

Buckley Powder Co.

BLAST REPORT



SERVICE SITE LOCATION: Louviers ORDER NO.: D7403826

BLAST NUMBER: #3-04-2018 BLAST TIME: 12:36 pm BLAST DATE: 04/03/2018
 CUSTOMER: MARTIN MARIETTA MINE: RED CANYON ADDRESS: Colorado Springs, CO
 ROCK TYPE: Granite Tons/Yd3: 2.20 EXPECTED VIBRATION: 0.000 IPS

LOCATION OF BLAST

LOCATION OF BLAST IN MINE: North BENCH: Bench 6
 BLAST GPS POINTS: N 038 36 29.22000 & W -104 56 45.18000

WEATHER

WEATHER: Clear CEILING: High TEMPERATURE: 33 F WIND DIRECTION & SPEED: North 5 MPH

NEAREST NON-OWNED STRUCTURE

NAME: North Hillside GPS Points: N 038 36 22.41000 & W -104 56 31.21980
 DISTANCE: 1,304 (FT) DIRECTION: 121°

SEISMOGRAPH DATA

LOCATION		DISTANCE		GPS POINTS			CALIBRATION DATE	
1	North Hillside	1,304 (FT)		N 038 36 22.41000 & W -104 56 31.21980			09/02/2017	
	L (F) T (F)	V (F)		AIR (db)	SEISMOGRAPH	SERIAL	OPERATOR	
1	0.025 11.6 0.025 8.9	0.018 9.6		114	VibraTech 7816	7816		

BLAST DATA

NUMBER OF HOLES (EA)	90	EXPLOSIVES SIZE, TYPE & WEIGHT			
HOLE DIAMETER (IN)	4.5	SIZE	TYPE	WEIGHT	
HOLE DEPTH (FT)	35.5	0.75	SPARTAN 350SR	132	
FACE HEIGHT (FT)	32.5	BULK	TITAN 1000 XL	17,360	
SUB DRILLING (FT)	3				
AVG. STEM FACE HOLES (FT)	13.889				
STEM OTHER HOLES (FT)	12.476				
BURDEN FRONT ROW (FT)	13 - 15				
BURDEN OTHER ROWS (FT)	13				
SPACING FRONT ROW (FT)	13 - 15				
SPACING OTHER ROWS (FT)	15				
				TOTAL WEIGHT (LB):	17,492

DETONATORS USED IN BLAST: Electronic MATS USED: No STEM TYPE: 3/4 x 1/2 CRUSHED TOTAL DRILL DEPTH: 3,195 (FT)

TYPE	MFG	DATE CODE	USED	TYPE	MFG	DATE CODE	USED
DIGISHOT DETONATOR 50FT	Dyno Nobel Global	26FE18	180	SPARTAN 350SR	Dyno Nobel Global	13AU17	180

CU YDS IN SHOT: 21,125 SCALED DISTANCE FACTOR: 46 % OF ANFO: 0

TONS IN SHOT: 46,475 HOLES/DELAY: 4 FUEL OIL % (BULK): 0

MAX LBS/DELAY: 780 AVERAGE LBS/HOLE: 195

POWDER FACTOR (TONS/LB): 2.66 POWDER FACTOR POUNDS/YD3: 0.83

BLASTERS NAME: Farmer, Jimmie BLASTERS NUMBER & STATE: 1-035-0748 Colorado

BLASTERS SIGNATURE: *Jimmie Farmer* SITE SAFETY INSPECTION PERFORMED: Yes

NUMBER OF PERSONNEL ON SITE: 5

REMARKS : We had one hole blocked after it was primed we got both boosters out and tried to knock the rock down with loading poles but it would not move. Row 8 hole 11 this is on the back row. The shot looked very good. nice breakage

START TIME	END TIME	TOTAL TIME	TRUCK NUMBERS
8:45 AM	10:45 AM	02:00	5013

APPENDIX A

Date: 4-3-2018

Location: mm Red Canyon

shot #: 3



BLASTER'S CHECKLIST

Must be filled out as you go!

