

Mt Owen Complex Monthly Monitoring Report

March 2010

Blast Monitoring Results March 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)		
3-Mar-10	11:51 AM	0.18	74.3	0.09	96.3	71 deg	4.1 m/s
4-Mar-10	4:03 PM	0.64	68.3	0.24	97.8	83 deg	5.0m/s
10-Mar-10	4:16 PM	1.42	68.3	0.81	109.4	135 deg	5.7 m/s
11-Mar-10	12:25 PM	0.26	74.3	<0.02	<110	62 deg	3.1 m/s
12-Mar-10	12:40 PM	0.27	68.3	0.47	103.8	102 deg	5.0 m/s
16-Mar-10	12:06 PM	0.58	68.3	<0.20	<110	45 deg	2.3 m/s
18-Mar-10	4:09 PM	<0.20	<110	0.38	96.7	75 deg	3.3 m/s
23-Mar-10	11:57 AM	<0.20	<110	<0.20	<110	45 deg	3.7 m/s
24-Mar-10	4:11 PM	0.29	89.0	0.13	98.1	51 deg	4.5 m/s
26-Mar-10	12:05 PM	0.33	97.4	<0.20	<110	45 deg	4.5 m/s
30-Mar-10	10:44AM	0.22	95.3	0.10	88.9	99 deg	0.5 m/s

Dust Monitoring Results

Table 2. Depositional Dust (g/m²/month), March 2010

Dust Gauge	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sept-09	Oct-09	Nov-09	Dec-09	Jan-10	Feb-10	Mar-10	Rolling Average
DD1	2.3	2.3	2.8	1.8	C	2.2	3.5	3.6	3.9	2.8	2.8	1.6	2.7
DD2	0.4	4.7	3.1	1.6	0.9	C	5.8	C	C	C	C	3.2	3.5
DD3	0.3	C	3.1	2.5	0.8	1.5	3.3	3.9	6.4	4.5	3.9	2.5	3.3
DD4	0.4	1.9	2.1	1.2	0.9	4.5	4.5	5.2	5.5	4.3	3.9	1.9	3.3
DD5	0.3	C	2.9	2.3	1.3	4.9	5.5	C	4.9	2.4	2.8	1.9	3.2
DD6	0.2	1.2	1.1	0.8	0.7	1.6	2.4	1.6	2.9	2.3	1.4	0.8	1.6
DD7	2.5	4.3	1.3	1.9	1.7	4.7	6.5	1.8	3.8	4.8	C	2.9	3.3
DD8	0.6	7.5	5.2	4.6	3.7	10.6	7.5	5.9	C	5.3	5.0	2.6	5.8
DD9	0.2	C	3.0	3.8	2.2	5.9	6.2	3.2	4.3	2.5	2.6	1.4	3.4
DD10	0.2	2.0	C	C	C	C	C	2.7	C	2.3	3.6	1.4	2.4
DD11	0.1	C	4.0	C	2.0	5.4	4.9	3.1	4.0	3.2	3.1	3.6	3.5
DD12	0.1	2.8	1.0	3.5	1.5	3.2	4.1	2.5	3.1	3.1	1.8	0.9	2.3
DD13	0.2	2.5	1.0	2.2	2.3	5.9	4.8	3.4	3.9	3.4	2.4	2.2	3.1
DD14	0.1	2.2	1.9	1.8	1.3	3.1	3.4	1.6	2.8	2.5	2.3	0.7	2.1
DD15	2.3	4.1	1.3	2.2	C	5.4	5.7	C	C	3.8	3.3	C	3.5
DD16	0.1	2.2	2.2	NA ¹	1.2	4.0	4.3	1.8	2.7	2.3	1.4	1.0	2.3

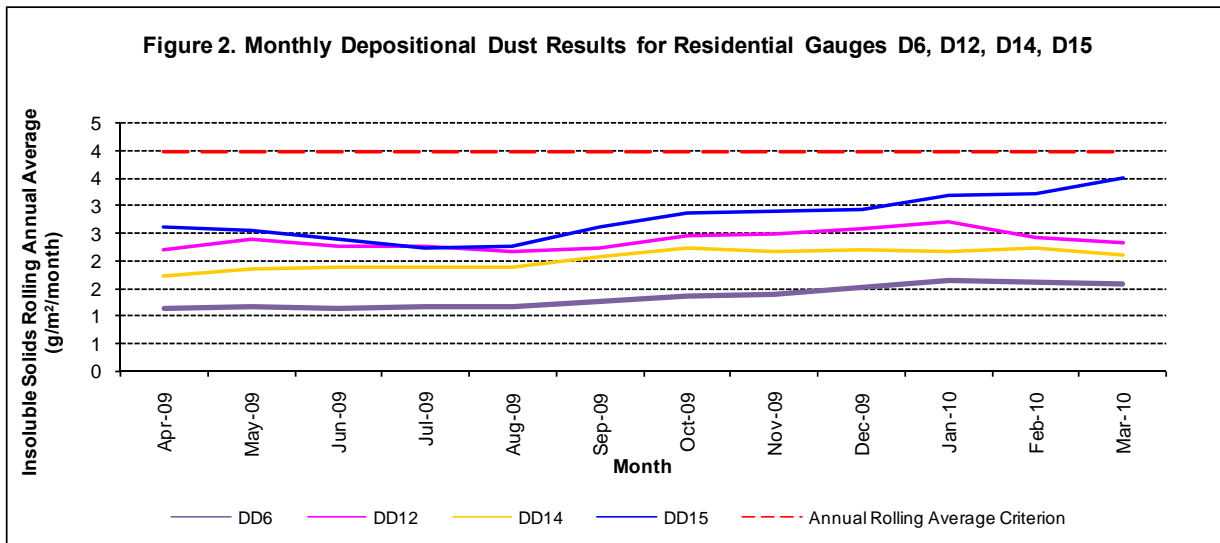
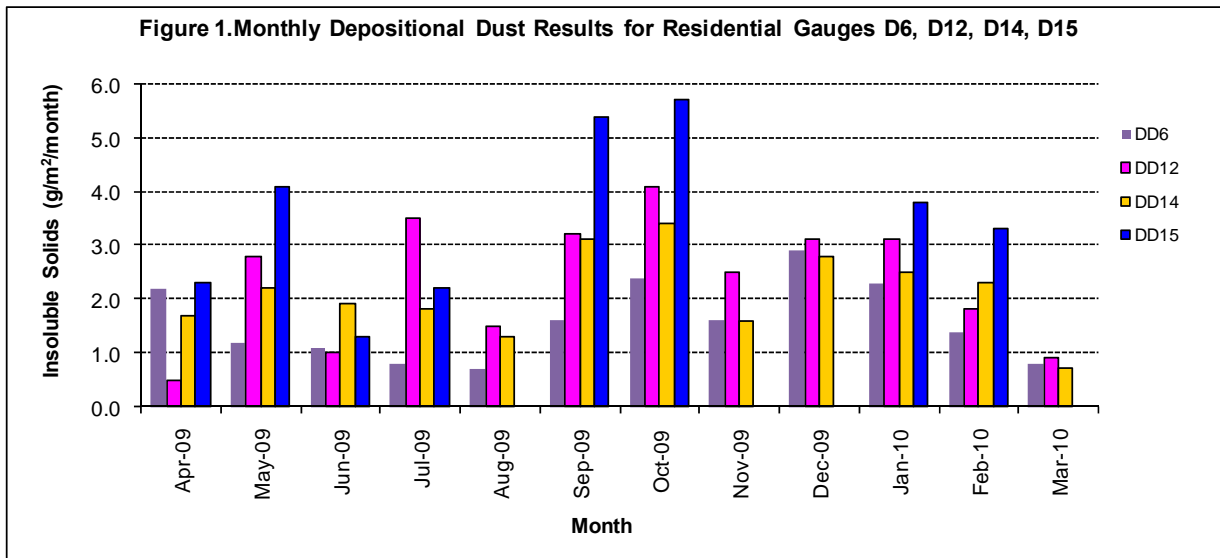
*C – Dust gauge deemed contaminated after analysis of influencing factors. These factors include an ash residue result of <50%, the presence of bird droppings or other contaminants such as insects in the dust gauge and analysis of historical results from the dust gauge.

