



# **Mt Owen Complex Monthly Monitoring Report**

April 2010

## **Blast Monitoring Results April 2010**

**Table 1. Mt Owen Blast Monitoring Results**

Date Fired	Time Fired	Location B2		Location B3		Wind Direction (degrees)	Wind Speed (m/s)
		Peak Vibration mm/s	Peak Overpressure dB(L)	Peak Vibration mm/s	Peak Overpressure dB(L)		
07-Apr-10	9:09 AM	1.327	108.1	0.440	105.8	149 deg	1.3 m/s
09-Apr-10	12:04 PM	0.133	95.3	0.470	94.4	283 deg	1.6 m/s
13-Apr-10	11:57 AM	0.100	98.3	0.470	94.4	147 deg	2.8 m/s
14-Apr-10	11:45 AM	0.320	97.8	0.100	110.0	125 deg	1.3 m/s
15-Apr-10	12:20 PM	0.380	81.0	0.100	100.0	48 deg	1.0 m/s
16-Apr-10	9:33 AM	0.12	84.5	0.08	89.8	142 deg	2.0 m/s
19-Apr-10	4:28 PM	0.717	103.1	0.230	98.8	120 deg	2.4 m/s
21-Apr-10	11:55 AM	0.254	95.7	0.130	92.1	123 deg	1.4 m/s
22-Apr-10	12:16 PM	0.178	101.2	0.110	96.7	308 deg	2.5 m/s
28-Apr-10	4:16 PM	0.184	94.2	0.410	98.1	290 deg	1.9 m/s

## **Dust Monitoring Results**

**Table 2. Depositional Dust (g/m<sup>2</sup>/month), April 2010**

Dust Gauge	May-09	Jun-09	Jul-09	Aug-09	Sept-09	Oct-09	Nov-09	Dec-09	Jan-10	Feb-10	Mar-10	Apr-10	Rolling Average
DD1	2.3	2.8	1.8	C	2.2	3.5	3.6	3.9	2.8	2.8	1.6	2.2	2.7
DD2	4.7	3.1	1.6	0.9	C	5.8	C	C	C	C	3.2	C	3.2
DD3	C	3.1	2.5	0.8	1.5	3.3	3.9	6.4	4.5	3.9	2.5	6.2	3.5
DD4	1.9	2.1	1.2	0.9	4.5	4.5	5.2	5.5	4.3	3.9	1.9	3.2	3.3
DD5	C	2.9	2.3	1.3	4.9	5.5	C	4.9	2.4	2.8	1.9	3.2	3.2
DD6	1.2	1.1	0.8	0.7	1.6	2.4	1.6	2.9	2.3	1.4	0.8	1.2	1.5
DD7	4.3	1.3	1.9	1.7	4.7	6.5	1.8	3.8	4.8	C	2.9	1.7	3.2
DD8	7.5	5.2	4.6	3.7	10.6	7.5	5.9	C	5.3	5.0	2.6	C	5.8
DD9	C	3.0	3.8	2.2	5.9	6.2	3.2	4.3	2.5	2.6	1.4	2.9	3.5
DD10	2.0	C	C	C	C	C	2.7	C	2.3	3.6	1.4	2.6	2.4
DD11	C	4.0	C	2.0	5.4	4.9	3.1	4.0	3.2	3.1	3.6	2.7	3.6
DD12	2.8	1.0	3.5	1.5	3.2	4.1	2.5	3.1	3.1	1.8	0.9	1.6	2.4
DD13	2.5	1.0	2.2	2.3	5.9	4.8	3.4	3.9	3.4	2.4	2.2	2.3	3.0
DD14	2.2	1.9	1.8	1.3	3.1	3.4	1.6	2.8	2.5	2.3	0.7	1.5	2.1
DD15	4.1	1.3	2.2	C	5.4	5.7	C	C	3.8	3.3	C	1.9	3.5
DD16	2.2	2.2	NA <sup>1</sup>	1.2	4.0	4.3	1.8	2.7	2.3	1.4	1.0	2.6	2.3

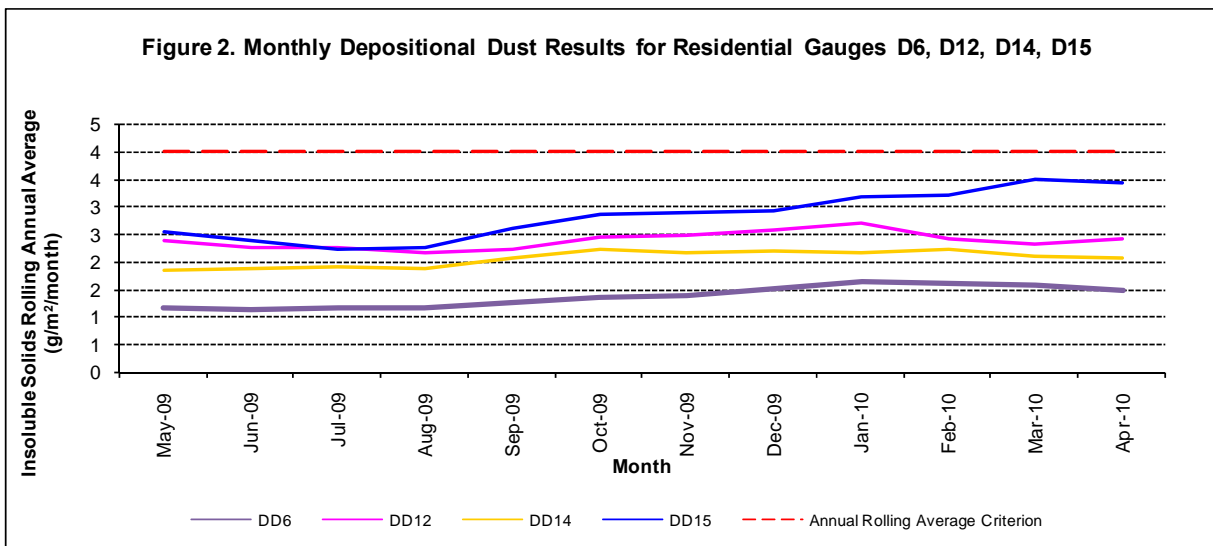
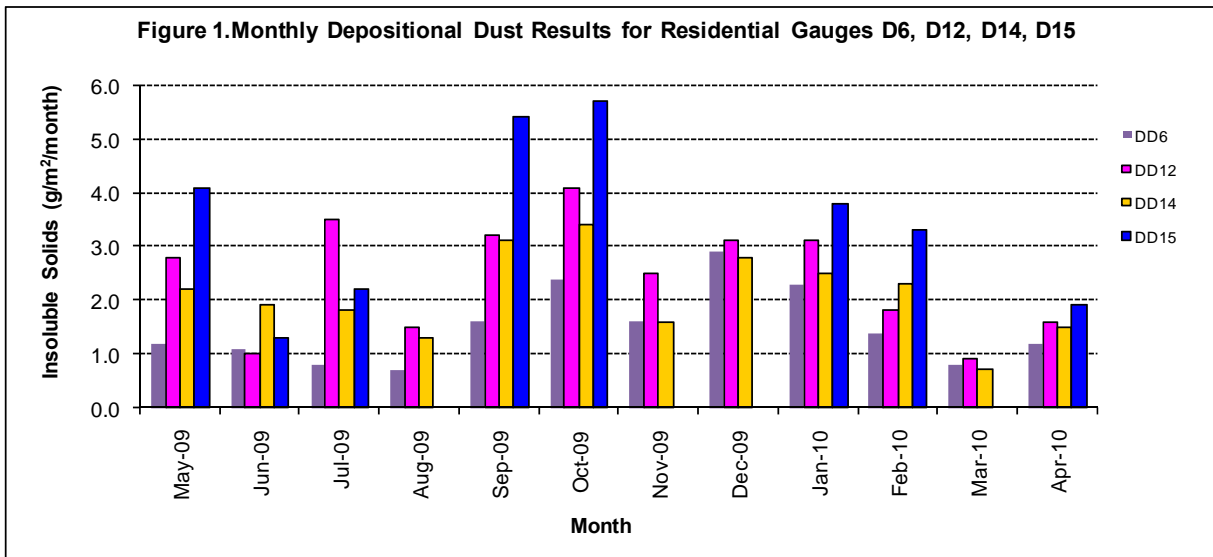
\*C – Dust gauge deemed contaminated after analysis of influencing factors. These factors include an ash residue result of <50%, the presence of bird droppings or other contaminants such as insects in the dust gauge and analysis of historical results from the dust gauge.

Note: Results from contaminated gauges are not included in the calculations for rolling averages.