PRE-TRIP CHECKLIST

yes / no / NA	
<input checked="" type="checkbox"/>	Measuring Tapes and lead ends
<input checked="" type="checkbox"/>	Burden pole Tape/ Profiler
<input checked="" type="checkbox"/>	Loading Poles
<input checked="" type="checkbox"/>	Marking Paint
<input checked="" type="checkbox"/>	Starter and primers
<input checked="" type="checkbox"/>	Blasting Signs & cones
<input checked="" type="checkbox"/>	Sirens in working order
<input checked="" type="checkbox"/>	Set back stakes
<input checked="" type="checkbox"/>	Digital video camera & Tripod

yes / no / NA

yes / no / NA	
<input checked="" type="checkbox"/>	Scientific Calculator
<input checked="" type="checkbox"/>	Pocket Mirror
<input checked="" type="checkbox"/>	Empty Shot bags
<input checked="" type="checkbox"/>	Powder Punch
<input checked="" type="checkbox"/>	GPS
<input checked="" type="checkbox"/>	Non sparking Knife
<input checked="" type="checkbox"/>	Wire strippers
<input checked="" type="checkbox"/>	Splices
<input checked="" type="checkbox"/>	Flash Light & Batteries

yes / no / NA

yes / no / NA	
<input checked="" type="checkbox"/>	Drill Logs
<input checked="" type="checkbox"/>	Shot reports
<input checked="" type="checkbox"/>	Hold Harmlesses
<input checked="" type="checkbox"/>	Seismographs
<input checked="" type="checkbox"/>	Density Cup and Scales
<input checked="" type="checkbox"/>	Two Way Radios / fully
<input checked="" type="checkbox"/>	Wheel Chocks
<input checked="" type="checkbox"/>	Harness & Lanyard / "T" post
<input checked="" type="checkbox"/>	First Aid Kits

PRESHIFT CHECKLIST

yes / no / NA	
<input checked="" type="checkbox"/>	Inspect blast area for Unsafe Working Conditions (including face) for voids, cracks, caves, etc..
<input checked="" type="checkbox"/>	Ensure all employees have their site specific training.
<input checked="" type="checkbox"/>	Secure blast site with warning signs and cones (including floor in front of face)
<input checked="" type="checkbox"/>	Check shot access including traffic activity
<input checked="" type="checkbox"/>	Pre shift inspections on all equipment -OK and safe to operate (includes back up alarms, brakes, horns, etc..)
<input checked="" type="checkbox"/>	Mark fall zone area at least six(6) feet from the crest
<input checked="" type="checkbox"/>	Inspect Harness/ Lanyard <i>before each use</i> if needed for fall zone or on top of trucks
<input checked="" type="checkbox"/>	Insure all needed products are present-enough boosters, detonators etc
<input checked="" type="checkbox"/>	Calculate Minimum Burden and Measure front row burden with burden pole or profiler (Document)
<input checked="" type="checkbox"/>	Check drill log and all holes for proper depth and blockage
<input checked="" type="checkbox"/>	Insure blast design is consistent with closest structures requirements
<input checked="" type="checkbox"/>	Any need for calling assistance (Hold Harmless, equipment to close, drilling problems, etc...)
<input checked="" type="checkbox"/>	Conduct pre-blast safety meeting with blast crew. <i>if there is not a timing diagram, detonator tie-in must be discussed at the</i>
	Calculate pounds per delay: Expl density x expl diam ² x .3405 = _____ lbs/ ft x avg powder column= _____
	lbs/hole x expected _____ holes / delay = _____ lbs/delay
	Calculate scale distance: 1) Distance _____ 2) divided by lbs/delay _____ 3) hit square root then equals _____ =S.D. (4)
	Calculate expected vibration: S.D.(4) _____ Push 1/x on calculator. Push (yx) key then 1.6 hit equals x 100 = _____ exp. vib.

