

PRECISION BLASTING SERVICES

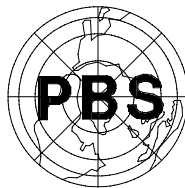
INTRODUCES

**CONTROLLED BLASTING
VERSION 8.0**

The computer program Controlled Blasting is designed to consider presplitting, trim (cushion) blasting, line drilling and air deck methods for wall control. The program uses basic information and state of the art design formulas to determine powder loads, bottom loads, stemming distances and spacing for different methods of controlled blasting. Costs can be determined for each method to enable the user to select the most cost efficient approach.

The program allows for the comparison on the screen of four different methods of design so that the operator can make comparison without needing a printer in the field. Full reports of each different design as well as the comparisons can be printed out at a later time. On-screen helps make the program user friendly even to those who are just beginning to use the computer for blast design.

The program works with both U.S. and Metric units of measure and is available in English or Spanish.



PRECISION BLASTING SERVICES
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Precision Blasting Services, Inc.	CONTROLLED BLASTING	V2.0 Page: 1	Date: 10-01-2004
File: SPLIT1.CBL	PRESPLIT		
ENTRY 1 PRESPLIT BLASTING			
Rock type	GRANITE		
Rock specific gravity	2.60		
Length of row (job)	400.00	ft	
Total number of holes	133		
Hole diameter	3.00	in	
Bench height	40.00	ft	
Subdrill	2.00	ft	
Hole length	42.00	ft	
Drilling angle	0.00	°	
Spacing	3.00	ft	36.00 in
Stemming	2.50	ft	30.00 in
Explosive type	ANFO		
Explosive charge diameter	1.00	in	
Explosive specific gravity	0.85		
Explosive relative bulk strength (ANFO=100)	100.00		
Powder column length	39.50	ft	
Loading density	0.32	lb/ft	
	2,250.00	grain/ft	
Column load	12.38	lb	
Bottom load	0.96	lb	
Explosive weight / hole	13.34	lb/hole	
Total explosive weight	1,774.13	lb	
Powder factor / face	0.111	lb/ft^2	
Total drilled length	5,586.00	ft	
Actual length of job	399.00	ft	

Precision Blasting Services, Inc.	CONTROLLED BLASTING	V2.0 Page: 2	Date: 10-01-2004
File: SPLIT1.CBL	PRESPLIT		
ENTRY 1 PRESPLIT BLASTING			
Drill cost	21.00	\$	
Column explosive cost	9.90	\$	
Bottom explosive cost	0.39	\$	
Initiators	266.00	\$	
Primers	399.00	\$	
Surface delays	532.00	\$	
Cost of job	5,358.00	\$	
Cost per length of job	13.43	\$/ft	

ENTRY 1 - PRESPLIT
Diameter = 3.00 in

The diagram illustrates a vertical hole with a diameter of 3.00 inches. The total length of the hole is 40.00 feet. The hole is divided into three sections: a 2.00-foot subdrill at the bottom, a 39.50-foot powder column in the middle, and a 36.0-inch spacing at the top. The hole is shown in a perspective view, with a 30.0-inch diameter indicated at the top. The hole is surrounded by a 2.00-foot diameter area, and the spacing between holes is 36.0 inches.

Precision Blasting Services, Inc.	CONTROLLED BLASTING	V2.0 Page: 9	Date: 10-01-2004		
E N T R Y					
File	1 SPLIT1.CBL	2 TRIM1.CBL	3 AIR1.CBL	4 DRILL1.CBL	unit
Method	PRESPLIT	T R I M	AIR DECK	LINE DRILL	
Rock type	GRANITE	GRANITE	GRANITE	LIMESTONE	
Rock spec. gravity	2.60	2.80	2.60	2.55	
Length of row (job)	400.00	400.00	400.00	400.00	ft
Number of holes	133	100	44	267	
Hole diameter	3.00	3.00	6.00	6.00	in
Bench height	40.00	40.00	40.00	40.00	ft
Subdrill	2.00	2.00	2.00	5.00	ft
Hole length	42.00	42.00	42.00	45.00	ft
Drilling angle					°
Burden (minimum)		62.40			in
		5.20			ft
Dist. from prod. hol			72.00		in
			6.00		ft
Spacing	36.00	48.00	108.00	18.00	in
	3.00	4.00	9.00	1.50	ft
Stemming	30.00	30.00	72.00		in
	2.50	2.50	6.00		ft
Explosive type	ANFO	ANFO	ANFO		
Expl. charge diamete	1.00	1.00	6.00		in
Expl. spec. gravity	0.85	0.90	0.80		
Expl. bulk strength	100.00	100.00	100.00		
Powder column length	39.50	39.50			ft
Loading density	0.32	0.32			lb/ft
	2,250.00	2,250.00			grns/ft
Column load	12.38	12.38			lb/hole
Bottom load	0.96	0.96	32.40		lb/hole
Explosive weight	13.34	13.34	32.40		lb/hole
Total expl. weight	1,774.13	1,333.93	1,425.60		lb
Powder factor / face	0.11	0.08	0.09		lb/ft^2
Total drilled length	5,586.00	4,200.00	1,848.00	12,015.00	ft
Actual length of job	399.00	400.00	396.00	400.50	ft
Cost of job	5,358.00	2,169.43	2,707.58	6,007.50	\$
Cost/length of job	13.43	5.42	6.84	15.00	\$/ft