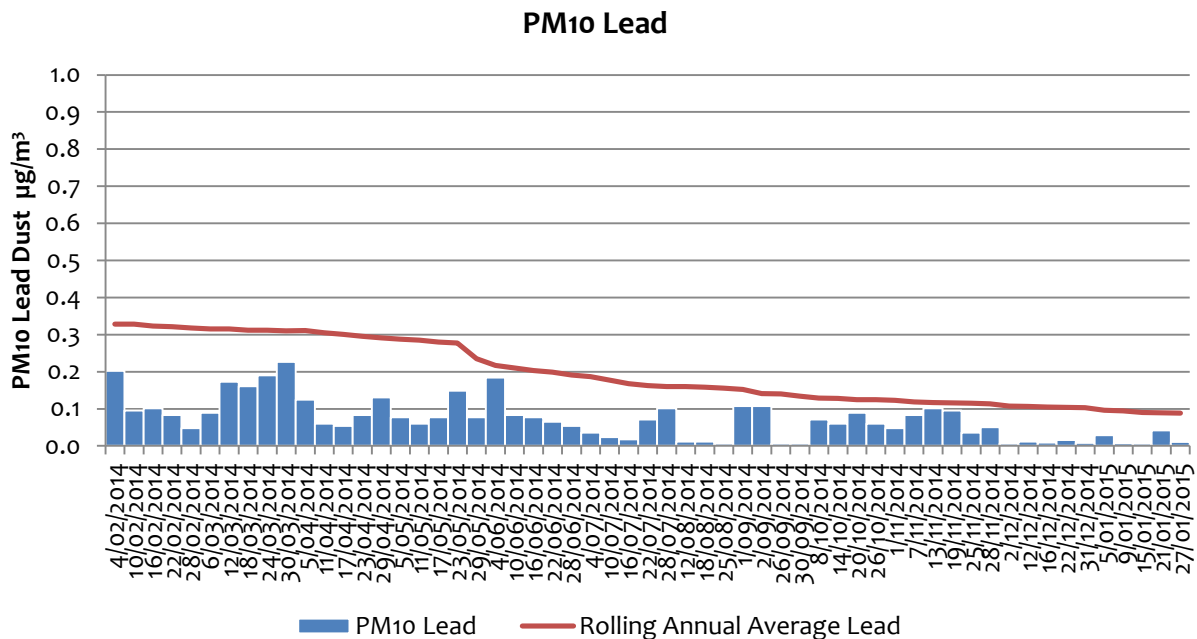
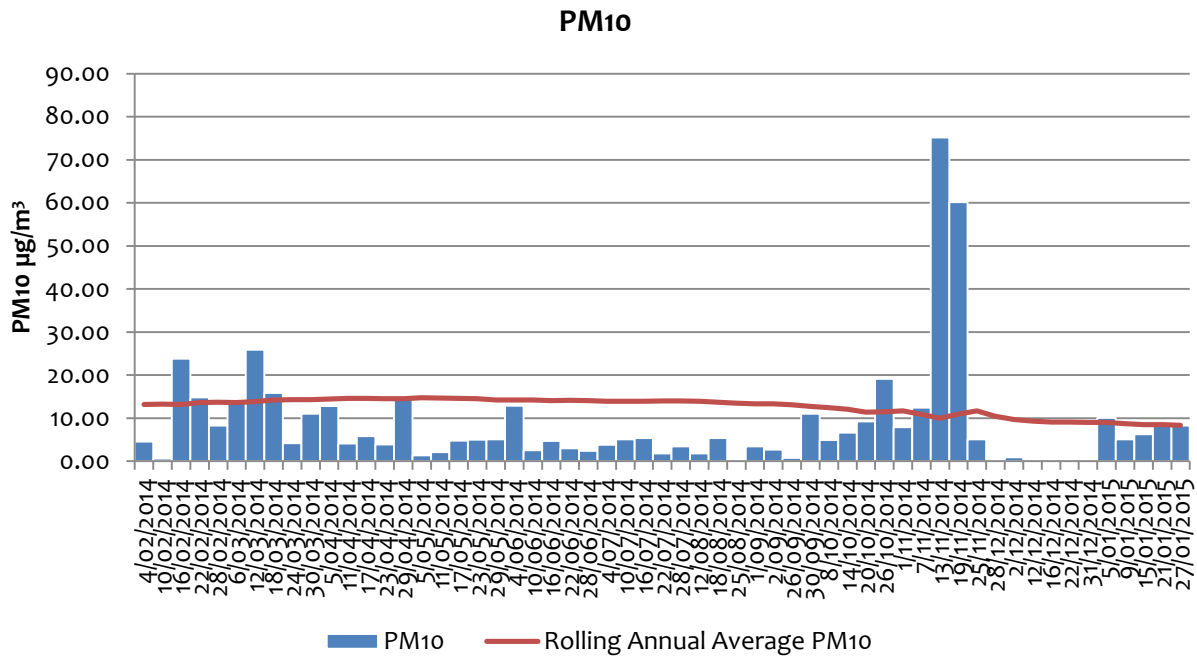