TIE-IN CHECKLIST

yes / no / NA	
<input checked="" type="checkbox"/>	Shot tie inspected and signed off by two persons prior to shot including lead line <i>(include names below)</i>
	<u>JA</u> <u>Luke Towsy</u>
<input checked="" type="checkbox"/>	Blast area is cleared and blocked before attaching starter cap and lead line
<input checked="" type="checkbox"/>	Blaster in charge in communication with all guards at this time
<input checked="" type="checkbox"/>	Blaster in charge will insure blast area has been cleared and guarded before the siren is sounded
<input checked="" type="checkbox"/>	After proper waiting time blaster in charge will contact all guards before firing blast
<input checked="" type="checkbox"/>	Seismograph located at nearest off site structure or at the Property Line related to nearest off-site
<input checked="" type="checkbox"/>	Video Recording Made of Shot

POST BLAST CHECKLIST

yes / no / NA	
<input checked="" type="checkbox"/>	Maintain guards until shot is cleared and "all clear" is sounded
<input checked="" type="checkbox"/>	Check for misfires, undetonated explosives or burning product and other dangers
<input checked="" type="checkbox"/>	Sound all clear that is audible to all parties
<input checked="" type="checkbox"/>	Dispose of lead line in approved manner
<input checked="" type="checkbox"/>	Dispose of empty boxes in approved methods only
<input checked="" type="checkbox"/>	Complete all required paper work prior to leaving customer location- shipping Papers, delivery ticket, Blaster's
<input checked="" type="checkbox"/>	Make one final check of blast site before leaving property to insure no materials have been left
<input checked="" type="checkbox"/>	and that no hazards are present that may have been missed during clearing process

Must completed and turned in daily- end of shift

Blaster In Charge

JD. Farmer

Seismic Analysis Velocity Waveform Analysis

Serial Number: 7816
Firmware Version: 0C-06.05
Event Date: 04/03/2018 12:36:37 (UTC -06:00)
Event number: 7
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

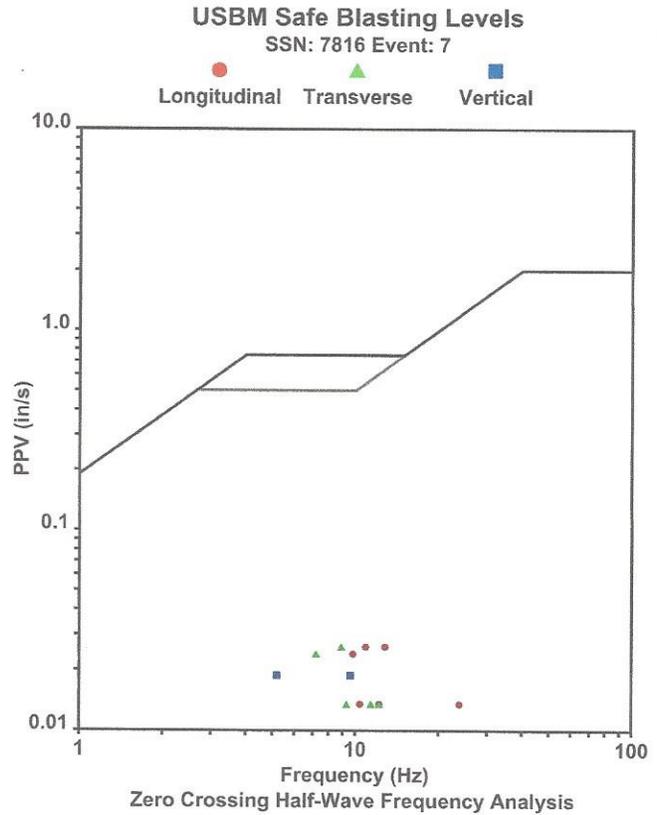
Summary Data

	L	T	V
PPV (in/s):	0.025	0.025	0.018
FREQ (HZ):	11.6	8.9	9.6
PD (.001"):	0.38	0.47	0.34
PPA (g):	0.013	0.013	0.013

Peak Vector Sum: 0.035 in/s
Peak Air Pressure: 114 dB
 0.0016 psi @ 8.8 HZ

Shaketable Calibrated

On: 09/02/2017 (UTC -06:00)
By: Vibra-Tech, Inc.
 2700 Holloway Road - Suite 113
 Louisville, KY 40203 U.S.A.

