

APPENDIX 1

AIR QUALITY MONITORING DATA

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2007 - 2008 High Volume Air Sampler TSP Results

| Date | Event | Site 1 TSP | | | Site 2 TSP | | | Site 3 TSP | | | Site 8 TSP | | |
|------------|-------|-------------------|-------------------------------|----------------------|-------------------|-------------------------------|----------------------|-------------------|-------------------------------|----------------------|-------------------|-------------------------------|----------------------|
| | | Site 1 TSP Result | Site 1 Rolling Annual Average | Site 1 Data Recovery | Site 1 TSP Result | Site 2 Rolling Annual Average | Site 2 Data Recovery | Site 3 TSP Result | Site 3 Rolling Annual Average | Site 3 Data Recovery | Site 8 TSP Result | Site 8 Rolling Annual Average | Site 8 Data Recovery |
| 02/09/2007 | 1 | 111 | 110 | 100.0 | 92 | 80 | 100.0 | 79 | 85 | 100.0 | 108 | 79 | 100.0 |
| 08/09/2007 | 2 | 19 | 110 | 100.0 | 15 | 80 | 100.0 | 17 | 84 | 100.0 | 21 | 77 | 100.0 |
| 14/09/2007 | 3 | 230 | 113 | 100.0 | 199 | 81 | 100.0 | 168 | 85 | 100.0 | 206 | 81 | 100.0 |
| 20/09/2007 | 4 | 144 | 113 | 100.0 | 97 | 81 | 100.0 | 122 | 86 | 100.0 | 133 | 82 | 100.0 |
| 26/09/2007 | 5 | 74 | 112 | 100.0 | 62 | 81 | 100.0 | 86 | 86 | 100.0 | 95 | 82 | 100.0 |
| 02/10/2007 | 6 | 257 | 115 | 100.0 | 217 | 84 | 100.0 | 268 | 89 | 100.0 | 251 | 87 | 100.0 |
| 08/10/2007 | 7 | 90 | 115 | 100.0 | 80 | 81 | 100.0 | 107 | 89 | 100.0 | 91 | 87 | 100.0 |
| 14/10/2007 | 8 | 150 | 112 | 100.0 | 112 | 80 | 100.0 | 123 | 88 | 100.0 | 135 | 88 | 100.0 |
| 20/10/2007 | 9 | 108 | 110 | 100.0 | 92 | 80 | 100.0 | 112 | 88 | 100.0 | 126 | 89 | 100.0 |
| 26/10/2007 | 10 | 76 | 108 | 100.0 | 55 | 80 | 100.0 | 66 | 87 | 100.0 | 72 | 88 | 100.0 |
| 01/11/2007 | 11 | 128 | 107 | 100.0 | 106 | 81 | 100.0 | 161 | 89 | 100.0 | 130 | 89 | 100.0 |
| 07/11/2007 | 12 | 35 | 107 | 100.0 | 34 | 79 | 100.0 | 42 | 89 | 100.0 | 35 | 88 | 100.0 |
| 13/11/2007 | 13 | 74 | 106 | 100.0 | 64 | 80 | 100.0 | 90 | 90 | 100.0 | 58 | 87 | 100.0 |
| 19/11/2007 | 14 | 135 | 106 | 100.0 | 134 | 80 | 100.0 | 151 | 91 | 100.0 | 126 | 88 | 100.0 |
| 25/11/2007 | 15 | 47 | 106 | 100.0 | 42 | 79 | 100.0 | 70 | 89 | 100.0 | 39 | 87 | 100.0 |
| 01/12/2007 | 16 | 42 | 104 | 100.0 | 39 | 79 | 100.0 | 61 | 89 | 100.0 | 39 | 86 | 100.0 |
| 07/12/2007 | 17 | 67 | 104 | 100.0 | 68 | 79 | 100.0 | 75 | 88 | 100.0 | 60 | 86 | 100.0 |
| 13/12/2007 | 18 | 67 | 104 | 100.0 | 58 | 79 | 100.0 | 86 | 89 | 100.0 | 62 | 85 | 100.0 |
| 19/12/2007 | 19 | 71 | 104 | 100.0 | 84 | 79 | 100.0 | 83 | 89 | 100.0 | 59 | 85 | 100.0 |
| 25/12/2007 | 20 | 59 | 103 | 100.0 | 43 | 79 | 100.0 | 50 | 89 | 100.0 | 44 | 84 | 100.0 |
| 31/12/2007 | 21 | 74 | 103 | 100.0 | 62 | 79 | 100.0 | 88 | 88 | 100.0 | 63 | 84 | 100.0 |
| 06/01/2008 | 22 | 73 | 103 | 100.0 | 59 | 78 | 100.0 | 78 | 88 | 100.0 | 50 | 83 | 100.0 |
| 12/01/2008 | 23 | 105 | 104 | 100.0 | 113 | 78 | 100.0 | 128 | 88 | 100.0 | 90 | 83 | 100.0 |
| 18/01/2008 | 24 | 39 | 103 | 100.0 | 36 | 76 | 100.0 | 44 | 86 | 100.0 | 30 | 81 | 100.0 |
| 24/01/2008 | 25 | 73 | 102 | 100.0 | 62 | 75 | 100.0 | 92 | 86 | 100.0 | 61 | 79 | 100.0 |
| 30/01/2008 | 26 | 123 | 102 | 100.0 | 113 | 76 | 100.0 | 121 | 86 | 100.0 | 95 | 80 | 100.0 |
| 05/02/2008 | 27 | 28 | 101 | 100.0 | 24 | 75 | 100.0 | 29 | 85 | 100.0 | 40 | 79 | 100.0 |
| 11/02/2008 | 28 | 44 | 101 | 100.0 | 31 | 75 | 100.0 | 48 | 84 | 100.0 | 29 | 79 | 100.0 |
| 17/02/2008 | 29 | 47 | 100 | 100.0 | 28 | 74 | 100.0 | 65 | 84 | 100.0 | 39 | 77 | 100.0 |
| 23/02/2008 | 30 | 112 | 100 | 100.0 | 104 | 74 | 100.0 | 125 | 84 | 100.0 | 105 | 78 | 100.0 |
| 29/02/2008 | 31 | 38 | 99 | 100.0 | 34 | 74 | 100.0 | 53 | 85 | 100.0 | 38 | 78 | 100.0 |
| 06/03/2008 | 32 | 73 | 100 | 100.0 | 95 | 74 | 100.0 | 98 | 84 | 100.0 | 94 | 78 | 100.0 |
| 12/03/2008 | 33 | 75 | 99 | 100.0 | 73 | 75 | 100.0 | 114 | 86 | 100.0 | 95 | 78 | 100.0 |
| 18/03/2008 | 34 | 79 | 100 | 100.0 | 77 | 75 | 100.0 | 119 | 87 | 100.0 | 80 | 77 | 100.0 |
| 24/03/2008 | 35 | 41 | 98 | 100.0 | 37 | 74 | 100.0 | 48 | 85 | 100.0 | 41 | 76 | 100.0 |
| 30/03/2008 | 36 | 206 | 98 | 100.0 | 99 | 74 | 100.0 | 136 | 85 | 100.0 | 160 | 77 | 100.0 |
| 05/04/2008 | 37 | 56 | 96 | 100.0 | 43 | 74 | 100.0 | 86 | 85 | 100.0 | 56 | 77 | 100.0 |
| 11/04/2008 | 38 | 31 | 95 | 100.0 | 47 | 73 | 100.0 | 42 | 85 | 100.0 | 32 | 76 | 100.0 |
| 17/04/2008 | 39 | 26 | 94 | 100.0 | 24 | 73 | 100.0 | 49 | 84 | 100.0 | 30 | 76 | 100.0 |
| 23/04/2008 | 40 | 18 | 94 | 100.0 | 15 | 72 | 100.0 | 13 | 83 | 100.0 | 9 | 74 | 100.0 |
| 29/04/2008 | 41 | 58 | 91 | 100.0 | 46 | 70 | 100.0 | 48 | 81 | 100.0 | 57 | 72 | 100.0 |
| 05/05/2008 | 42 | 196 | 91 | 100.0 | 107 | 71 | 100.0 | 138 | 82 | 100.0 | 161 | 74 | 100.0 |
| 11/05/2008 | 43 | 59 | 91 | 100.0 | 52 | 71 | 100.0 | 80 | 82 | 100.0 | 57 | 74 | 100.0 |
| 17/05/2008 | 44 | 211 | 93 | 100.0 | 157 | 72 | 100.0 | 143 | 84 | 100.0 | 156 | 75 | 100.0 |
| 23/05/2008 | 45 | 99 | 92 | 100.0 | 104 | 71 | 100.0 | 114 | 84 | 100.0 | 114 | 75 | 100.0 |
| 29/05/2008 | 46 | 76 | 90 | 100.0 | 71 | 71 | 100.0 | 112 | 85 | 100.0 | 75 | 75 | 100.0 |
| 04/06/2008 | 47 | 6 | 88 | 100.0 | 5 | 70 | 100.0 | 12 | 85 | 100.0 | 5 | 74 | 100.0 |
| 10/06/2008 | 48 | 39 | 88 | 100.0 | 38 | 71 | 100.0 | 44 | 86 | 100.0 | 38 | 75 | 100.0 |
| 16/06/2008 | 49 | 35 | 88 | 100.0 | 24 | 70 | 100.0 | 26 | 85 | 100.0 | 32 | 75 | 100.0 |
| 22/06/2008 | 50 | 87 | 88 | 100.0 | 54 | 71 | 100.0 | 46 | 86 | 100.0 | 55 | 75 | 100.0 |
| 28/06/2008 | 51 | 87 | 89 | 100.0 | 73 | 70 | 100.0 | 74 | 86 | 100.0 | 73 | 75 | 100.0 |
| 04/07/2008 | 52 | 83 | 88 | 100.0 | 75 | 71 | 100.0 | 85 | 87 | 100.0 | 67 | 76 | 100.0 |
| 10/07/2008 | 53 | 94 | 88 | 100.0 | 71 | 70 | 100.0 | 92 | 87 | 100.0 | 84 | 76 | 100.0 |
| 16/07/2008 | 54 | 111 | 88 | 100.0 | 82 | 70 | 100.0 | 71 | 87 | 100.0 | 71 | 76 | 100.0 |
| 22/07/2008 | 55 | 64 | 88 | 100.0 | 44 | 70 | 100.0 | 61 | 86 | 100.0 | 59 | 75 | 100.0 |
| 28/07/2008 | 56 | 84 | 86 | 100.0 | 47 | 69 | 100.0 | 51 | 86 | 100.0 | 70 | 75 | 100.0 |
| 03/08/2008 | 57 | 186 | 87 | 100.0 | 105 | 70 | 100.0 | 93 | 85 | 100.0 | 137 | 76 | 100.0 |
| 09/08/2008 | 58 | 152 | 87 | 100.0 | 114 | 71 | 100.0 | 77 | 84 | 100.0 | 109 | 77 | 100.0 |
| 15/08/2008 | 59 | 269 | 90 | 100.0 | 121 | 73 | 100.0 | 145 | 86 | 100.0 | 157 | 80 | 100.0 |
| 21/08/2008 | 60 | 188 | 93 | 100.0 | 36 | 72 | 100.0 | 150 | 88 | 100.0 | 22 | 79 | 100.0 |
| 27/08/2008 | 61 | 67 | 92 | 100.0 | 61 | 71 | 100.0 | 93 | 88 | 100.0 | 61 | 78 | 100.0 |

2007 – 2008 Tapered Element Oscillating Microbalance (TEOM) PM10 Results

| Date | Site 1 | | Site 2 | | Site 3 | | Site 8 | | Site4 | | Site 7 | | Ashton Contribution (only calculated for north westerly winds) | | | | |
|-----------|----------------------------|--------------------------------------|----------------------------|--------------------------------------|----------------------------|--------------------------------------|----------------------------|--------------------------------------|----------------------------|--------------------------------------|----------------------------|--------------------------------------|--|----------------------------|----------------------------|----------------------------|----------------------------|
| | Site 1 – PM10 24hr Average | Site 1 – PM10 Rolling Annual Average | Site 2 – PM10 24hr Average | Site 2 – PM10 Rolling Annual Average | Site 3 – PM10 24hr Average | Site 3 – PM10 Rolling Annual Average | Site 8 – PM10 24hr Average | Site 8 – PM10 Rolling Annual Average | Site 4 – PM10 24hr Average | Site 4 – PM10 Rolling Annual Average | Site 7 – PM10 24hr Average | Site 7 – PM10 Rolling Annual Average | Wind Direction | Site 1 Ashton Contribution | Site 2 Ashton Contribution | Site 3 Ashton Contribution | Site 8 Ashton Contribution |
| 02-Sep-07 | 40 | 28 | 30 | 26 | 46 | 25 | 39 | 23 | 36 | 25 | 28 | 24 | NW | 11 | 2 | 18 | 11 |
| 03-Sep-07 | 26 | 28 | 20 | 26 | 20 | 25 | 23 | 23 | 19 | 25 | 23 | 24 | NW | 8 | 2 | 2 | 5 |
| 04-Sep-07 | 11 | 28 | 10 | 26 | 13 | 25 | 11 | 23 | 12 | 25 | 21 | 24 | SE | 0 | 0 | 0 | 0 |
| 05-Sep-07 | 13 | 28 | 10 | 26 | 15 | 25 | 14 | 23 | 12 | 25 | 21 | 24 | SE | 0 | 0 | 0 | 0 |
| 06-Sep-07 | 11 | 28 | 9 | 26 | 12 | 25 | 10 | 23 | 11 | 25 | 17 | 24 | SE | 0 | 0 | 0 | 0 |
| 07-Sep-07 | 8 | 28 | 7 | 26 | 9 | 25 | 8 | 23 | 9 | 25 | 10 | 24 | SE | 0 | 0 | 0 | 0 |
| 08-Sep-07 | 7 | 28 | 7 | 26 | 8 | 25 | 7 | 23 | 7 | 25 | 12 | 24 | SE | 0 | 0 | 0 | 0 |
| 09-Sep-07 | 11 | 28 | 11 | 26 | 9 | 25 | 10 | 23 | 9 | 25 | 13 | 24 | SE | 0 | 0 | 0 | 0 |
| 10-Sep-07 | 38 | 28 | 24 | 26 | 24 | 25 | 33 | 23 | 20 | 25 | 21 | 24 | NW | 18 | 4 | 4 | 13 |
| 11-Sep-07 | 35 | 29 | 19 | 26 | 25 | 25 | 31 | 23 | 22 | 25 | 19 | 24 | NW | 17 | 0 | 7 | 12 |
| 12-Sep-07 | 38 | 29 | 27 | 26 | 21 | 25 | 35 | 23 | 21 | 25 | 19 | 24 | NW | 19 | 8 | 2 | 16 |
| 13-Sep-07 | 33 | 29 | 24 | 26 | 27 | 25 | 31 | 23 | 26 | 25 | 28 | 24 | NW | 6 | -3 | 0 | 4 |
| 14-Sep-07 | 64 | 29 | 54 | 26 | 62 | 25 | 68 | 23 | 48 | 25 | 51 | 24 | NW | 16 | 6 | 14 | 20 |
| 15-Sep-07 | 35 | 29 | 24 | 26 | 25 | 25 | 31 | 23 | 21 | 25 | 17 | 24 | NW | 17 | 7 | 7 | 14 |
| 16-Sep-07 | 61 | 29 | 34 | 27 | 47 | 25 | 52 | 23 | 45 | 25 | 33 | 24 | NW | 27 | 1 | 14 | 19 |
| 17-Sep-07 | 43 | 29 | 23 | 27 | 31 | 25 | 35 | 23 | 33 | 25 | 26 | 24 | NW | 17 | -3 | 5 | 9 |
| 18-Sep-07 | 19 | 29 | 17 | 26 | 22 | 25 | 19 | 23 | 28 | 25 | 23 | 24 | NW | -4 | -5 | 0 | -4 |
| 19-Sep-07 | 51 | 29 | 33 | 26 | 45 | 25 | 47 | 23 | 54 | 25 | 41 | 24 | NW | 11 | -8 | 4 | 6 |
| 20-Sep-07 | 31 | 29 | 18 | 26 | 31 | 25 | 28 | 23 | 36 | 25 | 25 | 24 | SW | 0 | 0 | 0 | 0 |
| 21-Sep-07 | 20 | 29 | 16 | 26 | 23 | 25 | 20 | 23 | 32 | 25 | 24 | 24 | SW | 0 | 0 | 0 | 0 |
| 22-Sep-07 | 16 | 29 | 19 | 26 | 17 | 25 | 17 | 23 | 19 | 25 | 25 | 24 | SE | 0 | 0 | 0 | 0 |
| 23-Sep-07 | 21 | 29 | 25 | 26 | 26 | 25 | 23 | 23 | 28 | 25 | 22 | 24 | SE | 0 | 0 | 0 | 0 |
| 24-Sep-07 | 60 | 29 | 43 | 26 | 53 | 25 | 56 | 23 | 61 | 25 | 37 | 24 | NW | 23 | 6 | 16 | 19 |
| 25-Sep-07 | 42 | 29 | 25 | 26 | 42 | 25 | 36 | 24 | 40 | 25 | 30 | 24 | NW | 13 | -5 | 12 | 7 |
| 26-Sep-07 | 23 | 29 | 20 | 26 | 28 | 25 | 24 | 24 | 30 | 25 | 28 | 24 | SE | 0 | 0 | 0 | 0 |
| 27-Sep-07 | 66 | 29 | 40 | 26 | 47 | 25 | 54 | 24 | 43 | 25 | 31 | 24 | NW | 35 | 9 | 16 | 23 |
| 28-Sep-07 | 58 | 29 | 46 | 26 | 54 | 25 | 55 | 24 | 46 | 25 | 32 | 24 | NW | 25 | 14 | 22 | 22 |
| 29-Sep-07 | 44 | 29 | 24 | 26 | 36 | 25 | 36 | 24 | 25 | 25 | 24 | 24 | NW | 20 | 0 | 12 | 12 |
| 30-Sep-07 | 77 | 29 | 35 | 26 | 58 | 25 | 60 | 24 | 45 | 25 | 36 | 24 | NW | 41 | -1 | 22 | 24 |
| 01-Oct-07 | 85 | 29 | 63 | 26 | 70 | 25 | 83 | 24 | 59 | 25 | 55 | 24 | NW | 30 | 8 | 15 | 27 |
| 02-Oct-07 | 67 | 29 | 45 | 26 | 75 | 25 | 64 | 24 | 49 | 26 | 47 | 24 | NW | 20 | -2 | 28 | 17 |
| 03-Oct-07 | 89 | 29 | 68 | 26 | 84 | 25 | 83 | 25 | 78 | 26 | 64 | 24 | NW | 26 | 4 | 20 | 19 |
| 04-Oct-07 | 36 | 30 | 28 | 26 | 42 | 25 | 37 | 25 | 44 | 26 | 33 | 24 | SW | 0 | 0 | 0 | 0 |
| 05-Oct-07 | 61 | 30 | 41 | 26 | 53 | 25 | 53 | 25 | 46 | 26 | 37 | 24 | NW | 25 | 4 | 17 | 17 |
| 06-Oct-07 | 67 | 30 | 39 | 26 | 63 | 25 | 59 | 25 | 47 | 26 | 44 | 24 | NW | 23 | -6 | 18 | 15 |
| 07-Oct-07 | 32 | 30 | 18 | 26 | 32 | 25 | 31 | 25 | 22 | 26 | 22 | 25 | SE | 0 | 0 | 0 | 0 |
| 08-Oct-07 | 22 | 30 | 15 | 26 | 28 | 25 | 21 | 25 | 26 | 26 | 24 | 25 | SE | 0 | 0 | 0 | 0 |
| 09-Oct-07 | 23 | 30 | 14 | 26 | 27 | 25 | 20 | 25 | 23 | 26 | 34 | 25 | SE | 0 | 0 | 0 | 0 |
| 10-Oct-07 | 20 | 30 | 13 | 26 | 24 | 25 | 15 | 25 | 23 | 26 | 22 | 25 | SE | 0 | 0 | 0 | 0 |
| 11-Oct-07 | 47 | 30 | 32 | 26 | 39 | 25 | 45 | 25 | 35 | 26 | 38 | 25 | NW | 12 | -3 | 3 | 10 |
| 12-Oct-07 | 27 | 30 | 23 | 26 | 26 | 25 | 24 | 25 | 30 | 26 | 27 | 25 | NW | 0 | -4 | -2 | -4 |
| 13-Oct-07 | 27 | 29 | 16 | 26 | 19 | 25 | 19 | 25 | 20 | 26 | 19 | 25 | SE | 0 | 0 | 0 | 0 |
| 14-Oct-07 | 50 | 29 | 34 | 26 | 40 | 25 | 47 | 25 | 33 | 26 | 27 | 24 | NW | 23 | 7 | 13 | 20 |
| 15-Oct-07 | 84 | 30 | 63 | 26 | 51 | 25 | 87 | 25 | 48 | 26 | 43 | 25 | NW | 41 | 20 | 9 | 44 |
| 16-Oct-07 | 92 | 30 | 39 | 26 | 78 | 26 | 81 | 26 | 55 | 26 | 51 | 25 | NW | 41 | -12 | 26 | 30 |
| 17-Oct-07 | 31 | 30 | 19 | 26 | 31 | 26 | 24 | 26 | 23 | 26 | 39 | 25 | SE | 0 | 0 | 0 | 0 |
| 18-Oct-07 | 24 | 30 | 23 | 26 | 28 | 26 | 27 | 26 | 29 | 26 | 28 | 25 | SE | 0 | 0 | 0 | 0 |
| 19-Oct-07 | 47 | 30 | 38 | 26 | 43 | 25 | 43 | 26 | 43 | 26 | 46 | 25 | NW | 4 | -5 | 0 | 0 |
| 20-Oct-07 | 31 | 30 | 30 | 26 | 33 | 26 | 33 | 26 | 35 | 26 | 36 | 25 | SE | 0 | 0 | 0 | 0 |
| 21-Oct-07 | 38 | 30 | 29 | 26 | 39 | 26 | 38 | 26 | 41 | 26 | 36 | 25 | SE | 0 | 0 | 0 | 0 |
| 22-Oct-07 | 76 | 30 | 64 | 26 | 60 | 26 | 80 | 26 | 54 | 26 | 54 | 25 | NW | 22 | 10 | 6 | 26 |
| 23-Oct-07 | 44 | 30 | 37 | 26 | 55 | 26 | 51 | 26 | 48 | 26 | 52 | 25 | SE | 0 | 0 | 0 | 0 |
| 24-Oct-07 | 26 | 30 | 28 | 26 | 27 | 26 | 26 | 26 | 27 | 26 | 33 | 25 | SE | 0 | 0 | 0 | 0 |
| 25-Oct-07 | 12 | 30 | 12 | 26 | 11 | 26 | 11 | 26 | 14 | 26 | 14 | 25 | SE | 0 | 0 | 0 | 0 |
| 26-Oct-07 | 18 | 30 | 12 | 26 | 15 | 26 | 16 | 26 | 15 | 26 | 15 | 25 | SW | 0 | 0 | 0 | 0 |
| 27-Oct-07 | 25 | 30 | 20 | 26 | 21 | 26 | 23 | 26 | 24 | 26 | 21 | 25 | NW | 4 | -2 | 0 | 2 |
| 28-Oct-07 | 33 | 30 | 22 | 26 | 24 | 26 | 30 | 26 | 26 | 26 | 22 | 25 | NW | 11 | 0 | 1 | 8 |
| 29-Oct-07 | 77 | 30 | 56 | 26 | 70 | 26 | 83 | 26 | 65 | 26 | 47 | 25 | NW | 30 | 9 | 23 | 36 |
| 30-Oct-07 | 50 | 30 | 41 | 26 | 64 | 26 | 52 | 26 | 53 | 26 | 49 | 25 | SW | 0 | 0 | 0 | 0 |
| 31-Oct-07 | 38 | 30 | 30 | 26 | 54 | 26 | 34 | 26 | 39 | 26 | 39 | 25 | SE | 0 | 0 | 0 | 0 |
| 01-Nov-07 | 35 | 30 | 28 | 26 | 36 | 26 | 34 | 26 | 36 | 26 | 41 | 25 | SE | 0 | 0 | 0 | 0 |

2007 – 2008 Tapered Element Oscillating Microbalance (TEOM) PM10 Results

| Date | Site 1 | | Site 2 | | Site 3 | | Site 8 | | Site4 | | Site 7 | | Ashton Contribution (only calculated for north westerly winds) | | | | |
|-----------|----------------------------|--------------------------------------|----------------------------|--------------------------------------|----------------------------|--------------------------------------|----------------------------|--------------------------------------|----------------------------|--------------------------------------|----------------------------|--------------------------------------|--|----------------------------|----------------------------|----------------------------|----------------------------|
| | Site 1 – PM10 24hr Average | Site 1 – PM10 Rolling Annual Average | Site 2 – PM10 24hr Average | Site 2 – PM10 Rolling Annual Average | Site 3 – PM10 24hr Average | Site 3 – PM10 Rolling Annual Average | Site 8 – PM10 24hr Average | Site 8 – PM10 Rolling Annual Average | Site 4 – PM10 24hr Average | Site 4 – PM10 Rolling Annual Average | Site 7 – PM10 24hr Average | Site 7 – PM10 Rolling Annual Average | Wind Direction | Site 1 Ashton Contribution | Site 2 Ashton Contribution | Site 3 Ashton Contribution | Site 8 Ashton Contribution |
| 02-Nov-07 | 23 | 30 | 19 | 26 | 21 | 26 | 21 | 26 | 21 | 26 | NA | 25 | SE | 0 | 0 | 0 | 0 |
| 03-Nov-07 | 11 | 30 | 9 | 26 | 19 | 26 | 9 | 26 | 11 | 26 | 11 | 25 | NW | 0 | -2 | 8 | -2 |
| 04-Nov-07 | 26 | 30 | 13 | 26 | 17 | 26 | 23 | 26 | 16 | 26 | 15 | 25 | NW | 11 | -2 | 1 | 7 |
| 05-Nov-07 | 15 | 30 | 12 | 26 | 14 | 26 | 13 | 26 | 15 | 26 | 16 | 25 | SE | 0 | 0 | 0 | 0 |
| 06-Nov-07 | 10 | 30 | 16 | 26 | 16 | 26 | 9 | 26 | 14 | 26 | 16 | 25 | SE | 0 | 0 | 0 | 0 |
| 07-Nov-07 | 6 | 30 | 6 | 26 | 7 | 26 | 6 | 26 | 8 | 26 | 10 | 25 | SE | 0 | 0 | 0 | 0 |
| 08-Nov-07 | 7 | 30 | 6 | 26 | 7 | 26 | 7 | 26 | 8 | 26 | 11 | 25 | SE | 0 | 0 | 0 | 0 |
| 09-Nov-07 | 6 | 30 | 6 | 26 | 6 | 26 | 6 | 26 | 7 | 26 | 9 | 25 | SE | 0 | 0 | 0 | 0 |
| 10-Nov-07 | 9 | 30 | 8 | 26 | 9 | 26 | 8 | 26 | 10 | 26 | 13 | 25 | SE | 0 | 0 | 0 | 0 |
| 11-Nov-07 | 10 | 29 | 10 | 26 | 11 | 26 | 9 | 26 | 12 | 26 | 19 | 25 | SE | 0 | 0 | 0 | 0 |
| 12-Nov-07 | 16 | 29 | 12 | 25 | 15 | 25 | 13 | 26 | 14 | 26 | 21 | 25 | SE | 0 | 0 | 0 | 0 |
| 13-Nov-07 | 21 | 29 | 18 | 25 | 22 | 25 | 18 | 26 | 21 | 26 | 22 | 25 | SE | 0 | 0 | 0 | 0 |
| 14-Nov-07 | 35 | 29 | 31 | 25 | 34 | 25 | 36 | 26 | 30 | 26 | 36 | 25 | SE | 0 | 0 | 0 | 0 |
| 15-Nov-07 | 35 | 29 | 32 | 25 | 38 | 25 | 33 | 26 | 36 | 25 | 41 | 25 | SE | 0 | 0 | 0 | 0 |
| 16-Nov-07 | 25 | 29 | 21 | 25 | 24 | 25 | 21 | 26 | 27 | 25 | 30 | 25 | SE | 0 | 0 | 0 | 0 |
| 17-Nov-07 | 20 | 29 | 15 | 25 | 16 | 25 | 16 | 26 | 19 | 25 | 20 | 25 | SE | 0 | 0 | 0 | 0 |
| 18-Nov-07 | 27 | 29 | 23 | 25 | 24 | 26 | 23 | 26 | 28 | 25 | 32 | 25 | SE | 0 | 0 | 0 | 0 |
| 19-Nov-07 | 29 | 29 | 25 | 25 | 32 | 26 | 28 | 26 | 33 | 25 | 35 | 25 | SE | 0 | 0 | 0 | 0 |
| 20-Nov-07 | 17 | 29 | 14 | 25 | 25 | 25 | 14 | 26 | 24 | 25 | 31 | 25 | SE | 0 | 0 | 0 | 0 |
| 21-Nov-07 | 27 | 29 | 44 | 25 | 23 | 25 | 23 | 26 | 27 | 25 | 23 | 25 | SE | 0 | 0 | 0 | 0 |
| 22-Nov-07 | 9 | 29 | 9 | 25 | 8 | 25 | 7 | 26 | 19 | 25 | 15 | 25 | SE | 0 | 0 | 0 | 0 |
| 23-Nov-07 | 10 | 29 | 9 | 25 | 8 | 25 | 8 | 26 | 10 | 25 | 13 | 24 | SE | 0 | 0 | 0 | 0 |
| 24-Nov-07 | 8 | 29 | 7 | 25 | 7 | 25 | 6 | 25 | 8 | 25 | 11 | 24 | SE | 0 | 0 | 0 | 0 |
| 25-Nov-07 | 10 | 29 | 10 | 25 | 11 | 25 | 9 | 25 | 12 | 25 | 20 | 24 | SE | 0 | 0 | 0 | 0 |
| 26-Nov-07 | 11 | 28 | 8 | 25 | 17 | 25 | 9 | 25 | 17 | 25 | 26 | 24 | SE | 0 | 0 | 0 | 0 |
| 27-Nov-07 | 11 | 28 | 10 | 25 | 16 | 25 | 11 | 25 | 17 | 25 | 31 | 24 | SE | 0 | 0 | 0 | 0 |
| 28-Nov-07 | 13 | 28 | 11 | 24 | 14 | 25 | 12 | 25 | 17 | 24 | 17 | 24 | SE | 0 | 0 | 0 | 0 |
| 29-Nov-07 | 18 | 28 | 15 | 24 | 18 | 25 | 17 | 25 | 22 | 24 | 23 | 24 | SE | 0 | 0 | 0 | 0 |
| 30-Nov-07 | 8 | 28 | 7 | 24 | 9 | 24 | 7 | 25 | 13 | 24 | 11 | 24 | SW | 0 | 0 | 0 | 0 |
| 01-Dec-07 | 8 | 28 | 6 | 24 | 8 | 24 | 6 | 25 | 11 | 24 | 14 | 24 | SE | 0 | 0 | 0 | 0 |
| 02-Dec-07 | 11 | 28 | 8 | 24 | 12 | 24 | 10 | 25 | 16 | 24 | 15 | 24 | SE | 0 | 0 | 0 | 0 |
| 03-Dec-07 | 15 | 28 | 14 | 24 | 13 | 24 | 14 | 25 | 15 | 24 | 16 | 24 | SE | 0 | 0 | 0 | 0 |
| 04-Dec-07 | 23 | 28 | 16 | 24 | 20 | 24 | 21 | 25 | 20 | 24 | 18 | 24 | NW | 5 | -2 | 2 | 3 |
| 05-Dec-07 | 21 | 28 | 20 | 24 | 24 | 24 | 22 | 25 | 25 | 24 | 28 | 24 | SE | 0 | 0 | 0 | 0 |
| 06-Dec-07 | 12 | 28 | 13 | 24 | 17 | 24 | 12 | 25 | 18 | 24 | 21 | 24 | SE | 0 | 0 | 0 | 0 |
| 07-Dec-07 | 18 | 28 | 18 | 24 | NA | 24 | 18 | 25 | 19 | 24 | 18 | 24 | SE | 0 | 0 | 0 | 0 |
| 08-Dec-07 | 26 | 28 | 24 | 24 | 23 | 24 | 27 | 25 | 27 | 24 | 29 | 24 | SE | 0 | 0 | 0 | 0 |
| 09-Dec-07 | 25 | 28 | 21 | 24 | 23 | 24 | 25 | 25 | 22 | 24 | 20 | 24 | SE | 0 | 0 | 0 | 0 |
| 10-Dec-07 | 27 | 28 | 26 | 24 | 29 | 24 | 27 | 25 | 28 | 24 | 55 | 24 | SE | 0 | 0 | 0 | 0 |
| 11-Dec-07 | 17 | 28 | 16 | 24 | 19 | 24 | 17 | 25 | 20 | 24 | 19 | 24 | SE | 0 | 0 | 0 | 0 |
| 12-Dec-07 | 12 | 28 | 13 | 24 | 16 | 24 | 14 | 25 | 15 | 24 | 17 | 24 | SE | 0 | 0 | 0 | 0 |
| 13-Dec-07 | 13 | 28 | 13 | 24 | 21 | 24 | 16 | 25 | 19 | 24 | 22 | 24 | SE | 0 | 0 | 0 | 0 |
| 14-Dec-07 | 21 | 28 | 19 | 24 | 24 | 24 | 22 | 25 | 25 | 24 | 24 | 24 | SE | 0 | 0 | 0 | 0 |
| 15-Dec-07 | 31 | 28 | 26 | 24 | 28 | 24 | 32 | 25 | 29 | 24 | 27 | 24 | NW | 5 | -1 | 1 | 5 |
| 16-Dec-07 | 13 | 28 | 11 | 24 | 12 | 24 | NA | 25 | 0 | 24 | NA | 24 | NW | 13 | 11 | 12 | NA |
| 17-Dec-07 | 18 | 28 | 17 | 24 | 21 | 24 | 18 | 25 | 18 | 24 | 26 | 24 | SE | 0 | 0 | 0 | 0 |
| 18-Dec-07 | 18 | 28 | 21 | 24 | 21 | 24 | 19 | 25 | 19 | 24 | 27 | 24 | SE | 0 | 0 | 0 | 0 |
| 19-Dec-07 | 16 | 27 | 16 | 24 | 20 | 24 | 16 | 25 | 18 | 24 | 26 | 24 | SE | 0 | 0 | 0 | 0 |
| 20-Dec-07 | 21 | 27 | 19 | 24 | 24 | 24 | 22 | 25 | 23 | 24 | 26 | 24 | SE | 0 | 0 | 0 | 0 |
| 21-Dec-07 | 29 | 27 | 11 | 24 | 21 | 24 | 24 | 25 | 16 | 24 | 21 | 24 | NW | 13 | -5 | 4 | 8 |
| 22-Dec-07 | 14 | 27 | 13 | 24 | 13 | 24 | 14 | 25 | 15 | 24 | 15 | 24 | NW | -1 | -2 | -2 | -1 |
| 23-Dec-07 | 19 | 27 | 18 | 23 | 22 | 24 | 21 | 25 | 23 | 24 | 25 | 24 | SE | 0 | 0 | 0 | 0 |
| 24-Dec-07 | 15 | 28 | 15 | 23 | 17 | 24 | 16 | 25 | 16 | 24 | 22 | 24 | SE | 0 | 0 | 0 | 0 |
| 25-Dec-07 | 16 | 28 | 15 | 23 | 17 | 24 | 16 | 25 | 16 | 24 | 19 | 24 | SE | 0 | 0 | 0 | 0 |
| 26-Dec-07 | 19 | 28 | 16 | 23 | 21 | 24 | 20 | 25 | 20 | 24 | 18 | 24 | SE | 0 | 0 | 0 | 0 |
| 27-Dec-07 | 17 | 28 | 16 | 23 | 22 | 24 | 19 | 25 | 21 | 24 | 21 | 24 | NW | -3 | -5 | 1 | -2 |
| 28-Dec-07 | 11 | 28 | 13 | 23 | 14 | 24 | 13 | 25 | 15 | 24 | 17 | 24 | SE | 0 | 0 | 0 | 0 |
| 29-Dec-07 | 10 | 27 | 10 | 23 | 12 | 24 | 11 | 25 | 13 | 24 | 21 | 24 | SE | 0 | 0 | 0 | 0 |
| 30-Dec-07 | 20 | 27 | 20 | 23 | 26 | 24 | 20 | 25 | 17 | 24 | 30 | 24 | SE | 0 | 0 | 0 | 0 |
| 31-Dec-07 | 22 | 28 | 16 | 23 | 23 | 24 | 22 | 25 | NA | 24 | 28 | 24 | SE | 0 | 0 | 0 | 0 |
| 01-Jan-08 | 23 | 28 | 16 | 23 | 29 | 24 | 22 | 25 | NA | 24 | 27 | 24 | SE | 0 | 0 | 0 | 0 |

