

Monthly Environmental Data November 2014

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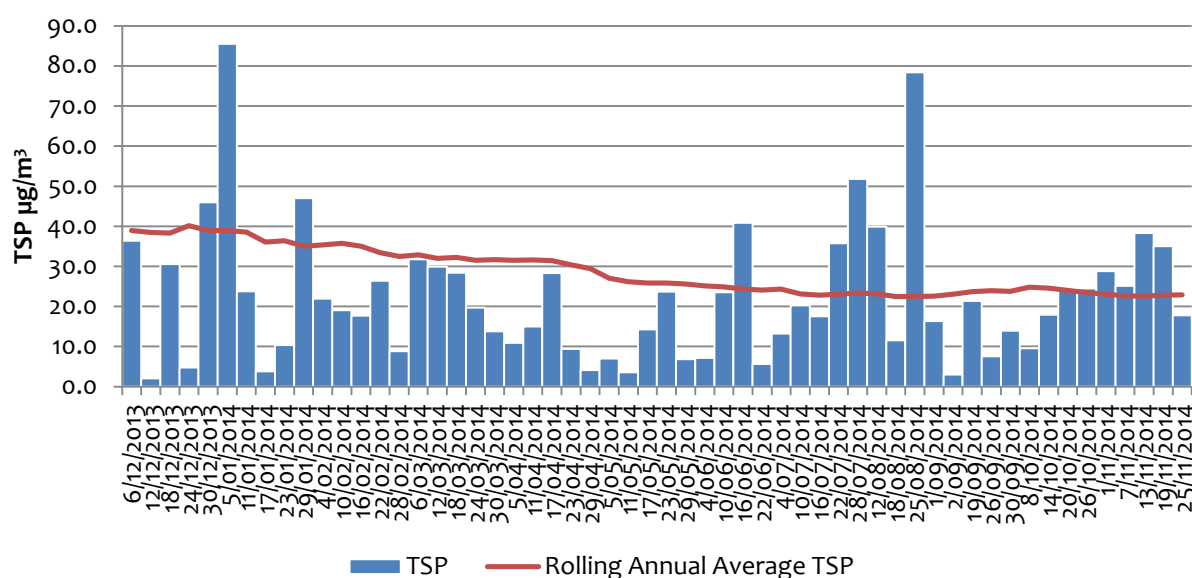
Air Quality

1.1 High Volume Air Samplers

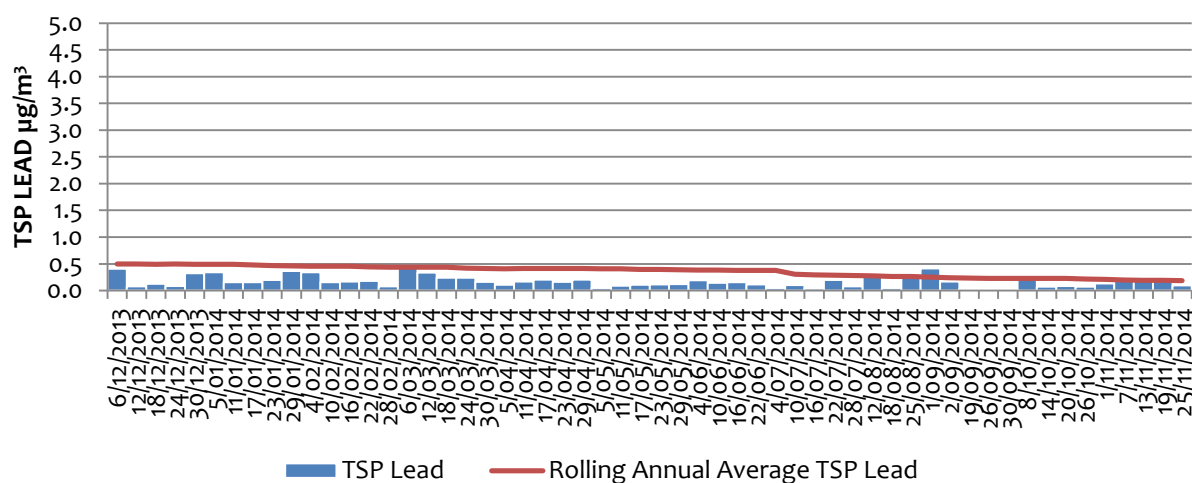
EPL10 - SILVER TANK - ON SITE

DATE	TSP ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)
1/11/2014	29	0.13
7/11/2014	25	0.21
13/11/2014	38	0.21
19/11/2014	35	0.20
25/11/2014	18	0.10

