

Appendix A

Blasting Logs

2011

And

2010

Apogee Coal Company
Logan WV

BLASTING LOG

GENERAL INFORMATION

Blast Number **S64** Ticket Number **S64**

APOGEE
COAL

Permittee Apogee Coal, LLC. Date / Time 6/22/2011 3:17 PM
Customer / Operator Apogee Coal, LLC. Permit No. S-5006-05
Location of Blast Ridge 1& 2 Lat ° ' N 306625 - X
Blasting Company APOGEE COAL LLC Long ° ' W 1768593 - Y
Nearest Protected Structure #5 Bill Joann Lambert Method Handheld GPS - NAD83
Distance and Direction 3,645 ft NW, ° SD to nearest protected 111
Nearest Other Structure Consol Well 10844
Distance and Direction 8,027 ft SE, °
Weather Conditions Sunny 90°F, Wind out of the SW @ 0-5 mph
Type of Material Blasted Sandstone Blast Type BREAKDOWN
Matts or Protection Used None used Total Tons 0 Total YD³ 5,940
Powder Factor: tons/lb 0.00 lbs/yd³ 1.00

BLAST INFORMATION

Total Weight and Type(s) of Explosives used: see attachment

	ANFO	Emulsion	Packaged	11 Primers	Total Weight
	5,923.13 lbs.	0.00 lbs.	0.00 lbs.	5.50 lbs.	5,928.63 lbs.

Total Holes 11 Angle °
Face Height (ft) Burden (ft) 18 Backfill (ft)
Depth (ft) 45 Spacing (ft) 18 Stemming (ft) 15
Sub Drill (ft) Diameter (in) 7.875 Stemming Material Cuttings
Maximum Weight of Explosives Allowed per 8ms Period (lbs) :4392 as determined by SD of : 55
Maximum Weight of Explosives detonated per 8ms (lbs) :1078 in 2.0 Holes

INITIATION PRODUCT INFORMATION

Mfr	Delay Type	Qty	Mfr	Delay Type	Qty	Mfr	Delay Type	Qty
Orica	50 ft unitronics	11						
Orica	1 Roll - Lead in Line	2						

Method of Firing : Electric Timer (ms) : NA Circuit Type : Row by Row
Initiated by : Electronic Blasting Unit : E B M No. of Circuits :

COMMENTS

Signature Holes

UK

* Operation Apogee Coal, LLC.
Permit Number S-5006-05

Blast Number S64
Blast Type BREAKDOWN

Date 6/22/2011
Time 3:17 PM

Hole Cross Section
Depth (ft) 45 Angle (deg)
B X S (ft) 18 X 18 Bench Ht.
Hole dia. (in) 7.875 Stem (ft) 15
PF: 1.00 lbs/YD³ Tons/Lb.



PRIMER TYPE (S) UNIT WT. QTY.
1/2 LB CAST BOOSTER 0.5 1.0

Holes loaded the same: 11

Timing Pattern

See Attached



Nearest Protected Structure: #5 Bill Joann Lambert

Distance and Direction: 3,645 ft NW, ?°

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 6/22/2011 3:17 PM

Seis SN	Location	Dist (ft)	Dir.	SD	T PPV	T Hz	V PPV	V Hz	L PPV	L Hz	Air dB	Air Hz
---------	----------	-----------	------	----	-------	------	-------	------	-------	------	--------	--------

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Crew:

Brad Gregory - 3-299-88

Brad Gregory

Apogee Coal, LLC.
S-5006-05

Blast Type **BREAKDOWN**
Blast / Ticket Number **S64 /S64**

Date **6/22/2011**
Time **3:17 PM**

Hole Number	Bench Height	Sub Drill	Design Depth	Loaded Depth	Mfr.	Explosive Name	g/cc	Pounds	Mfr.	Primer Name	Qty
1-11			45	45	1	NEBCO Bulk ANFO	0.85	538.47	1	Orica 1/2 LB Cast	1
Burden	Spacing	Stemming	Angle		2				2		
(FT)	(FT)	(FT)	(Deg)		3					Total Primer QTY / Hole	1
18	18	15			4					Total Primer LBS / Hole	.5
					5						
					6						
					7						
					8						
					Total Expl lbs. / hole			538.47	Expl-Primer LBS / Hole		538.97
Similar Holes - 11					11 Primers	5.50 LBS	Total Expl lbs. / Blast		5923.13	Similar Hole LBS	5929.00
Total Holes Loaded this blast											Grand Total Explosives Weight
11											5928.63

Sheet

Sheet

Solid

11-Holes
11-Dets
11- $\frac{1}{2}$ 16
primary



5, 10, 15
Lambert Res

11

11

2HPD

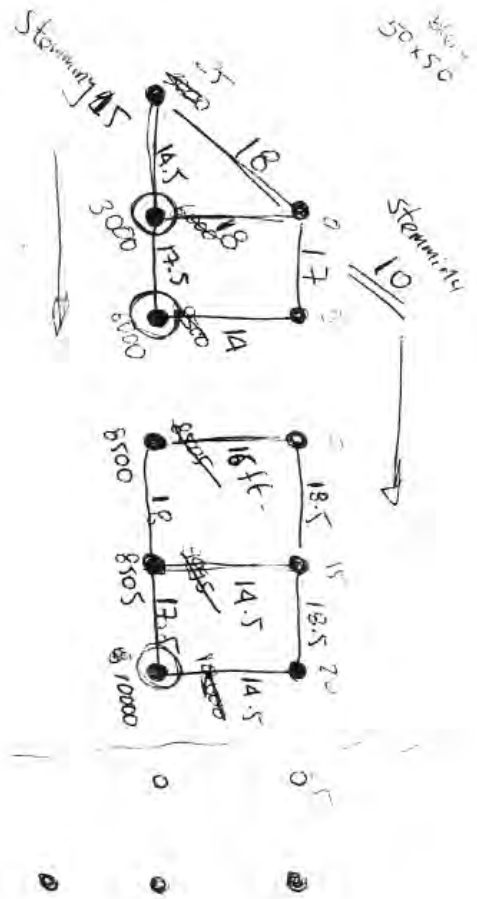
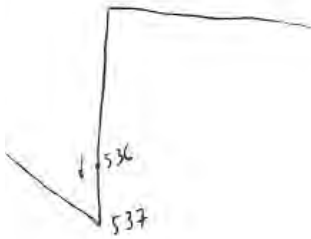
0 - 489 → ③

200 - 503 → ④

- 506 → Isolate Line
3 holes

8 - 550 → 10~11 holes
- 537

537
478
- 59



Apogee Coal Company
Logan WV

BLASTING LOG

GENERAL INFORMATION



Blast Number **S69** Ticket Number **S69**

Permittee Apogee Coal, LLC. Date / Time 6/23/2011 3:27 PM
Customer / Operator Apogee Coal, LLC. Permit No. S-5006-05
Location of Blast Ridge 1&2 Lat ° ' ' N 306665 - X
Blasting Company APOGEE COAL LLC Long ° ' ' W 1768509 - Y
Nearest Protected Structure #5 Bill Joann Lambert Method Handheld GPS - NAD83
Distance and Direction 3,561 ft NW, ?° SD to nearest protected 86
Nearest Other Structure Consol Well 10844
Distance and Direction 8,116 ft SE, ?°
Weather Conditions Sunny 84°F, Wind out of the W @ 0-5 mph
Type of Material Blasted Sandstone Blast Type BREAKDOWN
Matts or Protection Used None used Total Tons 0 Total YD³ 9,360
Powder Factor: tons/lb 0.00 lbs/yd³ 2.36

BLAST INFORMATION

Total Weight and Type(s) of Explosives used: see attachment

	ANFO	Emulsion	Packaged	26 Primers	Total Weight
	13,242.47 lbs.	8,828.31 lbs.	0.00 lbs.	19.50 lbs.	22,090.28 lbs.

Total Holes 26 Angle °
Face Height (ft) 30 Burden (ft) 18 Backfill (ft)
Depth (ft) 30 Spacing (ft) 18 Stemming (ft) 10
Sub Drill (ft) Diameter (in) 7.875 Stemming Material Cuttings
Maximum Weight of Explosives Allowed per 8ms Period (lbs) :4193 as determined by SD of : 55
Maximum Weight of Explosives detonated per 8ms (lbs) :1699 in 2.0 Holes

INITIATION PRODUCT INFORMATION

Mfr	Delay Type	Qty	Mfr	Delay Type	Qty	Mfr	Delay Type	Qty
Orica	50 ft unitronics	26						
Orica	1 Roll - Lead in Line	1						

Firing : Electric Timer (ms) : NA Circuit Type : Row by Row
: Electronic Blasting Unit : E B M No. of Circuits :

COMMENTS

Thut

Operation Apogee Coal, LLC.
Permit Number S-5006-05

Blast Number S69
Blast Type BREAKDOWN

Date 6/23/2011
Time 3:27 PM

Hole Cross Section

Depth (ft) 30 Angle (deg)
B X S (ft) 18 X 18 Bench Ht. 30
Hole dia. (in) 7.875 Stem (ft) 10
PF: 2.36 lbs/YD³ Tons/Lb.

Timing Pattern

10' Stemming

30', 60/40 @ 0'

See Attached



PRIMER TYPE (S) UNIT WT, QTY.
3/4 LB CAST PRIMER 0.8 1.0

Holes loaded the same: 26

Nearest Protected Structure: #5 Bill Joann Lambert

Distance and Direction: 3,561 ft NW, 7°

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 6/23/2011 3:27 PM

Seis SN	Location	Dist (ft)	Dir.	SD	T PPV	T Hz	V PPV	V Hz	L PPV	L Hz	Air dB	Air Hz
---------	----------	-----------	------	----	-------	------	-------	------	-------	------	--------	--------

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Crew:

Brad Gregory - 3-299-88

Brad Gregory

Apogee Coal, LLC.
S-5006-05

Blast Type **BREAKDOWN**
Blast / Ticket Number **S69 /S69**

Date **6/23/2011**
Time **3:27 PM**

Hole Number	Bench Height	Sub Drill	Design Depth	Loaded Depth	Mfr.	Explosive Name	g/cc	Pounds	Mfr.	Primer Name	Qty
1-26	30		30	30	1 Nelson	60/40	1.34	848.88	1	3/4 LB Cast	1
Burden	Spacing	Stemming	Angle		2				2		
(FT)	(FT)	(FT)	(Deg)		3					Total Primer QTY / Hole	1
18	18	10			4					Total Primer LBS / Hole	.75
					5						
					6						
					7						
					8						
Total Expl lbs. / hole								848.88	Expl-Primer LBS / Hole 849.63		
Similar Holes -	26		26 Primers	19.50 LBS	Total Expl lbs. / Blast			22070.78	Similar Hole LBS 22091.00		
Total Holes Loaded this blast								Grand Total Explosives Weight			
26								22090.28			

180



Apogee Coal Company
Logan WV

BLASTING LOG

GENERAL INFORMATION

APOGEE
COAL

Blast Number **S71** Ticket Number **S71**

Permittee Apogee Coal, LLC.		Date / Time 6/24/2011 3:20 PM	
Customer / Operator Apogee Coal, LLC.		Permit No. S-5006-05	
Location of Blast Ridge 1&2	Lat ° ' 'N 306889 - X		
Blasting Company APOGEE COAL LLC	Long ° ' 'W 1768347 - Y		
Nearest Protected Structure #5 Bill Joann Lambert		Method Handheld GPS - NAD83	
Distance and Direction — 3,285 ft NW, ?°	SD to nearest protected 114		
Nearest Other Structure Consol Well 10844			
Distance and Direction 8,386 ft SE, ?°			
Weather Conditions Sunny	85°F,	Wind out of the E @	0-5 mph
Type of Material Blasted Sandstone	Blast Type Production		
Matts or Protection Used None used	Total Tons 0	Total YD³ 15,660	
Powder Factor: tons/lb 0.00		lbs/yd³ 1.55	

BLAST INFORMATION

Total Weight and Type(s) of Explosives used: see attachment

	ANFO	Emulsion	Packaged	29 Primers	Total Weight
	19,399.99 lbs.	4,850.00 lbs.	0.00 lbs.	21.75 lbs.	24,271.73 lbs.

Total Holes 29 **Angle** 0 °

Face Height (ft) 45	Burden (ft) 18	Backfill (ft)
Depth (ft) 45	Spacing (ft) 18	Stemming (ft) 9
Sub Drill (ft)	Diameter (in) 7.875	Stemming Material Cuttings

Maximum Weight of Explosives Allowed per 8ms Period (lbs) :3568 as determined by SD of : 55

Maximum Weight of Explosives detonated per 8ms (lbs) : 837 in 1.0 Holes

INITIATION PRODUCT INFORMATION

Mfr	Delay Type	Qty	Mfr	Delay Type	Qty	Mfr	Delay Type	Qty
Orica	50 ft unitronics	29						

Method of Firing : Digital	Timer (ms) : NA	Circuit Type : Row by Row
Initiated by : Electronic	Blasting Unit : E B M	No. of Circuits : 1

COMMENTS

Signature shot for UK

Operation Apogee Coal, LLC.
Permit Number S-5006-05

Blast Number S71
Blast Type Production

Date 6/24/2011
Time 3:20 PM

Hole Cross Section

Depth (ft) 45 Angle (deg) 0
B X S (ft) 18 X 18 Bench Ht. 45
Hole dia. (in) 7.875 Stem (ft) 9
PF: 1.55 lbs/YD³ Tons/Lb.

Timing Pattern

9' Stemming

36', 80/20 @ 9'

PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 1.0

Holes loaded the same: 29

See Attachment

Nearest Protected Structure: #5 Bill Joann Lambert

Distance and Direction: 3,285 ft NW, ?°

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 6/24/2011 3:20 PM

Seis SN Location Dist (ft) Dir. SD T PPV T Hz V PPV V Hz L PPV L Hz Air dB Air Hz

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:
Richard Cope - 5 506 08

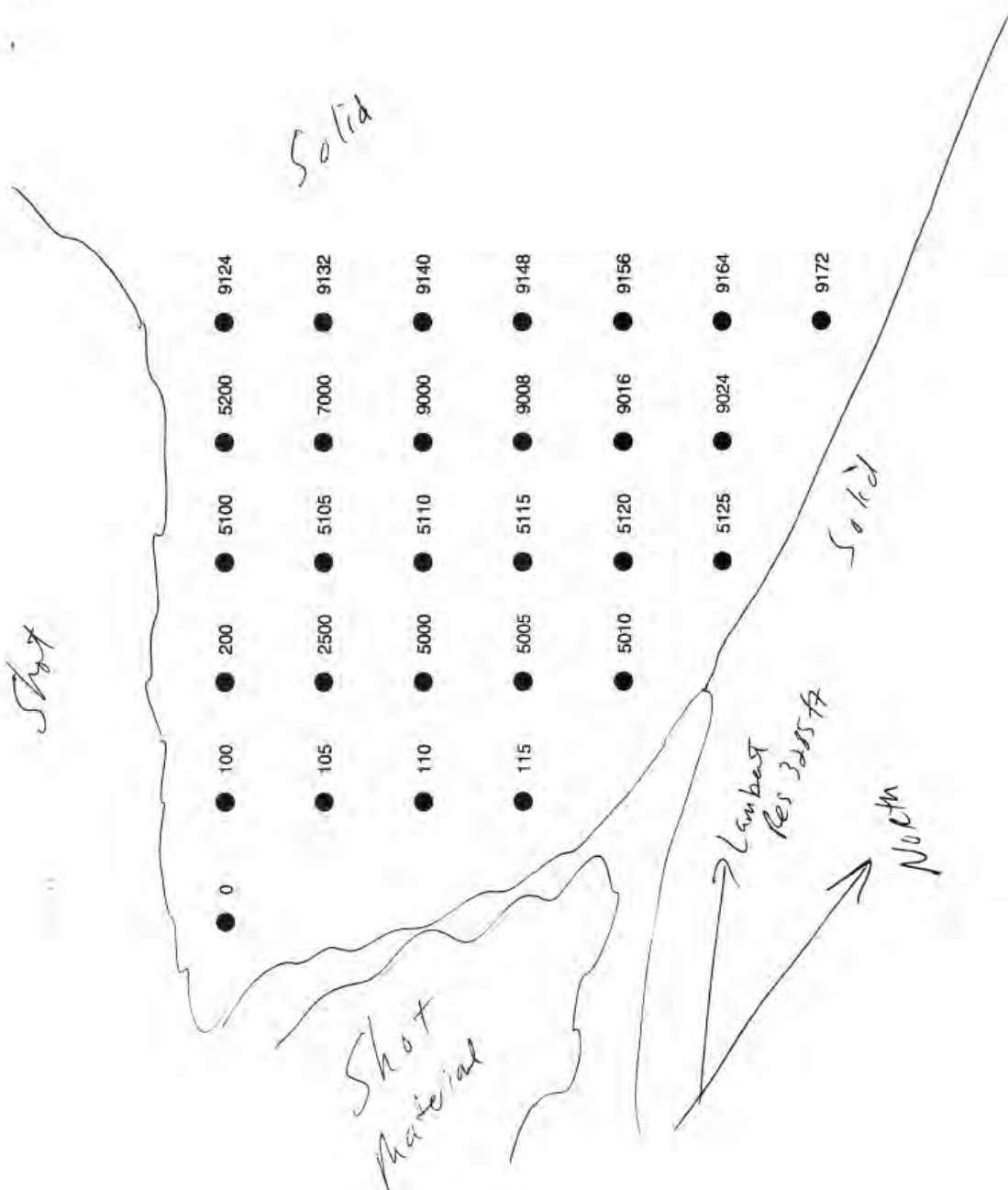
Crew:

Apogee Coal, LLC.
S-5006-05

Blast Type Production
Blast / Ticket Number S71 / S71

Date 6/24/2011
Time 3:20 PM

Hole Number	Bench Height	Sub Drill	Design Depth	Loaded Depth	Mfr.	Explosive Name	g/cc	Pounds	Mfr.	Primer Name	Qty
1-29	45		45	45	1 Nelson	80/20	1.10	836.21	1	3/4 LB Cast	1
Burden	Spacing	Stemming	Angle		2				2		
(FT)	(FT)	(FT)	(Deg)		3					Total Primer QTY / Hole	1
18	18	9	0		4					Total Primer LBS / Hole	.75
					5						
					6						
					7						
					8						
Total Expl lbs. / hole								836.21	Expl-Primer LBS / Hole 836.96		
Similar Holes - 29					29 Primers	21.75 LBS	Total Expl lbs. / Blast		24249.98	Similar Hole LBS	24272.00
Total Holes Loaded this blast									Grand Total Explosives Weight		
29									24271.73		



Apogee Coal Company
Logan WV

BLASTING LOG

GENERAL INFORMATION



Blast Number S81 Ticket Number S81

Permittee Apogee Coal, LLC.	Date / Time 6/29/2011 11:16 AM
Customer / Operator Apogee Coal, LLC.	Permit No. S-5006-05
Location of Blast Ridge 1&2	Lat ° ' N 306749 - X
Blasting Company APOGEE COAL LLC	Long ° ' W 1768201 - Y
Nearest Protected Structure #5 Bill Joann Lambert	Method Handheld GPS - NAD83
Distance and Direction 3,311 ft NW, ?°	SD to nearest protected 116
Nearest Other Structure Consol Well 10844	
Distance and Direction 8,403 ft SE, ?°	
Weather Conditions Sunny	90°F, Wind out of the W @ 0-2 mph
Type of Material Blasted Sandstone	Blast Type BREAKDOWN
Matts or Protection Used	Total Tons 0 Total YD ³ 17,280
	Powder Factor: tons/lb 0.00 lbs/yd ³ 1.51

BLAST INFORMATION

Total Weight and Type(s) of Explosives used: see attachment					
	ANFO	Emulsion	Packaged	32 Primers	Total Weight
	20,812.25 lbs.	5,203.06 lbs.	0.00 lbs.	24.00 lbs.	26,039.31 lbs.
Total Holes	32	Angle °			
Face Height (ft)	95	Burden (ft)	18	Backfill (ft)	
Depth (ft)	45	Spacing (ft)	18	Stemming (ft)	10
Sub Drill (ft)		Diameter (in)	7.875	Stemming Material	Cuttings
Maximum Weight of Explosives Allowed per 8ms Period (lbs) : 3625 as determined by SD of : 55					
Maximum Weight of Explosives detonated per 8ms (lbs) : 814 in 1.0 Holes					

INITIATION PRODUCT INFORMATION

Mfr	Delay Type	Qty	Mfr	Delay Type	Qty	Mfr	Delay Type	Qty
Orica	50 ft unitronics	32						

Method of Firing : Electric	Timer (ms) : NA	Circuit Type :
Initiated by : Electronic	Blasting Unit : E B M	No. of Circuits :

COMMENTS

Signature OK Shot Signature Hole

Operation Apogee Coal, LLC.
Permit Number S-5006-05

Blast Number S81
Blast Type BREAKDOWN

Date 6/29/2011
Time 11:16 AM

Hole Cross Section

Depth (ft) 45 Angle (deg)
B X S (ft) 18 X 18 Bench Ht. 95
Hole dia. (in) 7.875 Stem (ft) 10
PF: 1.51 lbs/YD³ Tons/Lb.

Timing Pattern

See Attached

10' Stemming

35' 80/20 @ 10'

PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 1.0

Holes loaded the same: 32

Nearest Protected Structure: #5 Bill Joann Lambert

Distance and Direction: 3,311 ft NW ? °

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 6/29/2011 11:16 AM

Seis SN	Location	Dist (ft)	Dir.	SD	T PPV	T Hz	V PPV	V Hz	L PPV	L Hz	Air dB	Air Hz
---------	----------	-----------	------	----	-------	------	-------	------	-------	------	--------	--------

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:
Todd Keffer - 5-645-05

Crew:

Todd Keffer

Apogee Coal, LLC.

S-5006-05

Blast Type

BREAKDOWN

Date 6/29/2011

Blast / Ticket Number

S81 /S81

Time 11:16 AM

Hole Number	Bench Height	Sub Drill	Design Depth	Loaded Depth	Mfr.	Explosive Name	g/cc	Pounds	Mfr.	Primer Name	Qty	
1-32	95		45	45	1 Nelson	80/20	1.10	812.98	1	3/4 LB Cast	1	
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2				2			
18	18	10			3					Total Primer QTY / Hole	1	
					4					Total Primer LBS / Hole	.75	
					5							
					6							
					7							
					8							
Total Expl lbs. / hole								812.98	Expl-Primer LBS / Hole			813.73
Similar Holes -	32	32 Primers		24.00 LBS	Total Expl lbs. / Blast		26015.31	Similar Hole LBS		26040.00		
Total Holes Loaded this blast								Grand Total Explosives Weight				
32								26039.31				

Apogee Coal Company
Logan WV

BLASTING LOG

GENERAL INFORMATION



Blast Number S82 Ticket Number S82

Permittee Apogee Coal, LLC. Date / Time 6/29/2011 3:33 PM
Customer / Operator Apogee Coal, LLC. Permit No. S-5006-05
Location of Blast Ridge 1& 2 Lat ° ' N 306912 - X
Blasting Company APOGEE COAL LLC Long ° ' W 1768217 - Y
Nearest Protected Structure #5 Bill Joann Lambert Method Handheld GPS - NAD83
Distance and Direction 3,188 ft NW, ?° SD to nearest protected 77
Nearest Other Structure Consol Well 10844
Distance and Direction 8,499 ft SE, ?°
Weather Conditions Sunny 90°F, Wind out of the SE @ 0-5 mph
Type of Material Blasted Sandstone Blast Type BREAKDOWN
Matts or Protection Used None used Total Tons 0 Total YD³ 18,900
Powder Factor: tons/lb 0.00 lbs/yd³ 1.59

BLAST INFORMATION

Total Weight and Type(s) of Explosives used: see attachment

	ANFO	Emulsion	Packaged	35 Primers	Total Weight
	24,064.16 lbs.	6,016.04 lbs.	0.00 lbs.	26.25 lbs.	30,106.45 lbs.

Total Holes 35 Angle 0°
Face Height (ft) 45 Burden (ft) 18 Backfill (ft)
Depth (ft) 45 Spacing (ft) 18 Stemming (ft) 8
Sub Drill (ft) Diameter (in) 7.875 Stemming Material Cuttings
Maximum Weight of Explosives Allowed per 8ms Period (lbs) :3360 as determined by SD of : 55
Maximum Weight of Explosives detonated per 8ms (lbs) :1720 in 2.0 Holes

INITIATION PRODUCT INFORMATION

Mfr	Delay Type	Qty	Mfr	Delay Type	Qty	Mfr	Delay Type	Qty
Orica	1 Roll - Lead in Line	1						
Orica	EXCEL 80 FT - 20	35						
Orica	S. EXCEL 40 FT- 42	5						
Orica	S. EXCEL 40 FT-100	30						

Method of Firing : Non Electric Timer (ms) : NA Circuit Type : Row by Row
Initiated by : Non-Electric Blasting Unit : Handi Blaster No. of Circuits : 0

COMMENTS

Signature

Operation Apogee Coal, LLC.		Blast Number S82	Date 6/29/2011
Permit Number S-5006-05		Blast Type BREAKDOWN	Time 3:33 PM

Hole Cross Section Depth (ft) 45 Angle (deg) 0 B X S (ft) 18 X 18 Bench Ht. 45 Hole dia. (in) 7.875 Stem (ft) 8 PF: 1.59 lbs/YD³ Tons/Lb.	Timing Pattern See Attached
--	--

 8' Stemming 37' 80/20 @ 8'	PRIMER TYPE (S) UNIT WT. QTY. 3/4 LB CAST PRIMER 0.8 1.0 Holes loaded the same: 35
---	--

Nearest Protected Structure: #5 Bill Joann Lambert	
Distance and Direction: 3,188 ft NW, ? °	

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 6/29/2011 3:33 PM

Seis SN	Location	Dist (ft)	Dir.	SD	T PPV	T Hz	V PPV	V Hz	L PPV	L Hz	Air dB	Air Hz
---------	----------	-----------	------	----	-------	------	-------	------	-------	------	--------	--------

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Todd Keffer - 5-645-05

Crew:

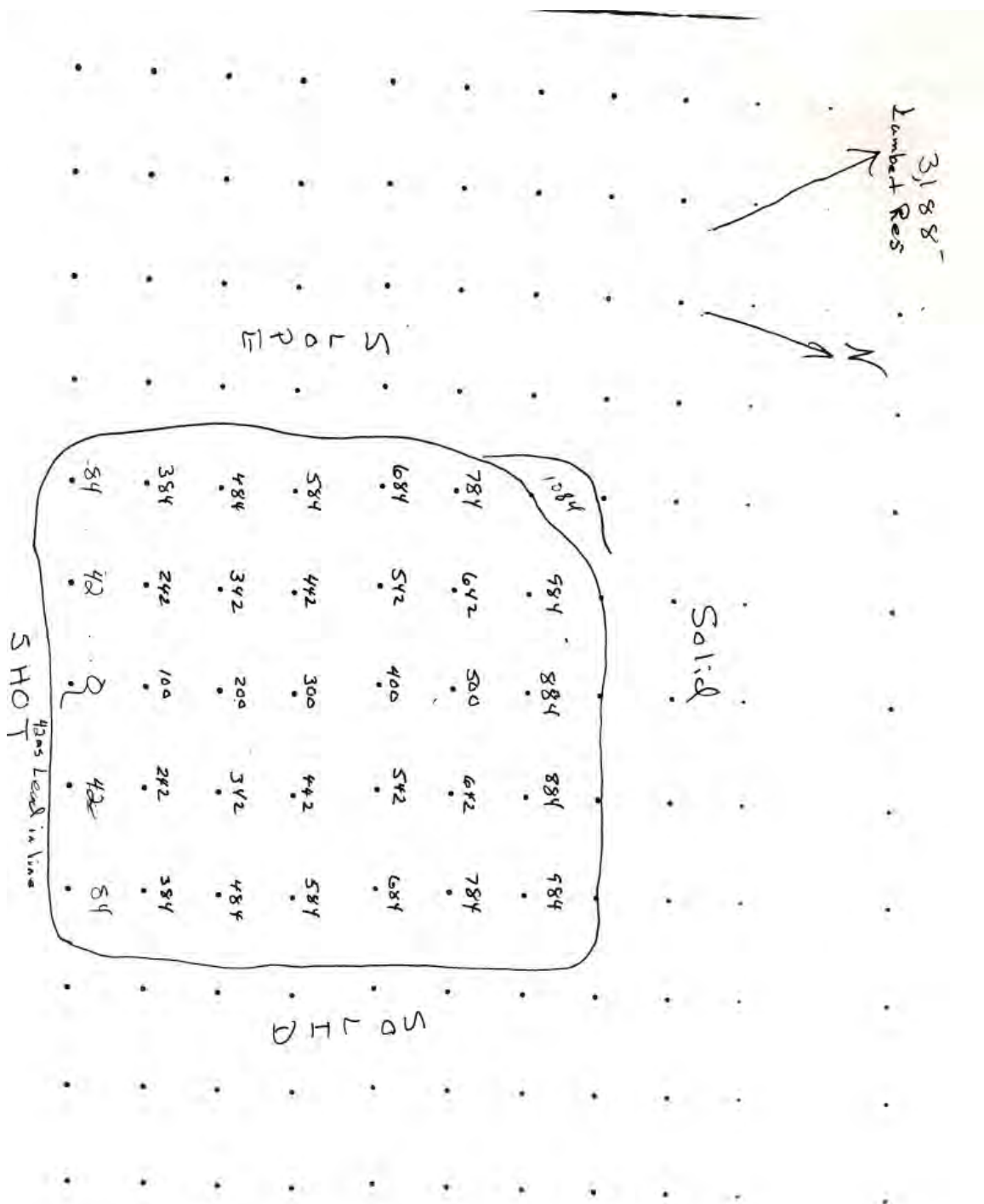
Todd Keffer

Apogee-Coaf, LLC.
S-5006-05

Blast Type **BREAKDOWN**
Blast / Ticket Number **S82 /S82**

Date **6/29/2011**
Time **3:33 PM**

Hole Number	Bench Height	Sub Drill	Design Depth	Loaded Depth	Mfr.	Explosive Name	g/cc	Pounds	Mfr.	Primer Name	Qty
1-35	45		45	45	1 Nelson	80/20	1.10	859.43	1	3/4 LB Cast	1
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2				2		
18	18	8	0		3					Total Primer QTY / Hole	1
					4					Total Primer LBS / Hole	.75
					5						
					6						
					7						
					8						
					TotalExpl lbs. / hole			859.43	Expl-Primer LBS / Hole		860.18
Similar Holes - 35					35 Primers	26.25 LBS	Total Expl lbs. / Blast		30080.20	Similar Hole LBS	30107.00
Total Holes Loaded this blast					Grand Total Explosives Weight						
35					30106.45						



Apogee Coal Company
Logan WV

BLASTING LOG

GENERAL INFORMATION



Blast Number S85 Ticket Number S85

Permittee Apogee Coal, LLC. Date / Time 6/29/2011 6:45 PM
Customer / Operator Apogee Coal, LLC. Permit No. S-5006-05
Location of Blast Ridge 1& 2 Lat ° ' N 306998 - X
Blasting Company APOGEE COAL LLC Long ° ' W 1768313 - Y
Nearest Protected Structure #5 Bill Joann Lambert Method Handheld GPS - NAD83
Distance and Direction 3,179 ft NW, ?° SD to nearest protected 78
Nearest Other Structure Consol Well 10844
Distance and Direction 8,485 ft SE, ?°
Weather Conditions Sunny 92°F, Wind out of the SE @ 0-5 mph
Type of Material Blasted Sandstone Blast Type BREAKDOWN
Matts or Protection Used None used Total Tons 0 Total YD³ 21,600
Powder Factor: tons/lb 0.00 lbs/yd³ 1.55

BLAST INFORMATION

Total Weight and Type(s) of Explosives used: see attachment

	ANFO	Emulsion	Packaged	40 Primers	Total Weight
	26,758.60 lbs.	6,689.65 lbs.	0.00 lbs.	30.00 lbs.	33,478.25 lbs.

