



# **SUNNYSIDE COAL MINE**

**COMMUNITY CONSULTATIVE COMMITTEE**

**MEETING #2**

**ENVIRONMENTAL MONITORING REPORT (Feb-May 2009)**

**Noise Limits:**

The noise limits applicable to operations on the Sunnyside Project Site, as prescribed in the Project Approval and Environment Protection Licence, are as follows:-

Day/Evening LAeq(15 minute)	Land
35	Any residence on, or more than 25% of, any privately owned land, except "Lilydale".

Impact Assessment Criteria dB(A).

Noise measurements taken since the last meeting are as tabulated below:

**Attended Noise Levels – 11<sup>th</sup> March 2009**

Location	Date/Time	dB(A), Leq	Wind Speed Direction	Noise Source
Ferndale	7:43am	47	0.5m/s, SE	Traffic(46), Birds & Insects(39), <b>SCM(34)</b>
Illili	8:02am	39	0.5m/s, SE	Birds(36), Wind(33), <b>SCM(34).</b>
Lilydale	8:25am	48	0.5m/s, SE	Birds(47), Road Works(41), <b>SCM(inaudible)</b>
Plain View	8:58am	46	0.5m/s, SE	House construction(45), Birds(37), Road Works(36), <b>SCM inaudible</b>

**Attended Noise Levels – 27<sup>th</sup> May 2009**

Location	Date/Time	dB(A), Leq	Wind Speed/Direction	Noise Source
Ferndale	12:25pm	35	1.0m/s, SW	Birds/Insects(34), Sheep(28), <b>SCM inaudible</b>
Illili	12:04pm	46	1.0m/s, SW	Birds/Insects(46), Dog(39), Traffic(32), <b>SCM inaudible</b>
Lilydale	11:25am	44	1.0m/s, W	Birds(43), Plane(35), <b>SCM(28)</b>
Plain View	11:45am	32	1.5m/s, WSW	Birds/Insects(29), Traffic(26), <b>SCM(26).</b>

The above noise monitoring results confirm full compliance with noise criteria at all receivers during the noise surveys.

The next round of noise monitoring is being conducted during the week of 15<sup>th</sup> June 2009. This will include both attended and unattended monitoring events.

### **Air Quality Monitoring**

Air quality monitoring is required on all sides of the project site to assess deposited dust and particulate matter levels that may be attributable to mining operations. Specifically, the project is required to meet the following consent criteria.

<b>Pollutant</b>	<b>Averaging Period</b>	<b>Criterion</b>
Total Suspended particulate (TSP) matter	Annual	90 ug/m3
Particulate matter < 10ug (PM10)	Annual	30 ug/m3

<b>Pollutant</b>	<b>Averaging Period</b>	<b>Criterion</b>
Particulate matter < 10ug (PM10)	24 hour	50 ug/m3

<b>Pollutant</b>	<b>Averaging Period</b>	<b>Maximum increase in deposited dust level</b>	<b>Maximum total deposited dust level</b>
Deposited Dust	Annual	2g/m2/month	4g/m2/month

Dust monitors have been established on all sides of the project site, as well as two High Velocity Air Samplers (HVAS) located on the “Illili” and “Lilydale” properties.

Deposited dust monitoring has been occurring since 2007 in order to establish background dust levels prior to the commencement of mining activities. The HVAS for PM10 measurements have only recently been established.