Total Suspended Particles

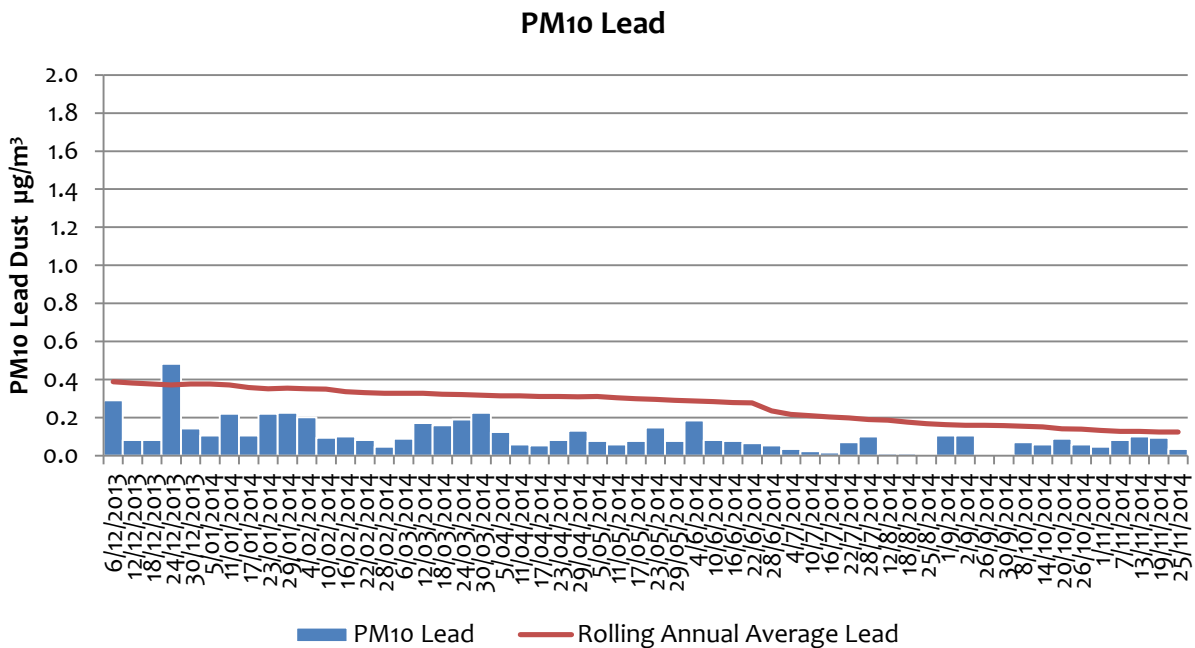
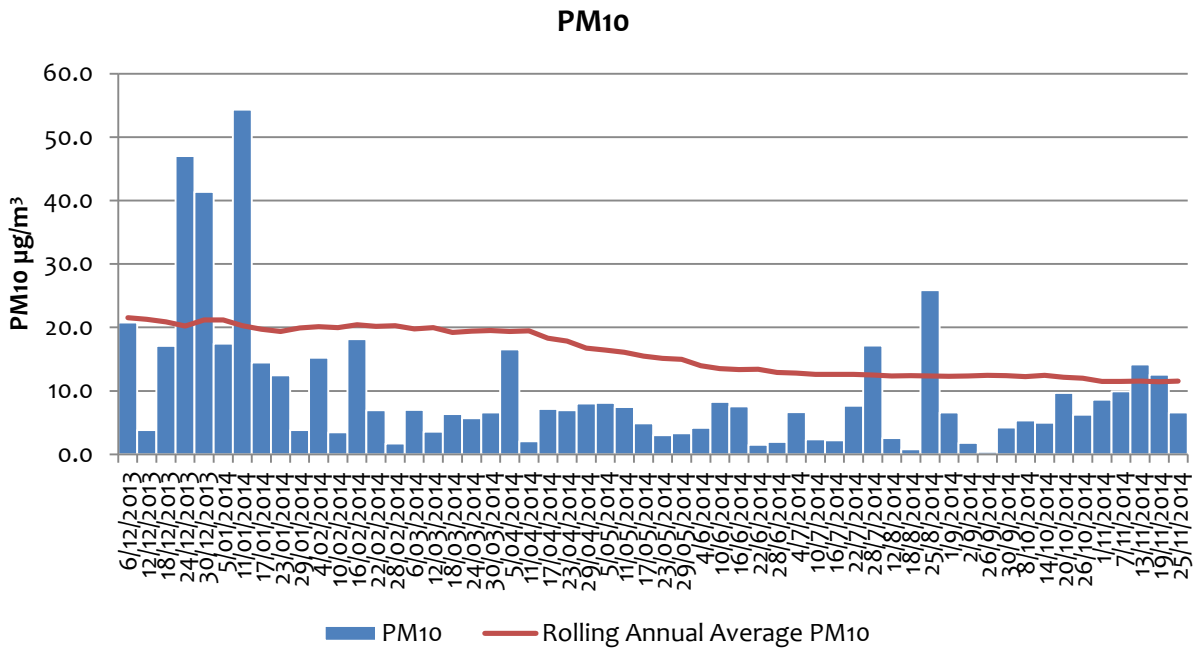