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

NA¹: 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	
02-Mar-10	136	23	132	52	E
08-Mar-10	140	133	89	58	N
14-Mar-10	40	3	28	8	E
20-Mar-10	128	168	113	123	NE

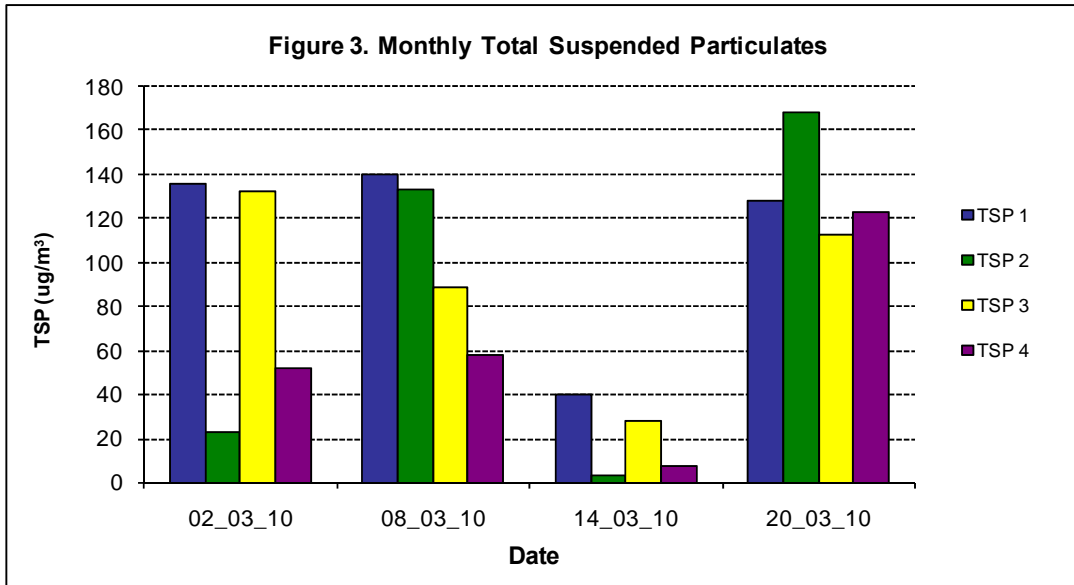
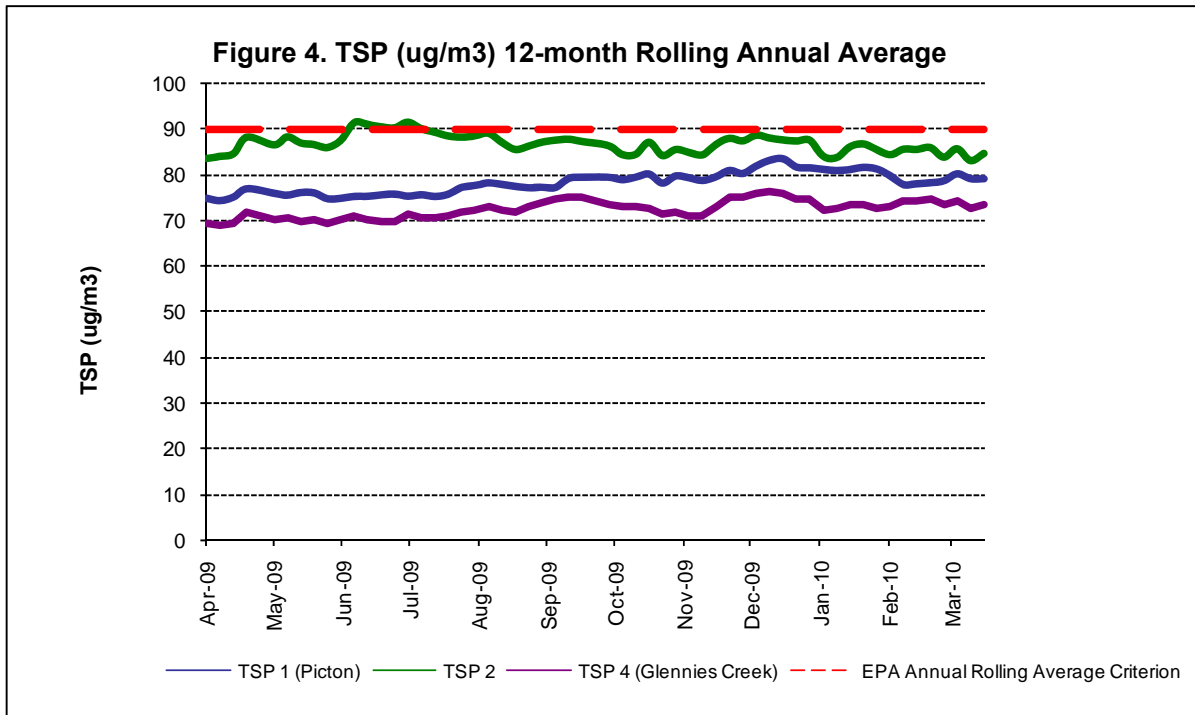


Table 4. Total Suspended Particulates Annual Rolling Average

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	
Apr-09	77	88	83	72	90
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

Note: TSP 2 and TSP 3 is on mine-owned land.



PM₁₀ Particulate Monitoring

Table 5. Monthly Results for 24-hr PM₁₀ Particulate Matter

Date	Particulate Matter (PM ₁₀) (µg/m ³)					Predominant Wind Direction
	PM ₁₀ 1	PM ₁₀ 2	PM ₁₀ 3	PM ₁₀ 4	PM ₁₀ 5	
02-Mar-10	23	7	68	16	13	E
08-Mar-10	55	29	20	24	17	N
14-Mar-10	28	<1	<1	1	2	E
20-Mar-10	55	57	49	34	41	NE

