


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 XXX
Worked seam name	B Seam
Borehole location/number	GeoB-5

Assumptions

Longwall face length (ft)	950.00
Worked seam thickness (ft)	14.50
Weekly coal production (short tons)	231,275
Worked seam gas content (scf/st)	150.00
CH4 concentration in mine gas (%)	98.00
Other gas components in mine gas (%)	2.00
Basic or advanced simulation (B/A)	B
In seam pre-drainage efficiency (%)	0.00
Longwall retreat rate (ft/week)	390.45

Coefficients & calculations

Gas drainage coefficient	SGE Advance simulation 'A' Including gas drainage coefficient	
	Coal seams affected by gas drainage suction	0.00
1.15		
Suction-vacuum (inch HG)	Other coal seams not affected by gas drainage suction	0.00
8.50	Total SGE with gas drainage:	0.00
Working seam gas release		Contribution of free gas from porous rocks
40.00		
Coefficient (%)		15.00%

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	
		(scf/st)	(ft)	(%)	(scf/st coal mined)	Contribution to total SGE	(%)
11	N-1	64.67	1.50	486.80	0.0	0.0	0.0
10	N-2	65.46	2.40	482.10	0.0	0.0	0.0
9	N-3	69.39	2.00	458.80	25.9	2.5	0.7
8	N-4	70.00	1.20	455.20	28.6	1.7	0.5
7	F0	76.35	7.10	417.50	47.7	17.8	5.4
6	N-5	96.47	0.70	298.10	77.9	3.6	1.1
5	N-6	100.90	0.40	271.80	82.0	2.3	0.7
4	E0	104.84	2.20	248.40	85.2	13.6	4.1
3	E1	105.62	4.20	243.80	85.8	26.3	7.9
2	D0	106.51	5.30	238.50	86.5	33.7	10.2
1	C0	139.77	7.70	41.10	99.6	73.9	22.3
Roof coal seams summary		-	34.70	-	-	175.3	52.9
Worked coal seam		150.0	14.50	-	40.0	60.0	18.1
1	B3	150.00	8.30	5.10	100.0	85.9	25.9
2	A0	147.76	1.00	26.70	100.0	10.2	3.1
Floor coal seams summary		-	9.30	-	-	96.1	29.0
Total			58.50	Total SGE 'B'		331.4	100.0

Total Specific Gas Emission (SGE)
Including free gas from porous rocks
and old workings
(scf per short ton of coal mined)

381.1

373.4

7.6

Coal mine gas

Methane only

Other gas only

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Longwall gas make (GMP) absolute gassiness prediction

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Longwall name/number	Panel XXX
Borehole location/number	GeoB-5

Assumptions

Weekly coal production (short tons)		231,275
Specific gas emission (m ³ gas/st coal mined)		381.1
Ventilation underground disturbances & sudden barometric pressure changes	Maximum coefficient	1.35
	Average coefficient	1.25
Number of worked days per week (Weekly worked hours / 24)		6.42
Longwall post-drainage efficiency (%)		35.00

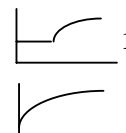
Predicted factor

41.34

Daily coal production increment

3,000

(short tons/day)