NA<sup>1</sup>: Dust Gauge Stolen, therefore no result could be obtained

Dust gauges DD1-DD5, DD7 – DD11 and DD13 are located on the mine lease and are in close proximity to Mt Owen Complex. These dust gauges are used for background monitoring only.

Depositional dust gauges located on residential properties are DD6, DD12, DD14 and DD15. The results for these gauges are summarised in the graphs below.

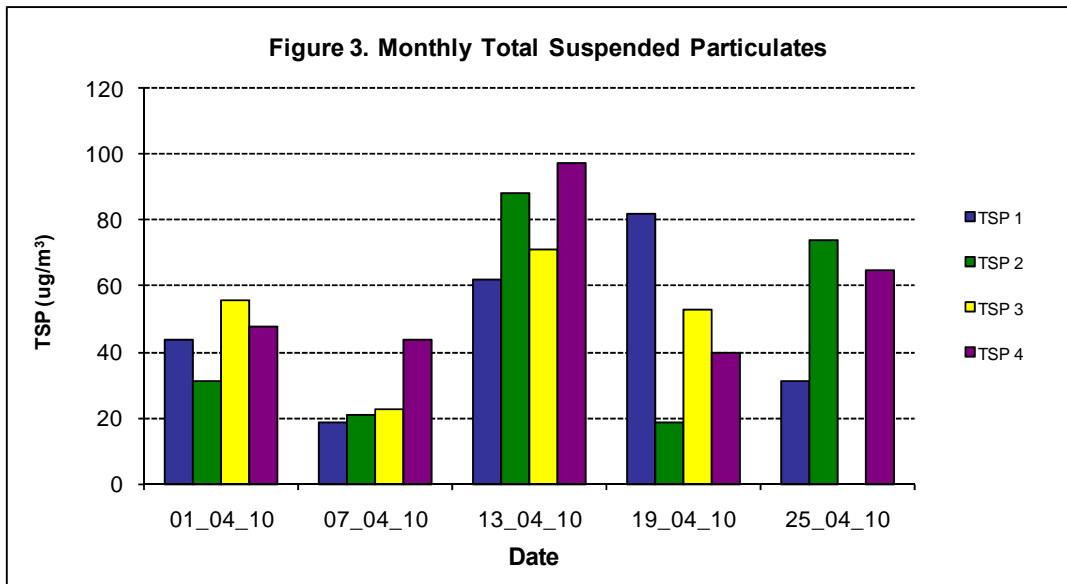


**Total Suspended Particulates ( $\mu\text{g}/\text{m}^3$ )**

**Table 3. Monthly Results for Total Suspended Particulates**

Date	Total Suspended Particulates (TSP) ( $\mu\text{g}/\text{m}^3$ )				Predominant Wind Direction
	TSP 1	TSP 2	TSP 3	TSP 4	
01-Apr-10	44	31	56	48	E
07-Apr-10	19	21	23	44	SE
13-Apr-10	62	88	71	97	S
19-Apr-10	82	19	53	40	E
25-Apr-10	31	74	**	65	W

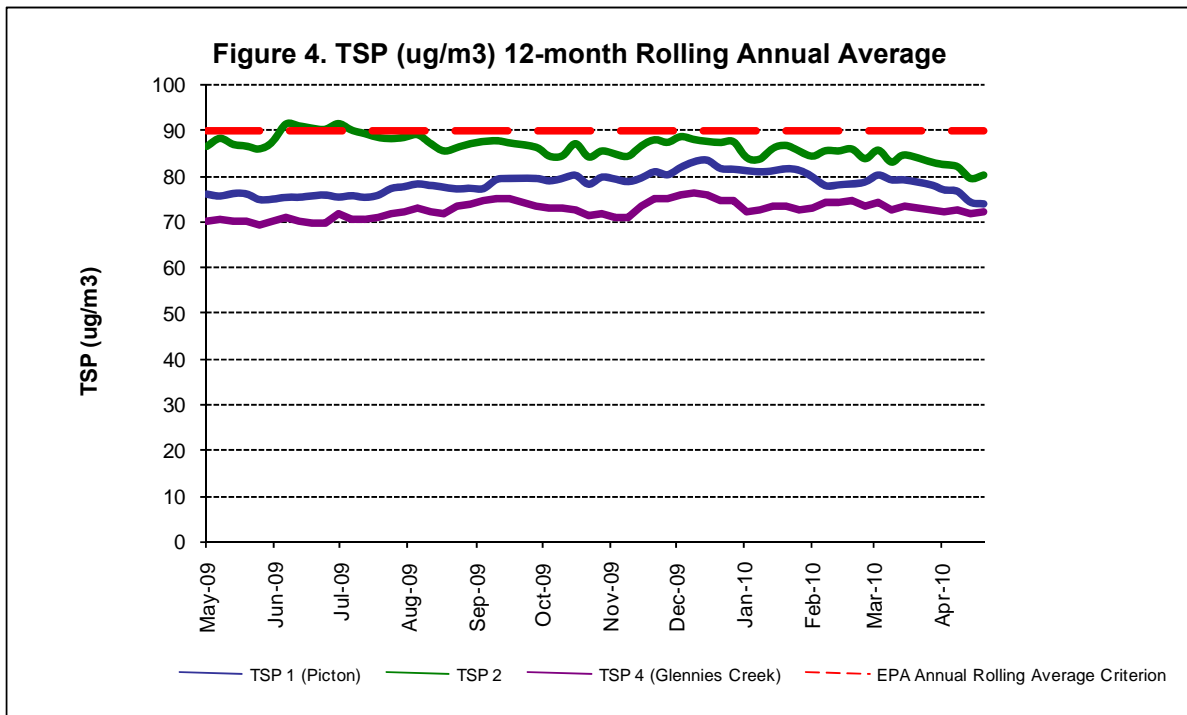
\*\* Results not available at time of reporting



**Table 4. Total Suspended Particulates Annual Rolling Average**

Month	Total Suspended Particulates (TSP) ( $\mu\text{g}/\text{m}^3$ )				Compliance Criteria ( $\mu\text{g}/\text{m}^3$ )
	TSP 1	TSP 2	TSP 3	TSP 4	
May-09	75	85	84	69	90
Jun-09	76	90	89	70	90
Jul-09	76	88	89	71	90
Aug-09	78	86	92	72	90
Sep-09	78	85	96	74	90
Oct-09	80	87	97	72	90
Nov-09	80	86	96	72	90
Dec-09	82	88	100	75	90
Jan-10	81	86	99	73	90
Feb-10	79	85	100	74	90
Mar-10	79	84	100	73	90
Apr-10	76	81	97	72	90

Note: All TSP monitors are located on mine owned property.



## PM<sub>10</sub> Particulate Monitoring

Table 5. Monthly Results for 24-hr PM<sub>10</sub> Particulate Matter

Date	Particulate Matter (PM <sub>10</sub> ) (µg/m <sup>3</sup> )					Predominant Wind Direction
	PM <sub>10</sub> 1	PM <sub>10</sub> 2	PM <sub>10</sub> 3	PM <sub>10</sub> 4	PM <sub>10</sub> 5	
01-Apr-10	18	17	14	18	13	E
07-Apr-10	8	9	10	6	12	SE
13-Apr-10	20	26	18	17	18	S
19-Apr-10	15	7	6	9	5	E
25-Apr-10	8	16	14	11	12	W