2007 – 2008 Tapered Element Oscillating Microbalance (TEOM) PM10 Results

| Date | Site 1 | | Site 2 | | Site 3 | | Site 8 | | Site4 | | Site 7 | | Ashton Contribution (only calculated for north westerly winds) | | | | |
|-----------|----------------------------|--------------------------------------|----------------------------|--------------------------------------|----------------------------|--------------------------------------|----------------------------|--------------------------------------|----------------------------|--------------------------------------|----------------------------|--------------------------------------|--|----------------------------|----------------------------|----------------------------|----------------------------|
| | Site 1 – PM10 24hr Average | Site 1 – PM10 Rolling Annual Average | Site 2 – PM10 24hr Average | Site 2 – PM10 Rolling Annual Average | Site 3 – PM10 24hr Average | Site 3 – PM10 Rolling Annual Average | Site 8 – PM10 24hr Average | Site 8 – PM10 Rolling Annual Average | Site 4 – PM10 24hr Average | Site 4 – PM10 Rolling Annual Average | Site 7 – PM10 24hr Average | Site 7 – PM10 Rolling Annual Average | Wind Direction | Site 1 Ashton Contribution | Site 2 Ashton Contribution | Site 3 Ashton Contribution | Site 8 Ashton Contribution |
| 02-Jan-08 | 19 | 28 | 14 | 23 | 27 | 24 | 19 | 25 | NA | 24 | 29 | 24 | SE | 0 | 0 | 0 | 0 |
| 03-Jan-08 | 26 | 28 | 17 | 23 | 32 | 24 | 28 | 25 | 22 | 24 | 62 | 24 | SE | 0 | 0 | 0 | 0 |
| 04-Jan-08 | 24 | 28 | 17 | 23 | 41 | 24 | 26 | 25 | 27 | 24 | 44 | 24 | SE | 0 | 0 | 0 | 0 |
| 05-Jan-08 | 7 | 28 | 6 | 23 | 8 | 24 | 7 | 24 | 6 | 24 | 10 | 24 | SE | 0 | 0 | 0 | 0 |
| 06-Jan-08 | 20 | 28 | 16 | 23 | 20 | 24 | 19 | 24 | 12 | 24 | NA | 24 | SE | 0 | 0 | 0 | 0 |
| 07-Jan-08 | 24 | 28 | 20 | 23 | 27 | 24 | 23 | 24 | 25 | 24 | 29 | 24 | SE | 0 | 0 | 0 | 0 |
| 08-Jan-08 | 29 | 27 | 23 | 23 | 41 | 24 | 31 | 24 | 28 | 24 | 34 | 24 | SE | 0 | 0 | 0 | 0 |
| 09-Jan-08 | 21 | 27 | 19 | 23 | 32 | 24 | 22 | 24 | 27 | 24 | 32 | 24 | SE | 0 | 0 | 0 | 0 |
| 10-Jan-08 | 21 | 27 | 16 | 23 | 20 | 24 | 17 | 24 | 23 | 24 | 26 | 24 | SE | 0 | 0 | 0 | 0 |
| 11-Jan-08 | 24 | 27 | 20 | 23 | 27 | 24 | 27 | 24 | 30 | 24 | 26 | 24 | SE | 0 | 0 | 0 | 0 |
| 12-Jan-08 | 24 | 27 | 28 | 23 | 37 | 24 | 25 | 24 | 27 | 24 | 25 | 24 | SE | 0 | 0 | 0 | 0 |
| 13-Jan-08 | 32 | 27 | 31 | 23 | 29 | 24 | 32 | 24 | 33 | 24 | 28 | 24 | NW | 4 | 3 | 1 | 4 |
| 14-Jan-08 | 26 | 27 | 27 | 23 | 30 | 24 | 25 | 24 | 33 | 24 | 41 | 24 | SE | 0 | 0 | 0 | 0 |
| 15-Jan-08 | 26 | 27 | 29 | 23 | 27 | 24 | 27 | 24 | 33 | 24 | 39 | 24 | SE | 0 | 0 | 0 | 0 |
| 16-Jan-08 | 21 | 27 | 24 | 23 | NA | 24 | 20 | 24 | 22 | 24 | 19 | 24 | NW | 2 | 5 | NA | 0 |
| 17-Jan-08 | 7 | 27 | 14 | 23 | 6 | 24 | 6 | 24 | 7 | 24 | 7 | 23 | SE | 0 | 0 | 0 | 0 |
| 18-Jan-08 | 10 | 27 | 17 | 23 | 8 | 24 | 8 | 24 | 10 | 23 | 10 | 23 | SE | 0 | 0 | 0 | 0 |
| 19-Jan-08 | 11 | 27 | 19 | 23 | 9 | 24 | 9 | 24 | 12 | 23 | NA | 23 | SE | 0 | 0 | 0 | 0 |
| 20-Jan-08 | 14 | 27 | 23 | 23 | 13 | 24 | 13 | 24 | 16 | 23 | 14 | 23 | NE | 0 | 0 | 0 | 0 |
| 21-Jan-08 | 14 | 27 | 20 | 23 | 14 | 24 | 13 | 24 | 16 | 23 | 16 | 23 | SE | 0 | 0 | 0 | 0 |
| 22-Jan-08 | 19 | 27 | 25 | 23 | 26 | 24 | 20 | 24 | 25 | 23 | 26 | 23 | SE | 0 | 0 | 0 | 0 |
| 23-Jan-08 | 15 | 27 | 20 | 23 | 20 | 24 | 16 | 24 | 19 | 23 | 24 | 23 | SE | 0 | 0 | 0 | 0 |
| 24-Jan-08 | 19 | 27 | 22 | 23 | 23 | 24 | 21 | 24 | 19 | 23 | 31 | 23 | SE | 0 | 0 | 0 | 0 |
| 25-Jan-08 | 9 | 26 | 17 | 23 | 9 | 24 | 8 | 24 | 10 | 23 | 15 | 23 | SE | 0 | 0 | 0 | 0 |
| 26-Jan-08 | 8 | 27 | 17 | 23 | 8 | 24 | 8 | 24 | 10 | 23 | 14 | 23 | SE | 0 | 0 | 0 | 0 |
| 27-Jan-08 | 22 | 27 | 25 | 22 | 39 | 24 | 20 | 24 | 24 | 23 | 24 | 23 | SE | 0 | 0 | 0 | 0 |
| 28-Jan-08 | 44 | 27 | 39 | 22 | 45 | 24 | 45 | 24 | 45 | 23 | 52 | 23 | SE | 0 | 0 | 0 | 0 |
| 29-Jan-08 | 32 | 27 | 19 | 22 | 29 | 24 | 32 | 24 | 33 | 23 | 35 | 23 | SE | 0 | 0 | 0 | 0 |
| 30-Jan-08 | 21 | 26 | 25 | 22 | 19 | 24 | 19 | 24 | 22 | 24 | 25 | 23 | SE | 0 | 0 | 0 | 0 |
| 31-Jan-08 | 18 | 26 | 13 | 22 | 17 | 23 | 33 | 24 | 17 | 23 | 19 | 23 | NW | 1 | -5 | -1 | 16 |
| 01-Feb-08 | 9 | 26 | 8 | 22 | 8 | 23 | NA | 24 | 9 | 23 | 11 | 23 | SE | 0 | 0 | 0 | 0 |
| 02-Feb-08 | 14 | 26 | NA | 22 | 15 | 23 | NA | 24 | 15 | 23 | 20 | 23 | SE | 0 | 0 | 0 | 0 |
| 03-Feb-08 | 10 | 26 | NA | 22 | 11 | 23 | NA | 24 | 12 | 23 | NA | 23 | SE | 0 | 0 | 0 | 0 |
| 04-Feb-08 | 7 | 26 | 3 | 22 | 7 | 23 | NA | 24 | 8 | 23 | NA | 23 | SE | 0 | 0 | 0 | 0 |
| 05-Feb-08 | 12 | 26 | 15 | 22 | 9 | 23 | NA | 24 | 12 | 23 | 13 | 23 | SE | 0 | 0 | 0 | 0 |
| 06-Feb-08 | 12 | 26 | 9 | 22 | 10 | 23 | NA | 24 | 10 | 23 | 10 | 22 | NW | 2 | -1 | -1 | NA |
| 07-Feb-08 | 17 | 26 | 12 | 22 | 17 | 23 | 12 | 24 | 15 | 23 | 14 | 22 | NW | 2 | -2 | 3 | -2 |
| 08-Feb-08 | 15 | 26 | 14 | 22 | 15 | 23 | 14 | 24 | 15 | 23 | 19 | 22 | SE | 0 | 0 | 0 | 0 |
| 09-Feb-08 | 7 | 26 | 8 | 22 | 6 | 23 | 6 | 24 | 8 | 23 | 9 | 22 | SE | 0 | 0 | 0 | 0 |
| 10-Feb-08 | 12 | 26 | 12 | 22 | 16 | 23 | 13 | 24 | 15 | 23 | 20 | 22 | SE | 0 | 0 | 0 | 0 |
| 11-Feb-08 | 14 | 26 | 12 | 22 | 12 | 23 | 12 | 24 | 14 | 23 | 16 | 22 | SE | 0 | 0 | 0 | 0 |
| 12-Feb-08 | 10 | 26 | 9 | 22 | 9 | 23 | 9 | 24 | 11 | 23 | 11 | 22 | SE | 0 | 0 | 0 | 0 |
| 13-Feb-08 | 16 | 26 | 18 | 22 | 18 | 23 | 17 | 24 | 19 | 23 | 22 | 22 | SE | 0 | 0 | 0 | 0 |
| 14-Feb-08 | 17 | 26 | 17 | 22 | 19 | 23 | 19 | 24 | 17 | 23 | 23 | 22 | SE | 0 | 0 | 0 | 0 |
| 15-Feb-08 | 17 | 26 | 13 | 22 | 5 | 23 | 18 | 24 | 16 | 23 | 23 | 22 | SE | 0 | 0 | 0 | 0 |
| 16-Feb-08 | 16 | 26 | 13 | 22 | NA | 23 | 15 | 24 | 17 | 23 | 33 | 22 | SE | 0 | 0 | 0 | 0 |
| 17-Feb-08 | 22 | 26 | 9 | 22 | NA | 23 | 12 | 24 | 12 | 23 | 19 | 22 | SE | 0 | 0 | 0 | 0 |
| 18-Feb-08 | 15 | 26 | 11 | 22 | NA | 23 | 14 | 24 | 17 | 23 | 23 | 22 | SE | 0 | 0 | 0 | 0 |
| 19-Feb-08 | 16 | 26 | 11 | 22 | NA | 23 | 16 | 24 | 18 | 23 | 26 | 22 | SE | 0 | 0 | 0 | 0 |
| 20-Feb-08 | 13 | 26 | 11 | 22 | NA | 23 | 14 | 24 | 19 | 23 | 23 | 22 | SE | 0 | 0 | 0 | 0 |
| 21-Feb-08 | 19 | 26 | 14 | 22 | NA | 23 | 20 | 24 | 20 | 23 | 21 | 22 | SE | 0 | 0 | 0 | 0 |
| 22-Feb-08 | 58 | 26 | 38 | 22 | NA | 23 | 58 | 24 | 50 | 23 | 42 | 22 | SE | 0 | 0 | 0 | 0 |
| 23-Feb-08 | 35 | 26 | 26 | 22 | NA | 23 | 35 | 24 | 34 | 23 | 30 | 22 | SE | 0 | 0 | 0 | 0 |
| 24-Feb-08 | 35 | 26 | 25 | 22 | NA | 23 | 36 | 24 | 36 | 23 | 39 | 22 | NW | 0 | -10 | NA | 1 |
| 25-Feb-08 | 25 | 26 | 20 | 22 | NA | 23 | 26 | 24 | 30 | 23 | 33 | 22 | SE | 0 | 0 | 0 | 0 |
| 26-Feb-08 | 33 | 26 | 23 | 22 | NA | 23 | 30 | 24 | 31 | 23 | 26 | 22 | SE | 0 | 0 | 0 | 0 |
| 27-Feb-08 | 18 | 26 | 13 | 22 | NA | 23 | 15 | 24 | 19 | 23 | 15 | 22 | NW | 3 | -2 | NA | 0 |
| 28-Feb-08 | 8 | 26 | 7 | 22 | NA | 23 | 6 | 24 | 8 | 23 | 9 | 22 | SE | 0 | 0 | 0 | 0 |
| 29-Feb-08 | 11 | 26 | 11 | 22 | NA | 23 | 11 | 24 | 12 | 23 | 14 | 22 | SE | 0 | 0 | 0 | 0 |
| 01-Mar-08 | 12 | 26 | 12 | 21 | NA | 23 | 12 | 24 | 14 | 23 | 14 | 22 | NE | 0 | 0 | 0 | 0 |
| 02-Mar-08 | 12 | 26 | 13 | 21 | NA | 23 | NA | 24 | 14 | 23 | 17 | 22 | SE | 0 | 0 | 0 | 0 |

2007 – 2008 Tapered Element Oscillating Microbalance (TEOM) PM10 Results

| Date | Site 1 | | Site 2 | | Site 3 | | Site 8 | | Site4 | | Site 7 | | Ashton Contribution (only calculated for north westerly winds) | | | | |
|-----------|----------------------------|--------------------------------------|----------------------------|--------------------------------------|----------------------------|--------------------------------------|----------------------------|--------------------------------------|----------------------------|--------------------------------------|----------------------------|--------------------------------------|--|----------------------------|----------------------------|----------------------------|----------------------------|
| | Site 1 – PM10 24hr Average | Site 1 – PM10 Rolling Annual Average | Site 2 – PM10 24hr Average | Site 2 – PM10 Rolling Annual Average | Site 3 – PM10 24hr Average | Site 3 – PM10 Rolling Annual Average | Site 8 – PM10 24hr Average | Site 8 – PM10 Rolling Annual Average | Site 4 – PM10 24hr Average | Site 4 – PM10 Rolling Annual Average | Site 7 – PM10 24hr Average | Site 7 – PM10 Rolling Annual Average | Wind Direction | Site 1 Ashton Contribution | Site 2 Ashton Contribution | Site 3 Ashton Contribution | Site 8 Ashton Contribution |
| 03-Mar-08 | 15 | 26 | 14 | 21 | NA | 23 | 15 | 24 | 19 | 23 | 16 | 22 | SE | 0 | 0 | 0 | 0 |
| 04-Mar-08 | 27 | 26 | 23 | 21 | NA | 23 | 30 | 24 | 30 | 23 | 28 | 22 | SE | 0 | 0 | 0 | 0 |
| 05-Mar-08 | 20 | 26 | 19 | 21 | NA | 23 | 19 | 24 | 19 | 23 | 24 | 22 | SE | 0 | 0 | 0 | 0 |
| 06-Mar-08 | 38 | 26 | 33 | 21 | NA | 23 | 41 | 24 | 42 | 23 | 37 | 22 | NW | 1 | -4 | NA | 5 |
| 07-Mar-08 | 24 | 26 | 20 | 21 | NA | 23 | 25 | 24 | 25 | 23 | 34 | 22 | SE | 0 | 0 | 0 | 0 |
| 08-Mar-08 | 14 | 26 | 13 | 21 | NA | 23 | 15 | 24 | 16 | 23 | 17 | 22 | SE | 0 | 0 | 0 | 0 |
| 09-Mar-08 | 11 | 26 | 10 | 21 | NA | 23 | 11 | 24 | 13 | 23 | 16 | 22 | SE | 0 | 0 | 0 | 0 |
| 10-Mar-08 | 17 | 26 | 13 | 21 | NA | 23 | 14 | 24 | 19 | 23 | 15 | 22 | SE | 0 | 0 | 0 | 0 |
| 11-Mar-08 | 17 | 26 | 13 | 21 | NA | 23 | 19 | 24 | 19 | 23 | 20 | 22 | SE | 0 | 0 | 0 | 0 |
| 12-Mar-08 | 23 | 26 | 19 | 21 | 20 | 23 | 24 | 24 | 29 | 23 | 24 | 22 | SE | 0 | 0 | 0 | 0 |
| 13-Mar-08 | 38 | 26 | 29 | 21 | 37 | 23 | 43 | 24 | 39 | 23 | 42 | 22 | SE | 0 | 0 | 0 | 0 |
| 14-Mar-08 | 23 | 26 | 20 | 21 | 25 | 23 | 23 | 24 | 25 | 23 | 26 | 22 | SE | 0 | 0 | 0 | 0 |
| 15-Mar-08 | 19 | 26 | 14 | 21 | 17 | 23 | 16 | 24 | 18 | 23 | 21 | 22 | SE | 0 | 0 | 0 | 0 |
| 16-Mar-08 | 14 | 26 | 12 | 21 | 18 | 23 | 13 | 24 | 20 | 23 | 20 | 22 | SE | 0 | 0 | 0 | 0 |
| 17-Mar-08 | 12 | 26 | 13 | 21 | 15 | 23 | 13 | 24 | 18 | 23 | 16 | 22 | SE | 0 | 0 | 0 | 0 |
| 18-Mar-08 | 21 | 25 | 19 | 21 | 28 | 23 | 24 | 24 | 27 | 23 | 26 | 22 | SE | 0 | 0 | 0 | 0 |
| 19-Mar-08 | 19 | 25 | 18 | 21 | 22 | 23 | 19 | 24 | 33 | 23 | 25 | 22 | SE | 0 | 0 | 0 | 0 |
| 20-Mar-08 | 40 | 25 | 27 | 21 | 38 | 23 | 38 | 24 | 38 | 23 | 42 | 22 | NW | 2 | -11 | 0 | 0 |
| 21-Mar-08 | 16 | 25 | 13 | 21 | 15 | 23 | 15 | 24 | 16 | 23 | 13 | 22 | SE | 0 | 0 | 0 | 0 |
| 22-Mar-08 | 15 | 25 | 12 | 21 | 14 | 23 | 13 | 24 | 16 | 23 | 14 | 22 | SE | 0 | 0 | 0 | 0 |
| 23-Mar-08 | 12 | 25 | 11 | 21 | 14 | 23 | 11 | 24 | 14 | 23 | 12 | 22 | SE | 0 | 0 | 0 | 0 |
| 24-Mar-08 | 16 | 25 | 13 | 21 | 15 | 23 | 15 | 24 | 16 | 23 | 15 | 22 | SE | 0 | 0 | 0 | 0 |
| 25-Mar-08 | 21 | 25 | 16 | 21 | 19 | 23 | 19 | 24 | 19 | 23 | 13 | 22 | NW | 8 | 3 | 6 | 6 |
| 26-Mar-08 | 27 | 25 | 16 | 21 | 22 | 23 | 24 | 24 | 22 | 23 | 20 | 22 | NW | 7 | -3 | 3 | 4 |
| 27-Mar-08 | 16 | 25 | 14 | 21 | 19 | 23 | 20 | 24 | 18 | 23 | 17 | 22 | SW | 0 | 0 | 0 | 0 |
| 28-Mar-08 | 18 | 25 | 13 | 21 | 19 | 23 | 17 | 24 | 19 | 23 | 21 | 22 | SE | 0 | 0 | 0 | 0 |
| 29-Mar-08 | 31 | 25 | 20 | 21 | 29 | 23 | 28 | 24 | 29 | 23 | 20 | 22 | NW | 10 | 0 | 9 | 8 |
| 30-Mar-08 | 57 | 25 | 35 | 21 | 53 | 23 | 62 | 24 | 30 | 23 | 27 | 22 | NW | 30 | 7 | 25 | 34 |
| 31-Mar-08 | 40 | 25 | 23 | 21 | 45 | 23 | 37 | 24 | 35 | 23 | 23 | 22 | NW | 16 | -1 | 21 | 14 |
| 01-Apr-08 | 27 | 25 | 21 | 21 | 33 | 23 | 30 | 24 | 33 | 23 | 31 | 22 | SE | 0 | 0 | 0 | 0 |
| 02-Apr-08 | 58 | 25 | 42 | 21 | 45 | 23 | 48 | 24 | 46 | 23 | 23 | 22 | NW | 34 | 18 | 21 | 25 |
| 03-Apr-08 | 75 | 26 | 47 | 21 | 81 | 23 | 72 | 24 | 86 | 23 | 52 | 22 | NW | 23 | -5 | 29 | 20 |
| 04-Apr-08 | 28 | 26 | 23 | 21 | 27 | 23 | 30 | 24 | 52 | 23 | 34 | 22 | SE | 0 | 0 | 0 | 0 |
| 05-Apr-08 | 16 | 26 | 17 | 21 | 21 | 23 | 18 | 24 | 21 | 23 | 22 | 22 | SE | 0 | 0 | 0 | 0 |
| 06-Apr-08 | 13 | 26 | 7 | 21 | 17 | 23 | 14 | 24 | 25 | 23 | 16 | 22 | SE | 0 | 0 | 0 | 0 |
| 07-Apr-08 | 8 | 26 | NA | 21 | 13 | 23 | 10 | 24 | 11 | 23 | 10 | 22 | SE | 0 | 0 | 0 | 0 |
| 08-Apr-08 | 12 | 26 | NA | 21 | 17 | 23 | 14 | 24 | 16 | 23 | 21 | 22 | SE | 0 | 0 | 0 | 0 |
| 09-Apr-08 | 13 | 26 | NA | 21 | 17 | 23 | 12 | 24 | 16 | 23 | 18 | 22 | SE | 0 | 0 | 0 | 0 |
| 10-Apr-08 | 12 | 26 | 10 | 21 | 15 | 23 | 12 | 24 | 12 | 23 | 21 | 22 | SE | 0 | 0 | 0 | 0 |
| 11-Apr-08 | 13 | 26 | 13 | 21 | 13 | 23 | 11 | 24 | 13 | 23 | 14 | 22 | SE | 0 | 0 | 0 | 0 |
| 12-Apr-08 | 18 | 26 | 15 | 21 | 13 | 23 | 17 | 24 | 13 | 23 | 16 | 22 | NW | 5 | 1 | 0 | 3 |
| 13-Apr-08 | 37 | 26 | 25 | 21 | 30 | 23 | 34 | 24 | 28 | 23 | 28 | 22 | NW | 9 | -3 | 2 | 6 |
| 14-Apr-08 | 14 | 25 | 13 | 20 | 15 | 23 | 13 | 24 | 16 | 23 | 17 | 22 | SE | 0 | 0 | 0 | 0 |
| 15-Apr-08 | 10 | 25 | 10 | 20 | 15 | 23 | 11 | 24 | 12 | 23 | 14 | 22 | SE | 0 | 0 | 0 | 0 |
| 16-Apr-08 | 12 | 25 | 11 | 20 | 16 | 23 | 12 | 24 | 14 | 23 | 14 | 22 | SE | 0 | 0 | 0 | 0 |
| 17-Apr-08 | 14 | 25 | 11 | 20 | 18 | 23 | 14 | 24 | 16 | 23 | 16 | 22 | SE | 0 | 0 | 0 | 0 |
| 18-Apr-08 | 18 | 25 | 15 | 20 | 22 | 23 | 19 | 24 | 21 | 23 | 23 | 22 | SE | 0 | 0 | 0 | 0 |
| 19-Apr-08 | 9 | 25 | 8 | 20 | 9 | 23 | 8 | 24 | 9 | 23 | 10 | 22 | SE | 0 | 0 | 0 | 0 |
| 20-Apr-08 | 7 | 25 | 6 | 20 | 8 | 23 | 7 | 24 | 7 | 23 | 9 | 22 | SE | 0 | 0 | 0 | 0 |
| 21-Apr-08 | 7 | 25 | 7 | 20 | 7 | 23 | 6 | 24 | 7 | 23 | 8 | 22 | SE | 0 | 0 | 0 | 0 |
| 22-Apr-08 | 6 | 25 | 5 | 20 | 9 | 23 | 6 | 24 | 9 | 23 | 8 | 22 | SE | 0 | 0 | 0 | 0 |
| 23-Apr-08 | 6 | 25 | 6 | 20 | 6 | 23 | 6 | 23 | 6 | 23 | 8 | 22 | SE | 0 | 0 | 0 | 0 |
| 24-Apr-08 | 7 | 25 | 6 | 20 | 7 | 23 | 7 | 23 | 7 | 23 | 8 | 22 | SE | 0 | 0 | 0 | 0 |
| 25-Apr-08 | 6 | 25 | 6 | 20 | 6 | 23 | 5 | 23 | 5 | 23 | 6 | 22 | SE | 0 | 0 | 0 | 0 |
| 26-Apr-08 | 17 | 25 | 13 | 20 | 14 | 23 | 15 | 23 | 13 | 23 | 12 | 22 | NW | 5 | 1 | 2 | 4 |
| 27-Apr-08 | 34 | 25 | 33 | 20 | 27 | 23 | 40 | 23 | 27 | 23 | 23 | 22 | NW | 10 | 9 | 4 | 17 |
| 28-Apr-08 | 30 | 25 | 12 | 20 | 24 | 23 | 26 | 23 | 23 | 23 | 14 | 22 | NW | 15 | -2 | 10 | 12 |
| 29-Apr-08 | 19 | 25 | 14 | 20 | 15 | 23 | 18 | 23 | 15 | 23 | 12 | 22 | NW | 7 | 2 | 3 | 6 |
| 30-Apr-08 | 25 | 25 | 20 | 20 | 27 | 23 | 27 | 23 | 24 | 23 | 22 | 22 | NW | 3 | -1 | 5 | 5 |
| 01-May-08 | 35 | 25 | 24 | 20 | 34 | 23 | 37 | 23 | 32 | 23 | 27 | 22 | NW | 8 | -3 | 7 | 10 |
| 02-May-08 | 33 | 25 | 20 | 20 | 32 | 23 | 30 | 23 | 32 | 23 | 27 | 22 | NW | 6 | -6 | 6 | 4 |

2007 – 2008 Tapered Element Oscillating Microbalance (TEOM) PM10 Results

| Date | Site 1 | | Site 2 | | Site 3 | | Site 8 | | Site4 | | Site 7 | | Ashton Contribution (only calculated for north westerly winds) | | | | |
|-----------|----------------------------|--------------------------------------|----------------------------|--------------------------------------|----------------------------|--------------------------------------|----------------------------|--------------------------------------|----------------------------|--------------------------------------|----------------------------|--------------------------------------|--|----------------------------|----------------------------|----------------------------|----------------------------|
| | Site 1 – PM10 24hr Average | Site 1 – PM10 Rolling Annual Average | Site 2 – PM10 24hr Average | Site 2 – PM10 Rolling Annual Average | Site 3 – PM10 24hr Average | Site 3 – PM10 Rolling Annual Average | Site 8 – PM10 24hr Average | Site 8 – PM10 Rolling Annual Average | Site 4 – PM10 24hr Average | Site 4 – PM10 Rolling Annual Average | Site 7 – PM10 24hr Average | Site 7 – PM10 Rolling Annual Average | Wind Direction | Site 1 Ashton Contribution | Site 2 Ashton Contribution | Site 3 Ashton Contribution | Site 8 Ashton Contribution |
| 03-May-08 | 22 | 25 | 16 | 20 | 18 | 23 | 20 | 23 | 17 | 22 | 14 | 22 | NW | 8 | 3 | 5 | 7 |
| 04-May-08 | 16 | 25 | 13 | 20 | 14 | 23 | 15 | 23 | 15 | 22 | 13 | 21 | NW | 3 | 0 | 2 | 3 |
| 05-May-08 | 41 | 25 | 21 | 19 | 31 | 23 | 35 | 23 | 29 | 22 | 15 | 21 | NW | 26 | 6 | 16 | 20 |
| 06-May-08 | 41 | 25 | 29 | 19 | 36 | 23 | 44 | 23 | 37 | 22 | 27 | 21 | NW | 14 | 3 | 10 | 17 |
| 07-May-08 | 41 | 25 | 21 | 19 | 38 | 23 | 40 | 24 | 32 | 22 | 23 | 21 | NW | 18 | -2 | 15 | 17 |
| 08-May-08 | 24 | 25 | 20 | 19 | 20 | 23 | 22 | 24 | 20 | 22 | 19 | 21 | NW | 4 | 0 | 1 | 2 |
| 09-May-08 | 25 | 25 | 21 | 19 | 27 | 23 | 28 | 24 | 24 | 22 | 26 | 21 | SE | 0 | 0 | 0 | 0 |
| 10-May-08 | 23 | 25 | 20 | 19 | 26 | 23 | 23 | 24 | 24 | 22 | 24 | 21 | SE | 0 | 0 | 0 | 0 |
| 11-May-08 | 15 | 25 | 13 | 19 | 17 | 23 | 14 | 24 | 15 | 22 | 20 | 21 | SE | 0 | 0 | 0 | 0 |
| 12-May-08 | 19 | 25 | 14 | 19 | 18 | 23 | 18 | 24 | 16 | 22 | 21 | 21 | SE | 0 | 0 | 0 | 0 |
| 13-May-08 | 17 | 25 | 15 | 19 | 19 | 23 | 15 | 23 | 19 | 22 | 21 | 21 | SE | 0 | 0 | 0 | 0 |
| 14-May-08 | 25 | 25 | 20 | 19 | 26 | 23 | 24 | 23 | 28 | 22 | 23 | 21 | NW | 2 | -3 | 3 | 1 |
| 15-May-08 | 30 | 25 | 20 | 19 | 23 | 23 | 23 | 23 | 29 | 22 | 40 | 22 | NW | 1 | -9 | -5 | -6 |
| 16-May-08 | 20 | 25 | 14 | 19 | 15 | 23 | 19 | 23 | 17 | 22 | 14 | 22 | NW | 6 | 0 | 1 | 5 |
| 17-May-08 | 35 | 25 | 23 | 19 | 32 | 23 | 32 | 23 | 26 | 22 | 20 | 22 | NW | 15 | 2 | 12 | 11 |
| 18-May-08 | 35 | 25 | 12 | 19 | 25 | 23 | 32 | 24 | 16 | 22 | 12 | 22 | NW | 23 | 0 | 13 | 19 |
| 19-May-08 | 37 | 25 | 21 | 19 | 24 | 23 | 33 | 24 | 21 | 22 | 15 | 22 | NW | 21 | 6 | 8 | 18 |
| 20-May-08 | 30 | 25 | 25 | 19 | 31 | 23 | 32 | 24 | 29 | 22 | 21 | 22 | SE | 0 | 0 | 0 | 0 |
| 21-May-08 | 20 | 25 | 17 | 19 | 24 | 23 | 23 | 24 | 25 | 22 | 23 | 22 | SE | 0 | 0 | 0 | 0 |
| 22-May-08 | 19 | 25 | 14 | 19 | 19 | 23 | 18 | 24 | 16 | 22 | 28 | 22 | NE | 0 | 0 | 0 | 0 |
| 23-May-08 | 16 | 25 | 16 | 19 | 16 | 23 | 16 | 24 | 14 | 22 | 17 | 22 | SW | 0 | 0 | 0 | 0 |
| 24-May-08 | 17 | 25 | 17 | 19 | 16 | 23 | 15 | 24 | 20 | 22 | 15 | 22 | NW | 2 | 2 | 1 | 0 |
| 25-May-08 | 32 | 25 | 28 | 19 | 30 | 23 | 32 | 24 | 33 | 22 | 26 | 22 | NW | 6 | 2 | 4 | 6 |
| 26-May-08 | 36 | 25 | 26 | 19 | 47 | 23 | 31 | 24 | 29 | 22 | 21 | 22 | NW | 15 | 5 | 25 | 10 |
| 27-May-08 | 39 | 25 | 29 | 19 | 39 | 23 | 40 | 24 | 36 | 22 | 26 | 21 | NW | 14 | 3 | 14 | 15 |
| 28-May-08 | 28 | 24 | 21 | 19 | 28 | 23 | 26 | 24 | 27 | 22 | 20 | 21 | SE | 0 | 0 | 0 | 0 |
| 29-May-08 | 11 | 24 | 16 | 19 | 21 | 23 | 18 | 24 | 22 | 22 | 14 | 21 | SE | 0 | 0 | 0 | 0 |
| 30-May-08 | 19 | 24 | 14 | 19 | 14 | 23 | 16 | 24 | 22 | 22 | 19 | 21 | SE | 0 | 0 | 0 | 0 |
| 31-May-08 | 20 | 24 | 17 | 19 | 14 | 23 | 18 | 24 | 17 | 22 | 18 | 21 | SE | 0 | 0 | 0 | 0 |
| 01-Jun-08 | 18 | 24 | 16 | 19 | 18 | 23 | 17 | 24 | 19 | 22 | 20 | 21 | SE | 0 | 0 | 0 | 0 |
| 02-Jun-08 | 13 | 24 | 10 | 19 | 17 | 23 | 13 | 24 | 17 | 22 | 21 | 21 | SE | 0 | 0 | 0 | 0 |
| 03-Jun-08 | 8 | 24 | 7 | 19 | 9 | 23 | 7 | 23 | 9 | 22 | 10 | 21 | SE | 0 | 0 | 0 | 0 |
| 04-Jun-08 | 4 | 24 | 4 | 19 | 4 | 23 | 3 | 23 | 4 | 22 | 4 | 21 | SE | 0 | 0 | 0 | 0 |
| 05-Jun-08 | 9 | 24 | 6 | 19 | 7 | 23 | 6 | 23 | 7 | 22 | 9 | 21 | SW | 0 | 0 | 0 | 0 |
| 06-Jun-08 | 13 | 24 | 9 | 19 | 11 | 23 | 11 | 23 | 11 | 22 | 11 | 21 | SE | 0 | 0 | 0 | 0 |
| 07-Jun-08 | 13 | 24 | 11 | 19 | 11 | 23 | 13 | 23 | 11 | 22 | 13 | 21 | SE | 0 | 0 | 0 | 0 |
| 08-Jun-08 | 10 | 24 | 9 | 19 | 10 | 23 | 11 | 23 | 11 | 22 | 13 | 21 | SE | 0 | 0 | 0 | 0 |
| 09-Jun-08 | 8 | 24 | 7 | 19 | 8 | 23 | 7 | 23 | 9 | 22 | 12 | 21 | SE | 0 | 0 | 0 | 0 |
| 10-Jun-08 | 18 | 24 | 17 | 19 | 14 | 23 | 16 | 23 | 17 | 22 | 18 | 21 | SE | 0 | 0 | 0 | 0 |
| 11-Jun-08 | 33 | 24 | 22 | 19 | 18 | 23 | 31 | 23 | 21 | 22 | 15 | 21 | NW | 17 | 6 | 3 | 15 |
| 12-Jun-08 | 17 | 24 | 16 | 19 | 12 | 23 | 15 | 23 | 16 | 22 | 15 | 21 | NW | 2 | 1 | -3 | 0 |
| 13-Jun-08 | 25 | 24 | 12 | 19 | 18 | 23 | 18 | 23 | 24 | 22 | 10 | 21 | NW | 15 | 2 | 8 | 8 |
| 14-Jun-08 | 17 | 24 | 14 | 19 | 13 | 23 | 17 | 23 | 15 | 22 | 16 | 21 | NW | 2 | -1 | -2 | 2 |
| 15-Jun-08 | 20 | 24 | 15 | 19 | 12 | 23 | 21 | 23 | 13 | 22 | 12 | 21 | NW | 8 | 3 | 0 | 9 |
| 16-Jun-08 | 8 | 24 | 7 | 19 | 9 | 23 | 8 | 23 | 8 | 22 | 9 | 21 | SE | 0 | 0 | 0 | 0 |
| 17-Jun-08 | 9 | 24 | 9 | 19 | 9 | 23 | 9 | 23 | 11 | 22 | 11 | 21 | SE | 0 | 0 | 0 | 0 |
| 18-Jun-08 | 12 | 24 | 12 | 19 | 13 | 23 | 13 | 23 | 13 | 22 | 12 | 21 | SE | 0 | 0 | 0 | 0 |
| 19-Jun-08 | 31 | 24 | 25 | 19 | 20 | 23 | 31 | 23 | 26 | 22 | 22 | 22 | NW | 9 | 3 | -2 | 9 |
| 20-Jun-08 | 27 | 24 | 13 | 19 | 17 | 23 | 24 | 23 | 16 | 22 | 12 | 22 | NW | 15 | 1 | 5 | 12 |
| 21-Jun-08 | 42 | 24 | 16 | 19 | 15 | 23 | 38 | 23 | 16 | 22 | 13 | 22 | NW | 29 | 3 | 2 | 26 |
| 22-Jun-08 | 16 | 24 | 11 | 19 | 10 | 23 | 14 | 23 | 12 | 22 | 13 | 22 | NW | 4 | 0 | -2 | 2 |
| 23-Jun-08 | 39 | 24 | 16 | 19 | 19 | 23 | 36 | 23 | 20 | 22 | 11 | 22 | NW | 28 | 5 | 8 | 24 |
| 24-Jun-08 | 39 | 25 | 25 | 19 | 23 | 23 | 38 | 23 | 23 | 22 | 16 | 22 | NW | 23 | 9 | 7 | 22 |
| 25-Jun-08 | 44 | 25 | 17 | 19 | 23 | 23 | 41 | 23 | 19 | 22 | 14 | 22 | NW | 30 | 2 | 9 | 26 |
| 26-Jun-08 | 68 | 25 | 22 | 19 | 44 | 23 | 67 | 23 | 29 | 22 | 22 | 22 | NW | 46 | 0 | 21 | 45 |
| 27-Jun-08 | 39 | 25 | 28 | 19 | 25 | 23 | 37 | 23 | 28 | 22 | 23 | 22 | NW | 16 | 5 | 2 | 15 |
| 28-Jun-08 | 21 | 25 | 19 | 19 | 20 | 23 | 27 | 23 | 20 | 22 | 18 | 22 | NW | 3 | 1 | 2 | 9 |
| 29-Jun-08 | 28 | 25 | 24 | 19 | 25 | 23 | 34 | 23 | 28 | 23 | 17 | 22 | NW | 12 | 8 | 8 | 17 |
| 30-Jun-08 | 56 | 25 | 42 | 19 | 30 | 23 | 60 | 23 | 43 | 23 | 28 | 22 | NW | 28 | 14 | 2 | 32 |
| 01-Jul-08 | 103 | 25 | 52 | 19 | 71 | 23 | 109 | 24 | 75 | 23 | 56 | 22 | NW | 47 | -4 | 15 | 53 |
| 02-Jul-08 | 39 | 25 | 19 | 19 | 29 | 23 | 38 | 24 | 23 | 23 | 16 | 22 | NW | 22 | 2 | 13 | 21 |