Total Holes 40 Angle 0°
Face Height (ft) 45 Burden (ft) 18 Backfill (ft)
Depth (ft) 45 Spacing (ft) 18 Stemming (ft) 9
Sub Drill (ft) Diameter (in) 7.875 Stemming Material Cuttings
Maximum Weight of Explosives Allowed per 8ms Period (lbs) :3340 as determined by SD of : 55
Maximum Weight of Explosives detonated per 8ms (lbs) :1674 in 2.0 Holes

INITIATION PRODUCT INFORMATION

Mfr	Delay Type	Qty	Mfr	Delay Type	Qty	Mfr	Delay Type	Qty
Orica	50 ft unitronics	40						

Method of Firing : Digital Timer (ms) : NA Circuit Type : Row by Row
Initiated by : Electronic Blasting Unit : E B M No. of Circuits : 1

COMMENTS

UK shot

Operation Apogee Coal, LLC. Blast Number S85 Date 6/29/2011
Permit Number S-5006-05 Blast Type BREAKDOWN Time 6:45 PM

Hole Cross Section
Depth (ft) 45 Angle (deg) 0
B X S (ft) 18 X 18 Bench Ht. 45
Hole dia. (in) 7.875 Stem (ft) 9
PF: 1.55 lbs/YD³ Tons/Lb.

Timing Pattern

See Attached

9' Stemming

36 '.80/20 @ 9'

PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 1.0

Holes loaded the same: 40

Nearest Protected Structure: #5 Bill Joann Lambert

Distance and Direction: 3,179 ft NW, ? °

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 6/29/2011 6:45 PM
Seis SN Location Dist (ft) Dir. SD T PPV T Hz V PPV V Hz L PPV L Hz Air dB Air Hz

Reading(s) taken by :SAULS

Analyzed by :SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:
Todd Keffer - 5-645-05

Crew:

Todd Keffer

Apogee Coal, LLC.
S-5006-05

Blast Type **BREAKDOWN**
Blast / Ticket Number **S85 /S85**

Date **6/29/2011**
Time **6:45 PM**

Hole Number	Bench Height	Sub Drill	Design Depth	Loaded Depth	Mfr.	Explosive Name	g/cc	Pounds	Mfr.	Primer Name	Qty
1-40	45		45	45	1 Nelson	80/20	1.10	836.21	1	3/4 LB Cast	1
Burden	Spacing	Stemming	Angle		2				2		
(FT)	(FT)	(FT)	(Deg)		3					Total Primer QTY / Hole	1
18	18	9	0		4					Total Primer LBS / Hole	.75
					5						
					6						
					7						
					8						
Total Expl lbs. / hole								836.21	Expl-Primer LBS / Hole 836.96		
Similar Holes -	40		40 Primers	30.00 LBS	Total Expl lbs. / Blast			33448.25	Similar Hole LBS 33479.00		
Total Holes Loaded this blast										Grand Total Explosives Weight	
40										33478.25	



Solid

PHS

Solid

Shot

1184	1084	984	1084	1184
884	742	600	742	884
784	642	500	642	784
684	542	400	542	684
584	442	300	442	584
484	342	200	342	484
384	242	100	242	384
284	142	0	142	284

Blast Number **E35** Ticket Number **E35**

Permittee Apogee Coal, LLC.

Customer / Operator Apogee Coal, LLC.

Location of Blast Ridge 1&2

Blasting Company APOGEE COAL LLC

Nearest Protected Structure Cline residence

Distance and Direction 7,689 ft S, ?°

Nearest Other Structure Jackson Well

Distance and Direction 5,101 ft SW, ?°

Weather Conditions Partly Cloudy

90°F,

Wind out of the N @ 5-10 mph

Type of Material Blasted Sandstone

Blast Type Production

Matts or Protection Used None used

Total Tons 0

Total YD³ 16,380

Powder Factor: tons/lb 0.00

lbs/yd³ 1.21

Date / Time 6/16/2010 12:15 PM

Permit No. S-5006-05

° ' ' N 301131 - X

° ' ' W 1769680 - Y

Method Handheld GPS - NAD83

SD to nearest protected 325

BLAST INFORMATION

Total Weight and Type(s) of Explosives used: see attachment

	ANFO	Emulsion	Packaged	48 Primers	Total Weight
	15,887.92 lbs.	3,971.98 lbs.	0.00 lbs.	36.00 lbs.	19,895.90 lbs.

Total Holes 39 Angle 0°

Face Height (ft) 35

Burden (ft) 18

Backfill (ft) 2

Depth (ft) 35

Spacing (ft) 18

Stemming (ft) 9 - 12

Sub Drill (ft)

Diameter (in) 7.875

Stemming Material Cuttings

Maximum Weight of Explosives Allowed per 8ms Period (lbs) : 6158 as determined by SD of : 65

Maximum Weight of Explosives detonated per 8ms (lbs) : 558 in 1.0 Holes

INITIATION PRODUCT INFORMATION

Mfr	Delay Type	Qty	Mfr	Delay Type	Qty	Mfr	Delay Type	Qty
Orica	1 Roll - Lead in Line	1						
Orica	EXCEL 40 FT - 20	48						
Orica	S. EXCEL 40 FT- 42	7						
Orica	S. EXCEL 40 FT-100	30						

Method of Firing : Non Electric

Timer (ms) : NA

Circuit Type : Row by Row

Initiated by : Non-Electric

Blasting Unit : Handi Blaster

No. of Circuits : 0

COMMENTS

Location Apogee Coal, LLC.

Blast Number E35

Date 6/16/2010

Number S-5006-05

Blast Type Production

Time 12:15 PM

Hole Cross Section

Depth (ft) 35 Angle (deg) 0
 X S (ft) 18 X 18 Bench Ht. 35
 Hole dia. (in) 7.875 Stem (ft) 9
 PF: 1.33 lbs/YD³ Tons/Lb.

Timing Pattern

9' Stemming

24', 80/20 @ 9'

Backfill

PRIMER TYPE (S) UNIT WT. QTY.
 3/4 LB CAST PRIMER 0.8 1.0

Holes loaded the same: 30

Nearest Protected Structure: Cline residence

Distance and Direction: 7,689 ft S, ?°

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 6/16/2010 12:15 PM

Seis SN	Location	Dist (ft)	Dir.	SD	T PPV	T Hz	V PPV	V Hz	L PPV	L Hz	Air dB	Air Hz

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Crew:

Richard Cope - 5 506 08

Location Apogee Coal, LLC.
Number S-5006-05

Blast Number E35
Blast Type Production

Date 6/16/2010
Time 12:15 PM

Hole Cross Section

Depth (ft) 35 Angle (deg) 0

X S (ft) 18 X 18 Bench Ht. 35

Hole dia. (in) 7.875 Stem (ft) 9

PF: 1.33 lbs/YD³ Tons/Lb.

Timing Pattern

9' Stemming

24' 80/20 @ 9'

Backfill

PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 1.0

Holes loaded the same: 30

Nearest Protected Structure: Cline residence

Distance and Direction: 7,689 ft S, ?°

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 6/16/2010 12:15 PM

Seis SN	Location	Dist (ft)	Dir.	SD	T PPV	T Hz	V PPV	V Hz	L PPV	L Hz	Air dB	Air Hz
---------	----------	-----------	------	----	-------	------	-------	------	-------	------	--------	--------

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Richard Cope - 5 506 08

Crew:

Coal, LLC.

06-05

Blast Type

Production

Date 6/16/2010

Blast / Ticket Number

E35 /E35

Time 12:15 PM

Line Number	Bench Height	Sub Drill	Design Depth	Loaded Depth	Mfr.	Explosive Name	g/cc	Pounds	Mfr.	Primer Name	Qty
1-30	35		35	35	1 Nelson	80/20	1.10	557.47	1	3/4 LB Cast	1
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2				2		
18	18	9	0		3					Total Primer QTY / Hole	1
					4					Total Primer LBS / Hole	.75
					5						
					6						
					7						
					8						

Total Expl lbs. / hole 557.47 Expl-Primer LBS / Hole 558.22

Similar Holes - 30 30 Primers 22.50 LBS Total Expl lbs. / Blast 16724.13 Similar Hole LBS 16747.00

31-39	35		35	35	1 Nelson	80/20	1.10	232.28	1	3/4 LB Cast	2
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2 Nelson	80/20	1.10	116.14	2		
18	18	12	0		3					Total Primer QTY / Hole	2
					4					Total Primer LBS / Hole	1.5
					5						
					6						
					7						
					8						

Total Expl lbs. / hole 348.42 Expl-Primer LBS / Hole 349.92

Similar Holes - 9 18 Primers 13.50 LBS Total Expl lbs. / Blast 3135.77 Similar Hole LBS 3150.00

Total Holes Loaded this blast

39

Grand Total Explosives Weight

19895.90

BLASTING LOG



GENERAL INFORMATION

Blast Number **E36** Ticket Number **E36**

Permittee Apogee Coal, LLC. Date / Time 6/16/2010 2:06 PM
 Customer / Operator Apogee Coal, LLC. Permit No. S-5007-01
 Location of Blast Guyan Mine Lat ° ' N 292455 - X
 Blasting Company APOGEE COAL LLC Long ° ' W 1775162 - Y
 Nearest Protected Structure Ball residence Method Handheld GPS - NAD83
 Distance and Direction 3,783 ft S, ?° SD to nearest protected 151
 Nearest Other Structure Dominion Well 1089
 Distance and Direction 6,905 ft NE, ?° 292 779
 Weather Conditions Partly Cloudy 90°F, Wind out of the N @ 5-10 mph 1775197
 Type of Material Blasted Sandstone Blast Type Production
 Matts or Protection Used None used Total Tons 0 Total YD³ 35,880
 Powder Factor: tons/lb 0.00 lbs/yd³ 1.13

BLAST INFORMATION

Total Weight and Type(s) of Explosives used: see attachment

	ANFO	Emulsion	Packaged	65 Primers	Total Weight
	30,494.38 lbs.	10,164.79 lbs.	0.00 lbs.	48.75 lbs.	40,707.92 lbs.

Total Holes 65 Angle 0°
 Face Height (ft) 46 Burden (ft) 18 Backfill (ft) 2
 Depth (ft) 46 Spacing (ft) 18 Stemming (ft) 8
 Sub Drill (ft) Diameter (in) 6.75 Stemming Material Cuttings
 Maximum Weight of Explosives Allowed per 8ms Period (lbs) :4731 as determined by SD of : 55
 Maximum Weight of Explosives detonated per 8ms (lbs) : 626 in 1.0 Holes

INITIATION PRODUCT INFORMATION

Mfr	Delay Type	Qty	Mfr	Delay Type	Qty	Mfr	Delay Type	Qty
Orica	50 ft unitronics	65						

Method of Firing : Digital Timer (ms) : NA Circuit Type : Row by Row
 Initiated by : Electronic Blasting Unit : E B M No. of Circuits : 1

COMMENTS

Operation Apogee Coal, LLC.

Blast Number E36

Date 6/16/2010

Number S-5007-01

Blast Type Production

Time 2:06 PM

Hole Cross Section

Depth (ft) 46 Angle (deg) 0
S (ft) 18 X 18 Bench Ht. 46
Hole dia. (in) 6.750 Stem (ft) 8
Unit Wt. 1.13 lbs/YD³ Tons/Lb.

Timing Pattern

8' Stemming

36', 75/25 @ 8'

Backfill

PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 1.0

Holes loaded the same: 65

Nearest Protected Structure: Ball residence

Distance and Direction: 3,783 ft S, ?°

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 6/16/2010 2:06 PM

Seis SN	Location	Dist (ft)	Dir.	SD	T PPV	T Hz	V PPV	V Hz	L PPV	L Hz	Air dB	Air Hz
---------	----------	-----------	------	----	-------	------	-------	------	-------	------	--------	--------

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Crew:

Richard Cope - 5 506 08

COPY

gee Coal, LLC.

007-01

Blast Type

Production

Date 6/16/2010

Blast / Ticket Number

E36 /E36

Time 2:06 PM

Hole Number	Bench Height	Sub Drill	Design Depth	Loaded Depth	Mfr.	Explosive Name	g/cc	Pounds	Mfr.	Primer Name	Qty
1-65	46		46	46	1 Nelson	75/25	1.12	625.53	1	3/4 LB Cast	1
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2				2		
18	18	8	0		3					Total Primer QTY / Hole	1
					4					Total Primer LBS / Hole	.75
					5						
					6						
					7						
					8						
Total Expl lbs. / hole								625.53	Expl-Primer LBS / Hole 626.28		
Similar Holes - 65		65 Primers		48.75 LBS	Total Expl lbs. / Blast		40659.17	Similar Hole LBS		40708.00	
Total Holes Loaded this blast								Grand Total Explosives Weight			
65								40707.92			

OP 10/10/10

sp18
10/10/10

Blast Number **H18** Ticket Number **H18**

Permittee Apogee Coal, LLC. **Date / Time** 9/15/2010 4:06 PM
Customer / Operator Apogee Coal, LLC. **Permit No.** S-5006-05
Location of Blast Ridge 1&2 **Lat** ° ' 'N 302100 - X
Blasting Company APOGEE COAL LLC **Long** ° ' 'W 1768464 - Y
Nearest Protected Structure #5 Bill Joann Lambert **Method** Handheld GPS - NAD83
Distance and Direction 7,678 ft N, ?° **SD to nearest protected** 129
Nearest Other Structure Dominion Well
Distance and Direction 4,143 ft N, ?°
Weather Conditions Partly Cloudy 86°F, **Wind out of the** SE @ 0-2 mph
Type of Material Blasted Sandstone **Blast Type** Production
Matts or Protection Used **Total Tons** 0 **Total YD³** 258,667
Powder Factor: tons/lb 0.00 **lbs/yd³** 1.33

BLAST INFORMATION

Total Weight and Type(s) of Explosives used: see attachment

	ANFO	Emulsion	Packaged	388 Primers	Total Weight
	273,978.34 lbs.	68,494.59 lbs.	0.00 lbs.	291.00 lbs.	342,763.93 lbs.

Total Holes 194 **Angle** °
Face Height (ft) 90 **Burden (ft)** 20 **Backfill (ft)**
Depth (ft) 90 **Spacing (ft)** 20 **Stemming (ft)** 9
Sub Drill (ft) **Diameter (in)** 7.875 **Stemming Material** Cuttings
Maximum Weight of Explosives Allowed per 8ms Period (lbs) :5674 as determined by SD of : 55
Maximum Weight of Explosives detonated per 8ms (lbs) :3534 in 2.0 Holes

INITIATION PRODUCT INFORMATION

Mfr	Delay Type	Qty	Mfr	Delay Type	Qty	Mfr	Delay Type	Qty
Orica	120 ft unitronics	194						
Orica	50 ft unitronics	120						
Orica	80 ft unitronics	74						

Method of Firing : Electric **Timer (ms)** : NA **Circuit Type** :
Initiated by : Electronic **Blasting Unit** : E B M **No. of Circuits** :

COMMENTS

Operation Apogee Coal, LLC.
Permit Number S-5006-05

Blast Number H18
Blast Type Production

Date 9/15/2010
Time 4:06 PM

Hole Cross Section

Depth (ft) 90 Angle (deg)
B X S (ft) 20 X 20 Bench Ht. 90
Hole dia. (in) 7.875 Stem (ft) 9
PF: 1.32 lbs/YD³ Tons/Lb.

Timing Pattern

9' Stemming

38' 80/20 @ 9'

5' Cuttings @ 47'

38' 80/20 @ 52'

PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 2.0

Holes loaded the same: 194

Nearest Protected Structure: #5 Bill Joann Lambert

Distance and Direction: 7,678 ft N, ? °

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 9/15/2010 4:06 PM

Seis SN	Location	Dist (ft)	Dir.	SD	T PPV	T Hz	V PPV	V Hz	L PPV	L Hz	Air dB	Air Hz
---------	----------	-----------	------	----	-------	------	-------	------	-------	------	--------	--------

Reading(s) taken by :SAULS

Analyzed by :SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:
Todd Keffer - 5-645-05

Crew:

Apogee Coal, LLC:

S-5006-05

Blast Type

Production

Date 9/15/2010

Blast / Ticket Number

H18 /H18

Time 4:06 PM

Hole Number	Bench Height	Sub Drill	Design Depth	Loaded Depth	Mfr.	Explosive Name	g/cc	Pounds	Mfr.	Primer Name	Qty
1-194	90		90	90	1 Nelson	80/20	1.10	882.66	1	3/4 LB Cast	2
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2 Nelson	80/20	1.10	882.66	2		
20	20	9			3					Total Primer QTY / Hole	2
					4					Total Primer LBS / Hole	1.5
					5						
					6						
					7						
					8						
Total Expl lbs. / hole								1765.32	Expl-Primer LBS / Hole		?
Similar Holes - 194					388 Primers 291.00 LBS		Total Expl lbs. / Blast		342472.93	Similar Hole LBS	342764.00
Total Holes Loaded this blast									Grand Total Explosives Weight		
194									342763.93		

O P E N

Lambert House
7678

Alley
Fill

20147
Signature
Hole

2000 2004 2008 3
2003 2006 2010

O P E N

				● 2012	● 2016	● 2020	● 2024	● 2028	● 2032	● 2036	● 2040	● 2044																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
--	--	--	--	--------	--------	--------	--------	--------	--------	--------	--------	--------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

100'

100'

100'
32
3240

3244

3248

2 charges,
2 in bottom.

S O L I D

1st hole (Signature Hole)

top charge & 2ms for the bottom.

2000ms for the top charge & 2002ms for the bottom.

Lambert House
7678

OPEN

OPEN

Signature Hole

3

2000 2004 2008
2003 2006 2010

Open

4

11

13

13

15

17

2044

2036

2032

2028

2024

2020

2016

2012

2084

2080

2076

2072

2068

2064

2060

2056

2052

2132

2128

2124

2120

2116

2112

2108

2104

2100

2184

2180

2176

2172

2168

2164

2160

2156

2152

2244

2236

2232

2228

2224

2220

2216

2212

2208

2304

2300

2296

2292

2288

2284

2280

2276

2272

2376

2372

2368

2364

2360

2356

2352

2348

2344

2464

2460

2456

2452

2448

2444

2440

2436

2432

2428

2424

2420

2416

2412

2408

2404

2556

2552

2548

2544

2540

2536

2532

2528

2524

2520

2516

2512

2508

2504

2500

2496

2648

2644

2640

2636

2632

2628

2624

2620

2616

2612

2608

2604

2600

2596

2592

2588

2844

2840

2836

2832

2828

2824

2820

2816

2812

2808

2804

2800

2796

2792

2788

2784

3232

3228

3224

3220

3216

3212

3208

3204

3200

3196

3192

3188

3184

3180

3176

3172

EACH HOLE HAD 2 charges,
1 in top of hole, 1 in bottom.

For instance the first hole (Signature Hole)
was @ 0ms for the top charge & 2ms for the bottom.
The 2nd hole was @ 2000ms for the top charge & 2002ms for the bottom.

S O L I D

Blast Number H20 Ticket Number H20

Permittee Apogee Coal, LLC. *CHAD* Date / Time 9/16/2010 3:58 PM
Customer / Operator Apogee Coal, LLC. Permit No. S-5006-05
Location of Blast Ridge 1& 2 Lat ° ' 'N 302116 - X
Blasting Company APOGEE COAL LLC Long ° ' 'W 1769201 - Y
Nearest Protected Structure #5 Bill Joann Lambert Method Handheld GPS - NAD83
Distance and Direction 7,901 ft N, ?° SD to nearest protected 99
Nearest Other Structure Dominion Well
Distance and Direction 4,415 ft NW, ?°
Weather Conditions Partly Cloudy 80°F, Wind out of the E @ 0-2 mph
Type of Material Blasted Sandstone Blast Type Production
Matts or Protection Used Total Tons 0 Total YD³ 44,978
Powder Factor: tons/lb 0.00 lbs/yd³ 1.22

BLAST INFORMATION

Total Weight and Type(s) of Explosives used: see attachment

	ANFO	Emulsion	Packaged	69 Primers	Total Weight
	54,998.28 lbs.	0.00 lbs.	0.00 lbs.	51.75 lbs.	55,050.03 lbs.

Total Holes 69 Angle °
Face Height (ft) 44 Burden (ft) 20 Backfill (ft)
Depth (ft) 44 Spacing (ft) 20 Stemming (ft) 10
Sub Drill (ft) Diameter (in) 9 Stemming Material Cuttings
Maximum Weight of Explosives Allowed per 8ms Period (lbs) :6444 as determined by SD of : 55
Maximum Weight of Explosives detonated per 8ms (lbs) :6383 in 8.0 Holes

INITIATION PRODUCT INFORMATION

Mfr	Delay Type	Qty	Mfr	Delay Type	Qty	Mfr	Delay Type	Qty
Orica	50 ft unitronics	69						

Method of Firing : Electric Timer (ms) : NA Circuit Type :
Initiated by : Electronic Blasting Unit : E B M No. of Circuits :

COMMENTS

Signature Hole Shot. This is the one that I am timed out.

Operation Apogee Coal, LLC.
Permit Number S-5006-05

Blast Number H20
Blast Type Production

Date 9/16/2010
Time 3:58 PM

Hole Cross Section

Depth (ft) 44 Angle (deg)
B X S (ft) 20 X 20 Bench Ht. 44
Hole dia. (in) 9.000 Stem (ft) 10
PF: 1.22 lbs/YD³ Tons/Lb.

Timing Pattern

10' Stemming
34' Bulk ANFO @ 10'

PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 1.0

Holes loaded the same: 69

Nearest Protected Structure: #5 Bill Joann Lambert

Distance and Direction: 7,901 ft N, ? °

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 9/16/2010 3:58 PM

Seis SN	Location	Dist (ft)	Dir.	SD	T PPV	T Hz	V PPV	V Hz	L PPV	L Hz	Air dB	Air Hz
---------	----------	-----------	------	----	-------	------	-------	------	-------	------	--------	--------

Reading(s) taken by :SAULS

Analyzed by :SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:
Todd Keffer - 5-645-05

Crew:

Apogee Coal, LLC.

S-5006-05

Blast Type

Production

Date 9/16/2010

Blast / Ticket Number

H20 /H20

Time 3:58 PM

Hole Number	Bench Height	Sub Drill	Design Depth	Loaded Depth	Mfr.	Explosive Name	g/cc	Pounds	Mfr.	Primer Name	Qty
1-69	44		44	44	1 NEBCO	Bulk ANFO	0.85	797.08	1	3/4 LB Cast	1
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2				2		
20	20	10			3					Total Primer QTY / Hole	1
					4					Total Primer LBS / Hole	.75
					5						
					6						
					7						
					8						
TotalExpl lbs. / hole								797.08	Expl-Primer LBS / Hole 797.83		
Similar Holes - 69					69 Primers	51.75 LBS	Total Expl lbs. / Blast		54998.28	Similar Hole LBS	55051.00
Total Holes Loaded this blast									Grand Total Explosives Weight		
69									55050.03		

UNI Tronics

Blast Map

Coal. Pitt.

507

19-H/105

Sher

5687

Nelson Brothers LLC

Blast Map

UNI Tronics

Coal Pit



Shot

Lambert House
7901 N

69 - Holes

69 - Det S

37.82697

081.79909

ELV - 1945'

Shot-Time = 3:58 PM

Apogee Coal Company
Guyana WV

BLASTING LOG

GENERAL INFORMATION

**APOGEE
COAL**

Blast Number **F9** Ticket Number **F9**

Date / Time **7/7/2010 4:09 PM**

Permittee **Apogee Coal, LLC.**

Customer / Operator **Apogee Coal, LLC.**

Location of Blast **Guyan Mine**

Blasting Company **APOGEE COAL LLC**

Nearest Protected Structure **Ball residence**

Distance and Direction **3,520 ft S, ?°**

Nearest Other Structure **Jackson Well**

Distance and Direction **8,071 ft NW, ?°**

Weather Conditions **Sunny / Hot**

Type of Material Blasted **Shale**

Matts or Protection Used

Lat
Long

Permit No. **S-5007-01**

° ' **N** 292109 - X

° ' **W** 1773079 - Y

Method **Handheld GPS - NAD83**

SD to nearest protected **385**

Blast Type **Production**

Total Tons **0**

Total YD³ **16,020**

lbs/yd³ **0.23**

Powder Factor: **tons/lb 0.00**

Wind out of the **E @ 0-2 mph**

95°F,

BLAST INFORMATION

Total Weight and Type(s) of Explosives used: **see attachment**

	ANFO	Emulsion
	3,520.91 lbs.	0.00 lbs.

Packaged **0.00 lbs.** 267 Primers **200.25 lbs.** Total Weight **3,721.16 lbs.**

Total Holes **267** Angle **°**
Face Height (ft) **5**
Depth (ft) **5**

Burden (ft) **18**
Spacing (ft) **18**
Diameter (in) **6.75**

Backfill (ft)
Stemming (ft) **4**
Stemming Material **Cuttings**

Sub Drill (ft)
Maximum Weight of Explosives Allowed per 8ms Period (lbs) : **4097** as determined by SD of : **55**
Maximum Weight of Explosives detonated per 8ms (lbs) : **84** in **6.0** Holes

INITIATION PRODUCT INFORMATION

Mfr	Delay Type	Qty	Mfr	Delay Type	Qty	Mfr	Delay Type	Qty
Orica	EXCEL 40 FT - 20	267						
Orica	S. EXCEL 40 FT - 42	8						
Orica	S. EXCEL 40 FT - 17	126						

Method of Firing : **Non Electric**

Initiated by : **Non-Electric**

Timer (ms) : **NA**

Blasting Unit : **Handi Blaster**

Circuit Type :

No. of Circuits :

COMMENTS

Operation Apogee Coal, LLC.
Permit Number S-5007-01

Blast Number F9
Blast Type Production

Date 7/7/2010
Time 4:09 PM

Hole Cross Section

Depth (ft) 5 Angle (deg)
B X S (ft) 18 X 18 Bench Ht. 5
Hole dia. (in) 6.750 Stem (ft) 4
PF: 0.22 lbs/YD³ Tons/Lb.



PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 1.0

Holes loaded the same: 267

Timing Pattern

Nearest Protected Structure: Ball residence

Distance and Direction: 3,520 ft S, ?°

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 7/7/2010 4:09 PM

Seis SN Location Dist (ft) Dir. SD T PPV T Hz V PPV V Hz L PPV L Hz Air dB Air Hz

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Crew:

Todd Keffer - 5-645-05

Apogee Coal, LLC.
S-5007-01

Blast Type Production
Blast / Ticket Number F9 /F9

Date 7/7/2010
Time 4:09 PM

Hole umber	Bench Height	Sub Drill	Design Depth	Loaded Depth	Mfr.	Explosive Name	g/cc	Pounds	Mfr.	Primer Name	Qty
1-267	5		5	5	1	NEBCO Bulk ANFO	0.85	13.19	1	3/4 LB Cast	1
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2				2		
18	18	4			3					Total Primer QTY / Hole	1
					4					Total Primer LBS / Hole	.75
					5						
					6						
					7						
					8						
Total Expl lbs. / hole								13.19	Expl-Primer LBS / Hole		13.94
Total Expl lbs. / Blast								3520.91	Similar Hole LBS		3722.00
Grand Total Explosives Weight										3721.16	
Total Holes Loaded this blast											
267											
Similar Holes - 267 267 Primers 200.25 LBS											

Apogee Coal Company
Logan WV

BLASTING LOG

GENERAL INFORMATION



Blast Number F8 Ticket Number F8

Permittee Apogee Coal, LLC.

Customer / Operator Apogee Coal, LLC.

Location of Blast Ridge 1& 2

Blasting Company APOGEE COAL LLC

Nearest Protected Structure #5 Bill Joann Lambert

Distance and Direction 7,884 ft N, ?°

Nearest Other Structure Dominion Well

Distance and Direction 4,656 ft N, ?°

Weather Conditions Sunny / Hot

95°F,

Wind out of the SE @ 0-2 mph

Type of Material Blasted Sandstone

Matts or Protection Used

Date / Time 7/7/2010 3:54 PM

Permit No. S-5006-05

Lat ° ' N 301611 - X

Long ° ' W 1765716 - Y

Method Handheld GPS - NAD83

SD to nearest protected 270

Blast Type BREAKDOWN

Total Tons 0

Total YD³ 16,200

Powder Factor: tons/lb 0.00

lbs/yd³ 1.21

BLAST INFORMATION

Total Weight and Type(s) of Explosives used: see attachment

	ANFO	Emulsion	Packaged	66 Primers	Total Weight
	14,615.87 lbs.	4,871.96 lbs.	0.00 lbs.	49.50 lbs.	19,537.33 lbs.

Total Holes 30 Angle °

Face Height (ft) 95 Burden (ft) 18

Backfill (ft)

Depth (ft) 45 Spacing (ft) 18

Stemming (ft) 8 - 40

Sub Drill (ft) Diameter (in) 7.875

Stemming Material Cuttings

Maximum Weight of Explosives Allowed per 8ms Period (lbs) : 7167 as determined by SD of : 55

Maximum Weight of Explosives detonated per 8ms (lbs) : 852 in 1.0 Holes

INITIATION PRODUCT INFORMATION

Mfr	Delay Type	Qty	Mfr	Delay Type	Qty	Mfr	Delay Type	Qty
Orica	50 ft unitronics	66						

Method of Firing : Electric

Timer (ms) : NA

Circuit Type :

Initiated by : Electronic

Blasting Unit : E B M

No. of Circuits :

COMMENTS

Operation Apogee Coal, LLC.
Permit Number S-5006-05

Blast Number F8
Blast Type BREAKDOWN

Date 7/7/2010
Time 3:54 PM

Hole Cross Section

Depth (ft) 45 Angle (deg)
B X S (ft) 18 X 18 Bench Ht. 95
Hole dia. (in) 7.875 Stem (ft) 9
PF: 1.58 lbs/YD³ Tons/Lb.

Timing Pattern

9' Stemming

36', 75/25 @ 9'

PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 1.0

Holes loaded the same: 11

Nearest Protected Structure: #5 Bill Joann Lambert

Distance and Direction: 7,884 ft N, ? °

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 7/7/2010 3:54 PM

Seis SN Location Dist (ft) Dir. SD T PPV T Hz V PPV V Hz L PPV L Hz Air dB Air Hz

Reading(s) taken by :SAULS

Analyzed by :SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Crew:

Todd Keffer - 5-645-05

Todd Keffer

Operation Apogee Coal, LLC.
Permit Number S-5006-05

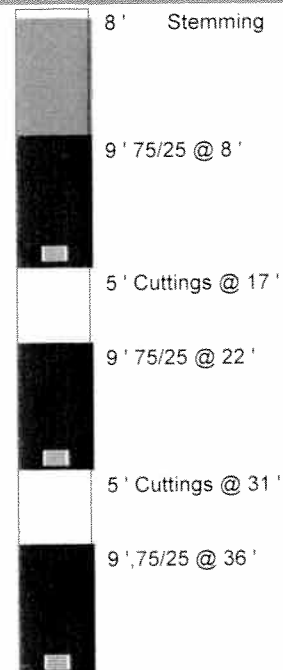
Blast Number F8
Blast Type BREAKDOWN

Date 7/7/2010
Time 3:54 PM

Hole Cross Section

Depth (ft) 45 Angle (deg)
B X S (ft) 18 X 18 Bench Ht. 95
Hole dia. (in) 7.875 Stem (ft) 8
PF: 1.18 lbs/YD³ Tons/Lb.