Total Suspended Particles - Lead



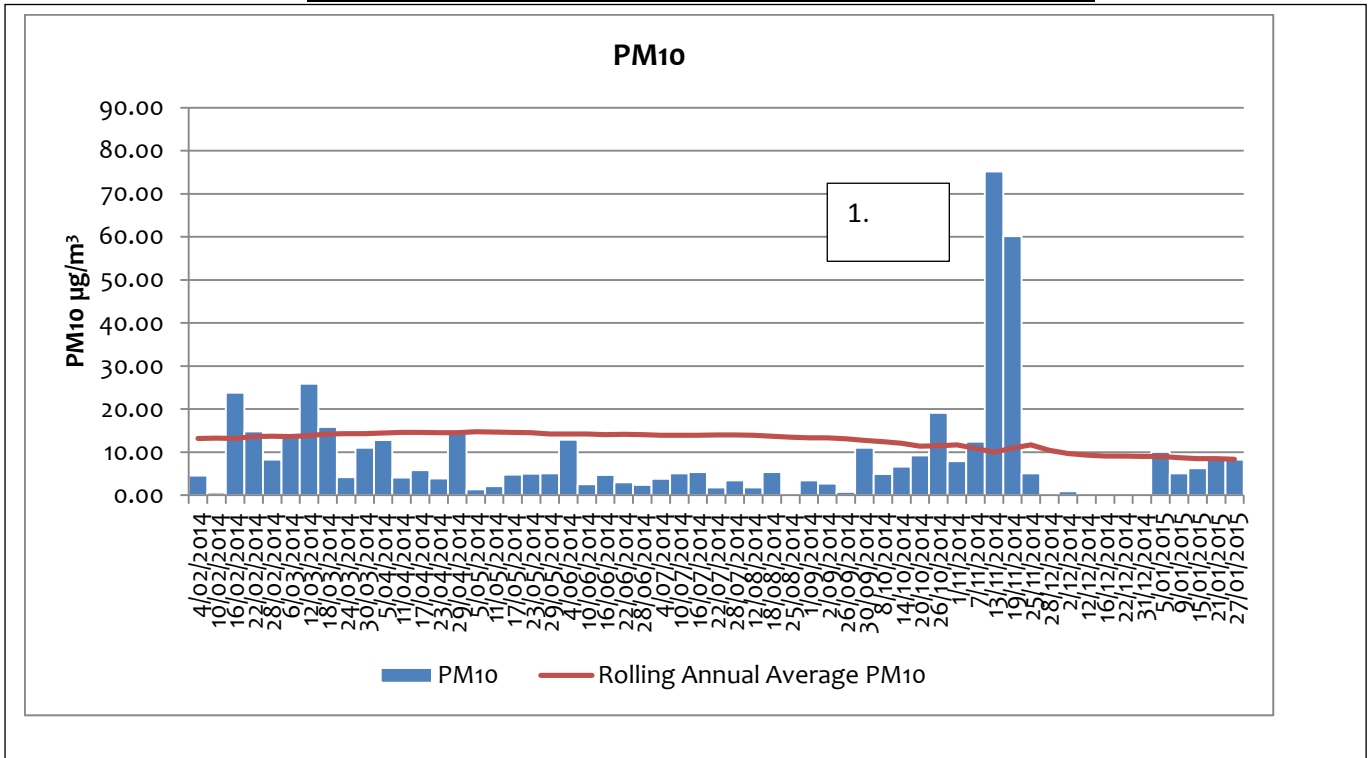
EPL11 - Silver Tank - On Site

DATE	PM10 ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)
5/01/2015	5.65	0.03
9/01/2015	5.89	0.01
15/01/2015	5.30	0.01
21/01/2015	6.96	0.04
27/01/2015	3.93	0.01