Total Suspended Particles - Lead



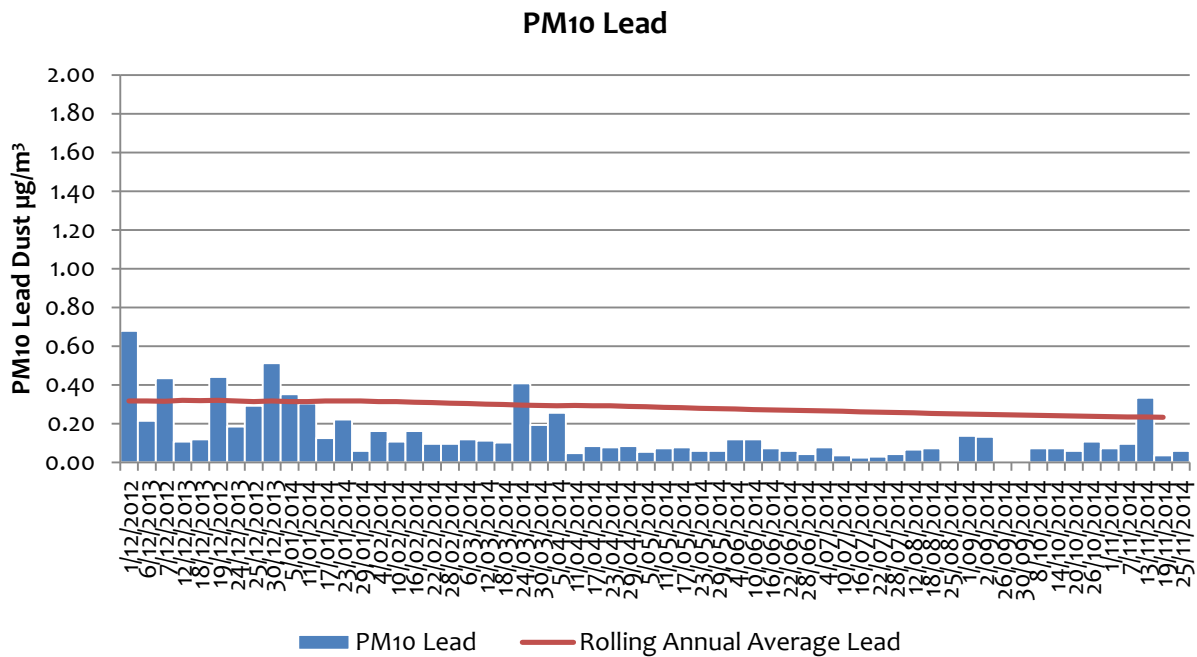
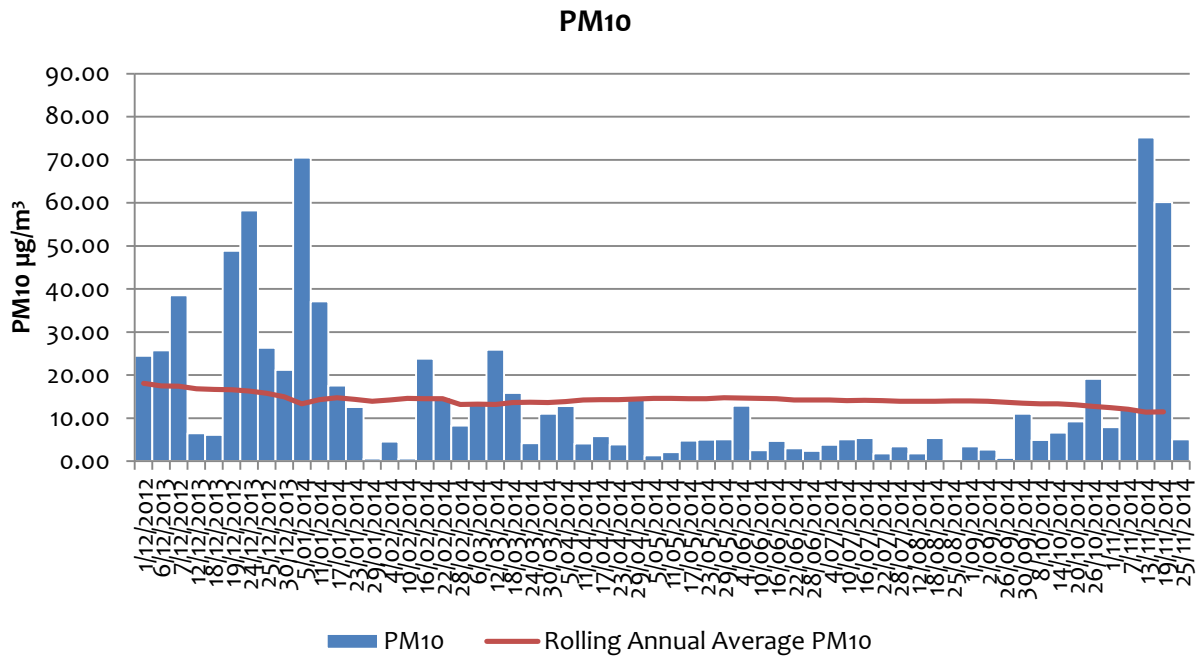
EPL11 - Silver Tank - On Site

DATE	PM10 ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)
1/11/2014	9	0.05
7/11/2014	10	0.08
13/11/2014	14	0.10
19/11/2014	13	0.10
25/11/2014	7	0.04



EPL12 - Blackwoods Pit – On Site

DATE	PM10 ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)
1/11/2014	7.92	0.07
7/11/2014	12.44	0.10
13/11/2014	75.18	0.33
19/11/2014	60.18	0.04
25/11/2014	5.06	0.06