Timing Pattern



PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 3.0

Holes loaded the same: 9

Nearest Protected Structure: #5 Bill Joann Lambert

Distance and Direction: 7,884 ft N, ? °

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 7/7/2010 3:54 PM

Seis SN Location Dist (ft) Dir. SD T PPV T Hz V PPV V Hz L PPV L Hz Air dB Air Hz

Reading(s) taken by :SAULS

Analyzed by :SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:
Todd Keffer - 5-645-05

Crew:

Operation Apogee Coal, LLC.
Permit Number S-5006-05

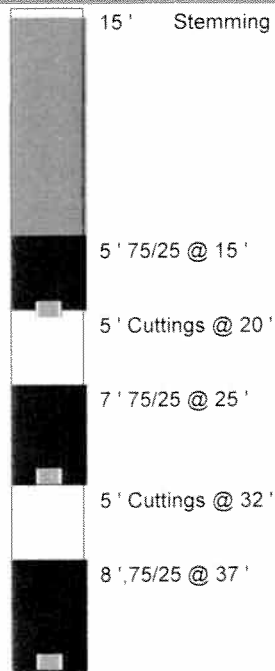
Blast Number F8
Blast Type BREAKDOWN

Date 7/7/2010
Time 3:54 PM

Hole Cross Section

Depth (ft) 45 Angle (deg)
B X S (ft) 18 X 18 Bench Ht. 95
Hole dia. (in) 7.875 Stem (ft) 15
PF: 0.88 lbs/YD³ Tons/Lb.

Timing Pattern



PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 3.0

Holes loaded the same: 9

Nearest Protected Structure: #5 Bill Joann Lambert

Distance and Direction: 7,884 ft N, ? °

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 7/7/2010 3:54 PM

Seis SN Location Dist (ft) Dir. SD T PPV T Hz V PPV V Hz L PPV L Hz Air dB Air Hz

--	--	--	--	--	--	--	--	--	--	--	--	--	--

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Crew:

Todd Keffer - 5-645-05

Operation Apogee Coal, LLC.
Permit Number S-5006-05

Blast Number F8
Blast Type BREAKDOWN

Date 7/7/2010
Time 3:54 PM

Hole Cross Section

Depth (ft) 45 Angle (deg)
B X S (ft) 18 X 18 Bench Ht. 95
Hole dia. (in) 7.875 Stem (ft) 40
PF: 0.22 lbs/YD³ Tons/Lb.

Timing Pattern

40' Stemming

5', 75/25 @ 40'

PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 1.0

Holes loaded the same: 1

Nearest Protected Structure: #5 Bill Joann Lambert

Distance and Direction: 7,884 ft N, ? °

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 7/7/2010 3:54 PM

Seis SN Location Dist (ft) Dir. SD T PPV T Hz V PPV V Hz L PPV L Hz Air dB Air Hz

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:
Todd Keffer - 5-645-05

Crew:

Apogee Coal, LLC.

S-5006-05

Blast Type

BREAKDOWN

Date 7/7/2010

Blast / Ticket Number

F8 /F8

Time 3:54 PM

Hole Number	Bench Height	Sub Drill	Design Depth	Loaded Depth	Mfr.	Explosive Name	g/cc	Pounds	Mfr.	Primer Name	Qty
1-11	95		45	45	1 Nelson	75/25	1.12	851.41	1	3/4 LB Cast	1
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2				2		
18	18	9			3					Total Primer QTY / Hole	1
					4					Total Primer LBS / Hole	.75
					5						
					6						
					7						
					8						
TotalExpl lbs. / hole								851.41	Expl-Primer LBS / Hole 852.16		
Similar Holes - 11					11 Primers	8.25 LBS	Total Expl lbs. / Blast		9365.51	Similar Hole LBS	9374.00
12-20	95		45	45	1 Nelson	75/25	1.12	212.85	1	3/4 LB Cast	3
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2 Nelson	75/25	1.12	212.85	2		
18	18	8			3 Nelson	75/25	1.12	212.85		Total Primer QTY / Hole	3
					4					Total Primer LBS / Hole	2.25
					5						
					6						
					7						
					8						
TotalExpl lbs. / hole								638.56	Expl-Primer LBS / Hole 640.81		
Similar Holes - 9					27 Primers	20.25 LBS	Total Expl lbs. / Blast		5747.02	Similar Hole LBS	5768.00
21-29	95		45	45	1 Nelson	75/25	1.12	189.20	1	3/4 LB Cast	3
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2 Nelson	75/25	1.12	165.55	2		
18	18	15			3 Nelson	75/25	1.12	118.25		Total Primer QTY / Hole	3
					4					Total Primer LBS / Hole	2.25
					5						
					6						
					7						
					8						
TotalExpl lbs. / hole								473.01	Expl-Primer LBS / Hole 475.26		
Similar Holes - 9					27 Primers	20.25 LBS	Total Expl lbs. / Blast		4257.05	Similar Hole LBS	4278.00

Apogee Coal, LLC.

S-5006-05

Blast Type

Blast / Ticket Number

BREAKDOWN

F8 /F8

Date 7/7/2010

Time 3:54 PM

Hole Number	Bench Height	Sub Drill	Design Depth	Loaded Depth	Mfr.	Explosive Name	g/cc	Pounds	Mfr.	Primer Name	Qty
30	95		45	45	1 Nelson	75/25	1.12	118.25	1	3/4 LB Cast	1
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2				2		
18	18	40			3					Total Primer QTY / Hole	1
					4					Total Primer LBS / Hole	.75
					5						
					6						
					7						
					8						
TotalExpl lbs. / hole								118.25	Expl-Primer LBS / Hole		119.00
Similar Holes - 1					1 Primers	0.75 LBS	Total Expl lbs. / Blast		118.25	Similar Hole LBS 120.00	
Total Holes Loaded this blast									Grand Total Explosives Weight		
30									19537.33		

BLASTING LOG

GENERAL INFORMATION



Blast Number

F7

Ticket Number

F7

Permittee Apogee Coal, LLC.

Customer / Operator Apogee Coal, LLC.

Location of Blast Ridge 1& 2

Blasting Company APOGEE COAL LLC

Nearest Protected Structure #5 Bill Joann Lambert

Distance and Direction 7,893 ft N , ?°

Nearest Other Structure Dominion Well

Distance and Direction 4,656 ft N , ?°

Weather Conditions Sunny / Hot

95°F,

Wind out of the SE @ 0-2 mph

Type of Material Blasted Sandstone

Blast Type Production

Matts or Protection Used

Total Tons 0

Total YD³ 107,667

Powder Factor: tons/lb 0.00

lbs/yd³ 1.38

Date / Time 7/6/2010 4:07 PM

Permit No. S-5006-05

° ' ' N 301599 - X

° ' ' W 1765754 - Y

Method Handheld GPS - NAD83

SD to nearest protected 186

BLAST INFORMATION

Total Weight and Type(s) of Explosives used: see attachment

	ANFO	Emulsion	Packaged	160 Primers	Total Weight
	111,747.57 lbs.	37,249.19 lbs.	0.00 lbs.	120.00 lbs.	149,116.76 lbs.

Total Holes	85	Angle	°		
Face Height (ft)	95	Burden (ft)	18	Backfill (ft)	3
Depth (ft)	95	Spacing (ft)	20	Stemming (ft)	10 - 32
Sub Drill (ft)		Diameter (in)	7.875	Stemming Material	Cuttings

Maximum Weight of Explosives Allowed per 8ms Period (lbs) :7166 as determined by SD of : 55

Maximum Weight of Explosives detonated per 8ms (lbs) :1799 in 1.0 Holes

INITIATION PRODUCT INFORMATION

Mfr	Delay Type	Qty	Mfr	Delay Type	Qty	Mfr	Delay Type	Qty
	120'EXCEL-20	85						
Orica	EXCEL 40 FT - 20	75						
Orica	S. EXCEL 40 FT- 42	4						
Orica	S. EXCEL 40 FT-100	81						

Method of Firing : Non Electric

Timer (ms) : NA

Circuit Type :

Initiated by : Non-Electric

Blasting Unit : Handi Blaster

No. of Circuits :

COMMENTS

Operation Apogee Coal, LLC.
Permit Number S-5006-05

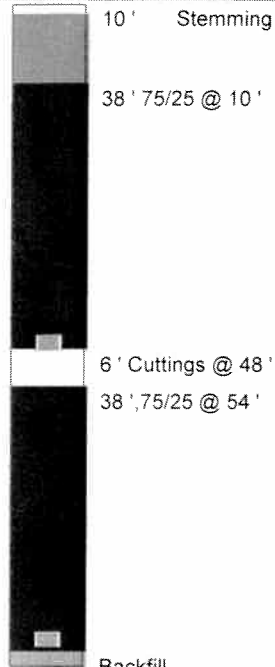
Blast Number F7
Blast Type Production

Date 7/6/2010
Time 4:07 PM

Hole Cross Section

Depth (ft) 95 Angle (deg)
B X S (ft) 18 X 20 Bench Ht. 95
Hole dia. (in) 7.875 Stem (ft) 10
PF: 1.42 lbs/YD³ Tons/Lb.

Timing Pattern



PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 2.0

Holes loaded the same: 75

Nearest Protected Structure: #5 Bill Joann Lambert

Distance and Direction: 7,893 ft N, ? °

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 7/6/2010 4:07 PM

Seis SN Location Dist (ft) Dir. SD T PPV T Hz V PPV V Hz L PPV L Hz Air dB Air Hz

Reading(s) taken by :SAULS

Analyzed by :SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Crew:

Todd Keffer - 5-645-05

Todd Keffer

Operation Apogee Coal, LLC.
Permit Number S-5006-05

Blast Number F7
Blast Type Production

Date 7/6/2010
Time 4:07 PM

Hole Cross Section

Depth (ft) 95 Angle (deg)
B X S (ft) 18 X 20 Bench Ht. 95
Hole dia. (in) 7.875 Stem (ft) 32
PF: 1.12 lbs/YD³ Tons/Lb.

Timing Pattern

32' Stemming

60', 75/25 @ 32'

Backfill

PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 1.0

Holes loaded the same: 10

Nearest Protected Structure: #5 Bill Joann Lambert

Distance and Direction: 7,893 ft N, ? °

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 7/6/2010 4:07 PM

Seis SN Location Dist (ft) Dir. SD T PPV T Hz V PPV V Hz L PPV L Hz Air dB Air Hz

Reading(s) taken by :SAULS

Analyzed by :SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Crew:

Todd Keffer - 5-645-05

Apogee Coal, LLC.

Blast Type

Production

Date 7/6/2010

S-5006-05

Blast / Ticket Number

F7 /F7

Time 4:07 PM

Hole Number	Bench Height	Sub Drill	Design Depth	Loaded Depth	Mfr.	Explosive Name	g/cc	Pounds	Mfr.	Primer Name	Qty
1-10	95		95	95	1 Nelson	75/25	1.12	1419.02	1	3/4 LB Cast	1
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2				2		
18	20	32			3					Total Primer QTY / Hole	1
					4					Total Primer LBS / Hole	.75
					5						
					6						
					7						
					8						
TotalExpl lbs. / hole								1419.02	Expl-Primer LBS / Hole		?
Similar Holes -		10	10 Primers		7.50 LBS	Total Expl lbs. / Blast		14190.17	Similar Hole LBS		14198.00
11-85	95		95	95	1 Nelson	75/25	1.12	898.71	1	3/4 LB Cast	2
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2 Nelson	75/25	1.12	898.71	2		
18	20	10			3					Total Primer QTY / Hole	2
					4					Total Primer LBS / Hole	1.5
					5						
					6						
					7						
					8						
TotalExpl lbs. / hole								1797.42	Expl-Primer LBS / Hole		?
Similar Holes -		75	150 Primers		112.50 LBS	Total Expl lbs. / Blast		134806.59	Similar Hole LBS		134920.00
Total Holes Loaded this blast									Grand Total Explosives Weight		
85									149116.76		

Blast Number F6 **Ticket Number** F6
Permittee Apogee Coal, LLC.**Date / Time** 7/6/2010 4:07 PM**Customer / Operator** Apogee Coal, LLC.**Permit No.** S-5006-05**Location of Blast** Ridge 1& 2**Lat**

° ' 'N 301410 - X

Blasting Company APOGEE COAL LLC**Long**

° ' 'W 1765735 - Y

Nearest Protected Structure #5 Bill Joann Lambert**Method** Handheld GPS - NAD83**Distance and Direction** 8,083 ft N, ?°**SD to nearest protected** 281**Nearest Other Structure** Jackson Well**Distance and Direction** 4,494 ft S, ?°**Weather Conditions** Sunny / Hot

95°F,

Wind out of the SE @ 0-2 mph**Type of Material Blasted** Sandstone**Blast Type** BREAKDOWN**Matts or Protection Used****Total Tons** 0**Total YD³** 17,280**Powder Factor:** tons/lb 0.00**lbs/yd³** 1.39

BLAST INFORMATION

Total Weight and Type(s) of Explosives used: see attachment

	ANFO	Emulsion	Packaged	40 Primers	Total Weight
	18,021.51 lbs.	6,007.17 lbs.	0.00 lbs.	30.00 lbs.	24,058.68 lbs.

Total Holes 32 **Angle** °**Face Height (ft)** 95 **Burden (ft)** 18**Backfill (ft)****Depth (ft)** 45 **Spacing (ft)** 18**Stemming (ft)** 10 - 15**Sub Drill (ft)** **Diameter (in)** 7.875 **Stemming Material** Cuttings**Maximum Weight of Explosives Allowed per 8ms Period (lbs)** :6677 as determined by SD of : 55**Maximum Weight of Explosives detonated per 8ms (lbs)** : 829 in 1.0 Holes

INITIATION PRODUCT INFORMATION

Mfr	Delay Type	Qty	Mfr	Delay Type	Qty	Mfr	Delay Type	Qty
Orica	EXCEL 40 FT - 20	40						
Orica	S. EXCEL 40 FT- 42	4						
Orica	S. EXCEL 40 FT-100	28						

Method of Firing : Non Electric**Timer (ms)** : NA**Circuit Type** :**Initiated by** : Non-Electric**Blasting Unit** : Handi Blaster**No. of Circuits** :

COMMENTS

Operation Apogee Coal, LLC.
Permit Number S-5006-05

Blast Number F6
Blast Type BREAKDOWN

Date 7/6/2010
Time 4:07 PM

Hole Cross Section

Depth (ft) 45 Angle (deg)
B X S (ft) 18 X 18 Bench Ht. 95
Hole dia. (in) 7.875 Stem (ft) 10
PF: 1.53 lbs/YD³ Tons/Lb.

Timing Pattern

10' Stemming

35', 75/25 @ 10'

PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 1.0

Holes loaded the same: 24

Nearest Protected Structure: #5 Bill Joann Lambert

Distance and Direction: 8,083 ft N, ? °

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 7/6/2010 4:07 PM

Seis SN Location Dist (ft) Dir. SD T PPV T Hz V PPV V Hz L PPV L Hz Air dB Air Hz

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Crew:

Brad Gregory - 3-299-88

Operation Apogee Coal, LLC.
Permit Number S-5006-05

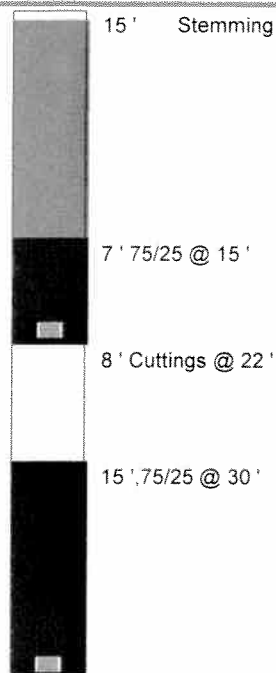
Blast Number F6
Blast Type BREAKDOWN

Date 7/6/2010
Time 4:07 PM

Hole Cross Section

Depth (ft) 45 Angle (deg)
B X S (ft) 18 X 18 Bench Ht. 95
Hole dia. (in) 7.875 Stem (ft) 15
PF: 0.96 lbs/YD³ Tons/Lb.

Timing Pattern



PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 2.0

Holes loaded the same: 8

Nearest Protected Structure: #5 Bill Joann Lambert

Distance and Direction: 8,083 ft N, ? °

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 7/6/2010 4:07 PM

Seis SN Location Dist (ft) Dir. SD T PPV T Hz V PPV V Hz L PPV L Hz Air dB Air Hz

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Crew:

Brad Gregory - 3-299-88

Apogee Coal, LLC:

Blast Type

BREAKDOWN

Date 7/6/2010

S-5006-05

Blast / Ticket Number

F6 /F6

Time 4:07 PM

Hole Number	Bench Height	Sub Drill	Design Depth	Loaded Depth	Mfr.	Explosive Name	g/cc	Pounds	Mfr.	Primer Name	Qty
1-24	95		45	45	1 Nelson	75/25	1.12	827.76	1	3/4 LB Cast	1
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2				2		
18	18	10			3					Total Primer QTY / Hole	1
					4					Total Primer LBS / Hole	.75
					5						
					6						
					7						
					8						
Total Expl lbs. / hole								827.76	Expl-Primer LBS / Hole 828.51		
Similar Holes - 24		24 Primers		18.00 LBS	Total Expl lbs. / Blast		19866.23	Similar Hole LBS		19885.00	
25-32	95		45	45	1 Nelson	75/25	1.12	354.75	1	3/4 LB Cast	2
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2 Nelson	75/25	1.12	165.55	2		
18	18	15			3					Total Primer QTY / Hole	2
					4					Total Primer LBS / Hole	1.5
					5						
					6						
					7						
					8						
Total Expl lbs. / hole								520.31	Expl-Primer LBS / Hole 521.81		
Similar Holes - 8		16 Primers		12.00 LBS	Total Expl lbs. / Blast		4162.45	Similar Hole LBS		4175.00	
Total Holes Loaded this blast									Grand Total Explosives Weight		
32									24058.68		

Blast Number F5 Ticket Number F5

Permittee Apogee Coal, LLC.

Customer / Operator Apogee Coal, LLC.

Location of Blast Ridge 1& 2

Blasting Company APOGEE COAL LLC

Nearest Protected Structure Cline residence

Distance and Direction 8,014 ft S, ?°

Nearest Other Structure Dominion Well

Distance and Direction 5,108 ft NW, ?°

Weather Conditions Sunny / Hot

Type of Material Blasted Sandstone

Matts or Protection Used

Date / Time 7/6/2010 1:28 PM

Permit No. S-5006-05

Lat ° ' N 301483 - X

Long ° ' W 1769485 - Y

Method Handheld GPS - NAD83

SD to nearest protected 368

90°F, Wind out of the N @ 0-2 mph

Blast Type BARRIER

Total Tons 0

Total YD³ 21,240

Powder Factor: tons/lb 0.00

lbs/yd³ 1.32

BLAST INFORMATION

Total Weight and Type(s) of Explosives used: see attachment

	ANFO	Emulsion	Packaged	59 Primers	Total Weight
	20,930.50 lbs.	6,976.83 lbs.	0.00 lbs.	44.25 lbs.	27,951.58 lbs.

Total Holes 59 Angle °

Face Height (ft) 30 Burden (ft) 18

Backfill (ft)

Depth (ft) 30 Spacing (ft) 18 Stemming (ft) 10

Sub Drill (ft) Diameter (in) 7.875 Stemming Material Cuttings

Maximum Weight of Explosives Allowed per 8ms Period (lbs) : 6175 as determined by SD of : 65

Maximum Weight of Explosives detonated per 8ms (lbs) : 474 in 1.0 Holes

INITIATION PRODUCT INFORMATION

Mfr	Delay Type	Qty	Mfr	Delay Type	Qty	Mfr	Delay Type	Qty
Orica	50 ft unitronics	59						

Method of Firing : Electric

Timer (ms) : NA

Circuit Type :

Initiated by : Electronic

Blasting Unit : E B M

No. of Circuits :

COMMENTS

Operation Apogee Coal, LLC.
Permit Number S-5006-05

Blast Number F5
Blast Type BARRIER

Date 7/6/2010
Time 1:28 PM

Hole Cross Section

Depth (ft) 30 Angle (deg)
B X S (ft) 18 X 18 Bench Ht. 30
Hole dia. (in) 7.875 Stem (ft) 10
PF: 1.31 lbs/YD³ Tons/Lb.

Timing Pattern

10' Stemming

20' .75/25 @ 10'

PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 1.0

Holes loaded the same: 59

Nearest Protected Structure: Cline residence

Distance and Direction: 8,014 ft S, ? °

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 7/6/2010 1:28 PM

Seis SN Location Dist (ft) Dir. SD T PPV T Hz V PPV V Hz L PPV L Hz Air dB Air Hz

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Crew:

Todd Keffer - 5-645-05

Todd Keffer

Apogee Coal, LLC.
S-5006-05

Blast Type BARRIER
Blast / Ticket Number F5 /F5

Date 7/6/2010
Time 1:28 PM

Hole Number	Bench Height	Sub Drill	Design Depth	Loaded Depth	Mfr.	Explosive Name	g/cc	Pounds	Mfr.	Primer Name	Qty
1-59	30		30	30	1 Nelson	75/25	1.12	473.01	1	3/4 LB Cast	1
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2				2		
18	18	10			3					Total Primer QTY / Hole	1
					4					Total Primer LBS / Hole	.75
					5						
					6						
					7						
					8						
					TotalExpl lbs. / hole			473.01	Expl-Primer LBS / Hole		473.76
Similar Holes - 59					59 Primers	44.25 LBS	Total Expl lbs. / Blast		27907.33	Similar Hole LBS	27952.00
Total Holes Loaded this blast					Grand Total Explosives Weight						
59					27951.58						

Blast Number F4 Ticket Number F4

Permittee Apogee Coal, LLC. **Date / Time** 7/5/2010 4:03 PM
Customer / Operator Apogee Coal, LLC. **Permit No.** S-5006-05
Location of Blast Ridge 1& 2 **Lat** ° ' ' N 301578 - X
Blasting Company APOGEE COAL LLC **Long** ° ' ' W 1769078 - Y
Nearest Protected Structure Cline residence **Method** Handheld GPS - NAD83
Distance and Direction 8,074 ft S, ?° **SD to nearest protected** 183
Nearest Other Structure Dominion Well
Distance and Direction 4,849 ft NW, ?°
Weather Conditions Sunny / Hot 95°F, **Wind out of the** N @ 0-2 mph
Type of Material Blasted Sandstone **Blast Type** Production
Matts or Protection Used **Total Tons** 0 **Total YD³** 290,963
Powder Factor: tons/lb 0.00 **lbs/yd³** 1.31

BLAST INFORMATION

Total Weight and Type(s) of Explosives used: see attachment

	ANFO	Emulsion	Packaged	357 Primers	Total Weight
	296,591.39 lbs.	83,061.05 lbs.	0.00 lbs.	267.75 lbs.	379,920.18 lbs.

Total Holes 317 **Angle** °
Face Height (ft) 30 - 100 **Burden (ft)** 20 **Backfill (ft)**
Depth (ft) 30 - 100 **Spacing (ft)** 20 **Stemming (ft)** 10
Sub Drill (ft) **Diameter (in)** 7.875 **Stemming Material** Cuttings
Maximum Weight of Explosives Allowed per 8ms Period (lbs) : 7773 as determined by SD of : 55
Maximum Weight of Explosives detonated per 8ms (lbs) : 1953 in 1.0 Holes

INITIATION PRODUCT INFORMATION

Mfr	Delay Type	Qty	Mfr	Delay Type	Qty	Mfr	Delay Type	Qty
Orica	80 ft unitronics	173						
Orica	50 ft unitronics	149						
Orica	120 ft unitronics	35						

Method of Firing : Electric **Timer (ms) :** NA **Circuit Type :**
Initiated by : Electronic **Blasting Unit :** E B M **No. of Circuits :**

COMMENTS

Operation Apogee Coal, LLC.
Permit Number S-5006-05

Blast Number F4
Blast Type Production

Date 7/5/2010
Time 4:03 PM

Hole Cross Section

Depth (ft) 30 Angle (deg)
B X S (ft) 20 X 20 Bench Ht. 30
Hole dia. (in) 7.875 Stem (ft) 10
PF: 1.06 lbs/YD³ Tons/Lb.

Timing Pattern

10' Stemming

20', 75/25 @ 10'

PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 1.0

Holes loaded the same: 24

Nearest Protected Structure: Cline residence

Distance and Direction: 8,074 ft S, ?°

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 7/5/2010 4:03 PM

Seis SN Location Dist (ft) Dir. SD T PPV T Hz V PPV V Hz L PPV L Hz Air dB Air Hz

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Crew:

Richard Cope - 5 506 08

Operation Apogee Coal, LLC.
Permit Number S-5006-05

Blast Number F4
Blast Type Production

Date 7/5/2010
Time 4:03 PM

Hole Cross Section

Depth (ft) 40 Angle (deg)
B X S (ft) 20 X 20 Bench Ht. 40
Hole dia. (in) 7.875 Stem (ft) 10
PF: 1.20 lbs/YD³ Tons/Lb.

Timing Pattern

10' Stemming

30', 75/25 @ 10'

PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 1.0

Holes loaded the same: 85

Nearest Protected Structure: Cline residence

Distance and Direction: 8,074 ft S, ?°

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 7/5/2010 4:03 PM

Seis SN Location Dist (ft) Dir. SD T PPV T Hz V PPV V Hz L PPV L Hz Air dB Air Hz

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Crew:

Richard Cope - 5 506 08

Operation Apogee Coal, LLC.
Permit Number S-5006-05

Blast Number F4
Blast Type Production

Date 7/5/2010
Time 4:03 PM

Hole Cross Section

Depth (ft) 60 Angle (deg)
B X S (ft) 20 X 20 Bench Ht. 60
Hole dia. (in) 7.875 Stem (ft) 10
PF: 1.33 lbs/YD³ Tons/Lb.

Timing Pattern

10' Stemming

50', 75/25 @ 10'

PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 1.0

Holes loaded the same: 60

Nearest Protected Structure: Cline residence

Distance and Direction: 8,074 ft S, ?°

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 7/5/2010 4:03 PM

Seis SN Location Dist (ft) Dir. SD T PPV T Hz V PPV V Hz L PPV L Hz Air dB Air Hz

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Crew:

Richard Cope - 5 506 08

Operation Apogee Coal, LLC.
Permit Number S-5006-05

Blast Number F4
Blast Type Production

Date 7/5/2010
Time 4:03 PM

Hole Cross Section

Depth (ft) 70 Angle (deg)
B X S (ft) 20 X 20 Bench Ht. 70
Hole dia. (in) 7.875 Stem (ft) 10
PF: 1.34 lbs/YD³ Tons/Lb.

Timing Pattern

10' Stemming

60', 80/20 @ 10'

PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 1.0

Holes loaded the same: 79

Nearest Protected Structure: Cline residence

Distance and Direction: 8,074 ft S, ?°

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 7/5/2010 4:03 PM

Seis SN Location Dist (ft) Dir. SD T PPV T Hz V PPV V Hz L PPV L Hz Air dB Air Hz

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Crew:

Richard Cope - 5 506 08

Operation Apogee Coal, LLC.
Permit Number S-5006-05

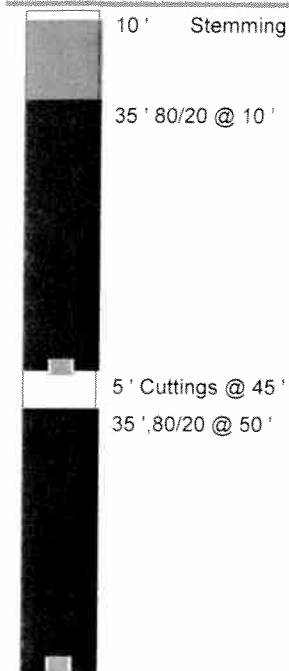
Blast Number F4
Blast Type Production

Date 7/5/2010
Time 4:03 PM

Hole Cross Section

Depth (ft) 85 Angle (deg)
B X S (ft) 20 X 20 Bench Ht. 85
Hole dia. (in) 7.875 Stem (ft) 10
PF: 1.29 lbs/YD³ Tons/Lb.

Timing Pattern



PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 2.0

Holes loaded the same: 5

Nearest Protected Structure: Cline residence

Distance and Direction: 8,074 ft S, ?°

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 7/5/2010 4:03 PM

Seis SN	Location	Dist (ft)	Dir.	SD	T PPV	T Hz	V PPV	V Hz	L PPV	L Hz	Air dB	Air Hz
---------	----------	-----------	------	----	-------	------	-------	------	-------	------	--------	--------

Reading(s) taken by :SAULS

Analyzed by :SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Crew:

Richard Cope - 5 506 08

Operation Apogee Coal, LLC.
Permit Number S-5006-05

Blast Number F4
Blast Type Production

Date 7/5/2010
Time 4:03 PM

Hole Cross Section

Depth (ft) 85 Angle (deg)
B X S (ft) 20 X 20 Bench Ht. 85
Hole dia. (in) 7.875 Stem (ft) 10
PF: 1.38 lbs/YD³ Tons/Lb.

Timing Pattern

10' Stemming
75' .80/20 @ 10'

PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 1.0

Holes loaded the same: 29

Nearest Protected Structure: Cline residence

Distance and Direction: 8,074 ft S , ? °

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 7/5/2010 4:03 PM

Seis SN Location Dist (ft) Dir. SD T PPV T Hz V PPV V Hz L PPV L Hz Air dB Air Hz

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Crew:

Richard Cope - 5 506 08

Operation Apogee Coal, LLC.
Permit Number S-5006-05

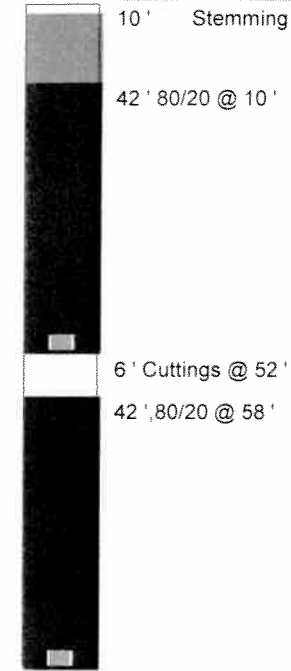
Blast Number F4
Blast Type Production

Date 7/5/2010
Time 4:03 PM

Hole Cross Section

Depth (ft) 100 Angle (deg)
B X S (ft) 20 X 20 Bench Ht. 100
Hole dia. (in) 7.875 Stem (ft) 10
PF: 1.32 lbs/YD³ Tons/Lb.

Timing Pattern



PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 2.0

Holes loaded the same: 35

Nearest Protected Structure: Cline residence

Distance and Direction: 8,074 ft S, ?°

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 7/5/2010 4:03 PM

Seis SN Location Dist (ft) Dir. SD T PPV T Hz V PPV V Hz L PPV L Hz Air dB Air Hz

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Crew:

Richard Cope - 5 506 08

Apogee Coal, LLC.

Blast Type

Production

Date 7/5/2010

S-5006-05

Blast / Ticket Number

F4 /F4

Time 4:03 PM

Hole Number	Bench Height	Sub Drill	Design Depth	Loaded Depth	Mfr.	Explosive Name	g/cc	Pounds	Mfr.	Primer Name	Qty
1-24	30		30	30	1 Nelson	75/25	1.12	473.01	1	3/4 LB Cast	1
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2				2		
20	20	10			3					Total Primer QTY / Hole	1
					4					Total Primer LBS / Hole	.75
					5						
					6						
					7						
					8						
TotalExpl lbs. / hole								473.01	Expl-Primer LBS / Hole 473.76		
Similar Holes - 24		24 Primers		18.00 LBS	Total Expl lbs. / Blast		11352.13	Similar Hole LBS		11371.00	
110	60		60	60	1 Nelson	75/25	1.12	1182.51	1	3/4 LB Cast	1
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2				2		
20	20	10			3					Total Primer QTY / Hole	1
					4					Total Primer LBS / Hole	.75
					5						
					6						
					7						
					8						
TotalExpl lbs. / hole								1182.51	Expl-Primer LBS / Hole ?		
Similar Holes - 60		60 Primers		45.00 LBS	Total Expl lbs. / Blast		70950.84	Similar Hole LBS		70996.00	
170	70		70	70	1 Nelson	80/20	1.10	1393.68	1	3/4 LB Cast	1
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2				2		
20	20	10			3					Total Primer QTY / Hole	1
					4					Total Primer LBS / Hole	.75
					5						
					6						
					7						
					8						
TotalExpl lbs. / hole								1393.68	Expl-Primer LBS / Hole ?		
Similar Holes - 79		79 Primers		59.25 LBS	Total Expl lbs. / Blast		110100.49	Similar Hole LBS		110160.00	

Apogee Coal, LLC.