2007 – 2008 Tapered Element Oscillating Microbalance (TEOM) PM10 Results

| Date | Site 1 | | Site 2 | | Site 3 | | Site 8 | | Site4 | | Site 7 | | Ashton Contribution (only calculated for north westerly winds) | | | | |
|-----------|----------------------------|--------------------------------------|----------------------------|--------------------------------------|----------------------------|--------------------------------------|----------------------------|--------------------------------------|----------------------------|--------------------------------------|----------------------------|--------------------------------------|--|----------------------------|----------------------------|----------------------------|----------------------------|
| | Site 1 – PM10 24hr Average | Site 1 – PM10 Rolling Annual Average | Site 2 – PM10 24hr Average | Site 2 – PM10 Rolling Annual Average | Site 3 – PM10 24hr Average | Site 3 – PM10 Rolling Annual Average | Site 8 – PM10 24hr Average | Site 8 – PM10 Rolling Annual Average | Site 4 – PM10 24hr Average | Site 4 – PM10 Rolling Annual Average | Site 7 – PM10 24hr Average | Site 7 – PM10 Rolling Annual Average | Wind Direction | Site 1 Ashton Contribution | Site 2 Ashton Contribution | Site 3 Ashton Contribution | Site 8 Ashton Contribution |
| 03-Jul-08 | 29 | 25 | 22 | 19 | 20 | 23 | 27 | 24 | 22 | 23 | 18 | 22 | NW | 11 | 3 | 2 | 9 |
| 04-Jul-08 | 16 | 25 | 14 | 19 | 16 | 23 | 17 | 24 | 20 | 23 | 27 | 22 | SE | 0 | 0 | 0 | 0 |
| 05-Jul-08 | 9 | 25 | 10 | 19 | 12 | 23 | 10 | 24 | 12 | 23 | 12 | 22 | SE | 0 | 0 | 0 | 0 |
| 06-Jul-08 | 21 | 25 | 16 | 19 | 16 | 23 | 19 | 24 | 18 | 23 | 14 | 22 | SW | 0 | 0 | 0 | 0 |
| 07-Jul-08 | 23 | 25 | 16 | 19 | 15 | 23 | 23 | 24 | 19 | 23 | 11 | 22 | NW | 12 | 4 | 4 | 12 |
| 08-Jul-08 | 7 | 25 | 8 | 19 | 5 | 23 | 5 | 24 | 7 | 23 | 5 | 22 | NW | 2 | 2 | -1 | 0 |
| 09-Jul-08 | 17 | 25 | 8 | 19 | 8 | 23 | 15 | 24 | 8 | 23 | 6 | 22 | NW | 11 | 2 | 3 | 10 |
| 10-Jul-08 | 28 | 25 | 14 | 19 | 18 | 23 | 28 | 24 | 19 | 23 | 11 | 22 | NW | 17 | 3 | 7 | 17 |
| 11-Jul-08 | 29 | 25 | 15 | 19 | 19 | 23 | 26 | 24 | 19 | 23 | 13 | 22 | NW | 15 | 2 | 5 | 12 |
| 12-Jul-08 | 20 | 25 | 14 | 19 | 13 | 23 | 18 | 24 | 17 | 23 | 15 | 22 | NW | 4 | -1 | -2 | 3 |
| 13-Jul-08 | 24 | 25 | 17 | 19 | 20 | 23 | 25 | 24 | 20 | 23 | 14 | 22 | NE | 0 | 0 | 0 | 0 |
| 14-Jul-08 | 16 | 25 | 17 | 19 | 13 | 23 | 16 | 24 | 18 | 23 | 14 | 22 | NW | 2 | 3 | -1 | 2 |
| 15-Jul-08 | 22 | 25 | 20 | 19 | 10 | 23 | 19 | 24 | 15 | 23 | 10 | 22 | NW | 13 | 10 | 1 | 10 |
| 16-Jul-08 | 15 | 25 | 15 | 19 | 14 | 23 | 16 | 24 | 15 | 23 | 12 | 22 | NW | 4 | 4 | 2 | 5 |
| 17-Jul-08 | 19 | 25 | 16 | 19 | 17 | 23 | 21 | 24 | 24 | 23 | 12 | 22 | NW | 8 | 4 | 6 | 9 |
| 18-Jul-08 | 55 | 25 | 21 | 19 | 28 | 23 | 46 | 24 | 19 | 23 | 17 | 22 | NW | 38 | 4 | 10 | 29 |
| 19-Jul-08 | 34 | 25 | 23 | 19 | 19 | 23 | 27 | 24 | 15 | 23 | 12 | 22 | NW | 23 | 11 | 8 | 16 |
| 20-Jul-08 | 22 | 25 | 21 | 19 | 17 | 23 | 22 | 24 | 23 | 23 | 22 | 22 | NW | -1 | -2 | -5 | 0 |
| 21-Jul-08 | 56 | 25 | 42 | 20 | 42 | 23 | 62 | 24 | 50 | 23 | 43 | 22 | NW | 13 | -1 | 0 | 19 |
| 22-Jul-08 | 15 | 25 | 14 | 20 | 13 | 23 | 15 | 24 | 13 | 23 | 12 | 22 | NW | 3 | 1 | 0 | 2 |
| 23-Jul-08 | 17 | 25 | 17 | 20 | 19 | 23 | 19 | 24 | 19 | 23 | 22 | 22 | SE | 0 | 0 | 0 | 0 |
| 24-Jul-08 | 5 | 25 | 6 | 19 | 7 | 23 | 5 | 24 | 8 | 23 | 11 | 22 | SE | 0 | 0 | 0 | 0 |
| 25-Jul-08 | 4 | 25 | 6 | 19 | 5 | 23 | 8 | 24 | 7 | 23 | 6 | 22 | SE | 0 | 0 | 0 | 0 |
| 26-Jul-08 | 32 | 25 | 16 | 19 | 14 | 23 | 34 | 24 | 11 | 23 | 12 | 22 | NW | 21 | 5 | 3 | 23 |
| 27-Jul-08 | 34 | 25 | 21 | 19 | 20 | 23 | 40 | 24 | 18 | 23 | 14 | 22 | NW | 19 | 7 | 6 | 26 |
| 28-Jul-08 | 16 | 25 | 11 | 19 | 13 | 23 | 17 | 24 | 12 | 23 | 13 | 22 | NW | 5 | 0 | 1 | 6 |
| 29-Jul-08 | 7 | 25 | 9 | 19 | 9 | 23 | 11 | 24 | 8 | 23 | 10 | 22 | SE | 0 | 0 | 0 | 0 |
| 30-Jul-08 | 46 | 25 | 27 | 19 | 18 | 23 | 39 | 24 | 15 | 23 | 13 | 22 | NW | 34 | 14 | 5 | 26 |
| 31-Jul-08 | 55 | 25 | 32 | 19 | 33 | 23 | 58 | 24 | 26 | 23 | 30 | 22 | NW | 29 | 6 | 7 | 32 |
| 01-Aug-08 | 43 | 25 | 16 | 19 | 26 | 23 | 36 | 24 | 25 | 22 | 16 | 22 | NW | 27 | 0 | 10 | 20 |
| 02-Aug-08 | 48 | 25 | 23 | 19 | 27 | 23 | 51 | 24 | 30 | 23 | 26 | 22 | NW | 22 | -2 | 1 | 25 |
| 03-Aug-08 | 23 | 25 | 16 | 19 | 12 | 23 | 24 | 24 | 9 | 23 | 9 | 22 | NW | 14 | 7 | 3 | 15 |
| 04-Aug-08 | 38 | 25 | 22 | 19 | 26 | 23 | 43 | 24 | 20 | 23 | 16 | 22 | NW | 23 | 7 | 10 | 27 |
| 05-Aug-08 | 23 | 25 | 18 | 19 | 17 | 23 | 24 | 24 | 17 | 23 | 17 | 22 | NW | 6 | 1 | 0 | 7 |
| 06-Aug-08 | 19 | 25 | 11 | 19 | 10 | 23 | 19 | 24 | 10 | 22 | 9 | 22 | NW | 11 | 3 | 2 | 11 |
| 07-Aug-08 | 17 | 25 | 14 | 19 | 10 | 23 | 18 | 24 | 15 | 22 | 11 | 22 | NW | 6 | 3 | -1 | 8 |
| 08-Aug-08 | 24 | 25 | 12 | 19 | 11 | 23 | 23 | 24 | 15 | 22 | 10 | 22 | NW | 14 | 1 | 0 | 13 |
| 09-Aug-08 | 24 | 25 | 14 | 19 | 13 | 23 | 30 | 24 | 10 | 22 | 10 | 22 | NW | 14 | 4 | 3 | 20 |
| 10-Aug-08 | 23 | 25 | 11 | 19 | 14 | 23 | 33 | 24 | 15 | 22 | 14 | 22 | NW | 9 | -3 | 0 | 19 |
| 11-Aug-08 | 31 | 25 | 12 | 19 | 19 | 23 | 36 | 24 | 20 | 22 | 13 | 22 | NW | 18 | -1 | 6 | 23 |
| 12-Aug-08 | 36 | 25 | NA | 19 | NA | 23 | 35 | 24 | 21 | 22 | 13 | 22 | NW | 23 | NA | NA | 22 |
| 13-Aug-08 | 47 | 25 | 17 | 19 | 23 | 23 | 43 | 24 | 20 | 22 | 14 | 22 | NW | 33 | 4 | 10 | 29 |
| 14-Aug-08 | 52 | 25 | 19 | 19 | 26 | 23 | 46 | 24 | 31 | 22 | 16 | 22 | NW | 36 | 3 | 10 | 30 |
| 15-Aug-08 | 51 | 25 | 19 | 19 | 28 | 23 | 44 | 24 | 28 | 22 | 17 | 22 | NW | 35 | 2 | 11 | 27 |
| 16-Aug-08 | 36 | 25 | 11 | 19 | 28 | 23 | 36 | 24 | 23 | 22 | 13 | 22 | NW | 23 | -2 | 15 | 23 |
| 17-Aug-08 | 19 | 25 | 16 | 19 | 20 | 23 | 21 | 24 | 21 | 22 | 20 | 22 | NW | -1 | -5 | 0 | 1 |
| 18-Aug-08 | 37 | 25 | 17 | 19 | 22 | 23 | 36 | 24 | 26 | 22 | 19 | 22 | NW | 18 | -2 | 4 | 17 |
| 19-Aug-08 | 50 | 25 | 40 | 19 | 29 | 23 | 48 | 24 | 32 | 22 | 19 | 22 | NW | 31 | 21 | 10 | 29 |
| 20-Aug-08 | 79 | 25 | 40 | 19 | 41 | 23 | 69 | 24 | 33 | 22 | 26 | 22 | NW | 54 | 14 | 15 | 43 |
| 21-Aug-08 | 43 | 25 | 33 | 19 | 39 | 23 | 45 | 24 | 51 | 23 | 36 | 22 | NW | 7 | -2 | 3 | 9 |
| 22-Aug-08 | 14 | 25 | 13 | 19 | 15 | 23 | 15 | 24 | 17 | 23 | 15 | 22 | NW | -1 | -2 | -1 | 0 |
| 23-Aug-08 | 9 | 25 | 8 | 19 | 7 | 23 | 8 | 24 | 8 | 23 | 9 | 22 | SE | 0 | 0 | 0 | 0 |
| 24-Aug-08 | 10 | 25 | 10 | 19 | 9 | 23 | 11 | 24 | 11 | 22 | 9 | 22 | NW | 1 | 1 | 0 | 2 |
| 25-Aug-08 | 11 | 25 | 13 | 19 | 11 | 23 | 11 | 24 | 13 | 22 | 13 | 22 | SE | 0 | 0 | 0 | 0 |
| 26-Aug-08 | 33 | 25 | 23 | 19 | 26 | 23 | 31 | 24 | 28 | 23 | 22 | 22 | NW | 11 | 1 | 4 | 9 |
| 27-Aug-08 | 20 | 25 | 18 | 19 | 22 | 23 | 23 | 24 | 24 | 22 | 31 | 22 | SE | 0 | 0 | 0 | 0 |
| 28-Aug-08 | 12 | 25 | 11 | 19 | 17 | 23 | 16 | 24 | 18 | 22 | 24 | 22 | SE | 0 | 0 | 0 | 0 |
| 29-Aug-08 | 13 | 25 | 11 | 19 | 22 | 23 | 14 | 24 | 18 | 22 | 20 | 22 | SE | 0 | 0 | 0 | 0 |
| 30-Aug-08 | 14 | 25 | 12 | 19 | 12 | 23 | 14 | 24 | 17 | 22 | 15 | 22 | SE | 0 | 0 | 0 | 0 |
| 31-Aug-08 | 8 | 25 | 8 | 19 | 7 | 23 | 8 | 24 | 10 | 22 | 8 | 22 | NW | 1 | 0 | -1 | 0 |

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APPENDIX 2

GROUNDWATER REPORT

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Water and Environment

ASHTON COAL MINE 2008 AEMR GROUNDWATER MANAGEMENT REPORT

Prepared for Ashton Coal Operations Pty Ltd

Date of Issue 3 December 2008

Our Reference S03/R10a



ashtone
ashtone

**ASHTON COAL MINE 2008 AEMR
GROUNDWATER MANAGEMENT REPORT**

Prepared for Ashton Coal Operations Pty Ltd

Date of Issue 3 December 2008

Our Reference S03/R10a



ASHTON COAL MINE 2008 AEMR GROUNDWATER MANAGEMENT REPORT

| | Date | Revision Description |
|-------------------|-----------------|----------------------|
| Revision a | 3 December 2008 | Draft |

| | Name | Position | Signature | Date |
|-------------------|----------|---------------------------------|-----------|-----------|
| Originator | T Liu | Hydrogeologist | | 12 Dec 08 |
| | A Fulton | Senior Hydrogeologist | | 12 Dec 08 |
| Reviewer | P Dundon | Senior Principal Hydrogeologist | | 12 Dec 08 |

| | Location | Address |
|-----------------------|----------|---|
| Issuing Office | Sydney | Suite 9, 1051 Pacific Highway, Pymble NSW 2073 Tel +61 2 9440 2666 Fax +61 2 9449 3193 |



EXECUTIVE SUMMARY

BACKGROUND

This report has been prepared in accordance with Consent Condition 9.2 (d) of the Ashton Coal Project Approval, and covers the reporting period 1 September 2007 to 1 September 2008. It accompanies the Ashton Coal Operations Pty Ltd 2007-2008 Annual Environmental Management Report (AEMR).

The report details the monitoring and other work carried out as part of the groundwater management activities for the project. The results of monitoring are presented, together with analysis of trends displayed by the data. The groundwater response to the mining operations has been compared with impacts predicted for this stage of mining in the EIS and the SMP for LWs 1 to 4.

Additional multi-level vibrating wire piezometers have been installed to establish baseline monitoring conditions of the main coal seams above and beneath the Pikes Gully seam during the reporting period. Other monitoring bores were installed between the mine and the Glennies Creek alluvium to the east during the prior period (2006-2007). Finally, a comprehensive drilling program to better define the extent and nature of the Bowmans Creek alluvium aquifer system was completed during the review period.

The monitoring frequency was intensified in the early stages of underground mining, above that specified in the GWMP, until the groundwater system responses became clear. It is proposed that the monitoring frequency will now in most cases revert to that outlined in the GWMP.

Groundwater inflows to the underground mine have been monitored closely for both volume and water quality (EC). Net groundwater inflows have been calculated by a water balance approach, from measured flow rates at various points in the water management system, and allowing for water imported for operation of the longwall. Average total groundwater inflows to the underground mine during the reporting period were 0.5 ML/d (6 L/s) compared with 0.9 ML/d (10.4 L/s) predicted in the EIS for this stage of mining.

Seepage into the underground mine from the eastern rib of the heading closest to Glennies Creek (TG1A) have been isolated from other inflows and continues to be monitored separately, with a high level of accuracy. The seepage has an average EC of about 1800 $\mu\text{S}/\text{cm}$, compared with typical ECs of 5000-8000 $\mu\text{S}/\text{cm}$ for groundwater in the Permian coal seams. The reduced EC of the TG1A seepage is believed due to a component of seepage from Glennies Creek alluvium in the total seepage inflows. The average rate of seepage from the Glennies Creek alluvium calculated during the reporting period was under 2 L/s, less than the rate of 2.8 L/s predicted in the EIS for this stage of mining.

Large drawdown responses have been observed in a restricted area local to LWs 1 and 2, in the Pikes Gully seam and to a lesser extent in the overlying coal measures. Drawdowns in the alluvium have been limited to the small area between the mine and Glennies Creek. The magnitude of drawdown to date (1 m at WML120B) is less than the 1.3m drawdown predicted for this location in the EIS at this stage of mining. No mining related drawdown has been observed in either Hunter River or Bowmans Creek alluvium, or in Glennies Creek alluvium east of Glennies Creek.

Extensive water quality monitoring has shown variable salinity in both the alluvium and the Permian coal measures, indicating some exchange of groundwater between the two units. The groundwater in the alluvium is generally more saline than surface water in Hunter River, Bowmans Creek and Glennies Creek. Generally, groundwater in the coal measures is much more saline, but at some sites in the Bowmans Creek valley, the groundwater in the upper levels of the Permian is at similar or lower salinity than the alluvium.

pH of all groundwaters is generally close to neutral.

The groundwater model used for the EIS studies has been modified to allow better definition of subsidence related impacts of underground mining. The model was run to calibrate against observed impacts from open cut mining and underground mining from the Pikes Gully seam in



LW1 and LW2 up to April 2008. Predicted groundwater level impacts showed good calibration with observed drawdowns in the large network of monitoring bores, which are distributed across the project area and in all the main hydrogeological units and model layers.

In conclusion, the monitoring program has been carried out in accordance with the GWMP and the requirements detailed in the Consent conditions. Impacts have in all respects been at or below those predicted for this stage of mining in the EIS and the LW1-4 SMP.



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1 INTRODUCTION

The Ashton Coal Project was granted approval on 11 October 2002 (Department of Planning, 2002). The development approval (DA) included an open cut mine located to the north of the New England Highway, and an underground mine.

Consent Condition 9.2 of the DA requires that Ashton Coal Operations Pty Ltd (ACOL) prepare and submit an Annual Environmental Management Report (AEMR) throughout the life of the project and for five years after completion of mining in the DA area. Condition 9.2 (d) requires that the AEMR shall include (inter alia):

- d) a Groundwater Management Report prepared by an independent expert to the satisfaction of DIPNR, addressing:*
- i) work done under and the level of compliance with, the groundwater management measures defined in the Groundwater Management Plan: and*
 - ii) identification of trends in groundwater monitoring data and comparison with predictions, in documents referred to in condition 1.2 and any previous SMIARs, over the life of the mining operations.*

A Subsidence Management Plan (SMP) for mining from the Pikes Gully seam from the first four longwall panels (LWs 1-4) was granted approval in 2006, and underground mining has now been completed in LW1 and LW2. LW3 is in progress.

This report covers the reporting period 1 September 2007 to 1 September 2008, and is prepared as a supporting document for ACOL's 2007-2008 AEMR.

This document presents a review of the groundwater management work undertaken and the level of compliance with the consent conditions and with the Groundwater Management Plan (GWMP). A brief analysis of trends displayed by the monitoring data is presented, together with a comparison of the observed trends with predictions made in the Environmental Impact Statement (EIS) and the Subsidence Management Plan (SMP) for Longwalls LW1 to LW4.



2 GROUNDWATER MONITORING

2.1 PIEZOMETERS

Ashton maintains a comprehensive groundwater monitoring program on 88 piezometer bores, as well as monitoring within the underground mine. The network of monitoring piezometers, their function and current status are detailed in **Table 2.1**. The piezometers include both open standpipes and multi-level vibrating wire piezometer bores. Locations are shown on **Figure 1**.

Table 2.1: Ashton Coal Project Monitoring Bore Network

| Bore | Location | Aquifer/ Geological Unit* | Type of Monitoring Bore** | Comments |
|--|--------------------|------------------------------|---------------------------------|---|
| <i>Open Cut Monitoring:</i> | | | | |
| GM1 | Rail loop | UL | SP | EIS recommended monitoring bores. Installed 2003. |
| GM3 | Camberwell Village | GC alluvium | SP | |
| GM3A | Village | UB | SP | |
| WML172 | Glennies Ck | | SP | Replacements for OC1 and OC2 (lost to mining activity). Installed 2007. |
| WML173 | Glennies Ck | | SP | |
| WML174 | Glennies Ck Rd | | SP | |
| <i>Underground Mine Monitoring:</i> | | | | |
| RM01 | Bowmans Ck | | SP | EIS Investigations. Installed 2001. |
| RM02 | | | SP | |
| RM03 | | | SP | |
| RM04 | | | SP | |
| RM05 | | | SP | |
| RM06 | | | SP | |
| RM07 | | | SP | |
| RM09 | | | SP | |
| RM10 | | | SP | |
| RA01 | | | | |
| RSGM1 | | Seam unknown | SP | |
| PB1 | | BC Alluvium | SP | |
| RA8 | | Colluvium | SP | Bowmans Creek alluvium investigations (2007) |
| RA10 | | BC Alluvium | SP | |
| RA12 | | Colluvium | SP | |
| RA14 | | BC Alluvium | SP | |
| RA16 | | Colluvium | SP | |
| RA17 | | BC Alluvium | SP | |
| RA18 | | BC Alluvium | SP | |



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| Bore | Location | Aquifer/ Geological Unit* | Type of Monitoring Bore** | Comments |
|----------------|-------------------------------|--|--|---|
| RA30 | Bowmans Creek | BC Alluvium | SP | Bowmans Creek alluvium investigations (2007) |
| T1-A | | BC Alluvium | SP | |
| T1-P | | CM OB | SP | |
| T2-A | | BC Alluvium | SP | |
| T2-P | | CM OB | SP | |
| T3-A | | BC Alluvium | SP | |
| T3-P | | CM OB | SP | |
| T4-A | | BC Alluvium | SP | |
| T4-P | | CM OB | SP | |
| T5 | | BC Alluvium | SP | |
| T6 | | BC Alluvium | SP | |
| T7 | | BC Alluvium | SP | |
| T10 | | BC Alluvium | SP | |
| WML20 | Within underground mine | PG | SP | EIS Investigations. Installed 2001. |
| WML21 | | PG | SP | |
| WML106 | | Lem15 Lem19 PG | VW | Subsidence monitoring network- UG mine (2006-2007) |
| WML107A | | Lem11 Lem15 Lem19 | VW | |
| WML107B | | Lem8-9 | SP | |
| WML108A | | Lem11-12 Lem15 | VW | |
| WML108B | | Lem8-9 | SP | |
| WML109A | | Lem8-9 Lem12 Lem15 | VW | |
| WML109B | | Lem7 | SP | |
| WML110A | | Lem6 Lem8-9 IB Lem11-12 Lem15 | VW | |
| WML110B | | CM OB | SP | |
| WML110C | | Alluvium | SP | |
| WML111A | | Lem4 Lem7 Lem11-12 Lem15 | VW | |
| WML111B | | CM OB | SP | |



| Bore | Location | Aquifer/ Geological Unit* | Type of Monitoring Bore** | Comments | |
|----------------|-------------------------------|--|--|---|--|
| WML112A | Within underground mine | Lem2-3 Lem6-7 Lem8 Lem15 | VW | Subsidence monitoring network- UG mine (2006-2007) | |
| WML112B | | Bays 1-2 | SP | | |
| WML112C | | Alluvium | SP | | |
| WML113A | | Bays2 Lem3-4 Lem9 Lem10-12 | VW | | |
| WML113B | | Bays1 | SP | | |
| WML113C | | Alluvium | SP | | |
| WML114A | | Lem10-12 Lem15 Lem19 | VW | | |
| WML114B | | Lem6-9 | SP | | |
| WML115A | | Lem7 Lem8-9 Lem15 Lem19 PG | VW | | |
| WML115B | | CM OB | SP | | |
| WML115C | | Alluvium | SP | | |
| WML189 | | Lem15 PG Arties | VW | | Subsidence impacts of LW2-3 (2007) |
| WML191 | | Lem15 PG UL ULL LB | VW | | Multi-seam baseline monitoring (2007) |
| WML213 | | Bays Lem 8-9 Lem 15 Lem 19 PG UL ULL LB | VW | | Multi-seam baseline monitoring (2008) |
| WML119 | | Between Glennies Ck and LW1 | PG | | SP |
| WML120A | PG | | SP | | |
| WML120B | GC alluvium | | SP | | |
| WML129 | GC alluvium | | SP | | |



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GROUNDWATER MONITORING

| Bore | Location | Aquifer/ Geological Unit* | Type of Monitoring Bore** | Comments | | |
|---------------|-----------------------------------|------------------------------|---------------------------------|---|----|---|
| WML181 | Between Glennies Ck and LW1 | PG | SP | Monitoring subsidence impacts in barrier between LW1 and Glennies Ck (2007) | | |
| WML182 | | PG | SP | | | |
| WML183 | | PG | SP | | | |
| WML184 | | PG | SP | | | |
| WML185 | | PG | SP | | | |
| WML186 | | PG | SP | | | |
| WML144 | East of Glennies Ck | UL | VW | Deeper seam baseline monitoring (2007) | | |
| | | ML1 | | | | |
| | | ML2 | | | | |
| | | ULL | | | | |
| | | LLL | | | | |
| | | UB | | | | |
| | | LB | | | | |
| WML145 | | GC alluvium | | | SP | Monitoring of impacts on Glennies Ck alluvium (2006) |
| WML146 | | GC alluvium | | | SP | |
| WML148 | | GC alluvium | | | SP | |
| WML155 | | GC alluvium | | | SP | |
| WML157 | | GC alluvium | | | SP | |
| WML158 | | GC alluvium | | | SP | |
| WML166 | | GC alluvium | | | SP | |
| WML167 | GC alluvium | SP | | | | |
| WML175 | Between UG and Hunter R | HR Alluvium | SP | Monitoring impacts on HR alluvium (2006, 2008) | | |
| WML180 | | HR Alluvium | SP | | | |
| RA27 | | HR Alluvium | SP | | | |

* Alluvium: BC = Bowmans Creek; GC = Glennies Creek; HR = Hunter River
Coal seams: Bays = Bayswater; Lem = Lemington; PG = Pikes Gully; UL = Upper
Liddell seam; ML = Middle Liddell; ULL = Upper Lower Liddell; LLL = Lower
Lower Liddell; UB = Upper Barrett; LB = Lower Barrett
Overburden: CM OB = coal measures overburden

** VW = multi-level vibrating wire piezometer bore; SP = standpipe piezometer

The monitoring network has been expanded during the review period:

- ▼ An additional multi-level vibrating wire piezometer bore has been installed to establish baseline monitoring conditions of the main coal seams beneath the Pikes Gully seam (WML213).
- ▼ In late 2007, an extensive shallow drilling program was undertaken to more accurately define the location and extent of saturated alluvium adjacent to Bowmans Creek. Several bores were completed as standpipe piezometers, to allow sampling and hydraulic testing, as well as ongoing water level monitoring. This work was carried out to assist with preliminary mine designs for the areas beneath the Bowmans Creek alluvium.

The piezometers have been monitored at various frequencies during the review period, with the EIS investigation and monitoring bores generally monitored 3-monthly in accordance with the GWMP, and piezometers associated with underground mining monitored at least every 3



months, but generally more frequently (weekly or fortnightly) during critical stages of the longwall panel advance.

The monitoring frequency was intensified in the early stages of underground mining, above that specified in the GWMP, until the groundwater system response became clear. It is proposed that the monitoring frequency will now in most cases revert to that outlined in the GWMP, while some bores in the Bowmans Creek alluvium will continued to be monitored with increased frequency in preparation for the proposed extension of mining beyond LW panels 1-4. The proposed monitoring frequency for the next review period (September 2008 to August 2009) is summarised in Table 2.2.

A number of bores which have always been dry have now been eliminated from the monitoring network.

Table 2.2: Ashton Coal Project – Proposed Piezometer Monitoring Frequency

| Piezometers (refer Table 2.1) | Monitoring Frequency (2006-2007) | Monitoring Frequency (2007-2008) | Comments |
|--|---|---|-----------------------------|
| GM1 | quarterly | monthly | |
| GM3A and GM3B | quarterly | quarterly | |
| GM2, GM4 and GM5 | quarterly | - | Removed – always dry |
| WML172-174 | not monitored | quarterly | Replacement for OC1 and OC2 |
| RM01 to RM10 | quarterly | monthly | Datalogger on RM9 |
| RA01, RSGM1, PB1 | quarterly | monthly | |
| WML20-21 | weekly | weekly or monthly | |
| WML106-115 | standpipes weekly; VW piezos fortnightly | fortnightly or monthly | |
| WML119, 120A-B and 129 | continuous (dataloggers) | monthly | |
| WML144, 189, 191 and 213 | fortnightly | weekly or fortnightly | |
| WML145-167 | fortnightly | fortnightly | most of them dry |
| WML175 and 180 | fortnightly | quarterly | |
| WML181-186 | weekly | weekly | |
| RA8-RA30 | fortnightly | weekly | Datalogger on RA27 |
| T1-10 | fortnightly | weekly or fortnightly | |

The standpipe piezometers have been monitored for water levels, and also sampled periodically for water quality monitoring. Vibrating wire piezometers have been monitored for groundwater pressures only. Automatic water level dataloggers have been installed in six standpipe piezometers, to allow continuous water level monitoring in the barrier region between LW1 and Glennies Creek, and in the Bowmans Creek alluvium and Hunter River alluvium.



Selected monitoring bores were sampled periodically for detailed laboratory analysis, comprising TDS, EC, pH, major ions, dissolved metals, nutrients, cyanide, fluoride, turbidity and total suspended solids.

2.2 UNDERGROUND MONITORING

Groundwater monitoring was also carried out within the underground mine, including:

- ▼ Groundwater inflow rates (metering of dewatering pipelines)
- ▼ Seepage inflows from the eastern rib of the LW1 tailgate, which is conveyed by pipeline to the LW1 backroad sump (V-notch weir at discharge from pipeline).
- ▼ Metering of water imported to the underground mine for longwall operation.
- ▼ Metering of total water volumes pumped from the mine to the dam beside the mine portal in Arties pit, or directly into the mine water management system.
- ▼ Water quality monitoring (EC) of seepage discharge from the LW1 backroad pipeline.
- ▼ Water quality monitoring at various in-mine sumps, and total water pumped out of the mine.

2.3 GROUNDWATER LEVELS

Hydrographs are shown on **Figures 2 to 11**, as follows:

- ▼ **Figure 2** - Open Cut Monitoring Bores
- ▼ **Figure 3** - Bowmans Creek Alluvium
- ▼ **Figure 4** - Glennies Creek Alluvium
- ▼ **Figure 5** - Hunter River Alluvium; Colluvium / Regolith
- ▼ **Figure 6** - Weathered Near-Surface Coal Measures Overburden
- ▼ **Figure 7** - Bayswater Seam; Lemington 1-9 Seams
- ▼ **Figure 8** - **Lemington 10-19 Seams**
- ▼ **Figure 9** - Pikes Gully Seam; Arties Seam
- ▼ **Figure 10** - Pikes Gully Seam (WML119 and WML120A)
- ▼ **Figure 11** - Liddell and Barrett Seams.

2.4 DISCUSSION OF GROUNDWATER LEVEL CHANGES

2.4.1 OPEN CUT

Groundwater levels in the open cut monitoring bores completed in Permian coal measures showed continued steady decline through the review period (**Figure 2**). Bore GM3A (Glennies Creek Alluvium) sporadically contains water, but was generally dry during the period.

2.4.2 UNDERGROUND MINE

Alluvium

During the reporting period, groundwater levels in the Bowmans Creek alluvium were generally stable, and show periodic influence of rainfall recharge, notably in November-December 2007, February 2008, June 2008 and September 2008 (**Figure 3**). The long-term hydrographs of alluvium bores in the Bowmans Creek area do not show any evidence of mining-induced impacts.

Similar responses were observed in the Glennies Creek alluvium (**Figure 4**). The continuous record from dataloggers in WML120B and WML129 (located between LW1 and Glennies Creek) show a very slight upward trend overall, together with short-term sharp responses to rainfall recharge events (**Figure 4**). The slight upward trend at WML120B is suggesting gradual recovery of groundwater levels after the initial impacts from LW1 development in 2006. The Glennies Creek alluvium bores show no additional impacts from mining of LW1-3.

The Hunter River alluvium piezometers WML175 and RA27 show groundwater levels responding only to periodic rainfall recharge events (**Figure 5**). Groundwater levels at piezometer WML180 showed a slight downward trend through the review period.



Permian Coal Measures

The greatest changes in groundwater level have been observed in monitoring bores in the Pikes Gully seam close to the underground mine, ie standpipes WML20 and WML21, and vibrating wire piezometers WML106, WML189, WML191 and WML115 (**Figure 9**).

Standpipe piezometer WML20 became rapidly dewatered due to the advance of the MG3A development heading, which passed within approximately 10m of the bore in early April 2008 (**Figure 9**). The bore is now dry and is no longer monitored.

Multi-level vibrating wire piezometer bores WML189 and WML191 were installed in locations within chain pillars between LW2 and LW3 (**Figure 1**). Both bores have piezometers at several different depths, both above and below the Pikes Gully seam workings. By locating these bores within chain pillars, it was hoped that they might survive the passage of the adjacent longwall panels. Both are still functioning at all levels following the passage of LW3 during September 2008.

Both bores showed dramatic reduction in pressures in the Pikes Gully seam, but at different times (**Figure 9**) – WML189-VW93m responded to the MG2A and B development headings in July 2007 and then showed virtually no additional response with the passage of LW2 and then LW3, whereas WML191-VW100m did not respond until the nearby advance of LW3 in September 2008, having failed to respond earlier to either the development headings or LW2 extraction.

WML21 and WML115-VW144m are located some distance from LW1, LW2 and LW3, but they are close to the NW Mains and to the Ashton open cut. Both bores have responded to drainage into the NW Mains, and possibly also the Ravensworth or Narama underground mines to the west, with pressure decline of 30-40 m over the reporting period. The open cut may also be an influencing factor, although the Pikes Gully seam piezometer is the only piezometer at WML115 that shows an impact, with the shallower WML115 piezometers in the Lemington seams showing only minimal impact, suggesting that any open cut influence is probably minor.

It was previously noted (Dundon and Associates, 2007) that the timing and magnitude of responses in these bores suggested the influence of intersection by successive development headings of open long-holes that had previously been drilled within the Pikes Gully seam from outcrop, in addition to the influence of drainage into the NW Mains. Each time one of the angled drill-holes was intersected in a development heading, at a lower elevation than the previous intersection, it discharged groundwater for a time, acting as a quasi dewatering bore. WML20 and WML21 showed responses to the effects of periodic flow from the drill-holes into the underground workings. However, during the current review period, it is considered that the impacts seen at WML21 and WML115-VW144m are due to drainage into the NW mains, or the adjacent mines to the west.

Neither WML119 nor WML120A (located east of the underground, between LW1 and Glennies Creek) showed any additional drawdown response during the LW2 longwall extraction (September 2007 to June 2008) (**Figure 10**). Both bores showed small recharge responses to rainfall events January, February, April and June 2008. The water levels in both of these bores otherwise show a generally rising trend, indicating gradual recovery following the initial groundwater pressure decline with the mining of LW1.

Apart from the Pikes Gully seam responses discussed above, the coal measures have shown a restricted pattern of vertical and areal responses to the underground mining. The shallow Lemington seams (Lemington 1 to 7) have shown no response in any bore (**Figure 7**). Lemington seams 8 to 9 (**Figure 7**) showed small responses of up to 10m drawdown at WML109 and WML110 (located near the southern end of LW4 and LW5 respectively). Lemington seams 10 to 12 showed drawdowns of up to 10m at WML107 and WML110, but more substantial drawdowns of 30m at WML108 and 25m at WML109 (**Figure 8**). Lemington seam 15 showed drawdown of up to 10m at WML106, WML107, WML110 and WML189, about 20m drawdown at WML108, and about 25m in WML191 to be totally dewatered at that site (**Figure 8**). Drawdowns were also observed in the Lemington 19 seam, with about 5m drawdown at WML106 and 15m at WML107, but no significant drawdown at WML114 or WML115 (**Figure 8**).

Vibrating wire piezometers WML113-VW40m and WML213-VW48m, located near the south-west corner of the underground mining area, both show evidence of lowered groundwater levels in



the Bayswater Seam, with groundwater levels deeper than the underlying Lemington seams, and may be responding to mining activities on neighbouring sites to the west of Ashton. Other standpipe piezometers in the Bayswater seam do not show water level declines (**Figure 7**). No Bayswater seam piezometers has shown any drawdown in response to the longwall extraction.

Standpipe piezometers completed into the upper weathered zone of the Permian coal measures in the Bowmans Creek floodplain area show no impact on groundwater levels from underground or open cut mining (**Figure 6**). Several of these bores show a clear and direct response to rainfall recharge events, especially in May 2005 and June 2007, consistent with the receipt of recharge by vertical infiltration of local rainfall.

Piezometers at deeper levels in the Permian only show recharge response where located close to outcrop adjacent to Glennies Creek (e.g. WML119 and WML120A – see **Figure 9**). Piezometers remote from outcrop have not yet shown any response to the 2008 recharge events.

Piezometers in seams below the Pikes Gully seam (Upper Liddell Seam to Lower Barrett Seam) have not shown any significant drawdown during LW1-3 longwall extraction (**Figure 11**).

2.5 GROUNDWATER QUALITY

The EC and pH data from sampling of piezometers and basic statistical analysis results are summarised in **Table 2.3** and **Table 2.4** respectively.

Table 2.3: Groundwater Salinity measured as Electrical Conductivity ($\mu\text{S}/\text{cm}$)

| BORE | Sep-Dec 2007 | Jan-Feb 2008 | May-Jun 2008 | Jul-Aug 2008 | Min | Ave | Max |
|--|--------------|--------------|--------------|--------------|------------|-------------|-------------|
| RM04 | 1310 | 1540 | 972 | 1240 | 972 | 1266 | 1540 |
| RM06 | 1170 | 772 | 826 | 806 | 772 | 894 | 1170 |
| RM07 | 1320 | 1230 | - | 890 | 890 | 1147 | 1320 |
| RM09 | 1220 | 1350 | 1190 | 1080 | 1080 | 1210 | 1350 |
| RM10 | 1510 | 1690 | 1560 | 1440 | 1440 | 1550 | 1690 |
| PB1 | 1560 | 1640 | 1520 | 1340 | 1340 | 1515 | 1640 |
| RA10 | 1780 | - | - | - | - | - | - |
| RA14 | 2050 | - | - | - | - | - | - |
| RA17 | 1190 | - | - | - | - | - | - |
| RA18 | 2100 | - | - | - | - | - | - |
| RA30 | 1560 | - | - | - | - | - | - |
| WML110C | 9340 | - | - | 9340 | 9340 | 9340 | 9340 |
| WML112C | 1360 | - | - | 1200 | 1200 | 1280 | 1360 |
| WML113C | 1450 | - | - | 1250 | 1250 | 1350 | 1450 |
| WML115C | 4100 | - | - | 5150 | 4100 | 4625 | 5150 |
| T1-A | 2040 | - | - | - | - | - | - |
| T2-A | 1680 | - | - | - | - | - | - |
| T3-A | 2150 | - | - | - | - | - | - |
| T4-A | 2270 | - | - | - | - | - | - |
| T5 | 1330 | - | - | - | - | - | - |
| T6 | 1280 | - | - | - | - | - | - |
| T7 | 6420 | - | - | - | - | - | - |
| T9 | 2490 | - | - | - | - | - | - |
| T10 | 2050 | - | - | - | - | - | - |
| Total - Bowmans Creek Alluvium: | | | | | 772 | 2274 | 9340 |

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| BORE | Sep-Dec 2007 | Jan-Feb 2008 | May-Jun 2008 | Jul-Aug 2008 | Min | Ave | Max |
|--|-----------------|-----------------|-----------------|-----------------|-------------|--------------|--------------|
| RA27 | 2540 | - | - | - | - | - | - |
| Total - Hunter River Alluvium: | | | | | - | 2540 | - |
| WML120B | 1220 | - | - | 992 | 992 | 1106 | 1220 |
| WML129 | 577 | - | - | 571 | 571 | 574 | 577 |
| WML148 | 2610 | - | - | - | - | - | - |
| WML155 | 915 | - | - | - | - | - | - |
| WML157 | 803 | - | - | - | - | - | - |
| WML158 | 705 | - | - | - | - | - | - |
| Total - Glennies Creek Alluvium: | | | | | 571 | 1119 | 2610 |
| RA8 | 8370 | - | - | - | - | - | - |
| RA16 | 13400 | - | - | - | - | - | - |
| Total - Colluvium: | | | | | 8370 | 10885 | 13400 |
| RM02 | - | 2290 | 3630 | 3860 | 2290 | 3260 | 3860 |
| RM05 | 2200 | 2310 | 2370 | 2220 | 2200 | 2275 | 2370 |
| T1-P | 9220 | - | - | - | - | - | - |
| T2-P | 1070 | - | - | - | - | - | - |
| T3-P | 2050 | - | - | - | - | - | - |
| T4-P | 2000 | - | - | - | - | - | - |
| WML108B | - | - | - | 15100 | - | - | - |
| WML109B | - | - | - | 11400 | - | - | - |
| WML110B | 9415 | - | - | 10000 | 9415 | 9708 | 10000 |
| WML111B | 2580 | - | - | 2290 | 2290 | 2435 | 2580 |
| WML112B | 1720 | - | - | 1600 | 1600 | 1660 | 1720 |
| WML113B | 875 | - | - | 835 | 835 | 855 | 875 |
| WML114B | 6570 | - | - | 5200 | 5200 | 5885 | 6570 |
| WML115B | 3790 | - | - | 3440 | 3440 | 3615 | 3790 |
| Total - Weathered Coal Measures Overburden: | | | | | 835 | 5038 | 15100 |
| WML 20 | 9820 | 5720 | - | - | 5720 | 7770 | 9820 |
| WML 21 | 6460 | 8280 | 8110 | 8390 | 6460 | 7810 | 8390 |
| WML119 | 2320 | - | - | 1820 | 1820 | 2070 | 2320 |
| WML120A | 828 | - | - | 810 | 810 | 819 | 828 |
| WML181 | 2380 | - | - | 2460 | 2380 | 2420 | 2460 |
| WML182 | 8680 | - | - | 6950 | 6950 | 7815 | 8680 |
| WML183 | 8180 | - | - | 5890 | 5890 | 7035 | 8180 |
| WML184 | 4580 | - | - | 5140 | 4580 | 4860 | 5140 |
| WML185 | 4430 | - | - | 2940 | 2940 | 3685 | 4430 |
| WML186 | 387 | - | - | - | - | - | - |
| Total - Pikes Gully Seam: | | | | | 387 | 4505 | 9820 |
| RSGM1 | 6250 | 10300 | 10200 | 10600 | 6250 | 9338 | 10600 |
| GM1 | 369 | 526 | 1100 | 3900 | 369 | 1474 | 3900 |
| Total - Other Major Coal Seams: | | | | | 369 | 5230 | 10600 |



The groundwater quality monitoring data has highlighted some variation from the normal pattern of low salinity in the alluvium and high salinity in the Permian. The main variances are as follows:

Bowmans Creek alluvium:

- ▼ Salinities in the Bowmans Creek alluvium ranged from a minimum of 772 to a maximum of 9340 $\mu\text{S}/\text{cm}$ EC (at RM06 and WML110C respectively).
- ▼ The average EC for all Bowmans Creek alluvium samples is 2274 $\mu\text{S}/\text{cm}$ (**Table 2.3**).
- ▼ Slightly lower ECs than in the previous period are attributed to dilution of groundwater salinity from increased rainfall recharge.
- ▼ Bowmans Creek had ceased continuous flow by early 2007, and water was maintained in disconnected pools only by virtue of small volume groundwater baseflow discharges. The total rate of groundwater baseflow was very small, insufficient to maintain continuous flow. Flow had resumed by the commencement of the current review period.

Glennies Creek alluvium:

- ▼ The Glennies Creek alluvium also reported variable salinity, with ECs ranging from 571 to 2610 $\mu\text{S}/\text{cm}$.
- ▼ The alluvium ECs are all noticeably higher than the EC of surface flow in Glennies Creek, which during the period ranged between 335 and 699 $\mu\text{S}/\text{cm}$ (**Figure 14**). The higher alluvium ECs are believed to be due to upward seepage of groundwater from the Permian into the alluvium and/or related to up dip exposures of the Branxton Formation.