Note: all PM10 monitors are located on mine owned property

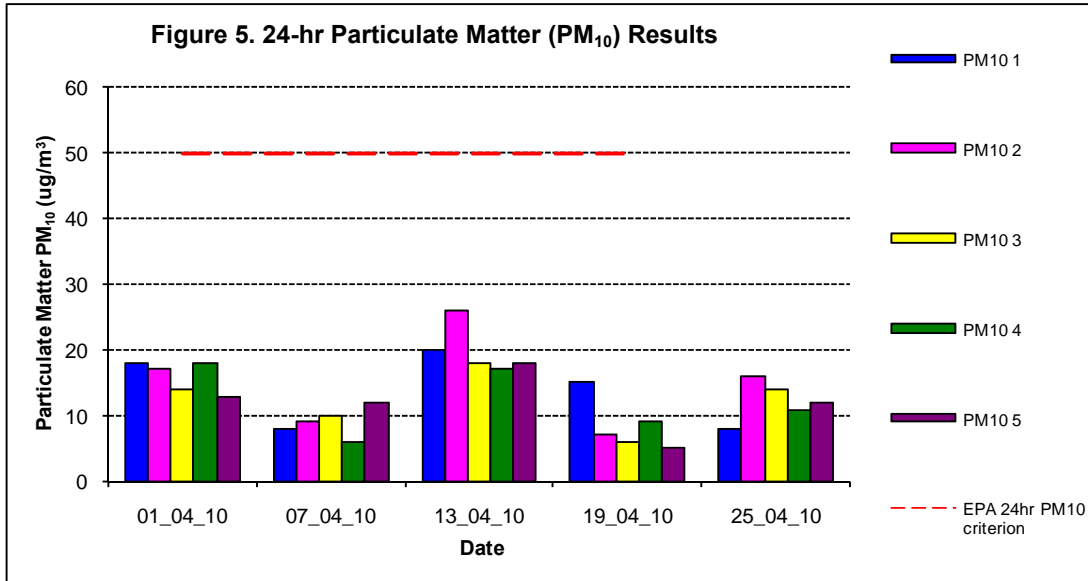
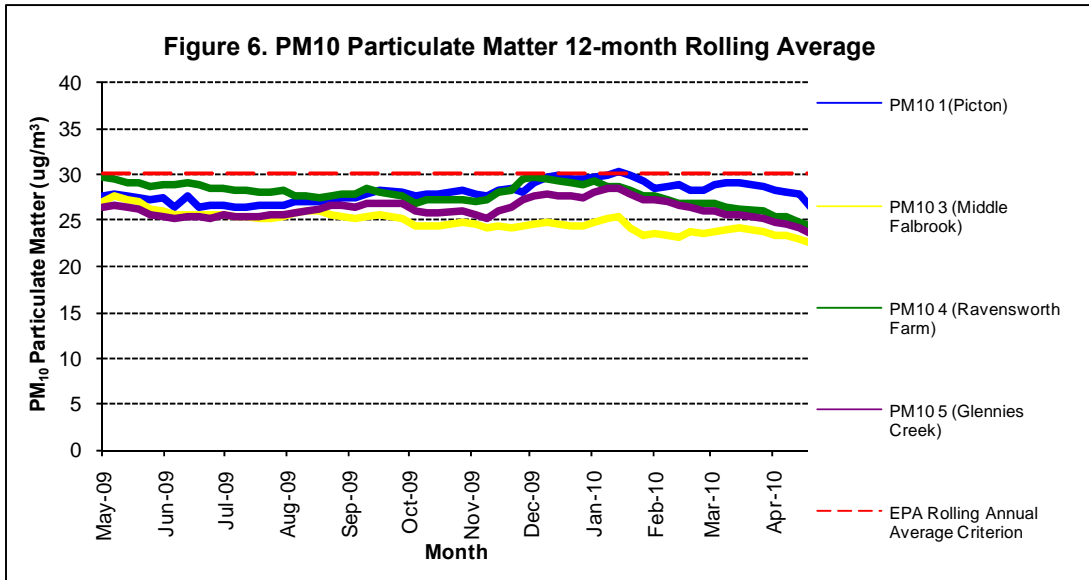


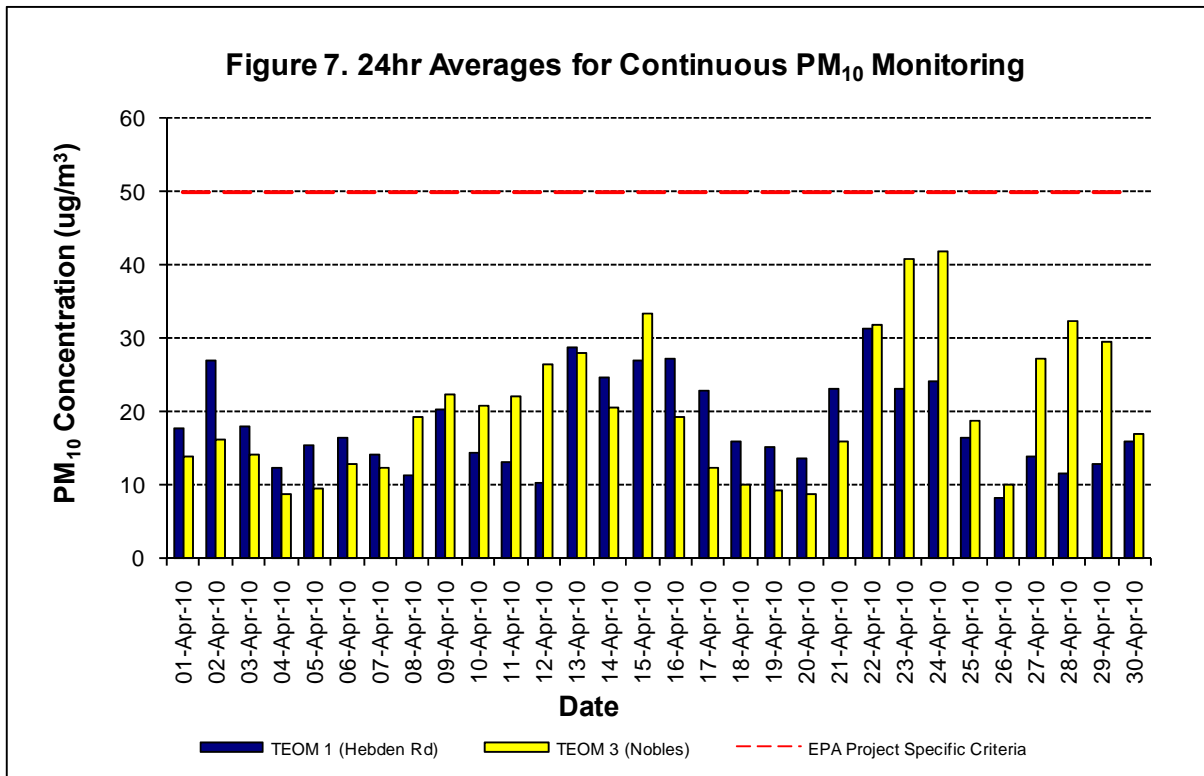
Table 6. PM<sub>10</sub> Particulate Matter Annual Rolling Average

Month	Particulate Matter (PM <sub>10</sub> ) (µg/m <sup>3</sup> )					Compliance Criteria (ug/m <sup>3</sup> )
	PM <sub>10</sub> 1	PM <sub>10</sub> 2	PM <sub>10</sub> 3	PM <sub>10</sub> 4	PM <sub>10</sub> 5	
May-09	28	30	27	29	26	30
Jun-09	26	30	36	39	35	30
Jul-09	27	30	25	28	25	30
Aug-09	27	30	26	27	26	30
Sep-09	28	29	26	24	27	30
Oct-09	28	30	24	27	26	30
Nov-09	28	30	24	28	26	30
Dec-09	29	32	25	29	28	30
Jan-10	30	31	25	29	28	30
Feb-10	29	31	23	27	27	30
Mar-10	29	30	24	27	26	30
Apr-10	28	29	23	25	24	30



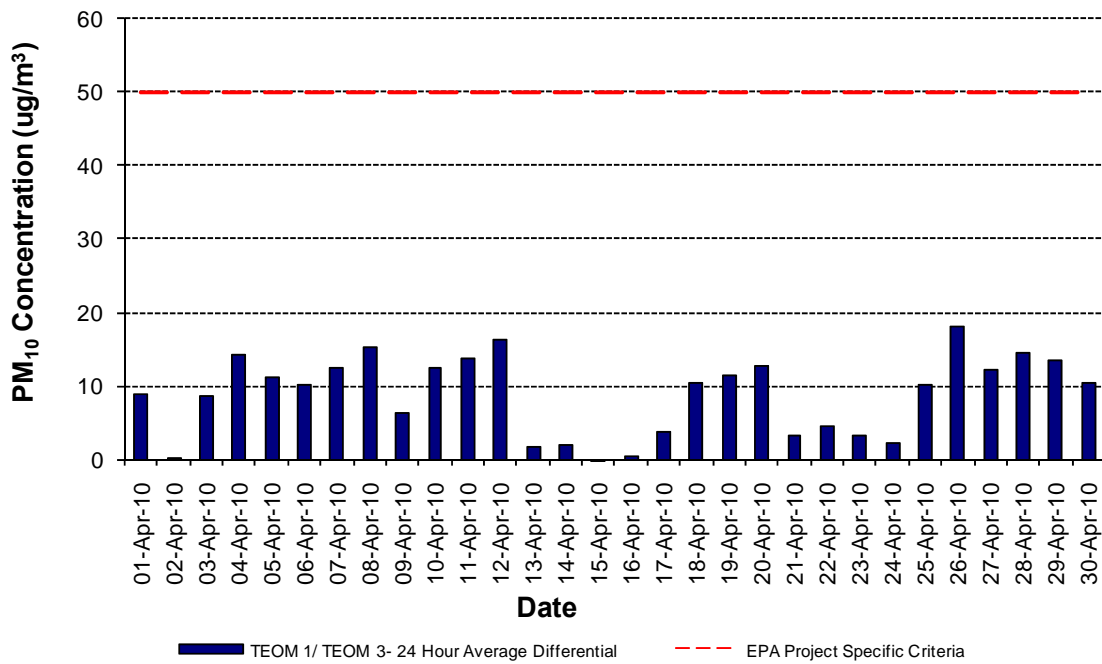
### Continuous PM<sub>10</sub> Monitoring Results

Figure 7 below shows the total cumulative 24 hour averages for PM10 at two of the dust monitoring stations surrounding Mt Owen, portraying the cumulative dust levels across the region. Figure 8 indicates the differential between the two monitors to indicate Mt Owen’s specific contribution to the atmospheric PM10 level.