Deposited dust levels for the site for 2008 and 2009 are as presented in the tables below:

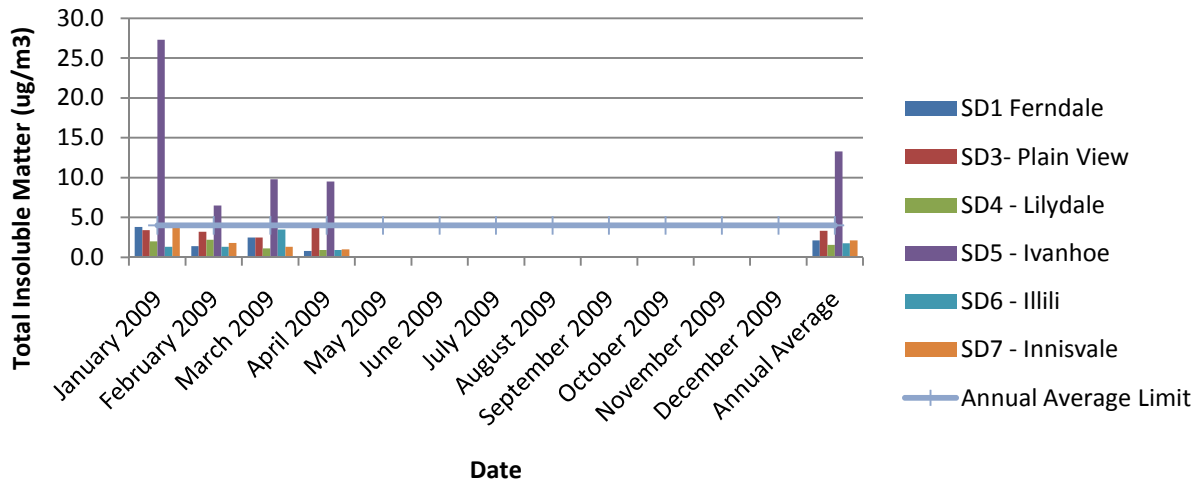
### DEPOSITED DUST DATA 2008

Month	SD1 Ferndale	SD2 Sunnyside	SD3 Plainview	SD4 Lillydale	SD5 Ivanhoe	SD6 Illili	SD7 Innisvale
January 2008	1.0	42.2	2.9	1.1	7.3		
February 2008	0.9	86.9	1.6	1.3	5.4		
March 2008	2.6	212.0	11.6	1.4	2.2		
April 2008	1.0	25.4	2.1	0.8	3.6		
May 2008	0.5	28.9	0.9	0.8	7.3		
June 2008	0.4	8.9	9.7	0.5	3.6		
July 2008	0.3	11.7	5.1	0.3	0.2		
August 2008	0.8	24.1	4.9	0.7	1.1		
September 2008	0.6	30.3	2.3	0.9	2.0		
October 2008	1.9	122.0	2.8	1.4	3.5		
November 2008	0.8	64.7	1.5	1.2	2.2		
December 2008	1.1	NLS	1.6	1.2	3.0	3.0	0.9
Annual Average	1.0	59.7	3.9	1.0	3.5		

### Deposited Dust Data 2009

Month	SD1 Ferndale	SD3 Plainview	SD4 Lillydale	SD5 Ivanhoe	SD6 Illili	SD7 Innisvale
January 2009	3.8	3.4	2.0	27.3	1.3	4.3
February 2009	1.4	3.2	2.2	6.5	1.3	1.8
March 2009	2.5	2.5	1.1	9.8	3.5	1.3
April 2009	0.8	4.2	0.9	9.5	0.9	1.0
May 2009						
June 2009						
July 2009						
August 2009						
September 2009						
October 2009						
November 2009						
December 2009						
Annual Average	2.1	3.3	1.5	13.2	1.7	2.1

## Sunnyside Project - Deposited Dust 2009



The deposited dust data for the site is highly variable and clearly influenced by other factors including agricultural activity and road dust. The Sunnyside monitor was removed in December 2008 on commencement of mining at the monitor location, and was replaced with the “Innisvale” and “Illili” monitors. The “Ivanhoe” monitor continues to return high dust readings which was also prevalent pre-mining indicating a contamination problem. Lab analysis reports from the “Ivanhoe” monitor indicates contamination from bird droppings and insects. The bird ring attached to this monitor will be removed to ascertain if this reduces bird dropping contamination in the monitor.