Hunter River alluvium:

- ▼ The one sample of Hunter River alluvium (from bore RA27) reported an EC of 2540 $\mu\text{S}/\text{cm}$, which is significantly higher than the Hunter River surface flow (**Figure 14**).

Pikes Gully Seam:

- ▼ Salinity of Pikes Gully seam groundwater ranged from 810 to 9820 $\mu\text{S}/\text{cm}$ EC.

Other Permian Coal Measures:

- ▼ ECs ranging from 369 to 10600 $\mu\text{S}/\text{cm}$ were reported during the period.

Plots of ECs for surface water flows in Bowmans Creek are shown in **Figure 12**, and Glennies Creek and Hunter River in **Figure 13**. During the current review period, ECs in Bowmans Creek have generally been lower than those that prevailed during the preceding drought years 2003 to 2007 (**Figure 12**). However, ECs in Glennies Creek and Hunter River have tended to be slightly higher during the current period than during the drought (**Figure 13**). This pattern is believed to reflect the greater influence of saline baseflow discharges on Bowmans Creek flows than either Hunter River or Glennies Creek, as a proportion of total flow.

Electrical conductivity (EC) data obtained from underground monitoring are presented in **Figures 15** and **16**. Corresponding ECs at various piezometers in the Glennies Creek valley or between Glennies Creek and the mine are plotted on **Figure 15**. Other underground EC monitoring results are plotted on **Figure 16**. Most seepages showed declining trend in ECs, due to the induced groundwater flow from the Glennies Creek alluvium.

Table 2.4: Groundwater Quality Monitoring (pH)

| BORE | Sep-Nov 2007 | Jan-Feb 2008 | May-Jun 2008 | Jul-Aug 2008 | Min | Ave | Max |
|------|-----------------|-----------------|-----------------|-----------------|------|------|------|
| RM04 | 7.19 | 6.84 | 7.10 | 7.47 | 6.84 | 7.15 | 7.47 |
| RM06 | 7.21 | 7.21 | 7.04 | 7.37 | 7.04 | 7.21 | 7.37 |
| RM07 | 7.31 | 7.06 | | 7.36 | 7.06 | 7.24 | 7.36 |

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| BORE | Sep-Nov 2007 | Jan-Feb 2008 | May-Jun 2008 | Jul-Aug 2008 | Min | Ave | Max |
|---|-------------------------|-------------------------|-------------------------|-------------------------|-------------|-------------|-------------|
| RM09 | 7.10 | 6.93 | 6.98 | 7.28 | 6.93 | 7.07 | 7.28 |
| RM10 | 7.09 | 6.83 | 6.89 | 7.27 | 6.83 | 7.02 | 7.27 |
| PB1 | 7.26 | 7.06 | 7.34 | 7.23 | 7.06 | 7.22 | 7.34 |
| RA10 | 7.39 | - | - | - | - | - | - |
| RA14 | 7.08 | - | - | - | - | - | - |
| RA17 | 7.38 | - | - | - | - | - | - |
| RA18 | 7.31 | - | - | - | - | - | - |
| RA30 | 6.63 | - | - | - | - | - | - |
| WML110C | 7.13 | - | - | 7.04 | 7.04 | 7.09 | 7.13 |
| WML112C | 8.61 | - | - | 7.45 | 7.45 | 8.03 | 8.61 |
| WML113C | 7.13 | - | - | 6.99 | 6.99 | 7.06 | 7.13 |
| WML115C | 7.39 | - | - | 7.32 | 7.32 | 7.36 | 7.39 |
| T1-A | 7.82 | - | - | - | - | - | - |
| T2-A | 7.11 | - | - | - | - | - | - |
| T3-A | 6.97 | - | - | - | - | - | - |
| T4-A | 7.14 | - | - | - | - | - | - |
| T5 | 7.04 | - | - | - | - | - | - |
| T6 | 6.96 | - | - | - | - | - | - |
| T7 | 7.09 | - | - | - | - | - | - |
| T9 | 7.70 | - | - | - | - | - | - |
| T10 | 7.04 | - | - | - | - | - | - |
| Total - Bowmans Creek Alluvium: | | | | | 6.63 | 7.21 | 8.61 |
| RA27 | 6.94 | - | - | - | - | - | - |
| Total - Hunter River Alluvium: | | | | | - | 6.94 | - |
| WML120B | 7.10 | - | - | 6.96 | 6.96 | 7.03 | 7.10 |
| WML129 | 7.33 | - | - | - | - | - | - |
| WML148 | 7.24 | - | - | - | - | - | - |
| WML155 | 6.92 | - | - | - | - | - | - |
| WML157 | 7.77 | - | - | - | - | - | - |
| WML158 | 7.63 | - | - | - | - | - | - |
| Total - Glennies Creek Alluvium: | | | | | 6.92 | 7.32 | 7.77 |
| RA8 | 7.35 | - | - | - | - | - | - |
| RA16 | 7.00 | - | - | - | - | - | - |
| Total - Colluvium: | | | | | 7.00 | 7.18 | 7.35 |
| RM02 | - | 6.74 | 6.74 | 7.34 | 6.74 | 6.94 | 7.34 |
| RM05 | 6.88 | 6.58 | 6.69 | 6.87 | 6.58 | 6.76 | 6.88 |
| T1-P | 7.12 | - | - | - | - | - | - |
| T2-P | 6.77 | - | - | - | - | - | - |
| T3-P | 11.97 | - | - | - | - | - | - |
| T4-P | 7.69 | - | - | - | - | - | - |
| WML108B | - | - | - | 6.43 | - | - | - |



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| BORE | Sep-Nov 2007 | Jan-Feb 2008 | May-Jun 2008 | Jul-Aug 2008 | Min | Ave | Max |
|--|-------------------------|-------------------------|-------------------------|-------------------------|-------------|-------------|--------------|
| WML109B | - | - | - | 6.76 | - | - | - |
| WML110B | 7.40 | - | - | 7.07 | 7.07 | 7.24 | 7.40 |
| WML111B | 7.48 | - | - | 8.90 | 7.48 | 8.19 | 8.90 |
| WML112B | 8.89 | - | - | 8.28 | 8.28 | 8.59 | 8.89 |
| WML113B | 7.72 | - | - | 7.50 | 7.50 | 7.61 | 7.72 |
| WML114B | 7.34 | - | - | 7.21 | 7.21 | 7.28 | 7.34 |
| WML115B | 10.04 | - | - | 7.90 | 7.90 | 8.97 | 10.04 |
| Total - Weathered Coal Measures Overburden: | | | | | 6.43 | 7.61 | 11.97 |
| WML 20 | 8.20 | 8.26 | - | - | 8.20 | 8.23 | 8.26 |
| WML 21 | 8.40 | 7.64 | 7.52 | 7.66 | 7.52 | 7.81 | 8.40 |
| WML119 | 5.29 | - | - | 7.27 | 5.29 | 6.28 | 7.27 |
| WML120A | 7.69 | - | - | 7.16 | 7.16 | 7.43 | 7.69 |
| WML181 | - | - | - | 8.01 | - | - | - |
| WML182 | 6.91 | - | - | 7.14 | 6.91 | 7.03 | 7.14 |
| WML183 | 6.81 | - | - | 7.06 | 6.81 | 6.94 | 7.06 |
| WML184 | 6.96 | - | - | 7.02 | 6.96 | 6.99 | 7.02 |
| WML185 | 6.68 | - | - | 6.75 | 6.68 | 6.72 | 6.75 |
| WML186 | 6.76 | - | - | 6.92 | 6.76 | 6.84 | 6.92 |
| Total - Pikes Gully Seam: | | | | | 5.29 | 7.26 | 8.4 |
| RSGM1 | 7.25 | 6.73 | 6.87 | 7.20 | 6.73 | 7.01 | 7.25 |
| GM1 | 7.12 | 6.89 | 7.44 | 8.32 | 6.89 | 7.44 | 8.32 |
| WML172 | - | - | - | 7.60 | - | - | - |
| Total - Other Major Coal Seams: | | | | | 6.73 | 7.35 | 8.32 |

The groundwater in the alluvium is near-neutral in pH (range 6.63 to 8.61). Likewise the coal measures groundwater is generally near-neutral, with most pH values lying within a similar range. However, samples from WML119 in May-June and August-November 2008 reported pHs slightly below 6.

2.6 GROUNDWATER MINE INFLOWS

Approximately 0.5 ML/d (6 L/s) is pumped from the open cut mine on average. This comprises rainfall captured by the mine catchment, including rainfall infiltration to the in-pit waste, as well as groundwater inflows. Total groundwater inflows to the open cut are estimated to be only a small proportion of the total, probably less than 25% of the total or 0.13 ML/d (1.5 L/s).

The underground water balance has been closely monitored since the commencement of underground mining. Water balance components have been determined by a combination of V-notch weirs, in-line flow-meters, and timing of filling of storage tanks and sumps.

Imports to the underground mine include both groundwater inflows and water imported for operation of the longwall. Exports include water pumped directly into the mine water supply system from a vertical borehole accessing a sump at the low-point at the SW corner of LW1 (LW1 Backroad Sump); and water pumped via pipelines along the underground roadways to a storage dam in Arties Pit beside the mine portal.

Since extraction of LW1, access to TG1 has been lost, and seepage inflows to TG1A from Glennies Creek alluvium are now conveyed via pipeline to a discharge point in the LW1



Backroad (**Figure 1**), where the flow rate is measured at a V-notch weir. This discharge then flows to the LW1 Backroad Sump.

Net groundwater inflows to the underground mine have been determined from the mine water balance, to have reached a peak of 6.3 L/s (on 10 November 2008), averaging 6 L/s (0.5 ML/d) over the 2007-2008 review period. The average total inflow rate predicted in the EIS for this stage of underground mining was 1.0 ML/d (12 L/s). Inflows have therefore been well below the EIS predictions (**Figure 16**).

During the previous reporting period, it was noted that most water inflow has occurred from seepage during advance of the development headings, with only moderate additional inflows occurring during subsequent longwall extraction. Smaller inflows have occurred from rib and roof seepages in other roadways. This trend has continued through the current review period.

Measurements of total seepage inflows from the Glennies Creek alluvium during the review period have ranged from 1.2 to 2.2 L/s, with an average inflow rate for the 2007-2008 year of less than 2 L/s. The average seepage rate into the underground mine predicted in the EIS for this stage of mining was 2.8 L/s. Hence seepage inflows from Glennies Creek alluvium have been well below the rates predicted in the EIS (**Figure 16**).

No seepage inflows from Bowmans Creek alluvium or Hunter River alluvium have been detected.



3 GROUNDWATER MODEL REVIEW

In accordance with Consent Condition 4.14, the performance of the groundwater system in response to mining operations was compared with impacts predicted in the EIS, based on the groundwater modelling undertaken in the EIS studies (HLA, 2001). The actual impacts were also compared with impacts predicted in the groundwater report accompanying the LW1-4 SMP Application (Dundon and Associates, 2006). A report on this comparison was issued in December 2007 (Dundon and Associates, 2007).

The groundwater model used for the EIS studies has been modified to allow better definition of subsidence related impacts of underground mining. The modifications include re-definition of model layers, including assignment of separate model layers for the main coal seams and the interburden (previously each seam and its overburden were treated as a single layer), and the subdivision of the Pikes Gully seam overburden into several layers (previously the Pikes Gully seam and its overburden constituted a single layer).

Successful calibration of the model was undertaken with the model then used to predict the potential impacts of future mining (Aquaterra, 2008c).

The model was first run in steady state and transient modes to calibrate against observed impacts from open cut mining and underground mining from the Pikes Gully seam in LW1 and LW2 up to April 2008. The calibration modelling predicted baseflow reductions in Glennies Creek of 2.3 L/s by the end of the calibration period, which is consistent with observed inflows from the Glennies Creek alluvium into LW1 (around 2 L/s). Predicted groundwater level impacts also showed very good calibration with observed drawdowns in the large network of monitoring bores, which are distributed across the project area and in all the main hydrogeological units and model layers. Observed impacts are also at or below those predicted in the EIS studies.

The modelling has predicted a small baseflow reduction in Bowmans Creek from the LW/MW 5-9 mine plan, reaching a maximum of 1.2 L/s at the end of extraction from the Pikes Gully Seam. This is very much less than the 4.3 L/s predicted in the EIS during extraction of the Pikes Gully seam.

The modelling predicted no further significant increase in seepage from the Glennies Creek alluvium with ongoing mining of the Pikes Gully seam, and negligible impact on Hunter River baseflows.

In summary, comparison of actual impacts with EIS and SMP predictions showed the following (Aquaterra, 2007):

- ▼ Total groundwater inflows to the underground have been at or below inflow rates predicted in the EIS.
- ▼ Seepage inflows to the underground mine from Glennies Creek alluvium have been at or below the EIS predictions.
- ▼ Groundwater levels in the Glennies Creek alluvium have declined by less than the magnitude predicted in the EIS.
- ▼ Rainfall recharge was not observed to increase significantly through open surface subsidence cracks above LW1 during the intense June 2007 rainfall event.



4 REFERENCES

Aquaterra Consulting Pty Ltd, 2008a. *Ashton Coal - End of Panel 1 Groundwater Report.* Report to Ashton Coal, July 2008.

Aquaterra Consulting Pty Ltd, 2008b. *Ashton Underground Mine – Bowmans Creek Alluvium Investigation.* Report to Ashton Coal, September 2008.

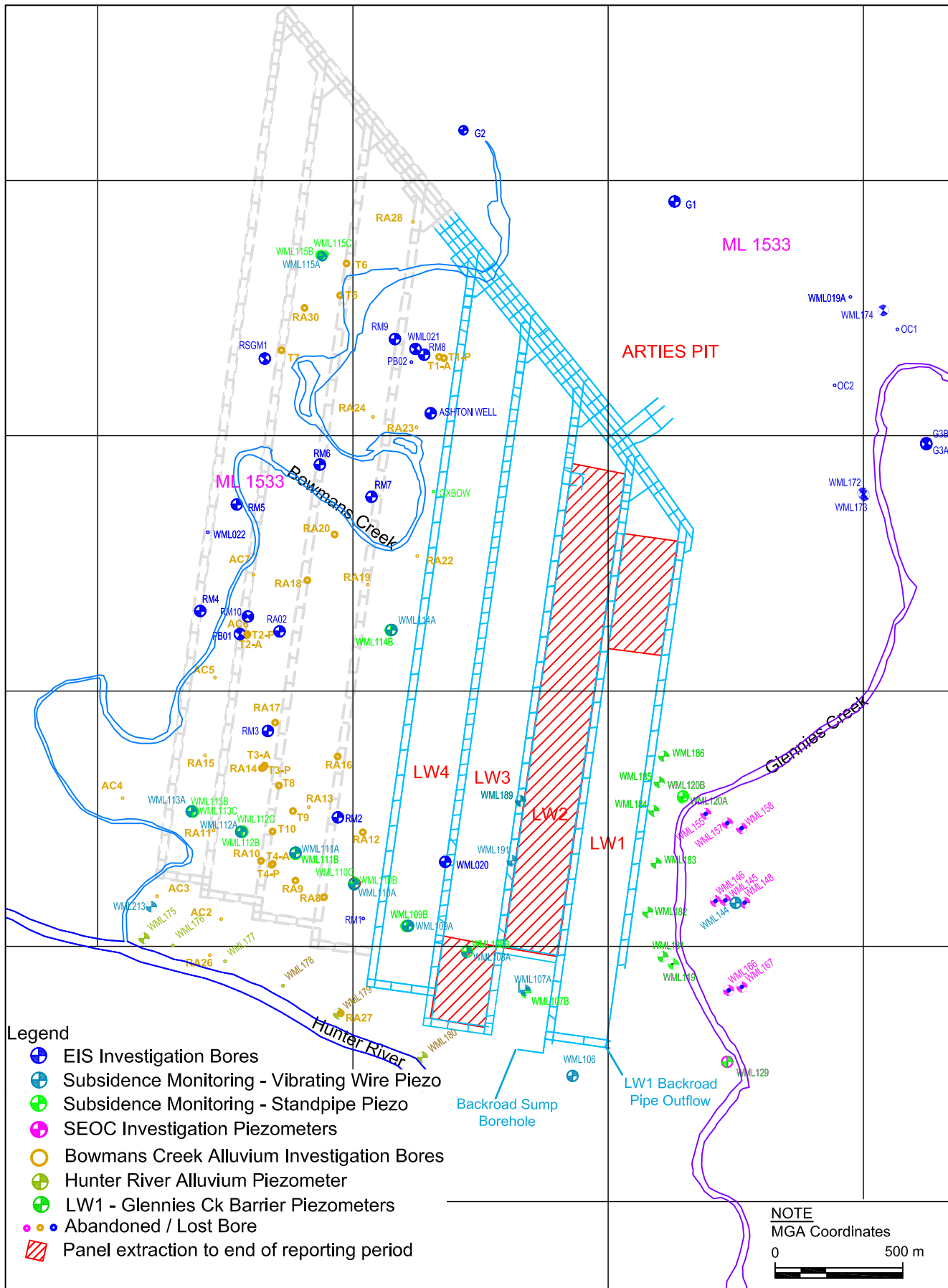
Aquaterra Consulting Pty Ltd, 2008c. *Ashton Underground Mine – LW/MW 5-9 Pikes Gully Seam - Groundwater Impact Assessment Report.* Report to Ashton Coal, October 2008.

HLA-Envirosciences, 2001. Environmental Impact Statement, Ashton Coal Project: Appendix H – Groundwater Hydrology and Impact Report.

Peter Dundon and Associates Pty Ltd, 2006. Ashton Coal Mine Longwall Panels 1-4, Subsidence Management Plan – Groundwater Assessment.

Peter Dundon and Associates Pty Ltd, 2007. Ashton Coal Mine Groundwater Impacts of Longwall 1, Comparison with EIS and SMP Predictions.

FIGURES

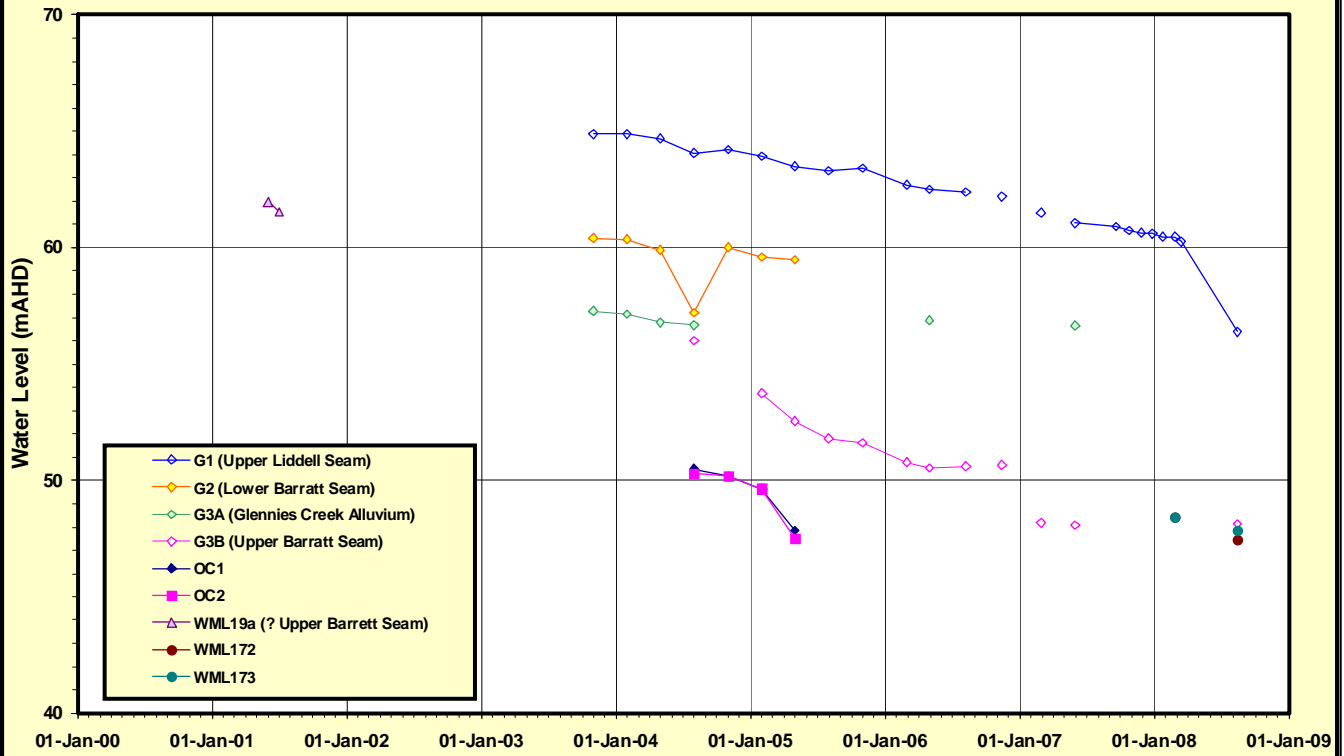


- Legend**
- ⊕ EIS Investigation Bores
 - ⊕ Subsidence Monitoring - Vibrating Wire Piezo
 - ⊕ Subsidence Monitoring - Standpipe Piezo
 - ⊕ SEOC Investigation Piezometers
 - Bowmans Creek Alluvium Investigation Bores
 - ⊕ Hunter River Alluvium Piezometer
 - ⊕ LW1 - Glennies Ck Barrier Piezometers
 - ⊕ Abandoned / Lost Bore
 - ▨ Panel extraction to end of reporting period

NOTE
MGA Coordinates
0 500 m

| | | |
|-----------------------|-----------------|---|
| Date: 1 December 2008 | Scale: as shown | Ashton Coal Operations Pty Ltd |
| Initials: TL | Job No: S03 | |
| Drawing No: S03-R10-1 | Rev: B | |
| aquaterra | | GROUNDWATER MONITORING LOCATIONS |
| | | Figure 1 |

HYDROGRAPHS - ASHTON OPEN CUT MONITORING PIEZOMETERS



Date: 13 December 2008

Scale: as indicated

Ashton Coal Operations Ltd

Initials: TL

Job No: S03

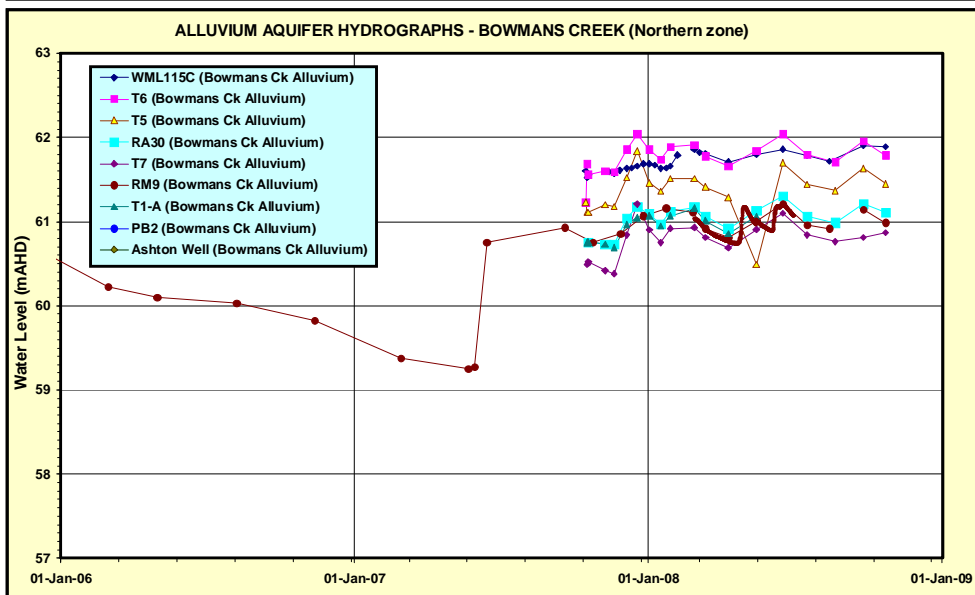
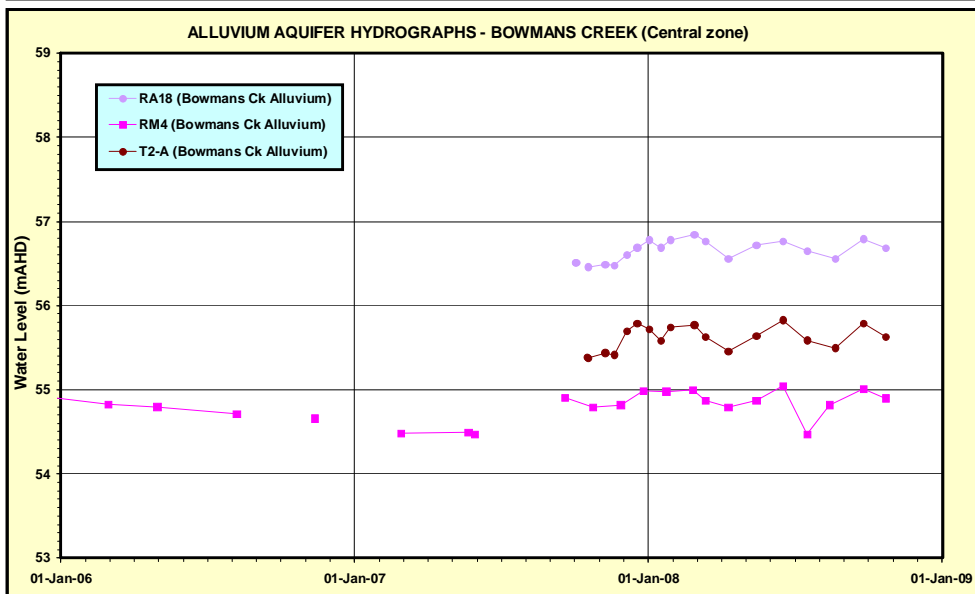
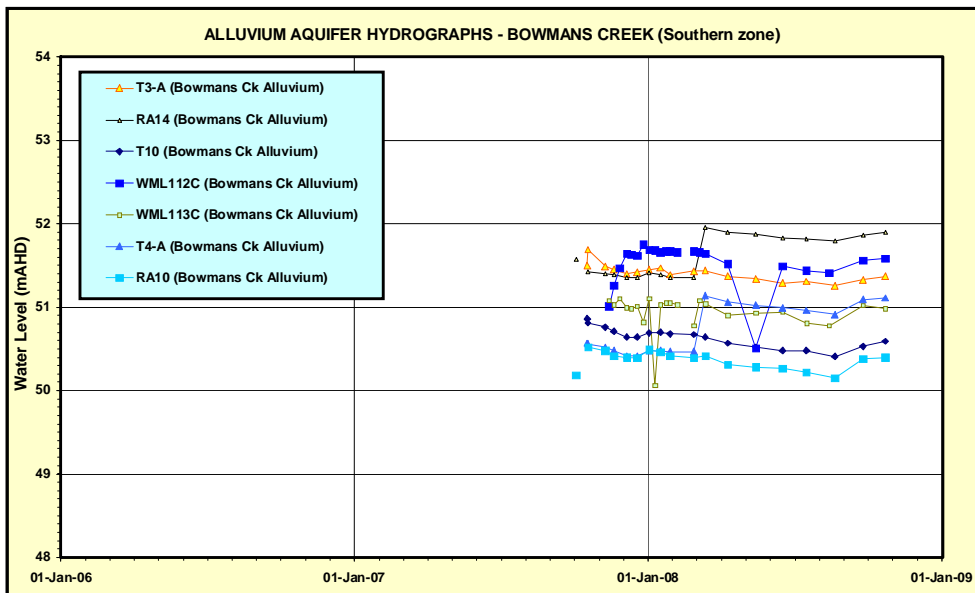
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Rev: A

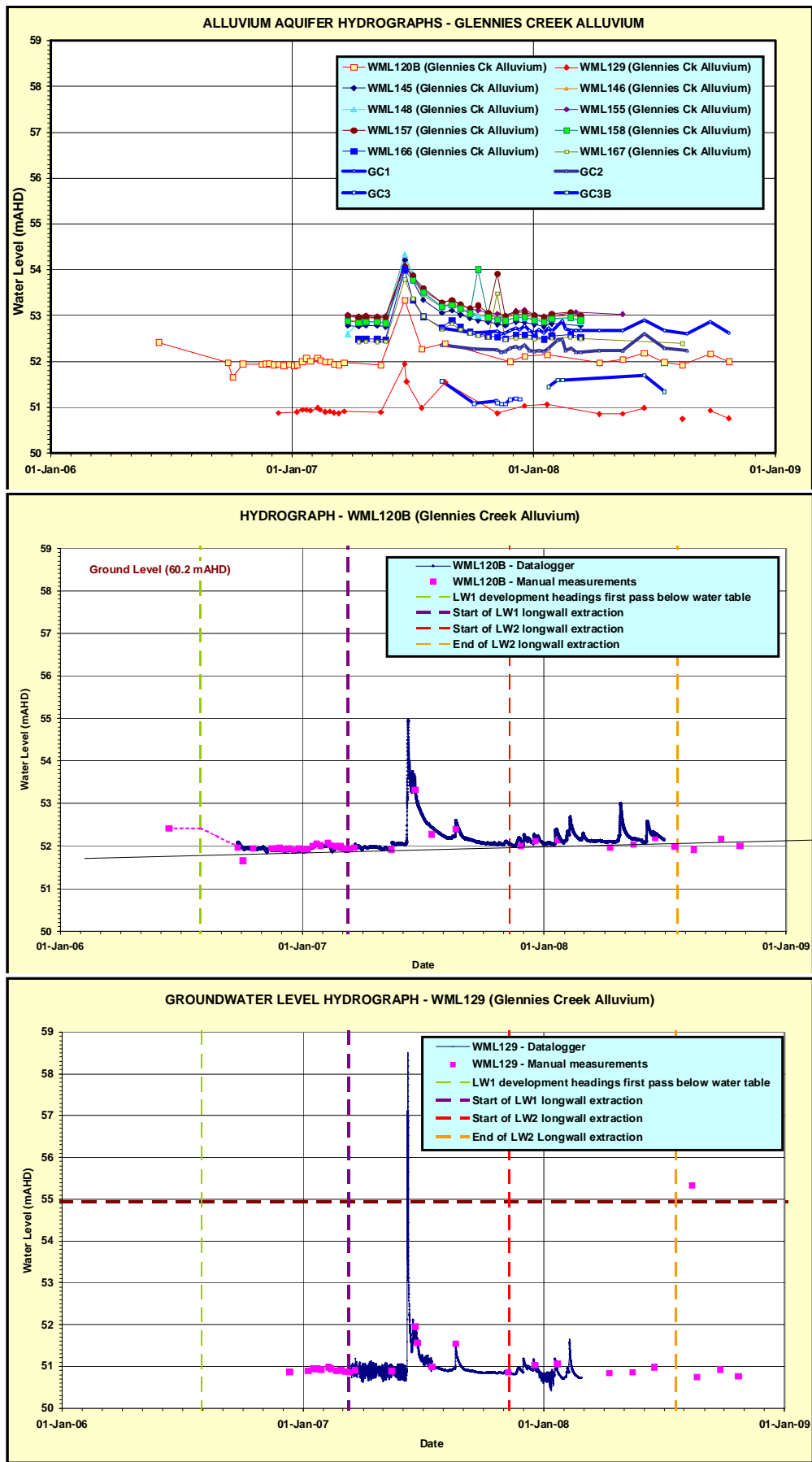
GROUNDWATER LEVEL HYDROGRAPHS
Open Cut Monitoring Bores

aquaterterra

Figure 2



| | | | |
|------------------------|---------------------|---|--|
| Date: 13 December 2008 | Scale: as indicated | Ashton Coal Operations Ltd | |
| Initials: TL | Job No: S03 | GROUNDWATER LEVEL HYDROGRAPHS Bowmans Creek Alluvium | |
| Drawing No: S03-R10-3a | Rev: A | | |
| | | Figure 3 | |



Date: 13 December 2008

Scale: as indicated

Ashton Coal Operations Ltd

Initials: TL

Job No: S03

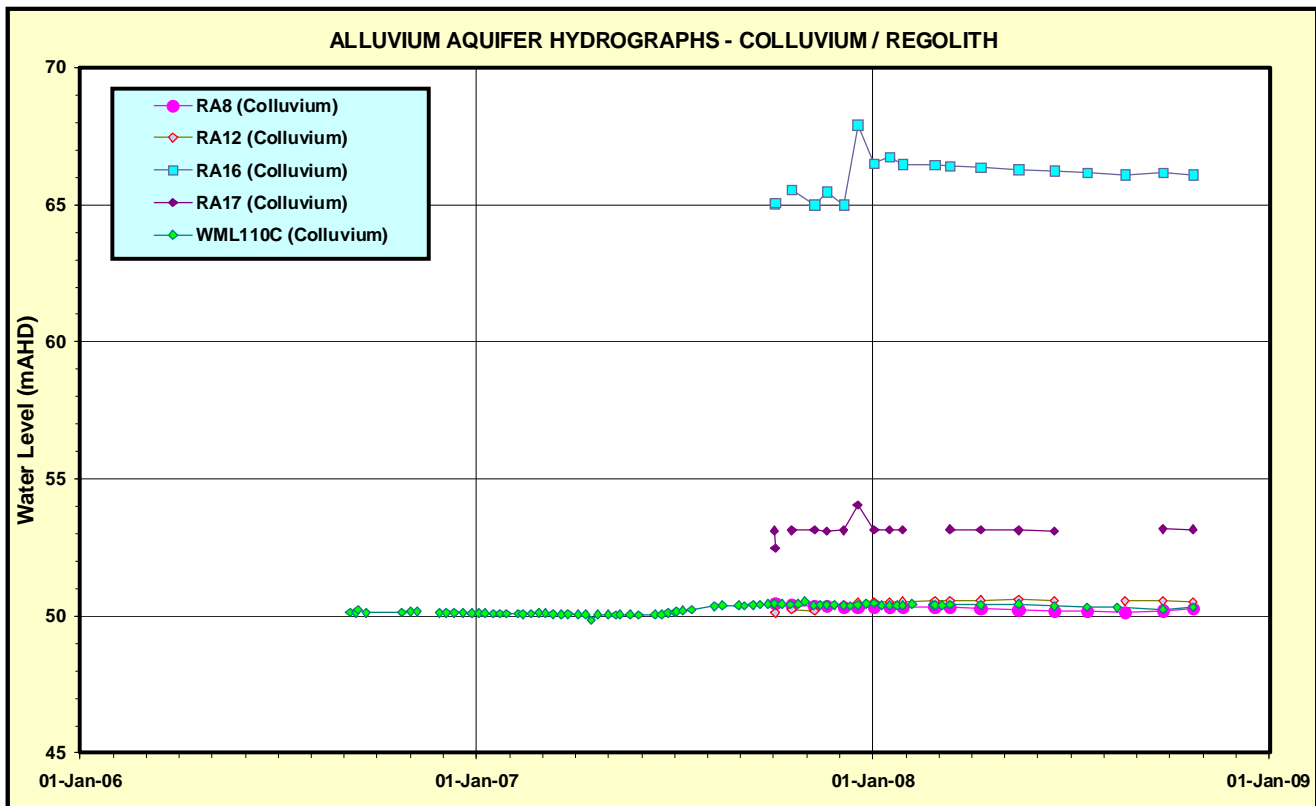
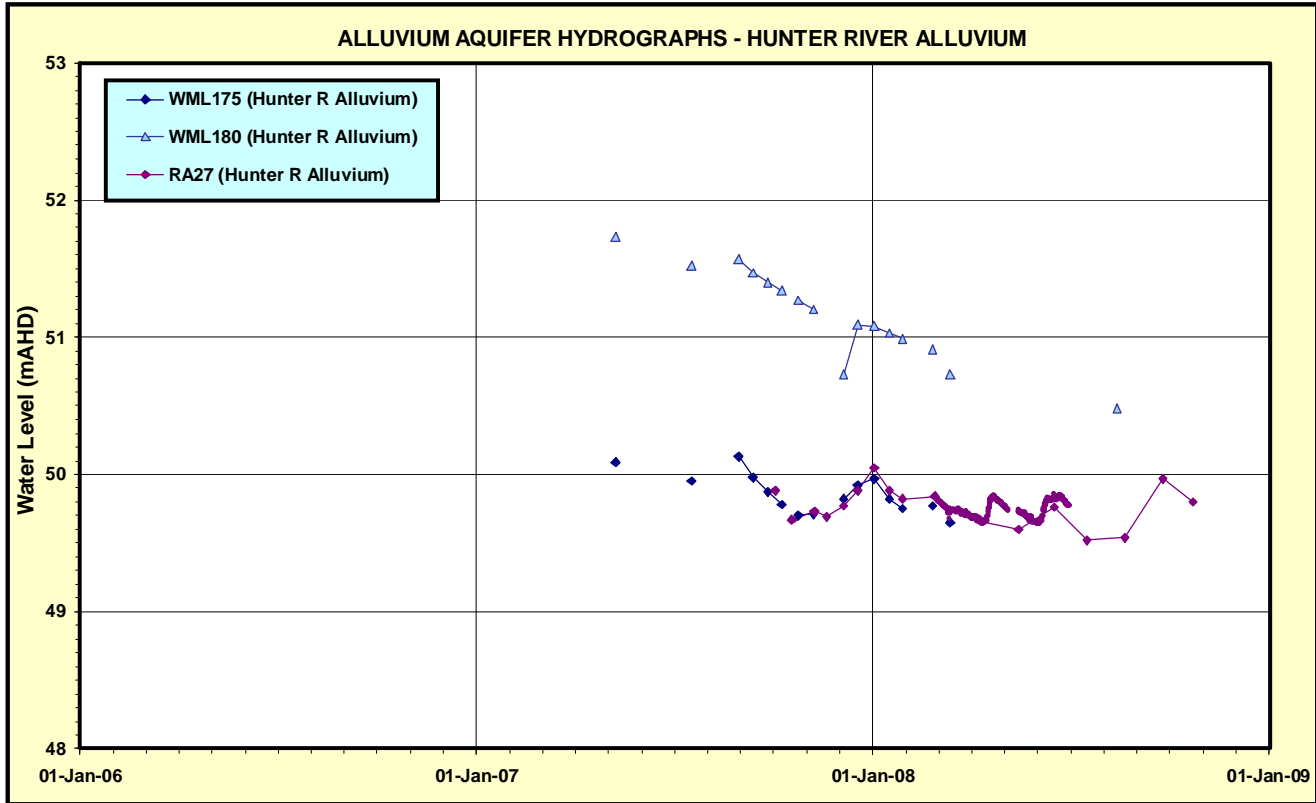
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Rev: A