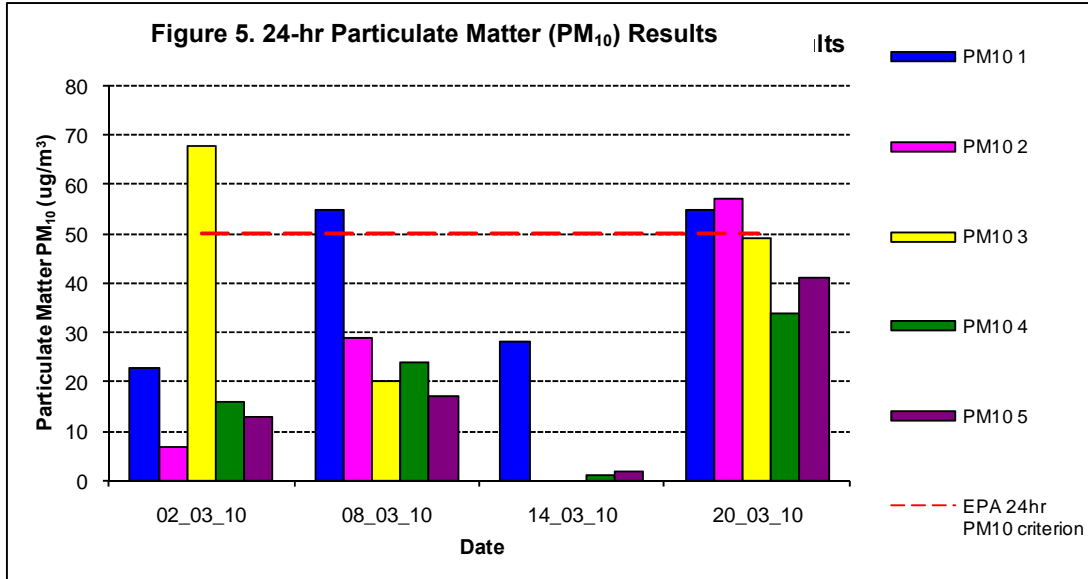
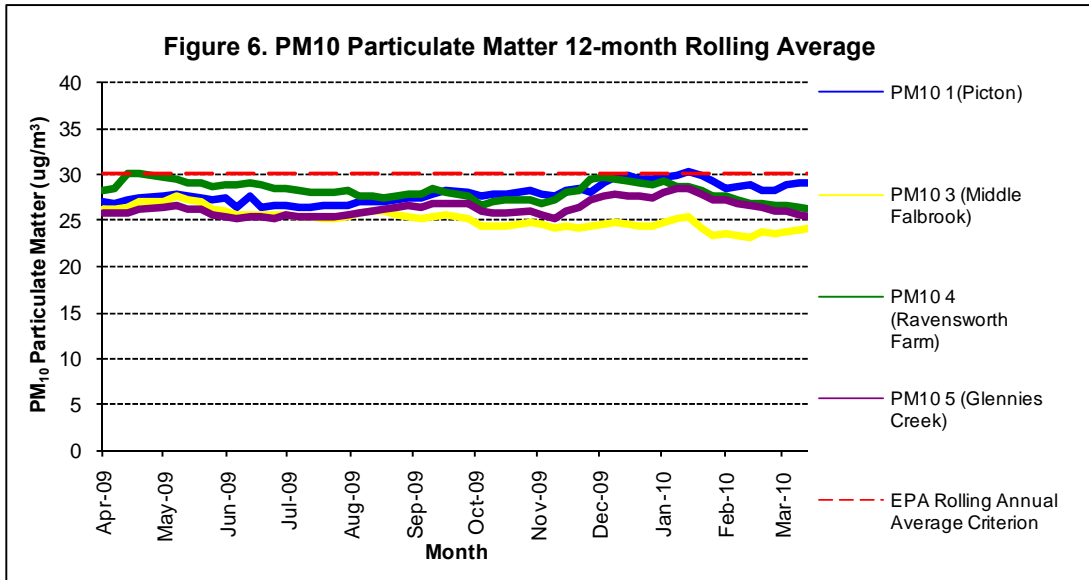


Table 6. PM₁₀ Particulate Matter Annual Rolling Average

Month	Particulate Matter (PM ₁₀) (µg/m ³)					Compliance Criteria (µg/m ³)
	PM ₁₀ 1	PM ₁₀ 2	PM ₁₀ 3	PM ₁₀ 4	PM ₁₀ 5	
Apr-09	28	30	27	30	26	30
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



Continuous PM₁₀ 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.

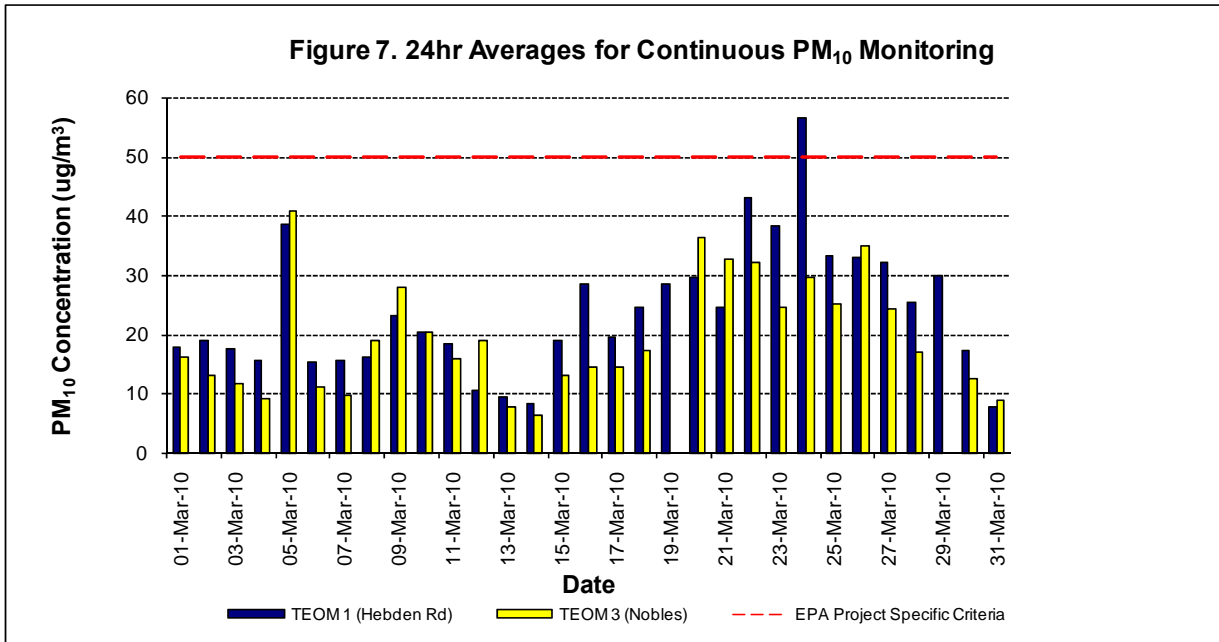


Figure 8. PM10 Particulate Matter Upwind/ Downwind 24 Hour Differential

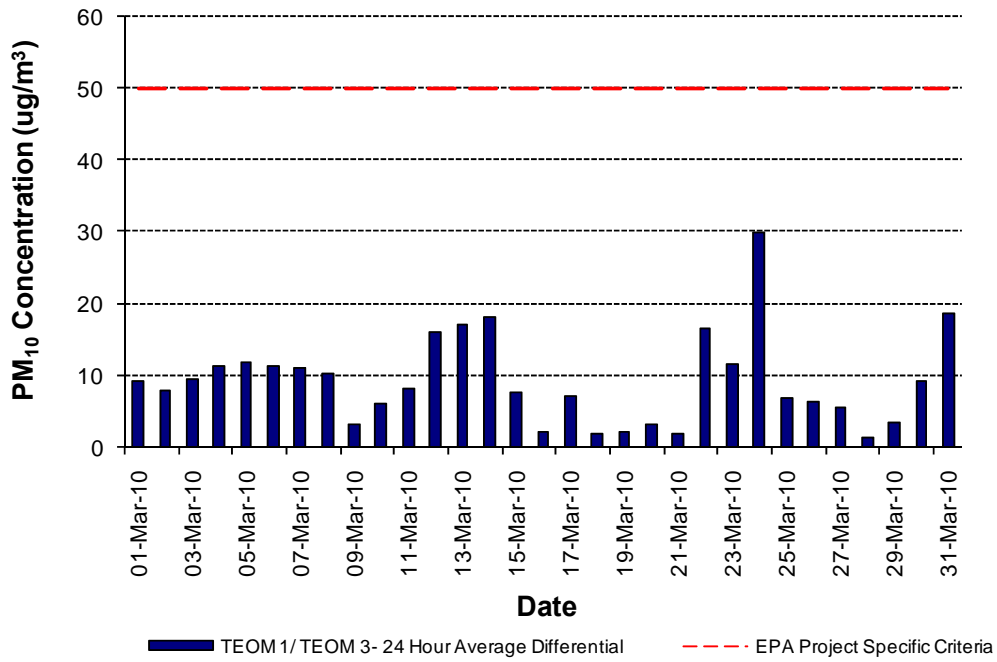
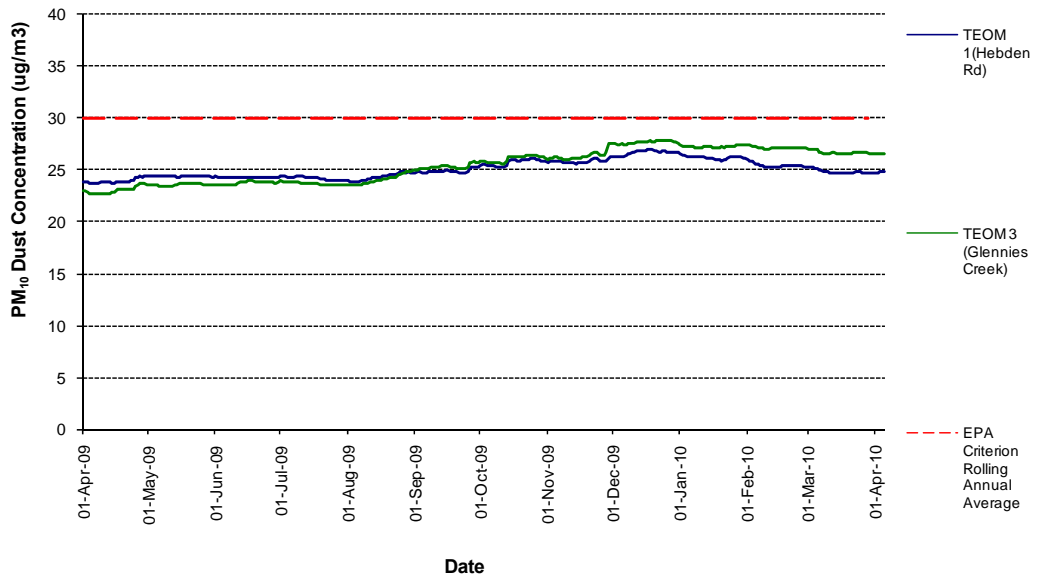