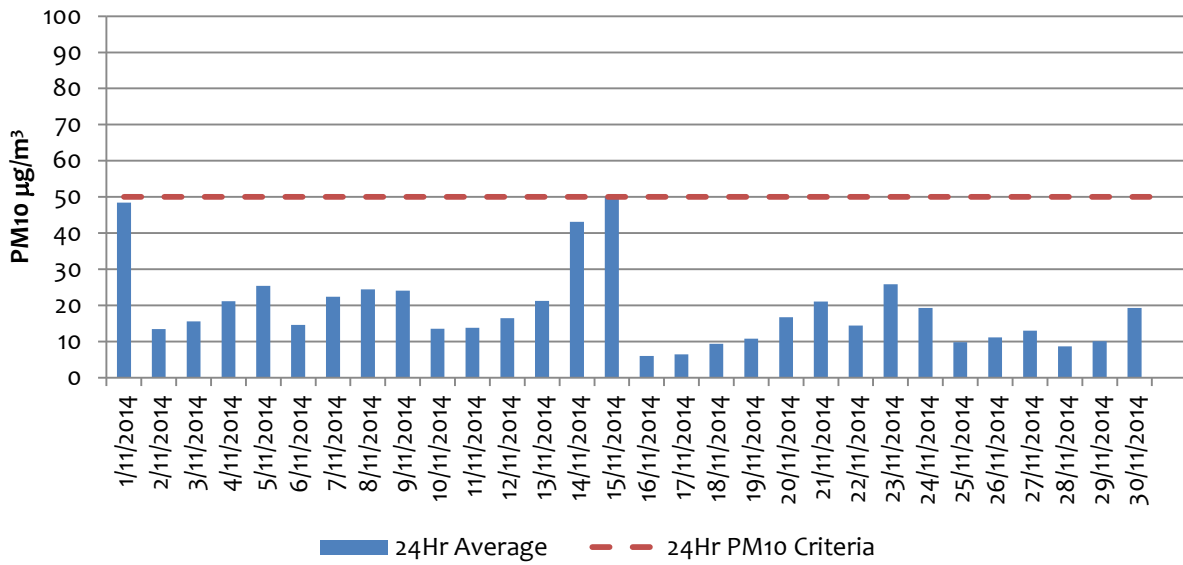


1.2 Tapered Element Oscillating Microbalance Sampling (TEOM)

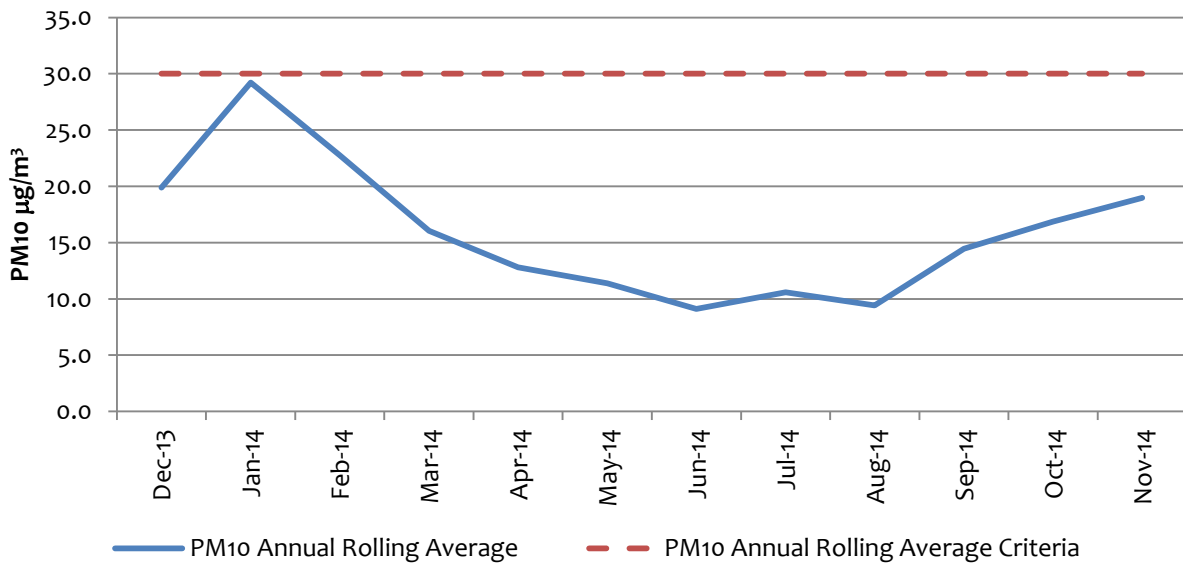
Particulate Matter <10 Microns 24Hr Average		
Date	TEOM 1 - EPL 13 ($\mu\text{g}/\text{m}^3$) Essential Water – Off Site	TEOM 2 – EPL 14 ($\mu\text{g}/\text{m}^3$) Blackwoods Pit – On Site
1/11/2014	48.4336	49.62222353
2/11/2014	13.46304	15.67322664
3/11/2014	15.57723	12.96684014
4/11/2014	21.10622	16.99705675
5/11/2014	25.35986	31.85095017
6/11/2014	14.61897	21.13938235
7/11/2014	22.40362	16.16212042
8/11/2014	24.44056	21.34676228
9/11/2014	24.05336	33.61996298
10/11/2014	13.55596	21.77352007
11/11/2014	13.81095	24.09459204
12/11/2014	16.43877	17.89567682
13/11/2014	21.25308	16.05139377
14/11/2014	43.13577	40.32864844
15/11/2014	50.04598	57.87846194
16/11/2014	6.036741	7.82607937
17/11/2014	6.40744	10.97726069
18/11/2014	9.369684	11.30119723
19/11/2014	10.73532	10.52924204
20/11/2014	16.75373	14.99946796
21/11/2014	21.05473	22.16364291
22/11/2014	14.38196	14.53602837
23/11/2014	25.84761	26.15439758
24/11/2014	19.29757	19.1595263
25/11/2014	9.791322	12.15998374
26/11/2014	11.12033	14.99470657
27/11/2014	13.03057	16.88395848
28/11/2014	8.678187	13.67202215
29/11/2014	10.0675	14.19311834
30/11/2014	19.2737	18.07201246