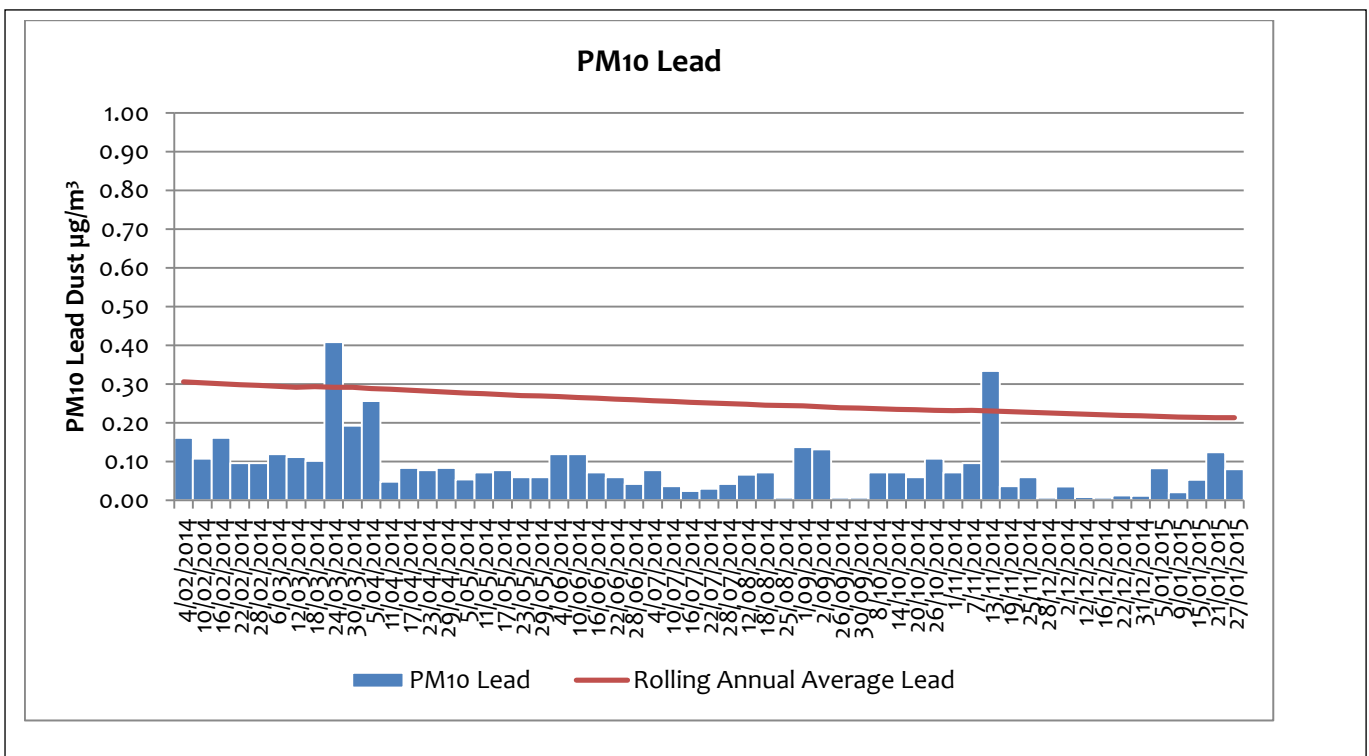


EPL12 - Blackwoods Pit – On Site

DATE	PM10 ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)
5/01/2015		
9/01/2015		
15/01/2015		
21/01/2015		
27/01/2015		