Figure 9. PM10 Continuous Dust Monitoring Annual Rolling Average



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, March 2010

Location	pH	Electrical Conductivity (µS/cm)	Total Suspended Solids (mg/L)	Flow condition
Bowmans Creek Upstream (BMC1)	7.11	1240	8	Trickle
Bowmans Creek Midstream (BMC2)	7.56	1230	45	Still
Bowmans Creek Downstream (BMC3)	7.71	1750	28	Pools
Yorks Creek Upstream (YC1)	NA	NA	NA	Dry
Yorks Creek Midstream (YC2)	NA	NA	NA	Dry
Yorks Creek Downstream (YC3)	NA	NA	NA	Dry
Swamp Creek Upstream (SC1)	7.72	440	5	Dam
Swamp Creek Midstream (SC2)	8.86	490	44	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)	NA	NA	NA	Dry

Discharge Monitoring

Nil discharges during March 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.

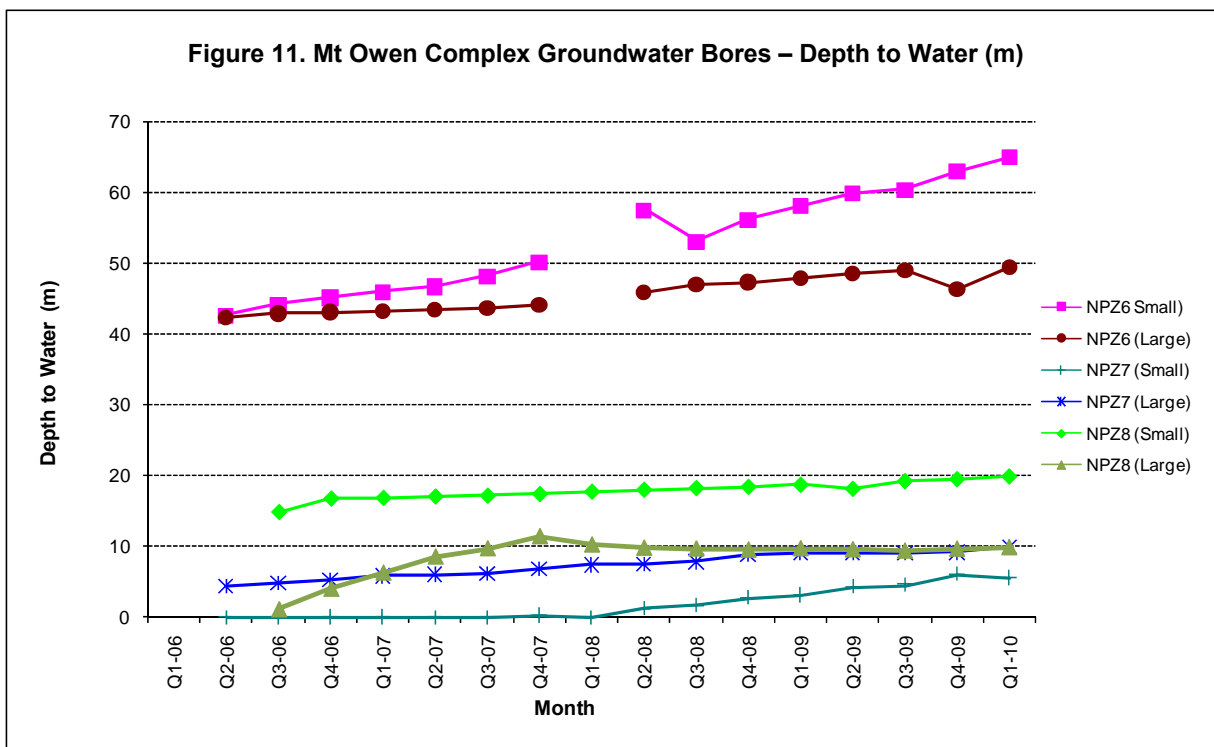
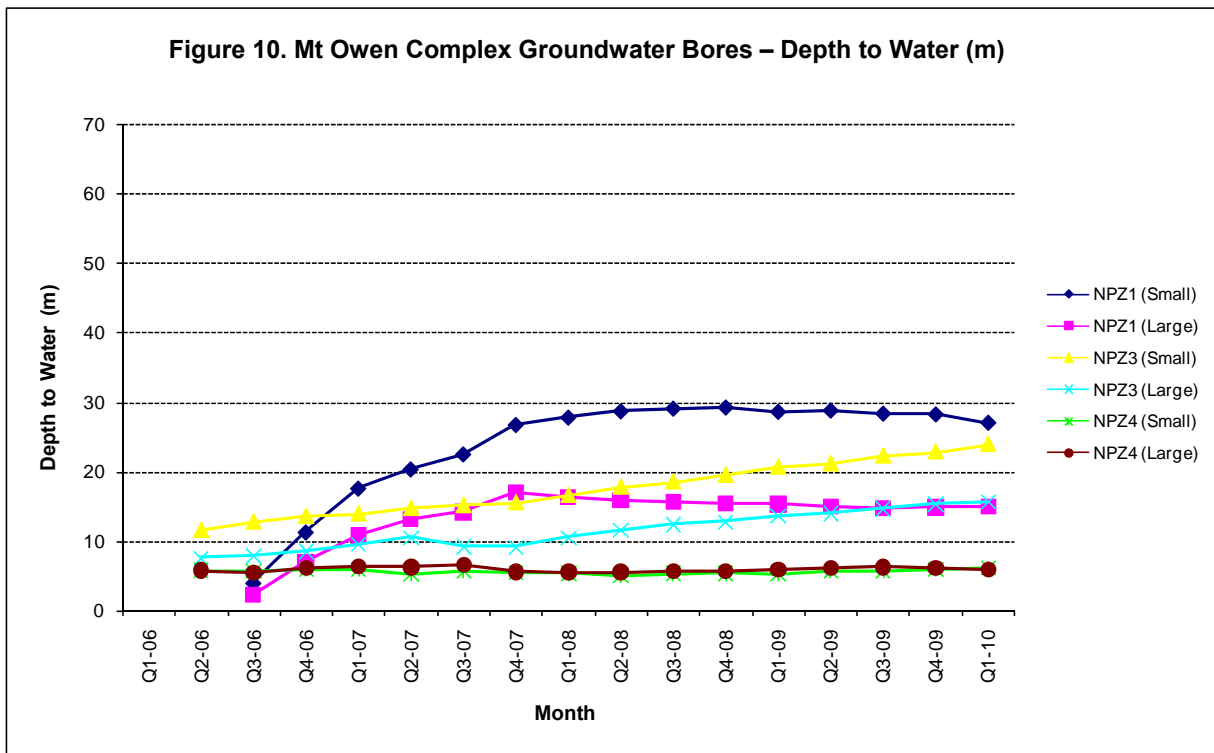