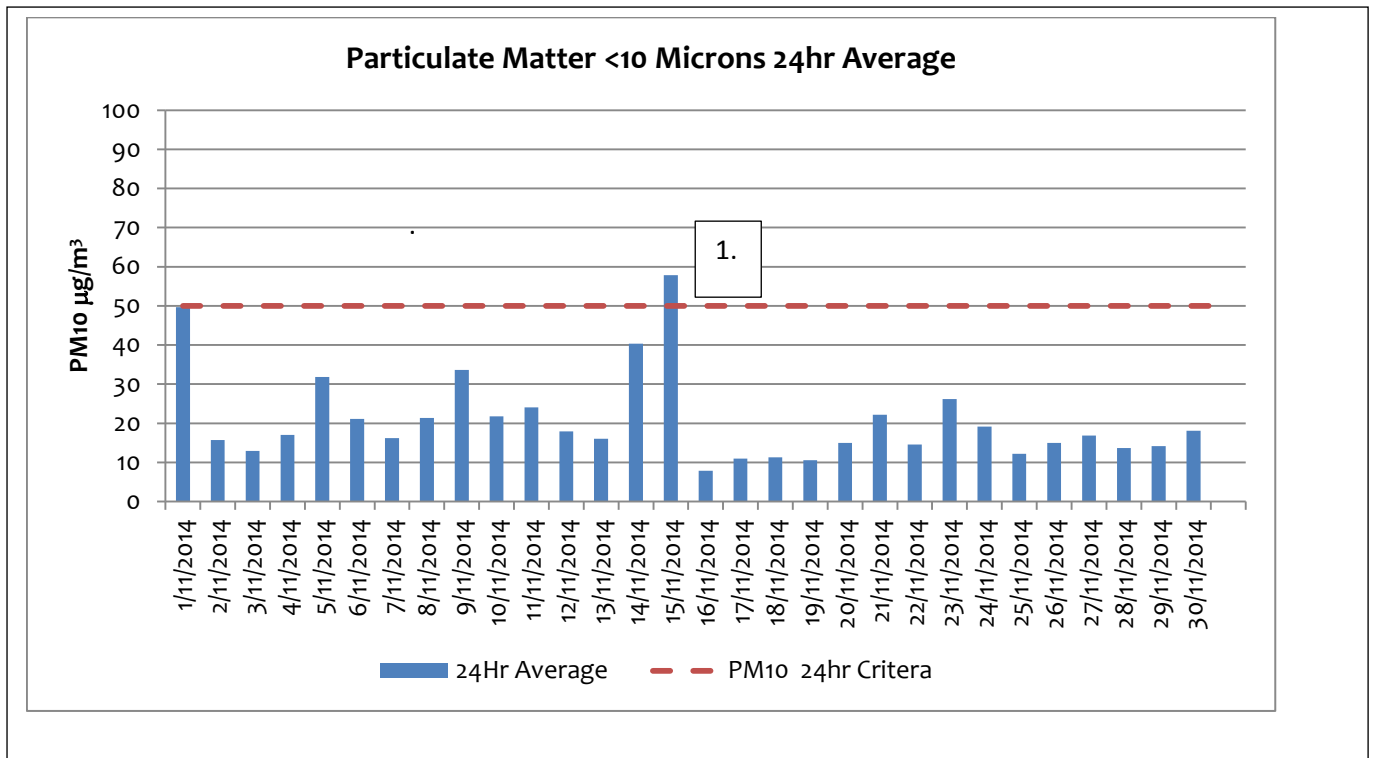
PM10 µg/m ³ 12 Month Rolling Average												
	Dec-13	Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14
TEOM 1 EPL13												
Essential Water												
Off Site	19.9	29.2	22.7	16.0	12.8	11.4	9.1	10.6	9.4	14.4	16.9	19.0
TEOM 2 EPL14												
Blackwoods Pit												
On Site	22.0	32.0	23.7	17.6	14.4	10.2	9.3	11.5	12.4	33.0	15.7	20.8