### PM10 Data

Site	Date	Result	Annual Average
Illili	24 <sup>th</sup> Jan 09	25	
	30 <sup>th</sup> Jan 09	37	
	5 <sup>th</sup> Feb 09	23	
	11 <sup>th</sup> Feb 09	No Sample	
	17 <sup>th</sup> Feb 09	7	
	23 <sup>rd</sup> Feb 09	19	
	1 <sup>st</sup> Mar 09	36	
	7 <sup>th</sup> Mar 09	31	
	13 <sup>th</sup> Mar 09	26	
	19 <sup>th</sup> Mar 09	21	
	25 <sup>th</sup> Mar 09	26	
	31 <sup>st</sup> Mar 09	12	
	6 <sup>th</sup> Apr 09	13	
	12 <sup>th</sup> Apr 09	12	
18 <sup>th</sup> Apr 09	28		
24 <sup>th</sup> Apr 09	22		
30 <sup>th</sup> Apr 09	15	22.06	
Lilydale	18 <sup>th</sup> Jan 09	24	

	24 <sup>th</sup> Jan 09	25	
	30 <sup>th</sup> Jan 09	28	
	5 <sup>th</sup> Feb 09	25	
	11 <sup>th</sup> Feb 09	17	
	17 <sup>th</sup> Feb 09	4	
	23 <sup>rd</sup> Feb 09	16	
	1 <sup>st</sup> Mar 09	28	
	7 <sup>th</sup> Mar 09	20	
	13 <sup>th</sup> Mar 09	18	
	19 <sup>th</sup> Mar 09	19	
	25 <sup>th</sup> Mar 09	22	
	31 <sup>st</sup> Mar 09	8	
	6 <sup>th</sup> Apr 09	23	
	12 <sup>th</sup> Apr 09	12	
	18 <sup>th</sup> Apr 09	25	
	24 <sup>th</sup> Apr 09	16	
	30 <sup>th</sup> Apr 09	12	19.00
Criteria		<50	<30
		24hr max	Annual average max

The results of PM10 monitoring at both the “Lilydale” and “Illili” monitors confirms compliance with both 24hr and annual average criteria. To date the highest PM10 reading at “Illili” is 37ug/m3 recorded on the 30<sup>th</sup> January 2009 whilst the highest reading at “Lilydale” is 28ug/m3 also recorded on the 30<sup>th</sup> January 2009.

### Blast Monitoring

The consent for the Sunnyside project also included a requirement to monitor blast activities to assess impacts in terms of peak overpressure and ground vibration.

The consent limits specified for blasting are as follows, with blast results obtained to date also displayed:-

Air-blast Overpressure Level (dB(Lin Peak))	Allowable Exceedance
115	5% of the total number of blasts in a 12 month period
120	0%

Peak particle velocity (mm/s)	Allowable Exceedance
5	5% of the total number of blasts in a 12 month period
10	0%

<b>SHOT NO.</b>	<b>DATE</b>	<b>MONITOR LOCATION</b>	<b>PEAK GROUND PRESSURE (mm/s)</b>	<b>PEAK OVERPRESSURE (dBL)</b>	<b>TIME</b>
1	18/Nov/08	Ivanhoe	0.91	110.7	1:44:48 PM
1	18/Nov/08	Plain View	0.86	107.8	1:44:58 PM
1	18/Nov/08	Illilli	0.56	107.4	1:42:25 PM
2	25/Nov/08	Innisvale	0.40	103.2	3:10:59 PM
2	25/Nov/08	Plain View	DNT	DNT	DNT
2	25/Nov/08	Illilli	0.61	105.5	3:10:48 PM
3	28/Nov/08	Ivanhoe	0.65	96.7	9:59:16 AM
3	28/Nov/08	Plain View	0.50	112.3	9:59:16 AM
3	28/Nov/08	Illilli	1.24	100.9	9:59:07 AM
4	28/Jan/09	Illilli	0.10	112.0	9:59:26 AM
4	28/Jan/09	Ivanhoe	DNT	DNT	
4	28/Jan/09	Plain View	DNT	DNT	
5	09/Mar/09	Ivanhoe	0.28	109.4	2:04:23 PM
5	09/Mar/09	Innisvale	0.33	109.7	2:04:29 PM
6	06/Apr/09	Illilli	0.35	97.4	1:53:19 PM
6	06/Apr/09	Ivanhoe	DNT	DNT	
6	06/Apr/09	Plain View	DNT	DNT	