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

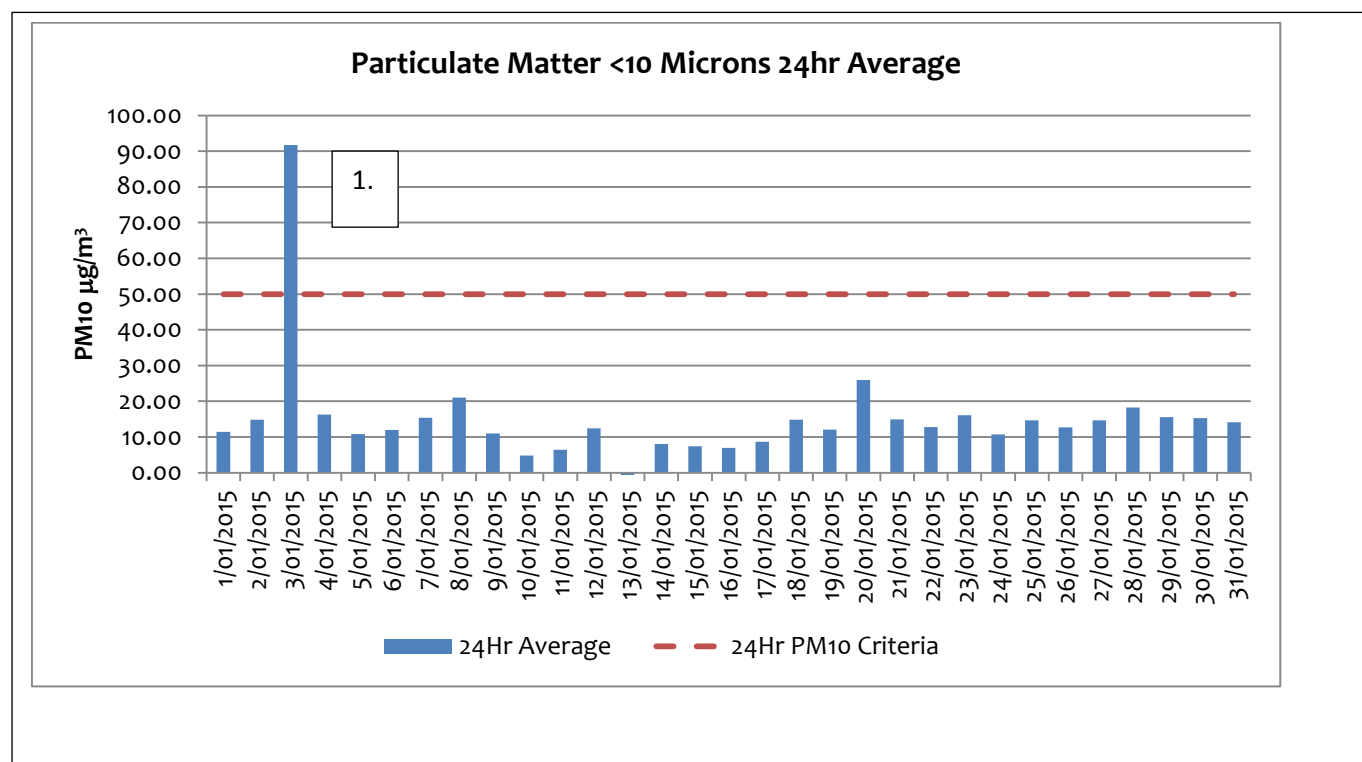


1.2 Tapered Element Oscillating Microbalance Sampling (TEOM)

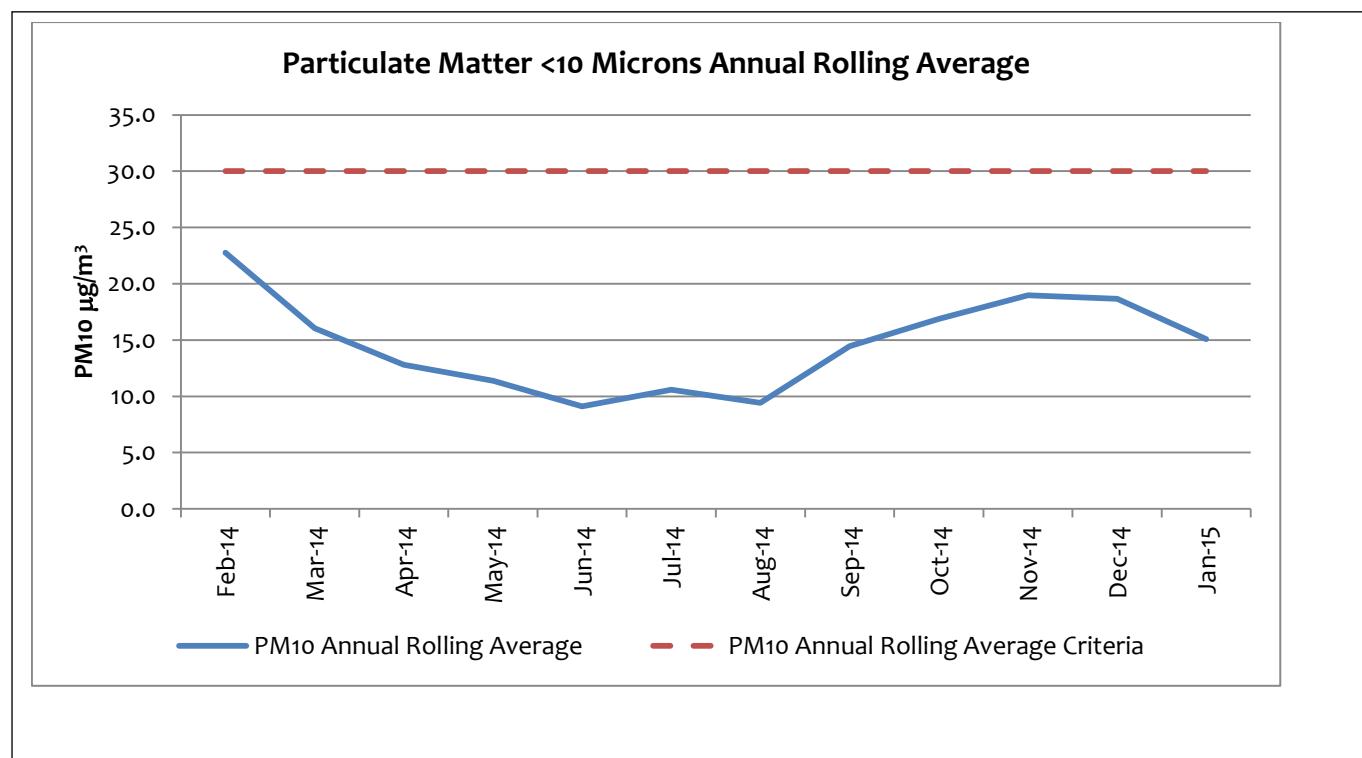
Particulate Matter <10 Microns 24Hr Average		
Date	TEOM 1 - EPL 13 ($\mu\text{g}/\text{m}^3$) Essential Water – Off Site	TEOM 2 – EPL 14 ($\mu\text{g}/\text{m}^3$) Blackwoods Pit – On Site
1/01/2015	11.41	10.54
2/01/2015	14.85	15.19
3/01/2015	91.74	87.73
4/01/2015	16.29	17.88
5/01/2015	10.76	12.76
6/01/2015	11.93	12.19
7/01/2015	15.35	9.55
8/01/2015	20.99	21.41
9/01/2015	10.99	13.84
10/01/2015	4.77	4.89
11/01/2015	6.39	6.62
12/01/2015	12.39	13.98
13/01/2015	-4.20	-6.55
14/01/2015	8.00	9.92
15/01/2015	7.44	10.98
16/01/2015	6.94	9.19
17/01/2015	8.67	13.24
18/01/2015	14.88	17.44
19/01/2015	12.04	14.00
20/01/2015	25.96	16.31
21/01/2015	14.94	24.34
22/01/2015	12.77	16.90
23/01/2015	16.12	14.47
24/01/2015	10.74	13.45
25/01/2015	14.61	17.67
26/01/2015	12.71	14.29
27/01/2015	14.61	21.43
28/01/2015	18.21	22.46
29/01/2015	15.57	19.25
30/01/2015	15.29	18.92
31/01/2015	14.14	16.00