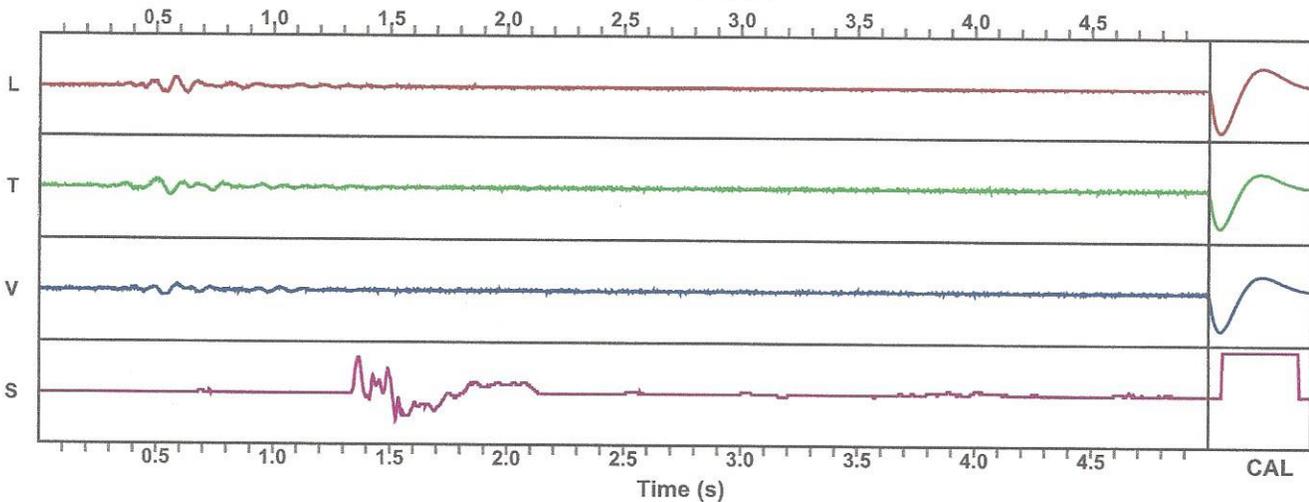


Waveform Graph Scale

Time Scale: 0.1 s
Seismic Scale: +/- 0.16 in/s
Sound Scale: +/- 0.0023 psi

Velocity Waveform

SSN: 7816 Event: 7



Shot: #3-04-2018

Bench: Bench 6

Customer: MARTIN MARIETTA

Site: Louviers

Load Sheet Report



Mine: RED CANYON	Shot: #3-04-2018	Date: 4/3/2018	Time: 12:36PM
Blaster: Farmer, Jimmie	License: 1-035-0748	Material: Granite	Holes: 90
Diameter: 4.5 (IN)	Burden: 13 (FT)	Spacing: 15 (FT)	Primers: 176
Exp. Vibration: 0.00 IPS	Fr. Burden: 13 (FT)	Fr. Spacing: 15 (FT)	Total Exp.: 17,492 (LB)
Fuel: 0 (LB)	AN: 0 (LB)	ANFO: 0 (LB)	Emulsion: 17,360 (LB)
Depth: 35.5 (FT)	YD3: 21,125	Tons: 46,475	Tons/Lb: 2.66
			Gallons of Fuel: 0
Max Lbs/Delay: 780 (LB)	Holes / 8ms: 4	Location: N 038 36 29.22000	& W-104 56 45.1800
Temperature: 33° F	Wind Dir: North	Wind Speed: 5 MPH	Ceiling: High
Conditions: Clear	Method of Detonation: Electronic		
Pre-Blast Inspection Performed: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No	Initiation: Remote		
Load Started: 8:45 AM	Load Ended: 10:45 AM	Total Load Time: 02:00	
Comments: We had one hole blocked after it was primed we got both boosters out and tried to knock the rock down with loading poles but it would not move. Row 8 hole 11 this is on the back row. The shot looked very good. nice breakage			

