



**Lunagas®**  
Coal mine gas specialists

## COAL MINE GAS PREDICTOR (CMGP)

Longwall specific gas emission (SGE) relative gassiness prediction

Mine name	Demo Mine
Longwall name/number	Panel 17
Worked seam name	409/3
Borehole location/number	BJ-8B

### NOTE:

**Addition or deletion of rows or columns in the workbook is not permitted with the exception of "SGE Macros"**

### Assumptions

Longwall face length(metres)	184.00
Worked seam thickness (metres)	1.75
Weekly coal production(tonnes)	15,000
Worked seam gas content (m <sup>3</sup> gas/tonne in situ)	6.72
Methane concentration in mine gas(%)	96.00
Other gas components in mine gas(%)	4.00
Basic or advanced simulation (B or A)	A
In seam pre-drainage efficiency(%)	0.00
Longwall retreat rate(metres/week)	35.83

### Coefficients and calculations

Gas drainage coefficient	SGE advanced simulation 'A' Including gas drainage coefficient	
1.08	Coal seams affected by gas drainage suction	13.55
Gas drainage vacuum (mmHg)	Other coal seams not affected by gas drainage suction	11.40
113.00	Total SGE 'A'	24.95
Worked seam gas release		Contribution of free gas from porous rocks and old workings (%)
41.10		
Coefficient (%)		12.00%

Units	Coal seam name/number	In situ gas content (d.a.f.)	Coal seam thickness (coal only)	Distance from worked seam	Strata relaxation or gas emission magnitude	SGE basic simulation 'B' Excluding gas drainage coefficient	
		m <sup>3</sup> gas/tonne	metres		%	Individual gas sources m <sup>3</sup> gas/t.coal mined	Contribution to total SGE %
7	404/4	8.35	2.20	171.60	8.84	0.93	3.87
6	406/2	7.05	0.60	136.20	15.58	0.38	1.57
5	407/ 1	6.06	2.60	108.90	24.11	2.17	9.06
4	407/2	6.13	1.10	96.60	29.36	1.13	4.72
3	407/3	6.15	1.20	94.60	30.31	1.28	5.33
2	409/1	6.65	1.40	14.60	100.00	5.32	22.19
1	409/2	6.65	0.70	13.30	100.00	2.66	11.11
<b>Roof coal seams summary</b>		-	<b>9.80</b>	-	-	<b>13.86</b>	<b>57.86</b>
<b>Worked coal seam</b>		<b>6.72</b>	<b>1.75</b>	-	<b>41.10</b>	<b>2.76</b>	<b>11.53</b>
1	409/3	6.75	0.50	2.60	100.00	1.93	8.05
2	409/4	6.90	2.30	26.70	54.45	4.94	20.62
3	409/5	6.94	0.30	33.10	39.18	0.47	1.95
<b>Floor coal seams summary</b>		-	<b>3.10</b>	-	-	<b>7.34</b>	<b>30.61</b>
<b>Total</b>			<b>14.65</b>	<b>Total SGE 'B'</b>		<b>23.96</b>	<b>100.00</b>

**Total Specific Gas Emission (SGE)**  
**Including free gas from porous rocks**  
**and old workings**

(m<sup>3</sup>gas per tonne of coal mined)

**27.95**

**26.83**

**1.12**

Coal mine gas

Methane only

Other gas only

# COAL MINE GAS PREDICTOR (CMGP)

## Longwall gas make (GMP) absolute gassiness prediction

Mine name	Demo Mine
Longwall name/number	Panel 17
Borehole location/number	BJ-8B

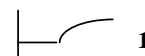
### Assumptions

Weekly coal production (tonnes)		15,000
Specific Gas Emission ( m <sup>3</sup> gas/tonne of coal mined )		27.95
Ventilation underground disturbances & sudden barometric pressure changes	Maximum coefficient	1.30
	Average coefficient	1.10
Worked days (weekly worked hours / 24)		5.00
Longwall post-drainage efficiency (%)		30.00