Figure 12. Mt Owen Complex Groundwater Bores – Depth to Water (m)

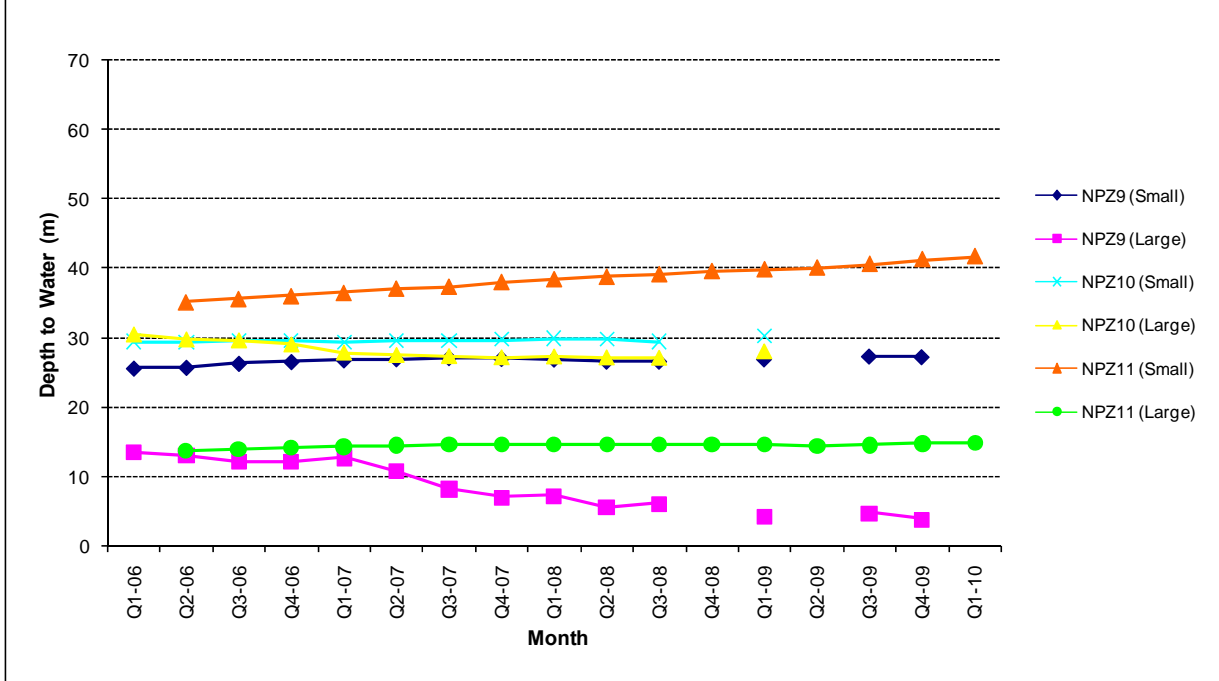


Figure 13. Mt Owen Complex Groundwater Bores – Depth to Water (m)