Crew

Name	Hours	Name	Hours
Anthony Archuleta	4	Garry McCulley	4
Luke Reel	4	Rod Schuch	4
Thomas Stocker	4		

Trucks Used: 5013

Inventory

Description	Date Code	Out	Description	Date Code	Out
SPARTAN 350SR	13AU17	180	DIGISHOT DETONATOR 50FT	26FE18	180

Services

Service	Quantity	Service	Quantity
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Product Totals

Product	Total (LB)
SPARTAN 350SR	132
TITAN 1000 XL	17,360

Row	Col	Depth	Rise	Stem	Wet?	Product	Hole Total (LB)
A	1	35.5	20.5	15	No	SPARTAN 350SR	1.5
A	1	35.5	20.5	15	No	TITAN 1000 XL	175
A	2	35.5	20.5	15	No	SPARTAN 350SR	1.5
A	2	35.5	20.5	15	No	TITAN 1000 XL	175
A	3	35.5	20.5	15	No	SPARTAN 350SR	1.5
A	3	35.5	20.5	15	No	TITAN 1000 XL	175
A	4	35.5	20.5	15	No	SPARTAN 350SR	1.5
A	4	35.5	20.5	15	No	TITAN 1000 XL	175
A	5	35.5	20.5	15	No	SPARTAN 350SR	1.5
A	5	35.5	20.5	15	No	TITAN 1000 XL	175
A	6	35.5	20.5	15	No	SPARTAN 350SR	1.5
A	6	35.5	20.5	15	No	TITAN 1000 XL	175
B	1	35.5	20.5	15	No	SPARTAN 350SR	1.5
B	1	35.5	20.5	15	No	TITAN 1000 XL	175
B	2	35.5	20.5	15	No	SPARTAN 350SR	1.5
B	2	35.5	20.5	15	No	TITAN 1000 XL	175
B	3	35.5	20.5	15	No	SPARTAN 350SR	1.5
B	3	35.5	20.5	15	No	TITAN 1000 XL	175
B	4	35.5	20.5	15	No	SPARTAN 350SR	1.5
B	4	35.5	20.5	15	No	TITAN 1000 XL	175
B	5	35.5	20.5	15	No	SPARTAN 350SR	1.5
B	5	35.5	20.5	15	No	TITAN 1000 XL	175
B	6	35.5	20.5	15	No	SPARTAN 350SR	1.5
B	6	35.5	20.5	15	No	TITAN 1000 XL	175
B	7	35.5	20.5	15	No	SPARTAN 350SR	1.5
B	7	35.5	20.5	15	No	TITAN 1000 XL	175
C	1	35.5	23.5	12	No	SPARTAN 350SR	1.5
C	1	35.5	23.5	12	No	TITAN 1000 XL	211.981
C	2	35.5	23.5	12	No	SPARTAN 350SR	1.5
C	2	35.5	23.5	12	No	TITAN 1000 XL	211.981
C	3	35.5	23.5	12	No	SPARTAN 350SR	1.5
C	3	35.5	23.5	12	No	TITAN 1000 XL	211.981
C	4	35.5	23.5	12	No	SPARTAN 350SR	1.5
C	4	35.5	23.5	12	No	TITAN 1000 XL	211.981
C	5	35.5	23.5	12	No	SPARTAN 350SR	1.5
C	5	35.5	23.5	12	No	TITAN 1000 XL	211.981
C	6	35.5	23.5	12	No	SPARTAN 350SR	1.5
C	6	35.5	23.5	12	No	TITAN 1000 XL	211.981
C	7	35.5	23.5	12	No	SPARTAN 350SR	1.5
C	7	35.5	23.5	12	No	TITAN 1000 XL	211.981
C	8	35.5	23.5	12	No	SPARTAN 350SR	1.5