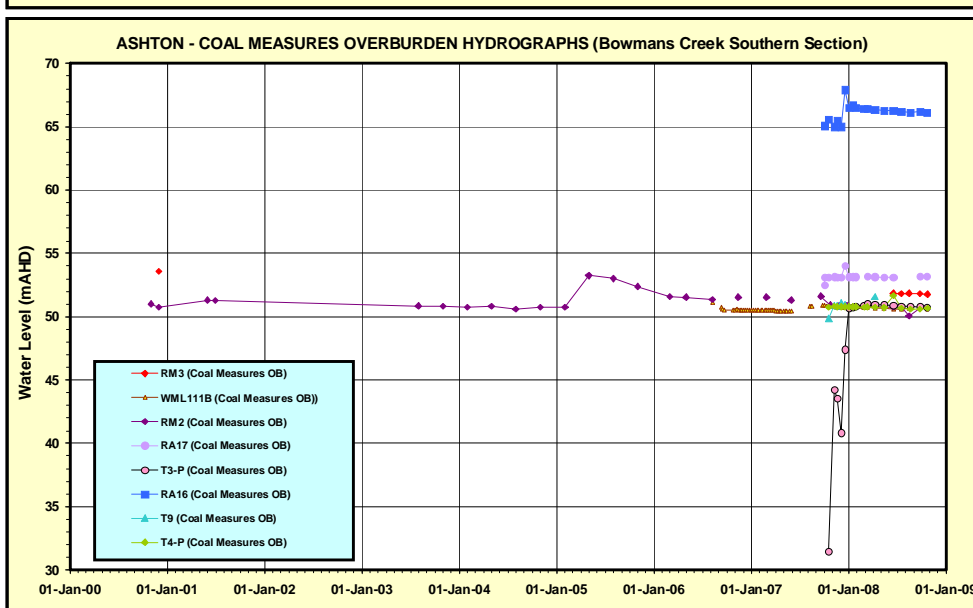
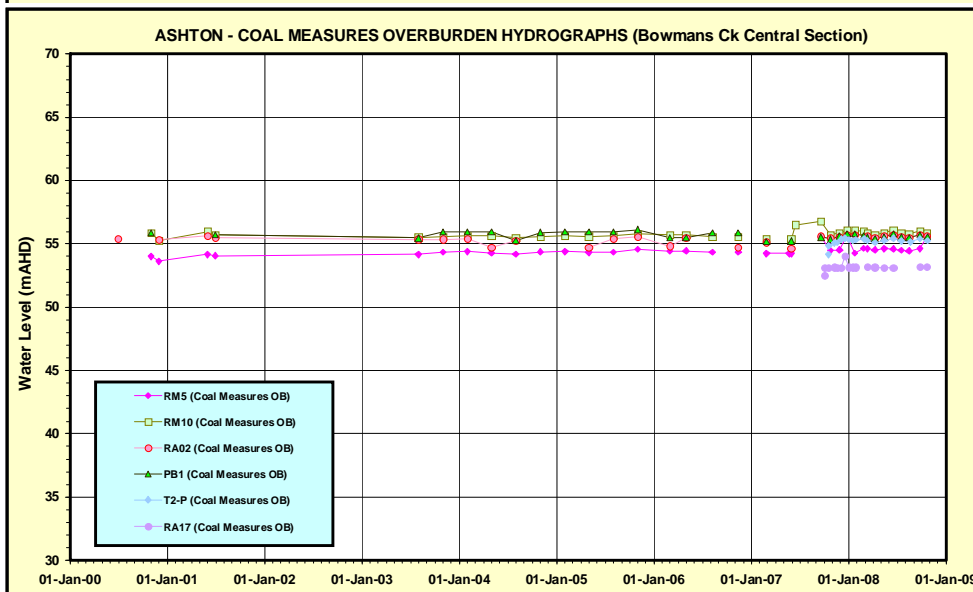
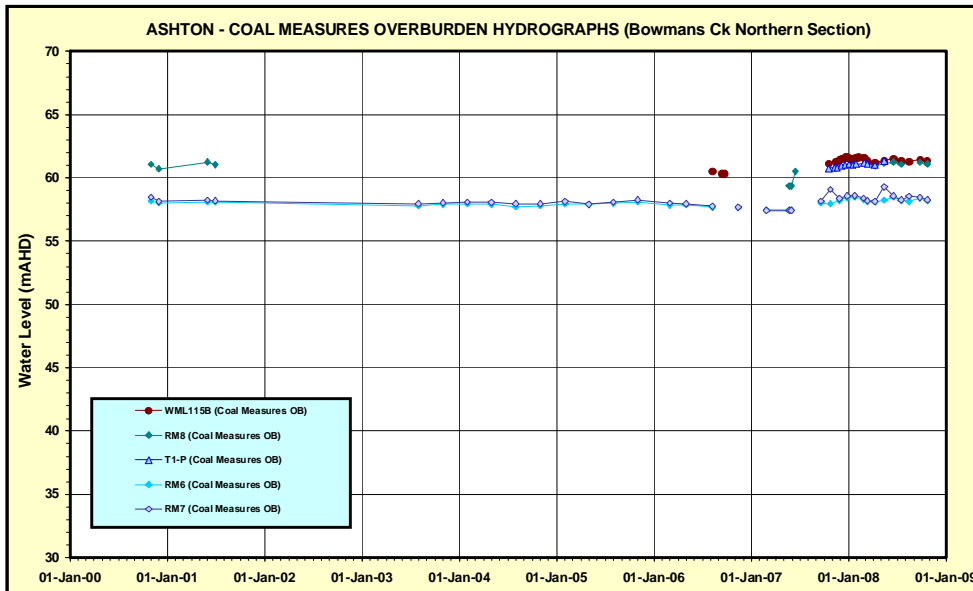
GROUNDWATER LEVEL HYDROGRAPHS
Glennies Creek Alluvium



Figure 4



| | | | |
|------------------------|---------------------|---|--|
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| Initials: TL | Job No: S03 | GROUNDWATER LEVEL HYDROGRAPHS Hunter River Alluvium Colluvium / Regolith | |
| Drawing No: S03-R10-5a | Rev: A | | |
| | | Figure 5 | |



Date: 13 December 2008

Scale: as indicated

Ashton Coal Operations Ltd

Initials: TL

Job No: S03

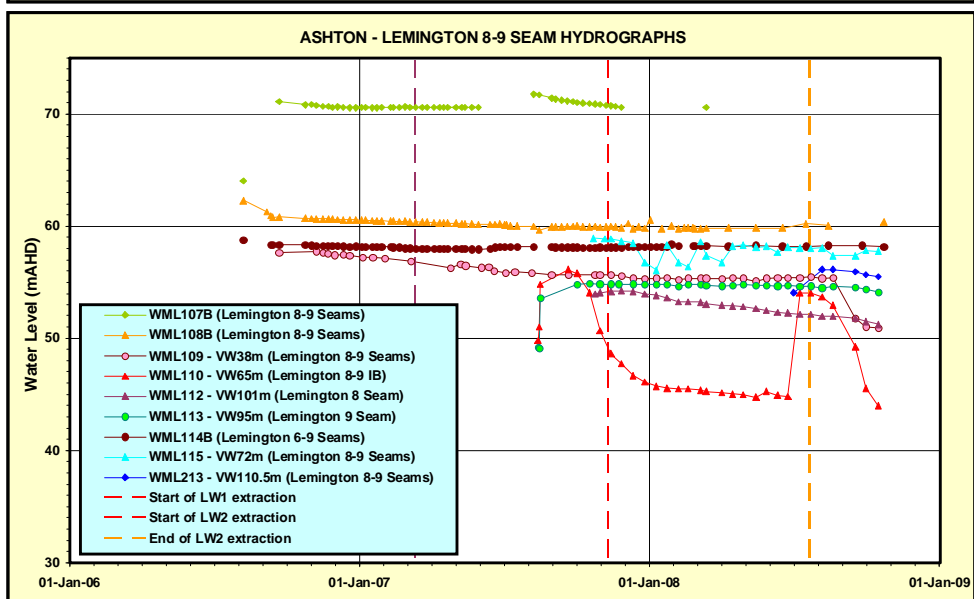
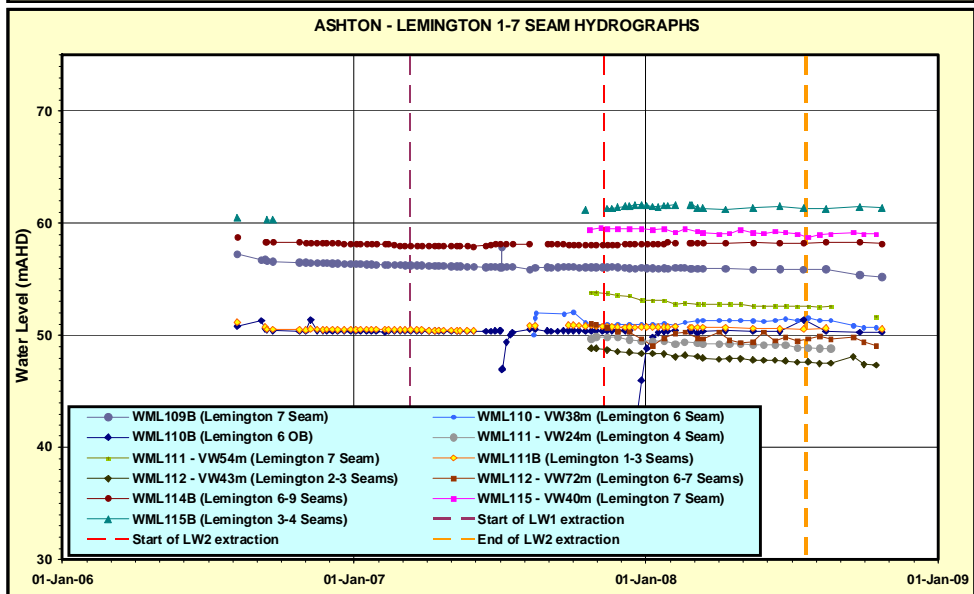
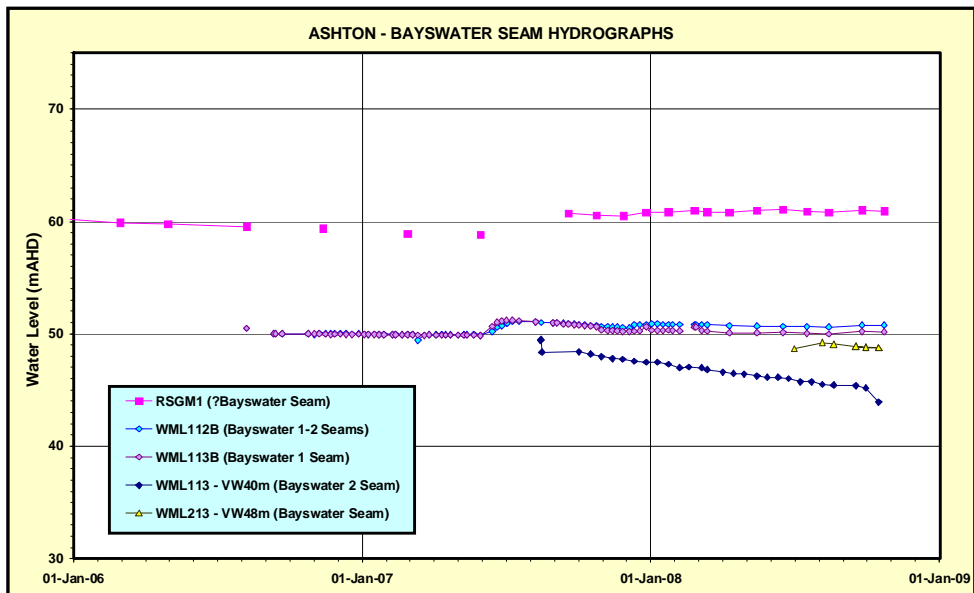
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Rev: A

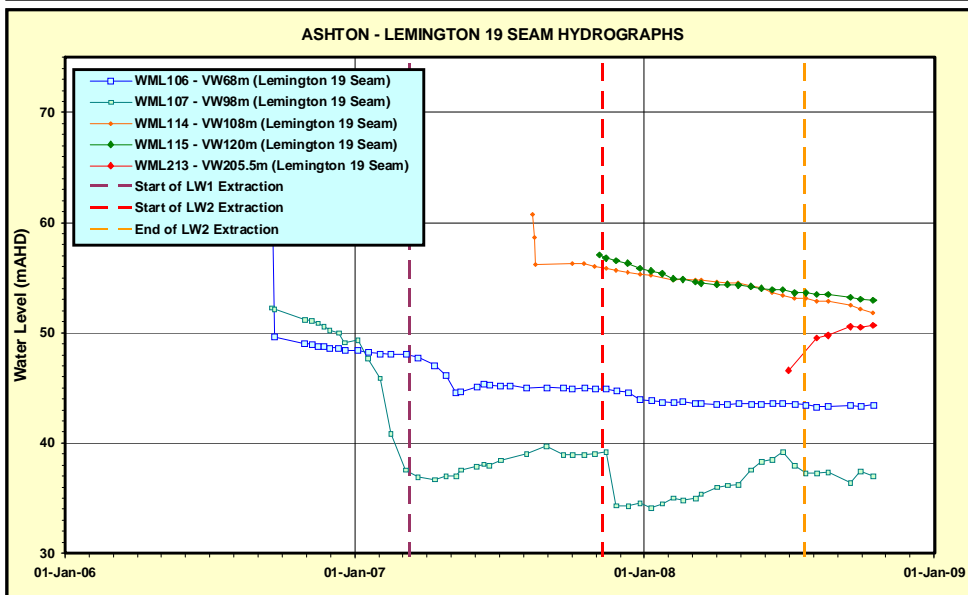
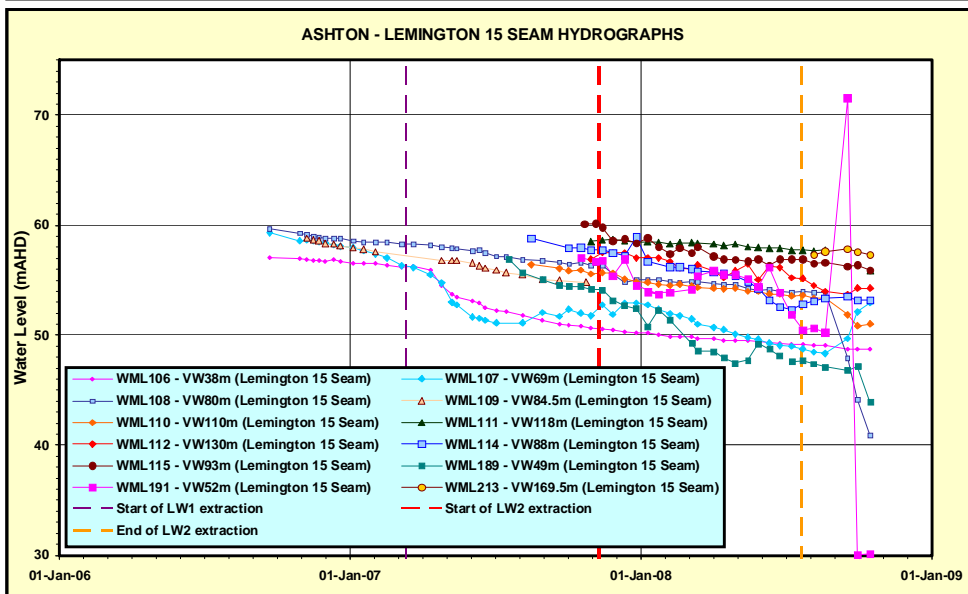
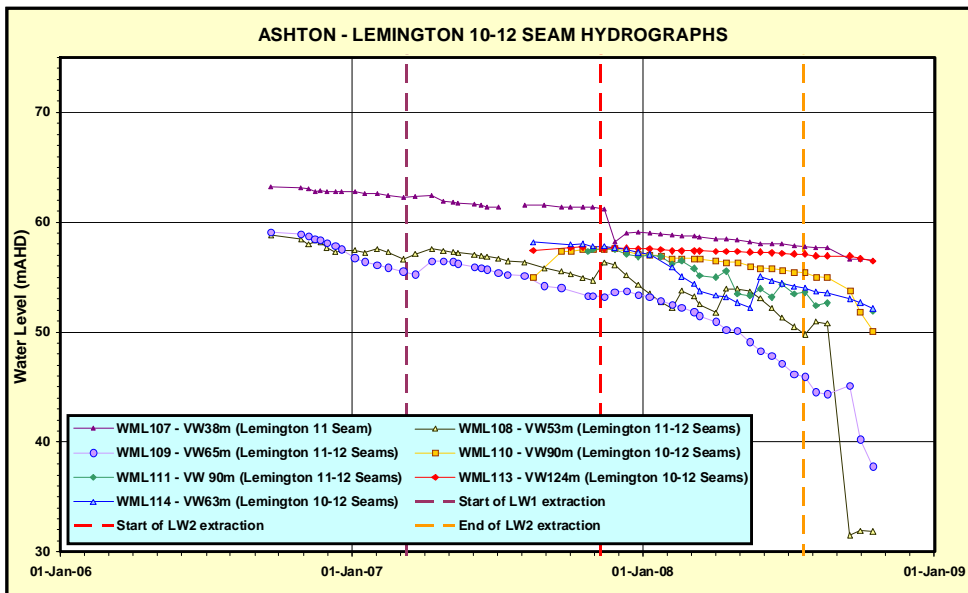
GROUNDWATER LEVEL HYDROGRAPHS
Weathered Near-Surface
Coal Measures Overburden



Figure 6



| | | | |
|------------------------|---------------------|--------------------------------------|-----------------|
| Date: 13 December 2008 | Scale: as indicated | Ashton Coal Operations Ltd | |
| Initials: TL | Job No: S03 | GROUNDWATER LEVEL HYDROGRAPHS | |
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| | | Lemington 1-9 Seams | |
| | | | Figure 7 |



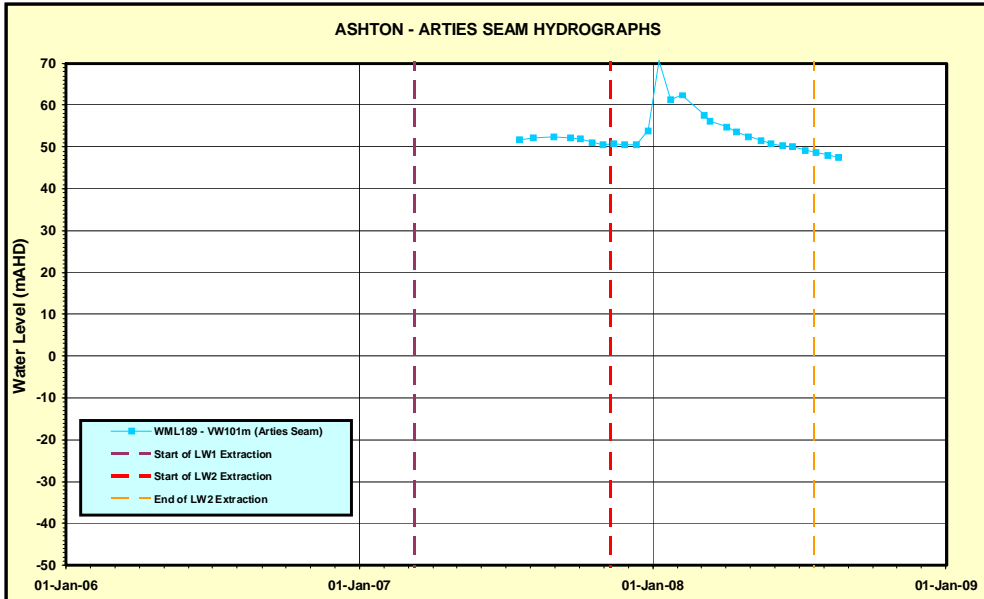
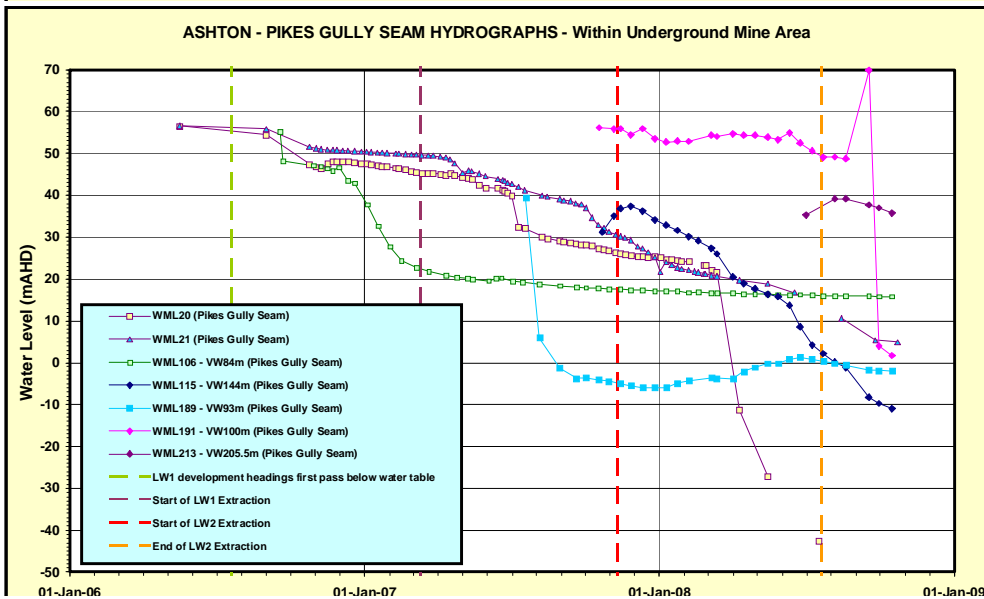
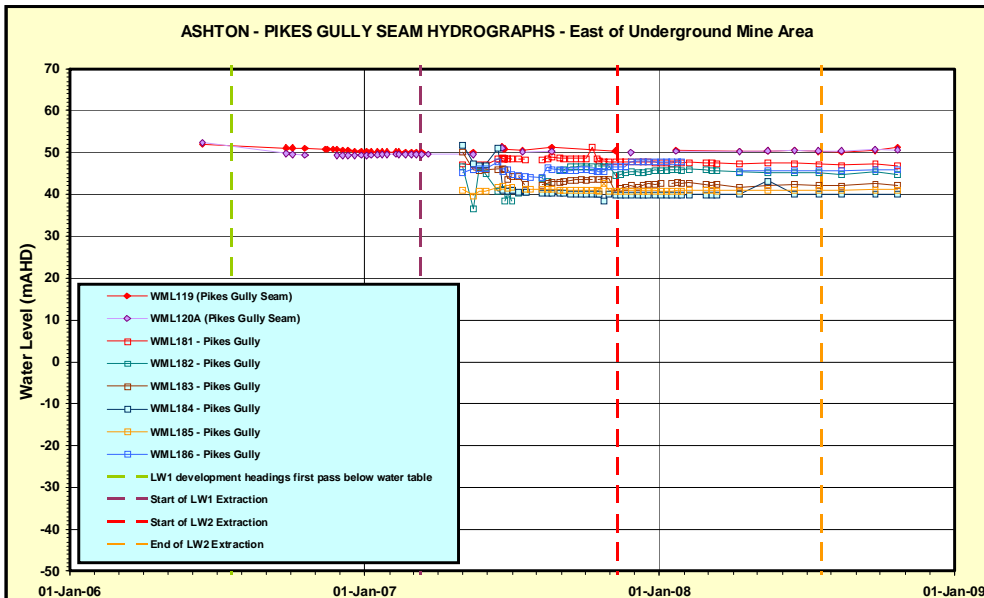
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| Initials: TL | Job No: S03 |
| Drawing No: S03-R10-8a | Rev: A |

Ashton Coal Operations Ltd

GROUNDWATER LEVEL HYDROGRAPHS
Lemington 10-19 Seams

Figure 8





Date: 13 December 2008

Scale: as indicated

Ashton Coal Operations Ltd

Initials: TL

Job No: S03

GROUNDWATER LEVEL HYDROGRAPHS

Drawing No: S03-R10-9a

Rev: A

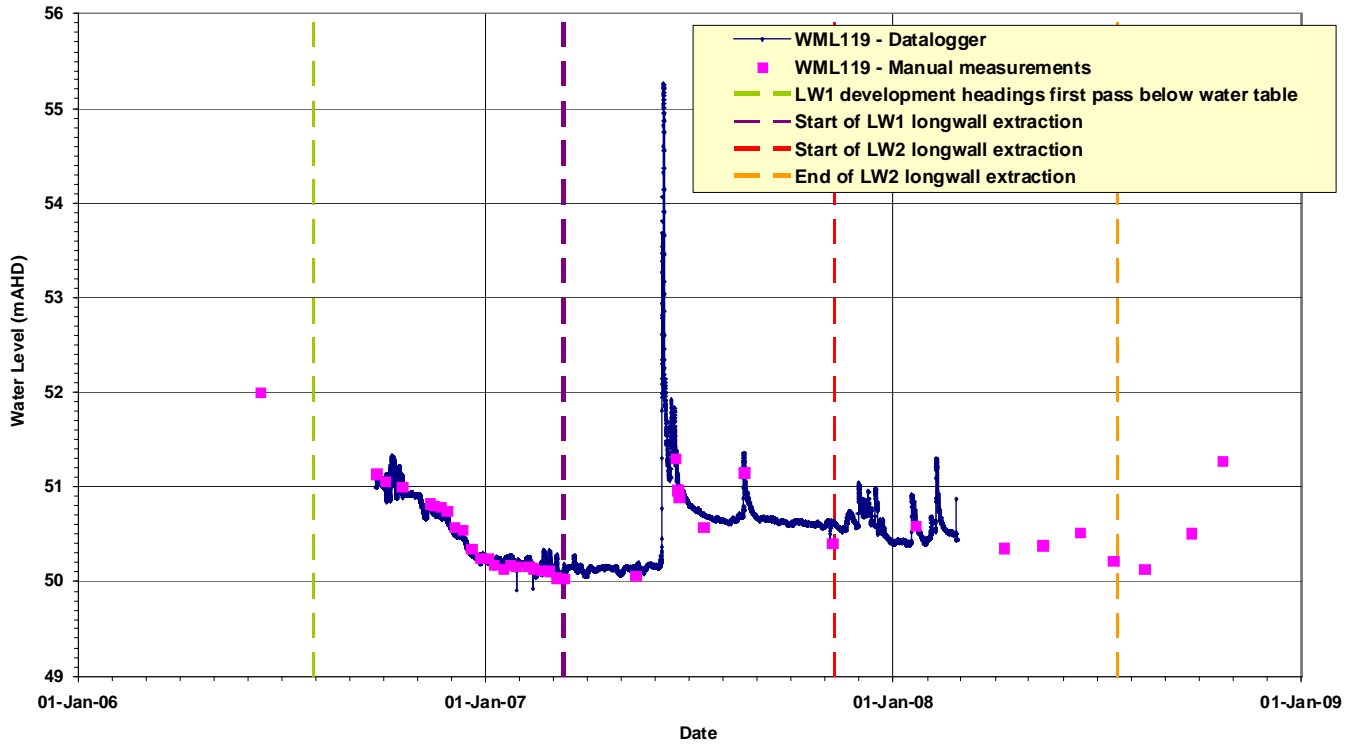
Pikes Gully Seam

Artesian Seam

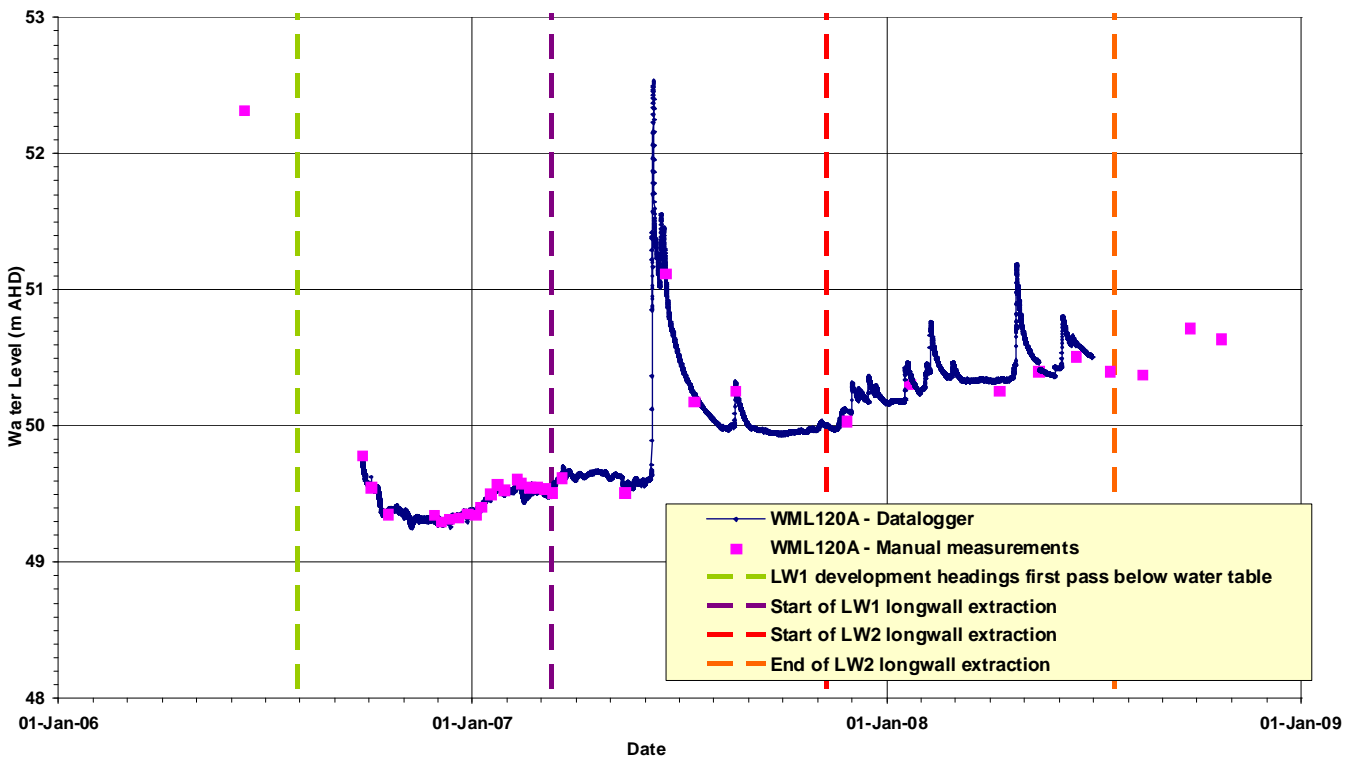


Figure 9

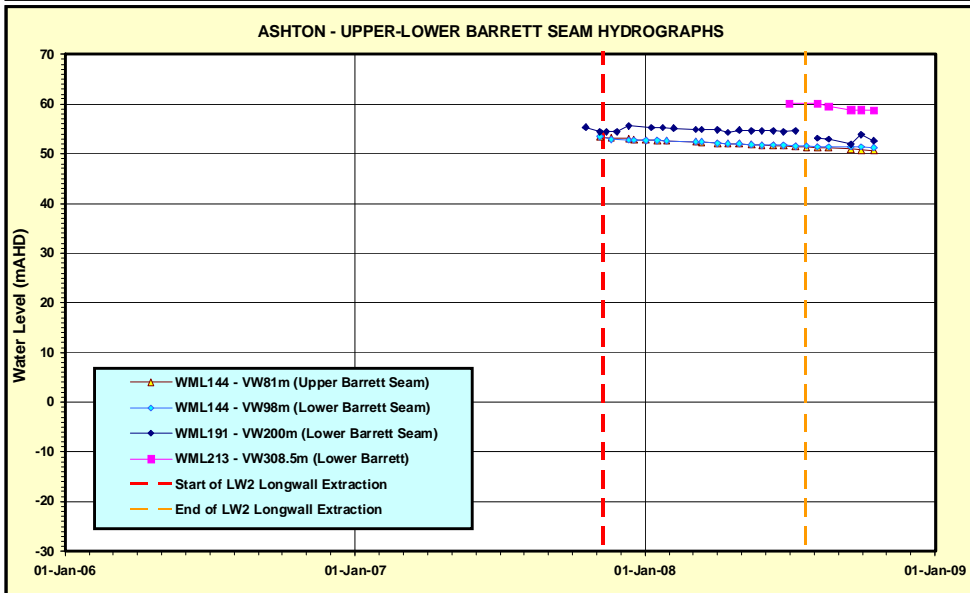
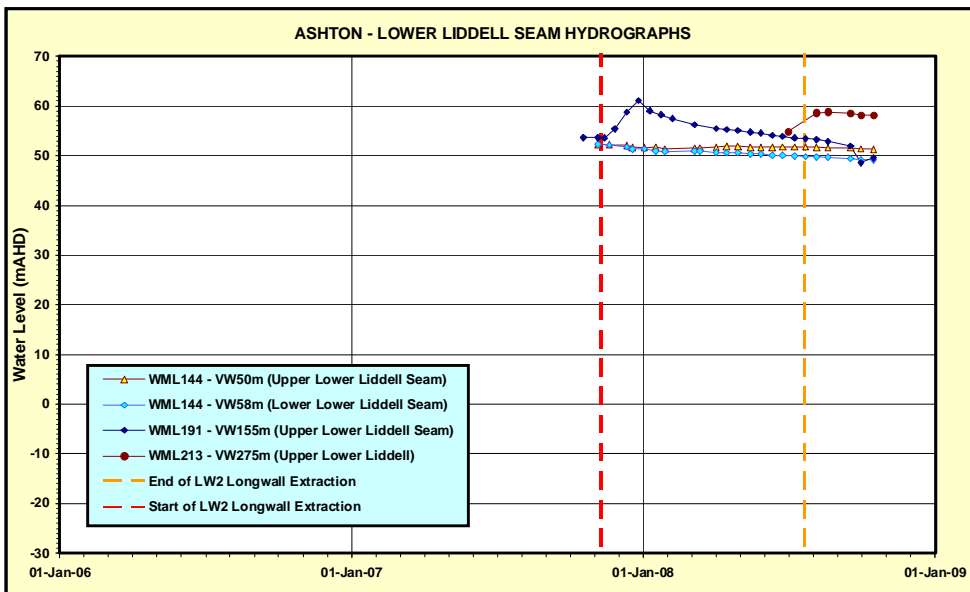
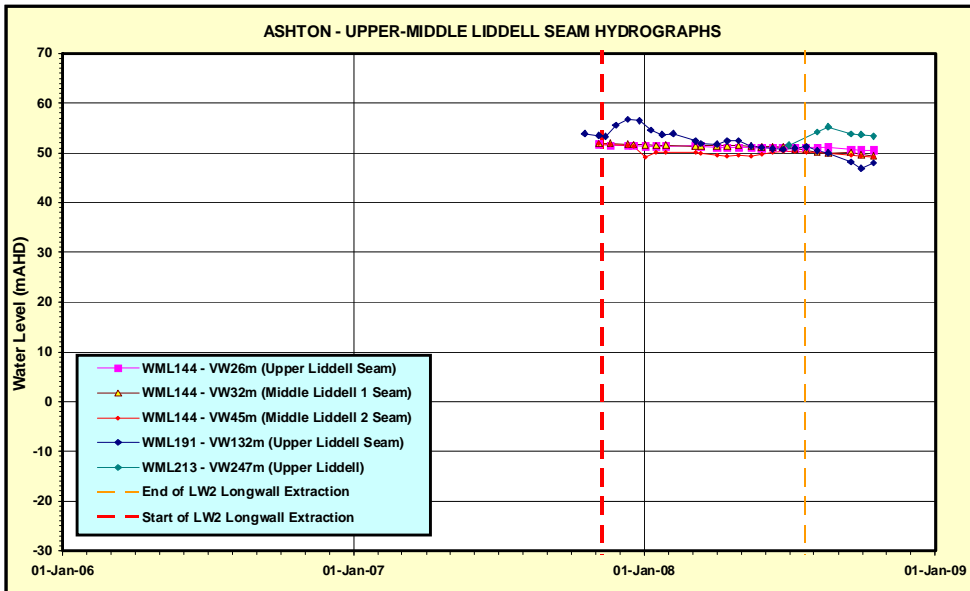
HYDROGRAPH - WML119 (Pikes Gully Seam)



HYDROGRAPH - WML120A (Pikes Gully Seam)



| | | |
|-------------------------|---------------------|--|
| Date: 13 December 2008 | Scale: as indicated | Ashton Coal Operations Ltd |
| Initials: TL | Job No: S03 | |
| Drawing No: S03-R10-10a | Rev: A | |
| aquaterra | | GROUNDWATER LEVEL HYDROGRAPHS Pikes Gully Seam (WML119 and WML120A) |
| | | Figure 10 |



