

BLAST REPORT



Revised 11-30-16 By Buckley

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Buckley Powder Co.**BLAST REPORT**SERVICE SITE LOCATION: Louviers ORDER NO.: 7403183BLAST NUMBER: 10 BLAST TIME: 10:05 am BLAST DATE: 11/15/2016CUSTOMER: MARTIN MARIETTA MATERIA MINE: RED CANYON ADDRESS: Colorado Springs, COROCK TYPE: Granite Tons/Yd3: 2.00 EXPECTED VIBRATION: 0.420**LOCATION OF BLAST**LOCATION OF BLAST IN MINE: North BENCH: Level 1BLAST GPS POINTS: N 038 36 22.86000 & W -104 56 46.98000**WEATHER**WEATHER: Partly Cloudy CEILING: High TEMPERATURE: 67 WIND DIRECTION & SPEED: Northeast 2**NEAREST NON-OWNED STRUCTURE**NAME: North Hillside GPS Points: N 038 36 22.41000 & W -104 56 31.21980DISTANCE: 1,250 FT DIRECTION: 92°**SEISMOGRAPH DATA**

LOCATION		DISTANCE		GPS POINTS		CALIBRATION DATE	
1	North Hillside	1,250 Ft		N 038 36 22.41000 & W -104 56 31.21980		10/21/2016	
	L (F)	T (F)	V (F)	AIR (db)	SEISMOGRAPH	SERIAL	OPERATOR
1	0.040 13	0.033 10	0.018 17	126	VibraTech 9835	9835	

BLAST DATA

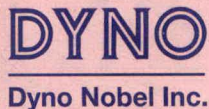
NUMBER OF HOLES (EA)		22		EXPLOSIVES SIZE, TYPE & WEIGHT			
HOLE DIAMETER (IN)		5		SIZE	TYPE		WEIGHT
HOLE DEPTH (FT)		44		BULK	BLEND EMUL/ANFO 30/70		6.486
FACE HEIGHT (FT)		40		1.00	SPARTAN 450SR		44
SUB DRILLING (FT)		4					
AVG. STEM FACE HOLES (FT)		13.5					
STEM OTHER HOLES (FT)		9.5					
BURDEN FRONT ROW (FT)		13					
BURDEN OTHER ROWS (FT)		13					
SPACING FRONT ROW (FT)		15					
SPACING OTHER ROWS (FT)		15			TOTAL WEIGHT:		6,530

DETONATORS USED IN BLAST: Electronic MATS USED: No STEM TYPE: 3/4 x 1/2 CRUSHED

TYPE	MFG	DATE CODE	USED	TYPE	MFG	DATE CODE	USED
DIGISHOT 30 FT	Dyno Nobel Global	12SE16	21	DIGISHOT DETONATOR 50FT	Dyno Nobel Global	19SE16	22
SPARTAN 450SR	Dyno Nobel Global	14AU16	43				

CU YDS IN SHOT: 6,356 SCALED DISTANCE FACTOR: 41 % OF ANFO: 70TONS IN SHOT: 12,711 HOLES/DELAY: 3 FUEL OIL % (BULK): 4MAX LBS/DELAY: 923 AVERAGE LBS/HOLE: 297POWDER FACTOR (TONS/LB): 1.95 POWDER FACTOR POUNDS/YD3: 1.03BLASTERS NAME: Farmer, Jimmie BLASTERS NUMBER & STATE: 1-035-0748 ColoradoBLASTERS SIGNATURE: [Signature] SITE SAFETY INSPECTION PERFORMED: YesNUMBER OF PERSONNEL ON SITE: 4REMARKS : Bradley profiled the face Holding 13.5 ave main shot at 9,5' Shot looked good 12' back break.

START TIME	END TIME	TOTAL TIME	TRUCK NUMBERS
7:30 AM	10:20 AM	02:50	266



7800 N. MOORE ROAD
LITTLETON, CO. 80125
303-791-1229

№ 7403183

[illegible]

THIS IS TO CERTIFY THAT THE ABOVE-NAMED MATERIALS WERE RECEIVED IN GOOD CONDITION. I HAVE REVIEWED THE TYPE AND THE AMOUNT AND I AGREE THAT IT MATCHES THE AMOUNTS ON THIS PAPERWORK. I HAVE RECEIVED A COPY OF THE PRODUCT MSDS SHEETS FOR THESE PRODUCTS. I UNDERSTAND THEIR WARNING AND I WILL FOLLOW THEIR INSTRUCTIONS.