C	8	35.5	23.5	12	No	TITAN 1000 XL	211.981
C	9	35.5	23.5	12	No	SPARTAN 350SR	1.5
C	9	35.5	23.5	12	No	TITAN 1000 XL	211.981
C	10	35.5	23.5	12	No	SPARTAN 350SR	1.5
C	10	35.5	23.5	12	No	TITAN 1000 XL	211.981
C	11	35.5	23.5	12	No	SPARTAN 350SR	1.5
C	11	35.5	23.5	12	No	TITAN 1000 XL	211.981
C	12	35.5	20.5	15	No	SPARTAN 350SR	1.5
C	12	35.5	20.5	15	No	TITAN 1000 XL	175
C	13	35.5	20.5	15	No	SPARTAN 350SR	1.5
C	13	35.5	20.5	15	No	TITAN 1000 XL	175
C	14	35.5	20.5	15	No	SPARTAN 350SR	1.5
C	14	35.5	20.5	15	No	TITAN 1000 XL	175
D	1	35.5	23.5	12	No	SPARTAN 350SR	1.5
D	1	35.5	23.5	12	No	TITAN 1000 XL	211.981
D	2	35.5	23.5	12	No	SPARTAN 350SR	1.5
D	2	35.5	23.5	12	No	TITAN 1000 XL	211.981
D	3	35.5	23.5	12	No	SPARTAN 350SR	1.5
D	3	35.5	23.5	12	No	TITAN 1000 XL	211.981
D	4	35.5	23.5	12	No	SPARTAN 350SR	1.5
D	4	35.5	23.5	12	No	TITAN 1000 XL	211.981
D	5	35.5	23.5	12	No	SPARTAN 350SR	1.5
D	5	35.5	23.5	12	No	TITAN 1000 XL	211.981
D	6	35.5	23.5	12	No	SPARTAN 350SR	1.5
D	6	35.5	23.5	12	No	TITAN 1000 XL	211.981
D	7	35.5	23.5	12	No	SPARTAN 350SR	1.5
D	7	35.5	23.5	12	No	TITAN 1000 XL	211.981
D	8	35.5	23.5	12	No	SPARTAN 350SR	1.5
D	8	35.5	23.5	12	No	TITAN 1000 XL	211.981
D	9	35.5	23.5	12	No	SPARTAN 350SR	1.5
D	9	35.5	23.5	12	No	TITAN 1000 XL	211.981
D	10	35.5	20.5	15	No	SPARTAN 350SR	1.5
D	10	35.5	20.5	15	No	TITAN 1000 XL	175
D	11	35.5	20.5	15	No	SPARTAN 350SR	1.5
D	11	35.5	20.5	15	No	TITAN 1000 XL	175
D	12	35.5	20.5	15	No	SPARTAN 350SR	1.5
D	12	35.5	20.5	15	No	TITAN 1000 XL	175
E	1	35.5	23.5	12	No	SPARTAN 350SR	1.5
E	1	35.5	23.5	12	No	TITAN 1000 XL	211.981
E	2	35.5	23.5	12	No	SPARTAN 350SR	1.5
E	2	35.5	23.5	12	No	TITAN 1000 XL	211.981
E	3	35.5	23.5	12	No	SPARTAN 350SR	1.5
E	3	35.5	23.5	12	No	TITAN 1000 XL	211.981