Monitoring results demonstrate compliance with blast criteria.

### Groundwater Monitoring

Groundwater monitoring is undertaken from a range of monitoring piezometers and water bores both within and surrounding the project site. Standing Water Level checks are undertaken on a quarterly basis, with full water quality sampling to be undertaken on a 6 monthly basis. Monitoring results to date for Standing Water Level is as per the tables attached.

<b>Site ID</b>	<b>Piezometer / Water Bore</b>	<b>Date</b>	<b>Time</b>	<b>Depth to Ground - mbgl</b>	<b>Depth to Stand - mbtoc</b>
<b>P1</b>	<b>GW968386</b>	<b>15-Jun-07</b>		11.25	11.51
		<b>7-Aug-07</b>	835	11.20	11.46
		<b>19-Dec-07</b>	1535	11.25	11.51
		<b>24-Jan-08</b>	1140	11.21	11.47
		<b>5-Mar-08</b>	835	11.17	11.43
		<b>7-Apr-08</b>	1515	11.17	11.43
		<b>8-May-08</b>	1550	11.16	11.42

		<b>3-Jun-08</b>	Too Wet to Access		
		<b>9-Jul-08</b>	905	11.16	11.42
		<b>11-Aug-08</b>	845	11.15	11.41
		<b>17-Nov-08</b>	1655	11.19	11.45
		<b>19-Jan-09</b>	1355	11.22	11.48
		<b>26-Feb-09</b>	1645	11.00	11.30

<i>Site ID</i>	<i>Piezometer / Water Bore</i>	<i>Date</i>	<i>Time</i>	<i>Depth to Ground - mbgl</i>	<i>Depth to Stand - mbtoc</i>
<b>P2</b>	<b>GW968387</b>	<b>15-Jun-07</b>		16.77	17.61
		<b>7-Aug-07</b>	850	16.77	17.61
		<b>19-Dec-07</b>	1545	16.70	17.54
		<b>24-Jan-08</b>	1155	16.69	17.53
		<b>5-Mar-08</b>	845	11.69	12.53
		<b>4-Apr-08</b>	1450	16.61	17.45
		<b>8-May-08</b>	1600	16.58	17.42
		<b>3-Jun-08</b>	Too wet to access		
		<b>9-Jul-08</b>	916	16.58	17.42
		<b>11-Aug-08</b>	856	16.56	17.40
		<b>17-Nov-08</b>	1703	16.50	17.34
		<b>19-Jan-09</b>	1404	16.50	17.34
		<b>26-Feb-09</b>	1630	16.25	17.10

<i>Site ID</i>	<i>Piezometer / Water Bore</i>	<i>Date</i>	<i>Time</i>	<i>Depth to Ground - mbgl</i>	<i>Depth to Stand - mbtoc</i>
<b>P3</b>	<b>GW968388</b>	<b>15-Jun-07</b>		12.50	12.92
		<b>7-Aug-07</b>	945	12.72	13.14
		<b>19-Dec-07</b>	1620	12.99	13.41
		<b>24-Jan-08</b>	1235	13.08	13.50
		<b>5-Mar-08</b>	925	13.15	13.57
		<b>4-Apr-08</b>	1430	13.20	13.62
		<b>8-May-08</b>	1626	13.25	13.67
		<b>3-Jun-08</b>	942	13.29	13.71
		<b>9-Jul-08</b>	958	13.36	13.78
		<b>11-Aug-08</b>	940	13.41	13.83
		<b>17-Nov-08</b>	1726	13.57	13.99
		<b>19-Jan-09</b>	1308	13.65	14.07
		<b>26-Feb-09</b>	1430	14.10	14.40