Particulate Matter <10 Microns 24hr Average

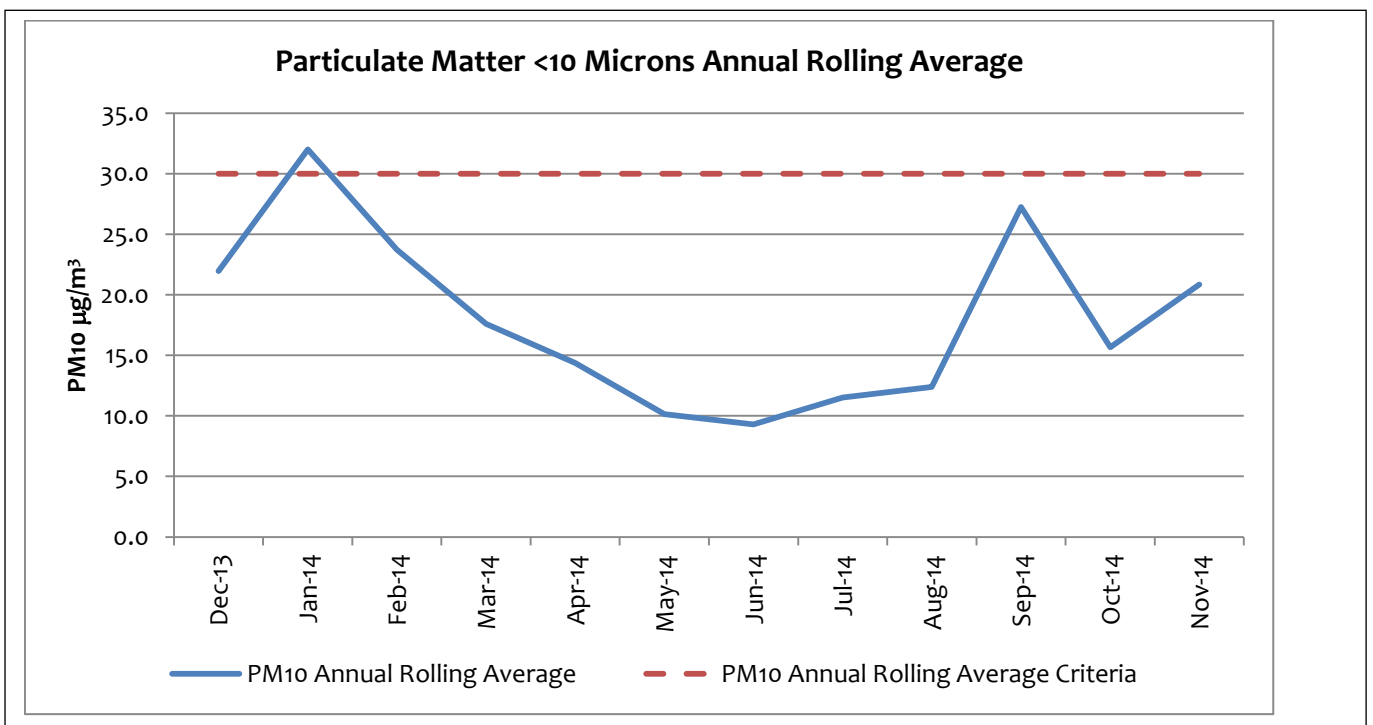


Particulate Matter <10 Microns Annual Rolling Average





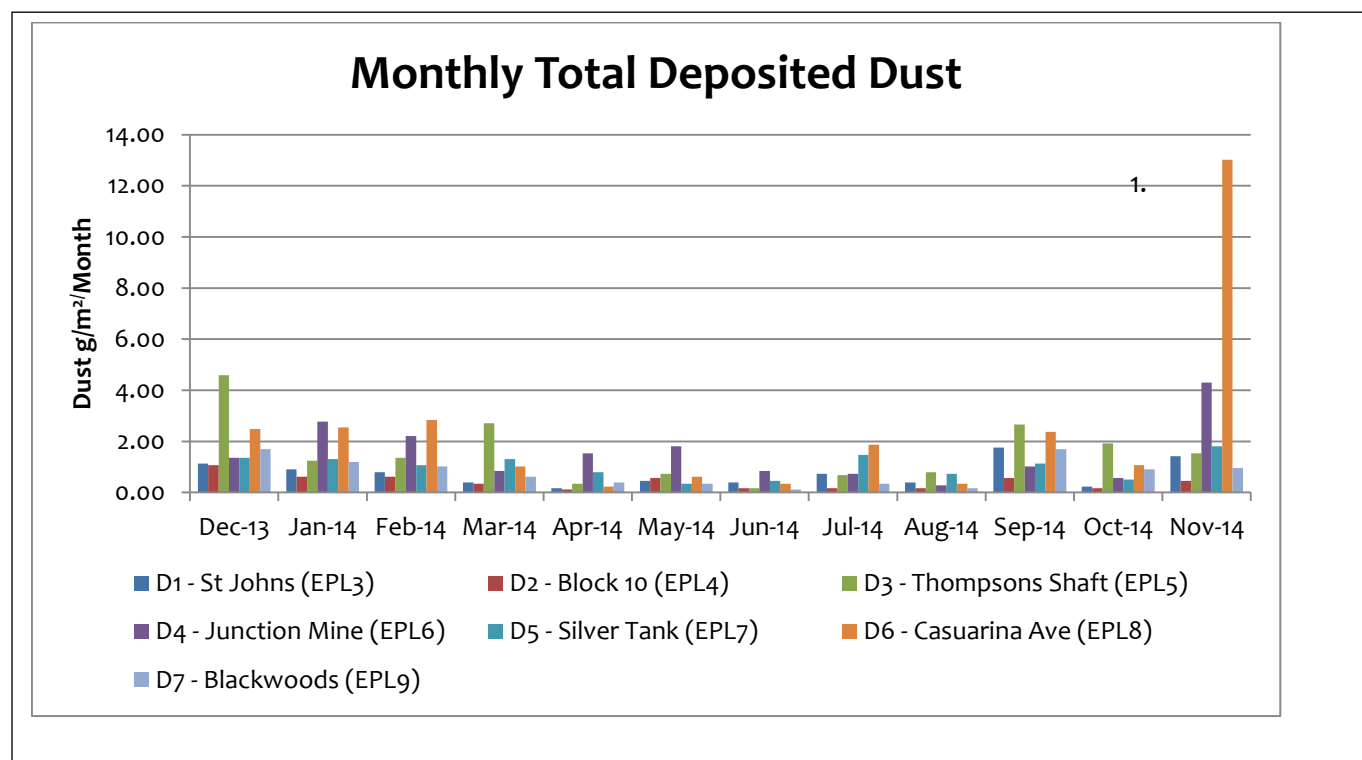
1. NNW winds gusts to 46km/h



1.3 Dust Deposition Sampling

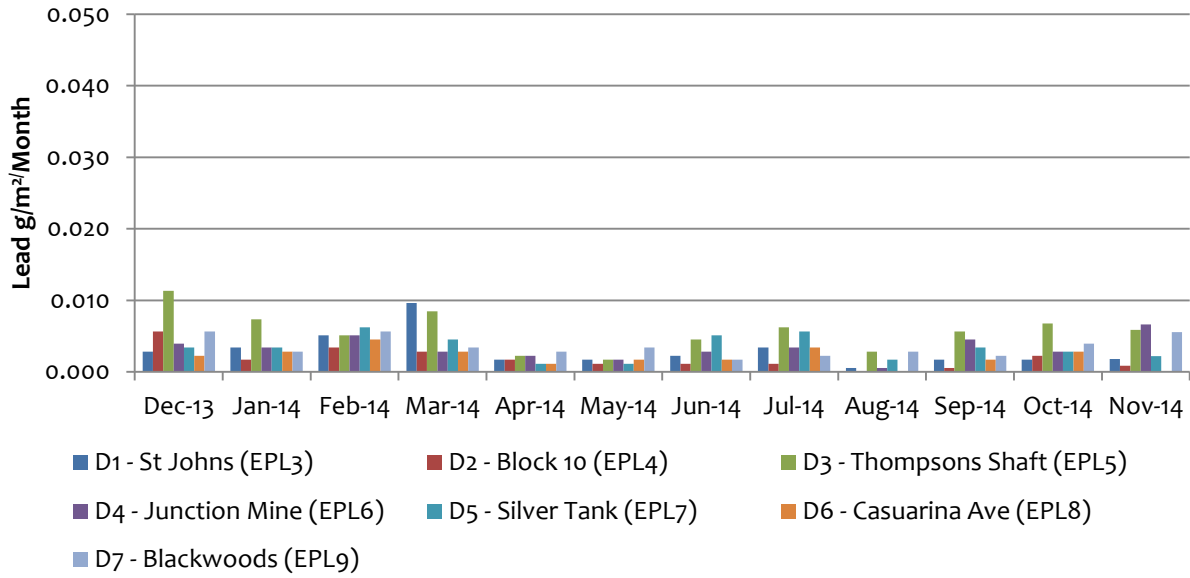
Total Deposited Dust (g/m ² /Month)							
Date	D1 (off site)	D2	D3	D4	D5	D6 (off site)	D7
November 2014	1.41	0.45	1.53	4.30	1.81	13.01	0.96
Background Average	4.0	3.1	4.3	5.7	n/a	5.8	n/a

Total Deposited Lead (g/m ² /Month)							
Date	D1 (Off Site)	D2	D3	D4	D5	D6 (Off Site)	D7
November 2014	0.002	0.001	0.006	0.007	0.002	0.000	0.006
Background Average	0.0034	0.0045	0.0046	0.0060	n/a	0.0036	n/a



1. Sample was contaminated with debris

Monthly Total Deposited Lead



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

Date	Monitoring Location	Peak Vibration PPV (mm/s)	Over Pressure (dBL)
7/11/2014	V3 Air Express Yard	1.28	91.5
10/11/2014	V2 Hire Yard	1.96	116.7
10/11/2014	V3 Air Express Yard	4.90	101
14/11/2014	V2 Hire Yard	2.66	115.9