E	4	35.5	23.5	12	No	SPARTAN 350SR	1.5
E	4	35.5	23.5	12	No	TITAN 1000 XL	211.981
E	5	35.5	23.5	12	No	SPARTAN 350SR	1.5
E	5	35.5	23.5	12	No	TITAN 1000 XL	211.981
E	6	35.5	23.5	12	No	SPARTAN 350SR	1.5
E	6	35.5	23.5	12	No	TITAN 1000 XL	211.981
E	7	35.5	23.5	12	No	SPARTAN 350SR	1.5
E	7	35.5	23.5	12	No	TITAN 1000 XL	211.981
E	8	35.5	23.5	12	No	SPARTAN 350SR	1.5
E	8	35.5	23.5	12	No	TITAN 1000 XL	211.981
E	9	35.5	23.5	12	No	SPARTAN 350SR	1.5
E	9	35.5	23.5	12	No	TITAN 1000 XL	211.981
E	10	35.5	23.5	12	No	SPARTAN 350SR	1.5
E	10	35.5	23.5	12	No	TITAN 1000 XL	211.981
E	11	35.5	20.5	15	No	SPARTAN 350SR	1.5
E	11	35.5	20.5	15	No	TITAN 1000 XL	175
E	12	35.5	20.5	15	No	SPARTAN 350SR	1.5
E	12	35.5	20.5	15	No	TITAN 1000 XL	175
E	13	35.5	20.5	15	No	SPARTAN 350SR	1.5
E	13	35.5	20.5	15	No	TITAN 1000 XL	175
F	1	35.5	23.5	12	No	SPARTAN 350SR	1.5
F	1	35.5	23.5	12	No	TITAN 1000 XL	211.981
F	2	35.5	23.5	12	No	SPARTAN 350SR	1.5
F	2	35.5	23.5	12	No	TITAN 1000 XL	211.981
F	3	35.5	23.5	12	No	SPARTAN 350SR	1.5
F	3	35.5	23.5	12	No	TITAN 1000 XL	211.981
F	4	35.5	23.5	12	No	SPARTAN 350SR	1.5
F	4	35.5	23.5	12	No	TITAN 1000 XL	211.981
F	5	35.5	23.5	12	No	SPARTAN 350SR	1.5
F	5	35.5	23.5	12	No	TITAN 1000 XL	211.981
F	6	35.5	23.5	12	No	SPARTAN 350SR	1.5
F	6	35.5	23.5	12	No	TITAN 1000 XL	211.981
F	7	35.5	23.5	12	No	SPARTAN 350SR	1.5
F	7	35.5	23.5	12	No	TITAN 1000 XL	211.981
F	8	35.5	23.5	12	No	SPARTAN 350SR	1.5
F	8	35.5	23.5	12	No	TITAN 1000 XL	211.981
F	9	35.5	23.5	12	No	SPARTAN 350SR	1.5
F	9	35.5	23.5	12	No	TITAN 1000 XL	211.981
F	10	35.5	23.5	12	No	SPARTAN 350SR	1.5
F	10	35.5	23.5	12	No	TITAN 1000 XL	211.981
F	11	35.5	23.5	12	No	SPARTAN 350SR	1.5
F	11	35.5	23.5	12	No	TITAN 1000 XL	211.981
F	12	35.5	23.5	12	No	SPARTAN 350SR	1.5

F	12	35.5	23.5	12	No	TITAN 1000 XL	211.981
F	13	35.5	20.5	15	No	SPARTAN 350SR	1.5
F	13	35.5	20.5	15	No	TITAN 1000 XL	175
G	1	35.5	23.5	12	No	SPARTAN 350SR	1.5
G	1	35.5	23.5	12	No	TITAN 1000 XL	211.981
G	2	35.5	23.5	12	No	SPARTAN 350SR	1.5
G	2	35.5	23.5	12	No	TITAN 1000 XL	211.981
G	3	35.5	23.5	12	No	SPARTAN 350SR	1.5
G	3	35.5	23.5	12	No	TITAN 1000 XL	211.981
G	4	35.5	23.5	12	No	SPARTAN 350SR	1.5
G	4	35.5	23.5	12	No	TITAN 1000 XL	211.981
G	5	35.5	23.5	12	No	SPARTAN 350SR	1.5
G	5	35.5	23.5	12	No	TITAN 1000 XL	211.981
G	6	35.5	23.5	12	No	SPARTAN 350SR	1.5
G	6	35.5	23.5	12	No	TITAN 1000 XL	211.981
G	7	35.5	23.5	12	No	SPARTAN 350SR	1.5
G	7	35.5	23.5	12	No	TITAN 1000 XL	211.981
G	8	35.5	23.5	12	No	SPARTAN 350SR	1.5
G	8	35.5	23.5	12	No	TITAN 1000 XL	211.981
G	9	35.5	23.5	12	No	SPARTAN 350SR	1.5
G	9	35.5	23.5	12	No	TITAN 1000 XL	211.981
G	10	35.5	23.5	12	No	SPARTAN 350SR	1.5
G	10	35.5	23.5	12	No	TITAN 1000 XL	211.981
G	11	35.5	23.5	12	No	SPARTAN 350SR	1.5
G	11	35.5	23.5	12	No	TITAN 1000 XL	211.981
G	12	35.5	20.5	15	No	SPARTAN 350SR	1.5
G	12	35.5	20.5	15	No	TITAN 1000 XL	175
H	1	35.5	20.5	15	No	SPARTAN 350SR	1.5
H	1	35.5	20.5	15	No	TITAN 1000 XL	175
H	2	35.5	20.5	15	No	SPARTAN 350SR	1.5
H	2	35.5	20.5	15	No	TITAN 1000 XL	175
H	3	35.5	20.5	15	No	SPARTAN 350SR	1.5
H	3	35.5	20.5	15	No	TITAN 1000 XL	175
H	4	35.5	20.5	15	No	SPARTAN 350SR	1.5
H	4	35.5	20.5	15	No	TITAN 1000 XL	175
H	5	35.5	20.5	15	No	SPARTAN 350SR	1.5
H	5	35.5	20.5	15	No	TITAN 1000 XL	175
H	6	35.5	20.5	15	No	SPARTAN 350SR	1.5
H	6	35.5	20.5	15	No	TITAN 1000 XL	175
H	7	35.5	20.5	15	No	SPARTAN 350SR	1.5
H	7	35.5	20.5	15	No	TITAN 1000 XL	175
H	8	35.5	20.5	15	No	SPARTAN 350SR	1.5
H	8	35.5	20.5	15	No	TITAN 1000 XL	175