RECEIVER—CONSIGNEE
SIGNATURE

BUYER ASSUMES ALL RISK AND LIABILITY FOR RESULTS OBTAINED BY THE USE OF THE MATERIAL COVERED BY THIS ORDER. BUYER ACKNOWLEDGES THAT THERE MAY BE FEDERAL AND/OR STATE LAWS REGULATING THE USE AND/OR POSSESSIONS OF THE MATERIALS COVERED BY THIS ORDER AND BUYER ASSUMES FULL RESPONSIBILITY FOR COMPLIANCE WITH SAID LAWS.

Bill to if different:

Address:

Seismic Analysis

Velocity Waveform Analysis

Serial Number: 9835
 Firmware Version: 0C-06.05
 Event Date: 11/15/2016 10:05:44 (UTC -07:00)
 Event number: 1
 Recording Time: 5 s
 Client: Martin Marietta
 Operation: Red Canyon Quarry
 Location: North Hill Side
 Distance:
 Operator: Vibra Tech
 Comment: Pueblo, Colorado
 Seismic Trigger: 0.02 in/s
 Sound Trigger: 133 dB

Additional Info:

j-GEO-16060
 N38 36 22 W104 56 31

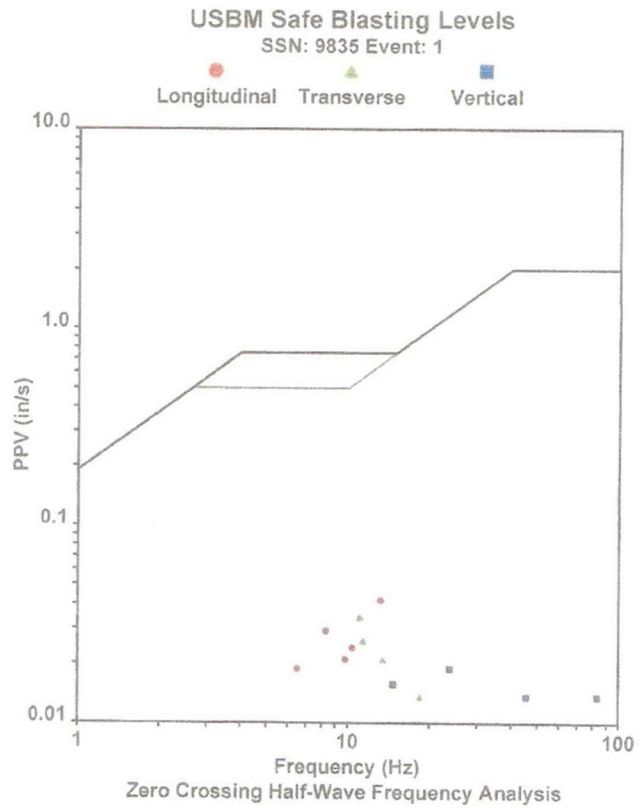
Summary Data

	L	T	V
PPV (in/s):	0.04	0.033	0.018
FREQ (HZ):	13.2	10.4	16.7
PD (.001"):	0.48	0.52	0.29
PPA (g):	0.02	0.013	0.013

Peak Vector Sum: 0.043 in/s
 Peak Air Pressure: 126 dB
 0.0059 psi @ 4.4 HZ

Shaketable Calibrated

On: 10/21/2016 (UTC -07:00)
 By: Vibra-Tech, Inc.
 2700 Holloway Road - Suite 113
 Louisville, KY 40203 U.S.A.