14/11/2014	V3 Air Express Yard	5.15	101.9
18/11/2014	V2 Hire Yard	3.45	108.4
18/11/2014	V3 Air Express Yard	4.18	98.8
22/11/2014	electrical workshop	0.41	112
24/11/2014	V3 Air Express Yard	1.01	111.2
27/11/2014	V3 Air Express Yard	1.66	97.5
29/11/2014	V3 Air Express Yard	1.93	97.5

3 Noise

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

Date of sample	5/11/2014	5/11/2014
Sample ID	Shaft #7	U/G Supply
pH Value (pH)	4.82	6.45
Electrical conductivity (uS/cm)	11100	11000
Total Dissolved Solids (mg/L)	12100	11900
Hydroxide Alkalinity as CaCO ₃ (mg/L)	1	1
Carbonate Alkalinity CaCO ₃ (mg/L)	1	1
Bicarbonate Alkalinity as CaCO ₃ (mg/L)	1	12
Total Alkalinity (mg/L)	1	12
Sulphate as SO ₄ (mg/L)	4860	4510
Chloride (mg/L)	1140	1140
Calcium (mg/L)	556	531
Magnesium (mg/L)	286	260
Sodium (mg/L)	1580	1620
Cadmium (mg/L)	2.08	2.71
Manganese (mg/L)	472	401
Lead (mg/L)	1.37	0.960
Zinc (mg/L)	1310	1260
Iron (mg/L)	1.30	2.16

4.2 Surface Water

Insufficient water was available for samples at surface water locations.