S-5006-05

Blast Type

Blast / Ticket Number

Production

F4 /F4

Date 7/5/2010

Time 4:03 PM

Hole Number	Bench Height	Sub Drill	Design Depth	Loaded Depth	Mfr.	Explosive Name	g/cc	Pounds	Mfr.	Primer Name	Qty
249	85		85	85	1 Nelson	80/20	1.10	812.98	1	3/4 LB Cast	2
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2 Nelson	80/20	1.10	812.98	2		
20	20	10			3					Total Primer QTY / Hole	2
					4					Total Primer LBS / Hole	1.5
					5						
					6						
					7						
					8						
					Total Expl lbs. / hole			1625.96	Expl-Primer LBS / Hole		?
Similar Holes - 5					10 Primers	7.50 LBS	Total Expl lbs. / Blast		8129.78	Similar Hole LBS	8138.00
25	40		40	40	1 Nelson	75/25	1.12	709.51	1	3/4 LB Cast	1
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2				2		
20	20	10			3					Total Primer QTY / Hole	1
					4					Total Primer LBS / Hole	.75
					5						
					6						
					7						
					8						
					Total Expl lbs. / hole			709.51	Expl-Primer LBS / Hole		710.26
Similar Holes - 85					85 Primers	63.75 LBS	Total Expl lbs. / Blast		60308.21	Similar Hole LBS	60372.00
254	85		85	85	1 Nelson	80/20	1.10	1742.10	1	3/4 LB Cast	1
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2				2		
20	20	10			3					Total Primer QTY / Hole	1
					4					Total Primer LBS / Hole	.75
					5						
					6						
					7						
					8						
					Total Expl lbs. / hole			1742.10	Expl-Primer LBS / Hole		?
Similar Holes - 29					29 Primers	21.75 LBS	Total Expl lbs. / Blast		50520.80	Similar Hole LBS	50543.00

Apogee Coal, LLC.

Blast Type

Production

Date 7/5/2010

S-5006-05

Blast / Ticket Number

F4 /F4

Time 4:03 PM

Hole Number	Bench Height	Sub Drill	Design Depth	Loaded Depth	Mfr.	Explosive Name	g/cc	Pounds	Mfr.	Primer Name	Qty
283	100		100	100	1 Nelson	80/20	1.10	975.57	1	3/4 LB Cast	2
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2 Nelson	80/20	1.10	975.57	2		
20	20	10			3					Total Primer QTY / Hole	2
					4					Total Primer LBS / Hole	1.5
					5						
					6						
					7						
					8						
					TotalExpl lbs. / hole			1951.15	Expl-Primer LBS / Hole		?
Similar Holes - 35					70 Primers	52.50 LBS	Total Expl lbs. / Blast		68290.18	Similar Hole LBS	68343.00
Total Holes Loaded this blast									Grand Total Explosives Weight		
317									379920.18		

Blast Number F3 Ticket Number F3

Permittee Apogee Coal, LLC.

Customer / Operator Apogee Coal, LLC.

Location of Blast Ridge 1& 2

Blasting Company APOGEE COAL LLC

Nearest Protected Structure #5 Bill Joann Lambert

Distance and Direction 8,141 ft N, ?°

Nearest Other Structure Jackson Well

Distance and Direction 4,418 ft S, ?°

Weather Conditions Sunny / Hot

Type of Material Blasted Sandstone

Matts or Protection Used

Date / Time 7/3/2010 4:02 PM

Permit No. S-5006-05

° ' N 301347 - X

° ' W 1765806 - Y

Method Handheld GPS - NAD83

SD to nearest protected 121

85°F, Wind out of the E @ 0-5 mph

Blast Type Production

Total Tons 0

Total YD³ 109,333

Powder Factor: tons/lb 0.00

lbs/yd³ 1.59

BLAST INFORMATION

Total Weight and Type(s) of Explosives used: see attachment

	ANFO	Emulsion	Packaged	169 Primers	Total Weight
	139,217.54 lbs.	34,804.38 lbs.	0.00 lbs.	126.75 lbs.	174,148.67 lbs.

Total Holes	82	Angle	°		
Face Height (ft)	90	Burden (ft)	20	Backfill (ft)	
Depth (ft)	90	Spacing (ft)	20	Stemming (ft)	9 - 60
Sub Drill (ft)		Diameter (in)	9	Stemming Material	Cuttings

Maximum Weight of Explosives Allowed per 8ms Period (lbs) :6453 as determined by SD of : 55

Maximum Weight of Explosives detonated per 8ms (lbs) :4493 in 2.0 Holes

INITIATION PRODUCT INFORMATION

Mfr	Delay Type	Qty	Mfr	Delay Type	Qty	Mfr	Delay Type	Qty
Orica	1 Roll - Lead in Line	1	Orica	S. EXCEL 40 FT-100	62			
Orica	EXCEL 120 FT - 24	82						
Orica	EXCEL 40 FT - 20	87						
Orica	S. EXCEL 40 FT- 42	30						

Method of Firing : Non Electric

Timer (ms) : NA

Circuit Type : Row by Row

Initiated by : Non-Electric

Blasting Unit : Handi Blaster

No. of Circuits : 0

COMMENTS

Operation Apogee Coal, LLC.
Permit Number S-5006-05

Blast Number F3
Blast Type Production

Date 7/3/2010
Time 4:02 PM

Hole Cross Section

Depth (ft) 90 Angle (deg)
B X S (ft) 20 X 20 Bench Ht. 90
Hole dia. (in) 9.000 Stem (ft) 9
PF: 1.68 lbs/YD³ Tons/Lb.

Timing Pattern

9' Stemming
14' 80/20 @ 9'
7' Cuttings @ 23'
60' 80/20 @ 30'

PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 2.0

Holes loaded the same: 60

Nearest Protected Structure: #5 Bill Joann Lambert

Distance and Direction: 8,141 ft N, ?°

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 7/3/2010 4:02 PM

Seis SN Location Dist (ft) Dir. SD T PPV T Hz V PPV V Hz L PPV L Hz Air dB Air Hz

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Crew:

Richard Cope - 5 506 08

Operation Apogee Coal, LLC.

Blast Number F3

Date 7/3/2010

Permit Number S-5006-05

Blast Type Production

Time 4:02 PM

Hole Cross Section

Depth (ft) 90 Angle (deg)
B X S (ft) 20 X 20 Bench Ht. 90
Hole dia. (in) 9.000 Stem (ft) 60
PF: 0.68 lbs/YD³ Tons/Lb.

Timing Pattern

60' Stemming

30', 80/20 @ 60'

PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 1.0

Holes loaded the same: 1

Nearest Protected Structure: #5 Bill Joann Lambert

Distance and Direction: 8,141 ft N, ? °

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 7/3/2010 4:02 PM

Seis SN	Location	Dist (ft)	Dir.	SD	T PPV	T Hz	V PPV	V Hz	L PPV	L Hz	Air dB	Air Hz
---------	----------	-----------	------	----	-------	------	-------	------	-------	------	--------	--------

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Crew:

Richard Cope - 5 506 08

Operation Apogee Coal, LLC.
Permit Number S-5006-05

Blast Number F3
Blast Type Production

Date 7/3/2010
Time 4:02 PM

Hole Cross Section

Depth (ft) 90 Angle (deg)
B X S (ft) 20 X 20 Bench Ht. 90
Hole dia. (in) 9.000 Stem (ft) 25
PF: 1.32 lbs/YD³ Tons/Lb.

Timing Pattern

25' Stemming

18' 80/20 @ 25'

7' Cuttings @ 43'

40' 80/20 @ 50'

PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 2.0

Holes loaded the same: 15

Nearest Protected Structure: #5 Bill Joann Lambert

Distance and Direction: 8,141 ft N, ?°

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 7/3/2010 4:02 PM

Seis SN Location Dist (ft) Dir. SD T PPV T Hz V PPV V Hz L PPV L Hz Air dB Air Hz

Reading(s) taken by :SAULS

Analyzed by :SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Crew:

Richard Cope - 5 506 08

Operation Apogee Coal, LLC.

Blast Number F3

Date 7/3/2010

Permit Number S-5006-05

Blast Type Production

Time 4:02 PM

Hole Cross Section

Depth (ft) 90 Angle (deg)
B X S (ft) 20 X 20 Bench Ht. 90
Hole dia. (in) 9.000 Stem (ft) 10
PF: 1.50 lbs/YD³ Tons/Lb.

Timing Pattern

10' Stemming

6' 80/20 @ 10'

7' Cuttings @ 16'

10' 80/20 @ 23'

7' Cuttings @ 33'

50' 80/20 @ 40'

PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 3.0

Holes loaded the same: 6

Nearest Protected Structure: #5 Bill Joann Lambert

Distance and Direction: 8,141 ft N, ? °

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 7/3/2010 4:02 PM

Seis SN	Location	Dist (ft)	Dir.	SD	T PPV	T Hz	V PPV	V Hz	L PPV	L Hz	Air dB	Air Hz
---------	----------	-----------	------	----	-------	------	-------	------	-------	------	--------	--------

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Crew:

Richard Cope - 5 506 08

Apogee Coal, LLC.

Blast Type

Production

Date 7/3/2010

S-5006-05

Blast / Ticket Number

F3 /F3

Time 4:02 PM

Hole Number	Bench Height	Sub Drill	Design Depth	Loaded Depth	Mfr.	Explosive Name	g/cc	Pounds	Mfr.	Primer Name	Qty
77-82	90		90	90	1 Nelson	80/20	1.10	1516.93	1	3/4 LB Cast	3
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2 Nelson	80/20	1.10	303.39	2		
20	20	10			3 Nelson	80/20	1.10	182.03		Total Primer QTY / Hole	3
					4					Total Primer LBS / Hole	2.25
					5						
					6						
					7						
					8						
								TotalExpl lbs. / hole	2002.34	Expl-Primer LBS / Hole	?
Similar Holes -	6		18 Primers	13.50 LBS	Total Expl lbs. / Blast				12014.07	Similar Hole LBS	12028.00
Total Holes Loaded this blast									Grand Total Explosives Weight		
82									174148.67		

Blast Number F2 Ticket Number F2

Permittee Apogee Coal, LLC.

Customer / Operator Apogee Coal, LLC.

Location of Blast Ridge 1& 2

Blasting Company APOGEE COAL LLC

Nearest Protected Structure #5 Bill Joann Lambert

Distance and Direction 8,240 ft N , ?°

Nearest Other Structure Dominion Well

Distance and Direction 4,763 ft NW , ?°

Weather Conditions Sunny / Hot

Type of Material Blasted Sandstone

Matts or Protection Used None used

Date / Time 7/2/2010 10:06 AM

Permit No. S-5006-05

° ' N 301840 - X

° ' W 1769424 - Y

Method Handheld GPS - NAD83

SD to nearest protected 379

80°F, Wind out of the W @ 0-5 mph

Blast Type BREAKDOWN

Total Tons 0 Total YD³ 25,200Powder Factor: tons/lb 0.00 lbs/yd³ 1.32

BLAST INFORMATION

Total Weight and Type(s) of Explosives used: see attachment

	ANFO	Emulsion	Packaged	70 Primers	Total Weight
	24,832.79 lbs.	8,277.60 lbs.	0.00 lbs.	52.50 lbs.	33,162.89 lbs.

Total Holes 70 Angle °

Face Height (ft) 105

Burden (ft) 18

Backfill (ft)

Depth (ft) 30

Spacing (ft) 18

Stemming (ft) 10

Sub Drill (ft)

Diameter (in) 7.875

Stemming Material Cuttings

Maximum Weight of Explosives Allowed per 8ms Period (lbs) :7500 as determined by SD of : 55

Maximum Weight of Explosives detonated per 8ms (lbs) : 474 in 1.0 Holes

INITIATION PRODUCT INFORMATION

Mfr	Delay Type	Qty	Mfr	Delay Type	Qty	Mfr	Delay Type	Qty
Orica	EXCEL 40 FT - 20	70						
Orica	S. EXCEL 40 FT- 42	7						
Orica	S. EXCEL 40 FT-100	63						
Orica	0.5 Roll - Lead in Line	1						

Method of Firing : Non Electric

Timer (ms) : NA

Circuit Type : Row by Row

Initiated by : Non-Electric

Blasting Unit : R F D

No. of Circuits : 0

COMMENTS

Operation Apogee Coal, LLC.
Permit Number S-5006-05

Blast Number F2
Blast Type BREAKDOWN

Date 7/2/2010
Time 10:06 AM

Hole Cross Section

Depth (ft) 30 Angle (deg)
B X S (ft) 18 X 18 Bench Ht. 105
Hole dia. (in) 7.875 Stem (ft) 10
PF: 1.31 lbs/YD³ Tons/Lb.

Timing Pattern

10' Stemming

20' 75/25 @ 10'

PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 1.0

Holes loaded the same: 70

Nearest Protected Structure: #5 Bill Joann Lambert

Distance and Direction: 8,240 ft N, ? °

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 7/2/2010 10:06 AM

Seis SN	Location	Dist (ft)	Dir.	SD	T PPV	T Hz	V PPV	V Hz	L PPV	L Hz	Air dB	Air Hz
---------	----------	-----------	------	----	-------	------	-------	------	-------	------	--------	--------

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Crew:

Todd Keffer - 5-645-05

Todd Keffer

Apogee Coal, LLC.
S-5006-05

Blast Type
Blast / Ticket Number

BREAKDOWN
F2 /F2

Date 7/2/2010
Time 10:06 AM

Hole Number	Bench Height	Sub Drill	Design Depth	Loaded Depth	Mfr.	Explosive Name	g/cc	Pounds	Mfr.	Primer Name	Qty
1-70	105		30	30	1 Nelson	75/25	1.12	473.01	1	3/4 LB Cast	1
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2				2		
18	18	10			3					Total Primer QTY / Hole	1
					4					Total Primer LBS / Hole	.75
					5						
					6						
					7						
					8						
Total Expl lbs. / hole								473.01	Expl-Primer LBS / Hole 473.76		
Similar Holes - 70					70 Primers	52.50 LBS	Total Expl lbs. / Blast		33110.39	Similar Hole LBS	33163.00
Total Holes Loaded this blast									Grand Total Explosives Weight		
70									33162.89		

Apogee Coal Company
Logan WV

BLASTING LOG

APOGEE CO

Blast Number

GENERAL INFORMATION
E62 Ticket Number

F1
E62

Permittee Apogee Coal, LLC.

Customer / Operator Apogee Coal, LLC.

Location of Blast Guyan Mine

Blasting Company APOGEE COAL LLC

Nearest Protected Structure Ball residence

Distance and Direction

Nearest Other Structure Dominion Well 1089

Distance and Direction

Weather Conditions Sunny / Hot

Type of Material Blasted Sandstone

Matts or Protection Used None used

Lat

Long

S, ?°

85°F,

Wind out of the

N @

0-5 mph

Date / Time 7/1/2010

8:32 AM

Permit No. S-5007-01

N 292202

W 1775287

Method Handheld GPS - NAD83

SD to nearest protected 1

Powder Factor:

tons/lb 0.00

Total YD³ 31,200

lbs/yd³ 1.23

BLAST INFORMATION

Total Weight and Type(s) of Explosives used: see attachment

ANFO

28,826.31 lbs.

Emulsion

9,608.77 lbs.

Total Holes

47

Angle 0°

Face Height (ft)

5

- 60

Depth (ft)

5

- 60

Sub Drill (ft)

Burden (ft)

18

Spacing (ft)

18

Diameter (in)

6.75

Backfill (ft)

5 - 8

Stemming (ft)

Cuttings

Stemming Material as determined by SD of : 55

Maximum Weight of Explosives Allowed per 8ms Period (lbs) : 4219

Maximum Weight of Explosives detonated per 8ms (lbs) : 904 in 1.0 Holes

INITIATION PRODUCT INFORMATION

Mfr Delay Type

Orica 80 ft unitronics

Qty
50

Mfr Delay Type

Qty

Mfr

Delay Type

Qty

Method of Firing : Digital

Initiated by : Electronic

Timer (ms) : NA

Blasting Unit : E B M

Circuit Type : Row by Row

No. of Circuits : 1

COMMENTS

Operation Apogee Coal, LLC.
Permit Number S-5007-01

Blast Number E62
Blast Type Production

Date 7/1/2010
Time 8:32 AM

Hole Cross Section

Depth (ft) 60 Angle (deg) 0
B X S (ft) 18 X 18 Bench Ht. 60
Hole dia. (in) 6.750 Stem (ft) 8
PF: 1.25 lbs/YD³ Tons/Lb.

Timing Pattern

8' Stemming

52', 75/25 @ 8'

PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 1.0

Holes loaded the same: 41

Nearest Protected Structure: Ball residence

Distance and Direction: 3,573 ft S, ? °

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 7/1/2010 8:32 AM

Seis SN Location Dist (ft) Dir. SD T PPV T Hz V PPV V Hz L PPV L Hz Air dB Air Hz

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Crew:

~~Richard Cope - 5-506-08~~ Todd Keffer 5-645-05

Operation Apogee Coal, LLC.
Permit Number S-5007-01

Blast Number E62
Blast Type Production

Date 7/1/2010
Time 8:32 AM

Hole Cross Section

Depth (ft) 60 Angle (deg) 0
B X S (ft) 18 X 18 Bench Ht. 60
Hole dia. (in) 6.750 Stem (ft) 8
PF: 0.87 lbs/YD³ Tons/Lb.

Timing Pattern

8' Stemming
4' 75/25 @ 8'
8' Cuttings @ 12'
4' 75/25 @ 20'
8' Cuttings @ 24'
28' 75/25 @ 32'

PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 3.0

Holes loaded the same: 1

Nearest Protected Structure: Ball residence

Distance and Direction: 3,573 ft S, ?°

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 7/1/2010 8:32 AM

Seis SN Location Dist (ft) Dir. SD T PPV T Hz V PPV V Hz L PPV L Hz Air dB Air Hz

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Crew:

~~Richard Cope~~ - 5 506 08

Operation Apogee Coal, LLC.
Permit Number S-5007-01

Blast Number E62
Blast Type Production

Date 7/1/2010
Time 8:32 AM

Hole Cross Section

Depth (ft) 5 Angle (deg) 0
B X S (ft) 18 X 18 Bench Ht. 5
Hole dia. (in) 6.750 Stem (ft) 5
PF: 0.00 lbs/YD³ ? Tons/Lb.

Timing Pattern

5' Stemming

PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 3.0

Holes loaded the same: 4

Nearest Protected Structure: Ball residence

Distance and Direction: 3,573 ft S, ? °

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 7/1/2010 8:32 AM

Seis SN	Location	Dist (ft)	Dir.	SD	T PPV	T Hz	V PPV	V Hz	L PPV	L Hz	Air dB	Air Hz
---------	----------	-----------	------	----	-------	------	-------	------	-------	------	--------	--------

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Crew:

Richard Gope - 5 506 08

Operation Apogee Coal, LLC.
Permit Number S-5007-01

Blast Number E62
Blast Type Production

Date 7/1/2010
Time 8:32 AM

Hole Cross Section

Depth (ft) 60 Angle (deg) 0
B X S (ft) 18 X 18 Bench Ht. 60
Hole dia. (in) 6.750 Stem (ft) 8
PF: 1.06 lbs/YD³ Tons/Lb.

Timing Pattern

8' Stemming

16' 75/25 @ 8'

8' Cuttings @ 24'

28' 75/25 @ 32'

PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 2.0

Holes loaded the same: 1

Nearest Protected Structure: Ball residence

Distance and Direction: 3,573 ft S, ?°

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 7/1/2010 8:32 AM

Seis SN	Location	Dist (ft)	Dir.	SD	T PPV	T Hz	V PPV	V Hz	L PPV	L Hz	Air dB	Air Hz
---------	----------	-----------	------	----	-------	------	-------	------	-------	------	--------	--------

Reading(s) taken by :SAULS

Analyzed by :SAULS

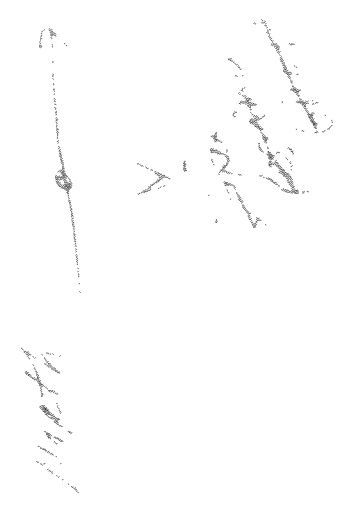
BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Crew:

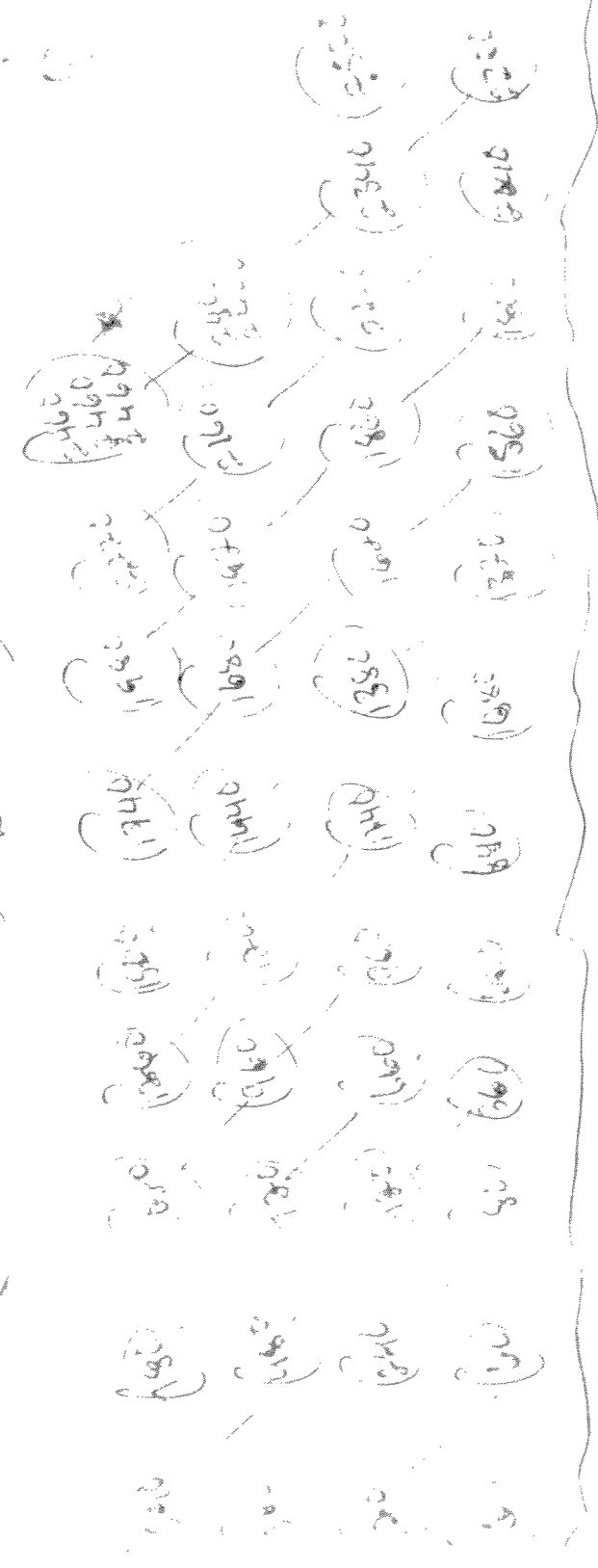
~~Richard Cope - 5 506 08~~

North
 100 m
 200 m



ROAD →

← ROAD →



← pit →
 BENEFIT

(H. 11118211)

BLASTING LOG

GENERAL INFORMATION

APOGEE
COAL

Blast Number E64 Ticket Number

E3
E64

Permittee Apogee Coal, LLC.

Customer / Operator Apogee Coal, LLC.

Location of Blast Ridge 1& 2

Blasting Company APOGEE COAL LLC

Nearest Protected Structure #5 Bill Joann Lambert

Distance and Direction 8,141 ft N, ?°

Nearest Other Structure Jackson Well

Distance and Direction 4,418 ft S, ?°

Weather Conditions Sunny / Hot 85°F,

Type of Material Blasted Sandstone

Matts or Protection Used

Date / Time 7/3/2010 4:02 PM

Permit No. S-5006-05

Lat	°	'	N	301347	- X
Long	°	'	W	1765806	- Y

Method Handheld GPS - NAD83

SD to nearest protected 121

CB Cast LHS
 Surveyor got 4 corners
 Wind out of the E @ 0-5 mph

Blast Type Production

Total Tons 0

Total YD³ 109,333

Powder Factor: tons/lb 0.00

lbs/yd³ 1.59

BLAST INFORMATION

Total Weight and Type(s) of Explosives used: see attachment

ANFO

Emulsion

139,217.54 lbs.

34,804.38 lbs.

Packaged

169 Primers

Total Weight

0.00 lbs.

126.75 lbs.

174,148.67 lbs.

Total Holes 82 Angle 15°

Face Height (ft) 90

Burden (ft) 20

Backfill (ft)

Depth (ft) 90

Spacing (ft) 20

Stemming (ft) 9 - 60

Sub Drill (ft)

Diameter (in) 9

Stemming Material Cuttings

Maximum Weight of Explosives Allowed per 8ms Period (lbs) :6453 as determined by SD of : 55

Maximum Weight of Explosives detonated per 8ms (lbs) :4493 in 2.0 Holes

INITIATION PRODUCT INFORMATION

Mfr	Delay Type	Qty	Mfr	Delay Type	Qty	Mfr	Delay Type	Qty
Orica	1 Roll - Lead in Line	1	Orica	S. EXCEL 40 FT-100	62			
Orica	EXCEL 120 FT - 24	82						
Orica	EXCEL 40 FT - 20	87						
Orica	S. EXCEL 40 FT- 42	30						

Method of Firing : Non Electric

Timer (ms) : NA

Circuit Type : Row by Row

Initiated by : Non-Electric

Blasting Unit : Handi Blaster

No. of Circuits : 0

COMMENTS

Operation Apogee Coal, LLC.
Permit Number S-5006-05

Blast Number E64
Blast Type Production

Date 7/3/2010
Time 4:02 PM

Hole Cross Section

Depth (ft) 90 Angle (deg) 15
B X S (ft) 20 X 20 Bench Ht. 90
Hole dia. (in) 9.000 Stem (ft) 60
PF: 0.68 lbs/YD³ Tons/Lb.

Starter Hole



60' Stemming

30', 80/20 @ 60'

PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 1.0

Holes loaded the same: 1

Timing Pattern

Nearest Protected Structure: #5 Bill Joann Lambert

Distance and Direction: 8,141 ft N, ? °

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 7/3/2010 4:02 PM

Seis SN	Location	Dist (ft)	Dir.	SD	T PPV	T Hz	V PPV	V Hz	L PPV	L Hz	Air dB	Air Hz
---------	----------	-----------	------	----	-------	------	-------	------	-------	------	--------	--------

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Crew:

~~Richard Cape~~ - 5506-08

Operation Apogee Coal, LLC.
Permit Number S-5006-05

Blast Number E64
Blast Type Production

Date 7/3/2010
Time 4:02 PM

Hole Cross Section

Depth (ft) 90 Angle (deg) 15
B X S (ft) 20 X 20 Bench Ht. 90
Hole dia. (in) 9.000 Stem (ft) 25
PF: 1.32 lbs/YD³ Tons/Lb.

Face Row Hole(s)



25' Stemming

18' 80/20 @ 25'

7' Cuttings @ 43'

40' 80/20 @ 50'

PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 2.0

Holes loaded the same: 15

Timing Pattern

Nearest Protected Structure: #5 Bill Joann Lambert

Distance and Direction: 8,141 ft N, ? °

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 7/3/2010 4 02 PM

Seis SN	Location	Dist (ft)	Dir.	SD	T PPV	T Hz	V PPV	V Hz	L PPV	L Hz	Air dB	Air Hz
---------	----------	-----------	------	----	-------	------	-------	------	-------	------	--------	--------

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Crew:

Richard Cope - 5 506 08

Operation Apogee Coal, LLC.
Permit Number S-5006-05

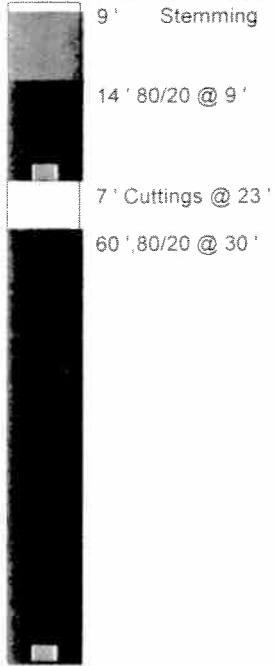
Blast Number E64
Blast Type Production

Date 7/3/2010
Time 4:02 PM

Hole Cross Section

Depth (ft) 90 Angle (deg) 0
B X S (ft) 20 X 20 Bench Ht. 90
Hole dia. (in) 9.000 Stem (ft) 9
PF: 1.68 lbs/YD³ Tons/Lb.

Typical Hole



PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 2.0

Holes loaded the same: 60

Timing Pattern

Nearest Protected Structure: #5 Bill Joann Lambert

Distance and Direction: 8,141 ft N . ? °

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 7/3/2010 4:02 PM

Seis SN	Location	Dist (ft)	Dir.	SD	T PPV	T Hz	V PPV	V Hz	L PPV	L Hz	Air dB	Air Hz
---------	----------	-----------	------	----	-------	------	-------	------	-------	------	--------	--------

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Crew:

Richard Cope - 5 506 08

Operation Apogee Coal, LLC.
Permit Number S-5006-05

Blast Number E64
Blast Type Production

Date 7/3/2010
Time 4:02 PM

Hole Cross Section

Depth (ft) 90 Angle (deg) 0
B X S (ft) 20 X 20 Bench Ht. 90
Hole dia. (in) 9.000 Stem (ft) 10
PF: 1.50 lbs/YD³ Tons/Lb.

Back Row Hole(s)



10' Stemming
6' 80/20 @ 10'
7' Cuttings @ 16'
10' 80/20 @ 23'
7' Cuttings @ 33'
50' 80/20 @ 40'

PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 3.0

Holes loaded the same: 6

Timing Pattern

Nearest Protected Structure: #5 Bill Joann Lambert

Distance and Direction: 8,141 ft N, 2°

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 7/3/2010 4:02 PM

Seis SN	Location	Dist (ft)	Dir.	SD	T PPV	T Hz	V PPV	V Hz	L PPV	L Hz	Air dB	Air Hz
---------	----------	-----------	------	----	-------	------	-------	------	-------	------	--------	--------

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Crew:

Richard Cope - 5 506 08

Apogee Coal, LLC.