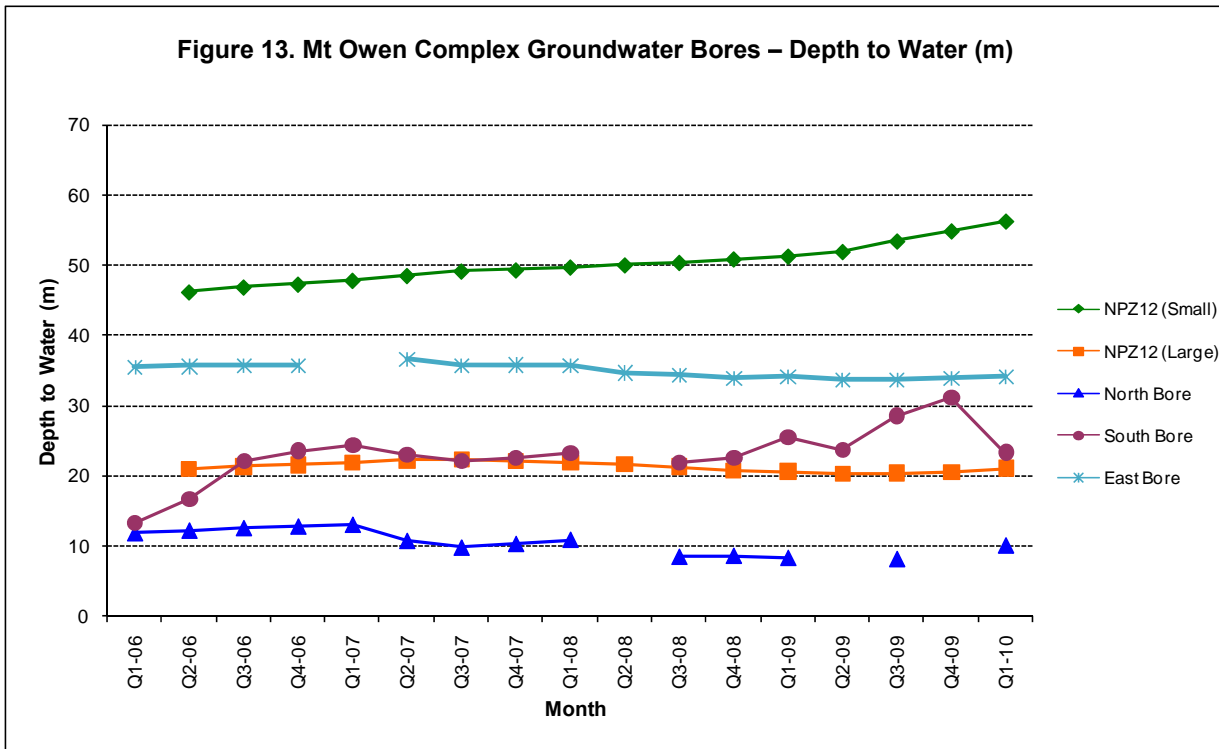


Figure 14. Mt Owen Complex Groundwater Bores – pH

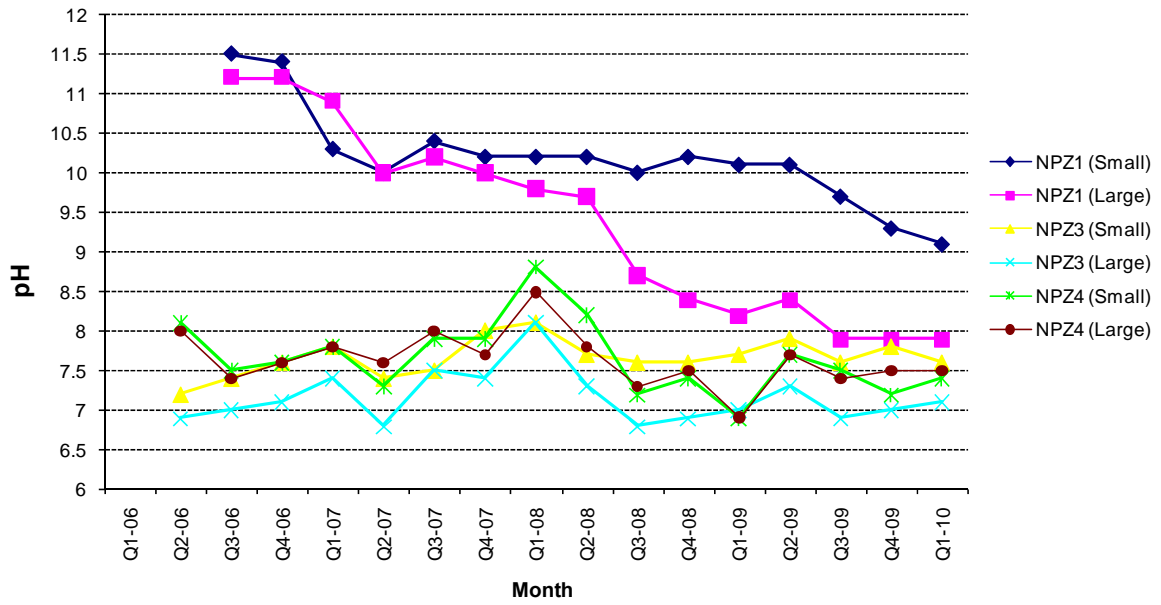


Figure 15. Mt Owen Complex Groundwater Bores – pH

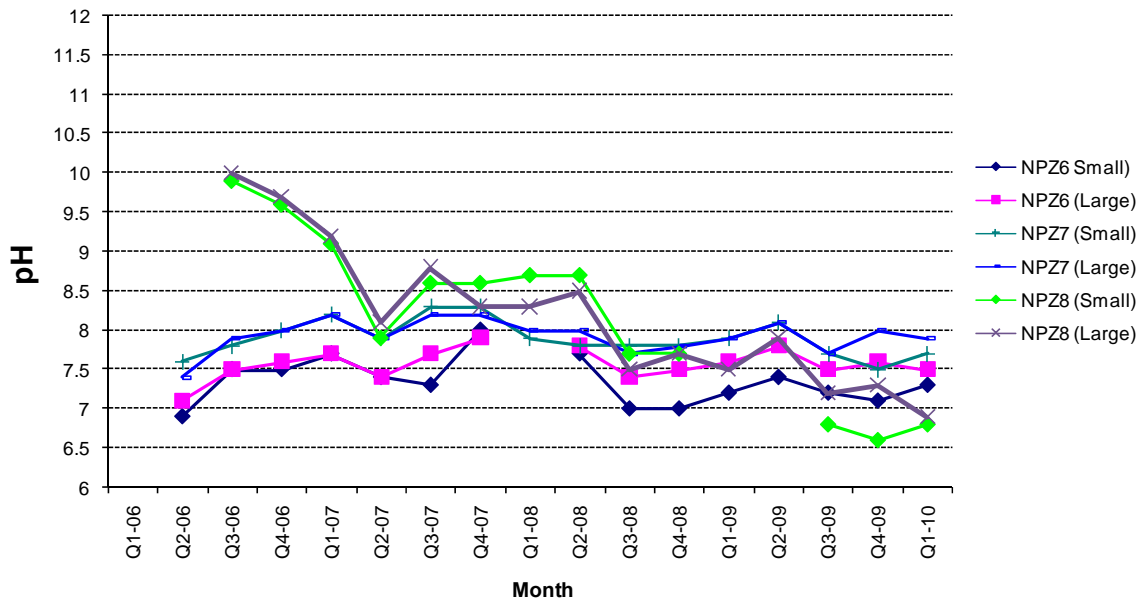


Figure 16. Mt Owen Complex Groundwater Bores – pH

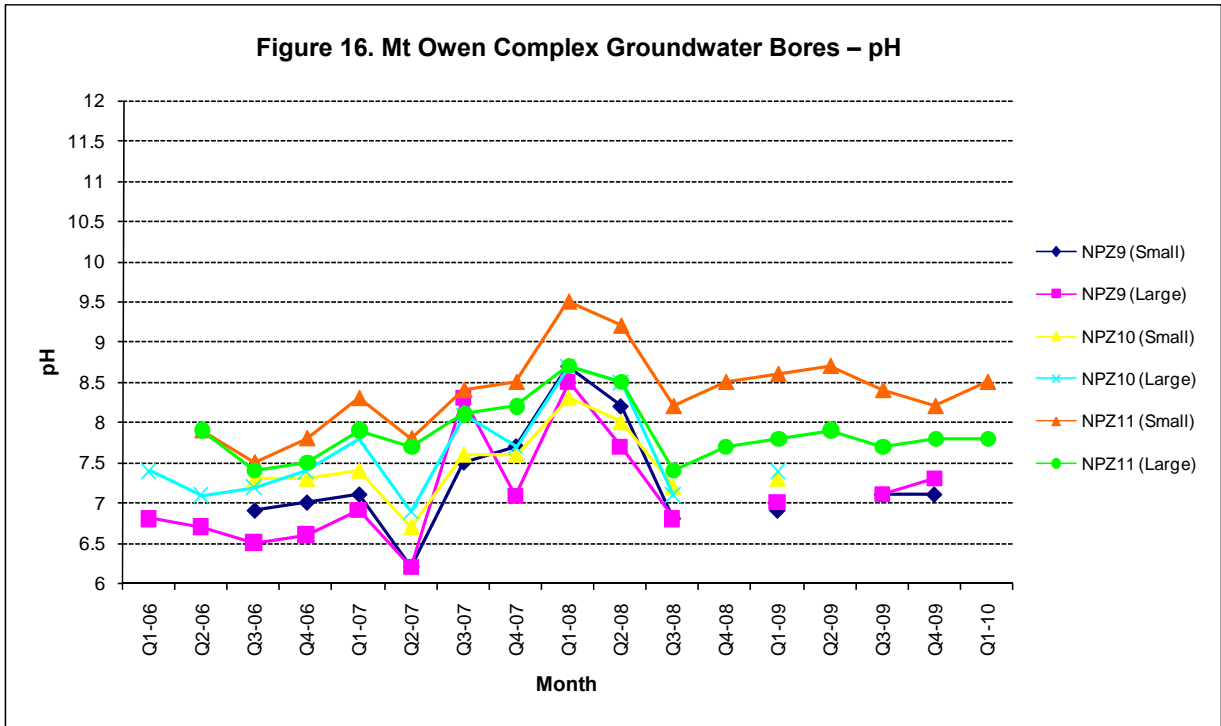