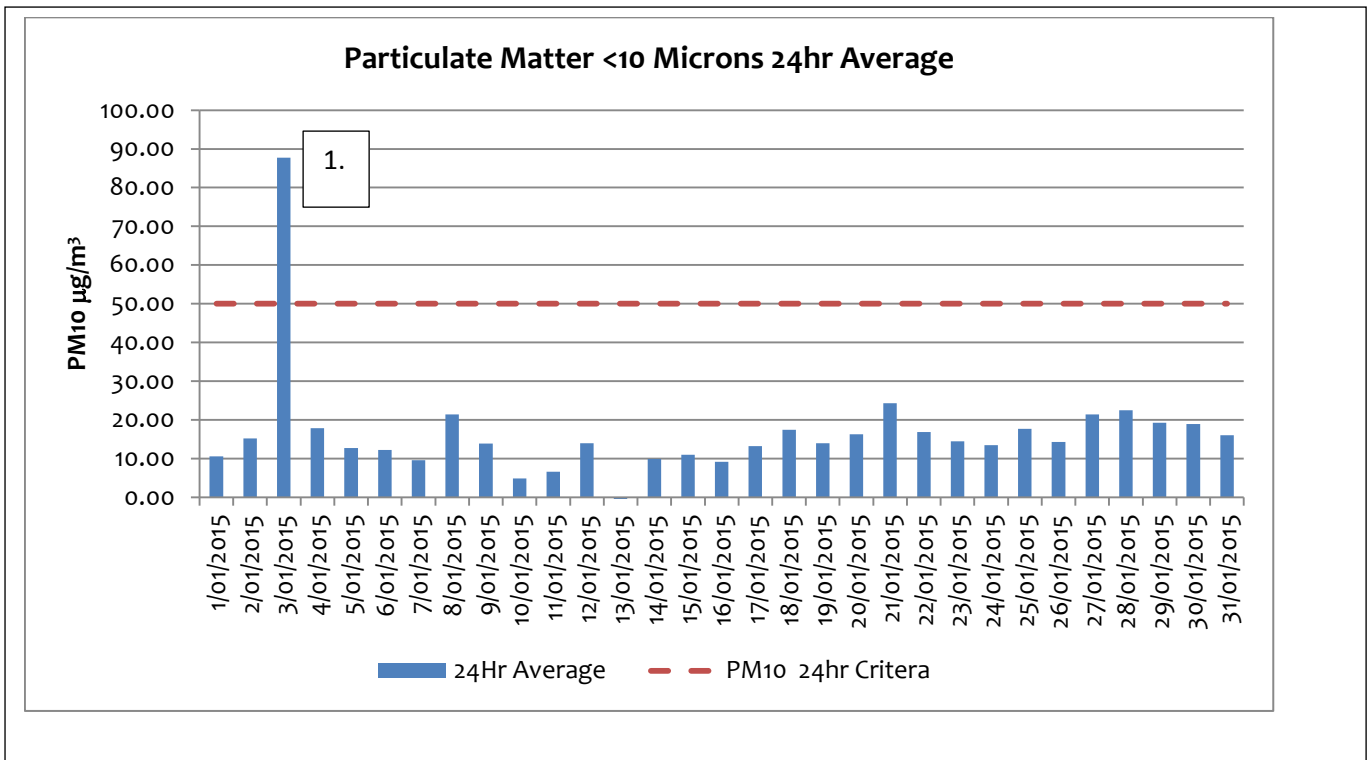
[illegible]

EPL13 – Essential Water – Off Site

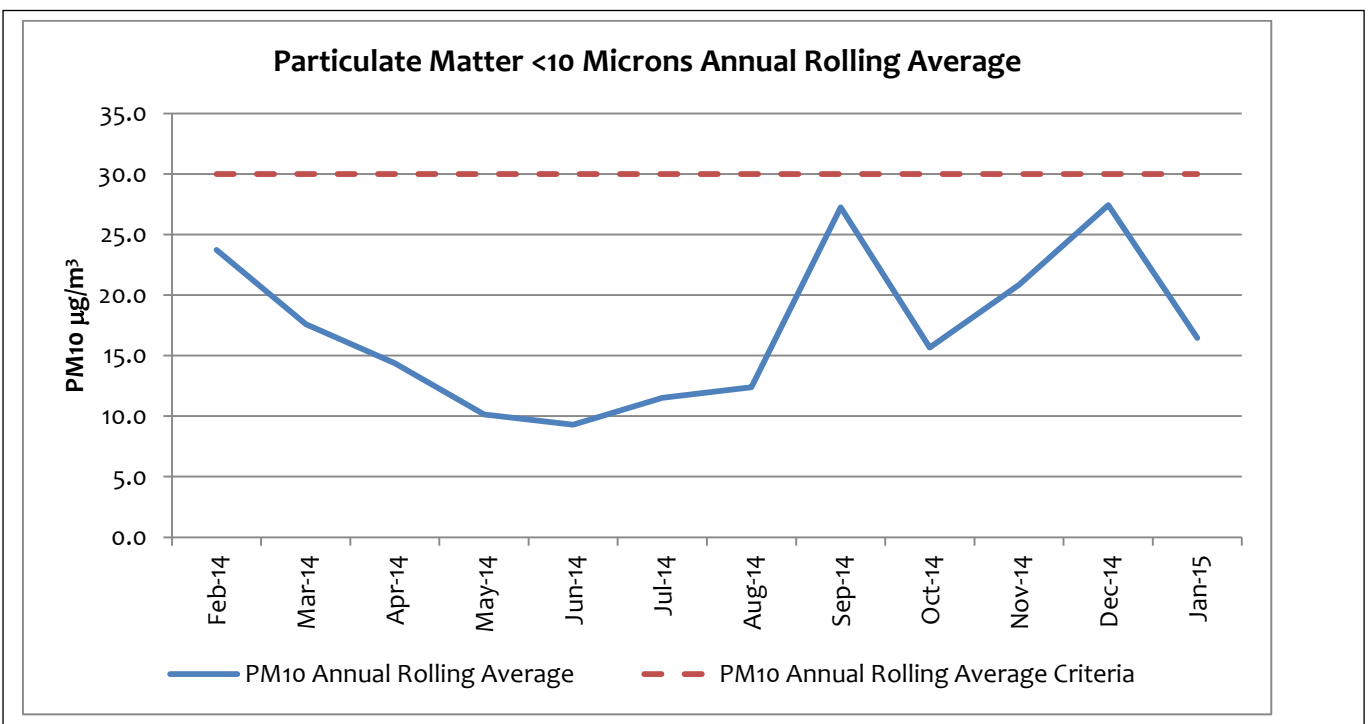


1. N winds gusts to 57km/h potential sources at this location with a Northerly wind include North Mine (Perillya) and Mawson's Quarry