<i>Site ID</i>	<i>Piezometer / Water Bore</i>	<i>Date</i>	<i>Time</i>	<i>Depth to Ground - mbgl</i>	<i>Depth to Stand - mbtoc</i>
<b>P4</b>	<b>GW968389</b>	<b>15-Jun-07</b>		60.48	60.90
		<b>7-Aug-07</b>	925	60.53	60.95
		<b>19-Dec-07</b>	1645	60.57	60.99
		<b>24-Jan-08</b>	1255	60.98	61.40
		<b>5-Mar-08</b>	910	60.57	60.99
		<b>7-Apr-08</b>	1540	60.56	60.98
		<b>8-May-08</b>	1700	60.53	60.95
		<b>3-Jun-08</b>	958	60.98	61.40
		<b>9-Jul-08</b>	1038	60.98	61.40
		<b>11-Aug-08</b>	1000	60.57	60.99
		<b>17-Nov-08</b>	1735	61.23	61.65
		<b>19-Jan-09</b>	1318	65.03	65.45
		<b>26-Feb-09</b>	1505	66.37	66.67

<i>Site ID</i>	<i>Piezometer / Water Bore</i>	<i>Date</i>	<i>Time</i>	<i>Depth to Ground - mbgl</i>	<i>Depth to Stand - mbtoc</i>
<b>P5</b>	<b>GW968390</b>	<b>15-Jun-07</b>		40.25	40.75
		<b>7-Aug-07</b>	915	39.69	40.19
		<b>19-Dec-07</b>	1635	40.42	40.92
		<b>24-Jan-08</b>	1250	40.40	40.90
		<b>5-Mar-08</b>	905	40.49	40.99
		<b>7-Apr-08</b>	1530	40.51	41.01
		<b>8-May-08</b>	1644	40.52	41.02
		<b>3-Jun-08</b>	953	40.52	41.02
		<b>9-Jul-08</b>	1034	40.59	41.09
		<b>11-Aug-08</b>	955	40.52	41.02
		<b>17-Nov-08</b>	1731	40.90	41.40
		<b>19-Jan-09</b>	1314	41.50	42.00
		<b>27-Feb-09</b>	1500	41.50	42.00

<i>Site ID</i>	<i>Piezometer / Water Bore</i>	<i>Date</i>	<i>Time</i>	<i>Depth to Ground - mbgl</i>	<i>Depth to Stand - mbtoc</i>
<b>P6</b>	<b>GW968391</b>	<b>15-Jun-07</b>		16.70	17.20
		<b>7-Aug-07</b>	1000	17.79	18.29
		<b>19-Dec-07</b>	1605	17.79	18.29
		<b>24-Jan-08</b>	1225	17.81	18.31
		<b>5-Mar-08</b>	950	17.83	18.33
		<b>4-Apr-08</b>	1445	17.75	18.25

		8-May-08	1618	17.76	18.26
		3-Jun-08	913	17.76	18.26
		9-Jul-08	948	17.78	18.28
		11-Aug-08	928	17.78	18.28
		17-Nov-08	1719	17.78	18.28
		19-Jan-09	1256	17.83	18.33
		2-Mar-09	1230	17.79	18.29