Figure 17. Mt Owen Complex Groundwater Bores – pH

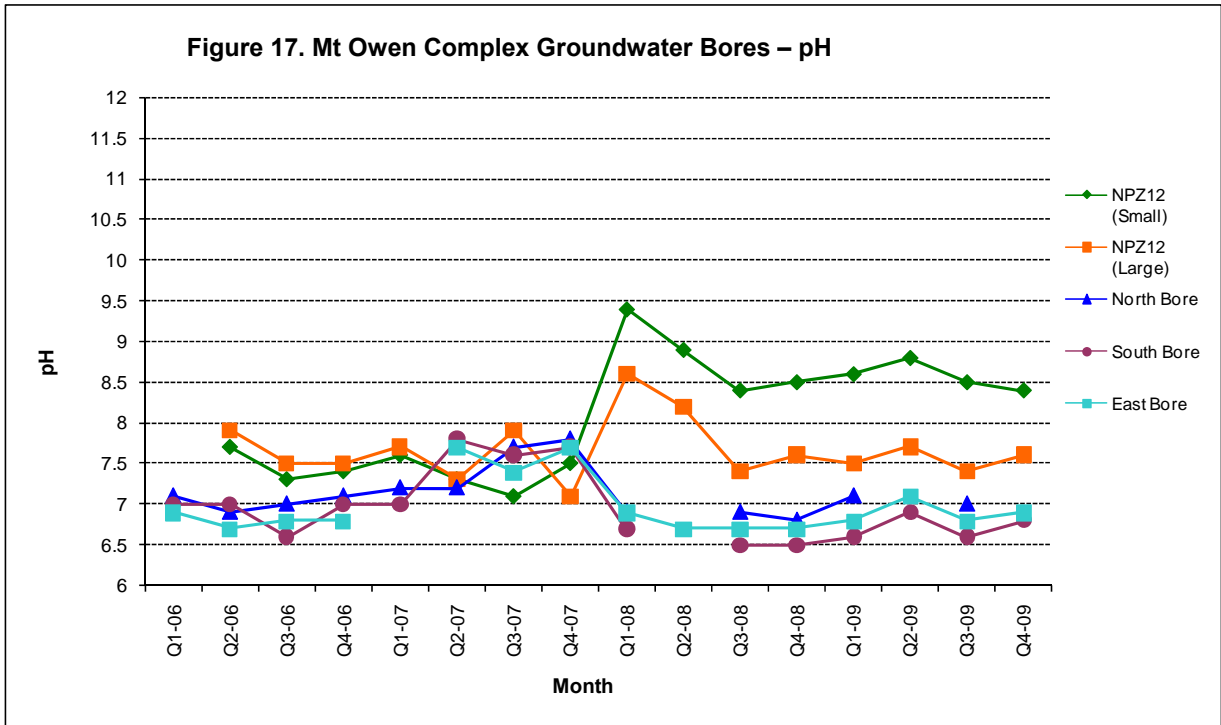


Figure 18. Mt Owen Complex Groundwater Bores – EC (uS/cm)

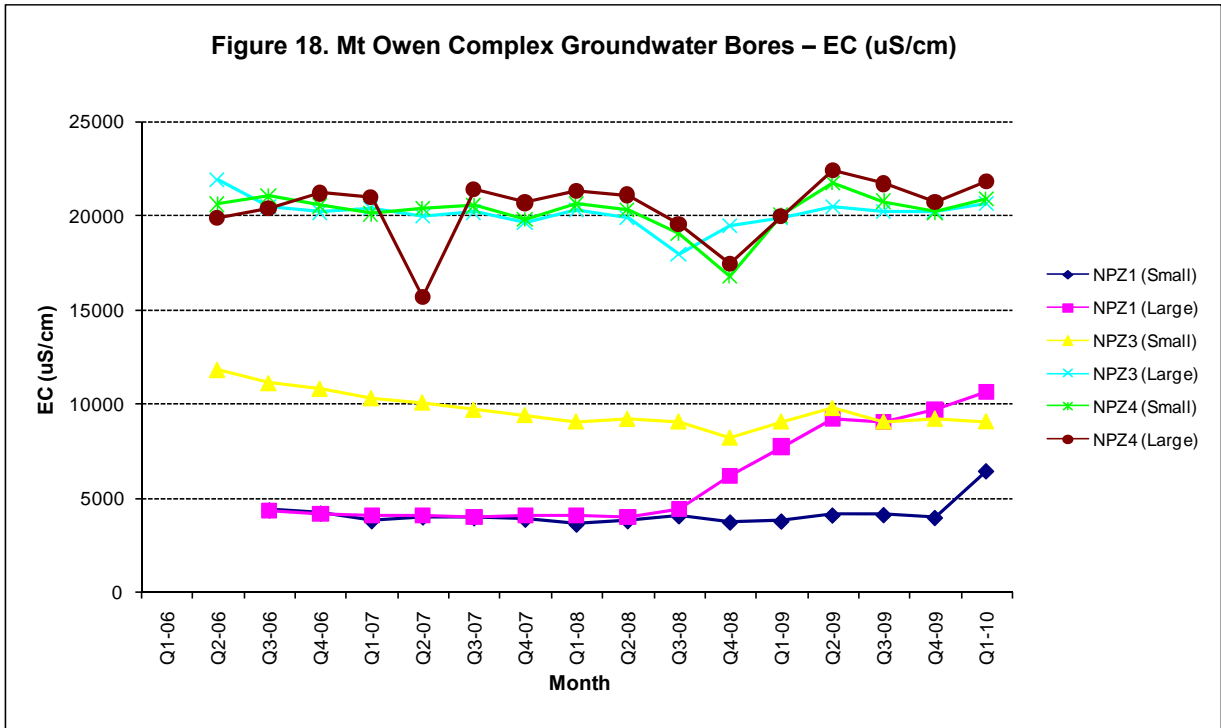


Figure 19. Mt Owen Complex Groundwater Bores – EC (uS/cm)

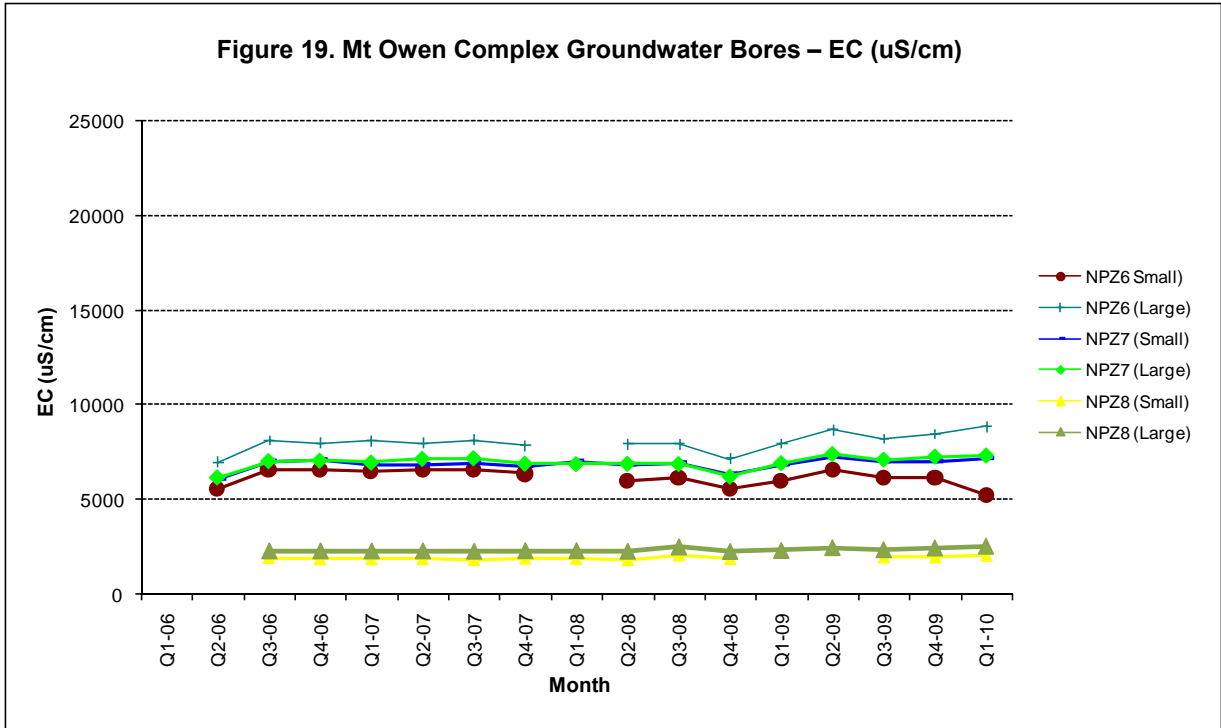


Figure 20. Mt Owen Complex Groundwater Bores – EC (uS/cm)