Blast Type

Production

Date 7/3/2010

S-5006-05

Blast / Ticket Number

E64 /E64

Time 4:02 PM

Hole Number	Bench Height	Sub Drill	Design Depth	Loaded Depth	Mfr.	Explosive Name	g/cc	Pounds	Mfr.	Primer Name	Qty
1	90		90	90	1 Nelson	80/20	1.10	910.16	1	3/4 LB Cast	1
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2				2		
20	20	60	15		3					Total Primer QTY / Hole	1
Starter Hole					4					Total Primer LBS / Hole	.75
					5						
					6						
					7						
					8						
TotalExpl lbs. / hole								910.16	Expl-Primer LBS / Hole 910.91		
Similar Holes - 1					1 Primers	0.75 LBS	Total Expl lbs. / Blast		910.16	Similar Hole LBS	911.00
17-76	90		90	90	1 Nelson	80/20	1.10	1820.31	1	3/4 LB Cast	2
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2 Nelson	80/20	1.10	424.74	2		
20	20	9	0		3					Total Primer QTY / Hole	2
Typical Hole					4					Total Primer LBS / Hole	1.5
					5						
					6						
					7						
					8						
TotalExpl lbs. / hole								2245.05	Expl-Primer LBS / Hole ?		
Similar Holes - 60					120 Primers	90.00 LBS	Total Expl lbs. / Blast		134703.16	Similar Hole LBS	134794.00
2-16	90		90	90	1 Nelson	80/20	1.10	1213.54	1	3/4 LB Cast	2
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2 Nelson	80/20	1.10	546.09	2		
20	20	25	15		3					Total Primer QTY / Hole	2
Face Row Hole(s)					4					Total Primer LBS / Hole	1.5
					5						
					6						
					7						
					8						
TotalExpl lbs. / hole								1759.64	Expl-Primer LBS / Hole ?		
Similar Holes - 15					30 Primers	22.50 LBS	Total Expl lbs. / Blast		26394.54	Similar Hole LBS	26418.00

Apogee Coal, LLC.

Blast Type

Production

Date 7/3/2010

S-5006-05

Blast / Ticket Number

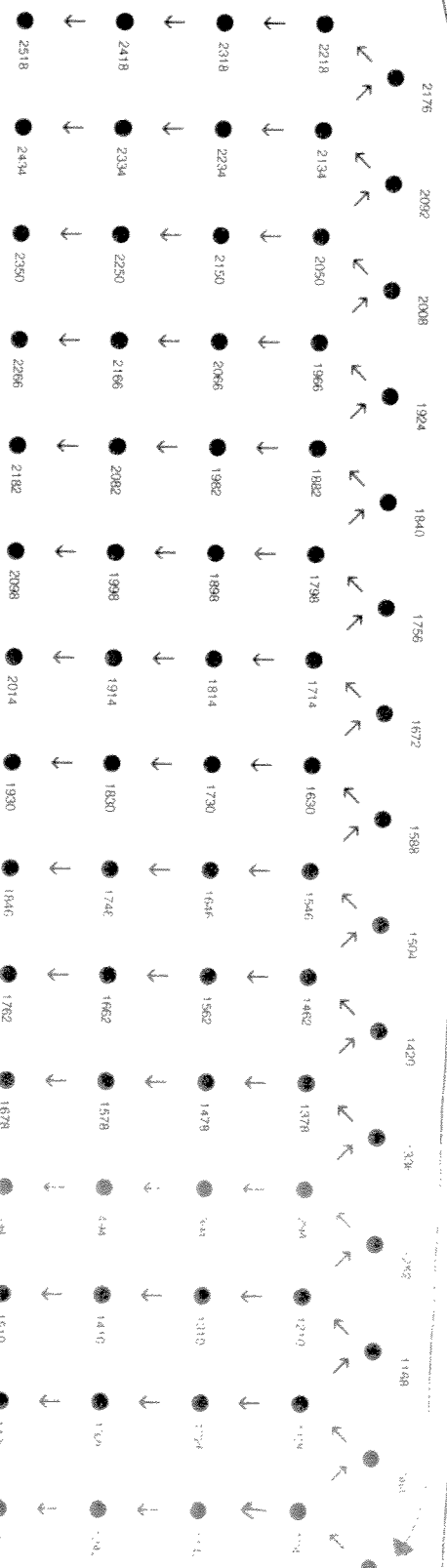
E64 /E64

Time 4:02 PM

Hole Number	Bench Height	Sub Drill	Design Depth	Loaded Depth	Mfr.	Explosive Name	g/cc	Pounds	Mfr.	Primer Name	Qty
77-82	90		90	90	1 Nelson	80/20	1.10	1516.93	1	3/4 LB Cast	3
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2 Nelson	80/20	1.10	303.39	2		
20	20	10	0		3 Nelson	80/20	1.10	182.03		Total Primer QTY / Hole	3
Back Row Hole(s)					4					Total Primer LBS / Hole	2.25
					5						
					6						
					7						
					8						
							TotalExpl lbs. / hole	2002.34	Expl-Primer LBS / Hole		?
Similar Holes -		6	18 Primers	13.50 LBS	Total Expl lbs. / Blast		12014.07	Similar Hole LBS		12028.00	
Total Holes Loaded this blast									Grand Total Explosives Weight		
82									174148.67		

N
Lambert Residence
8141 ft

OPEN FACE



SOLID

SOLID

SOLID

OUT SLOPE

BLASTING LOG

GENERAL INFORMATION



Blast Number E61 Ticket Number E61

Permittee Apogee Coal, LLC.

Customer / Operator Apogee Coal, LLC.

Location of Blast Ridge 1& 2

Blasting Company APOGEE COAL LLC

Nearest Protected Structure Cline residence

Distance and Direction 8,218 ft S, ?°

Nearest Other Structure Dominion Well

Distance and Direction 4,847 ft NW, ?°

Weather Conditions Sunny / Hot

90°F,

Wind out of the

N @

0-2 mph

Type of Material Blasted Sandstone

Blast Type Production

Matts or Protection Used

Total Tons 0

Total YD³ 15,407

Powder Factor: tons/lb 0.00

lbs/yd³ 1.77

Date / Time 6/30/2010 3:56 PM

Permit No. S-5006-05

Lat ° ' N 301703 - X

Long ° ' W 1769342 - Y

Method Handheld GPS - NAD83

SD to nearest protected 199

BLAST INFORMATION

Total Weight and Type(s) of Explosives used: see attachment

	ANFO	Emulsion	Packaged	16 Primers	Total Weight
	20,387.51 lbs.	6,795.84 lbs.	0.00 lbs.	12.00 lbs.	27,195.34 lbs.

Total Holes 16 Angle °

Face Height (ft) 65 Burden (ft) 20

Backfill (ft)

Depth (ft) 65 Spacing (ft) 20

Stemming (ft) 10

Sub Drill (ft) Diameter (in) 9

Stemming Material Cuttings

Maximum Weight of Explosives Allowed per 8ms Period (lbs) :7766 as determined by SD of : 55

Maximum Weight of Explosives detonated per 8ms (lbs) :1700 in 1.0 Holes

INITIATION PRODUCT INFORMATION

Mfr	Delay Type	Qty	Mfr	Delay Type	Qty	Mfr	Delay Type	Qty
Orica	80 ft unitronics	16						

Method of Firing : Electric

Timer (ms) : NA

Circuit Type :

Initiated by : Electronic

Blasting Unit : E B M

No. of Circuits :

COMMENTS

Operation Apogee Coal, LLC.
Permit Number S-5006-05

Blast Number E61
Blast Type Production

Date 6/30/2010
Time 3:56 PM

Hole Cross Section

Depth (ft) 65 Angle (deg)
B X S (ft) 20 X 20 Bench Ht. 65
Hole dia. (in) 9.000 Stem (ft) 10
PF: 1.76 lbs/YD³ Tons/Lb.



PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 1.0

Holes loaded the same: 16

Timing Pattern

Nearest Protected Structure: Cline residence

Distance and Direction: 8,218 ft S , ? °

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 6/30/2010 3:56 PM

Seis SN Location Dist (ft) Dir. SD T PPV T Hz V PPV V Hz L PPV L Hz Air dB Air Hz

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:
Brad Gregory - 3-299-88

Crew:

Apogee Coal, LLC.
S-5006-05

Blast Type Production
Blast / Ticket Number E61 /E61

Date 6/30/2010
Time 3:56 PM

Hole Number	Bench Height	Sub Drill	Design Depth	Loaded Depth	Mfr.	Explosive Name	g/cc	Pounds	Mfr.	Primer Name	Qty
1-16	65		65	65	1 Nelson	75/25	1.12	1698.96	1	3/4 LB Cast	1
Burden	Spacing	Stemming	Angle		2				2		
(FT)	(FT)	(FT)	(Deg)		3					Total Primer QTY / Hole	1
20	20	10			4					Total Primer LBS / Hole	.75
					5						
					6						
					7						
					8						
					TotalExpl lbs. / hole			1698.96	Expl-Primer LBS / Hole		?
Similar Holes - 16					16 Primers	12.00 LBS	Total Expl lbs. / Blast		27183.34	Similar Hole LBS	27196.00
Total Holes Loaded this blast					Grand Total Explosives Weight						
16					27195.34						

BLASTING LOG

GENERAL INFORMATION



Blast Number E60 Ticket Number E60

Permittee Apogee Coal, LLC.

Customer / Operator Apogee Coal, LLC.

Location of Blast Ridge 1& 2

Blasting Company APOGEE COAL LLC

Nearest Protected Structure #5 Bill Joann Lambert

Distance and Direction 8,174 ft N , ?°

Nearest Other Structure Dominion Well

Distance and Direction 4,655 ft N , ?°

Weather Conditions Sunny / Hot

85°F,

Wind out of the N @ 0-2 mph

Type of Material Blasted Sandstone

Blast Type Production

Matts or Protection Used

Total Tons 0

Total YD³ 12,960

Powder Factor: tons/lb 0.00

lbs/yd³ 1.32

Date / Time 6/30/2010 1:09 PM

Permit No. S-5006-05

Lat ° ' ' N 301732 - X

Long ° ' ' W 1768944 - Y

Method Handheld GPS - NAD83

SD to nearest protected 376

BLAST INFORMATION

Total Weight and Type(s) of Explosives used: see attachment

	ANFO	Emulsion	Packaged	36 Primers	Total Weight
	12,771.15 lbs.	4,257.05 lbs.	0.00 lbs.	27.00 lbs.	17,055.20 lbs.

Total Holes 36 Angle °

Face Height (ft) 30 Burden (ft) 18

Backfill (ft)

Depth (ft) 30 Spacing (ft) 18 Stemming (ft) 10

Sub Drill (ft) Diameter (in) 7.875 Stemming Material Cuttings

Maximum Weight of Explosives Allowed per 8ms Period (lbs) :7164 as determined by SD of : 55

Maximum Weight of Explosives detonated per 8ms (lbs) : 474 in 1.0 Holes

INITIATION PRODUCT INFORMATION

Mfr	Delay Type	Qty	Mfr	Delay Type	Qty	Mfr	Delay Type	Qty
Orica	EXCEL 40 FT - 20	36						
Orica	S. EXCEL 40 FT- 42	3						
Orica	S. EXCEL 40 FT-100	33						

Method of Firing : Non Electric

Timer (ms) : NA

Circuit Type :

Initiated by : Non-Electric

Blasting Unit : Handi Blaster

No. of Circuits :

COMMENTS

Operation Apogee Coal, LLC.
Permit Number S-5006-05

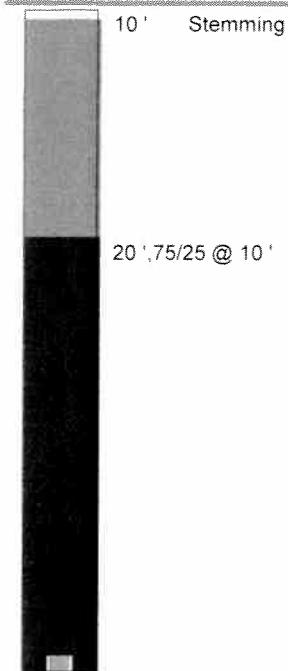
Blast Number E60
Blast Type Production

Date 6/30/2010
Time 1:09 PM

Hole Cross Section

Depth (ft) 30 Angle (deg)
B X S (ft) 18 X 18 Bench Ht. 30
Hole dia. (in) 7.875 Stem (ft) 10
PF: 1.31 lbs/YD³ Tons/Lb.

Timing Pattern



PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 1.0

Holes loaded the same: 36

Nearest Protected Structure: #5 Bill Joann Lambert

Distance and Direction: 8,174 ft N, ?°

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 6/30/2010 1:09 PM

Seis SN	Location	Dist (ft)	Dir.	SD	T PPV	T Hz	V PPV	V Hz	L PPV	L Hz	Air dB	Air Hz
---------	----------	-----------	------	----	-------	------	-------	------	-------	------	--------	--------

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Crew:

Todd Keffer - 5-645-05

Todd Keffer

Apogee Coal, LLC.

Blast Type

Production

Date 6/30/2010

S-5006-05

Blast / Ticket Number

E60 /E60

Time 1:09 PM

Hole Number	Bench Height	Sub Drill	Design Depth	Loaded Depth	Mfr.	Explosive Name	g/cc	Pounds	Mfr.	Primer Name	Qty
1-36	30		30	30	1 Nelson	75/25	1.12	473.01	1	3/4 LB Cast	1
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2				2		
18	18	10			3					Total Primer QTY / Hole	1
					4					Total Primer LBS / Hole	.75
					5						
					6						
					7						
					8						
					TotalExpl lbs. / hole			473.01	Expl-Primer LBS / Hole		473.76
Similar Holes -		36		36 Primers	27.00 LBS	Total Expl lbs. / Blast		17028.20	Similar Hole LBS		17056.00
Total Holes Loaded this blast					Grand Total Explosives Weight						
36					17055.20						

BLASTING LOG

GENERAL INFORMATION



Blast Number E59 Ticket Number E59

Permittee Apogee Coal, LLC.

Customer / Operator Apogee Coal, LLC.

Location of Blast Ridge 1& 2

Blasting Company APOGEE COAL LLC

Nearest Protected Structure Cline residence

Distance and Direction 8,178 ft S, ?°

Nearest Other Structure Dominion Well

Distance and Direction 4,926 ft NW, ?°

Weather Conditions Sunny / Hot

Type of Material Blasted Sandstone

Matts or Protection Used

Date / Time 6/29/2010 4:03 PM

Permit No. S-5006-05

Lat ° ' N 301655 - X

Long ° ' W 1769422 - Y

Method Handheld GPS - NAD83

SD to nearest protected 227

Wind out of the NE @ 0-2 mph

Blast Type Production

Total Tons 0 Total YD³ 52,260

Powder Factor: tons/lb 0.00 lbs/yd³ 1.36

BLAST INFORMATION

Total Weight and Type(s) of Explosives used: see attachment

	ANFO	Emulsion	Packaged	85 Primers	Total Weight
	53,390.50 lbs.	17,796.83 lbs.	0.00 lbs.	63.75 lbs.	71,251.09 lbs.

Total Holes 67 Angle °

Face Height (ft) 65 Burden (ft) 18

Backfill (ft)

Depth (ft) 65 Spacing (ft) 18

Stemming (ft) 9 - 10

Sub Drill (ft) Diameter (in) 7.875 Stemming Material Cuttings

Maximum Weight of Explosives Allowed per 8ms Period (lbs) :8021 as determined by SD of : 55

Maximum Weight of Explosives detonated per 8ms (lbs) :1302 in 1.0 Holes

INITIATION PRODUCT INFORMATION

Mfr	Delay Type	Qty	Mfr	Delay Type	Qty	Mfr	Delay Type	Qty
Orica	80 ft unitronics	49						
Orica	50 ft unitronics	37						

Method of Firing : Electric

Timer (ms) : NA

Circuit Type :

Initiated by : Electronic

Blasting Unit : E B M

No. of Circuits :

COMMENTS

Operation Apogee Coal, LLC.
Permit Number S-5006-05

Blast Number E59
Blast Type Production

Date 6/29/2010
Time 4:03 PM

Hole Cross Section

Depth (ft) 65 Angle (deg)
B X S (ft) 18 X 18 Bench Ht. 65
Hole dia. (in) 7.875 Stem (ft) 10
PF: 1.67 lbs/YD³ Tons/Lb.

Timing Pattern

10' Stemming

55', 75/25 @ 10'

See Attached

PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 1.0

Nearest Protected Structure: Cline residence

Distance and Direction: 8,178 ft S, ?°

Holes loaded the same: 49

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 6/29/2010 4:03 PM

Seis SN Location Dist (ft) Dir. SD T PPV T Hz V PPV V Hz L PPV L Hz Air dB Air Hz

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Crew:

Todd Keffer - 5-645-05

Todd Keffer

Operation Apogee Coal, LLC.
Permit Number S-5006-05

Blast Number E59
Blast Type Production

Date 6/29/2010
Time 4:03 PM

Hole Cross Section

Depth (ft) 65 Angle (deg)
B X S (ft) 18 X 18 Bench Ht. 65
Hole dia. (in) 7.875 Stem (ft) 10
PF: 0.61 lbs/YD³ Tons/Lb.

Timing Pattern

10' Stemming

20', 75/25 @ 45'

PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 1.0

Holes loaded the same: 9

Nearest Protected Structure: Cline residence

Distance and Direction: 8,178 ft S, ?°

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 6/29/2010 4:03 PM

Seis SN	Location	Dist (ft)	Dir	SD	T PPV	T Hz	V PPV	V Hz	L PPV	L Hz	Air dB	Air Hz
---------	----------	-----------	-----	----	-------	------	-------	------	-------	------	--------	--------

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:
Todd Keffer - 5-645-05

Crew:

Operation Apogee Coal, LLC.
Permit Number S-5006-05

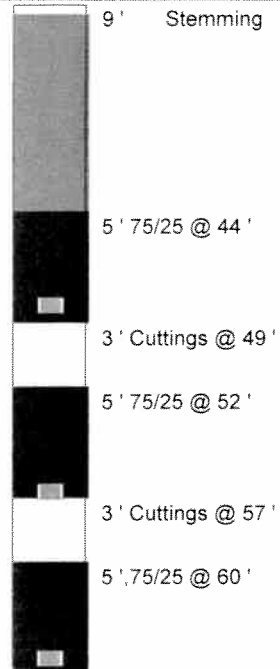
Blast Number E59
Blast Type Production

Date 6/29/2010
Time 4:03 PM

Hole Cross Section

Depth (ft) 65 Angle (deg)
B X S (ft) 18 X 18 Bench Ht. 65
Hole dia. (in) 7.875 Stem (ft) 9
PF: 0.45 lbs/YD³ Tons/Lb.

Timing Pattern



PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 3.0

Holes loaded the same: 9

Nearest Protected Structure: Cline residence

Distance and Direction: 8,178 ft S, ?°

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 6/29/2010 4:03 PM

Seis SN Location Dist (ft) Dir. SD T PPV T Hz V PPV V Hz L PPV L Hz Air dB Air Hz

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:
Todd Keffer - 5-645-05

Crew:

Apogee Coal, LLC.
S-5006-05

Blast Type Production
Blast / Ticket Number E59 /E59

Date 6/29/2010
Time 4:03 PM

Hole Number	Bench Height	Sub Drill	Design Depth	Loaded Depth	Mfr.	Explosive Name	g/cc	Pounds	Mfr.	Primer Name	Qty
1-49	65		65	65	1 Nelson	75/25	1.12	1300.77	1	3/4 LB Cast	1
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2				2		
18	18	10			3					Total Primer QTY / Hole	1
					4					Total Primer LBS / Hole	.75
					5						
					6						
					7						
					8						
TotalExpl lbs. / hole								1300.77	Expl-Primer LBS / Hole		?
Similar Holes -		49	49 Primers	36.75 LBS	Total Expl lbs. / Blast		63737.50	Similar Hole LBS		63775.00	
50-58	65		65	65	1 Nelson	75/25	1.12	473.01	1	3/4 LB Cast	1
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2				2		
18	18	10			3					Total Primer QTY / Hole	1
					4					Total Primer LBS / Hole	.75
					5						
					6						
					7						
					8						
TotalExpl lbs. / hole								473.01	Expl-Primer LBS / Hole		473.76
Similar Holes -		9	9 Primers	6.75 LBS	Total Expl lbs. / Blast		4257.05	Similar Hole LBS		4264.00	
59-67	65		65	65	1 Nelson	75/25	1.12	118.25	1	3/4 LB Cast	3
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2 Nelson	75/25	1.12	118.25	2		
18	18	9			3 Nelson	75/25	1.12	118.25		Total Primer QTY / Hole	3
					4					Total Primer LBS / Hole	2.25
					5						
					6						
					7						
					8						
TotalExpl lbs. / hole								354.75	Expl-Primer LBS / Hole		357.00
Similar Holes -		9	27 Primers	20.25 LBS	Total Expl lbs. / Blast		3192.79	Similar Hole LBS		3214.00	
Total Holes Loaded this blast									Grand Total Explosives Weight		
67									71251.09		

BLASTING LOG

GENERAL INFORMATION



Blast Number E58 Ticket Number E58

Permittee Apogee Coal, LLC. **Date / Time** 6/29/2010 4:03 PM
Customer / Operator Apogee Coal, LLC. **Permit No.** S-5006-05
Location of Blast Ridge 1&2 **Lat** ° ' 'N 301293 - X
Blasting Company APOGEE COAL LLC **Long** ° ' 'W 1769581 - Y
Nearest Protected Structure Cline residence **Method** Handheld GPS - NAD83
Distance and Direction 7,836 ft S, ?° **SD to nearest protected** 294
Nearest Other Structure Jackson Well
Distance and Direction 5,176 ft SW, ?°
Weather Conditions Sunny / Hot 85°F, **Wind out of the** NE @ 0-2 mph
Type of Material Blasted Sandstone **Blast Type** Production
Matts or Protection Used **Total Tons** 0 **Total YD³** 11,400
Powder Factor: tons/lb 0.00 **lbs/yd³** 1.18

BLAST INFORMATION

Total Weight and Type(s) of Explosives used: see attachment

	ANFO	Emulsion	Packaged	38 Primers	Total Weight
	10,110.49 lbs.	3,370.16 lbs.	0.00 lbs.	19.00 lbs.	13,499.66 lbs.

Total Holes 38 **Angle** °
Face Height (ft) 25 **Burden (ft)** 18 **Backfill (ft)**
Depth (ft) 25 **Spacing (ft)** 18 **Stemming (ft)** 10
Sub Drill (ft) **Diameter (in)** 7.875 **Stemming Material** Cuttings
Maximum Weight of Explosives Allowed per 8ms Period (lbs) :6341 as determined by SD of : 65
Maximum Weight of Explosives detonated per 8ms (lbs) : 711 in 2.0 Holes

INITIATION PRODUCT INFORMATION

Mfr	Delay Type	Qty	Mfr	Delay Type	Qty	Mfr	Delay Type	Qty
Orica	EXCEL 40 FT - 20	38						
Orica	S. EXCEL 40 FT-17	7						
Orica	S. EXCEL 40 FT- 42	26						

Method of Firing : Non Electric **Timer (ms)** : NA **Circuit Type** :
Initiated by : Non-Electric **Blasting Unit** : Handi Blaster **No. of Circuits** :

COMMENTS

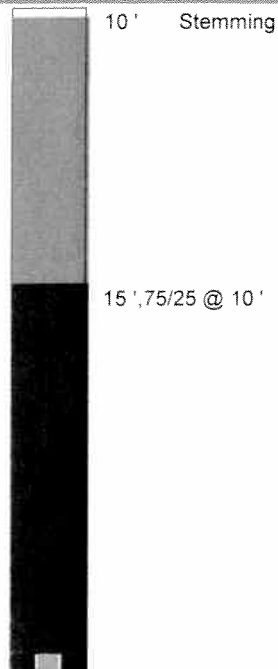
Operation Apogee Coal, LLC.
Permit Number S-5006-05

Blast Number E58
Blast Type Production

Date 6/29/2010
Time 4:03 PM

Hole Cross Section

Depth (ft) 25 Angle (deg)
B X S (ft) 18 X 18 Bench Ht. 25
Hole dia. (in) 7.875 Stem (ft) 10
PF: 1.18 lbs/YD³ Tons/Lb.



PRIMER TYPE (S) UNIT WT. QTY.
1/2 LB CAST BOOSTER 0.5 1.0

Holes loaded the same: 38

Timing Pattern

Nearest Protected Structure: Cline residence

Distance and Direction: 7,836 ft S, ? °

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 6/29/2010 4:03 PM

Seis SN	Location	Dist (ft)	Dir.	SD	T PPV	T Hz	V PPV	V Hz	L PPV	L Hz	Air dB	Air Hz
---------	----------	-----------	------	----	-------	------	-------	------	-------	------	--------	--------

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:
Todd Keffer - 5-645-05

Crew:

Apogee Coal, LLC:
S-5006-05

Blast Type Production
Blast / Ticket Number E58 /E58

Date 6/29/2010
Time 4:03 PM

Hole Number	Bench Height	Sub Drill	Design Depth	Loaded Depth	Mfr.	Explosive Name	g/cc	Pounds	Mfr.	Primer Name	Qty
1-38	25		25	25	1 Nelson	75/25	1.12	354.75	1 Orica	1/2 LB Cast	1
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2				2		
18	18	10			3					Total Primer QTY / Hole	1
					4					Total Primer LBS / Hole	.5
					5						
					6						
					7						
					8						
					TotalExpl lbs. / hole			354.75	Expl-Primer LBS / Hole		355.25
Similar Holes - 38					38 Primers	19.00 LBS	Total Expl lbs. / Blast		13480.66	Similar Hole LBS	13500.00
Total Holes Loaded this blast									Grand Total Explosives Weight		
38									13499.66		

BLASTING LOG

GENERAL INFORMATION



Blast Number E57 Ticket Number E57

Permittee Apogee Coal, LLC.

Customer / Operator Apogee Coal, LLC.

Location of Blast Guyan Mine

Blasting Company APOGEE COAL LLC

Nearest Protected Structure Ball residence

Distance and Direction 3,893 ft S, ?°

Nearest Other Structure Dominion Well 1089

Distance and Direction 8,024 ft NE, ?°

Weather Conditions Clear / Calm

80°F,

Wind out of the N @ 2-5 mph

Type of Material Blasted Shale

Blast Type Production

Matts or Protection Used

Total Tons 0

Total YD³ 21,888

Powder Factor: tons/lb 0.00

lbs/yd³ 0.82

Date / Time 6/29/2010 11:53 AM

Permit No. S-5007-01

Lat ° ' N 292590 - X

Long ° ' W 1773413 - Y

Method Handheld GPS - NAD83

SD to nearest protected 206

BLAST INFORMATION

Total Weight and Type(s) of Explosives used: see attachment

	ANFO	Emulsion	Packaged	152 Primers	Total Weight
	13,480.66 lbs.	4,493.55 lbs.	0.00 lbs.	76.00 lbs.	18,050.21 lbs.

Total Holes 152 Angle °

Face Height (ft) Burden (ft) 18

Backfill (ft)

Depth (ft) 12 Spacing (ft) 18

Stemming (ft) 7

Sub Drill (ft) Diameter (in) 7.875

Stemming Material Cuttings

Maximum Weight of Explosives Allowed per 8ms Period (lbs) : 5010 as determined by SD of : 55

Maximum Weight of Explosives detonated per 8ms (lbs) : 356 in 3.0 Holes

INITIATION PRODUCT INFORMATION

Mfr	Delay Type	Qty	Mfr	Delay Type	Qty	Mfr	Delay Type	Qty
Orica	EXCEL 40 FT - 20	152						
Orica	S. EXCEL 40 FT-17	143						
Orica	S. EXCEL 40 FT- 42	9						

Method of Firing : Non Electric

Timer (ms) : NA

Circuit Type :

Initiated by : Non-Electric

Blasting Unit : Handi Blaster

No. of Circuits :

COMMENTS

Operation Apogee Coal, LLC.
Permit Number S-5007-01

Blast Number E57
Blast Type Production

Date 6/29/2010
Time 11:53 AM

Hole Cross Section

Depth (ft) 12 Angle (deg)
B X S (ft) 18 X 18 Bench Ht.
Hole dia. (in) 7.875 Stem (ft) 7
PF: 0.82 lbs/YD³ Tons/Lb.

Timing Pattern

7' Stemming

5', 75/25 @ 7'

PRIMER TYPE (S) UNIT WT. QTY.
1/2 LB CAST BOOSTER 0.5 1.0

Holes loaded the same: 152

Nearest Protected Structure: Ball residence

Distance and Direction: 3,893 ft S, ?°

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 6/29/2010 11:53 AM

Seis SN Location Dist (ft) Dir. SD T PPV T Hz V PPV V Hz L PPV L Hz Air dB Air Hz

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Crew:

Todd Keffer - 5-645-05

Todd Keffer

Apogee Coal, LLC.

S-5007-01

Blast Type

Production

Date 6/29/2010

Blast / Ticket Number

E57 /E57

Time 11:53 AM

Hole Number	Bench Height	Sub Drill	Design Depth	Loaded Depth	Mfr.	Explosive Name	g/cc	Pounds	Mfr.	Primer Name	Qty
1-152			12	12	1 Nelson	75/25	1.12	118.25	1 Orica	1/2 LB Cast	1
Burden	Spacing	Stemming	Angle		2				2		
(FT)	(FT)	(FT)	(Deg)		3					Total Primer QTY / Hole	1
18	18	7			4					Total Primer LBS / Hole	.5
					5						
					6						
					7						
					8						
					Total Expl lbs. / hole			118.25	Expl-Primer LBS / Hole		118.75
Similar Holes - 152					152 Primers		76.00 LBS	Total Expl lbs. / Blast		Similar Hole LBS	18051.00
Total Holes Loaded this blast									Grand Total Explosives Weight		18050.21
152											

Apogee Coal Company
Logan WV

BLASTING LOG

GENERAL INFORMATION



Blast Number **E56** Ticket Number **E56**

Permittee Apogee Coal, LLC.
Customer / Operator Apogee Coal, LLC.
Location of Blast Ridge 1&2
Blasting Company APOGEE COAL LLC
Nearest Protected Structure Cline residence
Distance and Direction 8,158 ft S, ?°
Nearest Other Structure Jackson Well
Distance and Direction 4,263 ft S, ?°
Weather Conditions Light Rain 75°F,
Type of Material Blasted Sandstone
Matts or Protection Used

Date / Time 6/28/2010 4:00 PM
Permit No. S-5006-05
Lat ° ' N 301198 - X
Long ° ' W 1765851 - Y
Method Handheld GPS - NAD83
SD to nearest protected 131
Wind out of the E @ 5-10 mph
Blast Type Production
Total Tons 0
Total YD³ 120,213
Powder Factor: tons/lb 0.00
lbs/yd³ 1.46

BLAST INFORMATION

Total Weight and Type(s) of Explosives used: see attachment

	ANFO	Emulsion	Packaged	192 Primers	Total Weight
	131,933.08 lbs.	43,977.69 lbs.	0.00 lbs.	144.00 lbs.	176,054.77 lbs.

Total Holes 92 **Angle** °
Face Height (ft) 98 **Burden (ft)** 18 **Backfill (ft)** 3
Depth (ft) 98 **Spacing (ft)** 20 **Stemming (ft)** 8 - 10
Sub Drill (ft) **Diameter (in)** 7.875 **Stemming Material** Cuttings
Maximum Weight of Explosives Allowed per 8ms Period (lbs) :6008 as determined by SD of : 55
Maximum Weight of Explosives detonated per 8ms (lbs) :3882 in 2.0 Holes

INITIATION PRODUCT INFORMATION

Mfr	Delay Type	Qty	Mfr	Delay Type	Qty	Mfr	Delay Type	Qty
	120'EXCEL-20	99						
Orica	EXCEL 40 FT - 20	93						
Orica	S. EXCEL 40 FT- 42	8						
Orica	S. EXCEL 40 FT-100	84						

Method of Firing : Non Electric
Initiated by : Non-Electric
Timer (ms) : NA
Blasting Unit : Handi Blaster
Circuit Type :
No. of Circuits :

COMMENTS

Operation Apogee Coal, LLC.
Permit Number S-5006-05

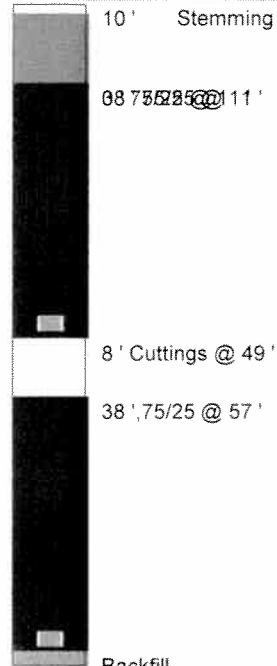
Blast Number E56
Blast Type Production

Date 6/28/2010
Time 4:00 PM

Hole Cross Section

Depth (ft) 98 Angle (deg)
B X S (ft) 18 X 20 Bench Ht. 98
Hole dia. (in) 7.875 Stem (ft) 10
PF: 1.38 lbs/YD³ Tons/Lb.