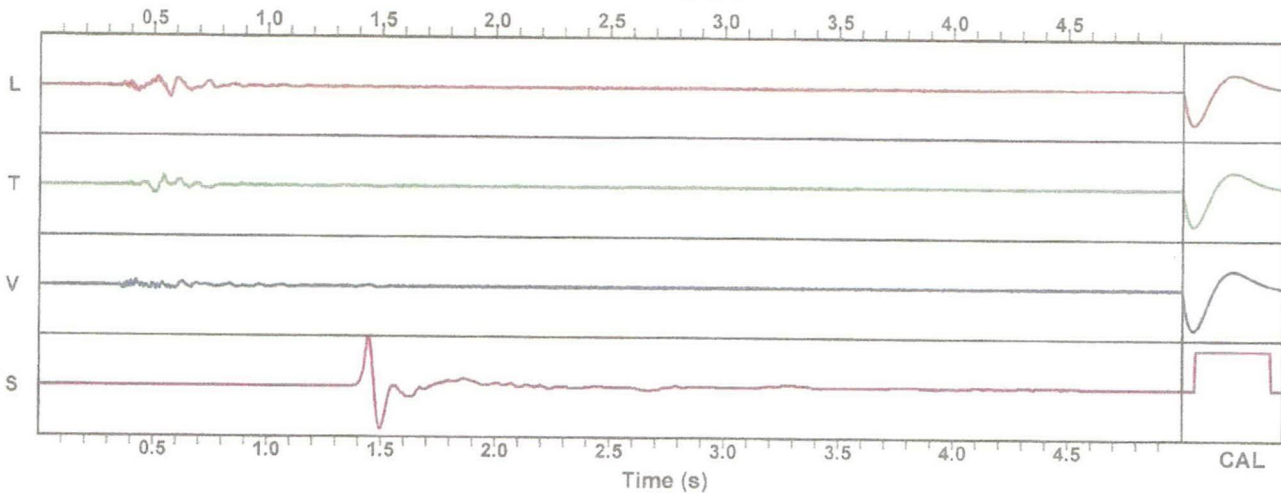


Waveform Graph Scale

Time Scale: 0.1 s
 Seismic Scale: +/- 0.16 in/s
 Sound Scale: +/- 0.0059 psi

Velocity Waveform

SSN: 9835 Event: 1



Buckley Powder Co.