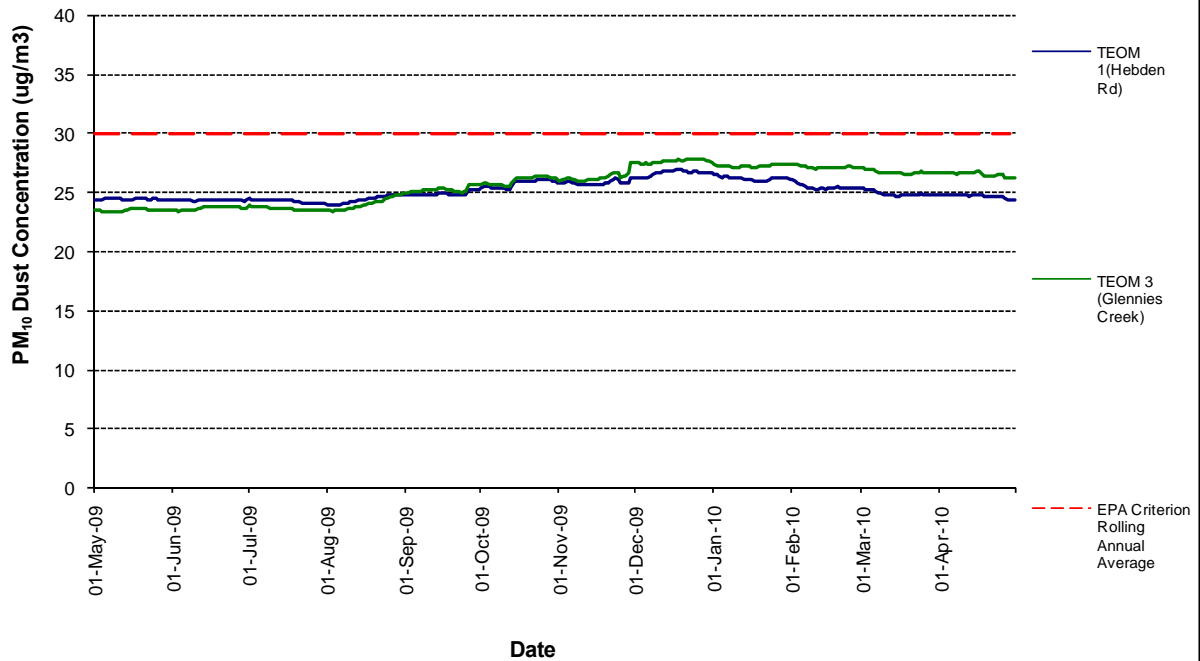


Note: All PM10 monitors are located on mine owned property

**Figure 8. PM10 Particulate Matter Upwind/ Downwind 24 Hour Differential**



**Figure 9. PM10 Continuous Dust Monitoring Annual Rolling Average**



## **Noise Monitoring Results**

Detailed results, including assessment of compliance with noise criteria, is provided in the MOC quarterly noise monitoring report available via the MOC website.

## **Surface Water Monitoring Results**

**Table 7. Surface Water Monitoring Results, April 2010**

<b>Location</b>	<b>pH</b>	<b>Electrical Conductivity (µS/cm)</b>	<b>Total Suspended Solids (mg/L)</b>	<b>Flow condition</b>
Bowmans Creek Upstream (BMC1)	7.85	1400	5	Slow
Bowmans Creek Midstream (BMC2)	7.99	1360	29	Still
Bowmans Creek Downstream (BMC3)	8.18	2100	21	Pools
Yorks Creek Upstream (YC1)	7.49	3140	126	Trickle
Yorks Creek Midstream (YC2)	NA	NA	NA	DRY
Yorks Creek Downstream (YC3)	NA	NA	NA	DRY
Swamp Creek Upstream (SC1)	8.96	458	3	Dam
Swamp Creek Midstream (SC2)	8.21	502	30	Dam
Bettys Creek Upstream (BC1)	NA	NA	NA	DRY
Bettys Creek Downstream (BC2)	NA	NA	NA	DRY
Main Creek Upstream (MC1)	NA	NA	NA	DRY
Main Creek Downstream (MC2)	7.04	722	216	Pools

## **Discharge Monitoring**

Nil discharges during April 2010.

## Groundwater Monitoring Results

Groundwater sampling will be undertaken again in June 2010. Note that NPZ9 (Small and Large), NPZ10 (Large) and GW1 bores could not be sampled in March due to inaccessible conditions. In addition the pH and Electrical Conductivity for NPZ12 could not be recorded as the bore only contained black sludge.

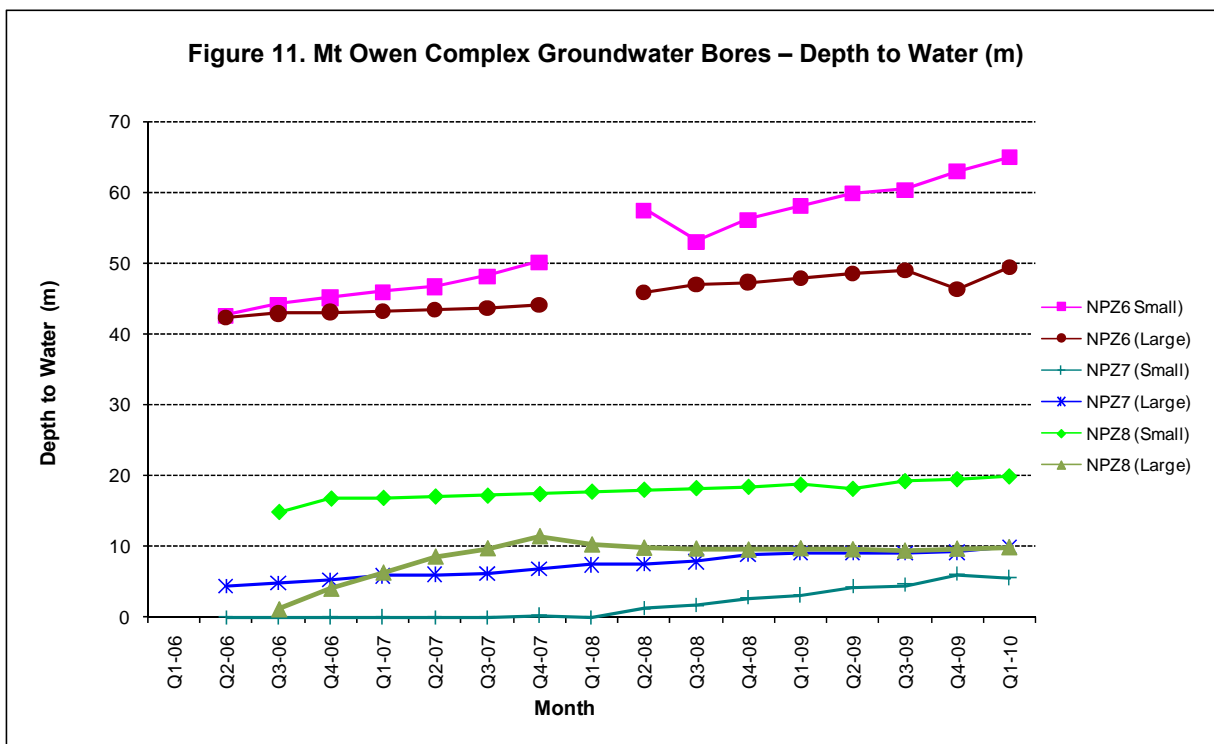
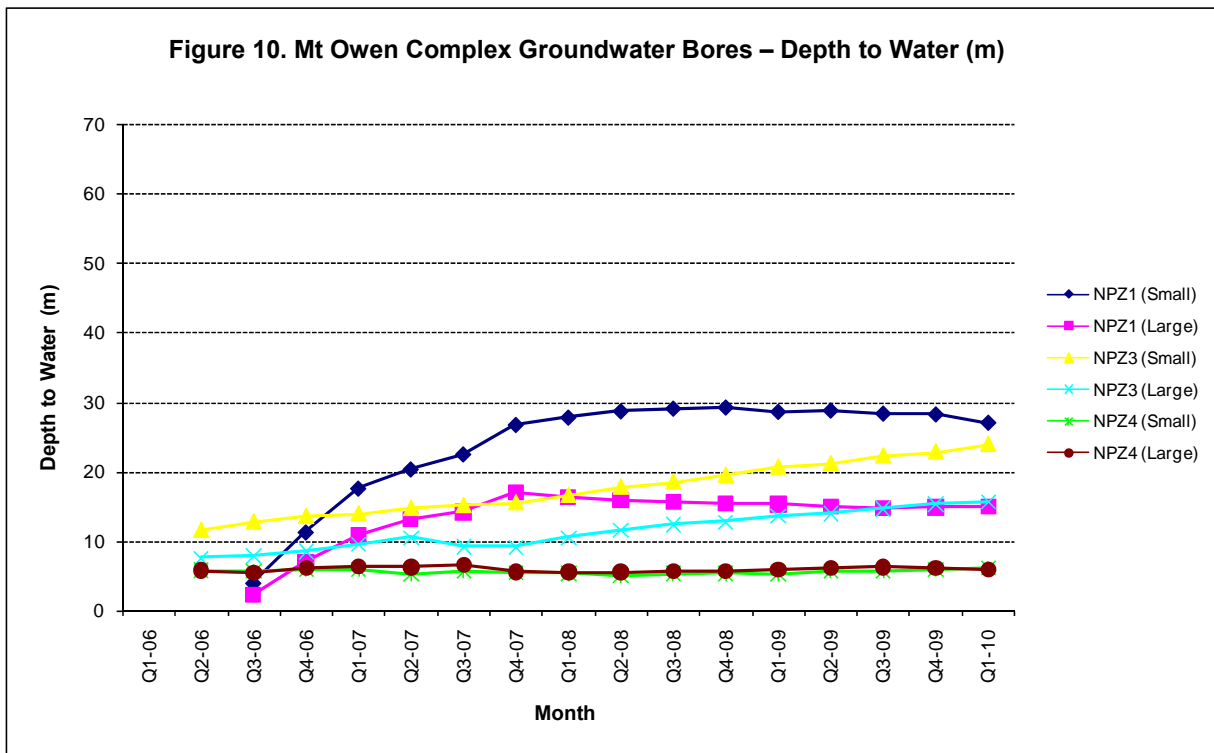