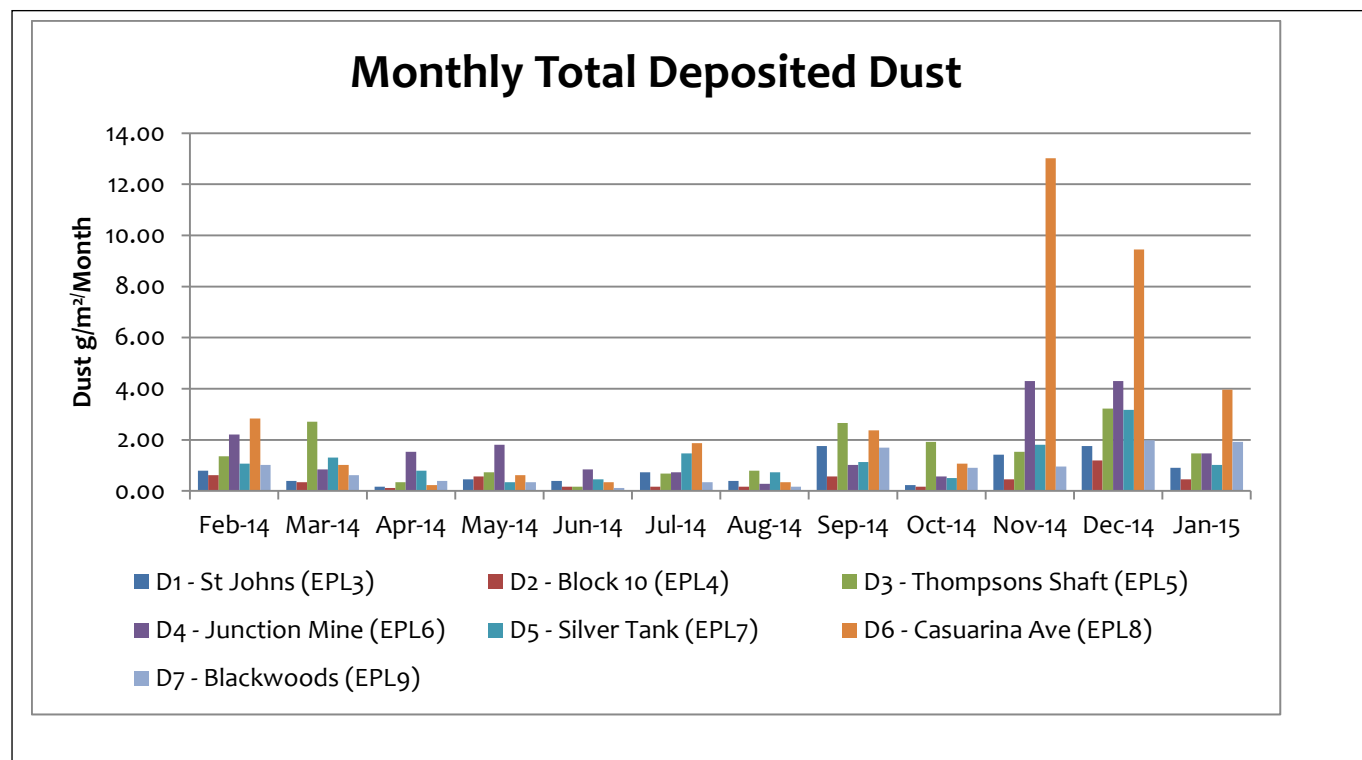


1. N winds gusts to 57km/h potential sources at this location with a northerly wind include North Mine (Perillya) and parts of the town site