Timing Pattern



PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 2.0

Holes loaded the same: 11

Nearest Protected Structure: Cline residence

Distance and Direction: 8,158 ft S, ? °

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 6/28/2010 4:00 PM

Seis SN Location Dist (ft) Dir. SD T PPV T Hz V PPV V Hz L PPV L Hz Air dB Air Hz

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:
Brad Gregory - 3-299-88

Crew:

Operation Apogee Coal, LLC.

Permit Number S-5006-05

Blast Number E56

Blast Type	Production
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18
19	19
20	20
21	21
22	22
23	23
24	24
25	25
26	26
27	27
28	28
29	29
30	30
31	31
32	32
33	33
34	34
35	35
36	36
37	37
38	38
39	39
40	40
41	41
42	42
43	43
44	44
45	45
46	46
47	47
48	48
49	49
50	50
51	51
52	52
53	53
54	54
55	55
56	56
57	57
58	58
59	59
60	60
61	61
62	62
63	63
64	64
65	65
66	66
67	67
68	68
69	69
70	70
71	71
72	72
73	73
74	74
75	75
76	76
77	77
78	78
79	79
80	80
81	81
82	82
83	83
84	84
85	85
86	86
87	87
88	88
89	89
90	90
91	91
92	92
93	93
94	94
95	95
96	96
97	97
98	98
99	99
100	100

Date _____

6/28/2010

Time

4:00 PM

Hole Cross Section

Depth (ft)	98	Angle (deg)	
B X S (ft)	18 X 20	Bench Ht.	98
Hole dia. (in)	7.875	Stem (ft)	8
PF:	1.30 lbs/YD ³	Tons/Lb.	

Timing Pattern

8' Stemming

18' 75/25 @ 8'

5' Cuttings @ 26'

18 ' 75/25 @ 31 '

5' Cuttings @ 49'

18 ' 75/25 @ 54'

5' Cuttings @ 72'

18 '75/25 @ 77'

Backfill

PRIMER TYPE (S)	UNIT	WT.	QTY.
3/4 LB CAST PRIMER	0.8		4.0

Nearest Protected Structure: Cline residence

Distance and Direction: 8,158 ft S, ?°

Holes loaded the same: 4

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 6/28/2010 4:00 PM

Date and Time of Recording(s)												
Seis SN	Location	Dist (ft)	Dir.	SD	T PPV	T Hz	V PPV	V Hz	L PPV	L Hz	Air dB	Air Hz

Reading(s) taken by :SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Brad Gregory - 3-299-88

Crew:

BLASTING LOG

GENERAL INFORMATION



Blast Number E45 Ticket Number E45

Permittee Apogee Coal, LLC.

Customer / Operator Apogee Coal, LLC.

Location of Blast Ridge 1&2

Blasting Company APOGEE COAL LLC

Nearest Protected Structure Cline residence

Distance and Direction 7,888 ft S, ?°

Nearest Other Structure Jackson Well

Distance and Direction 5,087 ft SW, ?°

Weather Conditions Partly Cloudy

Type of Material Blasted Sandstone

Matts or Protection Used

Date / Time 6/22/2010 4:14 PM

Permit No. S-5006-05

Lat ° ' N 301376 - X

Long ° ' W 1769287 - Y

Method Handheld GPS - NAD83

SD to nearest protected 253

90°F, Wind out of the N @ 0-2 mph

Blast Type Production

Total Tons 0 Total YD³ 25,344

Powder Factor: tons/lb 0.00 lbs/yd³ 1.22

BLAST INFORMATION

Total Weight and Type(s) of Explosives used: see attachment

	ANFO	Emulsion	Packaged	35 Primers	Total Weight
	23,118.39 lbs.	7,706.13 lbs.	0.00 lbs.	26.25 lbs.	30,850.77 lbs.

Total Holes 32 Angle °

Face Height (ft) 66

Burden (ft) 18

Backfill (ft)

Depth (ft) 66

Spacing (ft) 18

Stemming (ft) 10

Sub Drill (ft)

Diameter (in) 6.75

Stemming Material Cuttings

Maximum Weight of Explosives Allowed per 8ms Period (lbs) :6126 as determined by SD of : 65

Maximum Weight of Explosives detonated per 8ms (lbs) : 974 in 1.0 Holes

INITIATION PRODUCT INFORMATION

Mfr	Delay Type	Qty	Mfr	Delay Type	Qty	Mfr	Delay Type	Qty
Orica	50 ft unitronics	35						

Method of Firing : Electric

Timer (ms) : NA

Circuit Type :

Initiated by : Electronic

Blasting Unit : E B M

No. of Circuits :

COMMENTS

Operation Apogee Coal, LLC.
Permit Number S-5006-05

Blast Number E45
Blast Type Production

Date 6/22/2010
Time 4:14 PM

Hole Cross Section

Depth (ft) 66 Angle (deg)
B X S (ft) 18 X 18 Bench Ht. 66
Hole dia. (in) 6.750 Stem (ft) 10
PF: 1.23 lbs/YD³ Tons/Lb.

Timing Pattern

10' Stemming

56', 75/25 @ 10'

PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 1.0

Holes loaded the same: 29

Nearest Protected Structure: Cline residence

Distance and Direction: 7,888 ft S, ?°

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 6/22/2010 4:14 PM

Seis SN Location Dist (ft) Dir. SD T PPV T Hz V PPV V Hz L PPV L Hz Air dB Air Hz

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Crew:

Todd Keffer - 5-645-05

Operation Apogee Coal, LLC.
Permit Number S-5006-05

Blast Number E45
Blast Type Production

Date 6/22/2010
Time 4:14 PM

Hole Cross Section

Depth (ft) 66 Angle (deg)
B X S (ft) 18 X 18 Bench Ht. 66
Hole dia. (in) 6.750 Stem (ft) 10
PF: 1.10 lbs/YD³ Tons/Lb.

Timing Pattern

10' Stemming

25' 75/25 @ 10'

6' Cuttings @ 35'

25' 75/25 @ 41'

PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 2.0

Holes loaded the same: 3

Nearest Protected Structure: Cline residence

Distance and Direction: 7,888 ft S, ?°

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 6/22/2010 4:14 PM

Seis SN Location Dist (ft) Dir. SD T PPV T Hz V PPV V Hz L PPV L Hz Air dB Air Hz

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Crew:

Todd Keffer - 5-645-05

Apogee Coal, LLC.

Blast Type

Production

Date 6/22/2010

S-5006-05

Blast / Ticket Number

E45 /E45

Time 4:14 PM

Hole Number	Bench Height	Sub Drill	Design Depth	Loaded Depth	Mfr.	Explosive Name	g/cc	Pounds	Mfr.	Primer Name	Qty
1-29	66		66	66	1 Nelson	75/25	1.12	973.04	1	3/4 LB Cast	1
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2				2		
18	18	10			3					Total Primer QTY / Hole	1
					4					Total Primer LBS / Hole	.75
					5						
					6						
					7						
					8						
					TotalExpl lbs. / hole			973.04	Expl-Primer LBS / Hole		973.79
Similar Holes - 29					29 Primers	21.75 LBS	Total Expl lbs. / Blast		28218.16	Similar Hole LBS	28240.00
30-32	66		66	66	1 Nelson	75/25	1.12	434.39	1	3/4 LB Cast	2
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2 Nelson	75/25	1.12	434.39	2		
18	18	10			3					Total Primer QTY / Hole	2
					4					Total Primer LBS / Hole	1.5
					5						
					6						
					7						
					8						
					TotalExpl lbs. / hole			868.79	Expl-Primer LBS / Hole		870.29
Similar Holes - 3					6 Primers	4.50 LBS	Total Expl lbs. / Blast		2606.36	Similar Hole LBS	2611.00
Total Holes Loaded this blast									Grand Total Explosives Weight		
32									30850.77		

BLASTING LOG

GENERAL INFORMATION



Blast Number E15A Ticket Number E15A

Permittee Apogee Coal, LLC.

Date / Time 6/7/2010 4:03 PM

Customer / Operator Apogee Coal, LLC.

Permit No. S-5006-05

Location of Blast Ridge 1& 2

Lat

° ' N 302228 - X

Blasting Company APOGEE COAL LLC

Long

° ' W 1765854 - Y

Nearest Protected Structure #5 Bill Joann Lambert

Method Handheld GPS - NAD83

Distance and Direction 7,259 ft N, ?°

SD to nearest protected 190

Nearest Other Structure Dominion Well

Distance and Direction 4,027 ft N, ?°

Weather Conditions Clear / Calm

80°F,

Wind out of the NE @ 0-5 mph

Type of Material Blasted Sandstone

Blast Type Pre Split

Matts or Protection Used

Total Tons 0

Total YD³ 23,940

Powder Factor: tons/lb 0.00

lbs/yd³ 0.30

BLAST INFORMATION

Total Weight and Type(s) of Explosives used: see attachment

	ANFO	Emulsion	Packaged	84 Primers	Total Weight
	4,278.34 lbs.	2,852.22 lbs.	0.00 lbs.	58.75 lbs.	7,189.31 lbs.

Total Holes 84 Angle °

Face Height (ft) 95

Burden (ft) 9

Backfill (ft)

Depth (ft) 95

Spacing (ft) 9

Stemming (ft) 8

Sub Drill (ft)

Diameter (in) 7.875

Stemming Material Cuttings

Maximum Weight of Explosives Allowed per 8ms Period (lbs) :5362 as determined by SD of : 55

Maximum Weight of Explosives detonated per 8ms (lbs) :1456 in ? Holes

INITIATION PRODUCT INFORMATION

Mfr	Delay Type	Qty	Mfr	Delay Type	Qty	Mfr	Delay Type	Qty
Orica	120 ft unitronics	84						

Method of Firing : Electric

Timer (ms) : NA

Circuit Type :

Initiated by : Electronic

Blasting Unit : E B M

No. of Circuits :

COMMENTS

Seismograph Data

Date and Time of Recording from the Seismogram: NO TRIGGERS
Type (Brand and Model Number) of Instrument: Nomis SuperMini Sensitivity: 2-400 Hz.
Person and Company Who Installed Seismograph: Travis Farmer/Sauls Seismic
Person and Firm Taking Readings: Travis Farmer/Sauls Seismic
Person and Firm Analyzing Readings: Travis Farmer/Sauls Seismic
(Attach full waveform seismograms, for all seismograph recordings for this blast. Include calibration signal even if no trigger)
Signature of Person Analyzing Readings: [Signature]
Location of Seismograph: Gary Mullins residence
(Specify owner's name and structure number from the blast map, including distance from blast)
Trigger Levels: Ground: 05 ips Air: 120 dB Length of Recording Time: 10 sec.
Vibrations Recorded: Longitudinal: _____ Transverse: _____ Vertical: _____ Air Blast: _____
Frequency: Longitudinal: _____ Hz. Transverse: _____ Hz. Vertical: _____ Hz. Air Blast: _____ Hz.

Date and Time of Recording from the Seismogram: NO TRIGGERS
Type (Brand and Model Number) of Instrument: Nomis Super Mini Sensitivity: 2-400 Hz.
Person and Company Who Installed Seismograph: Travis Farmer/Sauls Seismic
Person and Firm Taking Readings: Travis Farmer/Sauls Seismic
Person and Firm Analyzing Readings: Travis Farmer/Sauls Seismic
(Attach full waveform seismograms, for all seismograph recordings for this blast. Include calibration signal even if no trigger)
Signature of Person Analyzing Readings: [Signature]
Location of Seismograph: Cline residence
(Specify owner's name and structure number from the blast map, including distance from blast)
Trigger Levels: Ground: 05 ips Air: 120 dB Length of Recording Time: 10 sec.
Vibrations Recorded: Longitudinal: _____ Transverse: _____ Vertical: _____ Air Blast: _____
Frequency: Longitudinal: _____ Hz. Transverse: _____ Hz. Vertical: _____ Hz. Air Blast: _____ Hz.

Date and Time of Recording from the Seismogram: NO TRIGGERS
Type (Brand and Model Number) of Instrument: Nomis Super Mini Sensitivity: 2-400 Hz.
Person and Company Who Installed Seismograph: Travis Farmer/Sauls Seismic
Person and Firm Taking Readings: Travis Farmer/Sauls Seismic
Person and Firm Analyzing Readings: Travis Farmer/Sauls Seismic
(Attach full waveform seismograms, for all seismograph recordings for this blast. Include calibration signal even if no trigger)
Signature of Person Analyzing Readings: [Signature]
Location of Seismograph: Gas well #1089
(Specify owner's name and structure number from the blast map, including distance from blast)
Trigger Levels: Ground: 05 ips Air: N dB Length of Recording Time: 10 sec.
Vibrations Recorded: Longitudinal: _____ Transverse: _____ Vertical: _____ Air Blast: _____
Frequency: Longitudinal: _____ Hz. Transverse: _____ Hz. Vertical: _____ Hz. Air Blast: _____ Hz.

Date and Time of Recording from the Seismogram: NO TRIGGERS
Type (Brand and Model Number) of Instrument: Nomis SuperMini Sensitivity: 2-400 Hz.
Person and Company Who Installed Seismograph: Travis Farmer/Sauls Seismic
Person and Firm Taking Readings: Travis Farmer/Sauls Seismic
Person and Firm Analyzing Readings: Travis Farmer/Sauls Seismic
(Attach full waveform seismograms, for all seismograph recordings for this blast. Include calibration signal even if no trigger)
Signature of Person Analyzing Readings: [Signature]
Location of Seismograph: Gas well # 9930 (Dingess Run Well)
(Specify owner's name and structure number from the blast map, including distance from blast)
Trigger Levels: Ground: 05 ips Air: N dB Length of Recording Time: 10 sec.
Vibrations Recorded: Longitudinal: _____ Transverse: _____ Vertical: _____ Air Blast: _____
Frequency: Longitudinal: _____ Hz. Transverse: _____ Hz. Vertical: _____ Hz. Air Blast: _____ Hz.

Seismograph Data

Date and Time of Recording from the Seismogram: NO TRIGGERS

Type (Brand and Model Number) of Instrument: Nomis 5400 Sensitivity: 2-400 Hz.

Person and Company Who Installed Seismograph: Travis Farmer/Sauls Seismic

Person and Firm Taking Readings: Travis Farmer/Sauls Seismic

Person and Firm Analyzing Readings: Travis Farmer/Sauls Seismic

(Attach full waveform seismograms, for all seismograph recordings for this blast. Include calibration signal even if no trigger)

Signature of Person Analyzing Readings: [Signature]

Location of Seismograph: Greg Ball residence

(Specify owner's name and structure number from the blast map, including distance from blast)

Trigger Levels: Ground: .05 ips Air: 120 dB Length of Recording Time: 10 sec.

Vibrations Recorded: Longitudinal: _____ Transverse: _____ Vertical: _____ Air Blast: _____

Frequency: Longitudinal: _____ Hz. Transverse: _____ Hz. Vertical: _____ Hz. Air Blast: _____ Hz.

BLASTING LOG

GENERAL INFORMATION



Blast Number **E15** Ticket Number **E15**

Permittee Apogee Coal, LLC.

Customer / Operator Apogee Coal, LLC.

Location of Blast Ridge 1& 2

Blasting Company APOGEE COAL LLC

Nearest Protected Structure #5 Bill Joann Lambert

Distance and Direction 7,259 ft N, ?°

Nearest Other Structure Dominion Well

Distance and Direction 4,027 ft N, ?°

Weather Conditions Clear / Calm

80°F,

Wind out of the NE @ 0-5 mph

Type of Material Blasted Sandstone

Blast Type Production

Matts or Protection Used None used

Total Tons 0

Total YD³ 251,926

Powder Factor: tons/lb 0.00

lbs/yd³ 1.35

Date / Time 6/7/2010 4:03 PM

Permit No. S-5006-05

Lat ° ' N 302228 - X

Long ° ' W 1765854 - Y

Method Handheld GPS - NAD83

SD to nearest protected 118

BLAST INFORMATION

Total Weight and Type(s) of Explosives used: see attachment

	ANFO	Emulsion	Packaged	358 Primers	Total Weight
	254,003.99 lbs.	84,668.00 lbs.	0.00 lbs.	268.50 lbs.	338,940.49 lbs.

Total Holes 179 Angle °

Face Height (ft) Burden (ft) 0 - 20 Backfill (ft) 2

Depth (ft) 0 - 95 Spacing (ft) 0 - 20 Stemming (ft) 0 - 9

Sub Drill (ft) Diameter (in) 7.875 Stemming Material Cuttings

Maximum Weight of Explosives Allowed per 8ms Period (lbs) :5362 as determined by SD of : 55

Maximum Weight of Explosives detonated per 8ms (lbs) :3787 in 2.0 Holes

INITIATION PRODUCT INFORMATION

Mfr	Delay Type	Qty	Mfr	Delay Type	Qty	Mfr	Delay Type	Qty
Orica	50 ft unitronics	179						
Orica	120 ft unitronics	263						

Method of Firing : Digital

Timer (ms) : NA

Circuit Type : Row by Row

Initiated by : Electronic

Blasting Unit : E B M

No. of Circuits : 1

COMMENTS

Operation Apogee Coal, LLC.
Permit Number S-5006-05

Blast Number E15
Blast Type Production

Date 6/7/2010
Time 4:03 PM

Hole Cross Section

Depth (ft) 95 Angle (deg)
B X S (ft) 20 X 20 Bench Ht.
Hole dia. (in) 7.875 Stem (ft) 9
PF: 1.34 lbs/YD³ Tons/Lb.

Timing Pattern

9' Stemming

40' 75/25 @ 9'

4' Cuttings @ 49'
40' 75/25 @ 53'

Backfill

PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 2.0

Holes loaded the same: 179

Nearest Protected Structure: #5 Bill Joann Lambert

Distance and Direction: 7,259 ft N, ?°

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 6/7/2010 4:03 PM

Seis SN	Location	Dist (ft)	Dir.	SD	T PPV	T Hz	V PPV	V Hz	L PPV	L Hz	Air dB	Air Hz
---------	----------	-----------	------	----	-------	------	-------	------	-------	------	--------	--------

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:
Richard Cope - 5 506 08

Crew:

Apogee Coal, LLC.

Blast Type

Production

Date 6/7/2010

S-5006-05

Blast / Ticket Number

E15 /E15

Time 4:03 PM

Hole Number	Bench Height	Sub Drill	Design Depth	Loaded Depth	Mfr.	Explosive Name	g/cc	Pounds	Mfr.	Primer Name	Qty
0			0	0	1	NEBCO Bulk ANFO	0.85		1	Orica 1/2 LB Cast	0
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2				2		
0	0	0			3					Total Primer QTY / Hole	0
Preline					4					Total Primer LBS / Hole	0
					5						
					6						
					7						
					8						
TotalExpl lbs. / hole								0.00	Expl-Primer LBS / Hole		0.00
Similar Holes - 0					0 Primers		0.00 LBS	Total Expl lbs. / Blast		0.00	Similar Hole LBS 0.00
0			0	0	1	NEBCO Bulk ANFO	0.85		1	3/4 LB Cast	0
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2				2		
0	0	0			3					Total Primer QTY / Hole	0
Preline					4					Total Primer LBS / Hole	0
					5						
					6						
					7						
					8						
TotalExpl lbs. / hole								0.00	Expl-Primer LBS / Hole		0.00
Similar Holes - 0					0 Primers		0.00 LBS	Total Expl lbs. / Blast		0.00	Similar Hole LBS 0.00
1-179			95	95	1	Nelson 75/25	1.12	946.01	1	3/4 LB Cast	2
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2	Nelson 75/25	1.12	946.01	2		
20	20	9			3					Total Primer QTY / Hole	2
					4					Total Primer LBS / Hole	1.5
					5						
					6						
					7						
					8						
TotalExpl lbs. / hole								1892.02	Expl-Primer LBS / Hole		?
Similar Holes - 179					358 Primers		268.50 LBS	Total Expl lbs. / Blast		338671.99	Similar Hole LBS 338941.00
Total Holes Loaded this blast										Grand Total Explosives Weight	
179										338940.49	

Seismograph Data

Date and Time of Recording from the Seismogram: NO TRIGGERS
Type (Brand and Model Number) of Instrument: Nomis SuperMini Sensitivity: 2-400 Hz.
Person and Company Who Installed Seismograph: Travis Farmer/Sauls Seismic
Person and Firm Taking Readings: Travis Farmer/Sauls Seismic
Person and Firm Analyzing Readings: Travis Farmer/Sauls Seismic
(Attach full waveform seismograms, for all seismograph recordings for this blast. Include calibration signal even if no trigger)
Signature of Person Analyzing Readings: [Signature]
Location of Seismograph: Gary Mullins residence
(Specify owner's name and structure number from the blast map, including distance from blast)
Trigger Levels: Ground: .05 ips Air: 120 dB Length of Recording Time: 10 sec.
Vibrations Recorded: Longitudinal: _____ Transverse: _____ Vertical: _____ Air Blast: _____
Frequency: Longitudinal: _____ Hz. Transverse: _____ Hz. Vertical: _____ Hz. Air Blast: _____ Hz.

Date and Time of Recording from the Seismogram: NO TRIGGERS
Type (Brand and Model Number) of Instrument: Nomis Super Mini Sensitivity: 2-400 Hz.
Person and Company Who Installed Seismograph: Travis Farmer/Sauls Seismic
Person and Firm Taking Readings: Travis Farmer/Sauls Seismic
Person and Firm Analyzing Readings: Travis Farmer/Sauls Seismic
(Attach full waveform seismograms, for all seismograph recordings for this blast. Include calibration signal even if no trigger)
Signature of Person Analyzing Readings: [Signature]
Location of Seismograph: Cline residence
(Specify owner's name and structure number from the blast map, including distance from blast)
Trigger Levels: Ground: .05 ips Air: 120 dB Length of Recording Time: 10 sec.
Vibrations Recorded: Longitudinal: _____ Transverse: _____ Vertical: _____ Air Blast: _____
Frequency: Longitudinal: _____ Hz. Transverse: _____ Hz. Vertical: _____ Hz. Air Blast: _____ Hz.

Date and Time of Recording from the Seismogram: NO TRIGGERS
Type (Brand and Model Number) of Instrument: Nomis Super Mini Sensitivity: 2-400 Hz.
Person and Company Who Installed Seismograph: Travis Farmer/Sauls Seismic
Person and Firm Taking Readings: Travis Farmer/Sauls Seismic
Person and Firm Analyzing Readings: Travis Farmer/Sauls Seismic
(Attach full waveform seismograms, for all seismograph recordings for this blast. Include calibration signal even if no trigger)
Signature of Person Analyzing Readings: [Signature]
Location of Seismograph: Gas well #1089
(Specify owner's name and structure number from the blast map, including distance from blast)
Trigger Levels: Ground: .05 ips Air: N dB Length of Recording Time: 10 sec.
Vibrations Recorded: Longitudinal: _____ Transverse: _____ Vertical: _____ Air Blast: _____
Frequency: Longitudinal: _____ Hz. Transverse: _____ Hz. Vertical: _____ Hz. Air Blast: _____ Hz.

Date and Time of Recording from the Seismogram: NO TRIGGERS
Type (Brand and Model Number) of Instrument: Nomis SuperMini Sensitivity: 2-400 Hz.
Person and Company Who Installed Seismograph: Travis Farmer/Sauls Seismic
Person and Firm Taking Readings: Travis Farmer/Sauls Seismic
Person and Firm Analyzing Readings: Travis Farmer/Sauls Seismic
(Attach full waveform seismograms, for all seismograph recordings for this blast. Include calibration signal even if no trigger)
Signature of Person Analyzing Readings: [Signature]
Location of Seismograph: Gas well # 9930 (Dingess Run Well)
(Specify owner's name and structure number from the blast map including distance from blast)
Trigger Levels: Ground: .05 ips Air: N dB Length of Recording Time: 10 sec.
Vibrations Recorded: Longitudinal: _____ Transverse: _____ Vertical: _____ Air Blast: _____
Frequency: Longitudinal: _____ Hz. Transverse: _____ Hz. Vertical: _____ Hz. Air Blast: _____ Hz.

Seismograph Data

Date and Time of Recording from the Seismogram: NO TRIGGERS

Type (Brand and Model Number) of Instrument: Nomis 5400 Sensitivity: 2-400 Hz.

Person and Company Who Installed Seismograph: Travis Farmer/Sauls Seismic

Person and Firm Taking Readings: Travis Farmer/Sauls Seismic

Person and Firm Analyzing Readings: Travis Farmer/Sauls Seismic

(Attach full waveform seismograms, for all seismograph recordings for this blast. Include calibration signal even if no trigger)

Signature of Person Analyzing Readings: Travis Farmer

Location of Seismograph: Greg Ball residence

(Specify owner's name and structure number from the blast map, including distance from blast)

Trigger Levels: Ground: .05 ips Air: 120 dB Length of Recording Time: 10 sec.

Vibrations Recorded: Longitudinal: _____ Transverse: _____ Vertical: _____ Air Blast: _____

Frequency: Longitudinal: _____ Hz. Transverse: _____ Hz. Vertical: _____ Hz. Air Blast: _____ Hz.

BLASTING LOG

GENERAL INFORMATION



Blast Number E46 Ticket Number E46

Permittee Apogee Coal, LLC.

Customer / Operator Apogee Coal, LLC.

Location of Blast Guyan Mine

Blasting Company APOGEE COAL LLC

Nearest Protected Structure Ball residence

Distance and Direction 3,817 ft S, ?°

Nearest Other Structure Dominion Well 1089

Distance and Direction 6,843 ft NE, ?°

Weather Conditions Light Rain

80°F,

Wind out of the N @ 0-2 mph

Type of Material Blasted Sandstone

Blast Type Production

Matts or Protection Used

Total Tons 0

Total YD³ 44,640

Powder Factor: tons/lb 0.00

lbs/yd³ 1.21

Date / Time 6/23/2010 12:07 PM

Permit No. S-5007-01

° ' N 292469 - X

° ' W 1775244 - Y

Method Handheld GPS - NAD83

SD to nearest protected 129

BLAST INFORMATION

Total Weight and Type(s) of Explosives used: see attachment

	ANFO	Emulsion	Packaged	62 Primers	Total Weight
	40,398.54 lbs.	13,466.18 lbs.	0.00 lbs.	46.50 lbs.	53,911.22 lbs.

Total Holes 62 Angle °

Face Height (ft) 0 - 60

Burden (ft) 0 - 18

Backfill (ft)

Depth (ft) 0 - 60

Spacing (ft) 0 - 18

Stemming (ft) 0 - 10

Sub Drill (ft)

Diameter (in) 6.75

Stemming Material Cuttings

Maximum Weight of Explosives Allowed per 8ms Period (lbs) : 4817 as determined by SD of : 55

Maximum Weight of Explosives detonated per 8ms (lbs) : 870 in 1.0 Holes

INITIATION PRODUCT INFORMATION

Mfr	Delay Type	Qty	Mfr	Delay Type	Qty	Mfr	Delay Type	Qty
Orica	80 ft unitronics	44						
Orica	50 ft unitronics	18						

Method of Firing : Electric

Timer (ms) : NA

Circuit Type :

Initiated by : Electronic

Blasting Unit : E B M

No. of Circuits :

COMMENTS

Operation Apogee Coal, LLC.
Permit Number S-5007-01

Blast Number E46
Blast Type Production

Date 6/23/2010
Time 12:07 PM

Hole Cross Section

Depth (ft) 60 Angle (deg)
B X S (ft) 18 X 18 Bench Ht. 60
Hole dia. (in) 6.750 Stem (ft) 10
PF: 1.21 lbs/YD³ Tons/Lb.

Timing Pattern

10' Stemming
50' 75/25 @ 10'

PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 1.0

Holes loaded the same: 62

Nearest Protected Structure: Ball residence

Distance and Direction: 3,817 ft S, ? °

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 6/23/2010 12:07 PM

Seis SN	Location	Dist (ft)	Dir.	SD	T PPV	T Hz	V PPV	V Hz	L PPV	L Hz	Air dB	Air Hz
---------	----------	-----------	------	----	-------	------	-------	------	-------	------	--------	--------

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:
Todd Keffer - 5-645-05

Crew:

Todd Keffer

Apogee Coal, LLC.

Blast Type

Production

Date 6/23/2010

S-5007-01

Blast / Ticket Number

E46 /E46

Time 12:07 PM

Hole Number	Bench Height	Sub Drill	Design Depth	Loaded Depth	Mfr.	Explosive Name	g/cc	Pounds	Mfr.	Primer Name	Qty			
0	0	0	0	0	1 Nelson	75/25	1.12		1	3/4 LB Cast	0			
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2 Nelson	75/25	1.12		2					
0	0	0			3					Total Primer QTY / Hole	0			
					4					Total Primer LBS / Hole	0			
					5									
					6									
					7									
					8									
					TotalExpl lbs. / hole			0.00	Expl-Primer LBS / Hole			0.00		
Similar Holes - 0					0 Primers	0.00 LBS	Total Expl lbs. / Blast			0.00	Similar Hole LBS		0.00	
1-62	60	60	60		1 Nelson	75/25	1.12	868.79	1	3/4 LB Cast	1			
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2				2					
18	18	10			3					Total Primer QTY / Hole	1			
					4					Total Primer LBS / Hole	.75			
					5									
					6									
					7									
					8									
					TotalExpl lbs. / hole			868.79	Expl-Primer LBS / Hole			869.54		
Similar Holes - 62					62 Primers	46.50 LBS	Total Expl lbs. / Blast			53864.72	Similar Hole LBS		53912.00	
Total Holes Loaded this blast												Grand Total Explosives Weight		53911.22
62														

Blast Number E44 Ticket Number E44

Permittee Apogee Coal, LLC.

Customer / Operator Apogee Coal, LLC.

Location of Blast Ridge 1& 2

Blasting Company APOGEE COAL LLC

Nearest Protected Structure #5 Bill Joann Lambert

Distance and Direction 7,917 ft NW, ?°

Nearest Other Structure Dominion Well

Distance and Direction 4,479 ft NW, ?°

Weather Conditions Sunny / Hot

95°F,

Wind out of the

N @

0-2 mph

Type of Material Blasted Sandstone

Blast Type BREAKDOWN

Matts or Protection Used

Total Tons 0

Total YD³ 12,240

Powder Factor: tons/lb 0.00

lbs/yd³ 1.22

Date / Time 6/21/2010 3:58 PM

Permit No. S-5006-05

° ' N 302254 - X

° ' W 1769569 - Y

Method Handheld GPS - NAD83

SD to nearest protected 364

BLAST INFORMATION

Total Weight and Type(s) of Explosives used: see attachment

	ANFO	Emulsion	Packaged	34 Primers	Total Weight
	11,174.76 lbs.	3,724.92 lbs.	0.00 lbs.	25.50 lbs.	14,925.18 lbs.