Figure 12. Mt Owen Complex Groundwater Bores – Depth to Water (m)

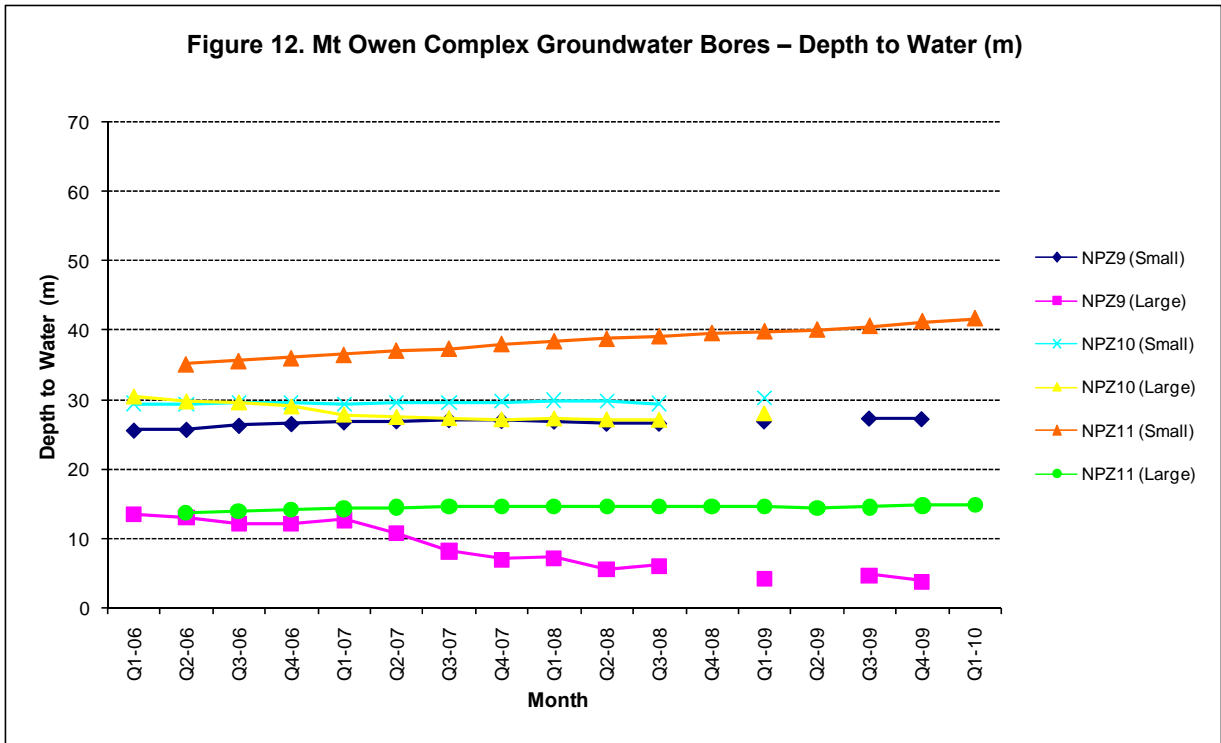


Figure 13. Mt Owen Complex Groundwater Bores – Depth to Water (m)