Predicted factor

9.25

Curve type selection



1

2

2

Daily coal production increment

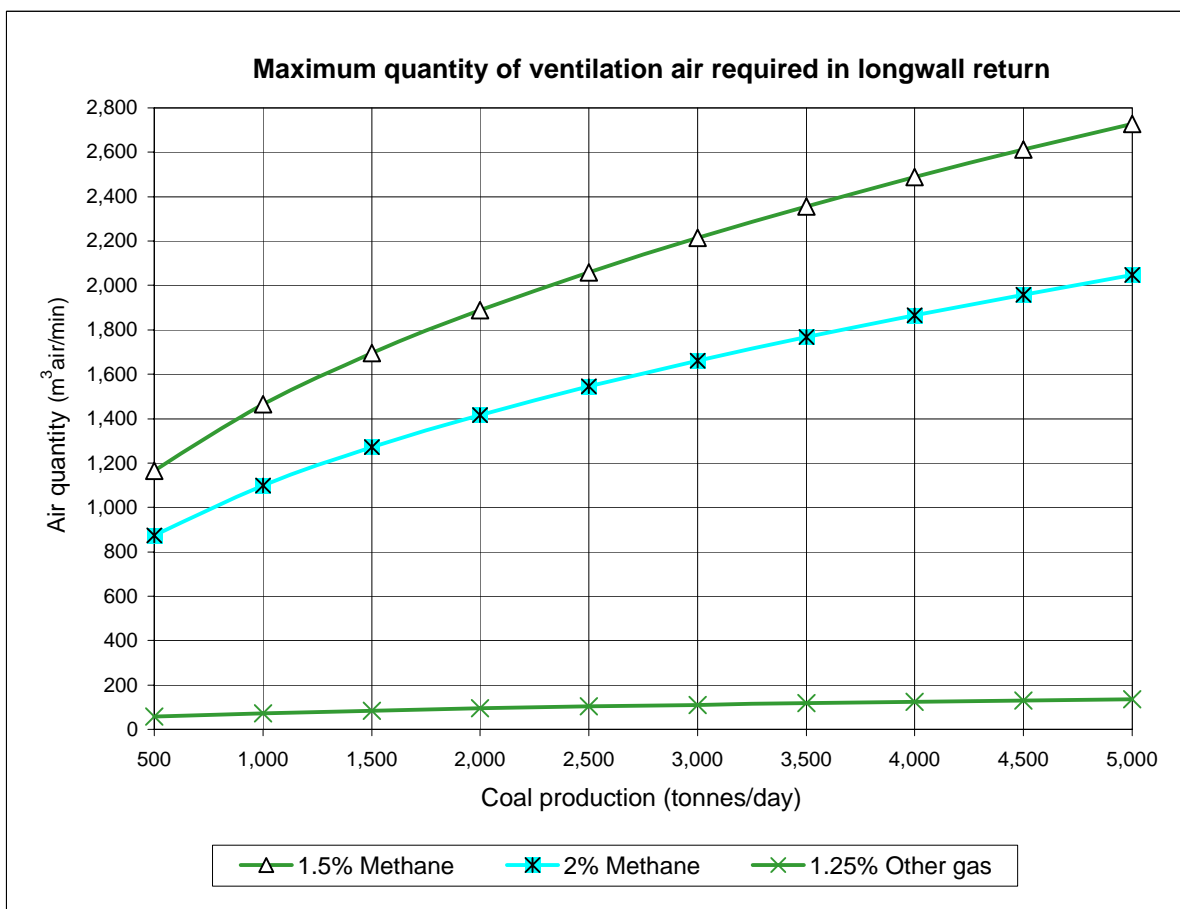
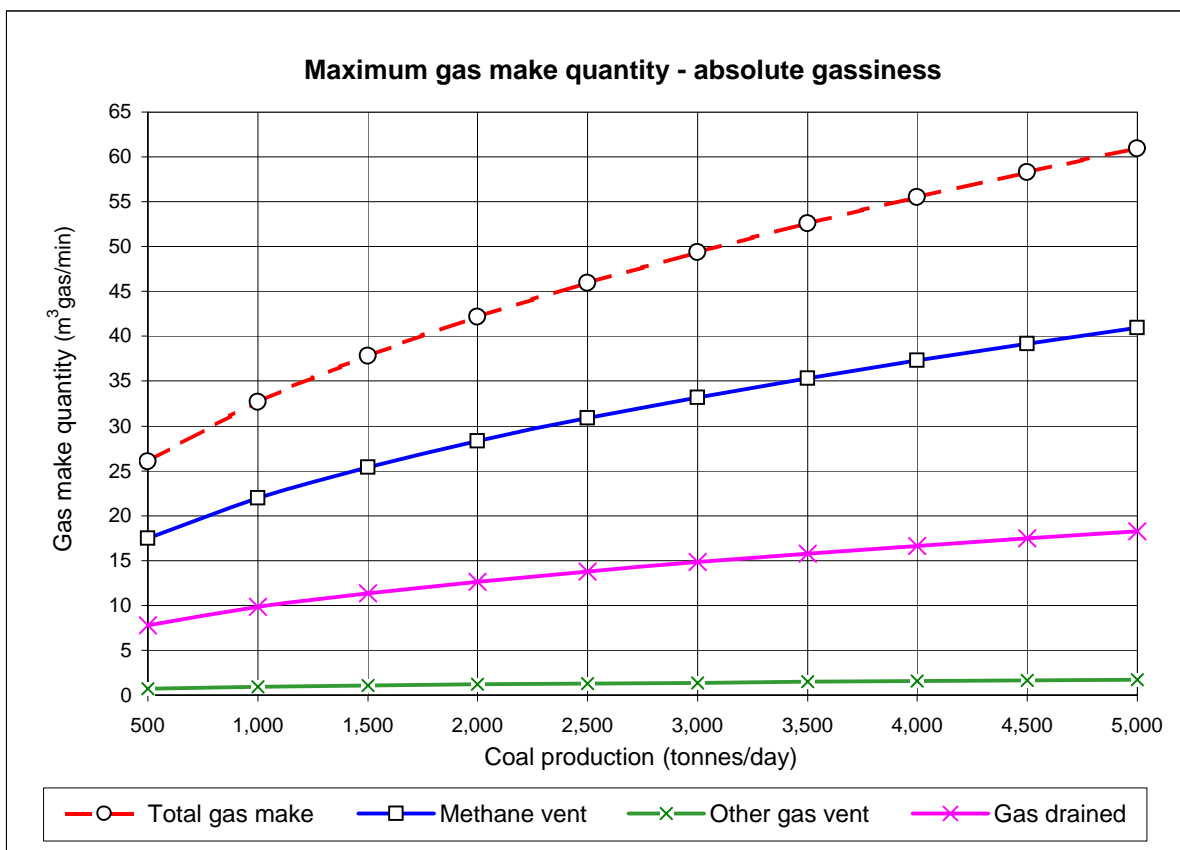
500