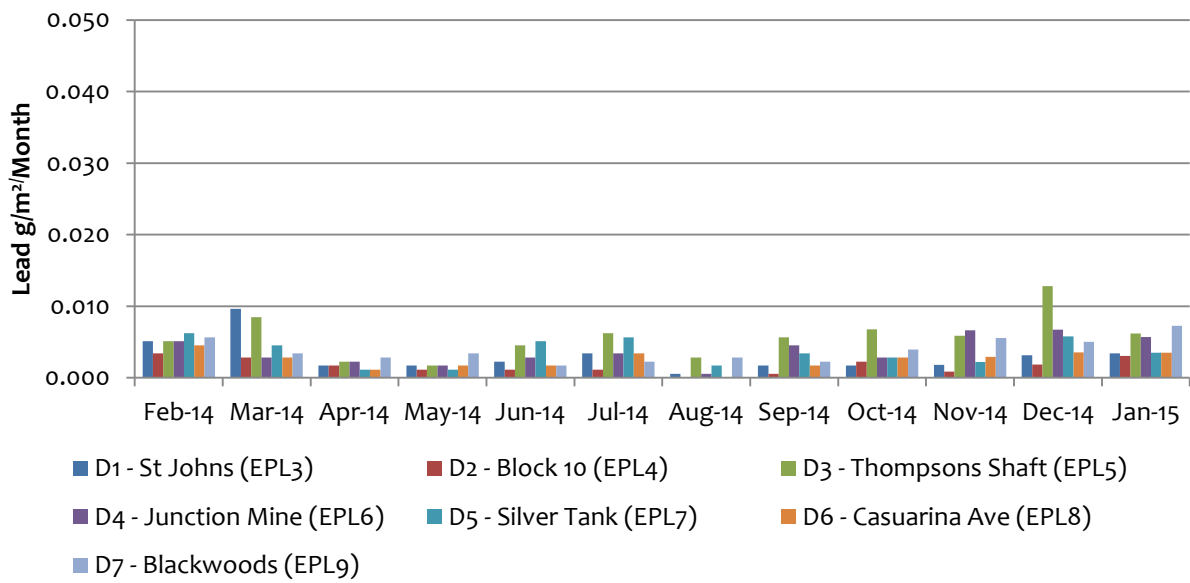
1.3 Dust Deposition Sampling

Total Deposited Dust (g/m ² /Month)							
Date	D1 (off site)	D2	D3	D4	D5	D6 (off site)	D7
January 2015	0.91	0.45	1.47	1.47	1.02	3.96	1.92
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 both November and December.

Monthly Total Deposited Lead



Total Deposited Lead (g/m ² /Month)							
Date	D1 (Off Site)	D2	D3	D4	D5	D6 (Off Site)	D7
January 2015	0.003	0.003	0.006	0.006	0.003	0.004	0.007
Background Average	0.0034	0.0045	0.0046	0.0060	n/a	0.0036	n/a

2 Blasting (Vibration and Overpressure)

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

- During November blasting occurred daily, there were 9 production firings
- 0 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)
2/01/2015	V3 Air Express Yard	0.82	98.8
3/01/2015	V3 Air Express Yard	0.99	101.9
6/01/2015	80 Eyre Street	0.14	88
6/01/2015	Core Shed	0.27	95.9
6/01/2015	V3 Air Express Yard	0.78	101
8/01/2015	V3 Air Express Yard	1.09	107.5
9/01/2015	V2 Hire Yard	1.38	109.2
9/01/2015	V3 Air Express Yard	1.74	94
10/01/2015	80 Eyre Street	0.19	95.9
10/01/2015	V2 Hire Yard	0.83	97.5
10/01/2015	V3 Air Express Yard	2.71	108.8
12/01/2015	80 Eyre Street	0.72	95.9
12/01/2015	Core Shed	1.31	95.9
12/01/2015	V2 Hire Yard	1.1	105.5
12/01/2015	V3 Air Express Yard	1.84	97.5
16/01/2015	V1 Silver Tank	0.16	88
16/01/2015	V2 Hire Yard	0.82	101.9
16/01/2015	V3 Air Express Yard	1.78	98.8
24/01/2015	V1 Silver Tank	0.22	88
24/01/2015	V2 Hire Yard	2.37	105.5
24/01/2015	V3 Air Express Yard	3.19	101.9
27/01/2015	Core Shed	0.28	91.5
27/01/2015	V1 Silver Tank	0.25	91.5
27/01/2015	V3 Air Express Yard	1.48	98.8

3 Noise

The next round of testing is to be conducted in February 2015. Currently the noise monitor is on standby and has been freshly calibrated however wind conditions have not been favourable for sampling over the last two weeks of February with winds staying consistently above 3m/sec.

EMGA Mitchell McLennan Pty Limited (EMM) completed quarterly attended noise monitoring for the RASP Mine during November 2014.

Since submission of the 24 hour crusher noise assessment, the site's Environment Protection License (EPL) (license number 12559) has been amended to include 24 hour operation of the crusher, and consequently a 12 month quarterly noise monitoring programme is required for RASP Mine as per the EPL, starting November 2014. The first quarterly noise monitoring assessment was carried out by EMM and CBH Resources between 18 and 21 November 2014.

For 23 out of the 36 samples (64%), the wind speed was above 3 m/s and therefore the noise limits do not apply for these samples according to the site's EPL.

Three recorded measurements were slightly above the limits set in the Rasp Mine Environment Protection Licence but were within the Industrial Noise Policy's allowable 2 dB tolerance of the noise limits for three valid (applicable meteorological conditions) attended measurements. All other noise contributions satisfied the relevant noise limits.

The report is published in full on the CBH website.

4 Water

4.1 Ground Water

		12/01/2015	12/01/2015	12/01/2015	12/01/2015	12/01/2015
		UNDERGROUND FEED	SHAFT 7	1480 SUMP	S 31-1	EYRE ST. TRENCH
Analyte grouping/Analyte	Units					
pH Value	pH Unit	6.67	6.4	6.51	6.5	6.66
Electrical Conductivity @ 25°C	µS/cm	12400	11000	9650	676	14900
Total Dissolved Solids @180°C	mg/L	13000	11800	9990	560	12900
Hydroxide Alkalinity as CaCO3	mg/L	<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	mg/L	<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	mg/L	15	8	13	4	30
Total Alkalinity as CaCO3	mg/L	15	8	13	4	30
Sulfate as SO4 - Turbidimetric	mg/L	5240	5250	4620	306	5690
Chloride	mg/L	1340	1070	940	7	2550
Calcium	mg/L	501	476	447	52	518
Magnesium	mg/L	324	239	177	4	427
Sodium	mg/L	1560	1240	1080	11	2250
Cadmium	mg/L	2.27	2.24	2.19	0.797	2.96
Manganese	mg/L	411	428	287	18.9	369
Lead	mg/L	3.07	1.51	0.109	2.4	0.671
Zinc	mg/L	919	1180	1010	75.7	317
Iron	mg/L	<0.05	0.24	3.08	<0.05	<0.05

4.2 Surface Water

Surface water was available for sampling at location EPL31 during January.

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 January.