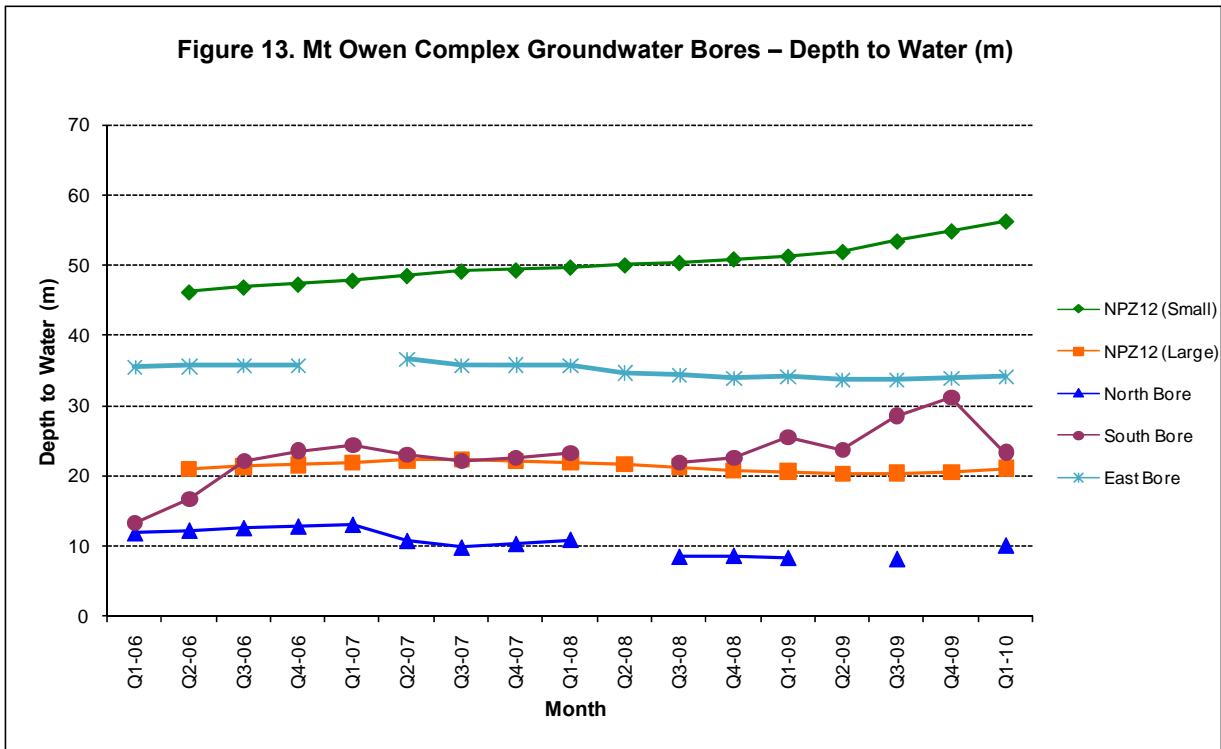


Figure 14. Mt Owen Complex Groundwater Bores – pH

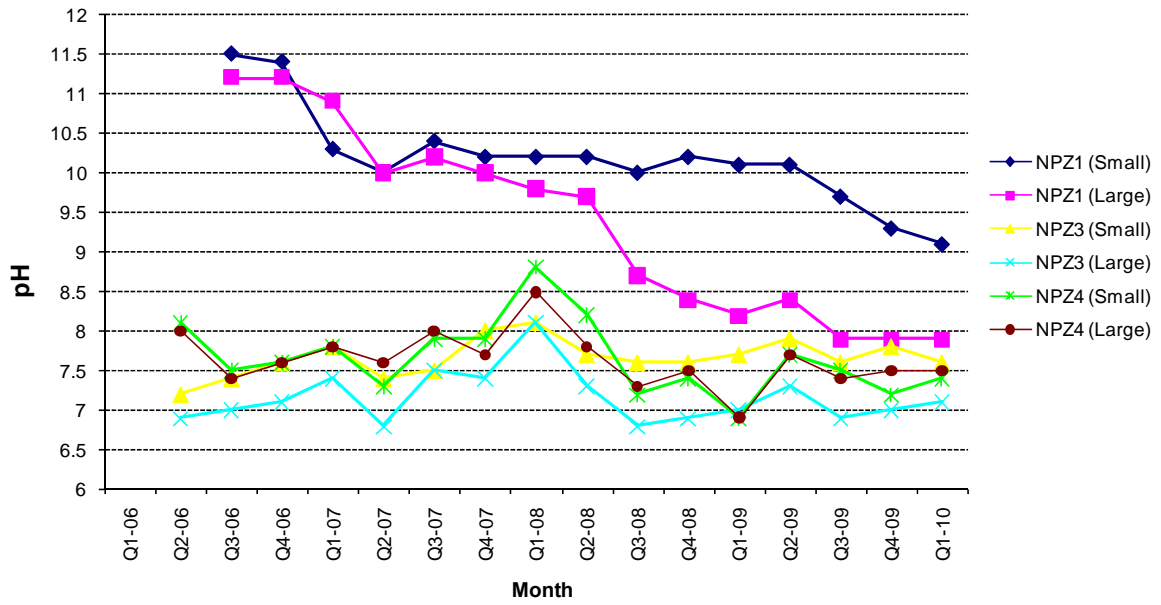


Figure 15. Mt Owen Complex Groundwater Bores – pH

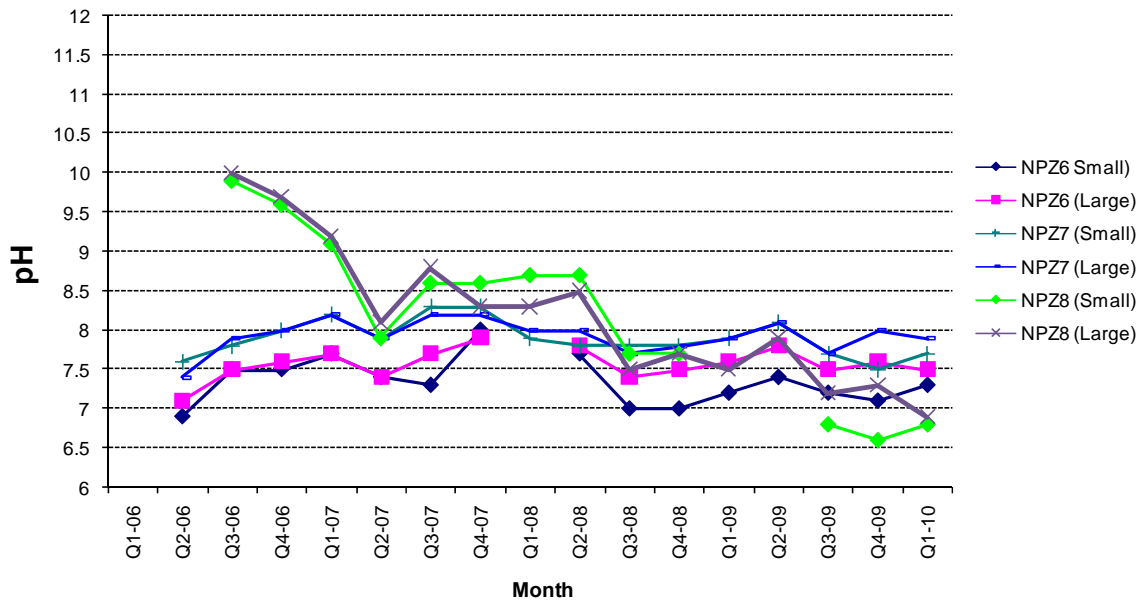


Figure 16. Mt Owen Complex Groundwater Bores – pH