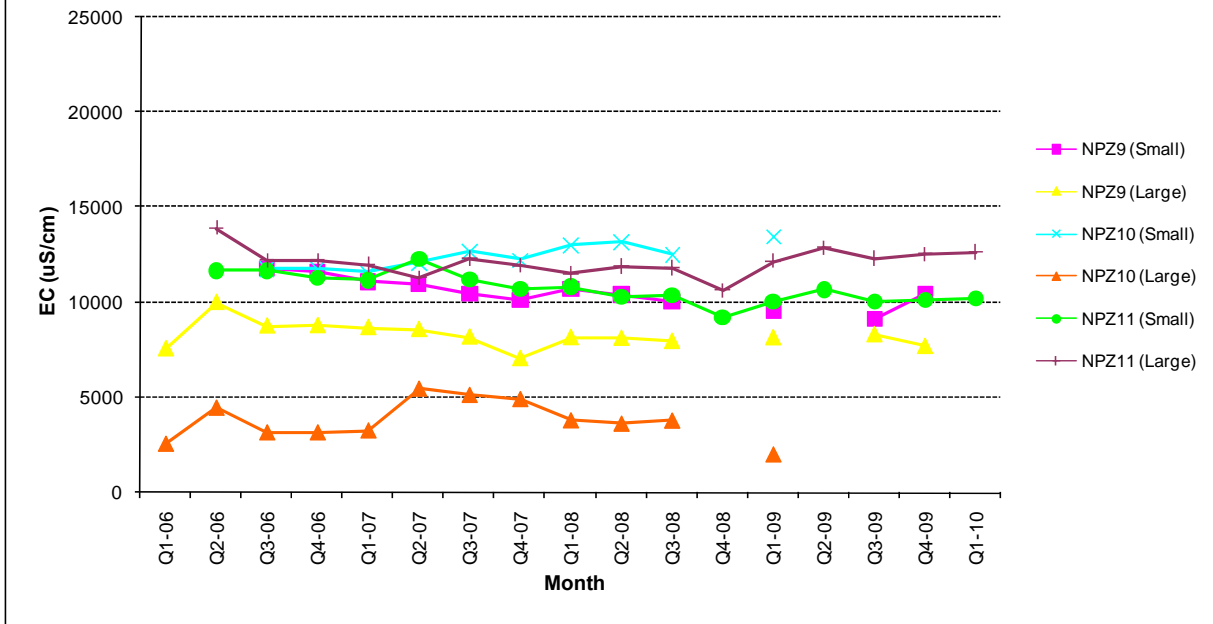


Figure 21. Mt Owen Complex Groundwater Bores – EC (uS/cm)

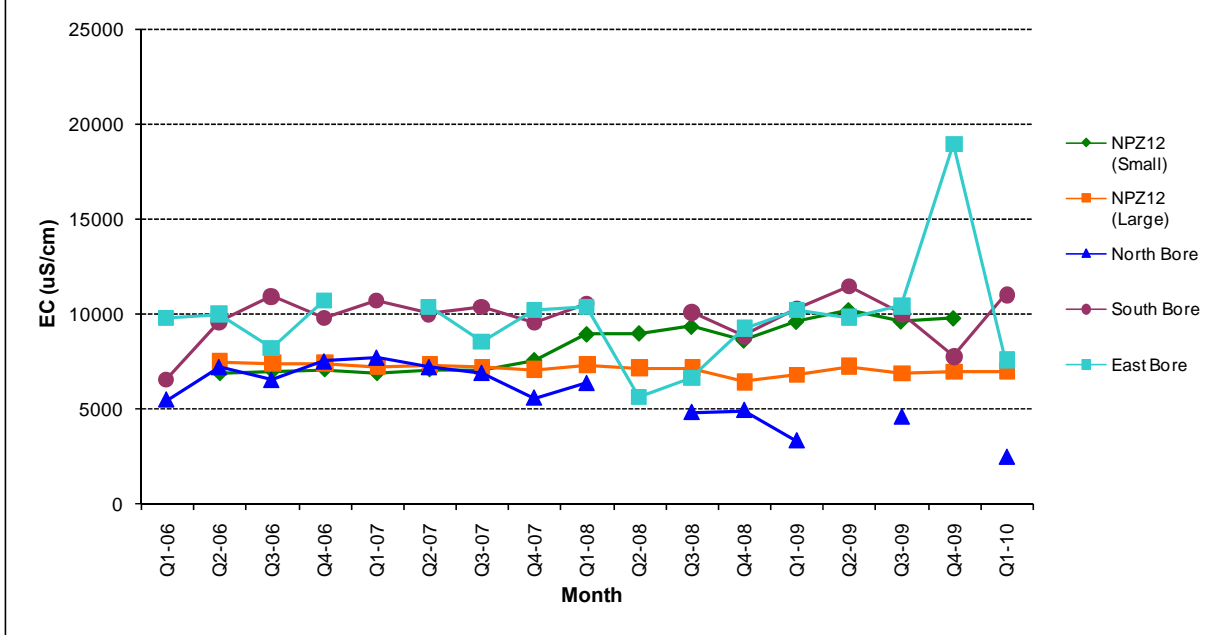


Table 8. Weather Monitoring Results Ravensworth East Meteorological Station – March 2010

Date	T Min	T Av	T Max	H Min	H Av	H Max	RAIN mm	WS Min	WS Av	WS Max
1/03/2010	15.3	16.6	18.4	70	82	93	0.8	2.4	3.8	5.9
2/03/2010	14.7	17.6	20.2	60	73	90	0.0	1.3	3.8	7.4
3/03/2010	16.7	19.4	23.9	55	77	93	0.0	1.6	3.6	7.2
4/03/2010	16.3	22.2	16.3	43	68	43	0.0	0.3	2.9	6.0
5/03/2010	17.4	20.1	23.5	64	88	100	0.0	0.0	0.8	2.0
6/03/2010	20.0	25.8	30.3	49	77	100	0.0	0.2	1.4	3.4
7/03/2010	0.0	0.0	0.0	0	0	0	0.0	0.0	0.0	0.0
8/03/2010	31.2	31.2	31.2	94	94	94	25.2	8.5	8.5	8.5
9/03/2010	20.3	25.0	28.8	46	53	66	0.0	2.2	4.3	6.4
10/03/2010	15.3	19.5	25.0	57	78	94	6.4	0.5	3.3	6.5
11/03/2010	15.2	18.2	22.3	47	67	92	0.0	1.3	3.3	6.4
12/03/2010	14.8	18.6	24.0	43	72	94	5.2	0.8	3.9	7.0
13/03/2010	14.6	17.0	21.1	72	90	98	4.2	0.8	3.1	6.0
14/03/2010	15.5	18.4	24.0	55	82	100	0.4	0.0	2.6	6.0
15/03/2010	12.8	19.6	25.8	46	74	95	0.0	0.0	1.3	4.1
16/03/2010	11.4	19.1	26.5	41	69	97	0.0	0.0	1.9	4.8
17/03/2010	11.9	19.8	27.7	32	68	97	0.0	0.1	1.9	4.6
18/03/2010	12.3	20.3	28.6	26	67	99	0.0	0.0	1.6	4.1
19/03/2010	13.4	20.7	30.8	30	63	97	0.0	0.2	1.5	3.8
20/03/2010	14.0	22.7	33.2	24	52	79	0.0	0.2	1.5	4.1
21/03/2010	17.3	25.2	33.4	26	52	78	0.0	1.2	3.1	4.5
22/03/2010	15.2	21.4	28.3	42	68	92	0.0	0.0	2.7	5.3
23/03/2010	14.4	21.3	29.7	31	63	96	0.0	0.1	1.2	2.5
24/03/2010	NA	0.0	28.9	39	0	93	0.0	0.0	0.0	5.5
25/03/2010	15.2	22.7	31.2	31	67	95	0.0	0.0	1.5	4.0
26/03/2010	16.5	25.6	34.5	24	59	98	0.0	0.0	2.0	4.6
27/03/2010	19.0	25.6	33.8	26	63	91	0.0	0.0	2.5	5.9
28/03/2010	19.2	25.3	33.3	38	65	95	0.0	0.0	1.3	4.0
29/03/2010	19.4	24.8	30.3	39	59	82	0.0	0.3	2.4	5.5
30/03/2010	16.8	17.9	18.9	86	94	98	28.0	0.0	1.4	2.5
31/03/2010	13.1	15.8	18.2	94	96	99	8.8	0.1	0.9	2.8
AVERAGE	16	20	28	31	66	82	77.8(Total)	0.5	2.4	5.8

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 – March 2010

Sentinex8, Hebden Rd / Environ Met Stn - Data: 20100303-23:59 till 20100331-23:59