Date: 13 December 2008

Scale: as indicated

Ashton Coal Operations Ltd

Initials: TL

Job No: S03

Drawing No: S03-R10-11a

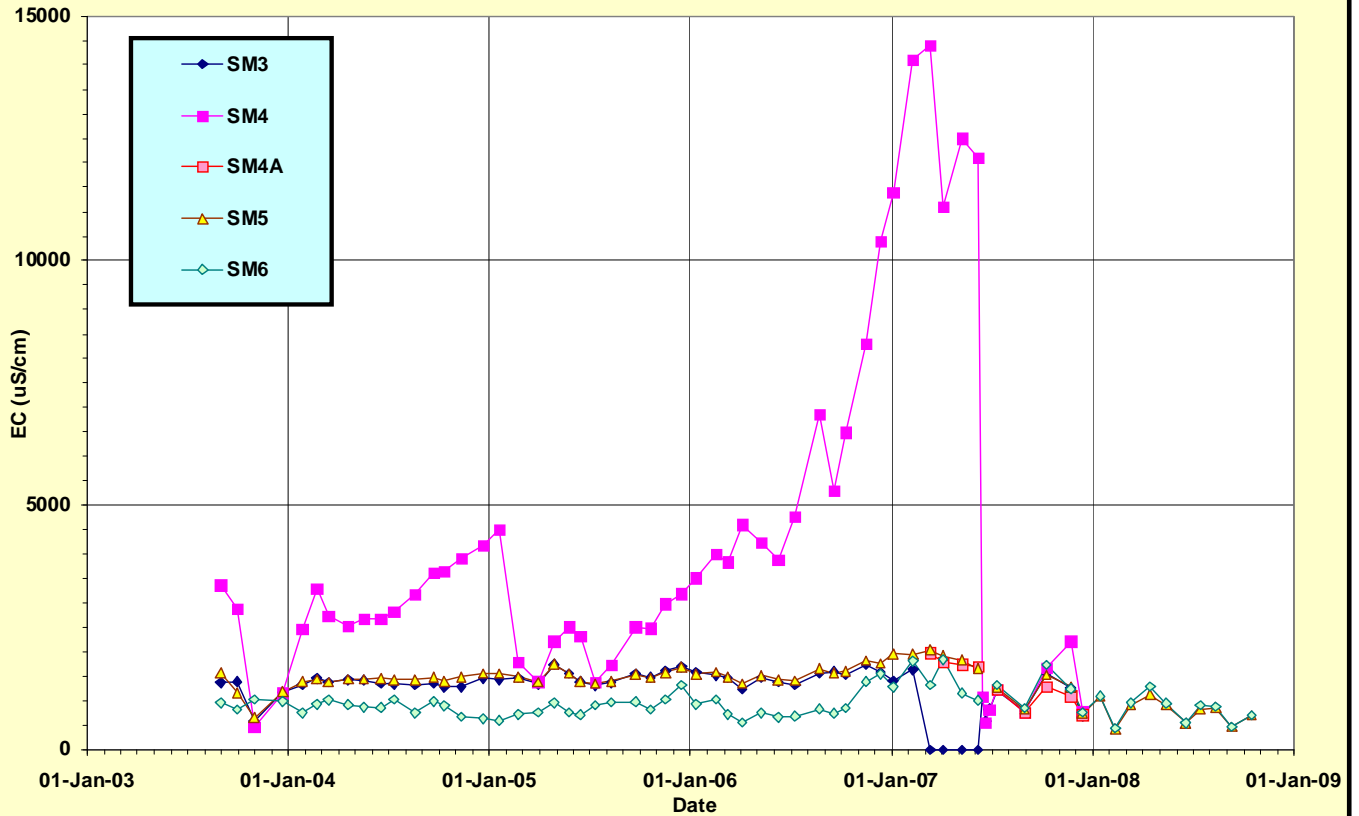
Rev: A

GROUNDWATER LEVEL HYDROGRAPHS
Liddell and Barrett Seams

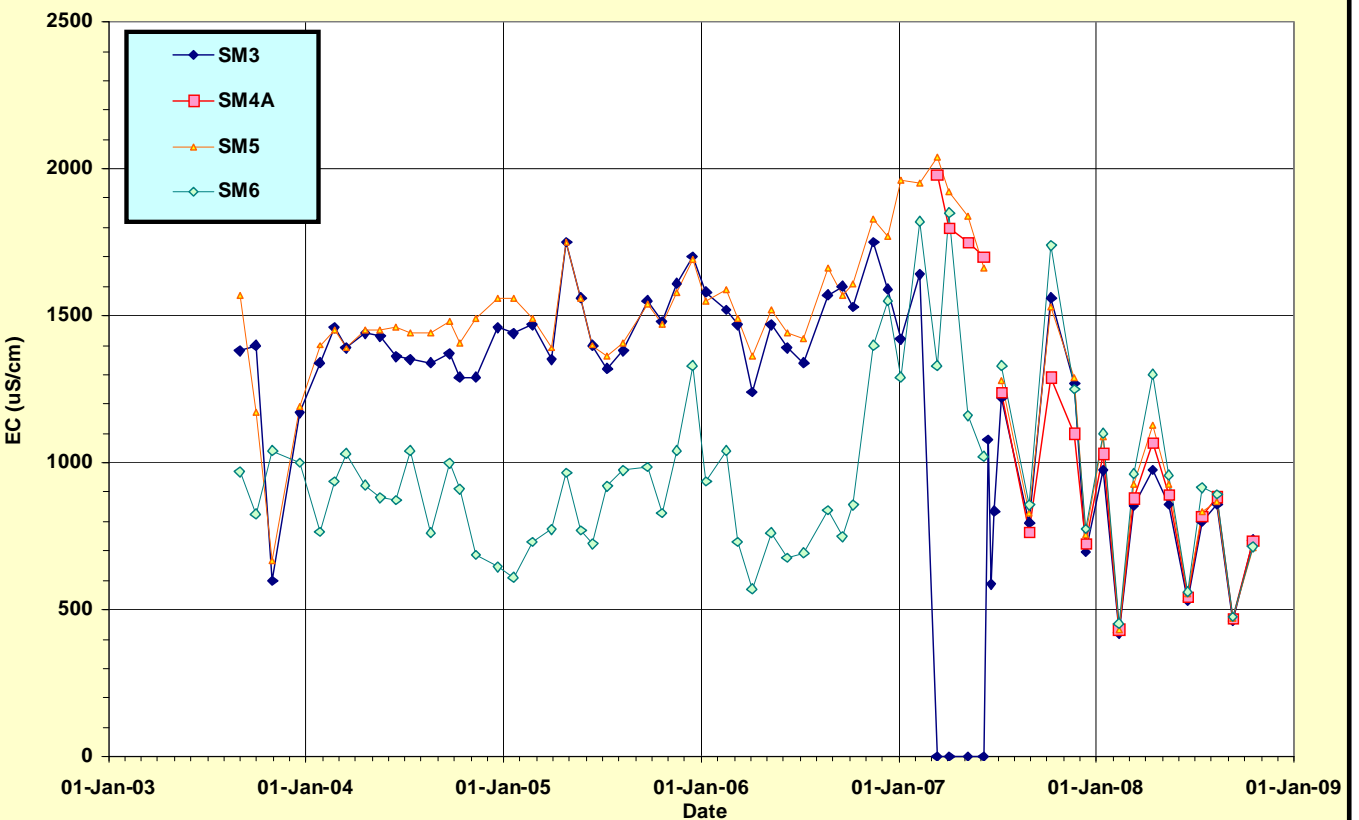


Figure 11

BOWMANS CREEK SURFACE WATER QUALITY - EC



BOWMANS CREEK SURFACE WATER QUALITY - EC



Date: 13 December 2008

Scale: as indicated

Ashton Coal Operations Ltd

Initials: TL

Job No: S03

Drawing No: S03-R10-12a

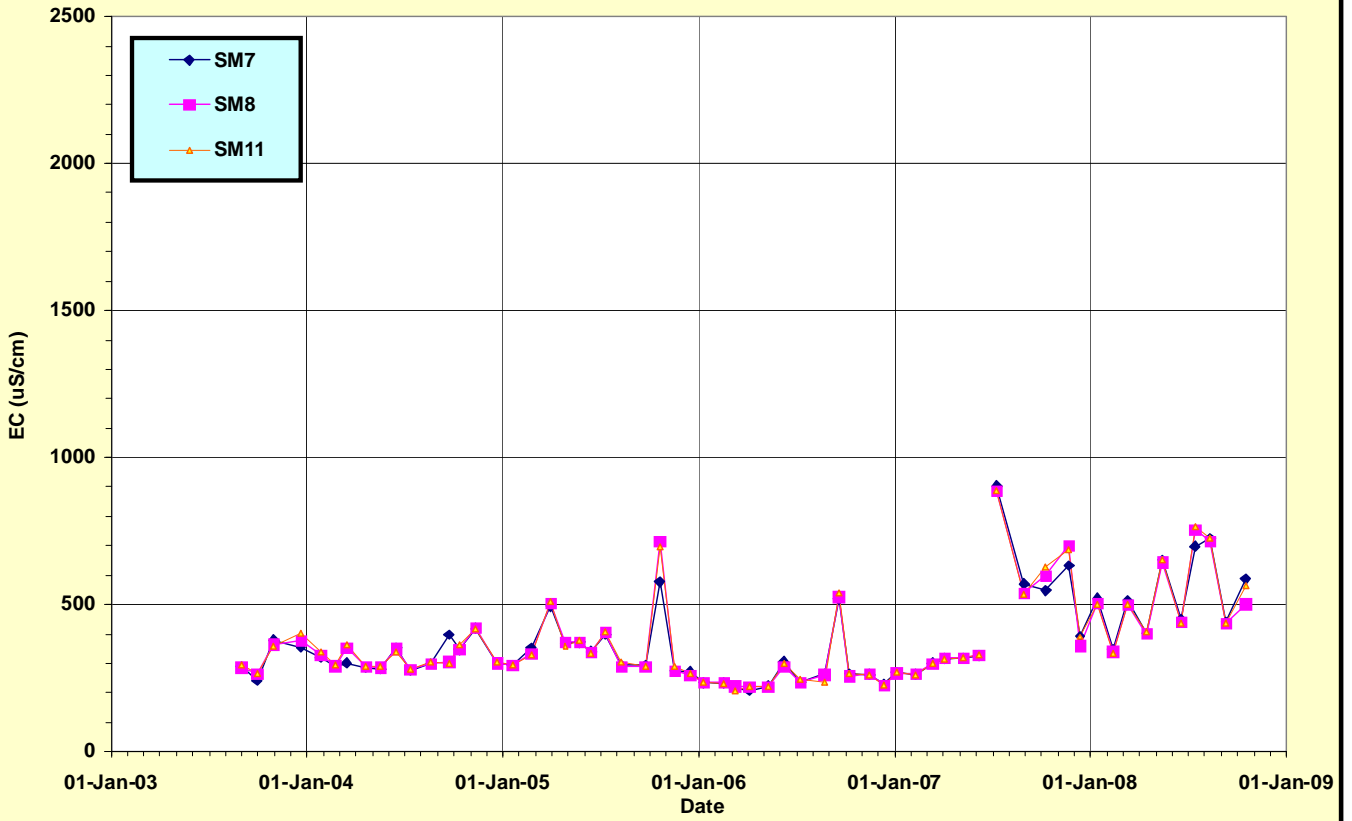
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SURFACE WATER QUALITY
Bowmans Creek - EC

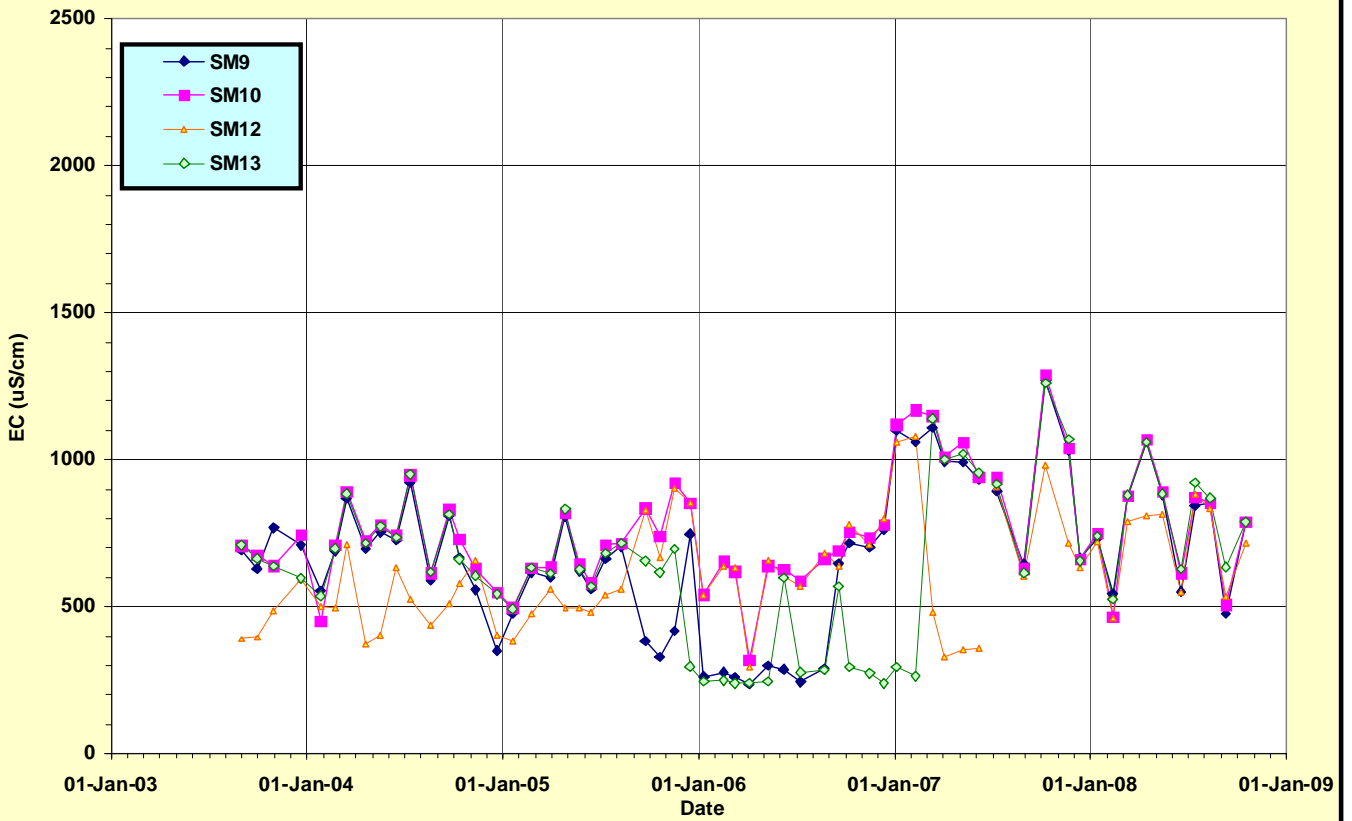


Figure 12

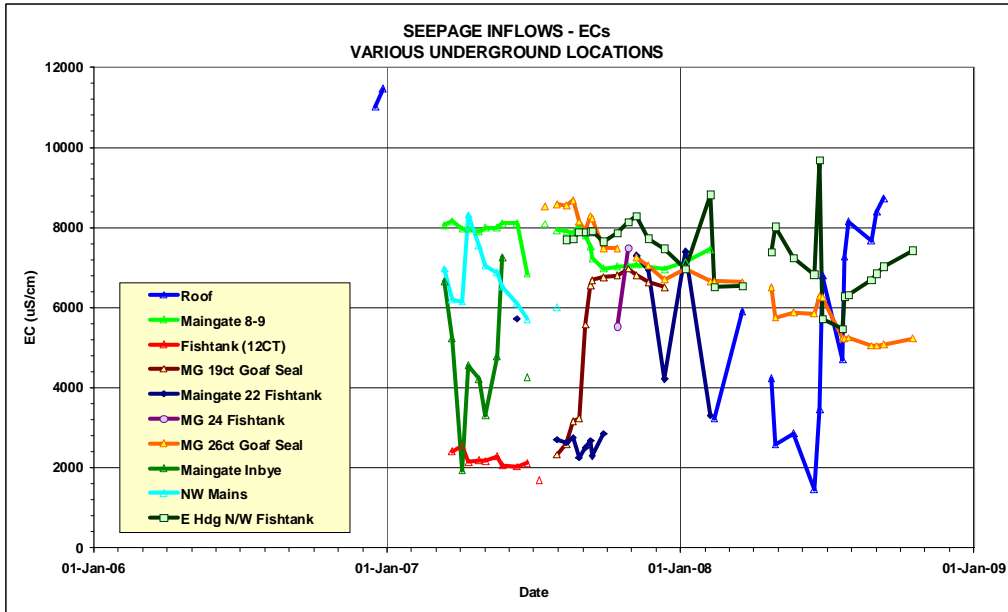
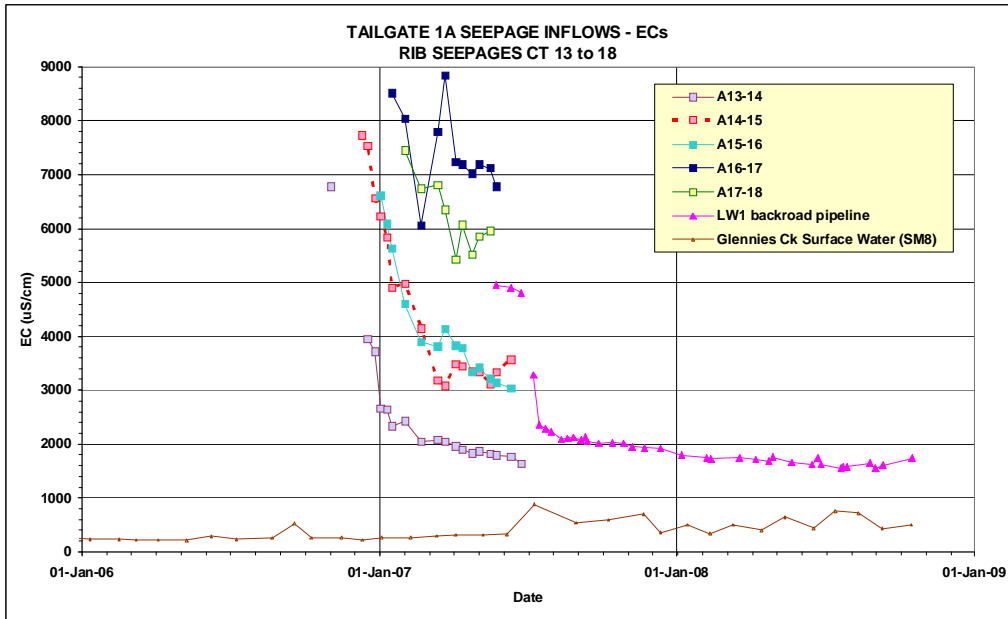
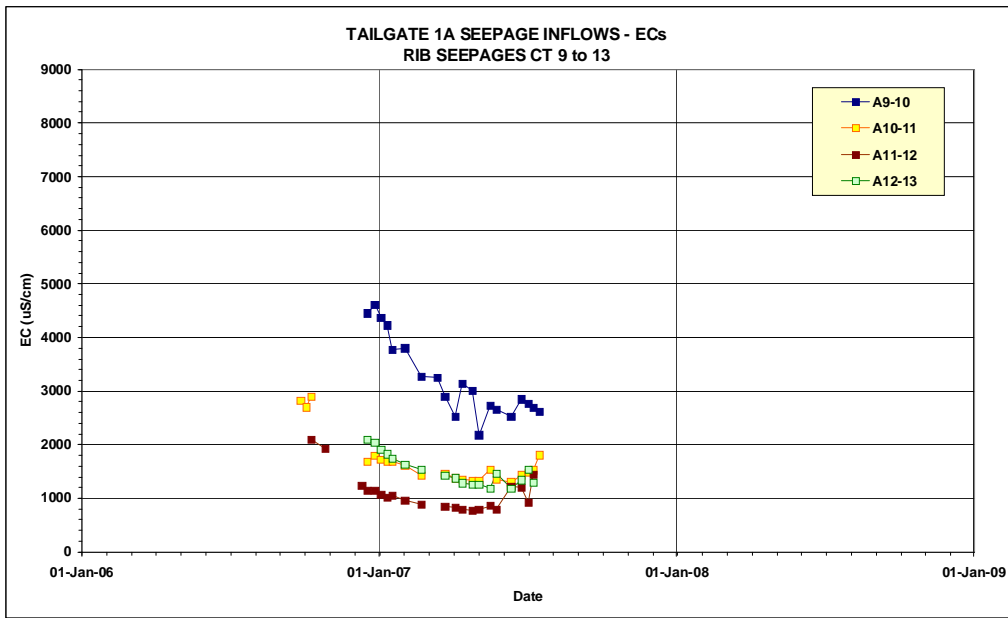
GLENNIES CREEK SURFACE WATER QUALITY - EC



HUNTER RIVER SURFACE WATER QUALITY - EC



| | | |
|-------------------------|---------------------|---|
| Date: 13 December 2008 | Scale: as indicated | Ashton Coal Operations Ltd |
| Initials: TL | Job No: S03 | |
| Drawing No: S03-R10-13a | Rev: A | |
| aquaterra | | SURFACE WATER QUALITY Glennies Creek and Hunter River - EC |
| | | Figure 13 |



| | |
|-------------------------|---------------------|
| Date: 21 November 2008 | Scale: as indicated |
| Initials: TL | Job No: S03 |
| Drawing No: S03-R10-14a | Rev: A |

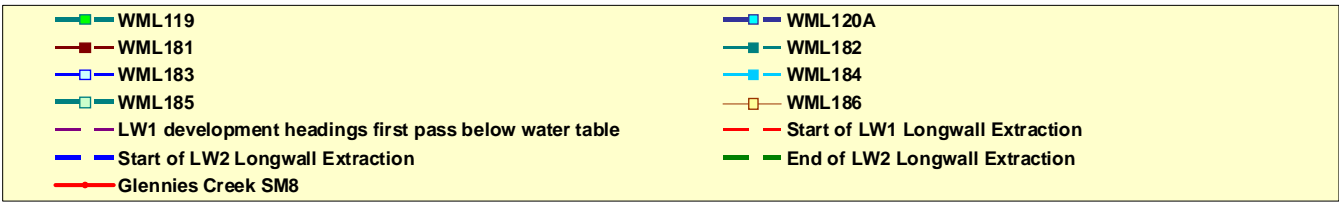
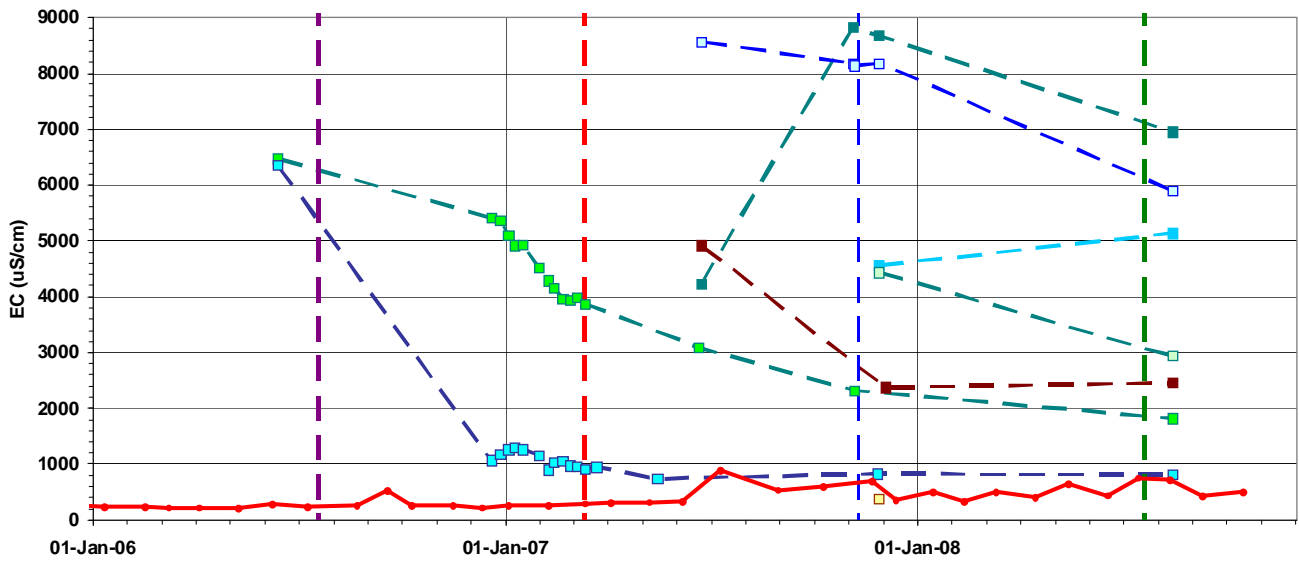
Ashton Coal Operations Ltd

**ASHTON UNDERGROUND MINE
MINE SEEPAGE ECs**

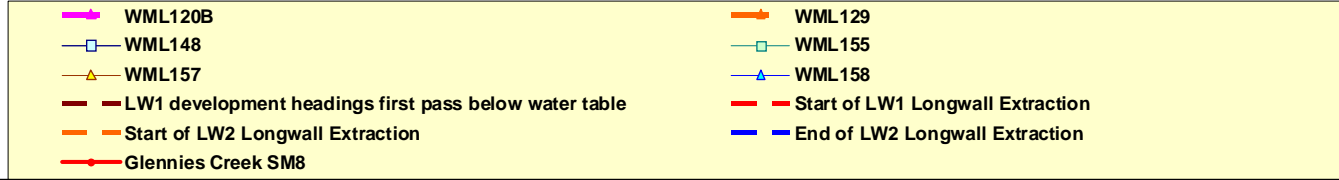
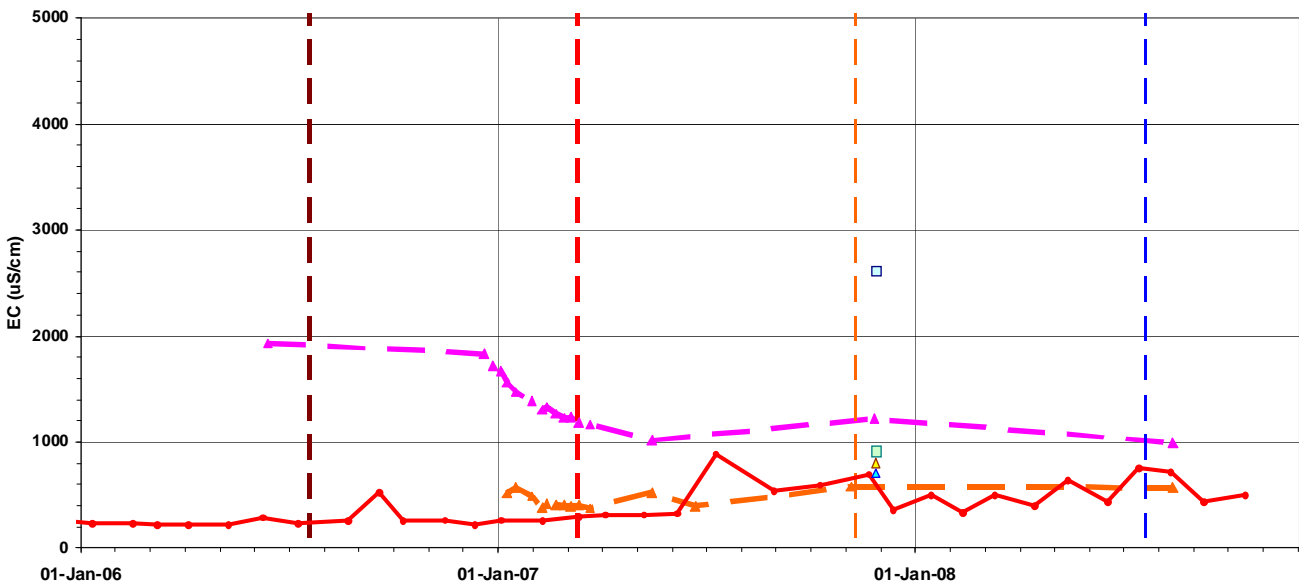


Figure 14

ECs - PIKES GULLY SEAM MONITORING BORES



ECs - GLENNIES CREEK ALLUVIUM MONITORING BORES



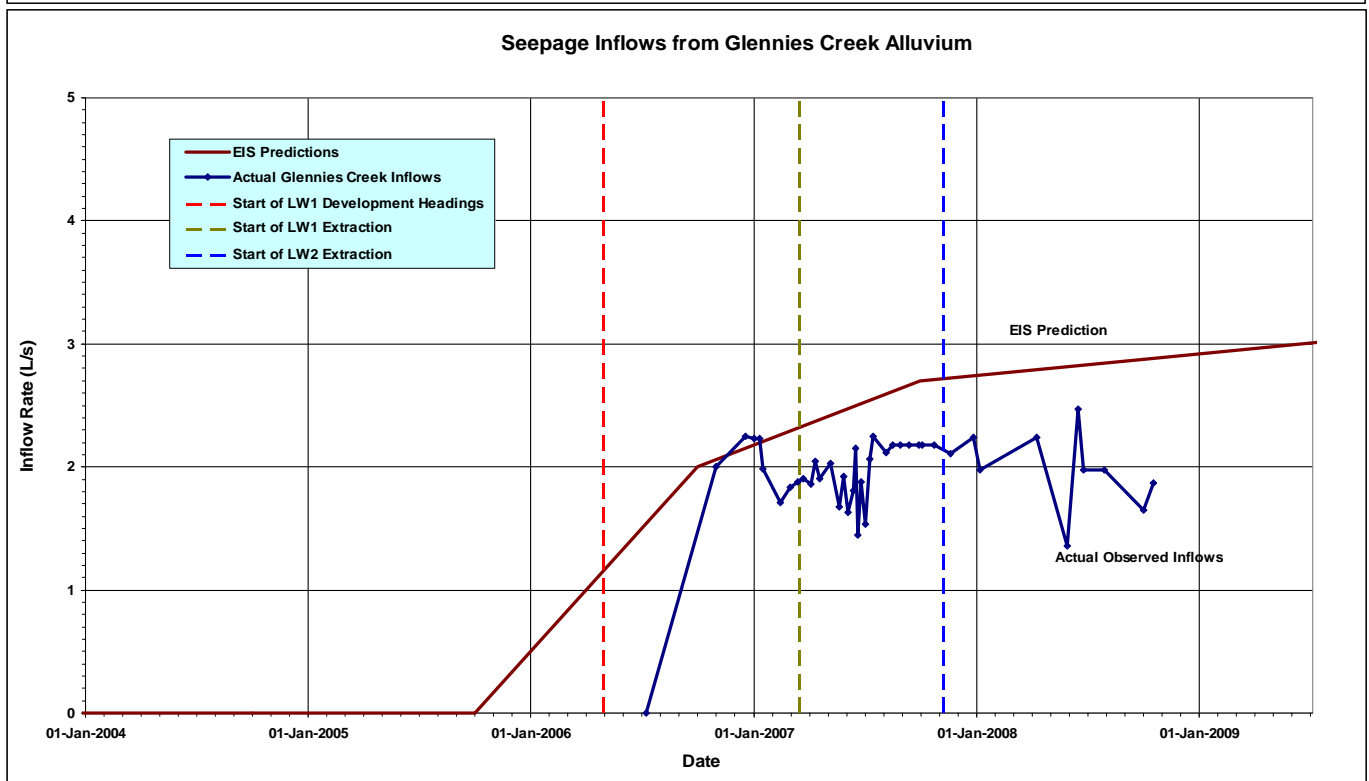
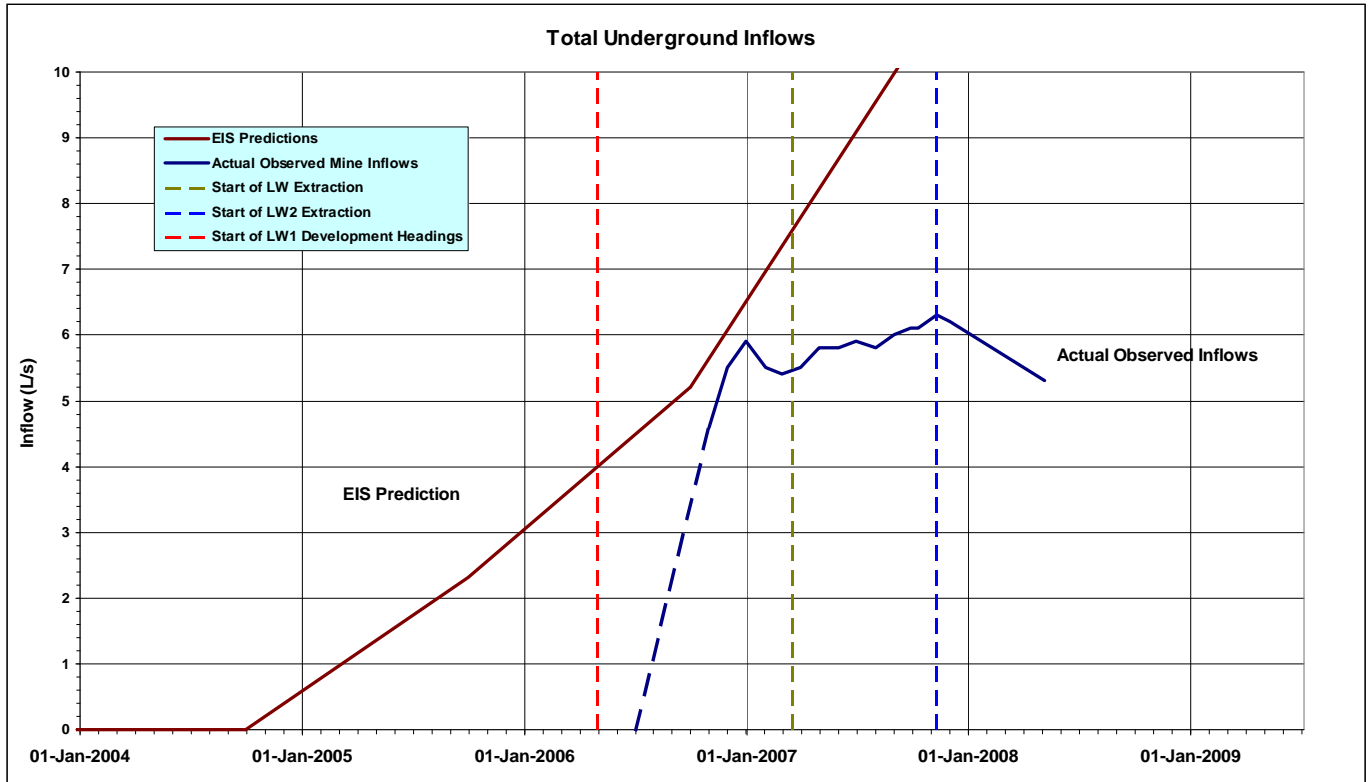
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|-------------------------|---------------------|
| Date: 21 November 2008 | Scale: as indicated |
| Initials: TL | Job No: S03 |
| Drawing No: S03-R10-15a | Rev: A |

Ashton Coal Operations Ltd

**ASHTON UNDERGROUND MINE
MONITORING BORE ECs**



Figure 15



| | | |
|-------------------------|---------------------|---|
| Date: 26 November 2008 | Scale: as indicated | Ashton Coal Operations Ltd |
| Initials: TL | Job No: S03 | ASHTON UNDERGROUND MINE GROUNDWATER INFLOWS vs EIS PREDICTIONS |
| Drawing No: S03-R10-16a | Rev: B | |
| | | Figure 16 |



In Australia

Perth
Suite 4
125 Melville Parade
Como WA 6152
Australia
Tel +61 8 9368 4044
Fax +61 8 9368 4055
perth@aquaterra.com.au

Adelaide
Ground Floor
15 Bentham Street
Adelaide SA 5000
Australia
Tel +61 8 8410 4000
Fax +61 8 8410 6321
adelaide@aquaterra.com.au

Sydney
Suite 9
1051 Pacific Highway
Pymble NSW 2073
Australia
Tel +61 2 9440 2666
Fax +61 2 9449 3193
sydney@aquaterra.com.au

In the UK

Lewes
Cobbe Barns
Beddingham, Lewes
East Sussex BN8 6JU
United Kingdom
Tel +44 1273 858 223
Fax +44 1273 858 229
lewes@aquaterra.uk.com

In Mongolia

Ulaanbaatar
701 San Business Center
7th khoroо
Sukhbaatar district
Ulaanbaatar
Mongolia
Tel +976 95854921
mongolia@aquaterra.mn

aquaterra

Water and Environment

APPENDIX 3

BLAST MONITORING DATA

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2007 – 2008 Blast Vibration and Overpressure Results

| Shot No | Date | Time | Location | St Clements Church | | Camberwell Village | |
|---------|-----------|----------|---------------|--------------------|--------------|--------------------|--------------|
| | | | | Vibration | Overpressure | Vibration | Overpressure |
| 1 | 05-Sep-07 | 11:35:02 | PG_S8B2W | 1 | 106 | 1 | 102 |
| 2 | 07-Sep-07 | 12:03:58 | PG_S8B3N | 1 | 101 | 1 | 100 |
| 3 | 07-Sep-07 | 12:13:03 | UB_S3-4B5 | 0 | 96 | 1 | 100 |
| 4 | 12-Sep-07 | 13:07:15 | PS_ULD_S8B3 | 1 | 103 | 0 | 98 |
| 5 | 12-Sep-07 | 13:14:39 | MLD_S5B5E | 1 | 112 | 2 | 111 |
| 6 | 14-Sep-07 | 09:19:15 | PG_S8B3S | 0 | 106 | 0 | 100 |
| 7 | 14-Sep-07 | 12:58:01 | PS_ULD_S6Nb | 1 | 1 | 0 | 104 |
| 8 | 18-Sep-07 | 12:00:39 | PS_ART_S8B1 | 1 | 100 | 0 | 100 |
| 9 | 18-Sep-07 | 12:10:24 | MLD_S5B5W | NA | NA | 1 | 104 |
| 10 | 21-Sep-07 | | PS_ART_S8B1-2 | 0 | NA | 0 | NA |
| 11 | 21-Sep-07 | 12:03:20 | PG_S7B1 | 0 | 107 | 0 | 103 |
| 12 | 24-Sep-07 | 09:09:29 | MLD_S5B4E | 1 | 112 | 1 | 112 |
| 13 | 26-Sep-07 | 13:17:39 | PG_S8B1S | 0 | 104 | 1 | 101 |
| 14 | 27-Sep-07 | 12:54:28 | MLD_S5B4W | 1 | 111 | 1 | 112 |
| 15 | 28-Sep-07 | 09:31:05 | MLD_S5B6E | 1 | 110 | 2 | 112 |
| 16 | 28-Sep-07 | 09:39:54 | ART_S7B5 | 0 | 110 | 1 | 1 |
| 17 | 28-Sep-07 | 09:50:52 | PS_LB_S3B1 | 0 | 105 | 1 | 106 |
| 18 | 04-Oct-07 | 12:04:06 | PG_8.1N | 0 | 118 | 1 | 113 |
| 19 | 05-Oct-07 | 10:06:00 | LB_3.1-3E | 1 | 109 | 3 | 107 |
| 20 | 08-Oct-07 | 09:24:14 | ART_7.4 | 0 | 105 | 0 | 101 |
| 21 | 09-Oct-07 | 12:00:56 | PG_8.2 Knob | NA | NA | 1 | 92 |
| 22 | 10-Oct-07 | 12:57:05 | LB_3.1W | 1 | 101 | 1 | 103 |
| 23 | 11-Oct-07 | 12:43:32 | MLD_5.3 | 1 | 111 | 1 | 113 |
| 24 | 11-Oct-07 | 12:50:36 | PS_UB_4N | 0 | 104 | 0 | 96 |

2007 – 2008 Blast Vibration and Overpressure Results

| Shot No | Date | Time | Location | St Clements Church | | Camberwell Village | |
|---------|-----------|----------|------------------------|--------------------|--------------|--------------------|--------------|
| | | | | Vibration | Overpressure | Vibration | Overpressure |
| 25 | 12-Oct-07 | 11:52:24 | ART_7.2 | 0 | 102 | 0 | NA |
| 26 | 15-Oct-07 | | ART_8.3.E | 0 | NA | 0 | NA |
| 27 | 17-Oct-07 | 12:03:20 | ULD_6.5W | 1 | 107 | 1 | 107 |
| 28 | 18-Oct-07 | 11:48:01 | UB_4.1 | 1 | 103 | 1 | 105 |
| 29 | 18-Oct-07 | 12:02:17 | ART_8.3 | 0 | 1 | 0 | NA |
| 30 | 18-Oct-07 | | PG_8.2-2 | 0 | NA | 0 | NA |
| 31 | 19-Oct-07 | 15:52:01 | PG_8.1-2 | 0 | 108 | 0 | 105 |
| 32 | 19-Oct-07 | 15:57:40 | ULLD_Centre_N | 1 | 103 | 2 | 102 |
| 33 | 19-Oct-07 | | LB_3.3.W | 1 | 103 | 1 | 104 |
| 34 | 23-Oct-07 | 12:02:23 | ULD_6.4.E | 1 | 106 | 1 | 105 |
| 35 | 24-Oct-07 | 11:58:47 | UB_4.2 | 1 | 102 | 1 | 105 |
| 36 | 26-Oct-07 | 15:02:56 | ULLD_Centre_S | 1 | 100 | 1 | 100 |
| 37 | 30-Oct-07 | 12:20:02 | MLD_5.2.W | 1 | 103 | 1 | 101 |
| 38 | 30-Oct-07 | 12:24:14 | ULD_6.3.E | 1 | 112 | 1 | 113 |
| 39 | 31-Oct-07 | 12:01:54 | ULD_6.4.W, ULD_6.4.E.2 | 1 | 103 | 1 | 105 |
| 40 | 02-Nov-07 | 12:05:21 | LB_3.4 | 1 | 105 | 3 | 106 |
| 41 | 02-Nov-07 | 12:15:36 | UB_4.3 | 1 | 109 | 2 | 105 |
| 42 | 06-Nov-07 | 12:04:13 | ULD_6.3.W | 1 | 107 | 1 | 100 |
| 43 | 13-Nov-07 | 16:15:36 | ULD_6.2 | 1 | 105 | 1 | 103 |
| 44 | 14-Nov-07 | 12:02:56 | LLLD_centre | 0 | 100 | 1 | 97 |
| 45 | 15-Nov-07 | 09:01:14 | ART_8.2.E | 0 | 105 | 1 | 102 |
| 46 | 16-Nov-07 | 12:04:13 | ART_7.1 | 1 | 102 | 0 | NA |
| 47 | 20-Nov-07 | 12:01:23 | ART_8.2.W | 0 | NA | 0 | 96 |
| 48 | 20-Nov-07 | | ART_6.1 | 0 | NA | 0 | NA |
| 49 | 22-Nov-07 | 11:56:10 | UB_4.5.W | 1 | 103 | 1 | 101 |