Surface Water Table

EPA Identification Number	Frequency	Comment
EPL29	2 x Per year when contains water	Sufficient samples for year
EPL30	2 x Per year when contains water	Insufficient water for sample
EPL31	2 x Per year when contains water	Insufficient water for sample
EPL32	2 x Per year when contains water	Insufficient water for sample
EPL33 Horwood Dam	2 x Per year when contains water	Sufficient samples for year
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 November.

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

Most observations from Broken Hill (Patten Street), but some from Broken Hill Airport.

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	Sa	16.1	24.4	1.0			WSW	83	23:03	17.7	60	3	SW	46	1011.5	23.7	21	1	SSW	35	1012.8
2	Su	7.1		0			S	39	00:09	11.7	52	0	SSE	22	1024.7				SSE	17	1022.2
3	Mo						NE	37	12:19				ENE	24	1022.7				NE	13	1018.5
4	Tu						SSW	56	20:40				N	19	1016.8				WNW	22	1013.4
5	We						SSW	50	06:08				S	33	1019.3				SSW	26	1016.7
6	Th		30.8				SSW	26	07:29				S	11	1018.3				SSE	13	1014.3
7	Fr	15.6	35.1	0			NNE	41	12:41	23.9	22	6	NE	26	1016.7	33.7	13	2	NNE	13	1014.4
8	Sa	22.1	39.1	0			SSW	67	20:33	29.6	12	1	NNE	33	1015.5	38.7	9	1	W	20	1013.3
9	Su	13.6	30.1	0			S	46	23:22	16.5	52	1	S	31	1020.9	28.6	21	3	S	24	1018.3
10	Mo	11.5	29.0	0			SSE	50	11:00	15.5	52	1	S	30	1022.0	27.6	19	1	SSE	28	1019.0
11	Tu	12.7	29.8	0			S	54	10:21	18.3	34	0	SE	26	1020.2	28.8	17	2	S	24	1016.5
12	We	17.9	36.5	0			SSW	26	14:40	23.8	18	5	ENE	17	1016.3	33.7	10	1	SSW	9	1012.4
13	Th	23.3	39.7	0			N	43	13:00	29.9	15	3	NNE	17	1013.0	39.2	9	5	NE	30	1008.7
14	Fr	26.1	43.1	0			NW	70	12:06	33.1	15	3	NNE	24	1007.3	37.6	13	6	S	31	1004.2
15	Sa	21.9	23.8	1.6			NNW	46	12:40	22.8	51	8	SW	4	1012.3	22.2	77	8	NW	31	1010.4
16	Su	10.8	23.8	7.8			W	63	23:09	13.3	64	7	S	30	1015.0	23.1	27	5	SW	24	1013.8
17	Mo	10.6	28.3	0			SW	39	14:58	16.3	29	1	SE	13	1019.3	26.2	14	1	SSW	19	1015.5
18	Tu	12.9	29.2	0			SSE	33	06:47	17.2	30	2	SSE	22	1021.4	28.1	15	3	WNW	9	1018.6
19	We	16.7	34.8	0			WSW	37	14:09	24.3		1	ENE	19	1018.3	33.6	7	2	NW	17	1013.2
20	Th	23.9	36.4	0			WSW	61	14:06	30.3	16	7	N	28	1010.2	30.5	10	8	SW	43	1009.1
21	Fr	17.7	33.6	0			W	37	12:31	19.6	45	1	S	20	1013.0	32.2	16	1	WNW	22	1010.6
22	Sa	19.2	39.5	1.0			NW	54	08:07	22.1	36	7	W	28	1013.3	33.7	9	3	NNE	33	1006.5
23	Su	18.9	32.1	4.8			SSW	44	02:36	20.7	46	4	S	30	1012.2	31.4	18	7	ENE	9	1012.2
24	Mo	20.3	34.1	3.6			WNW	57	13:45	21.1	55	7	NE	26	1010.5	33.8	23	5	WNW	33	1007.7
25	Tu	10.3	25.4	4.0			SE	54	10:13	14.6	25	1	SSE	31	1020.6	23.4	10	1	S	20	1018.8
26	We	11.7	28.1	0			S	46	13:58	16.8	14	0	SSE	19	1020.8	27.3		1	S	31	1018.4
27	Th	13.3	30.1	0			ESE	41	10:09	19.1	18	1	SE	24	1020.9	28.8	9	2	ESE	22	1017.8
28	Fr	16.8	32.6	0			ESE	39	10:22	22.7		0	ESE	19	1018.4	31.2		5	SE	19	1014.4
29	Sa	20.5	37.7	0			E	33	06:36	28.7	15	2	E	20	1012.1	36.6	13	3	W	22	1007.7
30	Su	24.9	40.1	0			NNW	46	06:52	29.2	45	1	NNW	28	1007.6	38.3	18	6	NE	13	1004.6

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	N/A	17/12/2014	31/12/2014
TEOM	Real time	24/12/2014	31/12/2014
Dust Deposition	8/12/2014	22/12/2014	31/12/2014
Water	06/11/2014	13/11/2014	31/12/2014
Blast Vibration and overpressure	Real Time	24/12/2014	31/12/2014

7 Correction Log October 2014

There are no data corrections for October 2014