H	9	35.5	20.5	15	No	SPARTAN 350SR	1.5
H	9	35.5	20.5	15	No	TITAN 1000 XL	175
H	10	35.5	20.5	15	No	SPARTAN 350SR	1.5
H	10	35.5	20.5	15	No	TITAN 1000 XL	175
H	11	35.5	20.5	15	No	SPARTAN 350SR	1.5
H	11	35.5	20.5	15	No	TITAN 1000 XL	175
I	1	35.5	35.5	0	No		0
I	2	35.5	35.5	0	No		0

Seismic Analysis Stop Event Report

Serial Number: 10696 0C-06.05
Client: Martin Marietta
Operation: Red Canyon Quarry
Location: Front Entrance
Operator: Vibra Tech
Comment:

Begin Date: 04/03/2018 05:00:58 (UTC -06:00)
End Date: 04/03/2018 22:00:00 (UTC -06:00)
Events Over Trigger: 0
Record Time: 5 s
Seismic Trigger: 0.02 in/s
Sound Trigger: 133 dB
Battery: 8.3 volts

Additional Info:

j-GEO-16222
N38 36 04 W104 56 59

Shaketable Calibrated:
On: 04/13/2017 (UTC -06:00)
By: Vibra-Tech, Inc.
2700 Holloway Road - Suite 113
Louisville, KY 40203 U.S.A.

Dynamic Calibration Graph:



STATE OF
COLORADO

Cazier - DNR, Tim <tim.cazier@state.co.us>

Blasting Report for shot #3 / 4-2018

1 message

Wayne Stoughton <Wayne.Stoughton@martinmarietta.com>
To: "Cazier - DNR, Tim" <tim.cazier@state.co.us>

Wed, Apr 4, 2018 at 7:16 AM

Good Morning Tim,

Here is the Blast Report for the shot we put off yesterday at the North end of the pit. We had one Seismograph trigger on this shot. It was the one on the hill side below Mr. Bishop's home. I included the Trigger report for the seismograph that didn't trigger at the entrance to the quarry for your records. Any questions please feel free to give me a call.

Wayne Stoughton

Manager, Red Canyon Quarry| Rocky Mountain Agg District

Martin Marietta

3131 Barrett Road, Colorado Springs, CO 80926

t. (719) 629-8372

e. wayne.stoughton@martinmarietta.comwww.martinmarietta.com

2 attachments**Blast Report for shot #3 4-2018.pdf**

5021K

**pd11_uCUctU.pdf**

5K