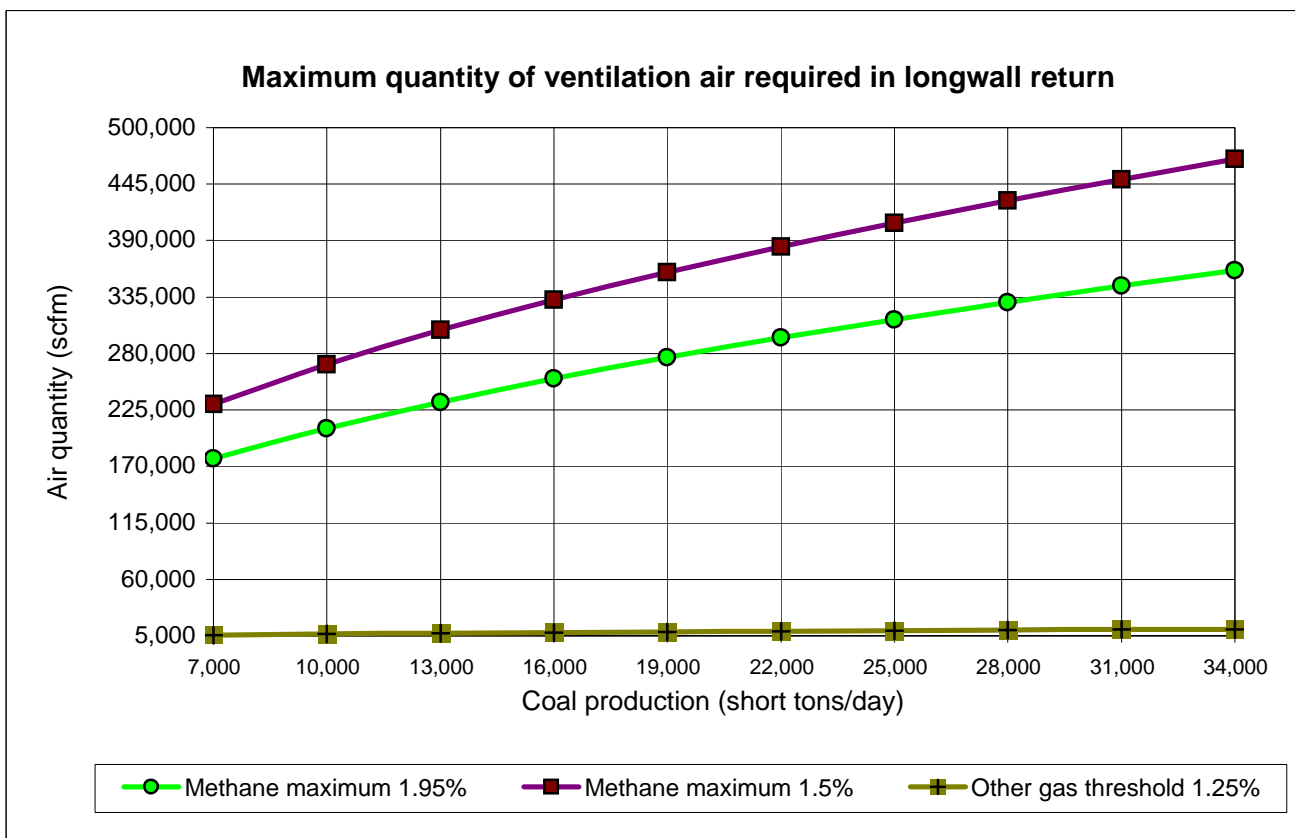
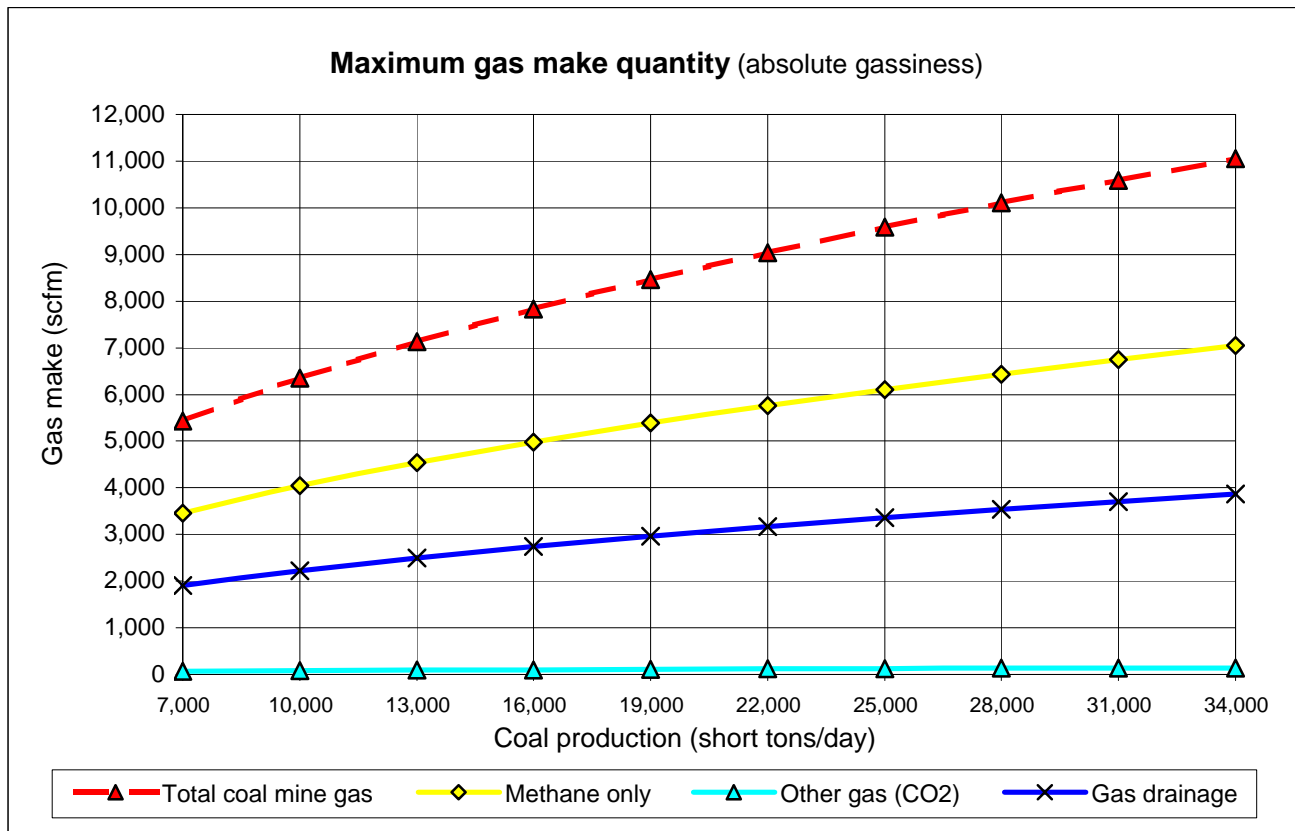
Curve type selection