2007 – 2008 Blast Vibration and Overpressure Results

| Shot No | Date | Time | Location | St Clements Church | | Camberwell Village | |
|---------|-----------|----------|---------------------------|--------------------|--------------|--------------------|--------------|
| | | | | Vibration | Overpressure | Vibration | Overpressure |
| 50 | 22-Nov-07 | 11:59:21 | ULLD_5.4.E | 1 | 108 | 1 | 101 |
| 51 | 26-Nov-07 | 13:41:34 | ART_8.1.E | 0 | 98 | 0 | 97 |
| 52 | 26-Nov-07 | 13:45:43 | ULD_6.1.E | 0 | 112 | 1 | 113 |
| 53 | 30-Nov-07 | 09:19:56 | ULD_7.2.3.E | 1 | 107 | 1 | 108 |
| 54 | 05-Dec-07 | 12:30:05 | MLD_6.4.E | 1 | 106 | 2 | 105 |
| 55 | 10-Dec-07 | 12:06:31 | ULD_7.3.4.E | 1 | 105 | 1 | 104 |
| 56 | 11-Dec-07 | 09:30:24 | ULD_7.3.4.E | 1 | 98 | 1 | 97 |
| 57 | 12-Dec-07 | 12:22:16 | ULD_7.3.4.E | 1 | 103 | 2 | 106 |
| 58 | 14-Dec-07 | 14:06:45 | ULD_7.3.4.E | 0 | 103 | 1 | 102 |
| 59 | 14-Dec-07 | 14:14:37 | ULD_7.3.4.E | 1 | 105 | 1 | 105 |
| 60 | 19-Dec-07 | 12:29:45 | PS_UB_3.S.E | 1 | 104 | 2 | 106 |
| 61 | 21-Dec-07 | 11:43:14 | ULLD_3.7.N | 1 | 111 | 1 | 103 |
| 62 | 28-Dec-07 | 12:05:47 | PS_UB_3.S.E | 0 | 101 | 1 | 101 |
| 63 | 04-Jan-08 | 12:37:07 | ULD_5.6.1, ART_8.1.W | 0 | 107 | 1 | 107 |
| 64 | 09-Jan-08 | 13:12:21 | ULD_7.2 | 1 | 105 | 1 | 101 |
| 65 | 09-Jan-08 | 13:05:00 | ULD knob re-blast | 0 | NA | 1 | NA |
| 66 | 11-Jan-08 | 12:36:19 | ULD_8.3.E | 1 | 102 | 1 | 99 |
| 67 | 17-Jan-08 | 12:11:42 | ART_8.1.W corner, ULD_7.1 | 1 | 106 | 1 | 106 |
| 68 | 22-Jan-08 | 12:08:55 | MLD_6.3.E | 1 | 101 | 1 | 100 |
| 69 | 25-Jan-08 | 12:12:24 | ULLD_5.5 | 1 | 95 | 1 | 96 |
| 70 | 25-Jan-08 | 12:19:25 | UBS_4.4.E | 1 | 107 | 2 | 110 |
| 71 | 25-Jan-08 | 12:27:00 | PS_LB.4.N | 0 | NA | 0 | NA |
| 72 | 30-Jan-08 | 12:35:00 | UBS_4.3.W | 1 | 102 | 1 | 102 |
| 73 | 01-Feb-08 | 12:45:39 | UBS_4.1.2.E, ULD_7.3_2 | 1 | 105 | 1 | 109 |
| 74 | 06-Feb-08 | | ULD_7.3.E_2 | 0 | NA | 0 | NA |

2007 – 2008 Blast Vibration and Overpressure Results

| Shot No | Date | Time | Location | St Clements Church | | Camberwell Village | |
|---------|-----------|----------|--|--------------------|--------------|--------------------|--------------|
| | | | | Vibration | Overpressure | Vibration | Overpressure |
| 75 | 14-Feb-08 | 12:07:33 | MLD_6.3.W | 2 | 106 | 3 | 107 |
| 76 | 14-Feb-08 | 12:11:32 | ULLD_4.8 | 1 | 103 | 1 | 102 |
| 77 | 15-Feb-08 | 11:54:05 | UBS_4.4.S | 0 | 96 | 1 | 99 |
| 78 | 20-Feb-08 | 12:43:24 | UBS_4.1.2.W, MLD_5.3.E_2 | 1 | 106 | 1 | 106 |
| 79 | 22-Feb-08 | 12:03:32 | ULD_7.3.N_2 | 1 | 106 | 2 | 106 |
| 80 | 22-Feb-08 | | ULLD_4.8.E | 0 | NA | 0 | NA |
| 81 | 26-Feb-08 | 12:10:44 | PS_ULD_S8S,PS_ULD_West | 0 | 102 | 1 | 101 |
| 82 | 27-Feb-08 | 12:55:04 | PS_ULD_7.N | 1 | 97 | 1 | 107 |
| 83 | 29-Feb-08 | 12:31:35 | MLD_5.3.W_2 | 1 | 95 | 1 | 96 |
| 84 | 03-Mar-08 | 12:39:04 | MLD_5.2.W, ULD_S4Ramp | 1 | 106 | 1 | 107 |
| 85 | 05-Mar-08 | 12:03:30 | MLD_6.3.N | 1 | 103 | 1 | 101 |
| 86 | 07-Mar-08 | 13:05:26 | PS_MLD_6.N, MLD_6.1.2.E | 1 | 102 | 1 | 99 |
| 87 | 07-Mar-08 | 13:08:59 | ULLD_S4B8N | 1 | 105 | 1 | 103 |
| 88 | 11-Mar-08 | 12:17:55 | ULLD_5.3.E | 0 | 107 | 1 | 108 |
| 89 | 14-Mar-08 | 16:22:37 | MLD_7.3.E | 2 | 103 | 2 | 102 |
| 90 | 17-Mar-08 | 13:39:02 | MLD_6.3.NE | 1 | 103 | 1 | 100 |
| 91 | 20-Mar-08 | 10:06:18 | UBS_Misfire & PS_MLD_5.N & MLD_5.1.2.E | 0 | NA | 1 | 109 |
| 92 | 28-Mar-08 | 12:42:42 | LB_4.4 | 1 | 103 | 3 | 108 |
| 93 | 02-Apr-08 | 11:52:58 | MLD_5.1.E | 0 | NA | 1 | 104 |
| 94 | 04-Apr-08 | 12:02:55 | PS_MLD_S5N, MLD_5.1.W | 0 | NA | 1 | 99 |
| 95 | 04-Apr-08 | 12:10:33 | ULD_8.1.E | 0 | 111 | 1 | 110 |
| 96 | 09-Apr-08 | 12:41:51 | ULD_8.1-2E, LB_4.3 | 1 | 105 | 1 | 107 |
| 97 | 11-Apr-08 | 13:57:54 | PS_MLD_7.N | 0 | NA | 1 | 91 |
| 98 | 11-Apr-08 | 14:02:21 | MLD_6.4_2 | 0 | NA | 1 | 106 |

2007 – 2008 Blast Vibration and Overpressure Results

| Shot No | Date | Time | Location | St Clements Church | | Camberwell Village | |
|---------|-----------|----------|------------------------------|--------------------|--------------|--------------------|--------------|
| | | | | Vibration | Overpressure | Vibration | Overpressure |
| 99 | 11-Apr-08 | 14:04:56 | MLD_6.2.E | 0 | NA | 0 | 102 |
| 100 | 18-Apr-08 | 12:06:34 | PS_ULD_S8W, ULD_8.1.2.W | 1 | 108 | 1 | 99 |
| 101 | 18-Apr-08 | 12:17:02 | MLD_6.3.4.W_2 | 0 | 101 | 1 | 101 |
| 102 | 18-Apr-08 | 12:33:08 | LLLD_4.7 | 1 | 101 | 1 | 102 |
| 103 | 23-Apr-08 | 12 noon | MLD_5.2.W_2 | 0 | NA | 0 | NA |
| 104 | 30-Apr-08 | 13:58:07 | MLD_6.7.1 | 1 | 116 | 1 | 115 |
| 105 | 02-May-08 | 11:58:56 | ULD_S8B4 and PS | 1 | 107 | 1 | 106 |
| 106 | 02-May-08 | 16:17:11 | ULLD_5.4.W | 1 | 111 | 1 | 112 |
| 107 | 06-May-08 | 12:45:25 | MLD_6.2.E_2 | 0 | 102 | 0 | 100 |
| 108 | 09-May-08 | 11:59:29 | ULLD_5.1.2.E | 0 | 106 | 1 | 109 |
| 109 | 09-May-08 | 12:06:04 | Misfire (MLD_6.7.1), ULD_8.3 | 1 | 112 | 1 | 110 |
| 110 | 12-May-08 | 11:15:00 | MLD_5.1.W_2 | 0 | NA | 0 | NA |
| 111 | 14-May-08 | 15:04:10 | PS_LLLD_5N | 0 | NA | 1 | 99 |
| 112 | 14-May-08 | 15:08:49 | MLD_6.1.2.W | 1 | 109 | 1 | 107 |
| 113 | 16-May-08 | 12:06:41 | ULLD_5.1.E | 1 | 110 | 2 | 109 |
| 114 | 16-May-08 | 12:10:07 | ULD_8.4_B | 1 | 110 | 1 | 105 |
| 115 | 21-May-08 | 12:04:59 | ULLD_6.3.4.E | 1 | 107 | 1 | 109 |
| 116 | 22-May-08 | 12:37:49 | LLLD_5.4.E | 0 | 104 | 0 | 103 |
| 117 | 22-May-08 | 12:41:40 | PS_ULD_Corner | 0 | NA | 0 | 104 |
| 118 | 24-May-08 | 09:15:00 | MLD_6.1_2 | 0 | NA | 0 | NA |
| 119 | 28-May-08 | 13:34:14 | PS_LLLD_6N, MLD_6.1_3 | 0 | 109 | 0 | 109 |
| 120 | 28-May-08 | 13:36:38 | ULD_8.4_B | 1 | 117 | 1 | 113 |
| 121 | 30-May-08 | 12:34:15 | ULLD_5.1.2.W | 1 | 106 | 1 | 106 |
| 122 | 12-Jun-08 | 10:41am | MLD_7.1.2.E | 1 | 116 | 2 | 115 |
| 123 | 12-Jun-08 | 10:45am | UB_3.7.N | 1 | 107 | 3 | 108 |

2007 – 2008 Blast Vibration and Overpressure Results

| Shot No | Date | Time | Location | St Clements Church | | Camberwell Village | |
|---------|-----------|----------|-----------------------------|--------------------|--------------|--------------------|--------------|
| | | | | Vibration | Overpressure | Vibration | Overpressure |
| 124 | 17-Jun-08 | 1:51pm | PS_MLD_7.N.W | 0 | NA | 0 | NA |
| 125 | 17-Jun-08 | 1:56pm | LLLD_5.1.2.E | 0 | NA | 0 | NA |
| 126 | 19-Jun-08 | 09:30:50 | ULLD_6.3.4.W | 0 | NA | 0 | 116 |
| 127 | 20-Jun-08 | 9:35am | ULD_8.W.Toe | 0 | NA | 0 | NA |
| 128 | 24-Jun-08 | 11:31:35 | LLLD_5.3-4.W | 0 | 104 | 0 | 103 |
| 129 | 24-Jun-08 | 11:34:59 | ULD_8.W.Toe_2 | 0 | 97 | 1 | 95 |
| 130 | 25-Jun-08 | 11:30am | PS_UB_4.7 | 0 | NA | 0 | NA |
| 131 | 25-Jun-08 | 12:10:53 | ULLD_S6B1-2E ULLD_S5B4SW | 1 | 117 | 2 | 117 |
| 132 | 26-Jun-08 | 09:30:57 | PS_LLLD_S6N & MLD_S7B1_2 | 0 | 109 | 0 | 109 |
| 133 | 27-Jun-08 | 15:15:16 | ULD_8.W.Toe_3 & LLLD_5.2.E | 0 | 100 | 0 | 99 |
| 134 | 01-Jul-08 | 09:19:31 | LLLD_S5B1W & ULLD_S6B1E | 0 | 109 | 1 | 113 |
| 135 | 04-Jul-08 | 16:07:17 | MLD_S7B3E_2 & MLD_S7B1-2W | 1 | 107 | 2 | 106 |
| 136 | 04-Jul-08 | 16:13:01 | PS_UB_S5N | 0 | 108 | 0 | 103 |
| 137 | 04-Jul-08 | 16:17:12 | LLLD_S5B1W | 0 | 99 | 0 | 102 |
| 138 | 12-Jul-08 | 09:17:02 | UB_S5B2-3E | 1 | 111 | 2 | 113 |
| 139 | 17-Jul-08 | 09:25:54 | UB_S5B3-4E | 1 | 107 | 2 | 110 |
| 140 | 18-Jul-08 | 13:06:15 | LLLD_S5B1-2 | 0 | 109 | 0 | 114 |
| 141 | 21-Jul-08 | 12:30pm | LLLD_S5B1-2 | 0 | NA | 0 | NA |
| 142 | 23-Jul-08 | 11:58:48 | UB_S5_Triangle | 1 | 98 | 0 | 87 |
| 143 | 23-Jul-08 | 12:00:53 | PS_MLD_S8W & PS_MLD_S8N | 0 | 100 | 1 | 101 |
| 144 | 24-Jul-08 | 13:47:47 | LLLD_S1-2E | 0 | 101 | 0 | 101 |
| 145 | 25-Jul-08 | 16:30:19 | ULLD_S6B1-2 | 1 | 104 | 1 | 106 |
| 146 | 30-Jul-08 | 12:00:02 | MLD_S7B3W | 1 | 109 | 1 | 109 |
| 147 | 01-Aug-08 | 14:06:14 | PS_LLLD_S6N_2, ULLD_S6B1-2W | 1 | 108 | 1 | 110 |
| 148 | 05-Aug-08 | 16:16:18 | LLLD_S6B3E | 0 | 111 | 0 | 113 |

2007 – 2008 Blast Vibration and Overpressure Results

| Shot No | Date | Time | Location | St Clements Church | | Camberwell Village | |
|-------------------------|-----------|----------|-------------------------------|--------------------|--------------|--------------------|--------------|
| | | | | Vibration | Overpressure | Vibration | Overpressure |
| 149 | 09-Aug-08 | 09:38:07 | UB_S5B1-3W + PS | 1 | 114 | 1 | 115 |
| 150 | 12-Aug-08 | 12:07:53 | ULLD_S6B3W | 0 | 108 | 0 | 106 |
| 151 | 12-Aug-08 | 12:12:44 | PS_MLD_S7N | 1 | 108 | 1 | 109 |
| 152 | 14-Aug-08 | 12:03:03 | UBS_S5B3-4E | 1 | 112 | 1 | 109 |
| 153 | 18-Aug-08 | 11:59:07 | UB_S6B3W + UB toe | 0 | 110 | 1 | 109 |
| 154 | 18-Aug-08 | 12:04:25 | MLD_S7 toe | 0 | 106 | 0 | 101 |
| 155 | 20-Aug-08 | 12:06:14 | MLD_S6B4W, PS_MLD_S8W | 1 | 109 | 1 | 108 |
| 156 | 21-Aug-08 | 15:08:33 | UBS_S5B1-2E, PS_UB_S5B1-2E | 1 | 113 | 1 | 112 |
| 157 | 27-Aug-08 | 13:00:40 | LLLD_S6B1-2W | 0 | 107 | 0 | 104 |
| 158 | 28-Aug-08 | 12:03:04 | LLLD_S6B3W | 0 | 99 | 0 | 99 |
| 159 | 29-Aug-08 | 12:38:43 | UBS_S5B1-2W, PS_UBS_S5N | 1 | 102 | 1 | 105 |
| Total Blasts 159 | | | Number Blasts Recorded | 157 | 131 | 159 | 140 |
| | | | % Blasts Recorded | 99% | 82% | 100% | 88% |
| | | | Maximum | 2 | 118 | 3 | 117 |
| | | | Average | 1 | 104 | 1 | 104 |
| | | | Minimum | 0 | 1 | 0 | 1 |
| | | | No > 2 mm/s | 0 | | 5 | |
| | | | % > 2 mm/s | 0% | | 3% | |
| | | | No > 10mm/s | 0 | | 0 | |
| | | | No > 115 dBL | | 5 | | 2 |
| | | | % > 115 dBL | | 3% | | 1% |
| | | | No > 120 dBL | | 0 | | 0 |

APPENDIX 4

Annual Noise Monitoring Report

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26 November 2008

Ref: 05148/2872

Ms. Lisa Richards

Ashton Coal Operations Limited
P.O. Box 699
Singleton NSW 2330

2007/2008 ANNUAL NOISE MONITORING REPORT

This letter report presents a summary of the results of quarterly noise compliance monitoring conducted for the Ashton Coal Project (ACP) in November 2007 and February, May and August 2008.

ACP environmental licence conditions indicate that compliance with noise emission criteria is not applicable under atmospheric conditions where winds speeds are higher than 3m/s and/or there is a temperature inversion of greater than +3° C/100m.

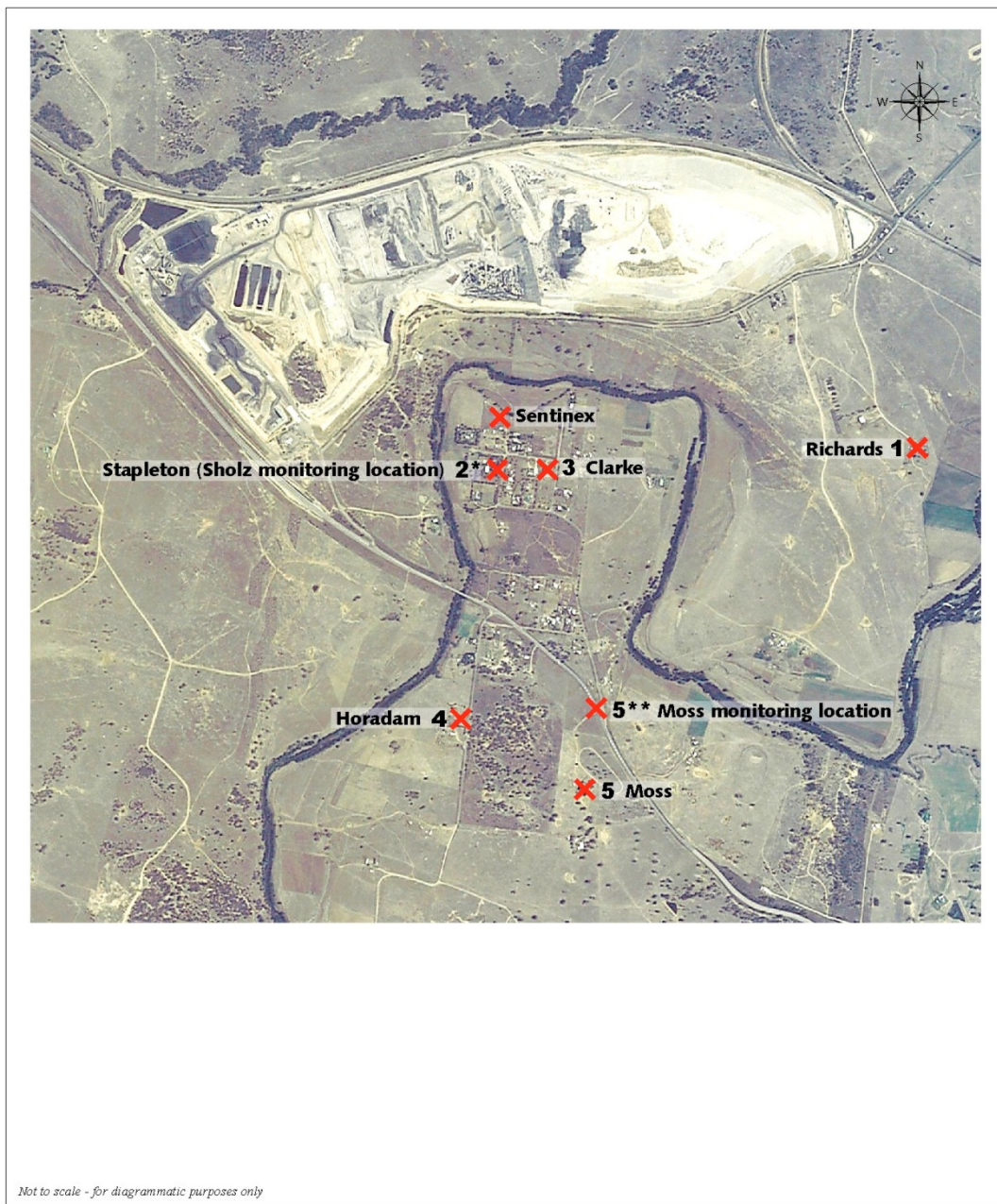
Noise measurements of fifteen minutes duration were taken in one third-octave bands at five representative receiver locations in the vicinity of the mine a shown in **Figure 1** and detailed below.

Location 1: Richards
Location 2: Scholz *
Location 3: Clark
Location 4: Horadam
Location 5: Moss **

*Note that to avoid disruptions to the community, the noise measurements at the Scholz residence were relocated along the street to a location in front of the Stapleton residence.

**The measurement at the Moss residence is taken at the entrance gate to the property.

The results of the monitoring surveys are reproduced in detail as an attachment to this letter.



LEGEND:

✗ Noise monitoring location

FIGURE 1
Ashton Coal Project
Noise Monitoring Location

KG4086_FIG1.cdr

In summary the results of the monitoring show that, under the applicable atmospheric conditions, there was a total of three exceedances of the noise goal throughout the entire year.

Two exceedances were recorded in November 2007, at the Stapleton and Clark residences in Camberwell village during the day. The noise was 2 dB(A), above the noise goal with the noise attributable to emissions from mine hum, a dozer and haul trucks. The dozer and truck were operating in an exposed location on the overburden emplacement overlooking Camberwell. At the time of the exceedance there was a light breeze from the east which is slightly noise enhancing for these receivers.

The only other exceedance was recorded in August 2008, at the Clark residence during the day. A noise level 2 dB(A) above the noise goal was attributable to emissions from a dozer working in an exposed location on the overburden emplacement overlooking Camberwell. At the time of the exceedance there was a light breeze from the east which is slightly noise enhancing for this receiver.



23 November 2007

Ref: 05148/2420

Ashton Coal Operations Limited
P.O. Box 699
Singleton NSW 2330

**2007/2008 QUARTER 1
NOVEMBER 2007 NOISE MONITORING RESULTS**

This letter report presents the results of noise compliance monitoring conducted for the Ashton Coal Project (ACP) between approximately 2.30 p.m. on Monday 19th November 2007 and 1.00 a.m. on Tuesday 20th November.

Noise measurements of fifteen minutes duration were taken in one third-octave bands at the following locations (as shown in Figure 1 Attached):

| | |
|-------------|----------|
| Location 1: | Richards |
| Location 2: | Scholz * |
| Location 3: | Clark |
| Location 4: | Horadam |
| Location 5: | Moss ** |

*Note that to avoid disruptions to the community, the noise measurements at the Scholz residence were relocated along the street to a location in front of the Stapleton residence.

**The measurement at the Moss residence is taken at the entrance gate to the property.

A total of three separate sets of measurements were made over the "circuit". ACP activities were not visible from any of the monitoring locations. At the commencement of the survey winds were from the south west. During the afternoon the wind swung to the south east and increased in strength throughout the evening and night periods.

Meteorological data used in this report was supplied by the mine from their automatic weather station. Wind speeds and direction have been determined as the arithmetic average of the measurements over the monitoring period.

Noise emission levels were measured with a Brüel & Kjær Type 2260 Precision Sound Analyser. This instrument has Type 1 characteristics as defined in AS1259-1982 “Sound Level Meters”. Calibration of the instrument was confirmed with a Brüel & Kjær Type 4231 Sound Level Calibrator Prior to and at the completion of measurements. To avoid undue influence of noise from traffic on roads adjacent to some measurement locations, where practical this noise has been excluded from the measurements prior to further analysis.

Measured noise levels for each monitoring circuit are summarised in the following tables. The total measured Leq is shown in the tables. This was analysed with the Bruel & Kjaer “Evaluator” software to quantify the contributions of the various noise source(s) to the overall. The noise sources are listed in the comments column with the contribution of each shown in brackets. The noise goal for mining operations at ACP is **38 dB(A) Leq (15 min)** for all operating times during the day and evening. The contribution of mine noise from ACP is shown in bold. Exceedences of EPL and Development Consent noise criteria are shown in red.

| Location | Time | dB(A) Leq | Comments | WS and Direction | Inversion °C/ 100m | ACP Noise Sources |
|-----------|---------|-----------|--|------------------|--------------------|-------------------------|
| Richards | 2.35 pm | 42 | Wind on mic (42), ACP inaudible | 0.9 SSE | n/a | n/a |
| Stapleton | 3.18 pm | 46 | Traffic (42), ACP (40) | 1.5 ENE | n/a | Haul trucks, dozer, hum |
| Clark | 3.01 pm | 41 | ACP (40) , traffic (32) | 1.7 ENE | n/a | Haul trucks, dozer, hum |
| Horadam | 3.35 pm | 48 | Traffic (48), ACP inaudible | 2.3 ESE | n/a | n/a |
| Moss | 3.55 pm | 50 | Traffic (50), ACP inaudible | 3.1 ESE | n/a | n/a |

| Location | Time | dB(A) Leq | Comments | WS and Direction | Inversion °C/ 100m | ACP Noise Sources |
|-----------|---------|-----------|--|------------------|--------------------|-------------------|
| Richards | 9.18 pm | 41 | Other mines (40), insects (33), ACP inaudible | 2.5 ESE | n/a | n/a |
| Stapleton | 8.17 pm | 45 | Traffic (45), ACP (35) , insects (34) | 2.8 ESE | n/a | Mine hum |
| Clark | 8.00 pm | 44 | Birds (44), ACP (30) , traffic (27), | 2.8 ESE | n/a | Mine hum |
| Horadam | 8.51 pm | 49 | Traffic (49), insects (39), ACP inaudible | 3.2 ESE | n/a | n/a |
| Moss | 8.35 pm | 50 | Traffic (49), insects (44), other mines (38), ACP inaudible | 3.1 ESE | n/a | n/a |

| Location | Time | dB(A) Leq | Comments | WS and Direction | Inversion °C/ 100m | ACP Noise Sources |
|-----------|----------|-----------|--|------------------|--------------------|-------------------|
| Richards | 12.01 am | 39 | Other mines (37), insects (33), ACP inaudible | 1.8 SSW | +1.25 | n/a |
| Stapleton | 12.42 am | 42 | Traffic (40), insects (37), other mines (32), ACP inaudible | 1.5 SSE | +3.75 | n/a |
| Clark | 12.25 am | 39 | Traffic (37), other mines (33), insects (26), ACP inaudible | 2.2 SSE | 0 | n/a |
| Horadam | 12.59 am | 44 | Traffic (44), ACP inaudible | 2.2 ESE | +2.5 | n/a |
| Moss | 1.20 am | 46 | Traffic (46), other mines (35) ACP inaudible | 2.2 ESE | +2.5 | n/a |

The results show that, under the atmospheric and operating conditions at the time, noise emissions from ACP exceeded the noise goals at the Clark and Stapleton monitoring locations during the day time period. No other exceedances were recorded.

ACP environmental licence conditions indicate that compliance with noise emission criteria is not applicable under atmospheric conditions where winds speeds are higher than 3m/s and/or there is a temperature inversion of greater than +3° C/100m.

Data from those times where ACP operations were audible was analysed using the "Evaluator" software. This analysis showed the noise did not contain any tonal, impulsive or low frequency components as per definitions in the NSW Industrial Noise Policy.

In addition to the operational noise, the noise from ACP must not exceed 48 dB(A) Lmax between the hours of 10 pm and 7 am. This is to minimise the potential for sleep disturbance as a result of individual loud noises from the mine.

During the night time measurement circuit Lmax noise from ACP did not exceed the 48 dB(A) Lmax criterion.

We trust this report fulfils your requirements at this time, however, should you require additional information or assistance please do not hesitate to contact the undersigned.

Yours faithfully,

SPECTRUM ACOUSTICS PTY LIMITED

Author:



Ross Hodge
Acoustical Consultant

Review:



Neil Pennington
Acoustical Consultant



20 February 2008

Ref: 05148/2496

Ashton Coal Operations Limited
P.O. Box 699
Singleton NSW 2330

**2007/2008 QUARTER 2
FEBRUARY 2008 NOISE MONITORING RESULTS**

This letter report presents the results of noise compliance monitoring conducted for the Ashton Coal Project (ACP) between approximately 3.30 p.m. and midnight on Monday 18th February 2008.

Noise measurements of fifteen minutes duration were taken in one third-octave bands at the following locations (as shown in Figure 1 in Appendix A):

Location 1: Richards
Location 2: Scholz *
Location 3: Clark
Location 4: Horadam
Location 5: Moss **

*Note that to avoid disruptions to the community, the noise measurements at the Scholz residence were relocated along the street to a location in front of the Stapleton residence.

**The measurement at the Moss residence is taken at the entrance gate to the property.

A total of three separate sets of measurements were made over the "circuit". ACP activities were visible from the monitoring locations in Camberwell Village. At the commencement of the survey and during the evening and night winds were generally from the east and east south east. The wind speeds dropped off marginally during the night periods.

Meteorological data used in this report was supplied by the mine from their automatic weather station. Wind speeds and direction have been determined as the arithmetic average of the measurements over the monitoring period. Temperature inversion data for the monitoring period was not available

Noise emission levels were measured with a Brüel & Kjær Type 2260 Precision Sound Analyser. This instrument has Type 1 characteristics as defined in AS1259-1982 “Sound Level Meters”. Calibration of the instrument was confirmed with a Brüel & Kjær Type 4231 Sound Level Calibrator Prior to and at the completion of measurements. To avoid undue influence of noise from traffic on roads adjacent to some measurement locations, where practical this noise has been excluded from the measurements prior to further analysis.

Measured noise levels for each monitoring circuit are summarised in the following tables. The total measured Leq is shown in the tables. This was analysed with the Bruel & Kjaer “Evaluator” software to quantify the contributions of the various noise source(s) to the overall. The noise sources are listed in the comments column with the contribution of each shown in brackets. The noise goal for mining operations at ACP is **38 dB(A) Leq (15 min)** for all operating times during the day and evening. The contribution of mine noise from ACP is shown in bold. Any exceedance of EPL and Development Consent noise criteria are shown in red.

| Table 1 ACP Noise Monitoring Results – 18 February 2008 – Day | | | | | | |
|--|---------|--------------|--|---------------------|-----------------------|----------------------|
| Location | Time | dB(A) Leq | Comments | WS and Direction | Inversion °C/ 100m | ACP Noise Sources |
| Richards | 3.40 pm | 39 | Birds & insects (36), wind (33), traffic (33) ACP inaudible | 3.3 ENE | n/a | n/a |
| Stapleton | 4.25 pm | 43 | Traffic (42), birds (36), ACP inaudible | 4.4 ESE | n/a | n/a |
| Clark | 4.07 pm | 43 | ACP (40) traffic (38), wind (37), insects (30) | 3.6 ESE | n/a | Dozer |
| Horadam | 5.03 pm | 47 | Traffic (47), ACP inaudible | 5.9 ESE | n/a | n/a |
| Moss | 4.45 pm | 50 | Traffic (50), ACP inaudible | 4.5 ESE | n/a | n/a |

| Table 2 ACP Noise Monitoring Results – 18 February 2008 – Evening | | | | | | |
|--|---------|--------------|--|---------------------|-----------------------|----------------------|
| Location | Time | dB(A) Leq | Comments | WS and Direction | Inversion °C/ 100m | ACP Noise Sources |
| Richards | 7.35 pm | 45 | Dog (43), other mines (36), birds and insects (34), ACP inaudible | 2.8 ESE | n/a | n/a |
| Stapleton | 8.20 pm | 44 | Birds & insects (42), traffic (41), other mines (32), ACP inaudible | 3.4 ESE | n/a | Mine hum |
| Clark | 8.02 pm | 41 | Traffic (38), birds & insects (37), other mines (32), ACP inaudible | 3.0 ESE | n/a | |
| Horadam | 8.58 pm | 44 | Traffic (43), insects (35), ACP inaudible | 2.8 ESE | n/a | n/a |
| Moss | 8.40 pm | 56 | Traffic (56), ACP inaudible | 3.0 ENE | n/a | n/a |

| Table 3 ACP Noise Monitoring Results – 18 February 2008 – Night | | | | | | |
|--|----------|--------------|--|---------------------|-----------------------|----------------------|
| Location | Time | dB(A) Leq | Comments | WS and Direction | Inversion °C/ 100m | ACP Noise Sources |
| Richards | 10.07 pm | 48 | Train (46), insects (41), dog (38), other mines (35), ACP inaudible | 2.3 ENE | n/a | n/a |
| Stapleton | 10.47 pm | 42 | Traffic (39), insects (36), other mines (31), ACP inaudible | 2.1 ENE | n/a | n/a |
| Clark | 10.30 pm | 42 | Traffic (40), insects (35), other mines (31), ACP inaudible | 2.4 ENE | n/a | n/a |
| Horadam | 11.23 pm | 47 | Traffic (47), ACP inaudible | 2.2 ENE | n/a | n/a |
| Moss | 11.05 pm | 55 | Traffic (55), ACP inaudible | 2.3 ENE | n/a | n/a |

The results show that, under the atmospheric and operating conditions at the time, noise emissions from ACP exceeded the noise goal only at the Clark residence during the day period. At that time there was a dozer working on contouring the southern side of the emplacement with direct line of sight to the Clark residence and no acoustic shielding from the emplacement. The dozer finished working at about 4.20 pm.

ACP environmental licence conditions indicate that compliance with noise emission criteria is not applicable under atmospheric conditions where winds speeds are higher than 3m/s and/or there is a temperature inversion of greater than +3° C/100m. At the time of the exceedance at the Clark residence the mine operated automatic weather station indicated winds were from the east at 3.6m/s.

The received noise did not exceed the noise goals at any other monitoring locations throughout each of the day, evening or night time periods.

Data from those times where ACP operations were audible was analysed using the "Evaluator" software. This analysis showed the noise did not contain any tonal, impulsive or low frequency components as per definitions in the NSW Industrial Noise Policy.

In addition to the operational noise, the noise from ACP must not exceed 48 dB(A) Lmax between the hours of 10 pm and 7 am. This is to minimise the potential for sleep disturbance as a result of individual loud noises from the mine.

During the night time measurement circuit Lmax noise from ACP did not exceed the 48 dB(A) Lmax criterion.

We trust this report fulfils your requirements at this time, however, should you require additional information or assistance please do not hesitate to contact the undersigned.

Yours faithfully,

SPECTRUM ACOUSTICS PTY LIMITED

Author:



Ross Hodge
Acoustical Consultant

Review:



Neil Pennington
Acoustical Consultant



4 June 2008

Ref: 05148/2625

Ashton Coal Operations Limited
P.O. Box 699
Singleton NSW 2330

**2007/2008 QUARTER 3
MAY 2008 NOISE MONITORING RESULTS**

This letter report presents the results of noise compliance monitoring conducted for the Ashton Coal Project (ACP) between approximately 4.10 p.m. and mid night on Monday 26th May 2008.

Noise measurements of fifteen minutes duration were taken in one third-octave bands at the following locations (as shown in Figure 1 in Appendix A):

| | |
|-------------|----------|
| Location 1: | Richards |
| Location 2: | Scholz * |
| Location 3: | Clark |
| Location 4: | Horadam |
| Location 5: | Moss ** |

*Note that to avoid disruptions to the community, the noise measurements at the Scholz residence were relocated along the street to a location in front of the Stapleton residence.

**The measurement at the Moss residence is taken at the entrance gate to the property.

A total of three separate sets of measurements were made over the "circuit". ACP activities were not visible from any of the monitoring locations.

Meteorological data used in this report was supplied by the mine from their automatic weather station. Wind speeds and direction have been determined as the arithmetic average of the measurements over the monitoring period. Throughout the survey winds were consistently from the north west. Wind speeds were greater than 4m/s during the day, but dropped off significantly during the evening and night surveys. The weather station indicated a moderate temperature inversion active during the evening and night monitoring period.

Noise emission levels were measured with a Brüel & Kjær Type 2260 Precision Sound Analyser. This instrument has Type 1 characteristics as defined in AS1259-1982 “Sound Level Meters”. Calibration of the instrument was confirmed with a Brüel & Kjær Type 4231 Sound Level Calibrator Prior to and at the completion of measurements. To avoid undue influence of noise from traffic on roads adjacent to some measurement locations, where practical this noise has been excluded from the measurements prior to further analysis.

Measured noise levels for each monitoring circuit are summarised in the following tables. The total measured Leq is shown in the tables. This was analysed with the Bruel & Kjaer “Evaluator” software to quantify the contributions of the various noise source(s) to the overall. The noise sources are listed in the comments column with the contribution of each shown in brackets. The noise goal for mining operations at ACP is **38 dB(A) Leq (15 min)** for all operating times during the day and evening. The contribution of mine noise from ACP is shown in bold. Any exceedance of EPL and Development Consent noise criteria are shown in red.

| Location | Time | dB(A) Leq | Comments | WS / Direction | Inversion °C/ 100m | ACP Noise Sources |
|-----------|---------|--------------|--|-------------------|-----------------------|-------------------------|
| Richards | 5.16 pm | 40 | Birds (35), cows (34), traffic (30), ACP (30) | 4.8 WNW | n/a | Mine hum |
| Stapleton | 4.18 pm | 50 | Traffic (50), birds (37), ACP (36) | 4.8 WNW | n/a | Mine hum, conveyor ? |
| Clark | 4.01 pm | 46 | Traffic (45), birds(34) ACP (33) | 4.4 WNW | n/a | Mine hum, conveyor ? |
| Horadam | 4.55 pm | 54 | Traffic (54), dog (45), ACP inaudible | 5.6 WNW | n/a | n/a |
| Moss | 4.36 pm | 65 | Traffic (65), ACP inaudible | 5.0 WNW | n/a | n/a |

| Location | Time | dB(A) Leq | Comments | WS / Direction | Inversion °C/ 100m | ACP Noise Sources |
|-----------|---------|--------------|--|-------------------|-----------------------|-----------------------------------|
| Richards | 7.35 pm | 43 | Farm machinery (43), ACP (30) | 1.8 WNW | +5.2 | Mine hum, |
| Stapleton | 8.13 pm | 46 | Traffic (44), ACP (42) | 1.9 WNW | +10.0 | Mine hum, trucks, conveyor? |
| Clark | 7.57 pm | 47 | Traffic (45), ACP (42) , dog (30) | 1.7 WNW | +8.2 | Mine hum, trucks |
| Horadam | 8.47 pm | 51 | Traffic (51), ACP (38 est.) | 1.4 WNW | +10.6 | Mine hum, |
| Moss | 8.30 pm | 55 | Traffic (55), ACP (30 est.) | 1.1 WNW | +10.2 | Mine hum, |

| Location | Time | dB(A) Leq | Comments | WS / Direction | Inversion °C/ 100m | ACP Noise Sources |
|-----------|----------|--------------|---|-------------------|-----------------------|------------------------------|
| Richards | 10.20 pm | 39 | Traffic (38) other mines (32), ACP inaudible | 2.2 WNW | +4.7 | n/a |
| Stapleton | 11.00 pm | 47 | Traffic (44), ACP (43) | 2.3 WNW | +8.6 | CHPP, dozer?, engine revs |
| Clark | 10.43 pm | 47 | ACP (44) , traffic (43) | 1.9 WNW | +7.9 | CHPP, dozer?, engine revs |
| Horadam | 11.35 pm | 48 | Traffic (48) ACP (37 est.) | 2.7 WNW | +0.7 | n/a |
| Moss | 11.17 pm | 66 | Traffic (66), ACP inaudible | 2.6 WNW | +2.5 | n/a |

The results show that, under the atmospheric and operating conditions at the time, noise emissions from ACP exceeded the noise goal at the Stapleton and Clark monitoring locations during the evening or night time periods. During the time of these monitoring events there was a temperature inversion of greater than +3°C/100m. ACP environmental licence conditions indicate that compliance with noise emission criteria is not applicable under atmospheric conditions where winds speeds are higher than 3m/s and/or there is a temperature inversion of greater than +3°C/100m.

Data from those times where ACP operations were audible was analysed using the "Evaluator" software. This analysis showed the noise did not contain any tonal, impulsive or low frequency components as per definitions in the NSW Industrial Noise Policy.

In addition to the operational noise, the noise from ACP must not exceed 48 dB(A) Lmax between the hours of 10 pm and 7 am. This is to minimise the potential for sleep disturbance as a result of individual loud noises from the mine.

During the night time measurement circuit Lmax noise from ACP was measured at 50 dB(A) at the Clark residence and 49 dB(A) at the Stapleton residence. Both exceedances were due to engine noise from the vicinity of the CHPP. Both of these exceedances occurred during an strong temperature inversion (>+3°C/100m).

We trust this report fulfils your requirements at this time, however, should you require additional information or assistance please do not hesitate to contact the undersigned.

Yours faithfully,

SPECTRUM ACOUSTICS PTY LIMITED

Author:



Ross Hodge
Acoustical Consultant

Review:



Neil Pennington
Acoustical Consultant



17 September 2008

Ref: 05148/2770

Ashton Coal Operations Limited
P.O. Box 699
Singleton NSW 2330

**2007/2008 QUARTER 4
25 AUGUST 2008 NOISE MONITORING RESULTS**

This letter report presents the results of noise compliance monitoring conducted for the Ashton Coal Project (ACP) between approximately 4.00 p.m. on and midnight on Monday 25th August 2008.