Total Holes 34 Angle °

Face Height (ft) 105

Burden (ft) 18

Backfill (ft)

Depth (ft) 30

Spacing (ft) 18

Stemming (ft) 10 - 15

Sub Drill (ft)

Diameter (in) 7.875

Stemming Material Cuttings

Maximum Weight of Explosives Allowed per 8ms Period (lbs) :6632 as determined by SD of : 55

Maximum Weight of Explosives detonated per 8ms (lbs) : 474 in 1.0 Holes

INITIATION PRODUCT INFORMATION

Mfr	Delay Type	Qty	Mfr	Delay Type	Qty	Mfr	Delay Type	Qty
Orica	EXCEL 40 FT - 20	34						
Orica	S. EXCEL 40 FT- 42	7						
Orica	S. EXCEL 40 FT-100	28						

Method of Firing : Non Electric

Timer (ms) : NA

Circuit Type :

Initiated by : Non-Electric

Blasting Unit : Handi Blaster

No. of Circuits :

COMMENTS

Operation Apogee Coal, LLC.
Permit Number S-5006-05

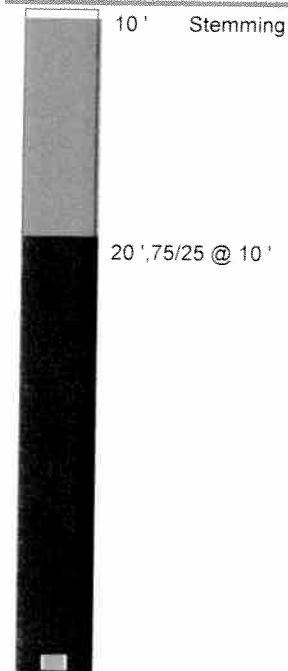
Blast Number E44
Blast Type BREAKDOWN

Date 6/21/2010
Time 3:58 PM

Hole Cross Section

Depth (ft) 30 Angle (deg)
B X S (ft) 18 X 18 Bench Ht. 105
Hole dia. (in) 7.875 Stem (ft) 10
PF: 1.31 lbs/YD³ Tons/Lb.

Timing Pattern



PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 1.0

Holes loaded the same: 24

Nearest Protected Structure: #5 Bill Joann Lambert

Distance and Direction: 7,917 ft NW , ? °

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 6/21/2010 3:58 PM

Seis SN	Location	Dist (ft)	Dir.	SD	T PPV	T Hz	V PPV	V Hz	L PPV	L Hz	Air dB	Air Hz
---------	----------	-----------	------	----	-------	------	-------	------	-------	------	--------	--------

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Crew:

Todd Keffer - 5-645-05

Todd Keffer

Operation Apogee Coal, LLC.
Permit Number S-5006-05

Blast Number E44
Blast Type BREAKDOWN

Date 6/21/2010
Time 3:58 PM

Hole Cross Section

Depth (ft) 30 Angle (deg)
B X S (ft) 18 X 18 Bench Ht. 105
Hole dia. (in) 7.875 Stem (ft) 15
PF: 0.99 lbs/YD³ Tons/Lb.

Timing Pattern

15' Stemming

15', 75/25 @ 15'

PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 1.0

Holes loaded the same: 10

Nearest Protected Structure: #5 Bill Joann Lambert

Distance and Direction: 7,917 ft NW , ? °

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 6/21/2010 3:58 PM

Seis SN Location Dist (ft) Dir. SD T PPV T Hz V PPV V Hz L PPV L Hz Air dB Air Hz

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Crew:

Todd Keffer - 5-645-05

Apogee Coal, LLC.

Blast Type

BREAKDOWN

Date 6/21/2010

S-5006-05

Blast / Ticket Number

E44 /E44

Time 3:58 PM

Hole Number	Bench Height	Sub Drill	Design Depth	Loaded Depth	Mfr.	Explosive Name	g/cc	Pounds	Mfr.	Primer Name	Qty
1-24	105		30	30	1 Nelson	75/25	1.12	473.01	1	3/4 LB Cast	1
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2				2		
18	18	10			3					Total Primer QTY / Hole	1
					4					Total Primer LBS / Hole	.75
					5						
					6						
					7						
					8						
TotalExpl lbs. / hole								473.01	Expl-Primer LBS / Hole 473.76		
Similar Holes - 24					24 Primers	18.00 LBS	Total Expl lbs. / Blast		11352.13	Similar Hole LBS	11371.00
25-34	105		30	30	1 Nelson	75/25	1.12	354.75	1	3/4 LB Cast	1
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2				2		
18	18	15			3					Total Primer QTY / Hole	1
					4					Total Primer LBS / Hole	.75
					5						
					6						
					7						
					8						
TotalExpl lbs. / hole								354.75	Expl-Primer LBS / Hole 355.50		
Similar Holes - 10					10 Primers	7.50 LBS	Total Expl lbs. / Blast		3547.54	Similar Hole LBS	3556.00
Total Holes Loaded this blast									Grand Total Explosives Weight		
34									14925.18		

BLASTING LOG

GENERAL INFORMATION



Blast Number **E43** Ticket Number **E43**

Permittee Apogee Coal, LLC.
Customer / Operator Apogee Coal, LLC.
Location of Blast Guyan Mine
Blasting Company APOGEE COAL LLC
Nearest Protected Structure Ball residence
Distance and Direction 3,892 ft S, ?°
Nearest Other Structure Dominion Well 1089
Distance and Direction 6,775 ft NE, ?°
Weather Conditions Partly Cloudy 78°F,
Type of Material Blasted Sandstone
Matts or Protection Used
Date / Time 6/21/2010 10:21 AM
Permit No. S-5007-01
Lat ° ' N 292542 - X
Long ° ' W 1775262 - Y
Method
SD to nearest protected 126
Blast Type Production
Total Tons 0
Total YD³ 35,400
Powder Factor: tons/lb 0.00
lbs/yd³ 1.58

BLAST INFORMATION

Total Weight and Type(s) of Explosives used: see attachment

	ANFO	Emulsion	Packaged	59 Primers	Total Weight
	41,860.99 lbs.	13,953.66 lbs.	0.00 lbs.	44.25 lbs.	55,858.91 lbs.

Total Holes 59 Angle °
Face Height (ft) 50 Burden (ft) 18 Backfill (ft)
Depth (ft) 50 Spacing (ft) 18 Stemming (ft) 10
Sub Drill (ft) Diameter (in) 7.875 Stemming Material Cuttings
Maximum Weight of Explosives Allowed per 8ms Period (lbs) :5008 as determined by SD of : 55
Maximum Weight of Explosives detonated per 8ms (lbs) : 947 in 1.0 Holes

INITIATION PRODUCT INFORMATION

Mfr	Delay Type	Qty	Mfr	Delay Type	Qty	Mfr	Delay Type	Qty
Orica	50 ft unitronics	60						

Method of Firing : Electric
Initiated by : Electronic
Timer (ms) : NA
Blasting Unit : E B M
Circuit Type :
No. of Circuits :

COMMENTS

Operation Apogee Coal, LLC.
Permit Number S-5007-01

Blast Number E43
Blast Type Production

Date 6/21/2010
Time 10:21 AM

Hole Cross Section

Depth (ft) 50 Angle (deg)
B X S (ft) 18 X 18 Bench Ht. 50
Hole dia. (in) 7.875 Stem (ft) 10
PF: 1.58 lbs/YD³ Tons/Lb.

10' Stemming
040' 75/25 @ 10'

PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 1.0

Holes loaded the same: 59

Timing Pattern

Nearest Protected Structure: Ball residence

Distance and Direction: 3,892 ft S, ?°

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 6/21/2010 10:21 AM

Seis SN	Location	Dist (ft)	Dir.	SD	T PPV	T Hz	V PPV	V Hz	L PPV	L Hz	Air dB	Air Hz
---------	----------	-----------	------	----	-------	------	-------	------	-------	------	--------	--------

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Crew:

Todd Keffer - 5-645-05

Todd Keffer

Apogee Coal, LLC.

Blast Type

Production

Date 6/21/2010

S-5007-01

Blast / Ticket Number

E43 /E43

Time 10:21 AM

Hole Number	Bench Height	Sub Drill	Design Depth	Loaded Depth	Mfr.	Explosive Name	g/cc	Pounds	Mfr.	Primer Name	Qty
1-59	50		50	50	1 Nelson	75/25	1.12	946.01	1	3/4 LB Cast	1
Burden	Spacing	Stemming	Angle		2				2		
(FT)	(FT)	(FT)	(Deg)		3					Total Primer QTY / Hole	1
18	18	10			4					Total Primer LBS / Hole	.75
					5						
					6						
					7						
					8						
Total Expl lbs. / hole								946.01	Expl-Primer LBS / Hole 946.76		
Similar Holes -	59		59 Primers	44.25 LBS	Total Expl lbs. / Blast			55814.66	Similar Hole LBS 55859.00		

Total Holes Loaded this blast

59

Grand Total Explosives Weight

55858.91

Blast Number E42 **Ticket Number** E42
Permittee Apogee Coal, LLC.**Customer / Operator** Apogee Coal, LLC.**Location of Blast** Guyan Mine**Blasting Company** APOGEE COAL LLC**Nearest Protected Structure** Ball residence**Distance and Direction** 3,585 ft S, ?°**Nearest Other Structure** Dominion Well 1089**Distance and Direction** 7,073 ft NE, ?°**Weather Conditions** Partly Cloudy**Type of Material Blasted** Sandstone**Matts or Protection Used****Date / Time** 6/21/2010 10:20 AM**Permit No.** S-5007-01**Lat** ° ' N 292255 - X**Long** ° ' W 1775144 - Y**Method** Handheld GPS - NAD83**SD to nearest protected** 136**Wind out of the** N @ 2-5 mph**Blast Type** Production**Total Tons** 0**Total YD³** 26,400**Powder Factor:** tons/lb 0.00**lbs/yd³** 1.16

BLAST INFORMATION

Total Weight and Type(s) of Explosives used: see attachment

	ANFO	Emulsion	Packaged	44 Primers	Total Weight
	22,935.94 lbs.	7,645.31 lbs.	0.00 lbs.	33.00 lbs.	30,614.26 lbs.

Total Holes 44 **Angle** °**Face Height (ft)** **Burden (ft)** 18**Backfill (ft)****Depth (ft)** 50 **Spacing (ft)** 18 **Stemming (ft)** 10**Sub Drill (ft)** **Diameter (in)** 6.75 **Stemming Material** Cuttings**Maximum Weight of Explosives Allowed per 8ms Period (lbs)** :4248 as determined by SD of : 55**Maximum Weight of Explosives detonated per 8ms (lbs)** : 696 in 1.0 Holes

INITIATION PRODUCT INFORMATION

Mfr	Delay Type	Qty	Mfr	Delay Type	Qty	Mfr	Delay Type	Qty
Orica	50 ft unitronics	44						

Method of Firing : Electric**Timer (ms)** : NA**Circuit Type** :**Initiated by** : Electronic**Blasting Unit** : E B M**No. of Circuits** :

COMMENTS

Operation Apogee Coal, LLC.
Permit Number S-5007-01

Blast Number E42
Blast Type Production

Date 6/21/2010
Time 10:20 AM

Hole Cross Section

Depth (ft) 50 Angle (deg)
B X S (ft) 18 X 18 Bench Ht.
Hole dia. (in) 6.750 Stem (ft) 10
PF: 1.16 lbs/YD³ Tons/Lb.

Timing Pattern

10' Stemming

40', 75/25 @ 10'

PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 1.0

Holes loaded the same: 44

Nearest Protected Structure: Ball residence

Distance and Direction: 3,585 ft S, ?°

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 6/21/2010 10:20 AM

Seis SN	Location	Dist (ft)	Dir.	SD	T PPV	T Hz	V PPV	V Hz	L PPV	L Hz	Air dB	Air Hz
---------	----------	-----------	------	----	-------	------	-------	------	-------	------	--------	--------

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Crew:

Todd Keffer - 5-645-05

Todd Keffer

Apogee Coal, LLC.

Blast Type

Production

Date 6/21/2010

S-5007-01

Blast / Ticket Number

E42 /E42

Time 10:20 AM

Hole Number	Bench Height	Sub Drill	Design Depth	Loaded Depth	Mfr.	Explosive Name	g/cc	Pounds	Mfr.	Primer Name	Qty
1-44			50	50	1 Nelson	75/25	1.12	695.03	1	3/4 LB Cast	1
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2				2		
18	18	10			3					Total Primer QTY / Hole	1
					4					Total Primer LBS / Hole	.75
					5						
					6						
					7						
					8						
TotalExpl lbs. / hole								695.03	Expl-Primer LBS / Hole 695.78		
Total Expl lbs. / Blast								30581.26	Similar Hole LBS 30615.00		
Total Holes Loaded this blast										Grand Total Explosives Weight	
44										30614.26	

Apogee Coal Company
Logan WV

BLASTING LOG

GENERAL INFORMATION

**APOGEE
COAL**

Blast Number **E54** Ticket Number **E54**

Permittee Apogee Coal, LLC.

Customer / Operator Apogee Coal, LLC.

Location of Blast Guyan Mine

Blasting Company APOGEE COAL LLC

Nearest Protected Structure Ball residence

Distance and Direction 3,686 ft S, ?°

Nearest Other Structure Jackson Well

Distance and Direction 7,965 ft NW, ?°

Weather Conditions Partly Cloudy

Type of Material Blasted Sandstone

Matts or Protection Used

Date / Time 6/28/2010 9:01 AM

Permit No. S-5007-01

Lat ° ' N 292284 - X

Long ° ' W 1773078 - Y

Method Handheld GPS - NAD83

SD to nearest protected 151

Wind out of the N @ 2-5 mph

Blast Type Production

Total Tons 0

Total YD³ 30,240

Powder Factor: tons/lb 0.00

lbs/yd³ 0.82

BLAST INFORMATION

Total Weight and Type(s) of Explosives used: see attachment

	ANFO	Emulsion	Packaged	210 Primers	Total Weight
	18,624.59 lbs.	6,208.20 lbs.	0.00 lbs.	105.00 lbs.	24,937.79 lbs.

Total Holes 210 Angle °

Face Height (ft) 12 Burden (ft) 18

Depth (ft) 12 Spacing (ft) 18

Sub Drill (ft) Diameter (in) 7.875 Stemming Material Cuttings

Maximum Weight of Explosives Allowed per 8ms Period (lbs) : 4492 as determined by SD of : 55

Maximum Weight of Explosives detonated per 8ms (lbs) : 594 in 5.0 Holes

INITIATION PRODUCT INFORMATION

Mfr	Delay Type	Qty	Mfr	Delay Type	Qty	Mfr	Delay Type	Qty
Orica	EXCEL 40 FT - 20	210						
Orica	S. EXCEL 40 FT-17	196						
Orica	S. EXCEL 40 FT- 42	14						

Method of Firing : Non Electric

Timer (ms) : NA

Circuit Type :

Initiated by : Non-Electric

Blasting Unit : Handi Blaster

No. of Circuits :

COMMENTS

Blast Number E55 **Ticket Number** E55
Permittee Apogee Coal, LLC.**Customer / Operator** Apogee Coal, LLC.**Location of Blast** Guyan Mine**Blasting Company** APOGEE COAL LLC**Nearest Protected Structure** Ball residence**Distance and Direction** 3,635 ft S, ?°**Nearest Other Structure** Jackson Well**Distance and Direction** 8,200 ft NW, ?°**Weather Conditions** Partly Cloudy**Type of Material Blasted** Sandstone**Matts or Protection Used****Date / Time** 6/28/2010 11:24 AM**Permit No.** S-5007-01

° ' N 292321 - X

° ' W 1773393 - Y

Method Handheld GPS - NAD83**SD to nearest protected** 159**Lat****Long**

80°F,

Wind out of the N @ 2-5 mph**Blast Type** Production**Total Tons** 0**Total YD³** 40,608**Powder Factor:** tons/lb 0.00**lbs/yd³** 0.61

BLAST INFORMATION

Total Weight and Type(s) of Explosives used: see attachment

	ANFO	Emulsion	Packaged	282 Primers	Total Weight
	18,374.82 lbs.	6,124.94 lbs.	0.00 lbs.	141.00 lbs.	24,640.76 lbs.

Total Holes 282 **Angle** °**Face Height (ft)** 12 **Burden (ft)** 18**Backfill (ft)****Depth (ft)** 12 **Spacing (ft)** 18**Stemming (ft)** 7**Sub Drill (ft)** **Diameter (in)** 6.75**Stemming Material** Cuttings**Maximum Weight of Explosives Allowed per 8ms Period (lbs)** :4369 as determined by SD of : 55**Maximum Weight of Explosives detonated per 8ms (lbs)** : 524 in 6.0 Holes

INITIATION PRODUCT INFORMATION

Mfr	Delay Type	Qty	Mfr	Delay Type	Qty	Mfr	Delay Type	Qty
Orica	EXCEL 40 FT - 20	280						
Orica	S. EXCEL 40 FT- 42	21						
Orica	S. EXCEL 40 FT-17	259						

Method of Firing : Non Electric**Timer (ms)** : NA**Circuit Type** :**Initiated by** : Non-Electric**Blasting Unit** : Handi Blaster**No. of Circuits** :

COMMENTS

Date 6/28/2010
Time 11:24 AM

BLASTING LOG

GENERAL INFORMATION



Blast Number

E41

Ticket Number

E41

Permittee Apogee Coal, LLC.

Customer / Operator Apogee Coal, LLC.

Location of Blast Ridge 1& 2

Blasting Company APOGEE COAL LLC

Nearest Protected Structure Cline residence

Distance and Direction 7,193 ft S, ?°

Nearest Other Structure Jackson Well

Distance and Direction 4,317 ft SW, ?°

Weather Conditions Sunny / Hot

90°F,

Wind out of the E @ 0-3 mph

Type of Material Blasted Sandstone

Blast Type Production

Matts or Protection Used None used

Total Tons 0

Total YD³ 434,889

Powder Factor: tons/lb 0.00

lbs/yd³ 1.32

Date / Time 6/19/2010 3:57 PM

Permit No. S-5006-05

° ' N 300705 - X

° ' W 1768908 - Y

Method Handheld GPS - NAD83

SD to nearest protected 88

BLAST INFORMATION

Total Weight and Type(s) of Explosives used: see attachment

ANFO

Emulsion

428,968.76 lbs.

142,989.59 lbs.

Packaged

512 Primers

Total Weight

0.00 lbs.

384.00 lbs.

572,342.34 lbs.

Total Holes 256 Angle 15°

Face Height (ft) 110

Burden (ft) 20

Backfill (ft) 4

Depth (ft) 110 - 115

Spacing (ft) 20

Stemming (ft) 9 - 12

Sub Drill (ft)

Diameter (in) 7.875

Stemming Material Cuttings

Maximum Weight of Explosives Allowed per 8ms Period (lbs) :6161 as determined by SD of : 55

Maximum Weight of Explosives detonated per 8ms (lbs) :6745 in 3.0 Holes

INITIATION PRODUCT INFORMATION

Mfr	Delay Type	Qty	Mfr	Delay Type	Qty	Mfr	Delay Type	Qty
Orica	EXCEL 40 FT - 20	256	Orica	S.EXCEL 40 FT-100	237			
Orica	EXCEL 120 FT - 24	256	Orica	Lead line 493' Roll	2			
Orica	S. EXCEL 40 FT- 42	14						
Orica	S. EXCEL 40 FT-17	18						

Method of Firing : Non Electric

Timer (ms) : NA

Circuit Type : Row by Row

Initiated by : Non-Electric

Blasting Unit : Handi Blaster

No. of Circuits : 0

COMMENTS

Operation Apogee Coal, LLC.
Permit Number S-5006-05

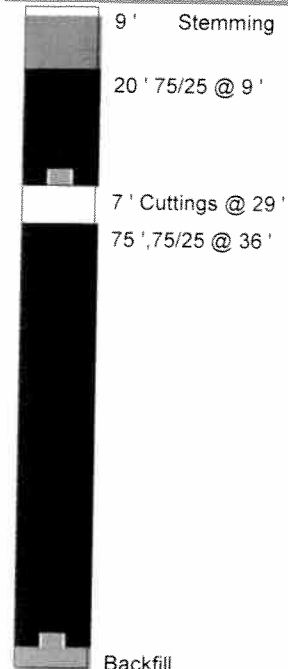
Blast Number E41
Blast Type Production

Date 6/19/2010
Time 3:57 PM

Hole Cross Section

Depth (ft) 115 Angle (deg) 15
B X S (ft) 20 X 20 Bench Ht. 110
Hole dia. (in) 7.875 Stem (ft) 9
PF: 1.32 lbs/YD³ Tons/Lb.

Timing Pattern



PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 2.0

Holes loaded the same: 239

Nearest Protected Structure: Cline residence

Distance and Direction: 7,193 ft S, ?°

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 6/19/2010 3:57 PM

Seis SN	Location	Dist (ft)	Dir.	SD	T PPV	T Hz	V PPV	V Hz	L PPV	L Hz	Air dB	Air Hz
---------	----------	-----------	------	----	-------	------	-------	------	-------	------	--------	--------

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:
Richard Cope - 5 506 08

Crew:

Operation Apogee Coal, LLC.
Permit Number S-5006-05

Blast Number E41
Blast Type Production

Date 6/19/2010
Time 3:57 PM

Hole Cross Section

Depth (ft) 110 Angle (deg) 15
B X S (ft) 20 X 20 Bench Ht. 110
Hole dia. (in) 7.875 Stem (ft) 12
PF: 1.26 lbs/YD³ Tons/Lb.

Timing Pattern

12' Stemming

12' 75/25 @ 12'

7' Cuttings @ 24'

75' 75/25 @ 31'

Backfill

PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 2.0

Holes loaded the same: 17

Nearest Protected Structure: Cline residence

Distance and Direction: 7,193 ft S , ? °

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 6/19/2010 3:57 PM

Seis SN	Location	Dist (ft)	Dir.	SD	T PPV	T Hz	V PPV	V Hz	L PPV	L Hz	Air dB	Air Hz
---------	----------	-----------	------	----	-------	------	-------	------	-------	------	--------	--------

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Crew:

Richard Cope - 5 506 08

Apogee Coal, LLC.

Blast Type

Production

Date 6/19/2010

S-5006-05

Blast / Ticket Number

E41 /E41

Time 3:57 PM

Hole Number	Bench Height	Sub Drill	Design Depth	Loaded Depth	Mfr.	Explosive Name	g/cc	Pounds	Mfr.	Primer Name	Qty
1-239	110		115	115	1 Nelson	75/25	1.12	1773.77	1	3/4 LB Cast	2
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2 Nelson	75/25	1.12	473.01	2		
20	20	9	15		3					Total Primer QTY / Hole	2
					4					Total Primer LBS / Hole	1.5
					5						
					6						
					7						
					8						
TotalExpl lbs. / hole								2246.78	Expl-Primer LBS / Hole		?
Similar Holes - 239				478 Primers	358.50 LBS	Total Expl lbs. / Blast		536979.58	Similar Hole LBS		537339.00
240	110		110	110	1 Nelson	75/25	1.12	1773.77	1	3/4 LB Cast	2
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2 Nelson	75/25	1.12	283.80	2		
20	20	12	15		3					Total Primer QTY / Hole	2
					4					Total Primer LBS / Hole	1.5
					5						
					6						
					7						
					8						
TotalExpl lbs. / hole								2057.57	Expl-Primer LBS / Hole		?
Similar Holes - 17				34 Primers	25.50 LBS	Total Expl lbs. / Blast		34978.76	Similar Hole LBS		35005.00
Total Holes Loaded this blast									Grand Total Explosives Weight		
256									572342.34		

Apogee Coal Company
Logan WV

BLASTING LOG

APOGEE CO

Blast Number

GENERAL INFORMATION
E53 Ticket Number

E53

Permittee Apogee Coal, LLC.
Customer / Operator Apogee Coal, LLC.

Location of Blast Guyan Mine

Blasting Company APOGEE COAL LLC

Nearest Protected Structure Ball residence

Distance and Direction 3,543 ft

Nearest Other Structure Jackson Well

Distance and Direction 8,254 ft NW, ?°

Weather Conditions Sunny / Hot

Type of Material Blasted Shale

Matts or Protection Used None used

Date / Time 6/26/2010 1:41 PM

Permit No. S-5007-01

Lat N 292226
Long W 1773392

Method Handheld GPS - NAD83
SD to nearest protected 37.79970
081.78509

Wind out of the NE @ 0-5 mph

Blast Type Production

Total Tons 0
Powder Factor: tons/lb 0.00

Total YD³ 14,832
lbs/yd³ 0.38

BLAST INFORMATION
Explosives used: see attachment

ANFO	Emulsion
5,546.20 lbs.	0.00 lbs.

Packaged	103 Primers	Total Weight
0.00 lbs.	51.50 lbs.	5,597.70 lbs.

Burden (ft)	18
Spacing (ft)	18
Diameter (in)	7.875

Backfill (ft)	9
Stemming (ft)	Cuttings

Stemming Material as determined by SD of : 55
Maximum Weight of Explosives Allowed per 8ms Period (lbs) : 4150
Maximum Weight of Explosives detonated per 8ms (lbs) : 109 in 2.0 Holes

INITIATION PRODUCT INFORMATION

Mfr Delay Type

Orica	Lead line 493' Roll	Qty	1
Orica	EXCEL 40 FT - 20	Qty	103
Orica	S. EXCEL 40 FT- 42	Qty	8
Orica	S. EXCEL 40 FT-17	Qty	95

Mfr Delay Type

Qty	Mfr	Delay Type	Qty
-----	-----	------------	-----

Method of Firing : Non Electric

Initiated by : Non-Electric

Timer (ms) : NA

Blasting Unit : R F D

Circuit Type : Row by Row

No. of Circuits : 0

COMMENTS

Operation Apogee Coal, LLC.

Blast Number E53

Date 6/26/2010

Permit Number S-5007-01

Blast Type Production

Time 1:41 PM

Hole Cross Section

Depth (ft) 12 Angle (deg) 0
B X S (ft) 18 X 18 Bench Ht. 12
Hole dia. (in) 7.875 Stem (ft) 9
PF: 0.37 lbs/YD³ Tons/Lb.

Timing Pattern

9' Stemming

3' Bulk ANFO @ 9'

PRIMER TYPE (S) UNIT WT. QTY.
1/2 LB CAST BOOSTER 0.5 1.0

Holes loaded the same: 103

Nearest Protected Structure: Ball residence

Distance and Direction: 3,543 ft S, ?°

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 6/26/2010 1:41 PM

Seis SN Location Dist (ft) Dir. SD T PPV T Hz V PPV V Hz L PPV L Hz Air dB Air Hz

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Crew:

Richard Cope 5 506 08

VOID

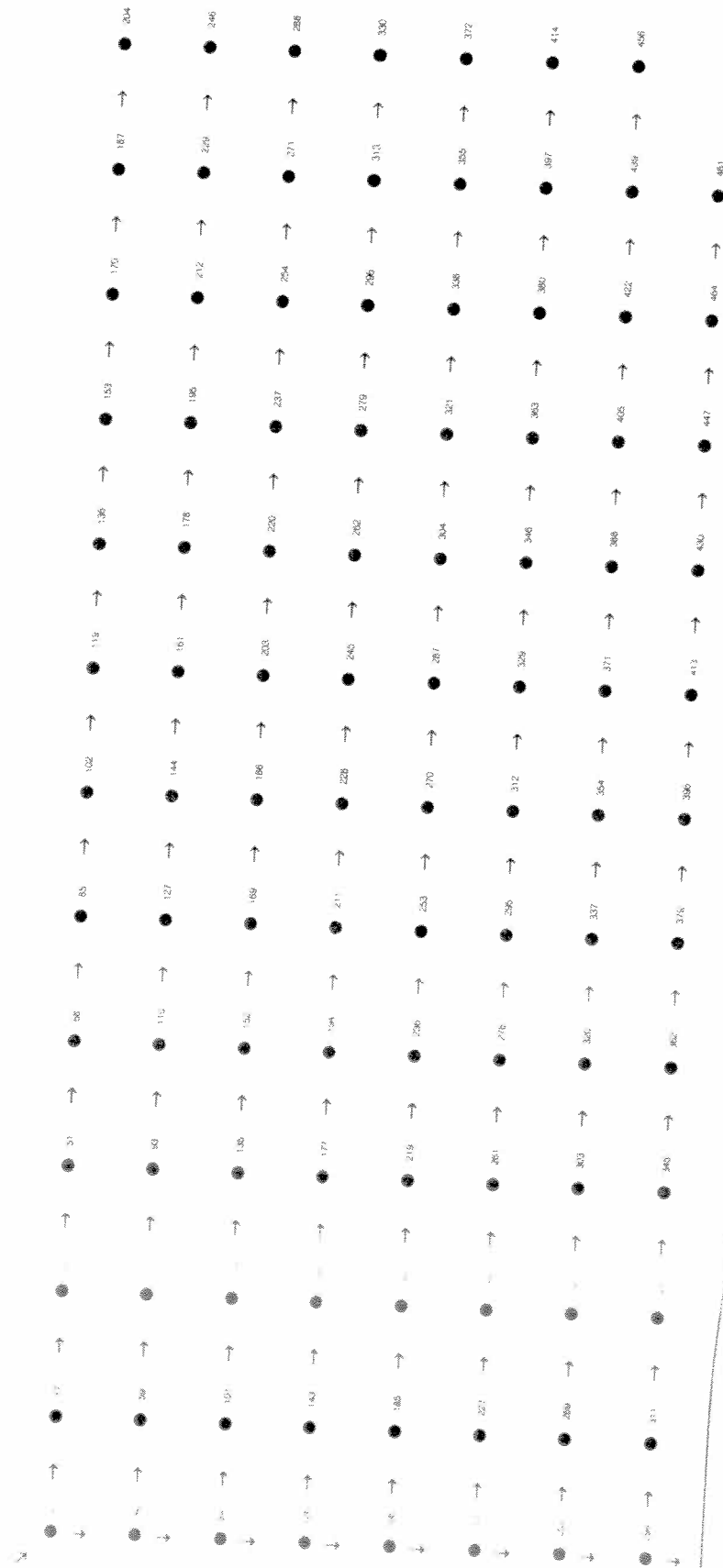
Solid

Spill

Shot

N ←

Solid



BLASTING LOG

GENERAL INFORMATION



Blast Number E52 Ticket Number E52

Permittee Apogee Coal, LLC.

Date / Time 6/26/2010 10:17 AM

Customer / Operator Apogee Coal, LLC.

Permit No. S-5007-01

Location of Blast Guyan Mine

Lat

° ' N 292230 - X

Blasting Company APOGEE COAL LLC

Long

° ' W 1772915 - Y

Nearest Protected Structure Ball residence

Method Handheld GPS - NAD83

Distance and Direction 3,690 ft S, ?°

SD to nearest protected 355

Nearest Other Structure Jackson Well

Distance and Direction 7,868 ft NW, ?°

Weather Conditions Sunny / Hot

85°F,

Wind out of the N @ 0-5 mph

Type of Material Blasted Shale

Blast Type Production

Matts or Protection Used None used

Total Tons 0

Total YD³ 21,600

Powder Factor: tons/lb 0.00

lbs/yd³ 0.60

BLAST INFORMATION

Total Weight and Type(s) of Explosives used: see attachment

	ANFO	Emulsion	Packaged	120 Primers	Total Weight
	12,923.19 lbs.	0.00 lbs.	0.00 lbs.	60.00 lbs.	12,983.19 lbs.