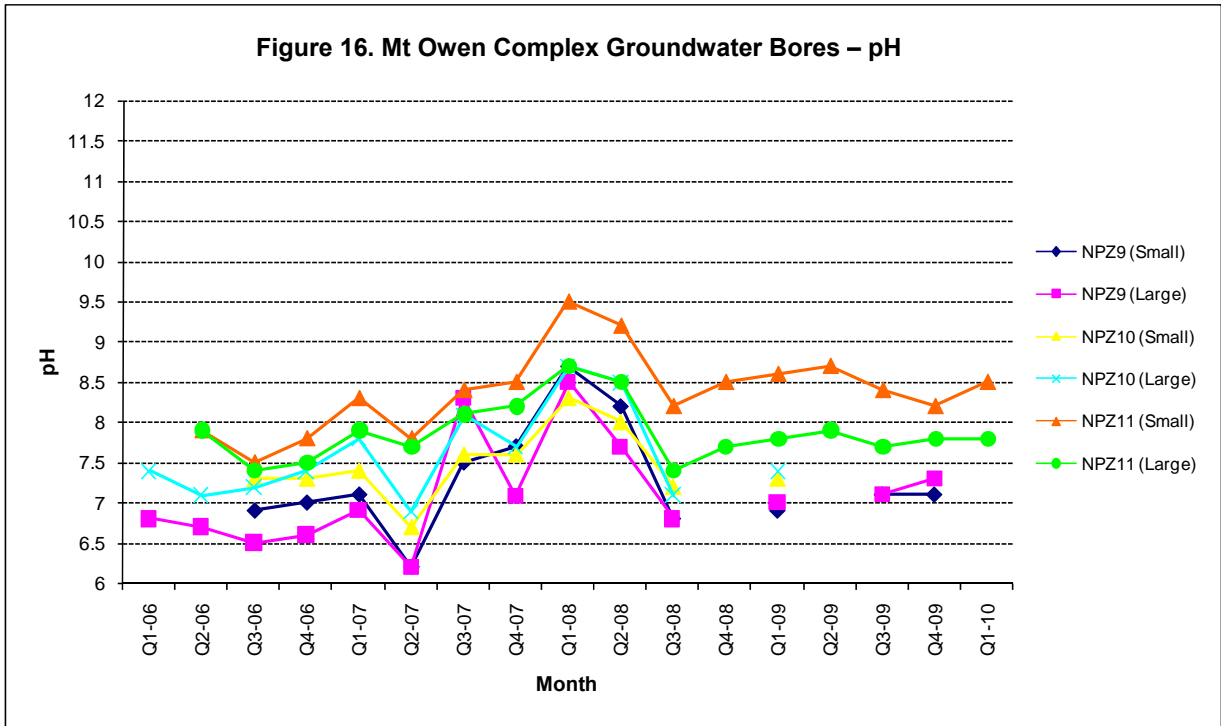


Figure 17. Mt Owen Complex Groundwater Bores – pH

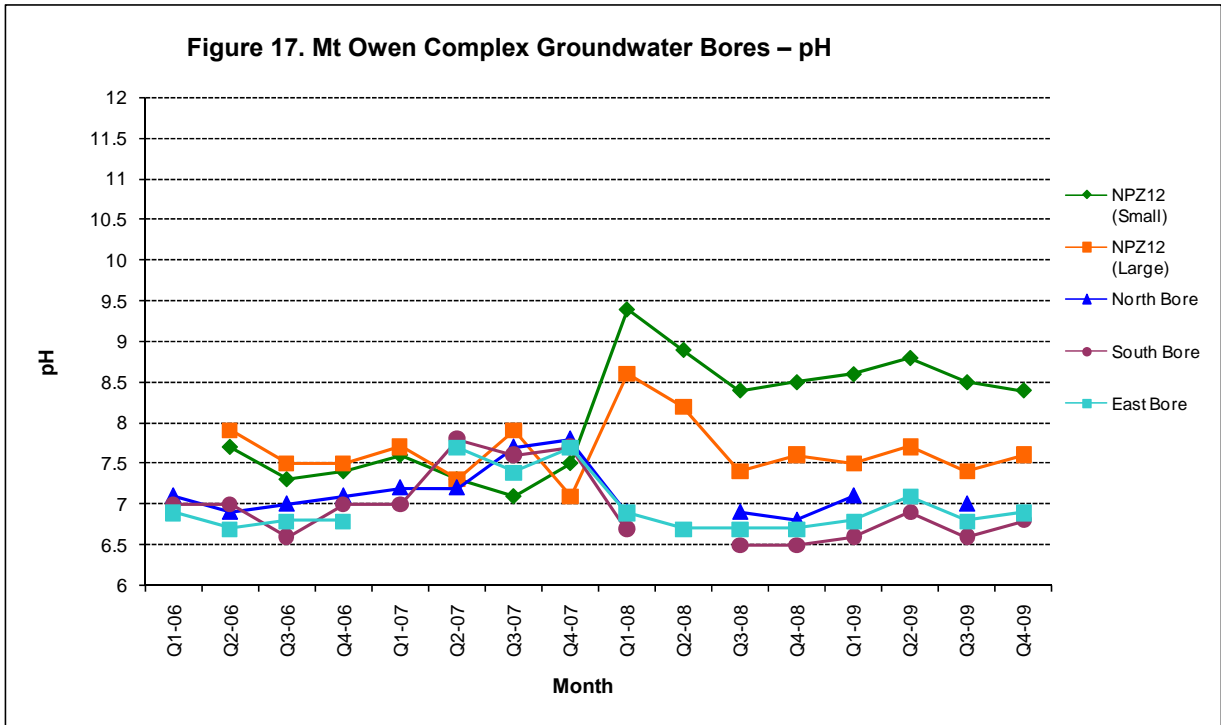


Figure 18. Mt Owen Complex Groundwater Bores – EC (uS/cm)

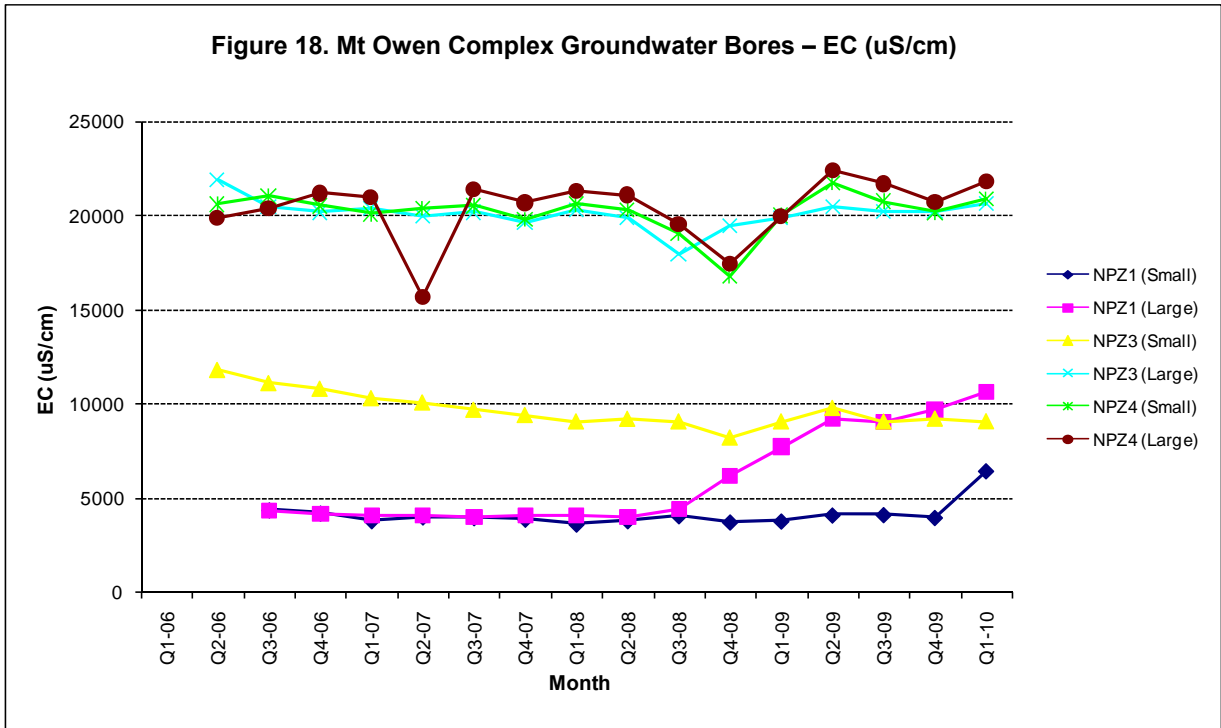
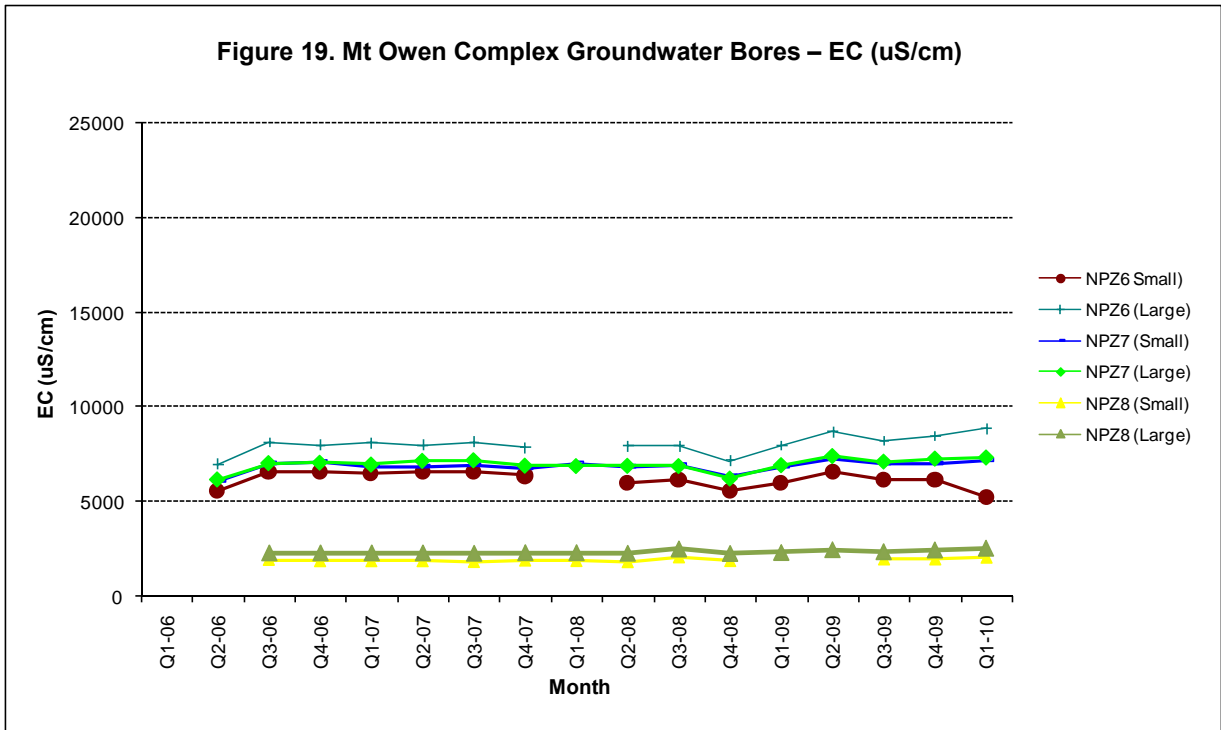
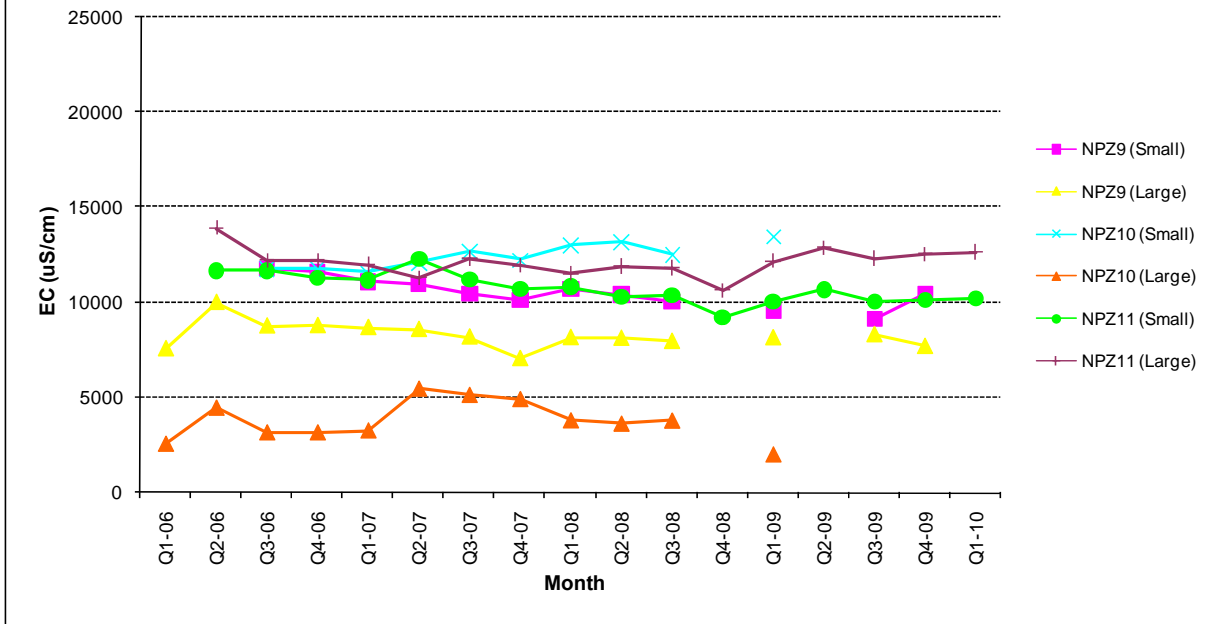