<i>Site ID</i>	<i>Piezometer / Water Bore</i>	<i>Date</i>	<i>Time</i>	<i>Depth to Ground - mbgl</i>	<i>Depth to Stand - mbtoc</i>
<b>P7</b>	<b>GW968392</b>	15-Jun-07		12.77	13.04
		7-Aug-07	905	12.75	13.02
		20-Dec-07	1050	12.73	13.00
		24-Jan-08	1345	12.72	12.99
		5-Mar-08	855	12.74	13.01
		7-Apr-08	1520	12.70	12.97
		8-May-08	1712	12.71	12.98
		3-Jun-08	1006	12.72	12.99
		9-Jul-08	1045	12.73	13.00
		11-Aug-08	1013	12.72	12.99
		17-Nov-08	1750	12.70	12.97
		19-Jan-09	1343	13.70	13.97
		26-Feb-09	1410	12.65	12.90

<i>Site ID</i>	<i>Piezometer / Water Bore</i>	<i>Date</i>	<i>Time</i>	<i>Depth to Ground - mbgl</i>	<i>Depth to Stand - mbtoc</i>
<b>P8</b>	<b>GW968393</b>	15-Jun-07		15.63	15.63
		7-Aug-07	910	15.70	15.70
		19-Dec-07	1630	21.25	21.25
		24-Jan-08	1240	21.30	21.30
		5-Mar-08	900	19.25	19.25
		7-Apr-08	1525	20.13	20.13
		8-May-08	1710	20.49	20.49
		3-Jun-08	1003	18.79	18.79
		9-Jul-08	1043	19.12	19.12
		11-Aug-08	1010	19.72	19.72
		17-Nov-08	1747	16.74	16.74
		2-Mar-09	1300	15.85	15.95

Site ID	Piezometer / Water Bore	Date	Time	Depth to Ground - mbgl	Depth to Stand - mbtoc
27356	GW027356	15-Jun-07			
		7-Aug-07	1005		
		19-Dec-07	1555		
		24-Jan-08	1220	14.30	14.61
		5-Mar-08	1000	14.25	14.56
		4-Apr-08	1447	14.11	14.42
		8-May-08	1605	15.30	15.61
		3-Jun-08	852	17.61	17.92
		9-Jul-08	925	14.12	14.43
		11-Aug-08	908	16.05	16.36
		17-Nov-08	1710	13.92	14.23
		19-Jan-09	1250	14.45	14.76
		26-Feb-09	1400	14.50	14.80

Site ID	Piezometer / Water Bore	Date	Time	Depth to Ground - mbgl	Depth to Stand - mbtoc
45098	GW045098	15-Jun-07		10.42	10.76
		7-Aug-07	935	10.58	10.92
		19-Dec-07	1615	10.69	11.03
		24-Jan-08	1230	10.76	11.10
		5-Mar-08	920	10.82	11.16
		4-Apr-08	1440	10.87	11.21
		8-May-08	1622	10.89	11.23
		3-Jun-08	919	10.91	11.25
		9-Jul-08	952	10.96	11.30
		11-Aug-08	933	11.00	11.34
		17-Nov-08	1723	11.19	11.53
		19-Jan-09	1300	11.49	11.83
		26-Feb-09	1330	No Access	

Results to date indicate minor variability in groundwater levels. Ongoing data collection will provide for longer term analysis of groundwater impact. A full water quality sampling event is scheduled for June 2009 which will include for water quality analysis.

### Complaints

Since the previous meeting there has been one formal complaint lodged pertaining to the Sunnyside operation. This complaint was lodged on the 14<sup>th</sup> May from Mr Peter Stubbs at "Glendower" and related to noise levels at his property from the mine. Monitoring at adjacent monitoring point "Illili", which is also in closer proximity to the mine site has demonstrated compliance with noise criteria, however, in view of Mr Stubbs complaint, during the next noise

monitoring event in June, the noise consultant will be requested to obtain noise levels at the “Glendower” property.

The complaints line number is: **0427 106 384**.

### **Rehabilitation**

Rehabilitation works undertaken to date has been in the establishment of cover crops on areas disturbed during the construction phase which included surface water management structures and the amenity bund. Further works will be undertaken on a progressive and needs basis to reduce the visual impact of the operation as much as possible.