(tonnes/day)

Daily coal production	Coal mine gas make quantity - absolute gassiness				Quantity of air required in longwall return for methane or other gas to be diluted to designated thresholds		
	Longwall total gas make-emission ventilation + drainage	Ventilation only		Coal mine gas drained	Methane thresholds %		Other gas threshold %
		Methane	Other gas		Maximum	Determined	
							96.00
tonnes	(m³gas per minute)				(m³air per minute)		
	Maximum quantity of coal mine gas or methane				Maximum quantity of ventilation air		
500	26.02	17.49	0.73	7.81	874	1,166	58
1000	32.70	21.98	0.92	9.81	1,099	1,465	73
1500	37.83	25.42	1.06	11.35	1,271	1,695	85
2000	42.15	28.33	1.18	12.65	1,416	1,889	94
2500	45.96	30.89	1.29	13.79	1,544	2,059	103
3000	49.41	33.20	1.38	14.82	1,660	2,213	111
3500	52.57	35.33	1.47	15.77	1,766	2,355	118
4000	55.52	37.31	1.55	16.66	1,866	2,487	124
4500	58.29	39.17	1.63	17.49	1,959	2,611	131
5000	60.91	40.93	1.71	18.27	2,046	2,729	136
(tonnes)	Average quantity of coal mine gas or methane				Average quantity of ventilation air		
500	22.02	14.80	0.62	6.61	740	986	49
1000	27.67	18.60	0.77	8.30	930	1,240	62
1500	32.01	21.51	0.90	9.60	1,076	1,434	72
2000	35.67	23.97	1.00	10.70	1,198	1,598	80
2500	38.89	26.14	1.09	11.67	1,307	1,742	87
3000	41.81	28.09	1.17	12.54	1,405	1,873	94
3500	44.49	29.89	1.25	13.35	1,495	1,993	100
4000	46.98	31.57	1.32	14.09	1,579	2,105	105
4500	49.32	33.14	1.38	14.80	1,657	2,210	110
5000	51.54	34.63	1.44	15.46	1,732	2,309	115

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