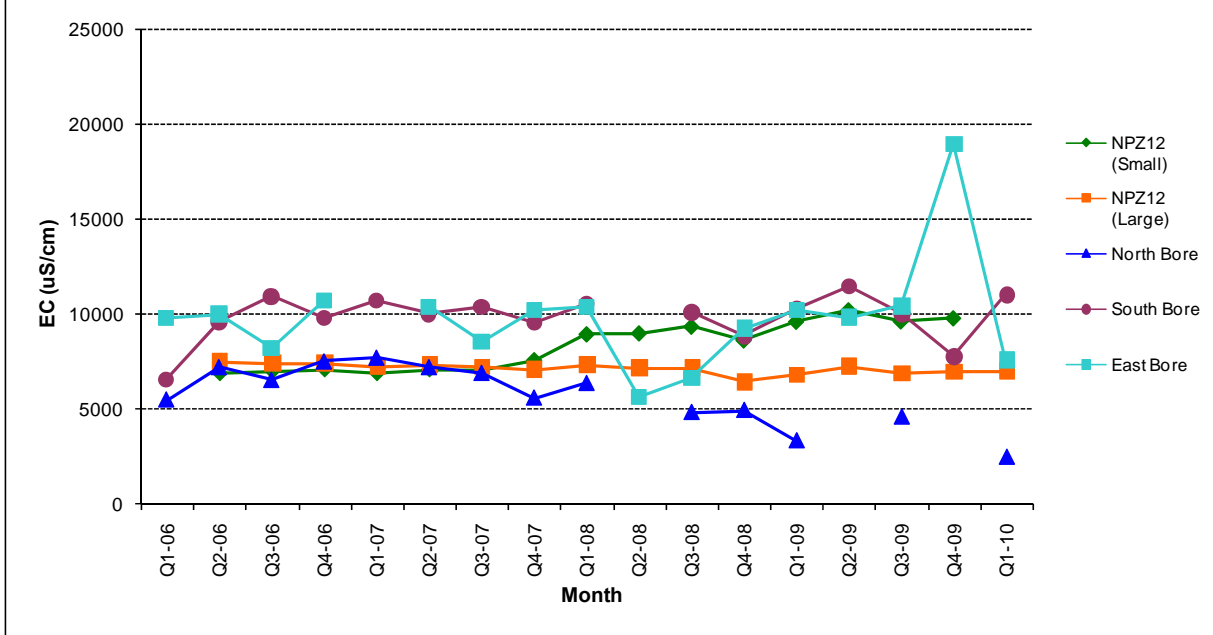
Figure 19. Mt Owen Complex Groundwater Bores – EC (uS/cm)



**Figure 20. Mt Owen Complex Groundwater Bores – EC (uS/cm)**



**Figure 21. Mt Owen Complex Groundwater Bores – EC (uS/cm)**



**Table 8. Weather Monitoring Results Ravensworth East Meteorological Station – April 2010**

Date	T Min	T Av	T Max	H Min	H Av	H Max	RAIN mm	WS Min	WS Av	WS Max
1/04/2010	15.0	19.4	25.0	33	70	94	0.0	0.0	0.5	2.7
2/04/2010	13.6	18.7	23.1	50	72	92	0.0	0.0	0.7	2.7
3/04/2010	14.1	18.7	23.9	45	72	93	0.0	0.0	1.2	4.5
4/04/2010	14.5	17.2	14.5	50	77	50	0.0	0.0	0.8	4.5
5/04/2010	13.5	17.6	22.9	57	77	91	0.0	0.0	1.1	4.0
6/04/2010	14.1	17.2	20.2	69	92	98	2.0	0.0	0.0	1.3
7/04/2010	16.7	20.9	23.6	66	79	98	7.0	0.0	0.9	3.1
8/04/2010	14.5	21.1	27.6	38	66	89	7.0	0.0	1.8	4.9
9/04/2010	14.8	18.8	24.6	46	73	90	0.2	0.0	0.3	2.2
10/04/2010	15.9	21.9	26.8	36	59	88	0.0	0.0	1.0	3.6
11/04/2010	14.8	21.4	26.6	43	58	80	0.0	0.0	3.2	7.6
12/04/2010	9.3	16.4	21.9	25	44	71	0.0	0.0	1.9	4.9
13/04/2010	10.1	16.0	22.4	35	65	93	0.0	0.0	0.6	2.7
14/04/2010	10.6	17.0	24.2	28	62	93	0.0	0.0	0.2	1.3
15/04/2010	10.9	18.0	25.3	28	67	95	0.2	0.0	0.3	1.3
16/04/2010	13.7	18.6	24.1	49	78	95	0.0	0.0	0.9	4.0
17/04/2010	14.2	18.8	24.7	46	80	97	0.0	0.0	1.0	3.6
18/04/2010	14.9	19.5	25.6	50	82	98	0.0	0.0	0.8	3.1
19/04/2010	13.9	19.1	26.0	48	83	98	0.0	0.0	0.8	3.6
20/04/2010	14.0	18.4	24.8	49	80	98	0.0	0.0	0.7	4.0
21/04/2010	13.7	18.9	25.7	40	73	97	0.0	0.0	0.2	0.9
22/04/2010	13.7	20.3	27.3	32	62	96	0.0	0.0	0.3	1.3
23/04/2010	14.3	21.9	28.7	31	54	82	0.0	0.0	0.8	3.1
24/04/2010	17.9	23.0	27.2	41	0	88	0.0	0.0	0.0	3.6
25/04/2010	10.3	15.4	18.6	68	84	92	17.0	0.0	0.9	5.4
26/04/2010	8.2	14.5	20.5	25	61	86	0.0	0.0	0.3	1.8
27/04/2010	9.2	16.2	21.7	35	53	83	0.0	0.0	1.3	4.5
28/04/2010	11.2	18.4	22.7	33	49	77	0.0	0.0	2.2	3.6
29/04/2010	10.4	18.0	23.1	32	52	78	0.0	0.0	2.1	4.5
30/04/2010	10.3	16.2	22.0	45	81	97	0.0	0.0	0.7	4.9
<b>AVERAGE</b>	<b>13</b>	<b>19</b>	<b>24</b>	<b>42</b>	<b>67</b>	<b>89</b>	<b>33.0</b>	<b>0</b>	<b>1</b>	<b>3</b>

Note: NA = Technical fault with weather station

**Key – Meteorological Data**

Abbreviation	Term	Unit
T	Temperature	°C
H	Humidity	%
RAIN	Rainfall	Mm
WS	Wind Speed	m/s
Min	Minimum	
Av	Average	
Max	Maximum	

**Figure 22. Wind Rose – April 2010**

Sentinex8, Hebden Rd / Environ Met Strn - Data: 20100403-00:59 till 20100430-23:59