Total Holes 120 Angle 0°

Face Height (ft) 15

Burden (ft) 18

Backfill (ft)

Depth (ft) 15

Spacing (ft) 18

Stemming (ft) 9

Sub Drill (ft)

Diameter (in) 7.875

Stemming Material Cuttings

Maximum Weight of Explosives Allowed per 8ms Period (lbs) :4502 as determined by SD of : 55

Maximum Weight of Explosives detonated per 8ms (lbs) : 108 in 1.0 Holes

INITIATION PRODUCT INFORMATION

Mfr	Delay Type	Qty	Mfr	Delay Type	Qty	Mfr	Delay Type	Qty
Orica	Lead line 493' Roll	1						
Orica	EXCEL 40 FT - 20	120						
Orica	S. EXCEL 40 FT- 42	30						
Orica	S. EXCEL 40 FT-17	90						

Method of Firing : Non Electric

Timer (ms) : NA

Circuit Type : Row by Row

Initiated by : Non-Electric

Blasting Unit : R F D

No. of Circuits : 0

COMMENTS

Operation Apogee Coal, LLC.
Permit Number S-5007-01

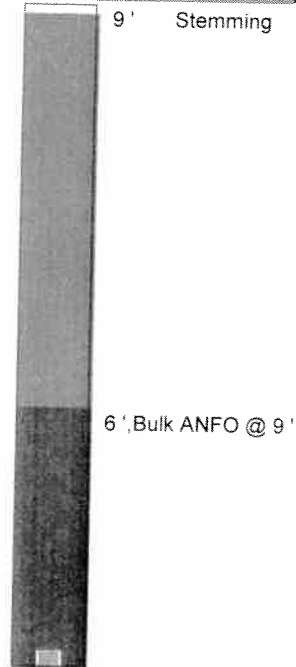
Blast Number E52
Blast Type Production

Date 6/26/2010
Time 10:17 AM

Hole Cross Section

Depth (ft) 15 Angle (deg) 0
B X S (ft) 18 X 18 Bench Ht. 15
Hole dia. (in) 7.875 Stem (ft) 9
PF: 0.60 lbs/YD³ Tons/Lb.

Timing Pattern



PRIMER TYPE (S) UNIT WT. QTY.
1/2 LB CAST BOOSTER 0.5 1.0

Holes loaded the same: 120

Nearest Protected Structure: Ball residence

Distance and Direction: 3,690 ft S, ?°

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 6/26/2010 10:17 AM

Seis SN	Location	Dist (ft)	Dir.	SD	T PPV	T Hz	V PPV	V Hz	L PPV	L Hz	Air dB	Air Hz
---------	----------	-----------	------	----	-------	------	-------	------	-------	------	--------	--------

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Crew:

Richard Cope - 5 506 08

V0112

Apogee Coal, LLC.

Blast Type

Production

Date 6/26/2010

S-5007-01

Blast / Ticket Number

E52 /E52

Time 10:17 AM

Hole Number	Bench Height	Sub Drill	Design Depth	Loaded Depth	Mfr.	Explosive Name	g/cc	Pounds	Mfr.	Primer Name	Qty
1-120	15		15	15	1	NEBCO Bulk ANFO	0.85	107.69	1	Orica 1/2 LB Cast	1
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2				2		
18	18	9	0		3					Total Primer QTY / Hole	1
					4					Total Primer LBS / Hole	.5
					5						
					6						
					7						
					8						
					Total Expl lbs. / hole			107.69	Expl-Primer LBS / Hole		108.19
Similar Holes - 120					120 Primers	60.00 LBS	Total Expl lbs. / Blast		12923.19	Similar Hole LBS	12984.00
Total Holes Loaded this blast					Grand Total Explosives Weight						
120					12983.19						

solid

Spoil

solid

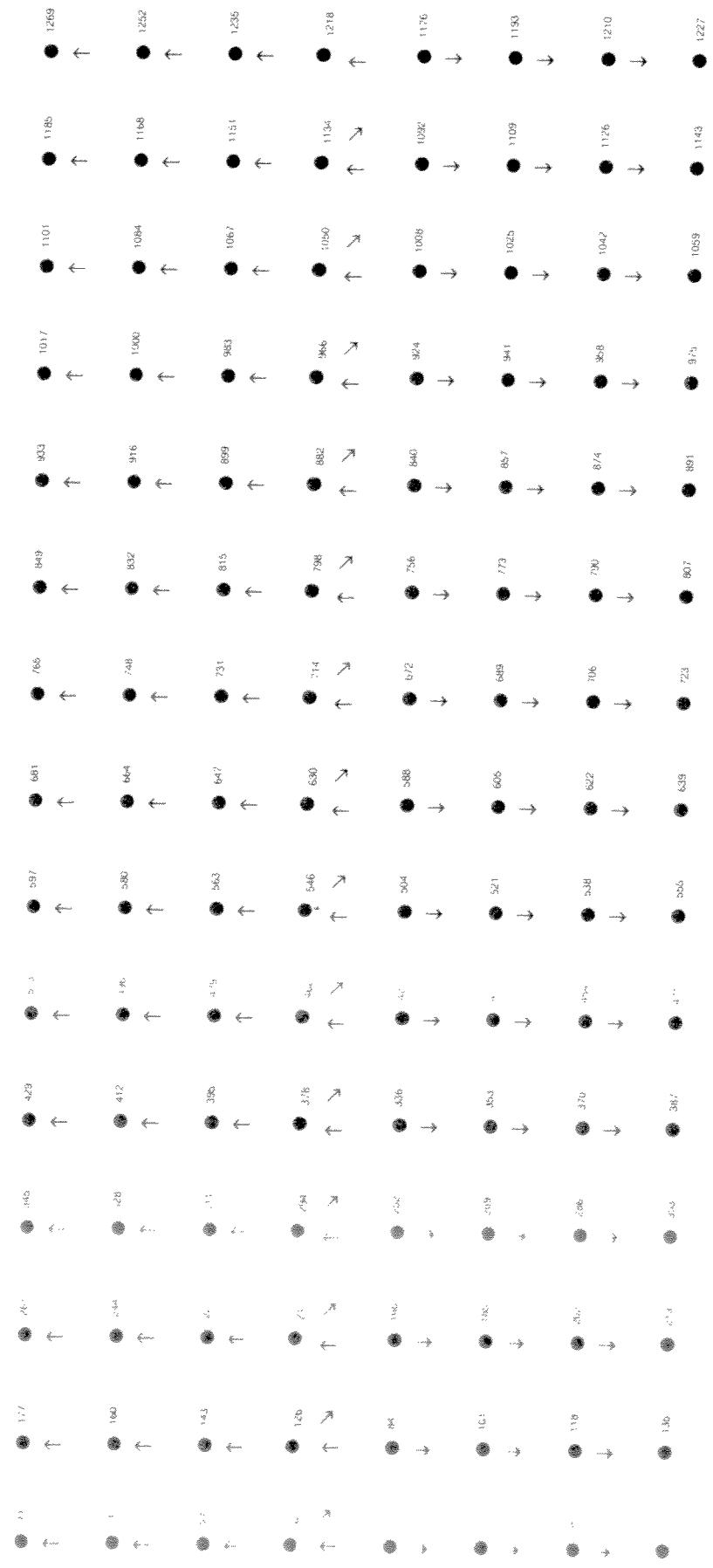
North

Ball
Residence
3690ft+

solid

Slater

shot



BLASTING LOG

GENERAL INFORMATION


Blast Number E51 **Ticket Number** E51
Permittee Apogee Coal, LLC.**Customer / Operator** Apogee Coal, LLC.**Location of Blast** Guyan Mine**Blasting Company** APOGEE COAL LLC**Nearest Protected Structure** Ball residence**Distance and Direction** 3,553 ft S, ?°**Nearest Other Structure** Jackson Well**Distance and Direction** 7,995 ft NW, ?°**Weather Conditions** Sunny / Hot

85°F,

Wind out of the N @ 0-5 mph**Type of Material Blasted** Shale**Blast Type** Production**Matts or Protection Used** None used**Total Tons** 0**Total YD³** 18,432**Powder Factor:** tons/lb 0.00**lbs/yd³** 0.28**Date / Time** 6/26/2010 9:35 AM**Permit No.** S-5007-01

° ' N 292109 - X

° ' W 1772983 - Y

Method Handheld GPS - NAD83**SD to nearest protected** 56137.79970
081.78505

BLAST INFORMATION

Total Weight and Type(s) of Explosives used: see attachment

	ANFO	Emulsion	Packaged	128 Primers	Total Weight
	5,063.78 lbs.	0.00 lbs.	0.00 lbs.	64.00 lbs.	5,127.78 lbs.

Total Holes 128 **Angle** 0°**Face Height (ft)** 12 **Burden (ft)** 18**Backfill (ft)****Depth (ft)** 12 **Spacing (ft)** 18**Stemming (ft)** 9**Sub Drill (ft)** **Diameter (in)** 6.75**Stemming Material** Cuttings**Maximum Weight of Explosives Allowed per 8ms Period (lbs)** :4174 as determined by SD of : 55**Maximum Weight of Explosives detonated per 8ms (lbs)** : 40 in 1.0 Holes

INITIATION PRODUCT INFORMATION

Mfr	Delay Type	Qty	Mfr	Delay Type	Qty	Mfr	Delay Type	Qty
Orica	1 Roll - Lead in Line	1						
Orica	EXCEL 40 FT - 20	128						
Orica	S. EXCEL 40 FT- 42	29						
Orica	S. EXCEL 40 FT-17	99						

Method of Firing : Non Electric**Timer (ms)** : NA**Circuit Type** : Row by Row**Initiated by** : Non-Electric**Blasting Unit** : Handi Blaster**No. of Circuits** : 0

COMMENTS

Operation Apogee Coal, LLC.
Permit Number S-5007-01

Blast Number E51
Blast Type Production

Date 6/26/2010
Time 9:35 AM

Hole Cross Section

Depth (ft) 12 Angle (deg) 0
B X S (ft) 18 X 18 Bench Ht. 12
Hole dia. (in) 6.750 Stem (ft) 9
PF: 0.27 lbs/YD³ Tons/Lb.

Timing Pattern

9' Stemming

3' Bulk ANFO @ 9'

PRIMER TYPE (S) UNIT WT. QTY.
1/2 LB CAST BOOSTER 0.5 1.0

Holes loaded the same: 128

Nearest Protected Structure: Ball residence

Distance and Direction: 3,553 ft S, ?°

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 6/26/2010 9:35 AM

Seis SN	Location	Dist (ft)	Dir	SD	T PPV	T Hz	V PPV	V Hz	L PPV	L Hz	Air dB	Air Hz
---------	----------	-----------	-----	----	-------	------	-------	------	-------	------	--------	--------

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Crew:

~~Richard Cope - 5 506 08~~

VOID

Apogee Coal, LLC.

Blast Type

Production

Date 6/26/2010

S-5007-01

Blast / Ticket Number

E51 /E51

Time 9:35 AM

Hole Number	Bench Height	Sub Drill	Design Depth	Loaded Depth	Mfr.	Explosive Name	g/cc	Pounds	Mfr.	Primer Name	Qty
1-128	12		12	12	1	NEBCO Bulk ANFO	0.85	39.56	1	Orica 1/2 LB Cast	1
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2				2		
18	18	9	0		3					Total Primer QTY / Hole	1
					4					Total Primer LBS / Hole	.5
					5						
					6						
					7						
					8						

Total Expl lbs. / hole

39.56

Expl-Primer LBS / Hole 40.06

Similar Holes - 128 128 Primers 64.00 LBS

Total Expl lbs. / Blast

5063.78

Similar Hole LBS 5128.00

Total Holes Loaded this blast

128

Grand Total Explosives Weight

5127.78

5010

7795

1005

✓ Ball Residence
3553 ft

Short

4202

500

BLASTING LOG

GENERAL INFORMATION



Blast Number

E50

Ticket Number

E50

Permittee Apogee Coal, LLC.

Customer / Operator Apogee Coal, LLC.

Location of Blast Guyan Mine

Blasting Company APOGEE COAL LLC

Nearest Protected Structure Ball residence

Distance and Direction 3,475 ft S, ?°

Nearest Other Structure Jackson Well

Distance and Direction 8,033 ft NW, ?°

Weather Conditions Clear / Calm

90°F,

Wind out of the W @ 0-5 mph

Type of Material Blasted Sandstone

Blast Type Production

Matts or Protection Used None used

Total Tons 0

Total YD³ 17,280

Powder Factor: tons/lb 0.00

lbs/yd³ 0.19

Date / Time 6/25/2010 4:11 PM

Permit No. S-5007-01

° ' N 292015 - X

° ' W 1772957 - Y

Method Handheld GPS - NAD83

SD to nearest protected 474

BLAST INFORMATION

Total Weight and Type(s) of Explosives used: see attachment

	ANFO	Emulsion	Packaged	120 Primers	Total Weight
	3,164.86 lbs.	0.00 lbs.	0.00 lbs.	60.00 lbs.	3,224.86 lbs.

Total Holes 120 Angle 0°

Face Height (ft) 12 Burden (ft) 18

Backfill (ft)

Depth (ft) 12 Spacing (ft) 18

Stemming (ft) 10

Sub Drill (ft) Diameter (in) 6.75

Stemming Material Cuttings

Maximum Weight of Explosives Allowed per 8ms Period (lbs) :3992 as determined by SD of : 55

Maximum Weight of Explosives detonated per 8ms (lbs) : 54 in 2.0 Holes

INITIATION PRODUCT INFORMATION

Mfr	Delay Type	Qty	Mfr	Delay Type	Qty	Mfr	Delay Type	Qty
Orica	EXCEL 40 FT - 20	120						
Orica	S. EXCEL 40 FT- 42	25						
Orica	S. EXCEL 40 FT-17	94						
Orica	1 Roll - Lead in Line	1						

Method of Firing : Non Electric

Timer (ms) : NA

Circuit Type : Row by Row

Initiated by : Non-Electric

Blasting Unit : R F D

No. of Circuits : 0

COMMENTS

Operation Apogee Coal, LLC.
Permit Number S-5007-01

Blast Number E50
Blast Type Production

Date 6/25/2010
Time 4:11 PM

Hole Cross Section

Depth (ft) 12 Angle (deg) 0
B X S (ft) 18 X 18 Bench Ht. 12
Hole dia. (in) 6.750 Stem (ft) 10
PF: 0.18 lbs/YD³ Tons/Lb.

Timing Pattern

10' Stemming

2' Bulk ANFO @ 10'

PRIMER TYPE (S) UNIT WT. QTY.
1/2 LB CAST BOOSTER 0.5 1.0

Holes loaded the same: 120

Nearest Protected Structure: Ball residence

Distance and Direction: 3,475 ft S, ?°

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 6/25/2010 4:11 PM

Seis SN	Location	Dist (ft)	Dir.	SD	T PPV	T Hz	V PPV	V Hz	L PPV	L Hz	Air dB	Air Hz
---------	----------	-----------	------	----	-------	------	-------	------	-------	------	--------	--------

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Crew:

Richard Cope ~~5-506-08~~

VOID

Apogee Coal, LLC.

Blast Type

Production

Date 6/25/2010

S-5007-01

Blast / Ticket Number

E50 /E50

Time 4:11 PM

Hole Number	Bench Height	Sub Drill	Design Depth	Loaded Depth	Mfr.	Explosive Name	g/cc	Pounds	Mfr.	Primer Name	Qty
1-120	12		12	12	1 NEBCO	Bulk ANFO	0.85	26.37	1 Orica	1/2 LB Cast	1
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2				2		
18	18	10	0		3					Total Primer QTY / Hole	1
					4					Total Primer LBS / Hole	.5
					5						
					6						
					7						
					8						
					Total Expl lbs. / hole			26.37	Expl-Primer LBS / Hole		26.87
Similar Holes - 120					120 Primers	60.00 LBS	Total Expl lbs. / Blast		3164.86	Similar Hole LBS	3225.00
Total Holes Loaded this blast											Grand Total Explosives Weight
120											3224.86

BLASTING LOG

GENERAL INFORMATION



Blast Number E49 Ticket Number E49

Permittee Apogee Coal, LLC.
Customer / Operator Apogee Coal, LLC.
Location of Blast Ridge 1 & 2
Blasting Company APOGEE COAL LLC
Nearest Protected Structure Cline residence
Distance and Direction 7,696 ft S, ?°
Nearest Other Structure Jackson Well
Distance and Direction 5,052 ft SW, ?°
Weather Conditions Clear / Calm
Type of Material Blasted Sandstone
Matts or Protection Used None used

Date / Time 6/25/2010 4:01 PM
Permit No. S-5006-05
Lat ° ' N 301154 - X
Long ° ' W 1769565 - Y
Method Handheld GPS - NAD83
SD to nearest protected 345

90°F, Wind out of the W @ 0-5 mph

Blast Type BREAKDOWN

Total Tons 0 Total YD³ 10,800
Powder Factor: tons/lb 0.00 lbs/yd³ 1.38

BLAST INFORMATION

Total Weight and Type(s) of Explosives used: see attachment

	ANFO	Emulsion	Packaged	30 Primers	Total Weight
	11,174.76 lbs.	3,724.92 lbs.	0.00 lbs.	22.50 lbs.	14,922.18 lbs.
Total Holes	30	Angle 0 °			
Face Height (ft)	30	Burden (ft)	18	Backfill (ft)	
Depth (ft)	30	Spacing (ft)	18	Stemming (ft)	9
Sub Drill (ft)		Diameter (in)	7.875	Stemming Material	Cuttings
Maximum Weight of Explosives Allowed per 8ms Period (lbs) : 6042 as determined by SD of : 65					
Maximum Weight of Explosives detonated per 8ms (lbs) : 497 in 1.0 Holes					

INITIATION PRODUCT INFORMATION

Mfr	Delay Type	Qty	Mfr	Delay Type	Qty	Mfr	Delay Type	Qty
Orica	Lead line 493' Roll	2						
Orica	EXCEL 40 FT - 20	36						
Orica	S. EXCEL 40 FT- 42	4						
Orica	S. EXCEL 40 FT-100	32						
Method of Firing : Non Electric Timer (ms) : NA Circuit Type : Row by Row								
Initiated by : Non-Electric Blasting Unit : Handi Blaster No. of Circuits : 0								

COMMENTS

Operation Apogee Coal, LLC.
Permit Number S-5006-05

Blast Number E49
Blast Type BREAKDOWN

Date 6/25/2010
Time 4:01 PM

Hole Cross Section

Depth (ft) 30 Angle (deg) 0
B X S (ft) 18 X 18 Bench Ht. 30
Hole dia. (in) 7.875 Stem (ft) 9
Pr: 1.38 lbs/YD³ Tons/Lb.

Timing Pattern

9' Stemming

21' 75/25 @ 9'

PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 1.0

Holes loaded the same: 30

Nearest Protected Structure: Cline residence

Distance and Direction: 7,696 ft S, ?°

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 6/25/2010 4:01 PM

Seis SN Location Dist (ft) Dir. SD T PPV T Hz V PPV V Hz L PPV L Hz Air dB Air Hz

Reading(s) taken by :SAULS

Analyzed by :SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Crew:

Richard Cope - 5-506-08

VOID

Apogee Coal, LLC.

Blast Type

BREAKDOWN

Date 6/25/2010

S-5006-05

Blast / Ticket Number

E49 /E49

Time 4:01 PM

Hole Number	Bench Height	Sub Drill	Design Depth	Loaded Depth	Mfr.	Explosive Name	g/cc	Pounds	Mfr.	Primer Name	Qty
1-36	30		30	30	1 Nelson	75/25	1.12	496.66	1	3/4 LB Cast	1
Burden	Spacing	Stemming	Angle		2				2		
(FT)	(FT)	(FT)	(Deg)		3						
18	18	9	0		4					Total Primer QTY / Hole	1
					5					Total Primer LBS / Hole	.75
					6						
					7						
					8						

Total Expl lbs. / hole

496.66

Expl-Primer LBS / Hole 497.41

Similar Holes - 30 30 Primers 22.50 LBS

Total Expl lbs. / Blast

14899.68

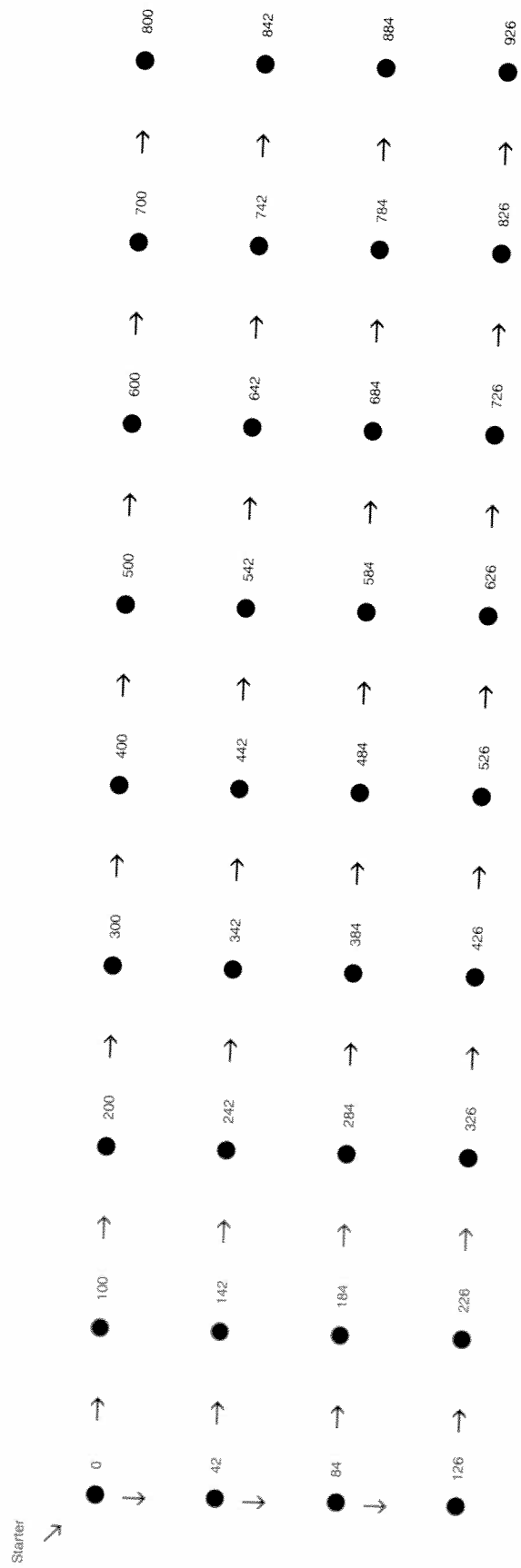
Similar Hole LBS 14923.00

Total Holes Loaded this blast

30

Grand Total Explosives Weight

14922.18



BLASTING LOG

GENERAL INFORMATION



Blast Number E48 Ticket Number E48

Permittee Apogee Coal, LLC.

Customer / Operator Apogee Coal, LLC.

Location of Blast Guyan Mine

Blasting Company APOGEE COAL LLC

Nearest Protected Structure Ball residence

Distance and Direction 3,442 ft S, ?°

Nearest Other Structure Dominion Well 1089

Distance and Direction 7,169 ft NE, ?°

Weather Conditions Partly Cloudy

Type of Material Blasted Sandstone

Matts or Protection Used

Date / Time 6/25/2010 9:20 AM

Permit No. S-5007-01

Lat ° ' N 292091 - X

Long ° ' W 1775203 - Y

Method Handheld GPS - NAD83

SD to nearest protected 116

75°F, Wind out of the N @ 0-2 mph

Blast Type Production

Total Tons 0

Total YD³ 15,120

Powder Factor: tons/lb 0.00

lbs/yd³ 1.19

BLAST INFORMATION

Total Weight and Type(s) of Explosives used: see attachment

	ANFO	Emulsion	Packaged	28 Primers	Total Weight
	13,500.93 lbs.	4,500.31 lbs.	0.00 lbs.	21.00 lbs.	18,022.24 lbs.

Total Holes 21 Angle °

Face Height (ft) 60 Burden (ft) 18

Depth (ft) 60 Spacing (ft) 18

Sub Drill (ft) Diameter (in) 6.75 Stemming Material Cuttings

Maximum Weight of Explosives Allowed per 8ms Period (lbs) : 3917 as determined by SD of : 55

Maximum Weight of Explosives detonated per 8ms (lbs) : 887 in 1.0 Holes

INITIATION PRODUCT INFORMATION

Mfr	Delay Type	Qty	Mfr	Delay Type	Qty	Mfr	Delay Type	Qty
Orica	80 ft unitronics	21						
Orica	50 ft unitronics	7						

Method of Firing : Electric

Timer (ms) : NA

Circuit Type :

Initiated by : Electronic

Blasting Unit : E B M

No. of Circuits :

COMMENTS

Operation Apogee Coal, LLC.
Permit Number S-5007-01

Blast Number E48
Blast Type Production

Date 6/25/2010
Time 9:20 AM

Hole Cross Section

Depth (ft) 60 Angle (deg)
B X S (ft) 18 X 18 Bench Ht. 60
Hole dia. (in) 6.750 Stem (ft) 9
PF: 1.23 lbs/YD³ Tons/Lb.

Timing Pattern

9' Stemming

51' 75/25 @ 9'

PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 1.0

Holes loaded the same: 14

Nearest Protected Structure: Ball residence

Distance and Direction: 3,442 ft S, ? °

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 6/25/2010 9:20 AM

Seis SN Location Dist (ft) Dir. SD T PPV T Hz V PPV V Hz L PPV L Hz Air dB Air Hz

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Crew:

Todd Keffer - 5-645-05

Todd Keffer

Operation Apogee Coal, LLC.
Permit Number S-5007-01

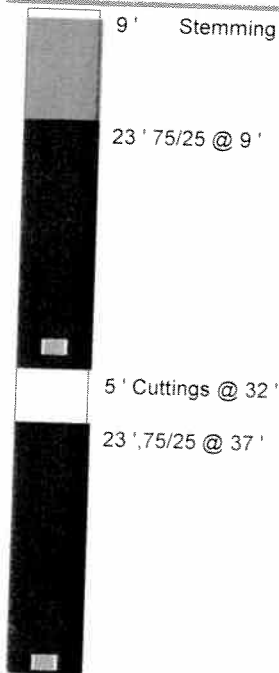
Blast Number E48
Blast Type Production

Date 6/25/2010
Time 9:20 AM

Hole Cross Section

Depth (ft) 60 Angle (deg)
B X S (ft) 18 X 18 Bench Ht. 60
Hole dia. (in) 6.750 Stem (ft) 9
PF: 1.11 lbs/YD³ Tons/Lb.

Timing Pattern



PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 2.0

Holes loaded the same: 7

Nearest Protected Structure: Ball residence

Distance and Direction: 3,442 ft S, ? °

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 6/25/2010 9:20 AM

Seis SN	Location	Dist (ft)	Dir.	SD	T PPV	T Hz	V PPV	V Hz	L PPV	L Hz	Air dB	Air Hz
---------	----------	-----------	------	----	-------	------	-------	------	-------	------	--------	--------

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:
Todd Keffer - 5-645-05

Crew:

Apogee Coal, LLC.

Blast Type

Production

Date 6/25/2010

S-5007-01

Blast / Ticket Number

E48 /E48

Time 9:20 AM

Hole Number	Bench Height	Sub Drill	Design Depth	Loaded Depth	Mfr.	Explosive Name	g/cc	Pounds	Mfr.	Primer Name	Qty
1-14	60		60	60	1 Nelson	75/25	1.12	886.16	1	3/4 LB Cast	1
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2				2		
18	18	9			3					Total Primer QTY / Hole	1
					4					Total Primer LBS / Hole	.75
					5						
					6						
					7						
					8						

Total Expl lbs. / hole

886.16

Expl-Primer LBS / Hole 886.91

Similar Holes - 14

14 Primers

10.50 LBS

Total Expl lbs. / Blast

12406.26

Similar Hole LBS 12417.00

15-21	60		60	60	1 Nelson	75/25	1.12	399.64	1	3/4 LB Cast	2
Burden (FT)	Spacing (FT)	Stemming (FT)	Angle (Deg)		2 Nelson	75/25	1.12	399.64	2		
18	18	9			3					Total Primer QTY / Hole	2
					4					Total Primer LBS / Hole	1.5
					5						
					6						
					7						
					8						

Total Expl lbs. / hole

799.28

Expl-Primer LBS / Hole 800.78

Similar Holes - 7

14 Primers

10.50 LBS

Total Expl lbs. / Blast

5594.98

Similar Hole LBS 5606.00

Total Holes Loaded this blast

21

Grand Total Explosives Weight

18022.24

BLASTING LOG

GENERAL INFORMATION



Blast Number E47 Ticket Number E47

Permittee Apogee Coal, LLC.

Customer / Operator Apogee Coal, LLC.

Location of Blast Ridge 1& 2

Blasting Company APOGEE COAL LLC

Nearest Protected Structure Cline residence

Distance and Direction 7,976 ft S, ?°

Nearest Other Structure Dominion Well

Distance and Direction 4,808 ft N, ?°

Weather Conditions Light Rain

90°F, Wind out of the E @ 5-8 mph

Type of Material Blasted Sandstone

Blast Type Production

Matts or Protection Used

Total Tons 0

Total YD³ 331,200

Powder Factor: tons/lb 0.00

lbs/yd³ 1.49

Date / Time 6/24/2010 3:48 PM

Permit No. S-5006-05

Lat ° ' N 301493 - X

Long ° ' W 1768745 - Y

Method Handheld GPS - NAD83

SD to nearest protected 118

BLAST INFORMATION

Total Weight and Type(s) of Explosives used: see attachment

	ANFO	Emulsion
	393,351.44 lbs.	98,337.86 lbs.

Packaged 0.00 lbs. 432 Primers 324.00 lbs. Total Weight 492,013.30 lbs.

Total Holes 216 Angle °

Face Height (ft) 115

Burden (ft) 18

Backfill (ft) 2

Depth (ft) 115

Spacing (ft) 20

Stemming (ft) 10

Sub Drill (ft)

Diameter (in) 7.875

Stemming Material Cuttings

Maximum Weight of Explosives Allowed per 8ms Period (lbs) :7642 as determined by SD of : 55

Maximum Weight of Explosives detonated per 8ms (lbs) :4556 in 2.0 Holes

INITIATION PRODUCT INFORMATION

Mfr	Delay Type	Qty	Mfr	Delay Type	Qty	Mfr	Delay Type	Qty
Orica	120 ft unitronics	216						
Orica	50 ft unitronics	216						

Method of Firing : Electric

Timer (ms) : NA

Circuit Type :

Initiated by : Electronic

Blasting Unit : E B M

No. of Circuits :

COMMENTS

Operation Apogee Coal, LLC.
Permit Number S-5006-05

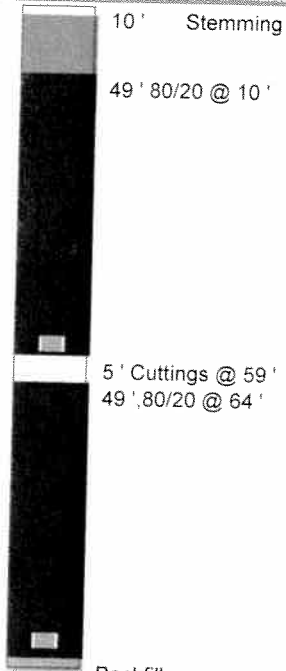
Blast Number E47
Blast Type Production

Date 6/24/2010
Time 3:48 PM

Hole Cross Section

Depth (ft) 115 Angle (deg)
B X S (ft) 18 X 20 Bench Ht. 115
Hole dia. (in) 7.875 Stem (ft) 10
PF: 1.48 lbs/YD³ Tons/Lb.

Timing Pattern



PRIMER TYPE (S) UNIT WT. QTY.
3/4 LB CAST PRIMER 0.8 2.0

Holes loaded the same: 216

Nearest Protected Structure: Cline residence

Distance and Direction: 7,976 ft S, ? °

SEISMOGRAPH INFORMATION

Date and Time of Recording(s) 6/24/2010 3:48 PM

Seis SN	Location	Dist (ft)	Dir.	SD	T PPV	T Hz	V PPV	V Hz	L PPV	L Hz	Air dB	Air Hz
---------	----------	-----------	------	----	-------	------	-------	------	-------	------	--------	--------

Reading(s) taken by : SAULS

Analyzed by : SAULS

BLASTER INFORMATION

Name of Surface Blaster and Certification Number:

Crew:

Todd Keffer - 5-645-05

Todd Keffer