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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 (gas emission) ventilation + drainage	Ventilation only		Coal mine gas drained	Methane maximum	Methane minimum	Other gas threshold
		Methane	Other gas				
		98.00	2.00	100.00	1.95%	1.50%	1.25%
short tons	scfm (Gas)				scfm (Air)		
	Maximum quantity of coal mine gas or methane				Maximum quantity of ventilation air		
7,000	5,434	3,462	71	1,902	177,513	230,767	5,651
10,000	6,346	4,042	82	2,221	207,293	269,481	6,600
13,000	7,128	4,541	93	2,495	232,849	302,704	7,413
16,000	7,824	4,984	102	2,738	255,590	332,267	8,137
19,000	8,458	5,387	110	2,960	276,282	359,167	8,796
22,000	9,043	5,760	118	3,165	295,395	384,014	9,404
25,000	9,589	6,108	125	3,356	313,244	407,217	9,973
28,000	10,104	6,436	131	3,536	330,050	429,065	10,508
31,000	10,591	6,747	138	3,707	345,977	449,770	11,015
34,000	11,056	7,042	144	3,869	361,151	469,496	11,498
short tons	Average quantity of coal mine gas or methane				Average quantity of ventilation air		
7,000	5,032	3,205	65	1,761	164,364	213,674	5,233
10,000	5,876	3,743	76	2,056	191,938	249,519	6,111
13,000	6,600	4,204	86	2,310	215,601	280,281	6,864
16,000	7,245	4,615	94	2,536	236,658	307,655	7,534
19,000	7,831	4,988	102	2,741	255,817	332,562	8,144
22,000	8,373	5,334	109	2,931	273,514	355,568	8,708
25,000	8,879	5,656	115	3,108	290,040	377,052	9,234
28,000	9,355	5,959	122	3,274	305,602	397,282	9,729
31,000	9,807	6,247	127	3,432	320,349	416,454	10,199
34,000	10,237	6,521	133	3,583	334,399	434,718	10,646

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