Noise measurements of fifteen minutes duration were taken in one third-octave bands at the following locations (as shown in Figure 1 in Appendix A):

| | |
|-------------|----------|
| Location 1: | Richards |
| Location 2: | Scholz * |
| Location 3: | Clark |
| Location 4: | Horadam |
| Location 5: | Moss ** |

*Note that to avoid disruptions to the community, the noise measurements at the Scholz residence were relocated along the street to a location in front of the Stapleton residence.

**The measurement at the Moss residence is taken at the entrance gate to the property.

A total of three separate sets of measurements were made over the "circuit". ACP activities were visible on occasion from the monitoring locations.

Meteorological data used in this report was supplied by the mine from their automatic weather station. Wind speeds and direction have been determined as the arithmetic average of the measurements over the monitoring period. Throughout the survey winds were generally from the east to south east. The weather station showed winds were light ranging from calm to 2 m/s. The weather station indicated that a moderate inversion was in place from 6:10pm onwards ranging from 3%/100m to 8.23%/100m.

Noise emission levels were measured with a Brüel & Kjær Type 2260 Precision Sound Analyser. This instrument has Type 1 characteristics as defined in AS1259-1982 “Sound Level Meters”. Calibration of the instrument was confirmed with a Brüel & Kjær Type 4231 Sound Level Calibrator Prior to and at the completion of measurements. To avoid undue influence of noise from traffic on roads adjacent to some measurement locations, where practical this noise has been excluded from the measurements prior to further analysis.

Measured noise levels for each monitoring circuit are summarised in the following tables. The total measured Leq is shown in the tables. This was analysed with the Bruel & Kjaer “Evaluator” software to quantify the contributions of the various noise source(s) to the overall. The noise sources are listed in the comments column with the contribution of each shown in brackets. The noise goal for mining operations at ACP is **38 dB(A) Leq (15 min)** for all operating times during the day and evening. The contribution of mine noise from ACP is shown in bold. Any exceedance of EPL and Development Consent noise criteria are shown in red.

| Table 1 ACP Noise Monitoring Results – 25 August 2008 – Day | | | | | | |
|--|---------|--------------|--|-------------------|-----------------------|----------------------|
| Location | Time | dB(A) Leq | Comments | WS / Direction | Inversion °C/ 100m | ACP Noise Sources |
| Richards | 3.32 pm | 36 | Tractor (33), ACP (32) , birds (31) | 0.3 ESE | n/a | Dozer |
| Stapleton | 4.46 pm | 40 | Traffic (39), ACP (35) , birds (28) | 1.2 ENE | n/a | Dozer |
| Clark | 4.02 pm | 41 | ACP (40) , birds (33), dog (30) | 0.8 ENE | n/a | Dozer |
| Horadam | 4.22 pm | 54 | Traffic (54), ACP inaudible | 0.5 ENE | n/a | n/a |
| Moss | 5.03 pm | 56 | Traffic (56), ACP inaudible | 1.7 ENE | n/a | n/a |

| Table 2 ACP Noise Monitoring Results – 25 August 2008 – Evening | | | | | | |
|--|---------|--------------|---|-------------------|-----------------------|--------------------------|
| Location | Time | dB(A) Leq | Comments | WS / Direction | Inversion °C/ 100m | ACP Noise Sources |
| Richards | 7.39 pm | 40 | Other mines (40), birds (25), ACP inaudible | 2.1 ESE | 6.98 | n/a |
| Stapleton | 9.17 pm | 48 | Traffic (48), other mines (36), ACP est. (32) | 0.9 SSE | 4.65 | Haul trucks, mine hum |
| Clark | 8.02 pm | 44 | Traffic (41), other mines (38), ACP est. (34) , train (33) | 2.2 SSE | 5.55 | Haul trucks, mine hum |
| Horadam | 8.22 pm | 47 | Traffic (46), other mines (40), ACP (35) | 2.0 SSE | 5.01 | Haul trucks, mine hum |
| Moss | 9.00 pm | 54 | Traffic (54), other mines (40), ACP inaudible | 2.0 SSE | 4.65 | n/a |

| Table 3 ACP Noise Monitoring Results – 25 August 2008 – Night | | | | | | |
|--|----------|--------------|--|-------------------|-----------------------|----------------------|
| Location | Time | dB(A) Leq | Comments | WS / Direction | Inversion °C/ 100m | ACP Noise Sources |
| Richards | 10.03 pm | 41 | Other mines (41), cows (30), ACP inaudible | 0.8 SSE | 6.26 | n/a |
| Stapleton | 10.46 pm | 42 | Other mines (39), traffic (38), trains (32) ACP faintly audible | 0.3 SSE | 7.16 | Mine hum |
| Clark | 10.28 pm | 41 | Other mines (37), traffic (36), trains (36) ACP faintly audible | 0.7 SSE | 7.16 | Mine hum |
| Horadam | 11.02 pm | 51 | Traffic (50), dogs (43), other mines (38), ACP inaudible | 0.3 SSE | 7.16 | n/a |
| Moss | 11.20 pm | 53 | Traffic (53), other mines (40), ACP inaudible | 0.2 SSE | 7.51 | n/a |

The results show that, under the atmospheric and operating conditions at the time, noise emissions from ACP were higher than the noise goal at the Clark residence monitoring location during the day monitoring period. The exceedance was due to noise from a dozer working on the rehabilitation of the emplacement near Glennies Creek Road. The dozer was visible from the Clark monitoring location.

Data from those times where ACP operations were audible was analysed using the "Evaluator" software. This analysis showed the noise did not contain any tonal, impulsive or low frequency components as per definitions in the NSW Industrial Noise Policy.

In addition to the operational noise, the noise from ACP must not exceed 48 dB(A) Lmax between the hours of 10 pm and 7 am. This is to minimise the potential for sleep disturbance as a result of individual loud noises from the mine.

During the night time measurement circuit noise from ACP was only barely audible and there was no exceedance of the sleep disturbance criterion at any location.

We trust this report fulfils your requirements at this time, however, should you require additional information or assistance please do not hesitate to contact the undersigned.

Yours faithfully,

SPECTRUM ACOUSTICS PTY LIMITED

Author:



Ross Hodge
Acoustical Consultant

Review:



Neil Pennington
Acoustical Consultant

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APPENDIX 5

Noise Zone Review

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FIGURE 5

Noise Contours dB(A)
 Ashton Operations 2009,
 High level overburden dump,
 Temperature Inversion



FIGURE 4

Noise Contours dB(A)
 Ashton Operations 2009,
 High level overburden dump,
 Neutral conditions



FIGURE 3

Noise Contours dB(A)
 Ashton Operations 2009,
 Low level overburden dump,
 North west wind

Base Source: Google Earth Image





0.0 0.25 0.50 0.75 1.0 km

FIGURE 2

Noise Contours dB(A)
 Ashton Operations 2009,
 Low level overburden dump,
 Temperature Inversion



FIGURE 1

Noise Contours dB(A)
Ashton Operations 2009,
Low level overburden dump,
Neutral Conditions



FIGURE 6

Noise Contours dB(A)
 Ashton Operations 2009,
 High level overburden dump,
 North west wind

APPENDIX 6

Complaints List

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2007 - 2008 Ashton Coal Operations Complaints List

| PTD | YTD | Date | Time | Numeric Identifier | Additional Detail | Wind Direction | Wind Speed | Comment / Operational Changes |
|-----|-----|------------|---------|--------------------|----------------------|----------------|------------|---|
| 924 | 1 | 12/09/2007 | 1:20pm | 18 | blast dust | WNW | 4.4 | There was no spike in the 10 minute average PM10 in the 20 minutes immediately after the blast. |
| 925 | 2 | 12/09/2007 | 1:20pm | 27 | blast dust | | | |
| 926 | 3 | 12/09/2007 | 1:20pm | 27 | blast dust | | | |
| 927 | 4 | 18/09/2007 | 7:14pm | 13 | lights | | | Lighting plant was relocated following complaint. OCE and Mine Manager inspected the lighting plant location to determine future options for the dump area. |
| 928 | 5 | 24/09/2007 | 9:51pm | 18 | noise | WNW | 2.8 | Complaint: noise was coming from the open cut operations including loaders, dozers and trucks. Open Cut operations were shutting down at the time of the complaint. No specific dozer locations were identified as causing the noise problem. |
| 929 | 6 | 25/09/2007 | 3:10pm | 18 | blast | WNW | 4.4 | Dust moved from the Open Cut blast towards Camberwell Village. A spike in 10min dust levels was observed on the real-time monitoring system. |
| 930 | 7 | 27/09/2007 | 1:10pm | 9 | blast dust | WNW | 8.9 | There was a spike in PM10 levels recorded at site 1, approximately 15 minutes after the blast was fired. The 24hr average results were compliant with Development consent criteria for all monitoring stations. Due to the location of the shot and the prevailing wind conditions prior to firing, the shot was believed to be acceptable to fire, however wind speeds picked up just prior to the shot being fired resulting in greater than expected dust generated from the blast. |
| 931 | 8 | 27/09/2007 | 1:10pm | 18 | Blast dust | | | |
| 932 | 9 | 27/09/2007 | 9:13pm | 18 | noise | WNW | 3.4 | Complaint: noise was coming from the open cut operations including loaders, dozers and trucks. Open Cut operations were being conducted as per normal night time procedures. This includes operating dumps at low levels. There were no specific noise sources identified |
| 933 | 10 | 28/09/2007 | 10:00am | 30 | Blast dust | WNW | 6.4 | There was no significant spike in the 10 minute average PM10 in the 20 minutes immediately after the blast. |
| 934 | 11 | 28/09/2007 | 10:00am | 23 | Blast dust | | | |
| 935 | 12 | 24/09/2007 | 9:50pm | 27 | noise | WNW | 2.8 | Complaint: noise was coming from the open cut operations including loaders, dozers and trucks. |
| 936 | 13 | 27/09/2007 | 10:00am | 27 | Blast dust | WNW | 8.9 | Open Cut operations were shutting down at the time of the complaint. No specific dozer locations were identified as causing the noise problem. Due to the location of the shot and the prevailing wind conditions prior to firing, the shot was believed to be acceptable to fire, however wind speeds picked up just prior to the shot being fired resulting in greater than expected dust generated from the blast. |
| 937 | 14 | 27/09/2007 | 12:30pm | 27 | Blast dust | | | |
| 938 | 15 | 27/09/2007 | 9:12pm | 27 | noise | WNW | 3.4 | Complaint: noise was coming from the open cut operations including loaders, dozers and trucks. Open Cut operations were being conducted as per normal night time procedures. This includes operating dumps at low levels. There were no specific noise sources identified |
| 939 | 16 | 5/10/2007 | 10:20am | 18 | Blast dust | WNW | 3.9 | There was a spike in PM10 levels recorded at site 1 approximately 15 minutes after the blast was fired. The 24hr average results were compliant with Development consent criteria for all monitoring stations. Vibration and Overpressure results were in compliance with EPL and Development Consent conditions. The criteria for vibration is 2mm/s less then 5% of the time and never exceed 10mm/s. Camberwell Village Vibration 3 mm/s, Overpressure 107dB(L). |
| 940 | 17 | 5/10/2007 | 10:25am | 8 | Blast dust | | | |
| 941 | 18 | 5/10/2007 | 10:05am | 27 | Blast dust/vibration | | | |
| 942 | 19 | 15/10/2007 | 9:12pm | 18 | noise | WNW | 4 | Complaint: noise was coming from the open cut operations including loaders, dozers and trucks. Open Cut operations were shutting down at the time of the complaint. No specific dozer locations were identified as causing the noise problem. |
| 943 | 20 | 22/10/2007 | 7:34pm | 18 | lights | | | Although the lighting plant was facing the ground, the OCE relocated the dumping operations away from the boundary. |
| 944 | 21 | 6/01/2008 | 7:25pm | 18 | noise | NNW | 0.6 | The EO inspected Camberwell Village and identified that the dumping operations on the southern boundary were the source of the noise. The noise was not considered excessive however it was audible. Dumping operations were relocated into the pit. |

2007 - 2008 Ashton Coal Operations Complaints List

| PTD | YTD | Date | Time | Numeric Identifier | Additional Detail | Wind Direction | Wind Speed | Comment / Operational Changes |
|-----|-----|------------|---------|--------------------|-----------------------|----------------|------------|--|
| 945 | 22 | 16/01/2008 | 7:10pm | 18 | noise | SW | 2.2 | After assessing the situation the OCE removed Dozer 86 from the rehab and relocated it into the pit. He left the noise attenuated D10T (Dozer 88) on the southern dump. |
| 946 | 23 | 26/01/2008 | 8:00am | 29 | noise | SE | 1.5 | Unknown caller to complaints line no details other than noise, left no information. Assessment of the operations found no Ashton noise sources. Based on the wind direction impacts of Noise from Ashton on Camberwell would be unlikely. |
| 947 | 24 | 28/01/2008 | 8:58am | 18 | dust | WNW | 3.2 | The 10 minute PM10 levels had not triggered responses as detailed in the Air Quality Management Plan. Following the complaint, operations were relocated from the southern bund. |
| 948 | 25 | 28/01/2008 | 8:00am | 27 | dust | | | |
| 949 | 26 | 16/01/2008 | 4:00pm | 27 | noise | ENE | 3.6 | Complaint: General Noise coming from Mine. Based on the wind direction impacts of Noise from Ashton on Camberwell would be unlikely. The EPA complaint was not received directly to site at the time of suggested impact, also the location where the impact was being felt is unknown, due to this no further investigations or corrective actions could be made. |
| 950 | 27 | 20/02/2008 | 12:45pm | 27 | blast | ESE | 2.2 | Vibration and Overpressure results were in compliance with EPL and Development Consent Conditions. Camberwell Village Vibration 1mm/s, Overpressure 105dB. |
| 951 | 28 | 29/02/2008 | 10:00am | 27 | noise | SE | 2.3 | Complaint: General Noise coming from Mine. Based on the wind direction impacts of Noise from Ashton on Camberwell would be unlikely. The EPA complaint was not received directly to site at the time of suggested impact, also the location where the impact was being felt is unknown, due to this no further investigations or corrective actions could be made. |
| 952 | 29 | 3/03/2008 | 6:30am | 27 | operating time | | | Open Cut operations commenced at 7:00am as per development consent requirements. |
| 953 | 30 | 3/03/2008 | 12:37pm | 27 | Blast | ESE | 2.4 | Winds at the time of the blast were from the south east, away from Camberwell Village. Blast results at the village were 1mm/s and 107dB. Dust moved to the north from the blast. Away from Camberwell Village |
| 954 | 31 | 4/03/2008 | 6:30am | 27 | operating time | WNW | 1.5 | Open Cut operations commenced at 7:00am as per development consent requirements. |
| 955 | 32 | 5/03/2008 | 12:05pm | 27 | Blast | ESE | 2.6 | Southerly winds were in place at the time of the blast. Blast results at Camberwell Village were 1mm/s vibration and 101dB overpressure. Dust moved north from the blast. |
| 956 | 33 | 12/03/2008 | 7:45am | 27 | noise | ESE | 0.3 | Open Cut operations did not start until 7:00am. |
| 957 | 34 | 18/03/2008 | 7:00am | 27 | noise | ESE | 0.3 | No complaint was received to Ashton Coal at the time of the complaint. As a result no operational changes were made. |
| 958 | 35 | 20/03/2008 | 10:05am | 27 | blast, dust | WNW | 2.7 | Blast results at Camberwell Village were 1mm/s vibration and 109dB overpressure. Dust was observed moving towards Camberwell Village and a small spike on the real-time PM10 monitor was recorded. Dust levels were within criteria for the day. |
| 959 | 36 | 25/03/2008 | 8:00am | 27 | noise, operating time | WSW | 0.1 | Operations were commenced at 7:00am on the day in question. |
| 960 | 37 | 25/03/2008 | 1:30pm | 27 | noise | WNW | 3.6 | No operational changes were made at the time of the complaint as the complaint was not received till after the fact. |
| 961 | 38 | 28/03/2008 | 1:00pm | 18 | blast, vibration | ESE | 1.9 | Blast results for Camberwell Village were 3mm/s and 108.2dB. |
| 962 | 39 | 28/03/2008 | 12:45pm | 27 | blast | | | |
| 963 | 40 | 30/03/2008 | 6:10pm | 18 | dust | WNW | 1.9 | 3 water carts operating at the time of the complaint. EO inspected Camberwell Village and no excessive dust being generated at the time of the complaint. |
| 964 | 41 | 31/03/2008 | 5:13pm | 18 | dust | WNW | 6.2 | Prior to the complaint at 1:30pm all high level dumping was ceased. All water carts were operating. The EO inspected Camberwell Village and no dust leaving site was visible. |
| 965 | 42 | 31/03/2008 | 4:00pm | 27 | dust | | | |
| 966 | 43 | 2/04/2008 | 7:15pm | 18 | noise | WNW | 4.3 | At 7:00pm an inspection of Camberwell Village was conducted and the OCE was contacted to relocate dumping operations from the 135RL dump to in pit. This was completed at 7:30pm. |
| 967 | 44 | 2/04/2008 | 8:33pm | 18 | noise | | | |
| 968 | 45 | 2/04/2008 | 6:30pm | 27 | noise | | | |
| 969 | 46 | 3/04/2008 | 7:00am | 27 | dust | | | |
| 970 | 47 | 3/04/2008 | 9:37am | 27 | dust | WNW | 9.4 | All dumping was occurring at low levels and all water carts were operating throughout the day. Dust levels were high at all sites as a dust storm rolled through the valley. |

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| PTD | YTD | Date | Time | Numeric Identifier | Additional Detail | Wind Direction | Wind Speed | Comment / Operational Changes |
|-----|-----|------------|---------|--------------------|-------------------|----------------|------------|--|
| 971 | 48 | 26/04/2008 | 8:40pm | 9 | noise | WSW | 0.1 | Dumping operations were relocated to lower levels prior to the complaint. No further changes were made. |
| 972 | 49 | 26/04/2008 | 8:45pm | 27 | noise | | | |
| 973 | 50 | 27/04/2008 | 12:38pm | 8 | dust | WNW | 11.7 | All operations were at low level dumps prior to the complaint. Wind speeds gusted up quickly which allowed dust levels to increase momentarily. All water carts were started up following the wind increase. |
| 974 | 51 | 27/04/2008 | 8:44pm | 18 | noise | WNW | 5.5 | The OCE had previously relocated all dumping to lower levels in the open cut pit. |
| 975 | 52 | 27/04/2008 | 6:00pm | 27 | noise | WNW | 8.8 | |
| 976 | 53 | 5/05/2008 | 9:32pm | 32 | noise | WNW | 0.2 | The OCE inspected the open cut pit however operations were in the process of shutting down at the time of the complaint. |
| 977 | 54 | 11/05/2008 | 7:55am | 27 | noise | SE | 0.2 | A dozer operating in 2nd gear on the rehabilitation was order to use only 1st gear to reduce noise emissions. |
| 978 | 55 | 18/05/2008 | 8:00pm | 27 | noise | WNW | 5.5 | The complaint was received to Ashton Coal from the complainant when the open cut was in the process of shutting down. |
| 979 | 56 | 18/05/2008 | 9:50pm | 18 | noise | | | |
| 980 | 57 | 26/05/2008 | 11:00pm | 32 | noise | WNW | 2.2 | Open Cut operations were ceased at the time of the complaint however a train was being loaded at the CHPP. |
| 981 | 58 | 11/06/2008 | 4:40pm | 18 | dust | WNW | 4.4 | An inspection was completed following the complaint and no dust was visible leaving site. No operational changes were made. |
| 982 | 59 | 12/06/2008 | 10:35am | 18 | blast | WNW | 3.1 | Two blasts were fired on the morning of the complaint. Blast results were: 2mm/s and 115dBL and 3mm/s and 108dBL. A structural inspection was completed on the complainants house during the reporting period and no blast related damage was identified. |
| 983 | 60 | 12/06/2008 | 6:57pm | 18 | noise | WNW | 3.4 | Prior to the complaint dumping operations had been relocated to lower dumps. |
| 984 | 61 | 12/06/2008 | 10:45am | 27 | blast | WNW | 3.1 | Two blasts were fired on the morning of the complaint. Blast results were: 2mm/s and 115dBL and 3mm/s and 108dBL. |
| 985 | 62 | 12/06/2008 | 10:45am | 27 | blast | | | |
| 986 | 63 | 12/06/2008 | 6:57pm | 27 | noise | WNW | 3.4 | Prior to the complaint dumping operations had been relocated to lower dumps. |
| 987 | 64 | 21/06/2008 | 3:46pm | 18 | noise | WNW | 6.2 | OCE investigated the open cut pit. Dumping was already located to lower dumps at the time of the complaint. |
| 988 | 65 | 21/06/2008 | 7:04pm | 18 | noise | WNW | 4.3 | OCE investigated the open cut pit. Dumping was already located to lower dumps at the time of the complaint. |
| 989 | 66 | 21/06/2008 | 7:15pm | 27 | dust/noise | WNW | 2.3 | Complaints regarding dust were received to site later in the day. The pit and village were inspected by the OCE and RO. No operational changes were made at the time of the complaint. Dust leaving site later on at 11am were observed to be excessive so dumping operations on the souther face were relocated to the northern face. |
| 990 | 67 | 21/06/2008 | 7:15pm | 27 | dust | WNW | 2.3 | Complaints regarding dust were received to site later in the day. The pit and village were inspected by the OCE and RO. No operational changes were made at the time of the complaint. Dust leaving site later on at 11am were observed to be excessive so dumping operations on the souther face were relocated to the northern face. |
| 991 | 68 | 21/06/2008 | 12:55pm | 27 | dust/noise | WNW | 7.2 | The 24 hour PM10 is taken for the entire day. Dust levels for the day were below criteria. Inspection of Camberwell village and the Open Cut was conducted by the EO and OCE. Prior to receiving the complaint, dumping operations were relocated from the southern face of the 135RL dump to the northern face. |
| 992 | 69 | 21/06/2008 | 3:47pm | 27 | dust | WNW | 7.2 | The 24 hour PM10 is taken for the entire day. Dust levels for the day were below criteria. Inspection of Camberwell village and the Open Cut was conducted by the EO and OCE. Prior to receiving the complaint, dumping operations were relocated from the southern face of the 135RL dump to the northern face. |
| 993 | 70 | 21/06/2008 | 7:04pm | 27 | noise | WNW | 4.3 | OCE investigated the open cut pit. Dumping was already located to lower dumps at the time of the complaint. |
| 994 | 71 | 24/06/2008 | 6:17pm | 9 | noise | WNW | 2.2 | OCE inspected the Open Cut Pit no changes were made to operations |

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| PTD | YTD | Date | Time | Numeric Identifier | Additional Detail | Wind Direction | Wind Speed | Comment / Operational Changes |
|------|-----|------------|---------|--------------------|-------------------|----------------|------------|--|
| 995 | 72 | 24/06/2008 | 8:04pm | 9 | noise | WNW | 1.9 | A strong inversion came in later that night. The OCE inspected the Open Cut pit following the complaint. The EO inspected Camberwell village and Glennies Creek road to identify the source of noise. It was found that truck engines were audible from Camberwell Village. Following discussions with the Mine Manager and the OCE, trucks running along the Southern Butress Road were relocated to the Centre Ramp at approximately 9pm. Follow up inspection of Camberwell Village by the EO at 9.30pm suggested that truck engine noises had decreased following the changes to operations. |
| 996 | 73 | 25/06/2008 | 12:15pm | 18 | blast | WNW | 7.1 | There was a dust spike of 140.1µg/m3 at site 1, 15 minutes after the blast had been fired. |
| 997 | 74 | 25/06/2008 | 12:15pm | 27 | blast | WNW | 7.1 | There was a dust spike of 140.1µg/m3 at site 1, 15 minutes after the blast had been fired. |
| 998 | 75 | 26/06/2008 | 12:04am | 18 | noise | WNW | 5.7 | Open Cut operations were shutdown at the time of the complaint. The CHPP were running rejects at the time of the complaint and the OC workshop was undertaking maintenance and refuelling of equipment. |
| 999 | 76 | 29/06/2008 | 8:12pm | 18 | noise | WNW | 3 | OCE inspected the operation and relocated down from RL120 to RL100 in pit. |
| 1000 | 77 | 29/06/2008 | 11:49pm | 18 | noise | WNW | 2.9 | CHPP no operational changes were made following the complaint. The 992G was operating on the OC ROM pad whilst the loader 994 was operating on the UG ROM pad. |
| 1001 | 78 | 30/06/2008 | 5:00pm | 32 | noise | WNW | 1.8-4.5 | No inspection taken as complaint was received the following day. |
| 1002 | 79 | 30/06/2008 | 9:46pm | 18 | noise | WNW | 9.4 | EO officer inspected Camberwell Village and CHPP at time of complaint. NO noise was audible at the time of the complaint in Camberwell village. No loader was operating on the ROM coal stockpile at the time of the complaint |
| 1003 | 80 | 2/07/2008 | 7:38pm | 18 | noise | WNW | 6.5 | The OCE conducted an inspection of the open cut pit following the complaint. He identified that dumping on the southern butress may have been causing the noise issue. At 7.50pm trucks on the southern butress were relocated into the pit |
| 1004 | 81 | 2/07/2008 | 9:12pm | 18 | noise | WNW | 5.8 | The OCE conducted an inspection of the open cut pit following the complaint. He identified that dumping on the southern butress may have been causing the noise issue. At 7.50pm trucks on the southern butress were relocated into the pit |
| 1005 | 82 | 4/07/2008 | 3:45pm | 23 | dust | | | Complainant complained about dust getting worse over the past 6 weeks. |
| 1006 | 83 | 7/07/2008 | 6:44pm | 13 | lights | | | The OCE inspected the lights on the dump and adjusted the light to face away from Camberwell Village. |
| 1007 | 84 | 17/07/2008 | 9:06pm | 18 | noise | WSW | 0.6 | The OCE inspected the open cut pit for noise sources. Ex 21's trucks were relocated at 9.09pm from the southern butress road to in pit. |
| 1008 | 85 | 19/07/2008 | 12:21pm | 18 | noise | WNW | 6.2 | The OCE inspected the open cut pit for noise sources. No operational changes were made at the time of the complaint. |
| 1009 | 86 | 21/07/2008 | 8:23am | 18 | other | | | Further investigations indicated that the likely source of the vibration was wind blowing against the western walls. |
| 1010 | 87 | 24/07/2008 | 10:24pm | 9 | lights | | | The light was on to allow re-fuelling of equipment at the dump area. The light was switched off following the completion of re-fuelling |
| 1011 | 88 | 27/07/2008 | 11:28am | 9 | dust | WNW | 3.6 | PM10 levels were below criteria. The OCE inspected the open cut pit and identified that dust was blowing to the east, away from Camberwell Village. The monitoring system also indicated that dust levels were not excessive. No operational changes were undertaken. At approximately 12:30pm dust levels had decreased. |
| 1012 | 89 | 11/06/2008 | 4:25pm | 27 | dust | WNW | 4.4 | Complaints regarding the same issue were received to Ashton on the night in question. An inspection of Camberwell Village and the Open Cut was conducted by the EO and OCE. Prior to receiving the complaint, dumping operations were relocated from the southern face of the 135RL dump to the northern face. |
| 1013 | 90 | 26/06/2008 | 9:20am | 27 | blast | | | Blast results were: vibration 0mm/s and overpressure 190dBL. |
| 1014 | 91 | 29/06/2008 | 6:00pm | 27 | noise | WNW | 3 | A corresponding complaint was received by Ashton at the time of the complaint. Dumping was relocated following complaint to site |

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| PTD | YTD | Date | Time | Numeric Identifier | Additional Detail | Wind Direction | Wind Speed | Comment / Operational Changes |
|------|-----|------------|---------|--------------------|-------------------|----------------|------------|---|
| 1015 | 92 | 30/06/2008 | 7:00pm | 27 | noise | WNW | 6.5 | The Open Cut pit shut down at approximately 9:45pm. |
| 1016 | 93 | 02/07/2008 | 5:00am | 27 | noise | | | ACOL was not operating at the time of the complaint. The Franna operating at the Open Cut workshop was found to have a reversing beeper which was later removed. |
| 1017 | 94 | 02/07/2008 | 5:00pm | 27 | noise | | | |
| 1018 | 95 | 02/07/2008 | 5:00pm | 27 | noise | WNW | 6.4 | OCE inspected the open cut pit and trucks on southern buttress were relocated in pit. |
| 1019 | 96 | 03/07/2008 | 6:00pm | 27 | noise | WNW | 0.5 | No corresponding complaint received at ACOL. No actions undertaken. |
| 1020 | 97 | 07/07/2008 | 6:53pm | 27 | noise | NW | 1.2 | No corresponding complaint received at ACOL. No actions undertaken. |
| 1021 | 98 | 09/07/2008 | 9:21pm | 27 | noise | NW | 6.8 | No corresponding complaint received at ACOL. No actions undertaken. |
| 1022 | 99 | 15/07/2008 | 3:25am | 27 | noise | | | ACOL open cut pit was not operating at the time of the complaint. |
| 1023 | 100 | 17/07/2008 | 7:00pm | 27 | noise | WSW | 0.6 | No inspection was undertaken at the time of the complaint as the complaint was received later that week. Ashton Coal has a no air horn policy. All trucks have electric horns installed for communication. |
| 1024 | 101 | 17/07/2008 | 9:15pm | 27 | noise | WSW | 0.6 | A complaint was received later in the evening at 9.00 pm. Following the complaint the OCE inspected the open cut pit for noise sources. Ex 21's trucks were relocated at 9.09 pm from the southern buttress road to in pit. |
| 1025 | 102 | 19/07/2008 | 11:00am | 27 | noise | WNW | 6.2 | A similar complaint was received to Ashton Coal shortly after. The OCE inspected the open cut pit for noise sources. No operational changes were made at the time of the complaint. |
| 1026 | 103 | 21/07/2008 | 2:00am | 27 | noise | WNW | 4 | Ashton were operating in accordance with management plans. |
| 1028 | 104 | 21/07/2008 | 4:50am | 27 | other | | | Ashton Coal not operating at the time of the complaint. |
| 1029 | 105 | 21/07/2008 | 9:30am | 27 | dust | WNW | 7.5 | Ashton was in compliance with all dust criteria. No investigation or operational changes was undertaken as complaint was received after the fact. |
| 1030 | 106 | 27/07/2008 | 7:30am | 27 | noise | WNW | 1.6 | No operational changes were made at the time of the complaint. |
| 1031 | 107 | 27/07/2008 | 11:00am | 27 | dust | WNW | 3.6 | PM10 levels were below criteria. A complaint was received through to Ashton later in the day (11.28am). The OCE inspected the open cut pit and identified that dust was blowing to the west, away from Camberwell Village. The monitoring system also indicated that dust levels were not excessive. No operational changes were undertaken. At approximately 12:30pm dust levels had decreased |
| 1032 | 108 | 31/07/2008 | 9:39pm | 18 | noise | WNW | 1.6 | Following the complaint the OCE made a quick inspection of the open cut. Following the inspection the OCE shut down all operations finishing the shift 15 minutes early. |
| 1033 | 109 | 03/08/2008 | 7:31pm | 18 | noise | WNW | 1.1 | A heavy inversion came in at approximately 6pm and continued throughout the night. The OCE inspected the Open Cut pit to identify noise sources. The OCE split truck movements to a lower dump to reduce noise levels. Earlier in the evening at 6.00pm the OCE had also relocated dumping operations down from the 135RL to 110RL dump. |
| 1034 | 110 | 12/08/2008 | 6:34pm | 9 | noise | WNW | 5.2 | Winds were blowing towards Camberwell Village from Ashton Coal's Operations. Following the complaint the OCE inspected the open cut pit. The OCE identified that dumping on the southern boundary may have been causing the elevated noise indicated by the complainant. The OCE relocated dumping from the southern boundary to the northern. |
| 1035 | 111 | 12/08/2008 | 6:02pm | 18 | blast | WNW | 4.7 | Winds were blowing towards Camberwell Village from Ashton Coal. Following the blast a small spike was recorded at the Site 1 dust monitoring station located close to the complainant, blast results were well below Ashton Coal's blasting criteria. Dust was observed to disperse quickly following the blast and no fume was seen. |
| 1036 | 112 | 14/08/2008 | 4:10pm | 18 | blast | WNW | 7.2 | Wind speeds were blowing towards Camberwell at the time of blast. Blast results were below ACOL criteria. Dust was observed to move into Camberwell from Ashton Coal. There was a dust spike recorded on the Site 1 TEOM PM10 monitor following the blast. Dust level however for the day remained within criteria. |

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| PTD | YTD | Date | Time | Numeric Identifier | Additional Detail | Wind Direction | Wind Speed | Comment / Operational Changes |
|------|-----|------------|---------|--------------------|-------------------|----------------|------------|---|
| 1037 | 113 | 14/08/2008 | 4:20pm | 18 | dust | WNW | 7.2 | Dust levels remained within Ashton Coal's air quality criteria throughout the day. An inspection of Camberwell Village, Open Cut and Glennies Creek Road was conducted prior to the complaint at approximately 3.50pm. The inspection identified no specific dust sources that were causing the elevated PM10 levels. No visible dust was leaving the site. Despite the low visible dust leaving site there was also limited PM10 coming on to Ashton Coal's site from the north west. As a result the Ashton Contribution was reaching 40ug/m3. To prevent a possible exceedence of the Ashton Coal contribution of 50ug/m3 one of the four excavators was shut down for approximately 2 hours beginning at 4.40pm. The dust trend indicates that there was a significant drop in PM10 levels following this change and the PM10 results indicate that Ashton complied with air quality criteria. |
| 1038 | 114 | 14/08/2008 | 11:36pm | 18 | other | WNW | 3.1 | Further investigations indicated that the likely source of the vibration was wind blowing against the western walls. |
| 1039 | 115 | 15/08/2008 | 11:30am | 9 | blast | | | Complainant called to find out if Ashton would blast because of the wind speed. The blast was cancelled following the complaint. |
| 1040 | 116 | 16/08/2008 | 8:50am | 9 | blast | | | Complainant asked if Ashton would be firing a blast due to the wind speed. The blast had already been postponed till the Monday. |
| 1041 | 117 | 19/08/2008 | 7:34pm | 18 | noise | WNW | 2.2 | The OCE inspected the open cut to determine any areas of operations that could have been relocated or causing impacts. No areas were identified as night time dumping was already being undertaken. At 5.00pm the OCE relocated dumping down to RL115 (night time dumps). Only three trucks were utilising the southern buttress road at the time of the complaint. No operational changes were taken following the complaint. |
| 1042 | 118 | 20/08/2008 | 12:20pm | 18 | blast | WNW | 8.4 | Ashton had fired a blast immediately prior to the complaint. The OCE and EO inspected the open cut pit to determine the course of action. The pit did not look to be producing excessive amounts of dust however it was possible to reduce wind blown dust in some areas. The current pit has all of the four excavators operating at low levels on the northern boundary of the pit in unweathered material. This has greatly reduced the level of generated dust leaving the site. The third and final water cart was started up following the complaint. Dirt from three of the four excavators was being hauled to in pit locations (>50m below surface level). The water carts were asked to focus on the haul roads, excavator work areas and drill patterns which were primary areas for wind blown dust to occur. Once the third water cart had been in operation for more than an hour dust levels began to decrease |
| 1043 | 119 | 20/08/2008 | 8:24pm | 18 | noise | WNW | 2.7 | Following the complaint trucks hailing along the southern buttress were moved to the centre ramp. |
| 1044 | 120 | 20/08/2008 | 9:20pm | 18 | noise | WNW | 3.7 | Following the second complaint received from the caller the OCE inspected the pit. The only final option was to relocate the 3 remaining trucks off the RL115 dump and down to in pit dumping. The three haul trucks that had been diverted to the strip 1 ramp dumping at RL115 following the previous complaint were relocated to in pit dumps. |
| 1045 | 121 | 30/07/2008 | 10:59am | 27 | dust/noise | | | |
| 1046 | 122 | 30/07/2008 | 7:32pm | 27 | dust/noise | WNW | max 4.5 | Dust levels were within criteria for the day. Operations were as per management plans |
| 1047 | 123 | 31/07/2008 | 7:00am | 27 | dust/noise | WNW | 4 - 7 | Dust levels were within criteria for the day. Operations were as per management plans |
| 1048 | 124 | 01/08/2008 | 12:45am | 27 | noise | WNW | light | Ashton Coal not operating at the time of the complaint. |
| 1049 | 125 | 02/08/2008 | 2:50pm | 27 | dust | WNW | 8.8 | Dust storm moved through the Valley between 2am and 7am. Dust levels throughout the day below criteria. |
| 1050 | 126 | 03/08/2008 | 7:00am | 27 | noise | WNW | 1.1 | Prior to complaint, dumping operations dropped to lower dump. Following complaint trucks were split between two separate dump locations. |

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|------|-----|------------|---------|--------------------|-------------------|----------------|------------|---|
| 1051 | 127 | 09/08/2008 | 10:00am | 27 | blast | WNW | 5.9 | Blast results: vibration 1mm/s overpressure 115dBL. A structural inspection was conducted on the complainants house following the blast and no blasting related damage was identified in the house. All cracks which were suggested to have been caused by the blast from the complainant were present in pre-mining inspections conducted in 2003. |
| 1052 | 128 | 12/08/2008 | 12:10pm | 27 | blast | WNW | 4.7 | Following the blast there was a small single point spike in 10min PM10, however dust levels were well within criteria for the day. |
| 1053 | 129 | 12/08/2008 | 6:30pm | 27 | noise | WNW | 5.2 | Dumping was relocated from the southern boundary to the northern. |
| 1054 | 130 | 14/08/2008 | 12:05pm | 27 | other | | | Further investigations indicated that the likely source of the vibration was wind blowing against the western walls. |
| 1055 | 131 | 14/08/2008 | 12:00pm | 27 | blast | WNW | 7.2 | Blast results were vibration 1mm/s, Overpressure 109dBL. Dust was observed to blow from Ashton Coal towards Camberwell Village, a spike in the dust trend was observed over a 20min period. |
| 1056 | 132 | 14/08/2008 | 7:00am | 27 | dust | WNW | 4.3-9 | Strong winds were experienced throughout the day. EX30 was shutdown throughout day for maintenance, EX21 shut down at 4:20pm till 6:30pm to reduce dust levels. All water carts operating throughout the day. |
| 1057 | 133 | 14/08/2008 | 11:30pm | 27 | other | | | At the time of the complaint all CHPP and Open Cut operations were shut down. The longwall was shutdown. Only Underground and Open Cut maintenance was being undertaken. Further investigations indicated that the likely source of the vibration was wind blowing against the western walls. |
| 1058 | 134 | 19/08/2008 | 6:00pm | 27 | noise | WNW | 2.2 | At 5pm night time dumps were adopted. At the time of the complaint only 3 trucks were hauling to the 115RL dump. |
| 1059 | 135 | 20/08/2008 | 8:20pm | 27 | noise | WNW | 2.2 | The OCE relocated trucks running along the southern buttress road to RL115 dump, to the strip 1 ramp still travelling to RL115 dump. |
| 1060 | 136 | 20/08/2008 | 9:20pm | 27 | noise | WNW | 2.7 | The three haul trucks running to the 115RL dump along strip 1 ramp were relocated to in pit (approx 90RL) following the complaint. |
| 1061 | 137 | 28/08/2008 | 8:30am | 27 | noise | ESE | 1.6 | No complaint received at Ashton. Winds at the time of the complaint were blowing away from Camberwell Village. This will reduce noise impacts from Ashton Coals operations. No changes were made. |
| 1062 | 138 | 01/09/2008 | 9:30am | 18 | noise | WNW | 2 | Trucks ordered to slow down to reduce retard noise. |
| 1063 | 139 | 01/09/2008 | 9:30am | 9 | noise | WNW | 2.2 | Open Cut operations were ceased at 9:40pm. |

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