CUSTOMER NAME: RED CANYON

BENCH: Level 1

BLASTER'S NAME: Farmer, Jimmie

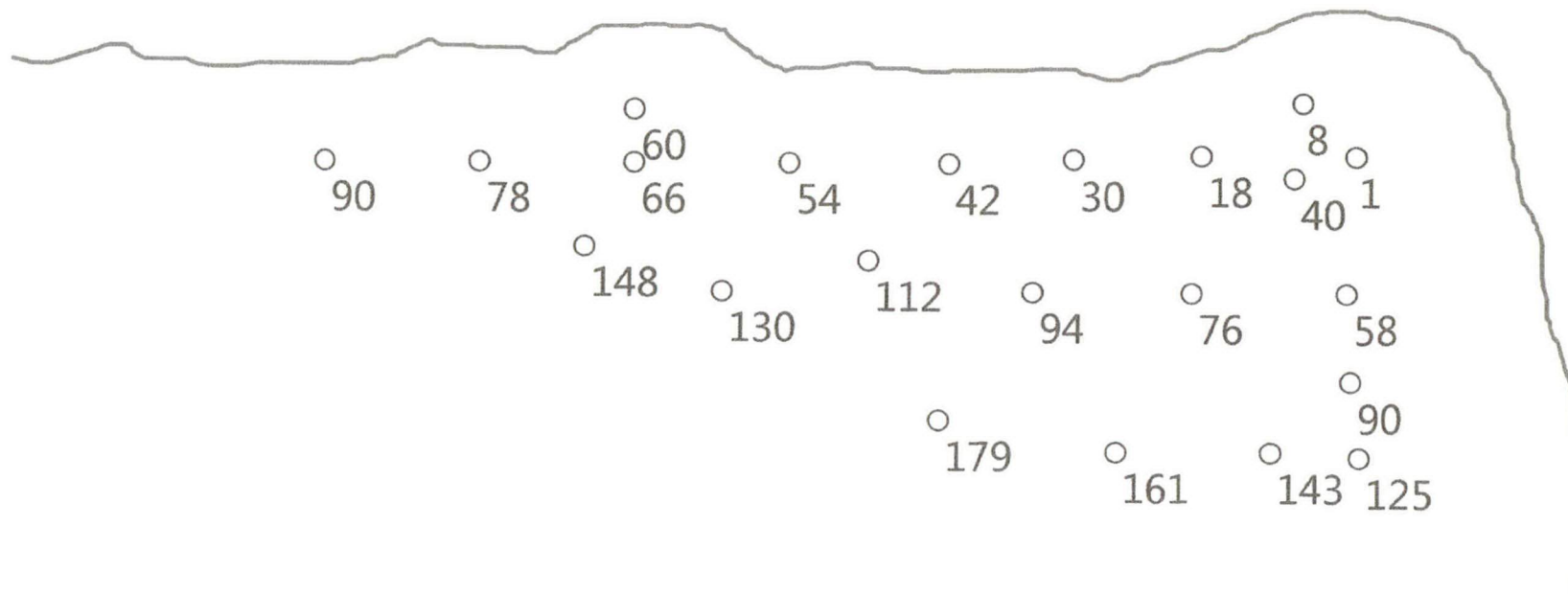
DIAGRAM

BLAST DATE: 11/15/2016

BLAST NUMBER: 10



081



Shot: 10

Bench: Level 1

Customer: MARTIN MARIETTA MATERIALS

Site: Louviers

Load Sheet Report



Mine: RED CANYON	Shot: 10	Date: 11/15/2016	Time: 10:05AM
Blaster: Farmer, Jimmie	License: 1-035-0748	Material: Granite	Holes: 22
Diameter: 5	Burden: 13	Spacing: 15	Primers: 44
Exp. Vibration: 0.42 I.P.S.	Fr. Burden: 13	Fr. Spacing: 15	Total Exp.: 6,530
Fuel: 272	AN: 4,268	ANFO: 4,540	Emulsion: 1,946
Depth: 44	YD3: 6,356 Tons: 12,711	P.F. 1.95	Gal / Fuel: 39
Max lbs / 8ms: 923	Holes / 8ms: 3.00	Location: N 038 36 22.86000	& W-104 56 46.9800
Temperature: 67	Wind Dir: Northeast	Wind Speed: 2.00	Ceiling: High
Conditions: Partly Cloudy	Method of Detonation: Electronic		
Pre-Blast Inspection Performed: ☒ Yes / ☐ No	Initiation: Electronic		
Load Started: 7:30 AM	Load Ended: 10:20 AM	Total Load Time: 02:50	
Comments: Bradley profiled the face Holding 13.5 ave main shot at 9,5' Shot looked good 12' back break.			

Crew

Name	Hours	Name	Hours

Trucks Used: 266

Inventory

Description	Date Code	Out	Description	Date Code	Out
SPARTAN 450SR	14AU16	43	DIGISHOT 30 FT	12SE16	21
DIGISHOT DETONATOR 50FT	19SE16	22			

Services

Service	Quantity	Service	Quantity

Product Totals

Product	Total
BLEND EMUL/ANFO 30/70	6,486.340
SPARTAN 450SR	44

Hole ID	Comment	Penetration Rate (ft/hr)											
		Steel 1				Steel 2				Steel 3			
		1-2	3-4	5-7	8+	1-2	3-4	5-7	8+	1-2	3-4	5-7	8+
1	12' Deep			X									
2			2-3				2-3				2-3		
3			X				X				X		
4				X			X				2-3		
5				X			X					X	
6			X				X				X		
7				X			X				X		
8				X			X				X		
9			X				X				2-3		
10			X				X				2-3		
11	1st Steel Blowing out Backing			X			X				2-3		
12	Blowing out			X			X				2-3		
13				X			X				X		
14				X			4-5				X		
15	Blowing out Hole #12				X		X				2-3		
16				X			2-3				X		
17			X				X				X		
18			X				4-5				2-3		
19				X			X				X		
20	Blowing out #15			X			2-3				2-3		
21			X				X				X		
22				X			X				X		

Zero water in all holes as of 11-10-16
venting only on 1st steel for all holes noted

Zero water in all holes as of 11-10-16
venting only on 1st steel for all holes noted.

All holes 4" except stab hole

MARTIN / MARIETTA
RED CANYON QUARRY

11/8/16

22 HOLES

- CORRECTION SHOT -

BENCH 4