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	Th	18.7	39.3	0			SSW	30	14:59	28.6	18	2	ENE	19	1012.0	37.7	12	3	ESE	6	1008.5
2	Fr	25.1	42.5	0			NW	41	13:06	31.7	11	0	NE	24	1011.9	41.3	10	0	WNW	15	1008.8
3	Sa	27.5	42.1	0			N	57	13:47	31.6	39	1	N	30	1011.2	39.5	17	4	N	30	1007.3
4	Su	20.7	31.4	0.4			W	52	01:03	20.7	76	8	SSW	19	1014.7	24.8	76	5	SW	11	1012.3
5	Mo	19.8	36.1	5.2			SE	50	17:50	25.8	65	1	SSW	20	1014.4	34.7	28	4	ESE	24	1011.8
6	Tu	24.7	36.0	0			E	35	15:44	28.6	51	0	N	11	1015.5	35.1	30	6	E	13	1013.0
7	We	25.7	39.3	0			NE	41	12:53	30.7	37	1	NNE	19	1013.6	38.3	22	5	N	24	1010.2
8	Th	28.1	39.5	0			SW	69	16:21	32.1	29	2	NNW	24	1009.8	37.0	21	5	NE	24	1004.9
9	Fr	22.3	26.1	1.0			SSW	37	11:16	25.2	55	8	SE	13	1006.5	23.7	78	8	S	28	1005.3
10	Sa	19.0	21.1	22.6			E	46	07:07	19.3	98	8	ESE	31	1005.8	20.3	100	8	ESE	28	1004.8
11	Su	18.9	22.9	26.0			SE	39	00:56	20.2	100	8	SE	24	1008.2	22.7	98	8	SE	22	1006.9
12	Mo	19.9	30.4	5.0			ENE	39	21:46	22.5	100	8	E	17	1007.2	28.8	72	7	E	20	1004.4
13	Tu	22.3	31.1	31.2			W	57	13:31	23.7	98	7	WSW	28	1003.5	30.6	45	4	W	35	1002.1
14	We	14.9	24.6	0			SSW	46	07:16	18.1	73	6	SSW	33	1008.5	22.0	63	8	SSW	22	1008.8
15	Th	13.3	27.1	0			S	35	06:58	16.2	69	1	SSW	24	1012.0	24.6	44	1	WSW	20	1009.6
16	Fr	14.9	32.7	0			WNW	43	17:17	19.7	58	0	NE	9	1012.0	31.1	38	0	NW	15	1010.1
17	Sa	17.4	31.4	0			S	39	07:50	19.8	66	0	S	30	1014.3	29.6	43	0	SW	19	1011.5
18	Su	15.8	29.7	0			SSW	37	14:53	18.1	67	1	S	28	1016.1	27.7	49	3	SSW	26	1013.5
19	Mo	17.2	30.8	0			ESE	35	07:45	20.2	57	4	ESE	26	1013.1	27.6	25	3	SE	11	1009.6
20	Tu	19.6	29.3	0			E	41	17:47	21.8	44	8	NNE	20	1005.0	26.9	29	8	ENE	19	1001.7
21	We	17.8	33.5	0			S	46	05:44	19.6	70	3	S	28	1006.7	32.2	23	1	SSE	20	1005.3
22	Th	18.6	34.8	0			E	39	13:27	20.8	62	0	S	22	1009.4	33.7	31	1	ESE	17	1005.8
23	Fr	20.7	39.0	0			SW	57	17:29	30.1	44	1	N	15	1006.7	36.3	29	4	NW	11	1003.5
24	Sa	18.5	34.1	4.8			SSW	48	22:56	21.1	53	1	S	20	1006.4	32.4	36	2	SW	9	1004.1
25	Su	17.2	28.0	0			SSW	54	23:13	19.3	58	1	S	31	1009.9	26.8	31	1	S	17	1009.2
26	Mo	12.8	26.2	0			SSE	43	08:04	16.2	46	1	SSE	31	1014.9	23.9	33	1	S	22	1012.1
27	Tu	12.5	26.3	0			S	54	13:04	16.3	46	0	SSE	28	1013.6	24.8	23	1	SSW	31	1010.3
28	We	14.3	29.1	0			SSW	56	12:37	16.2	48	0	S	35	1011.9	26.9	27	0	S	31	1010.0
29	Th	15.8		0			SSW	46	13:56	21.3	44	1	SE	24	1013.3	30.8	49	1	SSW	24	1011.1
30	Fr		31.5	0			S	48	12:33				SE	19	1013.1	28.1	19		S	31	1010.1
31	Sa	13.9	30.1	0			SSW	44	14:44	18.1	60	0	S	17	1012.1	28.7	20	2	SW	28	1010.2
Statistics for January 2015																					
Mean		18.9	31.9							22.5	58	2		23	1010.8	30.0	39	3		21	1008.3
Lowest		12.5	21.1	0						16.2	11	0	NE	9	1003.5	20.3	10	0	ESE	6	1001.7
Highest		28.1	42.5	31.2			SW	69		32.1	100	8	S	35	1016.1	41.3	100	8	W	35	1013.5
Total				96.2																	

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	9/2/2015	24/2/2015	4/3/2015
TEOM	Real time	-	4/3/2015
Dust Deposition	9/2/2015	24/2/2015	4/3/2015
Water	13/1/2015	20/1/2015	4/3/2015
Blast Vibration and overpressure	Real Time	-	4/3/2015

7 Correction Log January 2015

There are no data corrections for January 2015